SPECIFICATION MANUAL

For

NIEMANN FOODS, INC.

Perk Coffee
Macon, MO

Project Manual
Issue for Bid / Permit

August 20, 2021

Prepared By

DBS GROUP

BREAKING NEW GROUND IN CONSTRUCTION.

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Bid Form

Project Name: Perk Coffee

Project Address: 1600 Block N. Missouri St
Macon, Mo 63552

Bid Due Date/Time: See Bid Invitation
DBS Group Contact: Jason Steffeud
Phone: 608-881-6007
Fax: 888-881-6134
Email: bids@dbsg.com

Bid Scope #: _____

Company Name: _____

Address: _____

City:

State: _____ Zip: _____

Contact: _____

Signature: _____

Phone #: _____

Fax #: _____

E-mail: _____

Mobile/Cell: _____

Check Applicable

Tax Included ☐

Tax Excluded ☐

Acknowledge Schedule

Yes ☐

No ☐

Acknowledge Addemdum(s)

Date:

Date:

Date:

Date:

Base Bid _____

Vol. Alternate _____

Vol. Alternate Description: _____

_____

_____

_____

_____

***All bids submitted to DBS Group via fax or email.**

EXHIBIT B
PROJECT DRAWINGS / SPECIFICATIONS

Project # 20065

ISSUED FOR BID

Plans

G-001 TITLE SHEET
G-002 LIFE SAFETY – CODE REVIEW
S-000 STRUCTURAL NOTES
S-100 FOUNDATION PLAN
S-200 ROOF FRAMING PLAN
S-300 BRACED WALL PLAN
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A-200 EXTERIOR BUILDING ELEVATIONS
A-300 BUILDING SECTION
A-301 BUIDING & WALL SECTIONS
A-320 SECTION DETAILS
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Equipment Manual

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SECTION 00 1118

GENERAL REQUIREMENTS FOR ALL BID PACKAGES

PART 1. GENERAL

1.01 CONTRACT REQUIREMENTS FOR DESIGN-BUILD SCOPE OF WORK.

A. DBSG, LLC is soliciting lump sum design/build proposals for Earthwork, Site Utilities, Mechanical, Electrical, Plumbing, and Fire Protection work. All design/build subcontractors understand they are responsible to design, engineer, and install systems that meets or exceeds the performance and operational requirements of the project manual/specifications, drawings, and scope of work.

B. Includes work obviously necessary for the proper execution of each system. It is not the intent of the bidding documents to delineate or describe every detail and feature of work. No additions to this contract sum will be approved for any materials, equipment, or labor to perform work hereunder unless it can be clearly shown to be beyond the scope and intent of the drawings and specifications and absolutely essential to the proper execution of the work.

C. Engineered drawings shall be submitted to DBSG, LLC within 14 days after award of the design/build proposal. Drawings shall be submitted in electronic format with a sheet size of 36”x24”. Backgrounds will be provided by DBSG, LLC.

D. Includes a complete scope of work to properly execute the work in accordance with the project manual, drawings, and scope of work.

1.02 CONTRACT REQUIREMENTS APPLICABLE TO ALL SCOPES OF WORK.

A. Ensure on-site subcontractor’s personnel has current contract documents, to include all specifications, drawings, bid scope packages, RFIs, construction bulletins, and modifications affecting their work.

B. Includes work obviously necessary for the proper execution of each system. It is not the intent of the bidding documents to delineate or describe every detail and feature of work. No additions to this contract sum will be approved for any materials, equipment, or labor to perform work hereunder unless it can be clearly shown to be beyond the scope and intent of the drawings and specifications and absolutely essential to the proper execution of the work.

C. It is the responsibility of the Subcontractor(s) to visit the site prior to submitting a bid on this project. Subcontractor(s) understand that their contract includes work obviously necessary to complete this project.

D. Each subcontractor(s) is required to coordinate their work and clearances with other trades.

E. Subcontractor(s) acknowledges that the performance of this work must be closely interfaced with the performance of others.

F. It is understood that punctuality and compliance with agreed upon deliveries is the essence of the project.

G. Normal project work hours are Monday-Friday from 7:00 am-3:30 pm, unless otherwise agreed upon with the DBSG, LLC superintendent. Subcontractors electing to work on Saturdays and Sundays shall submit written notice to DBSG, LLC Superintendent and Project Manager 72 hours prior to the start of that particular work day.

H. Manpower shall be provided to maintain and/or accelerate the project schedule set forth by DBSG, LLC. Subcontractor specifically agrees to perform any premium time, including overtime, shiftwork, Saturdays, and out-of-sequence work if necessary to maintain the construction schedule set forth by DBSG, LLC.

I. Gasoline power engines shall not be operated in an existing facility. All powered equipment operated inside the building shall be LP or electric powered. (Remodels Only)

J. The construction entrance, storage area, and staging areas for this project shall be coordinated with the DBSG, LLC Project Superintendent. Due to the high traffic volume associated with the location, the customer parking lot shall NOT be used as a means of travel through the site, or for material deliveries.

K. A construction parking area will be established by the DBSG, LLC Superintendent and owner.

L. Do not obstruct existing access and egress from adjacent site areas or portions of the existing facility which remain operational throughout the construction period.

M. Each subcontractor shall clean-up and dispose of construction debris on a daily basis. Any cleaning not completed by Friday morning of each week shall be completed by DBSG, LLC and the expense of the responsible contractor.

N. Dumpsters will be provided by DBSG, LLC. Subcontractors shall knock down boxes, crates, and other bulky items prior to placing it in the container.

O. Temporary electric will be provided by the electrical contractor. Subcontractors are responsible to coordinate special requirements with the electrical contractor.

P. Subcontractors are required to hold weekly safety meetings and provide attendance report to the DBSG, LLC superintendent.

Q. Each subcontractor shall submit a copy of their safety program and MSDS sheets to the DBSG, LLC superintendent.

R. Storage of materials, tools, and equipment shall not be permitted on any floor to receive dyed and/or polished concrete systems. This specifically relates to the sales floor.

S. Subcontractor(s) shall provide all excavation, backfill, and compaction required to complete their scope of work. Spoils shall be hauled off-site.

T. Subcontractor(s) shall layout, coordinate, and complete the installation of all sleeves/block-outs in all interior and exterior walls as it relates to their scope of work.

U. Subcontractor(s) are required responsible to provide all layout and field measurements required to complete the scope of work related to their trade.

V. Subcontractor(s) are responsible to cut all openings in the structural deck and/or roof to complete the scope of work related to their trade.

W. Subcontractor(s) shall provide all core drilling required to complete work related to their trade.. Coring activities include core catchers, water, cleanup, protection of adjacent work and layout.

X. Subcontractor(s) is required to provide all fire topping and/or fire caulking at penetrations related their scope of work. Subcontractor(s) is also responsible to provide general caulking at penetrations related to their work.

Y. Subcontractor(s) shall provide all flashing, counter flashing, trim, escutcheons, and accessories for work related to their work.

Z. Subcontractor(s) shall be solely responsible for requesting and documentation of all inspections relating to its scope of work. Submit all completed paperwork to DBSG, LLC. Coordinate with DBSG, LLC or other authorities having jurisdiction to witness test or inspection required for this scope of work.

AA. Subcontractor(s) shall provide all offloading, handling, and hoisting of materials and equipment related to their scope of work. All deliveries shall be coordinated with DBSG, LLC superintendent. Storage and Staging areas are limited and must be arranged with the DBSG, LLC superintendent.

BB. Subcontractor(s) shall provide all required access doors related to their scope of work.

CC. Subcontractor(s) shall furnish, install, maintain, and monitor its' own ladders, scaffolding, lifts, and other equipment as applicable. All scaffolding must be anchored and tied off properly.

DD. Subcontractor(s) shall procure and pay for all applicable taxes, permits, licenses, fees, and special inspections required to complete the scope of work related to their trade.

EE. Subcontractor is responsible to meet all applicable federal, state, and local codes and regulations.

FF. Keep as-built drawings current during construction Subcontractor will be required to have DBSG, LLC Project Superintendent approve updates on a weekly basis. Progress Payment(s) will not be released until the Project Superintendent has approved the updates. All record drawings, including the specifications, shop drawings, and submittals shall be provided to DBSG, LLC within 21 days after substantial completion. As-built drawings shall be updated electronically.

GG. Subcontractors shall submit (3) hard copies and (1) electronic copy of close-out documents prior to the release of final payment and retention. This includes as-built drawings, operation and maintenance manuals, and warranty information.

PART 2. PRODUCTS – NOT USED

PART 3. EXECUTION – NOT USED

END OF SECTION

SECTION 00 1153

QUALIFICATION FORM

PART 1. GENERAL

1.01 CONDITIONS

A. The following form is the Design Builder Sub-Contractor Qualification Statement. Review and provide the information requested.

PART 2. PRODUCTS - NOT USED

PART 3. EXECUTION - NOT USED

END OF SECTION

Contractor Qualification Statement

Section 1 – Company Information

1. Submitted by

Name	Title	Email	Phone

2. Company Structure

Company Name	IRS EIN	Web Site

Type of Business

Corporation ☐ Limited Liability Company ☐ Other ☐

Partnership ☐ Sole Proprietorship ☐

Company Location

Address 1		**Zip/Postal Code**	
Address 2		**Phone**	
City		**Fax**	
State		**Country**	United States

Contacts

Name	Title	Email	Fax	Phone	Mobile

3. Labor / Union Affiliation(s) – Check applicable box

Union ☐ Non-Union ☐

Design/Build Capabilities – Check applicable box

Yes ☐ No ☐

4. Small & Disadvantaged Business Utilization – Check all that apply

HUB Zone Certification	☐	Women-Owned Small Business	☐
Other	☐	SBA 8a Certification	☐
Service-Disabled Veteran-Owned Small Business	☐	Small Business	☐
Small Disadvantaged Business	☐	Veteran Owned Small Business	☐

5. Organization

Years in Business?	
Number of Employees	
Years in business as a Contractor?	
Under what other names has your organization operated?	
Date of Organization?	

Section 2 – License & Experience

1. List jurisdictions and trade categories in which your organization is legally qualified to do business, and indicate registration or license numbers, if applicable.

2. List the categories of work that your organization normally performs with its own forces.

3. List major construction projects your organization has in progress:

Project Name	Owner	Architect	Contract Amount	Percent Complete	Scheduled Completion Date

4. List major projects your organization has completed in the past five years:

Project Name	Owner	Architect	Contract Amount	Date of Completion	Client contact information

5. List similar projects your organization has completed in the past five years:

Project Name	Owner	Architect	Contract Amount	Date of Completion	Client contact information

6. State average annual amount of construction work performed during the past five years:

7. On a separate sheet, list the construction experience and present commitments of the key individuals of your organization.

Section 3 – Safety & Insurance

1. Do you have a written Safety Program? Yes: ☐ No: ☐

2. Do you have an orientation program for new hires? (New hires include those persons who are new to each specific jobsite, not just those who are new to the company.) Yes: ☐ No: ☐

3. Do you hold on-site safety meetings? Yes: ☐ No: ☐

4. Do you have a company Safety Director or other safety professionals on staff: Yes: ☐ No: ☐

5. List your firm's Experience Modification Rate:

Current Year	20__	20__	20__

6. Do you currently carry or can you obtain the following insurance coverages?

- Workers Compensation (Statutory Benefits) Yes: ☐ No: ☐
- General Liability ($1,000,000 per Occurrence, $2,000,000 Aggregate) Yes: ☐ No: ☐
- Automotive Liability ($1,000,000 each Accident) Yes: ☐ No: ☐
- Employer Liability ($1,000,000) Yes: ☐ No: ☐
- Umbrella Liability ($1,000,000) Yes: ☐ No: ☐
- Contractors Pollution Liability ($1,000,000 if applicable) Yes: ☐ No: ☐ N/A: ☐
- Professional Liability/Error Omission ($1,000,000 if applicable) Yes: ☐ No: ☐ N/A: ☐

Section 4 – Reference Information

1. Bank References

Bank Name	Contact	Email	Phone

2. Surety Information

Name of bonding company	
Agent name	
Agent address	
Performance & Payment Bond Premium (as a percentage)	
Single Project Limit	

3. Attach a letter from your surety outlining the single project and aggregate amounts for which they will issue a performance and payment bond.

Section 5 – Financing

1. Attach a financial statement, preferable audited, including your organization's latest balance sheet and income statement. If desired the financial statement may be submitted directly to DBS Group, LLC's Chief Financial Officer Todd Poss at tposs@dbsg.com. If you require a signed confidentiality agreement, please email to the same address.

2. Is the attached financial statement for the identical organization name on page one?

Section 6 – Acknowledgements

1. Electronic Signature (I confirm the above content is truthful. Completed by the contact information below.

2. Acknowledgement

Name	
Title	
Email	
Phone	
Date	

Please return completed form to Jason Stefferud at jstefferud@dbsg.com.

SECTION 00 2113

INSTRUCTIONS TO BIDDERS

PART 1. GENERAL

1.01 INTRODUCTORY INFORMATION

A. Request for Proposals: DBS Group is requesting Lump Sum Bids for all scopes of work identified herein.

B. Submit Bids to: Bids may be faxed, emailed, or hand delivered to:

Attention: Project Estimator – Jason Stefferud
DBS Group, LLC
Onalaska, WI 54650
Phone: 608-881-6007 Ext 114
Cell: 608-780-6116
Fax: 888-881-6134
Email: jstefferud@dbsg.com

C. Bidding documents: Bidding Documents include Drawings and Specifications. Review all Documents for complete proposal and accurate bids.

1.02 AVAILABILITY OF BIDDING DOCUMENTS

A. Availability of Documents: Refer to Invitation to Bid for additional information regarding availability of bidding documents.

B. Addenda: Bidders will receive Addenda's thru DBS Group's online plan-room (you must be invited to receive the Addenda).

1.03 EXAMINATION OF BIDDING DOCUMENTS

A. Examination of Documents: Bidder shall carefully examine entire content of Bidding Documents to become thoroughly familiar with the documents and project requirements.

B. Bidder's Representation: Bidder by submitting a Bid represents that:
1. Bidder has read and understands Bidding Documents and the Bid is made in accordance therewith.
2. Bidder has visited the site, become familiar with local conditions under which the Work is to be performed.

C. Interpretations or Corrections of Bidding Documents: Bidder shall carefully study and compare Bidding Documents with each other and with other work being bid concurrently or presently under construction to the extent that it relates to the work for which the Bid is submitted, shall examine the site an local conditions, and shall at once report to DBS Group errors, inconsistencies, or ambiguities discovered.
1. Bidders requiring clarification or interpretation of Bidding Documents shall make a request via email to DBS Group.
2. Bidders requiring clarifications or interpretation of Bidding Documents refer to Invitation to Bid regarding cut-off for questions and interpretations.
3. Interpretations, corrections, or changes to the Bidding Documents will be made by Addendum. Interpretations, corrections, and changes of Bidding Documents made in any other manner will not be binding, and Bidders shall not rely upon them.

D. Substitutions and Requests for Prior Approvals: Will not be considered by DBS Group prior to receipt of bids.
1. Invited Bidders requesting substitutions or additions to the list of specified products must bid the specified materials, products, or systems as specified; but are strongly encouraged to submit a separate voluntary alternate, clearly identified as a Voluntary Alternate Bid for

consideration at the same time bids are due.

2. At the sole discretion of DBS Group, Voluntary Alternates will be considered for inclusion into the Contract Documents, and such approval by the Owner and DBS Group will be set forth in a Change Order.

E. Value Management Recommendations: Invited Bidders are strongly encouraged to submit Value Management Recommendations that will provide better value for the Owner by reduced initial cost, improved life-cycle cost and durability, reduced construction time, or other benefits that may be advantageous to the Owner.
   1. Value Management Recommendations shall be in the form of a separate voluntary alternate, clearly identified as a Voluntary Alternate, and submitted as the same time bids are due for consideration by DBS Group.
   2. DBS Group will review Voluntary Alternates; and where appropriate, will forward them to the Owner and Architect for consideration.
   3. At the sole discretion of the Owner and DBS Group, these Value Management recommendations will be considered for inclusion into the Contract Documents, and such approval by the Owner and Architect will be set forth in a change order.

F. Addenda notifications: see Invitation to Bid.

1.04 BIDDING PROCEDURES

A. Form and Style of Bids: Submit bids with a detailed scope of work by division.
   1. If Alternates are requested per your scope of work, you must provide a bid for those alternates. If no change to the Base Bid is required, enter “No Change”
   2. Each copy of the Bid shall include legal name of Bidder and a statement that Bidder is a sole proprietor, partnership, corporation, or other legal entity. Each copy shall be signed by the person or persons legally authorized to bind Bidder to a contract.

B. Submission of Bids: Bids shall be submitted to the Design-Builder at the address indicated above in 1.01B.
   1. Bids may be emailed or hand delivered.

C. Bid Security: Not Required

D. Modifications or Withdrawal of Bids: Bids may NOT be modified, withdrawn, or canceled by bidder during a 60 day period following the date of receipt of Bids, and each Bidder so agrees in submitting a Bid.
   1. Prior to time and date designated for receipt of Bids, Bid submitted may be modified or withdrawn by notice to party receiving Bids at the place designated for receipt of Bids. Such a notice shall be in writing over the signature of Bidder.
   2. Withdrawn Bids may be resubmitted up to date and time designated for receipt of Bids provided they are filled out on a new bid form with a copy of the withdrawn bid form attached.

1.05 CONSIDERATION OF BIDS

A. Bid Opening: Bids will be opened, reviewed, and qualified privately by DBS Group and Owner. Bid summaries will not be distributed.

B. Acceptance of Bids: Bid acceptance is subject to acceptance by the Owner.

C. Alternates: DBS Group and the Owner shall have the right to accept Alternates and Unit Prices in any order or combination.

D. Rejection of Bids: DBS Group and the Owner shall have the right to reject any or all Bids, and to waive informalities or irregularities in a Bid.

E. Basis of Award: Award of trade contracts, subcontracts, and material contracts will be at the sole discretion of DBS Group without explanation.

1.06 POST BID - PRE-AWARD INFORMATION AND SUBMITTAL REQUIREMENTS

A. Contractors Qualification Statement: Bidders to whom award of a Contract is under consideration will be requested to submit to DBS Group Prequalification Form.

B. Certificate of Insurance: Bidders to whom award of a Contract is under consideration will be requested to show proof in their ability to furnish a Certificate of Insurance in accordance with the project requirements.

PART 2. PRODUCTS - NOT USED

PART 3. EXECUTION - NOT USED

END OF SECTION 00 2113

SECTION 00 2413

BID SCOPES

PART 1. GENERAL

1.01 BID SCOPES.

A. DBS Group is soliciting competitive Lump Sum Bids for the portions of work as defined herein.

1. Bid scope categories have been constructed to incorporate contract document specifications sections; however, individual Bid Scope Categories may contain work described in more than one specification section.
2. Unless otherwise indicated, Work Scope Categories include a complete section of Work, including but not limited to labor, materials, layout, equipment, scaffolding, hoisting, applicable permits and taxes as required by the contract documents.

B. The Bidder acknowledges that they have reviewed all appropriate contract documents.

C. Division 03 – Concrete

1. Bid Scope 03A – Cast-in-Place & Site Concrete

D. Division 05 – Metal Fabrications

1. Bid Scope 05A – Metal Fabrications

E. Division 06 – Wood, Plastics, and Composites

1. Bid Scope 06A – Carpentry

F. Division 07 – Thermal and Moisture Protection

1. Bid Scope 07A – Roofing
2. Bid Scope 07B – Spray Foam Insulation

G. Division 08 – Openings

1. Bid Scope 08A – Hollow Metal Doors & Hardware
2. Bid Scope 08B – Drive-Thru Windows

H. Division 09 – Finishes

1. Bid Scope 09A – Tiling
2. Bid Scope 09B – Acoustical Ceilings

I. Division 22 – Plumbing

1. Bid Scope 22A – Plumbing

J. Division 23 – HVAC

1. Bid Scope 23A – HVAC

K. Division 28 – Electrical

1. Bid Scope 26A – Electrical

L. Division 31 – Earthwork

1. Bid Scope 31A - Earthwork

M. Division 33 – Site Improvements

2. Bid Scope 33A – Site Utilities

END OF SECTION

Cast in Place Concrete

Scope of Work:

Provide labor, material, equipment, tools and supervision to complete all Building Concrete work directly or indirectly related to the work described in the project drawings, addenda, and other documents identified as part of the Subcontract Agreement, regardless of design discipline, drawing sheet identification, or jurisdictional requirements.

Submittals Due: 10/1/21.

1. Subcontractor shall forward all required preconstruction submittal information per the dates noted above under scope of work. Subcontractor agrees to provide all the required submittals for Subcontractor's scope of work as it applies to each specification section noted above. Subcontractor understands Subcontractor is responsible for complying with all submittal requirements set forth in the Contract Documents. The dates established and agreed to above are hereby identified as the "initial dates." These dates have taken into account the necessary review periods by the necessary parties.

2. Subcontractor will be expected to attend weekly construction meetings. Contractor is expected to attend meetings two (2) weeks prior to their scope of work beginning on site going through the completion of said scope of work.

3. Safety orientation training per the attached Exhibit E is required by all personnel working on the jobsite. Personnel will not be allowed on site without the Orientation Training. Training will be held each day at a time identified by the Contractor each day. At the discretion of Contractor's superintendent, if orientation is missed the subcontractor's personnel who miss the training will need to attend the following days meeting and will not be allowed on site.

Foundation Inclusions:

1. Provide all concrete and reinforcing as required, including spacers, chairs, bolsters, etc.
2. Provide building layout from surveyor's corner pins. Surveyor by Contractor.
3. Form, pour, and strip all interior and exterior concrete footings, pads, piers and foundation walls.
    a. Includes drive-thru trellis footings & piers.
    b. Includes stoop footings and foundation walls.
4. Receive, unload, distribute, layout, and install all concrete embeds. This includes, but is not limited to all anchor bolts, angles, sleeves, inserts, plates, and brackets. This includes sleeves and/or block-outs required by other trades. (embedded items furnished by others).
5. Provide rigid foundation insulation.
6. Provide reinforcing steel/dowel caps and protection on all exposed reinforcing steel.

Slab on Grade Inclusions:

1. Provide all concrete and reinforcing, including chairs and dowels.
2. Fine grade and compact granular base under concrete slab. Base material provided by Earthwork Subcontractor.
3. Provide vapor barrier over base at interior slab on grade. Lap joints as required by manufacturer. Tape all materials to foundation walls and provide penetration boots as required.
4. Provide all construction joints, edge forms and column isolation diamonds as necessary for slab placements.
5. Furnish, place and finish concrete slab on grade with finish that is compatible with the intended floor finish system. Exposed edges shall be smooth.
6. Subcontractor shall participate in concrete pre-pour meeting with DBS Group.
7. Form, place and finish concrete stoop topping slab.
8. Provide saw-cutting of control joints.
9. Provide rigid insulation under concrete slab-on-grade.
10. Includes curing compound. Coordinate curing compound with Architect.

11. Includes all floor patching as required occurring from work performed or damaged by Concrete Subcontractor.

Site Concrete Inclusions:

1. Provide all site concrete improvements, including the following:
    a. 6” raised concrete curb.
    b. 5” thick concrete trash enclosure slab.
    c. 5” thick concrete ramp (approximate 1:12 slope) – adjacent to the Trash Enclosure and Door Stoop.
    d. Concrete pavement at parking and circulation areas.
2. Provide all steel reinforcing as required.
3. Provide saw cutting of control joints as required.
4. Provide expansion felt as required.
5. Provide fine grading & compaction of granular base material under site concrete. Base material shall be placed and rough-graded by others.
6. Install 6” steel bollards at Trash Enclosure, and fill with concrete.
7. Install 4” steel posts at front corners of Trash Enclosure – 4” steel posts to be set in concrete to 4’-0” below grade.
8. Provide pavement markings at parking and circulation areas.

General Inclusions:

1. Includes all concrete ready-mix material. Engineered mix designs shall be submitted and approved.
2. Includes transportation of concrete ready-mix material to point of discharge, to include booms, buggies, pumps and buckets.
3. Provide grouting of all anchor bolts, pockets, and plates as shown or required.
4. Provide and maintain concrete washout dumpster. Excess and wash up concrete shall be removed from the site and disposed of in accordance with SWPPP and all federal, state, and local regulations.
5. Subcontractor shall install all sleeves and/or block-outs as required by other trades. Sleeves and layout shall be provided by others.
6. Perform concrete work in phases as required. Includes multiple mobilizations to complete the work as directed. Perform out-of-sequence work if required to permit the coordination of the work by other trades to maintain the schedule.
7. Subcontractor shall provide a 1-year blanket warranty on workmanship and material. All warranties shall be effective from the date of substantial completion, and shall be addressed directly to the Owner.

Exclusions:

1. Winter service or protection.
2. Waterproofing of walls.
3. Compaction and concrete testing.
4. Light pole bases.
5. Supply of anchor bolts.
6. Misc. concrete for storm and/or sanitary sewers.
7. Aggregate base.
8. Surveying.

Metal Fabrications

Scope of Work:

Provide labor, material, equipment, and supervision to completely supply all steel directly or indirectly related to the work described in the project drawings, addenda, and other documents identified as part of the Subcontract Agreement, regardless of design discipline, drawing sheet identification, or jurisdictional requirements.

Submittals Due: 10/1/21

1. Supplier shall forward all required preconstruction submittal information per the dates noted above under scope of work. Subcontractor agrees to provide all the required submittals for Subcontractor's scope of work as it applies to each specification section noted above. Subcontractor understands Subcontractor is responsible for complying with all submittal requirements set forth in the Contract Documents. The dates established and agreed to above are hereby identified as the "initial dates." These dates have taken into account the necessary review periods by the necessary parties.

Inclusions:

1. Provide labor, material, equipment and supervision to fabricate and deliver the miscellaneous metals. This includes the following:
    a. Anchor bolts.
    b. Base plates.
    c. (4) steel protection bollards – 6” diameter, 7’-0” long, schedule 40 steel.
    d. Steel frame for roof signage, including connection angles.
    e. Drive-thru canopy, including connection plates, angles, etc.
        i. Note – drive-thru canopy steel shall be galvanized.
    f. (2) 4” x 4” x 10’-0” steel posts for Trash Enclosure.
    g. Tube steel gates for Trash Enclosure.
2. Includes shop drawings.
3. Includes delivery FOB jobsite.
4. Includes all applicable taxes, licenses and free required to complete the Work under this scope.
5. Supplier shall provide a 1-year blanket warranty on workmanship and material. All warranties shall be effective from the date of substantial completion, and shall be addressed directly to the owner.

Exclusions:

1. Structural calculations or analysis.
2. Bolts for other trades.
3. Light gauge material.

Rough Carpentry/Finish Carpentry

Scope of Work:

Provide labor, material, equipment, and supervision to complete all rough and finish carpentry work directly or indirectly related to the work described in the project drawings, addenda, and other documents identified as part of the Subcontract Agreement, regardless of design discipline, drawing sheet identification, or jurisdictional requirements.

Submittals Due: 10/1/21.

1. Subcontractor shall forward all required preconstruction submittal information per the dates noted above under scope of work. Subcontractor agrees to provide all the required submittals for Subcontractor's scope of work as it applies to each specification section noted above. Subcontractor understands Subcontractor is responsible for complying with all submittal requirements set forth in the Contract Documents. The dates established and agreed to above are hereby identified as the "initial dates." These dates have taken into account the necessary review periods by the necessary parties.

2. Subcontractor will be expected to attend weekly construction meetings. Contractor is expected to attend meetings two (2) weeks prior to their scope of work beginning on site going through the completion of said scope of work.

3. Safety orientation training per the attached Exhibit E is required by all personnel working on the jobsite. Personnel will not be allowed on site without the Orientation Training. Training will be held each day at a time identified by the Contractor each day. At the discretion of Contractor's superintendent, if orientation is missed the subcontractor's personnel who miss the training will need to attend the following days meeting and will not be allowed on site.

Rough Carpentry Inclusions:

1. Provide labor, material, equipment and supervision to complete the following work items:
   a. Exterior wall framing, including bracing.
   b. Interior wall framing, including bracing.
   c. Parapet/support framing, backing, blocking and bracing at drive-thru window/canopy locations.
   d. Installation of roof trusses provided by others. Roof truss bracing by Subcontractor.
   e. Exterior wall sheathing, including additional sheathing at Nichiha panel locations.
   f. Roof sheathing.
   g. Treated wood sill.
   h. Tyvek, or equal, weather barrier at exterior walls.
   i. Backing and blocking for doors, windows, exterior signage, casework/millwork, etc.
   j. Plywood sheathing at interior walls at FRP locations.
   k. OSB at shear wall locations.
   l. OSB wall sheathing in attic space.
   m. OSB T&G at attic space floor.
2. Includes all fasteners, clips, hold-downs, anchors, ties, hangers, etc.
3. Includes hand framing and blocking as required for interior sheathing nailer.
4. Subcontractor shall verify all ADA restroom stalls allow for 5'-0" clear finish face to finish face.

Finish Carpentry Inclusions:

1. Provide FRP, including all associated trims.
2. Install Restroom accessories furnished by others.
3. Install Knox Box, fire extinguishers and interior signage furnished by others.
4. Install all base cabinets and countertops furnished by others.

Insulation Inclusions:

1. Provide all batt insulation.
   a. Batt insulation at walls to be a minimum of R-19.
   b. Batt insulation at roof to be a minimum of R-30.
2. Provide all exterior wall vapor barrier – 6mil poly.
3. Subcontractor shall coordinate with other trades performing in-wall rough-ins.

Siding Inclusions:

1. Provide Nichiha Canyonbrick composite wall panels.
2. Provide LP Smartside Panel siding
3. Provide LP trim and fascia board.
4. Subcontractor shall provide all required trims, flashings, fasteners, anchors, caulking, sealants, etc. to complete the siding work.

Hollow Metal Doors/Frames/Hardware Inclusions:

1. Install all hollow metal doors, hollow metal frames and hardware furnished by others.
2. Install attic access panel furnished by others.

General Inclusions:

1. Includes work obviously necessary for the proper execution of the Carpentry Work noted as an inclusion herein. It is not the intent of the bidding documents to delineate or describe every detail and feature of work. No additions to this contract sum will be approved for any materials, equipment, or labor to perform the work hereunder unless it can be clearly show to be beyond the scope and intent of the drawings and specifications and essential to the proper execution of the work.
2. Subcontractor shall provide a 1-year blanket warranty on workmanship and material. All warranties shall be effective from the date of substantial completion, and shall be addressed directly to the Owner.

Exclusions:

1. Furnish of wood trusses.
2. Furnish of hollow metal frames, hollow metal doors and hardware.
3. Furnish of toilet accessories.
4. Furnish of Knox Box.
5. Furnish of fire extinguishers.
6. Furnish of interior signage.
7. Furnish of cabinets and countertops.
8. Décor.
9. Exterior tile system.
10. Metal roofing and siding.

Membrane Roofing

Scope of Work:

Provide labor, material, equipment, and supervision to complete all roofing and sheet metal work directly or indirectly related to the work described in the project drawings, addenda, and other documents identified as part of the Subcontract Agreement, regardless of design discipline, drawing sheet identification, or jurisdictional requirements.

Submittals Due: 10/1/21

1. Subcontractor shall forward all required preconstruction submittal information per the dates noted above under scope of work. Subcontractor agrees to provide all the required submittals for Subcontractor's scope of work as it applies to each specification section noted above. Subcontractor understands Subcontractor is responsible for complying with all submittal requirements set forth in the Contract Documents. The dates established and agreed to above are hereby identified as the "initial dates." These dates have taken into account the necessary review periods by the necessary parties.

2. Subcontractor will be expected to attend weekly construction meetings. Contractor is expected to attend meetings two (2) weeks prior to their scope of work beginning on site going through the completion of said scope of work.

3. Safety orientation training per the attached Exhibit E is required by all personnel working on the jobsite. Personnel will not be allowed on site without the Orientation Training. Training will be held each day at a time identified by the Contractor each day. At the discretion of Contractor's superintendent, if orientation is missed the subcontractor's personnel who miss the training will need to attend the following days meeting and will not be allowed on site.

Membrane Roofing Inclusions:

1. Subcontractor shall provide membrane roof system and associated rigid roof insulation system.
   a. Includes required tie-ins to adjacent materials at material transitions.
   b. Roof insulation shall be tapered as required.
   c. Includes membrane roofing at the backside of all parapets.
2. Subcontractor shall install roof drains at drive-thru window locations. Roof drains to be furnished by Plumbing Contractor.
3. Subcontractor shall make roof penetrations watertight per the roofing manufacturer's recommendations. Anticipated penetrations to include, but not limited to: HVAC, plumbing, electrical and low voltage.

Metal Roofing & Wall Panel Inclusions:

1. Provide a complete metal roof system using a Pac-Clad Snap-on Batten roofing panel, or equal.
2. Provide a complete metal wall panel system using a Pac-Clad Snap-on Batten wall panel, or equal.
3. Includes a complete installation of underlayment, roof panels, caps, flashings, closures, clips, retainers, keepers, fasteners, accessories, caulking and sealants, in accordance with manufacturer's recommendations, instructions and details.
4. Provide snow guards.
5. Provide installation and fastening of roof-mounted signage support structure – signage support structure provided by others.
6. Provide final inspection of the roofing system by a Technical Representative employed by roofing system manufacturer, specifically to inspect installation for warranty purposes.
7. Includes watertight roof and wall panel penetrations. Anticipated penetrations to include, but not limited to: signage support structure, mechanical venting, electrical and low voltage.

Sheet Metal Inclusions:

1. Provide pre-finished metal cap flashing, counter-flashing, trim, coping, fascia and drip edge systems.
2. Provide pre-finished metal flashing at all sill cap locations.
3. Provide pre-finished metal flashing at drive-thru window/LP trim transitions.
4. Provide flashings, counterflashing, and fabricated sheet metal items at all siding and metal panel transitions related to the installation of the roof system, including but not limited to the following:
    a. Flashing and counter-flashing with associated sealants.
    b. Flashing tape.
    c. Trim.
    d. Coping.
    e. Gravel stop.
    f. Fascia.

Skylight Inclusions:

1. Provide pre-manufactured skylights.
2. Provide flashings, counterflashing, and fabricated sheet metal related to the installation of the skylight assembles, including but not limited to the following:
    a. Flashing and counter-flashing with associated sealants.
    b. Flashing tape.
    c. Trim.
    d. Coping.
    e. Fascia.

General Inclusions:

1. Includes all fasteners required to complete the work.
2. Subcontractor shall furnish a manufacturer's roof warranty, 3-year roof installer warranty, and a 1-year blanket warranty on workmanship and material. All warranties shall be effective from the date of substantial completion, and shall be addressed directly to the Owner.
3. Installation of roof system deems Subcontractor's acceptance of substrate.
4. Subcontractor shall provide thru-wall and flexible flashings as required.
5. Subcontractor shall provide all attaching hardware and fasteners as it pertains to this scope.
6. Subcontractor shall coordinate work with all trades.
7. Subcontractor shall provide hoisting equipment necessary for the completion of their work.
8. Multiple trips to site are required and subcontractor shall do so to accommodate the schedule.
9. Subcontractor shall remove all excess roofing materials from adjacent surfaces upon completion of the work.
10. Subcontractor shall temporary dry-in leading edges at the end of each day's work.
11. Subcontractor shall temporary dry-in penetrations as needed.
12. Subcontractor acknowledges that all systems meet the specified R-Values.

Exclusions:

1. Excludes equipment supports and roof curbs.
2. Excludes wood blocking.
3. Excludes drain bowls.
4. Nichiha siding system installation.
5. LP siding system installation.

07B Spray Foam Insulation

Scope of Work:

Provide labor, material, equipment, and supervision to complete all spray foam insulation work directly or indirectly related to the work described in the project drawings, addenda, and other documents identified as part of the Subcontract Agreement, regardless of design discipline, drawing sheet identification, or jurisdictional requirements.

Submittals Due: 10/1/21

1. Subcontractor shall forward all required preconstruction submittal information per the dates noted above under scope of work. Subcontractor agrees to provide all the required submittals for Subcontractor's scope of work as it applies to each specification section noted above. Subcontractor understands Subcontractor is responsible for complying with all submittal requirements set forth in the Contract Documents. The dates established and agreed to above are hereby identified as the "initial dates." These dates have taken into account the necessary review periods by the necessary parties.

2. Safety orientation training per the attached Exhibit E is required by all personnel working on the jobsite. Personnel will not be allowed on site without the Orientation Training. Training will be held each day at a time identified by the Contractor each day. At the discretion of Contractor's superintendent, if orientation is missed the subcontractor's personnel who miss the training will need to attend the following days meeting and will not be allowed on site.

Inclusions:

1. Provide all closed cell polyurethane foamed in place insulation systems.
2. Install all proper postings/caution tape off area when before starting work.
3. Notify other trades of spraying activities.
4. Insulation shall be applied in accordance with manufacturer's instructions.
5. Substrate shall be clean of debris prior to applying spray foam.
6. Insulation contractor shall clean up adjacent surfaces, slab on grade, and any other areas affected by overspray.

General Inclusions:

1. Includes all materials and miscellaneous accessories required for a complete and finished installation.
2. Includes work obviously necessary for the proper execution of the work in this package. It is not the intent of the bidding documents to delineate or describe every detail and feature of work. No additions to this contract sum will be approved for any materials, equipment, or labor to perform work hereunder unless it can be clearly shown to be beyond the scope and intent of the drawings and specifications and essential to the proper execution of the work.
3. Subcontractor shall be solely responsible for requesting and documentation of all inspections relating to its scope of work.

Exclusions:

1. Winter Conditions.

Doors, Frames and Hardware

Scope of Work:

Provide material and supervision to completely supply all door/frame/hardware work directly or indirectly related to the work described in the project drawings, addenda, and other documents identified as part of the Subcontract Agreement, regardless of design discipline, drawing sheet identification, or jurisdictional requirements.

Submittals Due: 10/1/21

1. Supplier shall forward all required preconstruction submittal information per the dates noted above under scope of work. Subcontractor agrees to provide all the required submittals for Subcontractor's scope of work as it applies to each specification section noted above. Subcontractor understands Subcontractor is responsible for complying with all submittal requirements set forth in the Contract Documents. The dates established and agreed to above are hereby identified as the "initial dates." These dates have taken into account the necessary review periods by the necessary parties.

Inclusions:

1. Furnish and deliver all hollow metal doors, hollow metal frames and hardware.
    a. All hollow metal doors and frames shall be factory primed for field finishing.
    b. All door frames and doors shall be prepped for hardware assemblies.
    c. All exterior hollow metal doors shall be insulated.
    d. Supplier shall coordinate with the Owner to develop and implement a building keying schedule.
2. Furnish and deliver all attic access panels.
3. All materials to be palletized, crated and/or boxed.
4. Supplier shall include freight FOB jobsite.

General Inclusions:

1. Includes all applicable taxes, licenses and fees required to complete the work included under this scope.
2. Supplier shall provide a 1-year blanket warranty on workmanship and material. All warranties shall be effective from the date of substantial completion, and shall be addressed directly to the Owner.

Exclusions:

1. Drive-thru windows.

Aluminum Framing/Glazing

Scope of Work:

Provide labor, material, equipment, and supervision to complete all aluminum framing and glazing work directly or indirectly related to the work described in the project drawings, addenda, and other documents identified as part of the Subcontract Agreement, regardless of design discipline, drawing sheet identification, or jurisdictional requirements.

Submittals Due: 10/1/21

1. Subcontractor shall forward all required preconstruction submittal information per the dates noted above under scope of work. Subcontractor agrees to provide all the required submittals for Subcontractor's scope of work as it applies to each specification section noted above. Subcontractor understands Subcontractor is responsible for complying with all submittal requirements set forth in the Contract Documents. The dates established and agreed to above are hereby identified as the "initial dates." These dates have taken into account the necessary review periods by the necessary parties.

2. Safety orientation training per the attached Exhibit E is required by all personnel working on the jobsite. Personnel will not be allowed on site without the Orientation Training. Training will be held each day at a time identified by the Contractor each day. At the discretion of Contractor's superintendent, if orientation is missed the subcontractor's personnel who miss the training will need to attend the following days meeting and will not be allowed on site.

Inclusions:

1. Provide drive-thru window assemblies.
2. Provide sill pans, weeps, and gutters complete with end dams and sealants, as required by the window system manufacturer for complete watertight installation.
3. All aluminum framing shall be factory welded, delivered and installed in monolithic units.
4. Provide all necessary break metal and/or flashing required for the complete and correct installation of drive-thru window assemblies.
5. Provide all trim systems – snap on, glued or mechanically fastened.
6. Provide all weather-stripping and/or caulking.
7. Provide all fasteners, hardware, anchors, clips, etc. to complete the Work.
8. Provide all hardware associated with the Work.

General Inclusions:

1. Includes removal protection tape, stickers, protection pads, coatings, etc. from glass.
2. It is the responsibility of this Subcontractor to verify field conditions where prefabricated assemblies are designed. All responsibility for usability of prefabricated components is with this Subcontractor.
3. The Subcontractor will examine all substrates, areas, and conditions for compliance with requirements for installation tolerances and other conditions that could affect the performance of the system. Installation of the Work deems as Subcontractor's full acceptance of substrate.
4. Subcontractor shall adjust operating hardware to function properly, for smooth operation without binding, and for weather tight closure.
5. Subcontractor shall provide a 1-year blanket warranty on workmanship and material. All warranties shall be effective from the date of substantial completion, and shall be addressed directly to the Owner.

Exclusions:

1. Rough carpentry, including in-wall blocking.
2. Finish caulking to products installed after drive-thru windows (i.e. solid surface sills).

Tiling

Scope of Work:

Provide labor, material, equipment, and supervision to complete all tiling work directly or indirectly related to the work described in the project drawings, addenda, and other documents identified as part of the Subcontract Agreement, regardless of design discipline, drawing sheet identification, or jurisdictional requirements.

Submittals Due: 10/1/21.

1. Subcontractor shall forward all required preconstruction submittal information per the dates noted above under scope of work. Subcontractor agrees to provide all the required submittals for Subcontractor's scope of work as it applies to each specification section noted above. Subcontractor understands Subcontractor is responsible for complying with all submittal requirements set forth in the Contract Documents. The dates established and agreed to above are hereby identified as the "initial dates." These dates have taken into account the necessary review periods by the necessary parties.

2. Subcontractor will be expected to attend weekly construction meetings. Contractor is expected to attend meetings two (2) weeks prior to their scope of work beginning on site going through the completion of said scope of work.

3. Safety orientation training per the attached Exhibit E is required by all personnel working on the jobsite. Personnel will not be allowed on site without the Orientation Training. Training will be held each day at a time identified by the Contractor each day. At the discretion of Contractor's superintendent, if orientation is missed the subcontractor's personnel who miss the training will need to attend the following days meeting and will not be allowed on site.

Inclusions:

1. Provide all exterior tile work.
2. Subcontractor shall install tile per the manufacturer's instructions. This shall include, but not be limited to, trim pieces, caps, returns, mortar, grout, thin-set, wet bedding, cutting, underlayment, substrate preparation, transition strips, flashings, fasteners, primers, adhesives, caulking, sealants, etc.
3. Subcontractor shall ensure all tile work is sealed in accordance with the manufacturer's recommendations.
4. Subcontractor shall ensure all surfaces are clean and clear of any residue.
5. Subcontractor will ensure that all areas used for mixing, prepping and cutting of materials are kept clean and neat.
6. Subcontractor is responsible for transporting throughout the site and for scheduling deliveries for materials as work is available. No storage is allowed in areas of the building.
7. Cleaning of tools in sinks within the buildings is unacceptable and will not be allowed.
8. Subcontractor shall provide attic stock of tile material for Owner's future use.

General Inclusions:

1. Subcontractor shall provide a 1-year blanket warranty on workmanship and material. All warranties shall be effective from the date of substantial completion, and shall be addressed directly to the Owner.

Exclusions:

1. Nichiha siding.
2. LP siding.
3. Metal panel siding.

09D Acoustical Ceilings

Scope of Work:

Provide labor, material, equipment, and supervision to complete all acoustical ceiling work directly or indirectly related to the work described in the project drawings, addenda, and other documents identified as part of the Subcontract Agreement, regardless of design discipline, drawing sheet identification, or jurisdictional requirements.

Submittals Due: 10/1/21

1. Subcontractor shall forward all required preconstruction submittal information within two weeks of receipt of subcontract agreement. Subcontractor agrees to provide all the required submittals for Subcontractor's scope of work as it applies to each specification section noted above. Subcontractor understands Subcontractor is responsible for complying with all submittal requirements set forth in the Contract Documents. The dates established and agreed to above are hereby identified as the "initial dates."

2. Subcontractor will be expected to attend weekly construction meetings. Contractor is expected to attend meetings two (2) weeks prior to their scope of work beginning on site going through the completion of said scope of work.

3. Safety orientation training per the attached Exhibit E is required by all personnel working on the jobsite. Personnel will not be allowed on site without the Orientation Training. Training will be held each day at a time identified by the Contractor each day. At the discretion of Contractor's superintendent, if orientation is missed the subcontractor's personnel who missed the training will need to attend the following days meeting and will not be allowed on site.

Inclusions:

1. Provide all acoustical panel ceilings, suspended ceiling grids, and related suspension systems.
    a. Note – suspended ceiling grid systems shall be aluminum.
2. Includes all hangers, supports, trim, hold-down clips, and accessories for a clean and complete installation.
3. Includes all special installation and support requirements to meet all federal, state, and local codes.
4. Includes special support requirements around or connected materials provided by other trades.
5. Includes coordination with other trades regarding layout of suspended ceiling systems prior to installation.
6. Includes caulking and/or sealants required to provide a clean finish.
7. Includes off loading, handling and hoisting of materials and equipment to accomplish the scope included in this package.

22A Plumbing

Scope of Work:

Provide labor, material, equipment, engineering and supervision to design and construct complete, operable and code compliant plumbing system directly or indirectly related to the work described in all project drawings, addenda, and other documents identified as part of the Subcontract Agreement, regardless of design discipline, drawing sheet identification, or jurisdictional requirements.

Submittals Due: 10/1/21.

1. Subcontractor shall forward all required preconstruction submittal information per the dates noted above under scope of work. Subcontractor agrees to provide all the required submittals for Subcontractor's scope of work as it applies to each specification section noted above. Subcontractor understands Subcontractor is responsible for complying with all submittal requirements set forth in the Contract Documents. The dates established and agreed to above are hereby identified as the "initial dates."

2. Contractor will be expected to attend weekly construction meetings. Contractor is expected to attend meetings two (2) weeks prior to their scope of work beginning on site going through the completion of said scope of work. Subcontractor representation is expected to have authority to commit contractor to obligations required to meet project schedule and deal with any financial issue of the project.

3. Safety orientation training per the attached Exhibit E is required by all personnel working on the jobsite. Personnel will not be allowed on site without the Orientation Training. Training will be held each day at a time identified by the Contractor each day. At the discretion of Contractor's superintendent, if orientation is missed the subcontractor's personnel who miss the training will need to attend the following days meeting and will not be allowed on site.

Plumbing Inclusions:

1. Coordinate all work on site with the DBS Group Project Superintendent.
2. This agreement is a design/build agreement. Subcontractor shall assume design responsibility for the Work, beginning at the point in which notice to proceed is issued by Contractor. Design work shall be under the supervision of a licensed professional engineer, whom shall become the "Engineer of Record".
3. Provide the plumbing work necessary for the proper execution of the plumbing system. It is not the intent of the bidding documents to delineate or describe every detail and feature of work. No additions to this contract sum will be approved for any materials, equipment, or labor to perform work hereunder unless it can be clearly shown to be beyond the scope and intent of the drawings and specifications and absolutely essential to the proper execution of the work.
4. Provide all design, state approval and permits as required to complete all required plumbing work.
5. Provide professional liability insurance for plumbing design.
6. Provide roof drains and roof drain piping.
    a. Roof drains shall drain to adjacent grade?
    b. Extend roof drain piping to 5' outside of building footprint for connection by the site utility contractor.
7. Provide a complete interior sanitary sewer piping, drain and vent system to 5'-0" outside building foundation footprint.
    a. Includes connecting to underground exterior utilities provided by others.
8. Provide a complete interior hot and cold water piping system, including water meter, type L copper piping, pex piping, pipe insulation, hangers, and devices as required.
    a. Utility contractor will bring water service inside building to 12" A.F.F. Plumbing contractor will begin interior water piping system from that point.
    b. Includes flushing of all water lines per local codes and ordinances.
9. Provide all floor drains and cleanouts as required.

10. Provide installation of Owner-furnished 3-compartment sink.
11. Provide hot & cold water and drains as required for prep equipment and fixtures, including final connections.
12. Provide all plumbing associated with the HVAC system, specifically the condensate drain for the attic-mounted HVAC unit.
13. Provide the mop sink and faucet.
14. Provide all stainless-steel dump sinks and hand sinks, and associated faucets.
15. Provide all plumbing fixtures and floor drains as required at Restroom.
16. Provide gas-fired water heater and circulation pump, including venting and trim kit(s), as required by code.
17. Provide (1) frost-proof key type hydrant.
18. Provide all plumbing system piping, fittings, drains, valves, fixtures, equipment, gauges, regulators, insulation, specialties, hangers, supports, fasteners, devices, and accessories as required to complete the plumbing work.
19. Provide all excavation, backfill and compaction to complete the plumbing work.
20. Plumbing Contractor shall coordinate all work with the local utility company, including providing required service applications on behalf of the Owner.
21. Includes all ceiling markers, pipe identification, flow arrows, valve tags, and valve charts as required.
22. Includes all backflow devices, pressure reducing valves, and meter loops per code requirements.
23. Includes coordination with other trades regarding routes and clearances throughout the building.
24. Includes caulking and/or sealants at plumbing fixtures and penetrations.
25. Furnish, layout, and coordinate the installation of all sleeves/block-outs required in masonry and cast-in-place concrete. If sleeves/block-outs are missed or miss-located, subcontractor is responsible for corrective work.
26. Plumbing Contractor shall be solely responsible for requesting and documentation of all inspections relating to its scope of work. Submit all completed paperwork as required. Coordinate with authorities having jurisdiction to witness test or inspection required for this scope of work.
27. Keep as-built drawings current during construction Subcontractor will be required to have Field Construction Managers approve updates on a weekly basis. Progress Payment(s) will not be released until the as-built updates have been approved. All record drawings, including the specifications, shop drawings, and submittals shall be provided within 21 days after substantial completion.

<u>Plumbing Exclusions:</u>

1. Gas piping
2. Site utilities.

<u>Electrical Inclusions:</u>

1. Coordinate all work on site with DBS Group Project Superintendent, Paul Stumlin 608-780-6399.
2. Includes all design & engineering, permits and approvals as required to complete all required electrical work. Design work shall be under the supervision of a licensed professional engineer, whom shall become the “Engineer of Record”.
3. Includes professional liability insurance for electrical design.
4. Subcontractor to coordinate equipment locations and sizes with the Architect and Structural Engineer. Subcontractor to provide all load information to the Structural engineer for coordination into the building design.
5. Subcontractor to review and coordinate wall thickness requirements with the Architect and Engineer.
6. Design deliverable are defined as follows:
    a. Construction Documents.
    b. Follow Design Criteria as required.

c. Issue Permit plans for submission to the authority having jurisdiction in order to obtain approval. Respond to all City and State comments and reissue plans as required to secure the building permit.
d. Develop and issue final site electrical plan detailing location of all lights, transformers, electrical primary and secondary service, showing conduit for all required underground cabling and wiring.
e. Develop and issue final floor plans detailing the location and power requirements for all HVAC equipment, plumbing equipment, electrical equipment, meters, distribution panels, convenience receptacles, and showing circuiting (homeruns) for all receptacles and equipment.
f. Develop and issue reflected ceiling/lighting plans detailing the location and fixture number of all lights, showing circuiting (homeruns) and switching for all lighting, and location of all emergency and egress lighting.
g. Develop and issue panelboard schedules for building distribution circuit breakers. Panelboard schedule shall indicate overall panel capacity, quantity of circuit breakers, amperage rating of circuit breaker, conductor type, conductor size, conduit size, and number of spares available.
h. Develop and issue equipment schedules for all equipment to be furnished under this subcontract.
i. Coordinate daily work schedule with DBS Group Project Superintendent.

7. Temporary lighting and power to be provided by the subcontractor. Temporary Overhead lighting shall be installed at a minim as per the EM 385 or OSHA CFR 1926 (depending upon which applies to the job). This shall at a minimum include 1 watt per square foot lighting with a minimum of one 100 lamp per room. Temporary power distribution shall be so that men working in the building do not have to run an extension cord in excess of 100 ft. (Note this shall include taking layout of walls after they are built into account). This shall not include the use of temporary task lighting to achieve these lighting levels. Temporary task lighting above and beyond what is defined above (if needed) shall be furnished by the trade working in the area.
8. Includes temporary power for the entire work area and other trades by using 120/208 volt 3 phase that is available at the site and currently in use.
    a. Provide 50 amp 1 phase distribution boxes throughout the site at multiple locations as directed by Design-Builder.
9. Provide a complete electrical system, per the Project Criteria, from the electrical service entrance to a main distribution service, panel boards, circuit breakers, and distribution as required to provide power for building systems, lighting, and convenience receptacles.
10. Provide electrical distribution system to include sub panels, branch circuiting, and devices per the Project Criteria. Includes the following:
    a. (1) 2000 amp 277/480v 3ph 4w outdoor Nema 3R rated switchboard with CT's
    b. (1) 2000a Pad mounted Transocket
    c. (6) 277/480v panelboards
    d. (8) 120/208v panelboards
    e. (4) 480 D – 120/208Y transformers
    f. (1) 100a Generator MTS/ Camlocks
    g. (7) surge protective devices
    h. (1) Nema temp generator connection with MTS
    i. Provide power system coordination study
    j. Provide on-site primary injection ground fault testing
11. Provide installation of the Owner-furnished emergency generator, and transfer switches, per the Project Criteria.
    a. 400 KW Natural Gas Generator
    b. (4) Transfer Switches
    c. Provide Owner training
    d. Load bank testing by others
12. Provide LED light fixture package per the Project Criteria.
13. Provide installation of Owner-furnished light fixture package per the Project Criteria.
    a. (477) Type SC1

    b. (28) Type SC2
    c. (118) Type WS1
    d. (8) Type WS2
14. Provide all emergency lighting with exits lights and remote heads over all egress doors per code.
15. Provide all lighting controls, control panels, relay lighting controls, occupancy sensors, photo-eyes, time clocks and contactors.
16. Provide all LED site lighting to include all PVC Schedule 40 conduit, concrete Quazite boxes, spare conduits, light poles, all trenching or Bi-Plowing, stone backfill as necessary and all concrete light pole bases.
17. Provide installation of EMC Sales materials (provided by EMC).
18. Provide complete conduit and wiring system for lighting and branch power.
    a. MC cable to be installed as applicable by NEC and local codes.
19. Provide power and final terminations to all HVAC equipment per the Project Criteria.
20. Provide power and final connections to all refrigerated equipment per the Project Criteria.
21. Provide electrical connections to all prep equipment and display fixtures per the Project Criteria.
22. Provide all Single Cell and 3-Cell Walker Duct for POS Systems.
23. Provide power and final terminations to all plumbing equipment including;
    a. Water heaters
    b. Elevator pump
    c. Water softener
    d. Domestic water booster pumps
    e. Lavatory outlets
    f. Transformers to flush valves
    g. Electric water coolers
    h. R.O. machine
24. Provide outlets and final connections for heat tape system for evaporator coil drains.
    a. Plumbing contractor to install heat tape.
25. Provide waterproof GFCI's by each exterior hose bib location.
26. Provide all cabling from I/O panels to the Temperature Sensing Units at all refrigerated cases.
    a. Wiring diagram supplied by Refrigeration Contractor.
27. Provide interconnections between refrigeration display lineups.
28. Provide power and final termination to (1) 120v 1ph leak detection system.
29. Provide power and final termination to (1) 120v 1ph irrigation system
30. Provide power and final termination to (1) 120v 1ph integrated building system
31. Provide conduit and back-boxes for fire alarm rough-in.
    a. All fire alarm cabling, devices, terminations and installation by others.
32. Provide conduit and back-boxes low voltage rough-in.
    a. All structured cabling, terminations and installation by others.
33. Provide raceways for intercom/overhead paging system.
    a. All cabling and terminations by others.
34. Provide raceways for POS system.
    a. All cabling and terminations by others.
35. Provide raceways for Central Electronic Scale Network System.
    a. All cabling and terminations by others.
36. Provide raceways for EtherNet System
    a. All cabling and terminations by others.
37. Provide raceways for Satellite System.
    a. All cabling and terminations by others.
38. Provide raceways for Time and Attendance System.
    a. All cabling and terminations by others.
39. Provide raceway for Burglar Alarm System.
    a. All cabling and terminations by others.
40. Provide wiring to all owner provided equipment.
41. Provide all grounding and grounding systems.
42. Includes premium time for any/all outages and 600 hrs. of OT.

General Inclusions:

1. Includes electrical connections and switching to fixtures and equipment furnished by other trades and/or the owner.
2. Electrical Contractor shall furnish and install disconnects and GFI receptacles for RTU's.
3. Includes electrical and/or fire alarm connection to smoke duct detectors, motors, starters, controllers, and VFD's.
4. Includes all flashing, counter flashing, trim, escutcheons, and/or related accessories for clean and finished installation.
5. Includes electrical grounding as required.
6. Subcontractor is responsible to cut all openings complete the subcontractor's work. This includes patching, flashing, and/or shrouds.
7. Includes caulking and/or sealants at all of the subcontractor's penetrations as required. Includes all required fire-stopping and fire sealants in rated walls for penetrations made by the subcontractor contractor.
8. Includes all core drilling required to complete Subcontractor's work. Coring activities include core catchers, water, cleanup, protection of adjacent work and layout.
9. Furnish, layout, and coordinate the installation of all sleeves/block-outs required in masonry and cast-in-place concrete. If sleeves/block-outs are missed or miss-located, subcontractor is responsible for corrective work.
10. Includes all conduit, boxes, sleeves, and accessories for communication, data, video, HVAC control, signage, access control, card readers, control panels, and electronic/security door hardware.
11. Provide all excavation, backfill and compaction to complete the electrical work. Spoils shall be lawfully hauled off-site and disposed of.
12. Manpower, materials and equipment shall be made available as to maintain the project schedule.
    a. Schedule acceleration, if required, will be discussed and evaluated to determine if there are cost impacts.
13. Includes all offloading, handling, and hoisting of materials and equipment required to complete the work.
14. Subcontractor is responsible to meet all applicable federal, state, and local codes and regulations.
15. Subcontractor shall be solely responsible for requesting and documentation of all inspections relating to its scope of work.
16. Submit all completed paperwork as required. Coordinate with Project Superintendent or other authorities having jurisdiction to witness test or inspection required for this scope of work.
17. Subcontractor shall furnish, install, maintain, and monitor its' own ladders, scaffolding, lifts, and other equipment as applicable. All scaffolding must be anchored and tied off properly.
18. Subcontractor shall procure and pay for all permits, licenses, fees and special inspections required to complete the work included under this scope.
19. Keep as-built drawings current during construction Subcontractor will be required to have Project Superintendent approve updates on a weekly basis. Progress Payment(s) will not be released until the Project Superintendent has approved the updates. All record drawings, including the specifications, shop drawings, and submittals shall be provided within 21 days after substantial completion.
20. Provide all layout and field measurements required to complete the subcontractor's work.
21. Includes coordination with other trades regarding routes and clearances throughout the building.
22. Includes out of building storage of materials, tools and equipment at time of owner take over.
23. Electrical Contractor shall coordinate all work with the local electrical utility company.
24. Includes work obviously necessary for the proper execution of the electrical system. It is not the intent of the bidding documents to delineate or describe every detail and feature of work. No additions to this contract sum will be approved for any materials, equipment, or labor to perform work hereunder unless it can be clearly shown to be beyond the scope and intent of the drawings and specifications and absolutely essential to the proper execution of the work.

Electrical Exclusions:

1. Natural gas piping, regulator, and terminations for generator
2. Load bank testing of generator
3. Concrete pad for generator
4. Owner provided light fixture package
5. Any/All Utility charges
6. Payment and/or performance bonds
7. Dumpster charges
8. Roof penetrations and sealing
9. Demo of any existing facilities
10. Saw-cutting, removal and/or reinstallation of any concrete (by others)
11. Projections screens and installation (by others)
12. Starters and/or VFD's (by others)
13. Lightning protection (by others)
14. Temperature control, stubs, panels and/or wiring of devices (by others)
15. All Systems recorded above as "By Others"
16. EMC Products materials and/or labor costs (by others)
17. Per-Mar Security materials and/or labor costs (by others)
18. Costs for any reproduced Auto-CAD files – Provided by Owner
19. Surveyor and/or layouts fees for Lot Lighting
20. Furnishing of and/or Installation of any access panels
21. Patching and/or painting of finished surfaces
22. Bollards around generator and outdoor switchgear – by others
23. Easement conduits – penetrations to go 5' past foundation walls
24. Temp power to any project trailers aside from DBS Group project trailer
25. Concrete housekeeping pads – (by others)

23A HVAC

Scope of Work:

Provide labor, material, equipment, engineering and supervision to design and construct a complete and operational code compliant HVAC system and all work directly or indirectly related to the work described in all project drawings, addenda, and other documents identified as part of the Subcontract Agreement, regardless of design discipline, drawing sheet identification, or jurisdictional requirements.

Submittals Due: 10/1/21

1. Subcontractor shall forward all required preconstruction submittal information within two weeks of receipt of letter of intent. Subcontractor agrees to provide all the required submittals for Subcontractor's scope of work as it applies to each specification section noted above. Subcontractor understands Subcontractor is responsible for complying with all submittal requirements set forth in the Contract Documents. The dates established and agreed to above are hereby identified as the "initial dates."

2. Contractor will be expected to attend weekly construction meetings. Contractor is expected to attend meetings two (2) weeks prior to their scope of work beginning on site going through the completion of said scope of work.

3. Safety orientation training per the attached Exhibit E is required by all personnel working on the jobsite. Personnel will not be allowed on site without the Orientation Training. Training will be held each day at a time identified by the Contractor each day. At the discretion of Contractor's superintendent, if orientation is missed the subcontractor's personnel who missed the training will need to attend the following days meeting and will not be allowed on site.

Inclusions:

1. Coordinate all work on site with the DBS Group Project Superintendent.
2. This agreement is a design/build agreement. Subcontractor shall assume design responsibility for the Work, beginning at the point in which notice to proceed is issued by Contractor. Design work shall be under the supervision of a licensed professional engineer, whom shall become the "Engineer of Record".
3. Provide the HVAC work necessary for the proper execution of the HVAC system. It is not the intent of the bidding documents to delineate or describe every detail and feature of work. No additions to this contract sum will be approved for any materials, equipment, or labor to perform work hereunder unless it can be clearly shown to be beyond the scope and intent of the drawings and specifications and absolutely essential to the proper execution of the work.
4. Subcontractor to provide all HVAC design and engineered drawings to obtain all required permits and approvals by the authorities having jurisdiction over the project.
5. Provide professional liability insurance for HVAC design.
6. Provide a standard-efficiency, natural gas-fired, electric-cooled, pre-packaged HVAC unit.
    a. HVAC unit to be attic mounted.
7. Provide HVAC distribution, including ductwork, dampers, sound attenuators, ductwork insulation, diffusers, registers, grilles, louvers, hangers, supports, clamps, and accessories.
8. Provide electric baseboard heat in the Restroom.
9. Provide code-required exhaust fans, including venting and associated trim kits.
10. Provide smoke duct detectors as required by code.
11. Provide natural gas piping from the gas utility meter to all gas-fired HVAC equipment and water heater.
12. Provide HVAC control system, including digital, programmable thermostats.
13. Provide third-party testing, adjusting, and balancing of all heating, ventilating, and air conditioning systems.

General:

1. HVAC contractor is responsible for patching, flashing, sealants, enclosures, shrouds, trim, escutcheons, and/or related accessories at all openings in structural deck, roof, walls and floors.
2. HVAC contractor is responsible for sealed ductwork joints.
3. Includes all caulking/sealants to complete the HVAC work. This specifically includes acoustical caulk in all wall penetrations.
4. Includes all required fire-stopping and fire sealants in rated walls for penetrations installed under the scope of work include in this package.
5. Includes access doors required to access work provided or installed under this scope of work.
6. Includes all offloading, handling, and hoisting of materials and equipment required to complete the HVAC work.
7. Subcontractor shall be solely responsible for requesting and documentation of all inspections relating to its scope of work.
8. Keep as-built drawings current during construction Subcontractor will be required to have project superintendent approve updates on a weekly basis. Progress Payment(s) will not be released until the Project Superintendent has approved the updates. All record drawings, including the specifications, shop drawings, and submittals shall be provided within 21 days after substantial completion.

Exclusions:

1. High voltage wiring
2. Plumbing.
3. Roof patching.
4. Structural roof support.

22A Electrical

Scope of Work:

Provide labor, material, equipment, engineering and supervision to design and construct complete, operable and code compliant electrical system directly or indirectly related to the work described in all project drawings, addenda, and other documents identified as part of the Subcontract Agreement, regardless of design discipline, drawing sheet identification, or jurisdictional requirements.

Submittals Due: 10/1/21.

1. Subcontractor shall forward all required preconstruction submittal information per the dates noted above under scope of work. Subcontractor agrees to provide all the required submittals for Subcontractor's scope of work as it applies to each specification section noted above. Subcontractor understands Subcontractor is responsible for complying with all submittal requirements set forth in the Contract Documents. The dates established and agreed to above are hereby identified as the "initial dates."

2. Contractor will be expected to attend weekly construction meetings. Contractor is expected to attend meetings two (2) weeks prior to their scope of work beginning on site going through the completion of said scope of work. Subcontractor representation is expected to have authority to commit contractor to obligations required to meet project schedule and deal with any financial issue of the project.

3. Safety orientation training per the attached Exhibit E is required by all personnel working on the jobsite. Personnel will not be allowed on site without the Orientation Training. Training will be held each day at a time identified by the Contractor each day. At the discretion of Contractor's superintendent, if orientation is missed the subcontractor's personnel who miss the training will need to attend the following days meeting and will not be allowed on site.

Electrical Inclusions:

1. Coordinate all work on site with DBS Group Project Superintendent.
2. This agreement is a design/build agreement. Subcontractor shall assume design responsibility for the Work, beginning at the point in which notice to proceed is issued by Contractor. Design work shall be under the supervision of a licensed professional engineer, whom shall become the "Engineer of Record".
3. Provide the electrical work necessary for the proper execution of the electrical system. It is not the intent of the bidding documents to delineate or describe every detail and feature of work. No additions to this contract sum will be approved for any materials, equipment, or labor to perform work hereunder unless it can be clearly shown to be beyond the scope and intent of the drawings and specifications and absolutely essential to the proper execution of the work.
4. Provide all design, state approval and permits as required to complete all required electrical work
5. Includes professional liability insurance for electrical design.
6. Subcontractor to coordinate equipment locations and sizes with the Architect.
7. Subcontractor to review and coordinate wall thickness requirements with the Architect and Engineer.
8. Design deliverables are defined as follows:
    a. Construction Documents.
    b. Follow Design Criteria as required.
    c. Issue Permit plans for submission to the authority having jurisdiction in order to obtain approval. Respond to all City and State comments and reissue plans as required to secure the building permit.
    d. Develop and issue final site electrical plan detailing location of all lights, transformers, electrical primary and secondary service, showing conduit for all required underground cabling and wiring.

    e. Develop and issue final floor plans detailing the location and power requirements for all HVAC equipment, plumbing equipment, electrical equipment, meters, distribution panels, convenience receptacles, and showing circuiting (homeruns) for all receptacles and equipment.
    f. Develop and issue reflected ceiling/lighting plans detailing the location and fixture number of all lights, showing circuiting (homeruns) and switching for all lighting, and location of all emergency and egress lighting.
    g. Develop and issue panelboard schedules for building distribution circuit breakers. Panelboard schedule shall indicate overall panel capacity, quantity of circuit breakers, amperage rating of circuit breaker, conductor type, conductor size, conduit size, and number of spares available.
    h. Develop and issue equipment schedules for all equipment to be furnished under this subcontract.
9. Provide temporary power and temporary lighting for the entire work area and other trades.
    a. Temporary power distribution shall be so that men working in the building do not have to run an extension cord in excess of 100 ft.
    b. Temporary lighting shall at a minimum include 1 watt per square foot lighting with a minimum of one 100 lamp per room.
10. Provide a complete electrical system, per the Project Criteria, from the electrical service entrance to a main distribution service, panel boards, circuit breakers, and distribution as required to provide power for building systems, lighting, equipment/fixtures, and convenience receptacles.
11. Electrical Contractor shall coordinate all work with the local electrical utility company, including completion & submitting service applications on the Owner's behalf.
12. Provide LED light fixture package per the Project Criteria.
    a. Includes exterior, wall-mounted uplighting.
13. Provide all emergency lighting with exit lights & remote heads over all egress doors per code.
14. Provide all lighting controls, control panels, relay lighting controls, occupancy sensors, photo-eyes, time clocks and contactors.
15. Provide all light pole (LP) assemblies, to include all conduit rough-in, concrete light pole bases, light poles, and LED heads.
16. Provide all decorative light pole (DLP) assemblies, to include all conduit rough-in, concrete light pole bases, light poles, and LED heads.
17. Provide electrical rough-in and final connections for illuminated site way-finder signage.
18. Provide (3) 2" conduits from Gary Street to inside the building for low voltage rough-in.
19. Provide complete conduit and wiring system for lighting and branch power.
    a. MC cable to be installed as applicable by NEC and local codes.
20. Provide power and final connections to all HVAC equipment per the Project Criteria.
    a. HVAC unit shall be attic mounted.
21. Provide electrical rough-in and final connections to all prep equipment and fixtures per the Project Criteria.
22. Provide electrical rough-in and final connections to all plumbing equipment.
23. Provide waterproof GFCI at the exterior hose bib location near the exterior door.
24. Confirm the code requirement for fire alarm system. If required, then:
    a. Provide conduit and back-boxes for fire alarm rough-in.
    b. Provide all fire alarm cabling, devices, terminations and installation.
25. Provide conduit and back-boxes for low voltage rough-in.
    a. All structured cabling, terminations and installation by others.
26. Provide raceways for POS system at each drive-thru window.
    a. All cabling and terminations by others.
27. Provide raceway for Phone/Data System to each drive-thru window.
    a. All cabling and terminations by others.
28. Provide raceway for Burglar Alarm System at each drive-thru window and exterior doorway.
    a. All cabling and terminations by others.
29. Provide all grounding and grounding systems.

General Inclusions:

1. Electrical contractor is responsible for patching, flashing, sealants, enclosures, shrouds, trim, escutcheons, and/or related accessories at all openings in structural deck, roof, walls and floors.
2. Includes caulking and/or sealants at all of the subcontractor's penetrations as required. Includes all required fire-stopping and fire sealants in rated walls for penetrations made by the subcontractor contractor.
3. Provide all excavation, backfill and compaction to complete the electrical work. Spoils shall be lawfully hauled off-site and disposed of.
4. Subcontractor is responsible to meet all applicable federal, state, and local codes and regulations.
5. Subcontractor shall be solely responsible for requesting and documentation of all inspections relating to its scope of work.
6. Subcontractor shall procure and pay for all permits, licenses, fees and special inspections required to complete the work included under this scope.
7. Keep as-built drawings current during construction Subcontractor will be required to have Project Superintendent approve updates on a weekly basis. Progress Payment(s) will not be released until the Project Superintendent has approved the updates. All record drawings, including the specifications, shop drawings, and submittals shall be provided within 21 days after substantial completion.
8. Includes coordination with other trades regarding routes and clearances throughout the building.
9. Includes out of building storage of materials, tools and equipment at time of owner take over.

Electrical Exclusions:

1. Electrical utility charges.
2. Temperature control, stubs, panels and/or wiring of devices (by others).

Earthwork

Scope of Work:

Provide labor, material, equipment, and supervision to complete all earthwork directly or indirectly related to the work described in the project drawings, addenda, and other documents identified as part of the Subcontract Agreement, regardless of design discipline, drawing sheet identification, or jurisdictional requirements.

Submittals Due: 10/1/21.

1. Subcontractor shall forward all required preconstruction submittal information per the dates noted above under scope of work. Subcontractor agrees to provide all the required submittals for Subcontractor's scope of work as it applies to each specification section noted above. Subcontractor understands Subcontractor is responsible for complying with all submittal requirements set forth in the Contract Documents. The dates established and agreed to above are hereby identified as the "initial dates." These dates have taken into account the necessary review periods by the necessary parties.

2. Subcontractor will be expected to attend weekly construction meetings. Contractor is expected to attend meetings two (2) weeks prior to their scope of work beginning on site going through the completion of said scope of work.

3. Safety orientation training per the attached Exhibit E is required by all personnel working on the jobsite. Personnel will not be allowed on site without the Orientation Training. Training will be held each day at a time identified by the Contractor each day. At the discretion of Contractor's superintendent, if orientation is missed the subcontractor's personnel who miss the training will need to attend the following days meeting and will not be allowed on site.

Erosion Control Inclusions:

1. Provide silt fence, including continuous maintenance of silt fence, from commencement of construction through substantial completion.
2. Includes the removal of silt fence upon substantial completion.

Removals, Site Grading & Excavation Inclusions:

1. Provide traffic control as required to complete the scope of work
2. Provide removal of, and stockpiling for re-use, existing aggregate base.
3. Provide re-grading and compaction of the project site to accommodate the planned improvements.
4. Provide excavation, backfill and compaction for all concrete footings, foundations walls, column pads, and piers.
5. Provide excavation, backfill and compaction for all raised concrete curbs, trash enclosure concrete slab, concrete ramp to building entrance, and concrete-paved areas.
6. Includes placement, rough grading, fine grading (+/- .10') and compaction of crushed aggregate base material under building slab.
7. Includes placement, rough grading, fine grading (+/- .10') and compaction of crushed aggregate base material under all concrete paving, curb and gutter, sidewalks and any miscellaneous equipment pads.
8. Includes protection of existing, improved site areas while completing the work.
9. Subcontractor is responsible to protect all excavations from cave-ins as required by state, federal and local safety requirements.
10. Subcontractor shall assure proper drainage throughout the course of this project so that no standing or ponding of rainwater occurs.
11. All excess materials shall be disposed at a proper and legal disposal site.

General Inclusions:

1. Includes work obviously necessary for the proper execution of the Earthwork Work. It is not the intent of the bidding documents to delineate or describe every detail and feature of work. No additions to this contract sum will be approved for any materials, equipment, or labor to perform the work hereunder unless it can be clearly show to be beyond the scope and intent of the drawings and specifications and essential to the proper execution of the work.
2. Subcontractor is responsible for all geotechnical data provided in the drawings and specifications. Subcontractor acknowledges that they have read and understood the soils report and will conduct all portions of their work in accordance with the recommendations herein.
3. Subcontractor shall inspect all existing conditions to verify scope within the construction limits. This is to include grade verification to establish the requirements under this scope of work.
4. Facilities, structures, roadways, walkways, and existing Haymaker's parking & circulation areas shall remain open and fully operational throughout construction.
5. Subcontractor shall maintain all streets, roadways, parking lots and other paved areas to ensure they are clear or mud and debris at the end of each day. Subcontractor shall provide all necessary sweeping of cleaning of said areas as necessary.
6. Includes all applicable taxes, licenses and fees required to complete the work included under this scope.
7. Subcontractor is responsible to meet all applicable federal, state, and local codes and regulations.
8. Supplier shall provide a 1-year blanket warranty on workmanship and material. All warranties shall be effective from the date of substantial completion and shall be addressed directly to the Owner.

Site Utilities

Scope of Work:

Provide labor, material, equipment, and supervision to complete all utility work directly or indirectly related to the work described in the project drawings, addenda, and other documents identified as part of the Subcontract Agreement, regardless of design discipline, drawing sheet identification, or jurisdictional requirements.

Submittals Due: 10/1/21

1. Subcontractor shall forward all required preconstruction submittal information per the dates noted above under scope of work. Subcontractor agrees to provide all the required submittals for Subcontractor's scope of work as it applies to each specification section noted above. Subcontractor understands Subcontractor is responsible for complying with all submittal requirements set forth in the Contract Documents. The dates established and agreed to above are hereby identified as the "initial dates." These dates have taken into account the necessary review periods by the necessary parties.

2. Subcontractor will be expected to attend weekly construction meetings. Contractor is expected to attend meetings two (2) weeks prior to their scope of work beginning on site going through the completion of said scope of work.

3. Safety orientation training per the attached Exhibit E is required by all personnel working on the jobsite. Personnel will not be allowed on site without the Orientation Training. Training will be held each day at a time identified by the Contractor each day. At the discretion of Contractor's superintendent, if orientation is missed the subcontractor's personnel who miss the training will need to attend the following days meeting and will not be allowed on site.

Inclusions:

1. Provide a sanitary sewer lateral to the building, including all associated valves, cleanouts, structures, and devices.
    a. Includes street cutting and patching at Gary Street for connection to existing sanitary sewer service.
        i. Includes necessary permits for street cutting and patching.
2. Provide a water service main to the building, including associated valves, hydrants, structures and devices.
    a. Subcontractor install the water service lateral to inside the building footprint to 12" AFF.
3. Provide all excavation, backfill and compaction required to complete the site utility work.
4. Provide flushing and testing of sanitary sewer lateral and water service lateral as required by federal, state and local codes and regulations.
    a. Flushing and testing shall be documented, with documentation provided to Contractor
5. Subcontractor shall provide tracer wire on all piping.

General Inclusions:

1. Includes work obviously necessary for the proper execution of the Utility Work. It is not the intent of the bidding documents to delineate or describe every detail and feature of work. No additions to this contract sum will be approved for any materials, equipment, or labor to perform the work hereunder unless it can be clearly show to be beyond the scope and intent of the drawings and specifications and essential to the proper execution of the work.
2. Subcontractor is responsible for all geotechnical data provided in the drawings and specifications. Subcontractor acknowledges that they have read and understood the soils report and will conduct all portions of their work in accordance with the recommendations herein.
3. Subcontractor shall inspect all existing conditions to verify scope within the construction limits. This is to include grade verification to establish the requirements under this scope of work.

4. Facilities, structures, roadways, walkways and Haymaker's parking & circulation areas shall remain open and fully operational throughout construction.
5. Includes general construction restoration to pre-existing conditions to the areas within or around construction limits.
6. Includes all applicable taxes, licenses and fees required to complete the work included under this scope.
7. Subcontractor is responsible to meet all applicable federal, state, and local codes and regulations.
8. Supplier shall provide a 1-year blanket warranty on workmanship and material. All warranties shall be effective from the date of substantial completion, and shall be addressed directly to the Owner.

Exclusions:

1. Survey.

SECTION 00 3113

PRELIMINARY CONSTRUCTION SCHEDULE

PART 1. GENERAL

1.01 CONDITIONS

A. A preliminary construction schedule is as follows:

1. Construction Start: October 12, 2021
2. Substantial Completion: January 13, 2022

B. Submission of a bid will indicate your intention and ability to meet this schedule.

PART 2. PRODUCTS - NOT USED

PART 3. EXECUTION - NOT USED

END OF SECTION

SECTION 00 5200

SUB-CONTRACTOR AGREEMENT

PART 1. GENERAL

1.01 CONDITIONS

A. The Sub-Contractor Agreement form is bound into this project manual. Sub -Contractors are required to review this document prior to submitting bids. Modification of bids on the grounds of not being aware of the required agreement form will not be allowed.

1. Short Form Agreement: This is the document that will be required if the amount of the sub-contract is $50,000 or less.

2. Standard Form Agreement: This is the document that will be required if the amount of the sub-contract exceeds $50,000.

PART 2. PRODUCTS - NOT USED

PART 3. EXECUTION - NOT USED

END OF SECTION

Standard Form of Agreement Between Design-Builder and Design-Build Subcontractor – Lump Sum

This document has important legal consequences. Consultation with an attorney is recommended with respect to its completion or modification.

This **AGREEMENT** is made as of the__ day of _____ in the year of __, by and between the following parties, for services in connection with the Project identified below:

DESIGN-BUILDER:
(Name and address)

DESIGN-BUILD SUBCONTRACTOR:
(Name and address)

PROJECT:
(Include Project name and location as it will appear in the Contract Documents)

OWNER:
(Name and address)

In consideration of the mutual covenants and obligations contained herein, Design-Builder and Design-Build Subcontractor agree as set forth herein.

Article 1

General

1.1 Basic Purpose.

1.1.1 Design-Builder has contracted with Owner to provide the services necessary for the design and construction of the Project as set forth in the Design-Build Agreement. Design-Build Subcontractor, through itself, Design Consultants and Sub-Subcontractors, agrees to provide all design, construction and other aspects of the Work consistent with the Contract Documents. Design-Builder and Design-Build Subcontractor agree that to the extent applicable to the performance of the Work hereunder, Design-Build Subcontractor shall have the same rights, responsibilities, and obligations as to Design-Builder as Design-Builder by the Design-Build Agreement has against and to Owner, except as may be modified herein. Notwithstanding the foregoing, if the Design-Builder and Owner have checked boxes indicating the selection of optional provisions from the Design-Build Agreement, those optional provisions are only passed through to the Design-Build Subcontractor to the extent these provisions have been expressly set forth in Article 17.

1.2 Basic Definitions.

1.2.1 Terms used in this Agreement shall have the meanings set forth in the Design-Build Agreement between Owner and Design-Builder unless otherwise provided herein, with the following specific terms defined as follows:

1.2.1.1 *Agreement* refers to this executed contract between Design-Builder and Design-Build Subcontractor under DBIA Document 565, *Standard Form of Agreement Between Design-Builder and Design-Build Subcontractor - Lump Sum* (2010 Edition).

1.2.1.2 *Basis of Design Documents* are as follows: For DBIA Document No. 530, *Standard Form of Agreement Between Owner and Design-Builder - Cost Plus Fee With an Option for a Guaranteed Maximum Price*, the Basis of Design Documents are those documents specifically listed in, as applicable, the GMP Exhibit or GMP Proposal as being the "Basis of Design Documents." For DBIA Document No. 525, *Standard Form of Agreement Between Owner and Design-Builder – Lump Sum*, the Basis of Design Documents are the Owner's Project Criteria, Design-Builder's Proposal and the Deviation List, if any.

1.2.1.3 *Construction Documents* are the documents consisting of Drawings and Specifications, prepared or assembled consistent with the Basis of Design Documents unless a deviation from the Basis of Design Documents is specifically set forth in a Change Order.

1.2.1.4 *Day or Days* shall mean calendar days unless otherwise specifically noted in the Contract Documents.

1.2.1.5 *Design-Build Agreement* refers to the contract between Design-Builder and Owner for the design and construction of the Project under either DBIA Document No. 525, *Standard Form of Agreement Between Owner and Design-Builder - Lump Sum* (2010 Edition), or DBIA Document No. 530, *Standard Form of Agreement Between Owner and Design-Builder - Cost Plus Fee with an Option for a Guaranteed Maximum Price* (2010 Edition), including the DBIA Document No. 535, *Standard Form of General Conditions of Contract Between Owner and Design-Builder* (2010 Edition), and all exhibits, attachments, and other Contract Documents enumerated and incorporated therein.

1.2.1.6 *Design Consultant* is a qualified, licensed design professional who is not an employee of Design-Build Subcontractor, but is retained by Design-Build Subcontractor, to furnish design services required under the Contract Documents. A Design Sub-Consultant is a qualified, licensed design professional who is not an employee of the Design Consultant, but is retained by the Design Consultant or employed or retained by anyone under contract to Design Consultant, to furnish design services required under the Contract Documents.

1.2.1.7 *Force Majeure Events* are those events that are beyond the control of the Design-Build Subcontractor, Design-Builder and Owner, including the events of wars, floods, labor disputes, earthquakes, epidemics, adverse weather conditions not reasonably anticipated, and other acts of God.

1.2.1.8 *Hazardous Conditions* are any materials, wastes, substances and chemicals deemed to be hazardous under applicable Legal Requirements, or the handling, storage, remediation, or disposal of which are regulated by applicable Legal Requirements.

1.2.1.9 *Legal Requirements* are all applicable federal, state and local laws, codes, ordinances, rules, regulations, orders and decrees of any government or quasi-government entity having jurisdiction over the parties, the Project or Site, the practices involved in the Project or Site, or any Work.

1.2.1.10 *Owner's Project Criteria* are developed by or for Owner to describe Owner's program requirements and objectives for the Project, including use, space, price, time, site and expandability requirements, as well as submittal requirements and other requirements governing Design-Builder's performance of the Work. Owner's Project Criteria may include conceptual documents, design criteria, design performance specifications, design specifications, and LEED® or other sustainable design criteria and other Project-specific technical materials and requirements.

1.2.1.11 *Project Schedule* refers to the schedule setting forth the dates by which the various stages of both the design and construction of the Project must be performed so as to satisfy Design-Builder's obligations to Owner.

1.2.1.12 *Site* is the land or premises on which the Project is located.

1.2.1.13 *Sub-Subcontractor* is any person or entity retained by Design-Build Subcontractor as an independent contractor to perform a portion of the construction aspects of Design-Build Subcontractor's Work and shall include materialmen and suppliers.

1.2.1.14 *Substantial Completion* or *Substantially Complete* is the date on which the Project, or an agreed upon portion of the Project, is sufficiently complete so that Owner can occupy and use the Project or a portion thereof for its intended purposes.

1.2.1.15 *Work* is comprised of all Design-Build Subcontractor's design, construction and other services required by the Contract Documents, including procuring and furnishing all supervision, labor, inspection, testing, start-up, materials, tools, equipment, machinery, transportation, temporary utilities, temporary facilities and all other items and services reasonably inferable from this Agreement and the other Contract Documents necessary to compete the portion of the Project described in Exhibit A. *(Identify with specificity that portion of the Project which Design-Build Subcontractor is responsible for designing and constructing.)*

1.3 Contract Documents.

1.3.1 The Contract Documents are comprised of the following:

1.3.1.1 All written modifications, amendments, minor changes and change orders to this Agreement;

1.3.1.2 The Basis of Design Documents;

1.3.1.3 This Agreement, including all exhibits and attachments, executed by Design-Builder and Design-Build Subcontractor;

1.3.1.4 The Construction Documents, and

1.3.1.5 The Design-Build Agreement; (excluding the Basis of Design Documents), but only to the extent the Design-Build Agreement relates to the Work and the terms and conditions under which the Work shall be performed.

1.4 Interpretation and Intent.

1.4.1 Design-Builder and Design-Build Subcontractor, prior to execution of the Agreement, shall carefully review all the Contract Documents, including the various documents comprising the Basis of Design Documents, for any conflicts or ambiguities. Design-Builder and Design-Build Subcontractor will discuss and resolve any identified conflicts or ambiguities prior to execution of the Agreement.

1.4.2 The Contract Documents are intended to be complementary and interpreted in harmony so as to avoid conflict, with words and phrases interpreted consistent with construction and design industry standards. In the event inconsistencies, conflicts, or ambiguities between or among the Contract Documents are covered after execution of the Agreement, the Design-Builder and Design-Build Subcontractor shall attempt to resolve such ambiguities, conflicts, or inconsistencies informally, recognizing that the Contract Documents shall take precedence in the order in which they are listed in Section 1.3 hereof.

1.4.3 If Owner's Project Criteria contain design specifications, Design-Build Subcontractor shall be entitled to reasonably rely on the accuracy of the information represented in the design specifications and its compatibility with other information set forth in Owner's Project Criteria, including any performance specifications, to the same extent as Design-Builder is entitled to so rely in the Design-Build Agreement. If Design-Build Subcontractor contends that its costs and/or time of performance have been adversely impacted by such inaccurate design specifications, then it shall proceed in accordance with Article 13.3.

1.5 Mutual Obligations and Acknowledgments.

1.5.1 Design-Builder and Design-Build Subcontractor commit at all times to cooperate fully with each other, and proceed on the basis of trust and good faith, to permit each party to realize the benefits afforded under the Contract Documents. Design-Builder and Design-Build Subcontractor shall perform their respective responsibilities, obligations and services in a timely manner to facilitate the other's timely and efficient performance and so as not to delay or interfere with the other's performance of its obligations under the Contract Documents.

1.5.2 Design-Builder and Design-Build Subcontractor acknowledge that they have cooperated with each other in the procurement of the Design-Build Agreement and that Design-Builder and Design-Build Subcontractor have met to review, discuss, and familiarize themselves with the Design-Build Agreement, including the Basis of Design Documents.

1.5.3 Design-Builder and Design-Build Subcontractor acknowledge that the design services performed by Design-Build Subcontractor hereunder relate to a part of the overall design of the Project and the importance of having Design-Build Subcontractor's design integrated into the Project's overall design concept. The parties commit to working with each other, and with Design-Builder's Design Consultant, to facilitate the coordination and integration of Design-Build Subcontractor's design services and Work Product with the overall design concept and Construction Documents. Design-Builder is responsible for the services performed by the Design Consultant, or other Subcontractors or Design-Build Subcontractors of Design-Builder, but nothing herein is intended to relieve Design-Build Subcontractor of its obligations to coordinate its Work with the services performed by the Design Consultant, other Subcontractor, or Design-Build Subcontractors.

1.6 Entire Agreement.

1.6.1 Subject to the limitation in Section 1.3.1.5, the Contract Documents, all of which are incorporated by reference into this Agreement, form the entire agreement between Design-Builder and Design-Build Subcontractor and are as fully binding on the parties as if repeated herein. No oral representations or other agreements have been made by the parties except as specifically stated in the Contract Documents.

Article 2

Design-Build Subcontractor's Services and Responsibilities

2.1 General.

2.1.1 Within seven (7) days after execution of this Agreement, Design-Builder and Design-Build Subcontractor will meet to discuss issues affecting the administration and schedule of the Work, and implement the necessary procedures, including but not limited to those relating to design submissions, schedule updates, submittals, and payment, to facilitate the ability of the parties to perform their obligations under this Agreement.

2.1.2 Design-Build Subcontractor's Representative shall be reasonably available to Design-Builder and shall have the necessary expertise and experience required to supervise the Work. Design-Build Subcontractor's Representative shall communicate regularly with Design-Builder and shall be vested with the authority to act on behalf of Design-Build Subcontractor. Design-Build Subcontractor shall replace its Representative upon the reasonable request of Design-Builder.

2.1.3 Design-Build Subcontractor shall only communicate with Owner, Design-Builder's Design Consultant or separate contractors of Design-Builder or Owner through Design-Builder.

2.2 Review of Site and Contract Documents.

2.2.1 Design-Build Subcontractor represents that it has had the opportunity to examine the Site and the Contract Documents to the extent it deemed necessary in its sole discretion prior to executing this Agreement so as to reasonably ascertain the nature of the Work and the various conditions affecting the Work.

2.2.2 Design-Build Subcontractor shall promptly report to Design-Builder any errors, inconsistencies, omissions, or violations of Legal Requirements that Design-Build Subcontractor discovers. Design-Build Subcontractor shall be liable to Design-Builder for any damages resulting from any such errors, inconsistencies, omissions, or violations of Legal Requirements which Design-Build Subcontractor discovers and fails to report to Design-Builder.

2.3 Design and Pre-Construction Services.

2.3.1 Design-Build Subcontractor shall, consistent with applicable state licensing laws, provide the architectural, engineering and other design professional services required to perform the Work. Design-Build Subcontractor agrees that such services shall be provided through qualified, licensed design professionals who are either (i) employed by Design-Build Subcontractor or (ii) procured by Design-Build Subcontractor from qualified, licensed Design Consultants.

2.3.2 Design-Build Subcontractor shall not engage the services of any Design Consultant without first obtaining the approval of Design-Builder, which approval shall not be unreasonably withheld. Design-Build Subcontractor agrees that each Design Consultant shall be fully bound to Design-Build Subcontractor in the same manner as Design-Build Subcontractor is bound to Design-Builder for all the requirements of the Contract Documents which are applicable to the Design Consultant's scope of services. Design-Build Subcontractor shall at all times be responsible for the services performed by its Design Consultants, and shall coordinate the services of its Design Consultants to satisfy Design-Build Subcontractor's obligations under the Contract Documents. Nothing in this Agreement shall relieve Design-Build Subcontractor from responsibility for the services performed by its Design Consultants, or create any legal or contractual relationship between Design-Builder and any Design Consultant.

2.3.3 The standard of care for all design professional services performed by Design-Build Subcontractor and its Design Consultants pursuant to this Agreement shall be the care and skill ordinarily used by members of the design profession practicing under similar conditions at the same time and locality of the Project.

2.3.4 Design-Build Subcontractor shall assist Design-Builder regarding the selection of building systems, materials, and equipment, as well as cost, schedule, and construction feasibility assistance for the Work. Such assistance shall include providing advice relative to, among other

things, labor availability, construction costs, procurement strategies (including scheduling the procurement of items with long-lead times) related to the requirements set forth in the Contract Documents for the Work.

2.3.5 In accordance with the times set forth in the Project Schedule, Design-Build Subcontractor shall submit to Design-Builder all interim design submissions and revisions for the Work as required by the Contract Documents. Interim design submissions shall be consistent with the Basis of Design Documents as the Basis of Design Documents may have been modified in accordance with the Contract Documents. Such interim design submissions shall be in the form and quantity called for in the Contract Documents and may include design criteria, drawings, diagrams and specifications setting forth the Project requirements. The submissions shall also show the relationship of the Work to the overall Project design. Design-Builder and Design-Build Subcontractor agree that prior to the scheduled date for submitting all design submissions to Owner, Design-Builder, Design-Build Subcontractor and Design-Build Subcontractor's Design Consultant will hold meetings for the purpose of discussing and monitoring the design for consistency with the requirements of the Contract Documents.

2.3.6 In accordance with the Contract Documents and with the times set forth in the Project Schedule, Design-Build Subcontractor shall submit to Design-Builder Construction Documents setting forth in detail drawings and specifications describing the requirements for construction of the Work and showing the relationship of the Work to the overall Project. The Construction Documents shall be consistent with the latest set of interim design submissions, as such submissions may have been modified in a design review meeting. Design-Build Subcontractor shall provide the Construction Documents in the form and quantity called for in the Contract Documents. Design-Build Subcontractor shall perform agreed upon revisions and submit revised Construction Documents to Design-Builder for Design-Builder's and Owner's approval.

2.3.7 Design-Build Subcontractor shall attend and participate in such meetings as are held between and among Owner, Design-Builder and Design-Builder's Design Consultant to discuss interim design submissions and the Construction Documents for the Work. Design-Build Subcontractor shall identify during each such meeting, among other things, the evolution of the design and any changes or deviations from the Contract Documents, including the Basis of Design Documents, or, if applicable, previously submitted design submissions. To the extent that Design-Build Subcontractor fails to identify such changes or fails to produce Construction Documents for the Work consistent with the Basis of Design Documents and identified and approved changes and Design-Builder incurs additional uncompensated costs as a result, Design-Build Subcontractor shall be responsible for such costs. Minutes of the meetings, including a full listing of all changes, will be maintained by Design-Builder and provided to all attendees for review. Design-Build Subcontractor shall review such minutes and provide notice of any objections thereto. The Construction Documents for the Work shall be consistent with the latest set of interim design submissions as such submissions may have been modified in a design review meeting and recorded in the meeting minutes.

2.3.8 In addition to the interim design submissions and Construction Documents, if requested by Design-Builder, Design-Build Subcontractor shall prepare (i) those design documents and pricing information for the Work that may be necessary for the establishment of a GMP Exhibit or GMP Proposal and (ii) interim design submissions and Construction Documents for the Work required to permit commencement of construction on a portion of the Project before the entire Construction Documents for the Project are completed.

2.3.9 Design-Builder's and Owner's review and/or approval of interim design submissions and the Construction Documents are for the purpose of mutually establishing a conformed set of Construction Documents for the Work compatible with the requirements of the Contract Documents. The review and/or approval by either Design-Builder or Owner of any interim design submission or the Construction Documents shall not be deemed to transfer any design liability from Design-Build Subcontractor to Design-Builder or Owner.

2.3.10 Design-Build Subcontractor will, at its own cost, revise any interim design submission or Construction Document it has provided to correct any errors, mistakes or omissions. Such revisions shall be performed timely and so as not to jeopardize the Project Schedule.

2.4 Construction Services Generally.

2.4.1 Design-Build Subcontractor shall perform all construction activities efficiently and with the requisite expertise, skill and competence to satisfy the requirements of the Contract Documents and the Project Schedule.

2.4.2 At the request of Design-Builder, Design-Build Subcontractor shall attend meetings with Design-Builder, Owner, and/or separate design professionals or contractors of Design-Builder or Owner to discuss design and/or construction issues which may arise during the Project.

2.5 Submittals and Substitutions.

2.5.1 In accordance with the Contract Documents and the Project Schedule, Design-Build Subcontractor shall submit for Design-Builder's review and approval submittals, including shop drawings, product data and samples. Design-Builder shall advise Design-Build Subcontractor on or before the meeting required by Section 2.1.1 hereof of the submittal requirements for the Project. Any variances with the Construction Documents shall be specifically identified in Design-Build Subcontractor's submittals. Design-Builder's review and approval shall not relieve Design-Build Subcontractor of its responsibilities to perform the Work in accordance with the Construction Documents unless Design-Builder expressly approves in writing any such variance in its response to Design-Build Subcontractor's submittals. Design-Build Subcontractor shall make any necessary revisions to the submittals requested by Design-Builder.

2.5.2 Design-Build Subcontractor shall not make any substitutions in the Work or procedures or methods specified by Owner, Design-Builder or the Construction Documents for performing the Work unless it first receives written approval for such substitution from Design-Builder.

2.6 Sub-Subcontractors.

2.6.1 Design-Build Subcontractor shall employ only Sub-Subcontractors who are duly licensed and qualified to perform the Work consistent with the Contract Documents. Design-Build Subcontractor agrees that each Sub-Subcontractor shall be fully bound to Design-Build Subcontractor in the same manner as Design-Build Subcontractor is bound to Design-Builder for all the requirements of the Contract Documents to the extent applicable to the Sub-Subcontractor's scope of work.

2.6.2 Design-Build Subcontractor assumes responsibility to Design-Builder for the proper performance of the Work of Sub-Subcontractors and any acts and omissions in connection with such performance. Design-Build Subcontractor shall coordinate the activities of all Sub-Subcontractors. Nothing in this Agreement is intended or deemed to relieve Design-Build Subcontractor from responsibility for the work performed by its Sub-Subcontractors, or create any legal or contractual relationship between Owner or Design-Builder and any Sub-Subcontractor, including but not limited to any third-party beneficiary rights.

2.7 Work of Others.

2.7.1 Design-Build Subcontractor agrees to reasonably cooperate with, and coordinate its activities so as not to interfere with, those parties performing work at the Site, including Owner's and Design-Builder's separate contractors, so that the Project can be completed in an orderly and coordinated manner without unreasonable disruption.

2.7.2 If any part of the Work depends upon other work performed by Design-Builder, or Design-Builder's or Owner's separate contractors, Design-Build Subcontractor shall, prior to proceeding with that part of the Work, inspect such other work and promptly notify Design-Builder of any discovered discrepancies or defects that would render it unacceptable for the proper performance of the Work. Design-Build Subcontractor shall not proceed with such part of the Work without further direction from Design-Builder. Design-Builder shall promptly correct or cause to be corrected any such discrepancy or defect in the other work. Except to the extent such discrepancies or defects in such other work are latent, Design-Build Subcontractor shall be liable for appropriate losses or

damages incurred due to any discrepancies or defects in such other work not reported to Design-Builder by Design-Build Subcontractor.

2.8 Site Cleanup.

2.8.1 Design-Build Subcontractor shall keep the Site reasonably free from debris, trash and construction wastes resulting from the performance of the Work. Upon Substantial Completion of the Work, or a portion of the Work, Design-Build Subcontractor shall remove all debris, trash, construction wastes, materials, equipment, machinery and tools arising from the Work or applicable portions thereof to permit Owner to occupy the Project or a portion of the Project for its intended use.

2.9 Inspection.

2.9.1 At all reasonable times, Design-Build Subcontractor shall provide sufficient facilities for inspection of the Work by Design-Builder at the Site and at all locations where portions of the Work are in progress or various stages of completion. When appropriate portions of the Work are ready for inspection, Design-Build Subcontractor shall notify Design-Builder.

2.10 Patents and Copyrights.

2.10.1 Design-Build Subcontractor shall pay all license fees and royalties due for items, materials, methods, systems or processes applicable to the Work which are subject to copyrights or patent rights and which are selected by Design-Build Subcontractor.

2.11 Legal Requirements.

2.11.1 Design-Build Subcontractor shall perform the Work in accordance with all applicable Legal Requirements.

2.11.2 The Contract Price and/or the times for completion of the Work shall be adjusted to compensate Design-Build Subcontractor for the effects, if any, of any changes in the Legal Requirements enacted after the date of the Agreement affecting the performance of the Work.

2.12 Government Approvals and Permits.

2.12.1 Design-Build Subcontractor shall obtain and pay for the necessary permits, approvals, licenses, government charges and inspection fees required for the prosecution of the Work as set forth in Exhibit A.

2.12.2 Design-Build Subcontractor shall provide reasonable assistance to Design-Builder in obtaining those permits, approvals and licenses, if any, that are the responsibility of Owner or Design-Builder and related to the Work.

2.12.3 Design-Build Subcontractor shall make any revisions to the Construction Documents necessary to secure permits, approvals, and licenses, including those which have been denied for failure of the Construction Documents to meet Legal Requirements. If such revisions are necessary for reasons beyond the control of Design-Build Subcontractor or its Design Consultants, Design-Build Subcontractor shall be compensated for such revisions as a change to this Agreement.

2.13 Project Safety.

2.13.1 Design-Build Subcontractor recognizes the importance of performing the Work in a safe manner so as to prevent damage, injury or loss to (i) all individuals at the Site, whether working or visiting, (ii) the Work, including materials and equipment incorporated into the Work or stored on-Site or off-Site, (iii) the work of others on the Project, and (iv) all other property at the Site or adjacent thereto. Design-Build Subcontractor assumes responsibility for implementing and monitoring all safety precautions and programs related to the performance of the Work.

2.13.2 Design-Build Subcontractor and Sub-Subcontractors shall comply with all Legal Requirements relating to safety, as well as any Owner-specific and/or Design-Builder-specific

safety requirements set forth in the Contract Documents or established for the Project, provided that such Owner-specific and/or Design-Builder-specific requirements do not violate any applicable Legal Requirement. Design-Build Subcontractor will immediately report in writing any safety-related injury, loss, damage or accident arising from the Work to Design-Builder's Representative and, to the extent mandated by Legal Requirements, to all government or quasi-government authorities having jurisdiction over safety-related matters involving the Project or the Work.

2.14 Warranty.

2.14.1 Design-Build Subcontractor warrants to Design-Builder that the construction, including all materials and equipment furnished as part of the construction, shall be new unless otherwise specified in the Contract Documents, of good quality, in conformance with the Contract Documents and free of defects in materials and workmanship. Design-Build Subcontractor's warranty obligation excludes defects caused by abuse, alterations, or failure to maintain the Work in a commercially reasonable manner. Nothing in this warranty is intended to limit any manufacturer's warranty which provides Owner and/or Design-Builder with greater warranty rights than set forth in this Section 2.14 or the Contract Documents. Design-Build Subcontractor will provide and, if requested, assign to Design-Builder all manufacturers' warranties upon Substantial Completion.

2.15 Correction of Defective Work.

2.15.1 Design-Build Subcontractor agrees to correct any of the Work that is found not to be in conformance with the Contract Documents, including that part of the Work subject to Section 2.14 hereof, within a period of one year from the date of Substantial Completion of the Work or any portion of the Work, or within such longer period to the extent required by any specific warranty included in the Contract Documents.

2.15.2 Design-Build Subcontractor shall, within three (3) days of receipt of written notice from Design-Builder that the Work is not in conformance with the Contract Documents, take meaningful steps to commence correction of such nonconforming Work, including the correction, removal or replacement of the nonconforming Work and any damage caused to other parts of the Work or the Project affected by the nonconforming Work. If Design-Build Subcontractor fails to commence the necessary steps within such three (3) day period, Design-Builder, in addition to any other remedies provided under the Contract Documents, may provide Design-Build Subcontractor with written notice that Design-Builder will commence correction of such nonconforming Work with its own forces. If Design-Builder does perform such corrective Work, Design-Build Subcontractor shall be responsible for all reasonable costs incurred by Design-Builder in performing such correction. If the nonconforming Work creates an emergency requiring an immediate response in Design-Builder's reasonable opinion, the three (3) day period identified herein shall be deemed inapplicable.

2.15.3 The one year period referenced in Section 2.15.1 above applies only to Design-Build Subcontractor's obligation to correct nonconforming Work and is not intended to constitute a period of limitations for any other rights or remedies Design-Builder may have regarding Design-Build Subcontractor's obligations under the Contract Documents.

2.16 Start-Up and Training.

2.16.1 If required as part of Design-Build Subcontractor's Work, Design-Build Subcontractor shall be responsible for the start-up, testing, and commissioning of the Work, and shall train Owner's personnel with respect to the operation and maintenance of the Work.

2.17 Hazardous Conditions.

2.17.1 Design-Build Subcontractor is responsible for Hazardous Conditions introduced to the Site by itself, Sub-Subcontractors or anyone for whose acts they may be liable. Design-Build Subcontractor shall indemnify, defend and hold harmless Owner, Design-Builder and their officers, directors, employees and agents from and against all claims, losses, damages, liabilities, and expenses, including attorneys' fees and expenses, arising out of or resulting from those Hazardous

Conditions introduced to the Site by Design-Build Subcontractor, Sub-Subcontractors or anyone for whose acts they may be liable.

Article 3

Design-Builder's Services and Responsibilities

3.1 Timely Reviews and Approvals.

3.1.1 Design-Builder shall provide timely reviews and approvals of all interim design submissions, Construction Documents and submittals, consistent with the turnaround times set forth in the Project Schedule, or as agreed to by the parties at the meeting required under Section 2.1.1 hereof.

3.2 Design-Builder's Representative.

3.2.1 Design-Builder's Representative shall be responsible for providing Design-Builder-supplied information and approvals in a timely manner to permit Design-Build Subcontractor to fulfill its obligations under the Contract Documents.

3.3 Furnishing of Services and Information.

3.3.1 Unless expressly stated to the contrary in the Contract Documents, and to the extent Design-Builder has received such items from Owner, Design-Builder shall provide for Design-Build Subcontractor's information the items listed below. Design-Builder does not warrant the accuracy or completeness of such items provided, however, that Design-Build Subcontractor is entitled to rely on these items to the same extent Design-Builder is entitled to rely upon such items in the Design-Build Agreement:

3.3.1.1 Surveys describing the property, boundaries, topography and reference points for use during construction, including existing service and utility lines;

3.3.1.2 Geotechnical studies describing subsurface conditions, and other surveys describing other latent or concealed physical conditions at the Site;

3.3.1.3 Temporary and permanent easements, zoning and other requirements and encumbrances affecting land use, or necessary to permit the proper construction of the Project and enable Design-Build Subcontractor to perform the Work;

3.3.1.4 A legal description of the Site;

3.3.1.5 Record drawings of any existing structures at the Site;

3.3.1.6 Environmental studies, reports and impact statements describing the environmental conditions, including Hazardous Conditions, in existence at the Site;

3.3.1.7 Owner's Project Criteria;

3.3.1.8 All permits, approvals, and licenses set forth in the Owner's Permit List attached as an exhibit to the Design-Build Agreement; and

3.3.1.9 Test and inspection reports.

3.3.2 Design-Builder shall provide Design-Build Subcontractor with a copy of the Design-Build Agreement, including all exhibits, attachments, and other Contract Documents enumerated and incorporated therein.

3.3.3 Upon Design-Build Subcontractor's reasonable request, Design-Builder shall provide Design-Build Subcontractor with information in Design-Builder's possession regarding Owner's financial ability to pay for the Work set forth in this Agreement.

3.3.4 Design-Builder shall provide Design-Build Subcontractor with the Project Schedule and appropriate updates thereto.

3.3.5 Design-Builder shall, upon request of Design-Build Subcontractor, provide Design-Build Subcontractor with interim design documents and Construction Documents for portions of the Project that are not being designed by Design-Build Subcontractor.

3.3.6 Design-Builder shall obtain those permits, approvals and licenses that are not required to be provided by Owner pursuant to the Design-Build Agreement or by Design-Build Subcontractor pursuant to Section 2.12.1 hereof. Design-Builder shall provide reasonable assistance to Design-Build Subcontractor in obtaining those permits, approvals and licenses that are Design-Build Subcontractor's responsibility.

3.4 Notification of Errors.

3.4.1 Design-Builder shall notify Design-Build Subcontractor of any errors, inconsistencies, or omissions Design-Builder discovers in the Work. Notwithstanding anything to the contrary in this Agreement, nothing in this Agreement shall relieve Design-Build Subcontractor of responsibility for errors, inconsistencies, or omissions in the Work.

3.5 Attendance at Design Meetings.

3.5.1 Design-Builder shall afford Design-Build Subcontractor and its Sub-Subcontractors the opportunity to attend all necessary design meetings with Owner, Design-Builder's Design Consultant or others furnishing portions of the design for the Project.

3.6 Review and Approval of Submittals.

3.6.1 Design-Builder shall review and approve submittals, including shop drawings, product data and samples, submitted by Design-Build Subcontractor. Design-Builder's review and approval of submittals shall be only for the purpose of confirming general conformance with the Construction Documents. Design-Builder's review and approval shall not relieve Design-Build Subcontractor of its responsibilities to perform the Work in accordance with the Construction Documents unless Design-Builder expressly approves in writing any such variance in its response to Design-Build Subcontractor's submittals. If revisions are necessary to a submittal prior to Design-Builder's approval, Design-Builder shall inform Design-Build Subcontractor of any such necessary revisions.

3.7 Design-Builder's Separate Contractors.

3.7.1 Design-Builder is responsible for all work performed on the Project or at the Site by separate contractors under Design-Builder's control. Design-Builder shall contractually require its separate contractors to cooperate with, and coordinate their activities so as not to interfere with, Design-Build Subcontractor's ability to timely complete the Work consistent with the Contract Documents.

Article 4

Ownership of Work Product

4.1 Work Product.

4.1.1 All drawings, specifications and other documents and electronic data furnished by Design-Build Subcontractor to Design-Builder under this Agreement ("Work Product") are deemed to be instruments of service and Design-Build Subcontractor shall retain ownership and property interests therein provided, however, that Design-Build Subcontractor hereby grants Design-Builder (for the purpose of allowing Design-Builder to grant to Owner), upon Design-Builder's payment to Design-Build Subcontractor of amounts properly due under this Agreement, a limited license to use the Work Product in connection with completing this Project. Notwithstanding the preceding sentence, if the Design-Build Agreement grants ownership and/or property rights to Owner that

conflict with the above, then Design-Build Subcontractor hereby grants such rights to Design-Builder (for the purpose of allowing Design-Builder to grant to Owner) under the same terms and conditions that Design-Builder grants such rights to Owner.

4.2 Agreement to Grant Rights to Owner.

4.2.1 Design-Build Subcontractor has reviewed the Design-Build Agreement and is fully aware of the ownership and property rights to use the Work Product which may be granted to Owner therein. Design-Build Subcontractor accepts and agrees to Owner's ownership and property rights with respect to the Work Product contained in the Design-Build Agreement.

4.3 Indemnification for Use of Work Product.

4.3.1 If either Design-Builder or Design-Build Subcontractor uses the Work Product on any other project, such party agrees that it shall do so at its sole risk and without liability or legal exposure to the other party, Owner, or anyone working through them. Such party further agrees that it shall defend, indemnify and hold harmless the other party and Owner from and against any and all claims, damages, liabilities, losses and expenses, including attorneys' fees, arising out of or resulting from such use of the Work Product on another project.

4.4 Use of Work Product On Termination or Default.

4.4.1 If Design-Builder terminates this Agreement for its convenience as set forth in Section 8.2 hereof, or if Design-Build Subcontractor elects to terminate this Agreement in accordance with Section 8.5 of this Agreement, Design-Build Subcontractor, upon Design-Builder's payment in full of the amounts due Design-Build Subcontractor under the Contract Documents, grants Design-Builder and Owner the same rights as set forth in Section 4.1.1 above to use the Work Product to complete the Project and subsequently occupy the Project, conditioned on the following:

4.4.1.1 Use of the Work Product is at Design-Builder's sole risk without liability or legal exposure to Design-Build Subcontractor or anyone working by or through Design-Build Subcontractor, and on Design-Builder's obligation to provide the indemnity set forth in Section 4.3 herein, and

4.4.1.2 Design-Builder agrees to pay Design-Build Subcontractor the additional sum of 0.00 Dollars ($0.00) as compensation for the right to use the Work Product to complete the Project and subsequently use the Work Product in accordance with Section 4.1.1 if Design-Builder resumes the Project through its employees, agents, or third parties.

4.4.2 If this Agreement is terminated due to Design-Build Subcontractor's default pursuant to Section 8.3 of this Agreement, then Design-Builder shall have the same rights as set forth in Section 4.1.1 above to use the Work Product to complete the Project and subsequently occupy the Project, and Design-Builder and Owner shall thereafter have the same rights and obligations as set forth in Section 4.1.1 above. Notwithstanding the preceding sentence, if it is ultimately determined that Design-Build Subcontractor was not in default, Design-Builder shall be deemed to have terminated the Agreement for convenience, and Design-Build Subcontractor shall be entitled to the rights and remedies set forth in Section 4.4.1 above.

Article 5

Time of Performance

5.1 Date of Commencement.

5.1.1 The Work shall commence five (5) days after Design-Build Subcontractor's receipt of Design-Builder's Notice to Proceed ("Date of Commencement") unless the parties mutually agree otherwise in writing.

5.2 Time of Completion.

5.2.1 Design-Build Subcontractor shall diligently and continuously prosecute and complete the Work in accordance with the Project Schedule as it may be revised and issued from time to time during the performance of the Work, and any other scheduling requirements listed in the Contract Documents.

5.2.2 Design-Build Subcontractor shall participate and cooperate in the development of schedules and other efforts to achieve timely completion of the Work. Design-Build Subcontractor shall provide Design-Builder information for the scheduling of the times and sequence of operations required for the Work to meet Design-Builder's overall schedule requirements, shall continuously monitor the Project Schedule, including any revisions thereto, so as to be fully familiar with the timing, phasing and sequence of operation of the Work and of other work on the Project, and shall execute the Work in accordance with the requirements of the Project Schedule including any revisions thereto.

5.2.3 Design-Build Subcontractor shall timely perform the various stages of the Work so that Design-Builder can achieve the dates set forth in the Project Schedule, including any revisions thereto.

5.3 Time is of the Essence.

5.3.1 Design-Builder and Design-Build Subcontractor mutually agree that time is of the essence with respect to the dates and times set forth in the Contract Documents and the Project Schedule.

5.4 Delays to the Work.

5.4.1 If Design-Build Subcontractor is delayed in the performance of the Work due to acts, omissions, conditions, events, or circumstances beyond its control and due to no fault of its own or those for whom Design-Build Subcontractor is responsible, the time for performance shall be reasonably extended by Change Order. By way of example, events that may entitle Design-Build Subcontractor to an extension of the time for completion of the work include acts or omissions of Design-Builder, Owner or anyone under Design-Builder's or Owner's control (including separate contractors), changes in the Work, Differing Site Conditions, Hazardous Conditions, and Force Majeure Events.

5.4.2 In addition to Design-Build Subcontractor's right to a time extension for those events set forth in Section 5.4.1 above, Design-Build Subcontractor shall also be entitled to an appropriate adjustment of the Contract Price provided, however, that the Contract Price shall not be adjusted for Force Majeure Events unless otherwise expressly provided in Article 17 of this Agreement.

5.4.3 Notwithstanding any other provision to the contrary, any delay and resulting damages that arise out of, or relate to, problems caused by Owner or for which Owner is responsible shall be resolved pursuant to Section 13.3 hereof.

5.4.4 If the Project is delayed due to the Design-Build Subcontractor or anyone for whom Design-Build Subcontractor is responsible, and not due to Design-Builder or Owner, Design-Build Subcontractor shall compensate and indemnify Design-Builder for all costs, damages, and expenses arising from such delay, including but not limited to any liquidated damages or other damages that Owner may assess against Design-Builder which are attributable to Design-Build Subcontractor or anyone for whom Design-Build Subcontractor is responsible. In addition, Design-Build Subcontractor shall, at the direction of Design-Builder and at Design-Build Subcontractor's own cost and expense, work such overtime and take such other measures as may be necessary to make up for all time lost in the completion of the Project due to such delay.

Article 6

Contract Price

6.1 Contract Price.

6.1.1 Design-Builder shall pay Design-Build Subcontractor in accordance with Article 7 hereof the sum of _____Dollars ($_____) ("Contract Price"), subject to adjustments made in accordance with the Contract Documents. Unless otherwise provided in the Contract Documents, the Contract Price is deemed to include all sales, use, consumer and other taxes mandated by applicable Legal Requirements. The parties acknowledge that the Contract Price herein is based upon Design-Build Subcontractor's List of Assumptions and Qualifications. To the extent Design-Build Subcontractor is required to perform work which is not consistent with its List of Assumptions and Qualifications, Design-Build Subcontractor shall be entitled to an adjustment in the Contract Price pursuant to Article 12 of this Agreement. Notwithstanding the above, Design-Builder is not responsible for Design-Build Subcontractor's bidding or estimating mistakes or miscalculation of market conditions.

6.2 Markups for Changes.

6.2.1 If the Contract Price requires an adjustment due to changes in the Work, and the cost of such changes is determined under Sections 12.6.1.3 or 12.6.1.4 hereof, the following markups shall be allowed on such changes:

6.2.1.1 For additive Change Orders, including additive Change Orders arising from both additive and deductive items, it is agreed that Design-Build Subcontractor shall receive a Fee of Ten percent (10%) of the additional Costs of the Work incurred for that Change Order, plus any other markups set forth at Exhibit A hereto.

6.2.1.2 For deductive Change Orders, including deductive Change Orders arising from both additive and deductive items, the deductive amounts shall include:

[Check one box only]

☐ No additional reduction to account for Design-Build Subcontractor's Fee or any other markup.

or

☒ An amount equal to the sum of: (a) Ten percent (10%) applied to the direct costs of the net reduction (which amount will account for a reduction associated with Design-Build Subcontractor's Fee); plus (b) any other markups set forth at Exhibit A hereto applied to the direct costs of the net reduction.

Article 7

Procedure for Payment

7.1 Schedule of Values.

7.1.1 Unless required by Design-Builder upon execution of this Agreement, within ten (10) days of execution of the Agreement, Design-Build Subcontractor shall submit for Design-Builder's review and approval a schedule of values for all of the Work. The Schedule of Values will (i) subdivide the Work into its respective parts; (ii) include values for all items comprising the Work and (iii) serve as the basis for monthly progress payments made to Design-Build Subcontractor throughout the Work.

7.2 Progress Payments.

7.2.1 Beginning with the first month after the Date of Commencement, Design-Build Subcontractor shall submit on the Twenty-Fifth (25th) day of each month for Design-Builder's review and approval, Design-Build Subcontractor's Application for Payment requesting payment for all Work performed as of the date of the Application for Payment. The Application for Payment shall be accompanied by all supporting documentation required by the Contract Documents and/or established at the meeting required by Section 2.1.1 hereof. Design-Builder will submit Design-Build Subcontractor's proper Application for Payment to Owner with Design-Builder's application.

7.2.2 The Application for Payment may request payment for equipment and materials not yet incorporated into the Project, provided that (i) Design-Builder is satisfied that the equipment and materials are suitably stored at either the Site or another acceptable location, (ii) the equipment and materials are protected by suitable insurance, and (iii) upon payment, Design-Builder will receive the equipment and materials free and clear of all liens and encumbrances.

7.2.3 The Application for Payment shall constitute Design-Build Subcontractor's representation that the Work has been performed consistent with the Contract Documents, has progressed to the point indicated in the Application for Payment, and that title to all Work will pass to Owner free and clear of all claims, liens, encumbrances, and security interests upon the incorporation of the Work into the Project, or upon Design-Build Subcontractor's receipt of payment, whichever occurs earlier.

7.2.4 Design-Builder shall make payment on Design-Build Subcontractor's properly submitted and accurate Application for Payment within five (5) days after Design-Builder's receipt of payment from Owner on account of Design-Build Subcontractor's monthly Application for Payment, but in each case less the total of payments previously made, and less amounts properly withheld under this Agreement.

7.3 Retainage on Progress Payments.

7.3.1 Design-Builder will retain from each of Design-Build Subcontractor's Application for Payment Ten percent (10%). Unless mutually agreed otherwise between the parties, retainage will be included in Design-Builder's final payment to Design-Build Subcontractor, provided Design-Builder has received such retained amounts from Owner.

7.4 Withholding of Payments/Joint Checks.

7.4.1 If Design-Builder determines that Design-Build Subcontractor is not entitled to all or part of an Application for Payment, it will notify Design-Build Subcontractor in writing at least five (5) days prior to the date payment is due. The notice shall indicate the specific amounts Design-Builder intends to withhold, the reasons and contractual basis for the withholding, and the specific measures Design-Build Subcontractor must take to rectify Design-Builder's concerns. Design-Builder and Design-Build Subcontractor will attempt to resolve Design-Builder's concerns prior to the date payment is due. If the parties cannot resolve such concerns, Design-Builder shall pay Design-Build Subcontractor the uncontested amount of the Application for Payment, and Design-Build Subcontractor may pursue its rights under the Contract Documents, including those under Article 13 hereof.

7.4.2 Design-Builder shall have the right to issue joint checks to Design-Build Subcontractor and any entity or individual whom Design-Build Subcontractor shall engage to perform Work upon written notice by Design-Builder. Upon receipt of said written Notice, Design-Build Subcontractor agrees to provide all information reasonably requested by Design-Builder to facilitate issuance of joint checks.

7.5 Final Payment.

7.5.1 Design-Build Subcontractor shall submit its Final Application for Payment to Design-Builder in accordance with Section 7.5.2 below. Design-Builder shall make payment on Design-Build Subcontractor's properly submitted and accurate Final Application for Payment within ten (10) days after Design-Builder's receipt of final payment from Owner on account of Design-Build

Subcontractor's Final Application for Payment, provided also that Design-Build Subcontractor has satisfied the requirements for final payment set forth in Section 7.5.2 below.

7.5.2 At the time of submission of its Final Application for Payment, Design-Build Subcontractor shall provide the following information:

7.5.2.1 An affidavit that there are no claims, obligations or liens outstanding or unsatisfied for labor, services, material, equipment, taxes or other items performed, furnished or incurred for or in connection with the Work which will in any way affect Design-Builder's or Owner's interests;

7.5.2.2 A general release executed by Design-Build Subcontractor waiving, upon receipt of final payment by Design-Build Subcontractor, all claims, except those claims previously made in writing to Design-Builder and remaining unsettled at the time of final payment;

7.5.2.3 Consent of Design-Build Subcontractor's surety, if any, to final payment;

7.5.2.4 All operating manuals, warranties and other deliverables required by the Contract Documents; and

7.5.2.5 Certificates of insurance confirming that required coverages will remain in effect consistent with the requirements of the Contract Documents.

7.5.3 Upon making final payment, Design-Builder waives all claims against Design-Build Subcontractor except claims relating to (i) Design-Build Subcontractor's failure to satisfy its payment obligations, if such failure affects Design-Builder's or Owner's interests; (ii) Design-Build Subcontractor's failure to complete the Work consistent with the Contract Documents, including defects appearing after final completion of the Work; and (iii) the terms of any special warranties required by the Contract Documents.

7.6 Pay When Paid.

7.6.1 Design-Build Subcontractor agrees that all payments to Design-Build Subcontractor hereunder, whether progress or final payment, or for changes or delays to the Work, shall not be due until after Design-Builder actually receives payment on account of same from Owner. Notwithstanding the preceding sentence, Design-Builder shall pay Design-Build Subcontractor within a reasonable time if it has not been paid by the Owner unless the Owner's failure to pay the Design-Builder is caused by the Design-Build Subcontractor's failure to perform in accordance with this Agreement.

7.7 Interest.

7.7.1 Payments due and unpaid under this Agreement shall bear interest commencing five (5) days after payment is due at the rate of Eight percent (8%) per annum.

7.8 Advance Payments.

7.8.1 Design-Builder has the right, at its sole option, to advance any payment due Design-Build Subcontractor under this Agreement.

7.9 Payment Not Acceptance.

7.9.1 No payment to Design-Build Subcontractor under this Agreement shall be evidence of, or construed to be, acceptance of defective, faulty, improper or non-conforming work.

7.10 Design-Build Subcontractor's Payment Obligations.

7.10.1 Design-Build Subcontractor will pay its Design Consultants and Sub-Subcontractors, in accordance with its contractual obligations to such parties, all the amounts Design-Build Subcontractor has received from Design-Builder on account of their work. Design-Build Subcontractor will impose similar requirements on its Design Consultants and Sub-Subcontractors to pay those parties with whom they have contracted. Design-Build Subcontractor will indemnify

and defend Owner and Design-Builder against any claims for payment and mechanic's liens as set forth in Section 11.3 hereof, providing Design-Builder is not in breach of its contractual obligations to make payment to Design-Build Subcontractor for its Work.

7.11 Record Keeping and Finance Controls.

7.11.1 With respect to changes in the Work performed on a cost basis by Design-Build Subcontractor pursuant to the Contract Documents, Design-Build Subcontractor shall keep full and detailed accounts and exercise such controls as may be necessary for proper financial management, using accounting and control systems in accordance with generally accepted accounting principles and as may be provided in the Contract Documents. During the performance of the Work and for a period of three (3) years after final payment of the Work, Design-Builder and Design-Builder's accountants shall be afforded access to and the right to audit from time-to-time, upon reasonable notice, Design-Build Subcontractor's records, books, correspondence, receipts, subcontracts, purchase orders, vouchers, memoranda and other data relating to the changes in the Work performed on a cost basis in accordance with the Contract Documents, all of which Design-Build Subcontractor shall preserve for a period of three (3) years after final payment. Such inspection shall take place at Design-Build Subcontractor's offices during normal business hours unless another location and time is agreed to by the parties. Any multipliers or markups agreed to by the Design-Builder and Design-Build Subcontractor as part of this Agreement are only subject to audit to confirm that such multiplier or markup has been charged in accordance with this Agreement, with the composition of such multiplier or markup not being subject to audit.

Article 8

Stop Work and Termination

8.1 Design-Builder's Right To Stop Work.

8.1.1 Design-Builder may, without cause and for its convenience, order Design-Build Subcontractor in writing to stop and suspend the Work. Such suspension shall not exceed sixty (60) consecutive days or aggregate more than ninety (90) days during the duration of the Project.

8.1.2 Design-Build Subcontractor is entitled to seek an adjustment of the Contract Price and/or times for completion of the Work if its cost or time to perform the Work has been adversely impacted by any suspension or stoppage of work by Design-Builder. Notwithstanding anything to the contrary herein, if Design-Builder's suspension of the Work is the result of Owners suspension of the Design-Builder's work under the Design-Build Agreement, then Design-Builder shall pay Design-Build Subcontractor only those amounts Design-Builder actually receives from Owner on account of the Work.

8.2 Design-Builder's Right to Terminate for Convenience.

8.2.1 Upon ten (10) days' written notice to Design-Build Subcontractor, Design-Builder may, for its convenience and without cause, elect to terminate this Agreement. In such event, Design-Builder's right to use the existing Work Product shall be as set forth in Section 4.4.1, and Design-Builder shall pay Design-Build Subcontractor for the following:

8.2.1.1 All Work executed and for proven loss, cost or expense in connection with the Work;

8.2.1.2 The reasonable costs and expenses attributable to such termination, including amounts due in settlement of terminated contracts with its Design Consultants and Sub-Subcontractors; and

8.2.1.3 ***[choose one of the following]***

☒ The fair and reasonable sums for overhead and profit on the sum of items 8.2.1.1 and 8.2.1.2 above.

or

☐ Overhead and profit in the amount of _____ percent (_____%) on the sum of items 8.2.1.1 and 8.2.1.2 above.

8.2.2 If Design-Builder's termination of Design-Build Subcontractor for convenience is the result of Owner's termination of Design-Builder for convenience under the Design-Build Agreement, then Design-Builder shall pay Design-Build Subcontractor only those amounts Design-Builder actually receives from Owner on behalf of Design-Build Subcontractor.

8.3 Design-Builder's Right to Terminate for Cause.

8.3.1 If Design-Build Subcontractor fails to (i) provide a sufficient number of skilled workers, (ii) supply the materials required by the Contract Documents, (iii) comply with applicable Legal Requirements, (iv) timely pay, without cause, its Sub-Subcontractors or Design Consultants, (v) prosecute the Work with promptness and diligence to ensure that the Work is completed in accordance with the Project Schedule, as such schedule may be adjusted, or (vi) perform material obligations under the Contract Documents, then Design-Builder shall have the rights, in addition to any other rights and remedies provided in the Contract Documents or by law, set forth in Sections 8.3.2 and 8.3.3 below.

8.3.2 Upon the occurrence of an event set forth in Section 8.3.1 above, Design-Builder may provide written notice to Design-Build Subcontractor that it intends to terminate the Agreement unless the problem cited is cured, or commenced to be cured, within three (3) days of Design-Build Subcontractor's receipt of such notice. If Design-Build Subcontractor fails to cure, or reasonably commence to cure, such problem, then Design-Builder may give a second written notice to Design-Build Subcontractor of its intent to terminate within an additional three (3) day period. If Design-Build Subcontractor, within such second three (3) day period, fails to cure, or reasonably commence to cure, such problem, then Design-Builder may declare the Agreement terminated for default by providing written notice to Design-Build Subcontractor of such declaration.

8.3.3 Upon declaring the Agreement terminated pursuant to Section 8.3.2 above, Design-Builder may enter upon the premises and take possession, for the purpose of completing the Work, of all materials, equipment, scaffolds, tools, appliances and other items thereon, which have been purchased or provided for the performance of the Work, all of which Design-Build Subcontractor hereby transfers, assigns and sets over to Design-Builder for such purpose, and to employ any person or persons to complete the Work and provide all of the required labor, services, materials, equipment and other items. Design-Builder shall have the right to use the existing Work Product for purposes of completing the Project as set forth in Section 4.4.2. In the event of such termination, Design-Build Subcontractor shall not be entitled to receive any further payments under the Contract Documents until the Work shall be finally completed in accordance with the Contract Documents. At such time, if the unpaid balance of the Contract Price exceeds the cost and expense incurred by Design-Builder in completing the Work, such excess shall be paid by Design-Builder to Design-Build Subcontractor. If Design-Builder's cost and expense of completing the Work exceeds the unpaid balance of the Contract Price, then Design-Build Subcontractor shall be obligated to pay the difference to Design-Builder. Such costs and expense shall include not only the cost of completing the Work, but also losses, damages, costs and expenses, including attorneys' fees and expenses, incurred by Design-Builder in connection with the reprocurement and defense of claims arising from Design-Build Subcontractor's default, subject to the waiver of consequential damages set forth in Section 13.7 hereof.

8.3.4 If Design-Builder improperly terminates the Agreement for cause, Design-Build Subcontractor agrees that the termination for cause will be converted automatically to a termination for convenience in accordance with the provisions of Section 8.2 of the Agreement.

8.4 Design-Build Subcontractor's Right To Stop Work.

8.4.1 If Design-Builder fails to pay any amounts due Design-Build Subcontractor under this Agreement, Design-Build Subcontractor may, in addition to any other rights afforded under the Contract Documents or at law, stop work in accordance with Section 8.4.2.

8.4.2 Design-Build Subcontractor shall provide Design-Builder with written notice that Design-Build Subcontractor will stop work unless said failure to pay the amount is cured within seven (7) days from Design-Builder's receipt of Design-Build Subcontractor's notice. If Design-Builder does not cure the problem within such seven (7) day period, Design-Build Subcontractor may stop work. In such case, Design-Build Subcontractor shall be entitled to make a claim for adjustment to the Contract Price and the times for completion of the Work to the extent it has been adversely impacted by such stoppage. To the extent Design-Builder's failure to pay is related to a dispute between the parties, the dispute will be resolved in accordance with Article 13 and the parties will continue performance in accordance with Section 13.6.

8.5 Design-Build Subcontractor's Right to Terminate For Cause.

8.5.1 Design-Build Subcontractor, in addition to any other rights and remedies afforded under the Contract Documents or at law, may terminate the Agreement for cause in accordance with Section 8.5.2 below if Design-Builder fails to cure the problems set forth in Section 8.4.1 above within thirty (30) days after Design-Build Subcontractor has stopped the work.

8.5.2 Upon the occurrence of the event set forth in Section 8.5.1 above, Design-Build Subcontractor may provide written notice to Design-Builder that it intends to terminate the Agreement unless the problem cited is cured, or commenced to be cured, within seven (7) days of Design-Builder's receipt of such notice. If Design-Builder fails to cure, or reasonably commence to cure, such problem, then Design-Build Subcontractor may give a second written notice to Design-Builder of its intent to terminate within an additional seven (7) day period. If Design-Builder, within such second seven (7) day period, fails to cure, or reasonably commence to cure, such problem, then Design-Build Subcontractor may declare the Agreement terminated for default by providing written notice to Design-Builder of such declaration. In such case, Design-Build Subcontractor shall be entitled to recover in the same manner as if Design-Builder had terminated this Agreement for its convenience under Section 8.2 of the Agreement.

8.6 Bankruptcy of Design-Builder or Design-Build Subcontractor.

8.6.1 If either Design-Builder or Design-Build Subcontractor institutes or has instituted against it a case under the United States Bankruptcy Code (such party being referred to as the "Bankrupt Party"), such event may impair or frustrate the Bankrupt Party's ability to perform its obligations under the Contract Documents. Accordingly, should such event occur:

8.6.1.1 The Bankrupt Party, its trustee or other successor, shall furnish, upon request of the non-Bankrupt Party, adequate assurance of the ability of the Bankrupt Party to perform all future material obligations under the Contract Documents, which assurances shall be provided within ten (10) days after receiving notice of the request; and

8.6.1.2 The Bankrupt Party shall file an appropriate action within the bankruptcy court to seek assumption or rejection of the Agreement within sixty (60) days of the institution of the bankruptcy filing and shall diligently prosecute such action.

If the Bankrupt Party fails to comply with its foregoing obligations, the non-Bankrupt Party shall be entitled to request the bankruptcy court to reject the Agreement, declare the Agreement terminated and pursue any other recourse available to the non-Bankrupt Party under this Article 8.

8.6.2 The rights and remedies under Section 8.6.1 above shall not be deemed to limit the ability of the non-Bankrupt Party to seek any other rights and remedies provided by the Contract Documents or by law, including its ability to seek relief from any automatic stays under the United States Bankruptcy Code.

Article 9

Representatives of the Parties

9.1 Design-Builder's Representatives.

9.1.1 Design-Builder designates the individual listed below as its Senior Representative ("Design-Builder's Senior Representative"), which individual has the authority and responsibility for avoiding and resolving disputes under Section 13.4 of the Agreement: *(Identify individual's name, title, address and telephone numbers)*

Chris Walters, President
DBS Group, LLC
2700 National Drive, Suite 101
Onalaska, WI 54650
Phone: (608) 881-6007
Fax: (608) 881-6017

9.1.2 Design-Builder designates the individual listed below as its Design-Builder's Representative, which individual has the authority and responsibility set forth in Section 3.2 of the Agreement: *(Identify individual's name, title, address and telephone numbers)*

_____, Project Manager
DBS Group, LLC
2700 National Drive, Suite 101
Onalaska, WI 54650
Phone: (608) 881-6007
Fax: (608) 881-6017

9.2 Design-Build Subcontractor's Representatives.

9.2.1 Design-Build Subcontractor designates the individual listed below as its Senior Representative ("Design-Build Subcontractor's Senior Representative"), which individual has the authority and responsibility for avoiding and resolving disputes under Section 13.4 of the Agreement: *(Identify individual's name, title, address and telephone numbers)*

9.2.2 Design-Build Subcontractor designates the individual listed below as its Design-Build Subcontractor's Representative, which individual has the authority and responsibility set forth in Section 2.1.2 of the Agreement: *(Identify individual's name, title, address and telephone numbers)*

Article 10

Insurance and Bonds

10.1 Design-Build Subcontractor's Insurance Requirements.

10.1.1 Design-Build Subcontractor is responsible for procuring and maintaining, from insurance companies authorized to do business in the state in which the Project is located, the insurance coverages set forth in Exhibit D - Insurance Requirements to this Agreement, with the minimum

ratings set forth in said exhibit for certain claims which may arise from or out of the performance of this Agreement and obligations under the Contract Documents.

10.1.2 Design-Build Subcontractor shall require its Design Consultants and Sub-Subcontractors to procure and maintain, from insurance companies authorized to do business in the state in which the Project is located, the insurance coverages set forth in Exhibit D - Insurance Requirements.

10.1.3 Design-Build Subcontractor's and its Design Consultants and Sub-Subcontractors' insurance coverage set forth in Exhibit D - Insurance Requirements shall specifically delete any design-build or similar exclusions that could compromise coverages because of the design-build delivery of the Project.

10.1.4 To the extent Design-Builder requires Design-Build Subcontractor or its Design Consultant to provide professional liability insurance for claims arising from the negligent performance of design services by Design-Build Subcontractor or the Design Consultant, the coverage limits, duration and other specifics of such insurance shall be as set forth in Exhibit D - Insurance Requirements. Such policies shall be provided prior to the commencement of any design services hereunder.

10.1.5 Prior to commencing any services hereunder, Design-Build Subcontractor shall provide Design-Builder with certificates evidencing that (i) all insurance obligations required by the Contract Documents are in full force and in effect and will remain in effect for the duration required by the Contract Documents and (ii) no insurance coverage will be canceled, renewal refused, or materially changed unless at least thirty (30) days prior written notice is given to Design-Builder.

10.1.6 Except as otherwise stated in Exhibit D - Insurance Requirements , the insurance policies required herein shall list Design-Builder, and any other entities required by the Contract Documents, if any, as an additional insured.

10.1.7 If any of the foregoing insurance coverages are required to remain in force after final payment, an additional certificate evidencing continuation of such coverage shall be submitted with the final Application for Payment.

10.2 Property Insurance.

10.2.1 In accordance with the Contract Documents, Owner or Design-Builder shall procure and maintain property insurance upon the entire Project.

10.3 Waiver of Subrogation.

10.3.1 Design-Builder and Design-Build Subcontractor waive against each other and Owner, Sub-Subcontractors, Design Consultants, Owner's or Design-Builder's separate contractors, agents and employees of each and all of them, all damages covered by property insurance provided herein, except such rights as they may have to the proceeds of such insurance. Design-Builder and Design-Build Subcontractor shall, where appropriate, require similar waivers of subrogation from Design Consultants and Sub-Subcontractors and separate contractors of Design-Builder, and shall require each of them to include similar waivers in their contracts. These waivers of subrogation shall not contain any restriction or limitation that will impair the full and complete extent of its applicability to any person or entity unless agreed to in writing prior to the execution of this Agreement.

10.4 Bonds and Other Performance Security.

10.4.1 Design-Build Subcontractor shall provide the following performance bond and labor and material payment bond or other performance security: *(Indicate the amount of bonds and any other conditions of the bonds or other security.)* ***(Not Required)***

Article 11

Indemnification

11.1 Patent and Copyright Infringement.

11.1.1 Design-Build Subcontractor shall defend any action or proceeding brought against Owner or Design-Builder based on any claim that the Work, or any part thereof, or the operation or use of the Work or any part thereof, constitutes infringement of any United States patent or copyright, now or hereafter issued. Design-Builder shall give prompt written notice to Design-Build Subcontractor of any such action or proceeding and will reasonably provide authority, information and assistance in the defense of same. Design-Build Subcontractor shall indemnify and hold harmless Owner and Design-Builder from and against all damages and costs, including but not limited to attorneys' fees and expenses awarded against Owner or Design-Builder in any such action or proceeding. Design-Build Subcontractor agrees to keep Design-Builder informed of all developments in the defense of such actions.

11.1.2 If Owner is enjoined from the operation or use of the Work, or any part thereof, as the result of any patent or copyright suit, claim, or proceeding, Design-Build Subcontractor shall at its sole expense take reasonable steps to procure the right to operate or use the Work. If Design-Build Subcontractor cannot so procure such right within a reasonable time, Design-Build Subcontractor shall promptly, at Design-Build Subcontractor's option and at Design-Build Subcontractor's expense, (i) modify the Work so as to avoid infringement of any patents, or copyrights, or (ii) replace said Work with Work that does not infringe or violate any such patent or copyright.

11.1.3 Sections 11.1.1 and 11.1.2 above shall not be applicable to any suit, claim or proceeding based on infringement or violation of a patent or copyright (i) relating to a particular process or product of a particular manufacturer specified by Owner or Design-Builder or (ii) arising from modifications to the Work by Owner or Design-Builder after acceptance of the Work. If the suit, claim or proceeding is based upon events set forth in the preceding sentence, Design-Builder shall defend, indemnify and hold harmless Design-Build Subcontractor to the same extent Design-Build Subcontractor is obligated to defend, indemnify and hold harmless Design-Builder in Section 11.1.1 above.

11.1.4 The obligations set forth in this Section 11.1 shall constitute the sole agreement between the parties relating to liability for infringement or violation of any patent or copyright.

11.2 Tax Claim Indemnification.

11.2.1 If, in accordance with Design-Builder's direction, an exemption for all or part of the Work is claimed for taxes, Design-Builder shall indemnify, defend and hold harmless Design-Build Subcontractor from and against any liability, penalty, interest, fine, tax assessment, attorneys' fees or other expenses or costs incurred by Design-Build Subcontractor as a result of any action taken by Design-Build Subcontractor in accordance with Design-Builder's directive.

11.3 Payment Claim Indemnification.

11.3.1 Providing that Design-Builder is not in breach of its contractual obligation to make payments to Design-Build Subcontractor for the Work, Design-Build Subcontractor shall indemnify, defend and hold harmless Owner and Design-Builder from any claims or mechanic's liens brought against Owner, Design-Builder, or against the Project as a result of the failure of Design-Build Subcontractor, or those for whose acts it is responsible, to pay for any services, materials, labor, equipment, taxes or other items or obligations furnished or incurred for, or in connection with the Work. Within three (3) days of receiving written notice from Design-Builder that such a claim or mechanic's lien has been filed, Design-Build Subcontractor shall commence to take the steps necessary to discharge said claim or lien, including, if necessary, the furnishing of a mechanic's lien bond. If Design-Build Subcontractor fails to do so, Design-Builder will have the right to discharge the claim or lien and hold Design-Build Subcontractor liable for costs and expenses incurred, including attorneys' fees.

11.4 Design-Build Subcontractor's General Indemnification.

11.4.1 Design-Build Subcontractor, to the fullest extent permitted by law, shall indemnify, hold harmless and defend Owner, Design-Builder, their officers, directors, employees and agents from and against claims, losses, damages, liabilities, including attorneys' fees and expenses, for bodily injury, sickness or death, and property damage or destruction (other than to the Work itself) to the extent resulting from the negligent acts or omissions of Design-Build Subcontractor, its Design Consultants, its Sub-Subcontractors, anyone employed directly or indirectly by any of them or anyone for whose acts any of them may be liable.

11.4.2 If an employee of Design-Build Subcontractor, Design Consultant, anyone employed directly or indirectly by Design-Build Subcontractor or anyone for whose acts any of them may be liable has a claim against any party indemnified pursuant to Section 11.4.1 above, Design-Build Subcontractor's indemnity obligation set forth in Section 11.4.1 above shall not be limited by any limitation on the amount of damages, compensation or benefits payable by or for Design-Build Subcontractor, its Design Consultants, its Sub-Subcontractors, or other entity under any employee benefit acts, including workers' compensation or disability acts.

11.5 Design-Builder's General Indemnification.

11.5.1 Design-Builder, to the fullest extent permitted by law, shall indemnify, hold harmless and defend Design-Build Subcontractor and its officers, directors, employees and agents from and against claims, losses, damages, liabilities, including attorneys' fees and expenses, for bodily injury, sickness or death, and property damage or destruction (other than to the Work itself) to the extent resulting from the negligent acts or omissions of Design-Builder, Design-Builder's Design Consultant, Design-Builder's other contractors, anyone employed directly or indirectly by any of them or anyone for whose acts any of them may be liable.

11.5.2 If an employee of Design-Builder, anyone employed directly or indirectly by Design-Builder or anyone for whose acts any of them may be liable has a claim against any party indemnified pursuant to Section 11.5.1 above, Design-Builder's indemnity obligation set forth in Section 11.5.1 above shall not be limited by any limitation on the amount of damages, compensation or benefits payable by or for Design-Builder, Design-Builder's Design Consultant, Design-Builder's other contractors, or other entity under any employee benefit acts, including workers compensation or disability acts.

Article 12

Changes to the Contract Price and Time

12.1 Owner-Generated Changes.

12.1.1 If Owner issues changes affecting the Work, Design-Build Subcontractor agrees, if directed by Design-Builder, to meet with Design-Builder and Owner to review and discuss the changes. Design-Build Subcontractor shall only be entitled to adjustments in its Contract Price and the times for completion of the Work attributable to such Owner-generated changes to the extent Design-Builder actually receives such adjustments from Owner. If Design-Build Subcontractor disputes the adjustment, such dispute shall be resolved pursuant to Section 13.3 of this Agreement.

12.2 Design-Builder Generated Changes.

12.2.1 Changes to the Work issued by Design-Builder shall be governed by the provisions set forth in the following sections of this Article 12.

12.3 Change Orders.

12.3.1 A Change Order is a written instrument issued after execution of the Agreement signed by Design-Builder and Design-Build Subcontractor, stating their agreement upon all of the following:

12.3.1.1 The scope of the change in the Work;

12.3.1.2 The amount of the adjustment to the Contract Price; and

12.3.1.3 The extent of the adjustment to the times for completion of the Work.

12.3.2 All changes in the Work authorized by applicable Change Order shall be performed under the applicable conditions of the Contract Documents. Design-Builder and Design-Build Subcontractor shall negotiate in good faith and as expeditiously as possible the appropriate adjustments for such changes.

12.3.3 If Design-Builder requests a proposal for a change in the Work from Design-Build Subcontractor and subsequently elects not to proceed with the change, a Change Order shall be issued to reimburse Design-Build Subcontractor for reasonable costs incurred for preparing the proposal.

12.4 Work Change Directives.

12.4.1 A Work Change Directive is a written order prepared and signed by Design-Builder directing a change in the Work prior to agreement on an adjustment in the Contract Price and/or the times for completion of the Work.

12.4.2 Design-Builder and Design-Build Subcontractor shall negotiate in good faith and as expeditiously as possible the appropriate adjustments for the Work Change Directive. Upon reaching an agreement, the parties shall prepare and execute an appropriate Change Order reflecting the terms of the agreement.

12.5 Minor Changes in the Work.

12.5.1 Minor changes in the Work are changes that do not involve an adjustment in the Contract Price and/or times for completion of the Work and do not materially and adversely affect the Work, including the design, quality, performance and workmanship required by the Contract Documents. Design-Builder may make minor changes in the Work consistent with the intent of the Contract Documents, provided, however, that Design-Builder shall promptly inform Design-Build Subcontractor, in writing, of any such changes.

12.6 Contract Price Adjustment.

12.6.1 The increase or decrease in Contract Price resulting from a change in the Work shall be determined by one or more of the following methods:

12.6.1.1 Unit prices set forth in the Agreement or as subsequently agreed between the parties;

12.6.1.2 A mutually accepted, lump sum, properly itemized and supported by sufficient substantiating data to permit evaluation by Design-Builder;

12.6.1.3 Costs, fees and any other markups set forth in the Agreement; and

12.6.1.4 If an increase or decrease cannot be agreed to as set forth in items 12.6.1.1 through 12.6.1.3 above and Design-Builder issues a Work Change Directive, the cost of the change of the Work shall be determined by the reasonable expense and savings in the performance of the Work resulting from the change, including a reasonable overhead and profit, as may be set forth in this Agreement. If the net result of both additions and deletions to the Work is an increase in the Contract Price, reasonable overhead and profit shall be calculated on the basis of the net increase to the Contract Price. Design-Build Subcontractor shall maintain a documented, itemized accounting evidencing the expenses and savings associated with such changes.

12.6.2 If unit prices are set forth in the Contract Documents or are subsequently agreed to by the parties, but application of such unit prices will cause substantial inequity to Design-Builder or

Design-Build Subcontractor because of differences in the character or quantity of such unit items as originally contemplated, such unit prices shall be equitably adjusted.

12.6.3 If Design-Builder and Design-Build Subcontractor disagree upon whether Design-Build Subcontractor is entitled to be paid for any services required by Design-Builder, or if there are any other disagreements over the scope of Work or proposed changes to the Work, Design-Builder and Design-Build Subcontractor shall resolve the disagreement pursuant to Article 13 hereof. As part of the negotiation process, Design-Build Subcontractor shall furnish Design-Builder with a good faith estimate of the costs to perform the disputed services in accordance with Design-Builder's interpretations. If the parties are unable to agree and Design-Builder expects Design-Build Subcontractor to perform the services in accordance with Design-Builder's interpretations, Design-Build Subcontractor shall proceed to perform the disputed services, conditioned upon Design-Builder issuing a written order to Design-Build Subcontractor (i) directing Design-Build Subcontractor to proceed and (ii) specifying Design-Builder's interpretation of the services that are to be performed.

12.7 Emergencies.

12.7.1 In any emergency affecting the safety of persons and/or property, Design-Build Subcontractor shall act, at its discretion, to prevent threatened damage, injury or loss. Any change in the Contract Price and/or times for completion of the Work on account of emergency work shall be determined as provided in this Article 12.

Article 13

Contract Adjustments and Disputes

13.1 Requests for Contract Adjustments and Relief.

13.1.1 If either Design-Build Subcontractor or Design-Builder believes that it is entitled to relief against the other for any event arising out of or related to the Work or the Project, such party shall provide written notice to the other party of the basis for its claim for relief. Such notice shall be in accordance with specific notice requirements contained in applicable sections of the Contract Documents and, if possible, be made prior to incurring any cost or expense. Design-Build Subcontractor shall provide Design-Builder written notice of claims for which Owner may be responsible in sufficient time for Design-Builder to meet its notice requirements to Owner set forth in the Contract Documents. In the absence of any specific notice requirement, written notice shall be given within a reasonable time, not to exceed ten (10) days, after the occurrence giving rise to the claim for relief or after the claiming party reasonably should have recognized the event or condition giving rise to the request, whichever is later. Such notice shall be in accordance with the Contract Documents and shall include sufficient information to advise the other party of the circumstances giving rise to the claim for relief, the specific contractual adjustment or relief requested and the basis of such request. Design-Build Subcontractor shall comply with all documentation requirements set forth in the Design-Build Agreement when submitting its claim to Design-Builder.

13.2 Dispute Avoidance and Resolution.

13.2.1 The parties are fully committed to working with each other throughout the Project and agree to communicate regularly with each other at all times so as to avoid or minimize disputes or disagreements. If disputes or disagreements do arise, Design-Build Subcontractor and Design-Builder each commit to resolving such disputes or disagreements in an amicable, professional and expeditious manner so as to avoid unnecessary losses, delays and disruptions to the Work.

13.3 Disputes Involving Owner.

13.3.1 To the extent a claim, dispute or controversy arises out of, or relates to, problems caused by Owner or for which Owner is responsible ("Owner Disputes"), such Owner Disputes shall be resolved pursuant to the dispute resolution clause set forth in the Design-Build Agreement. Both

Design-Builder and Design-Build Subcontractor agree to cooperate in the presentation and prosecution or defense of Owner Disputes. If, after a request for an extension of time or additional compensation from Design-Build Subcontractor, Design-Builder believes that the event causing the delay or additional compensation is the responsibility of Owner, then Design-Builder will cooperate with and assist Design-Build Subcontractor in presenting a request for an extension of time or additional compensation to Owner. Notwithstanding the above, Design-Builder reserves the right not to submit a claim to the Owner. In such cases, the claim shall be resolved pursuant to Section 13.4.

13.3.2 Notwithstanding any other provisions herein to the contrary, Design-Builder and Design-Build Subcontractor each agree to accept the relief as to a time extension or additional compensation obtained from Owner, if any, as well as all other aspects of the final decision following appeal or the expiration of the time for appeal, as full and final resolution of any Owner Dispute.

13.3.3 If Design-Builder asserts a claim against Owner involving Design-Build Subcontractor, each party shall bear its own costs for outside counsel and third-party consultants retained to prosecute claims against Owner and for any other litigation costs. Each party shall present its portion of the claim to Owner.

13.3.4 If Owner contends that the Contract Documents have been breached, or otherwise asserts a claim or set-off against Design-Builder, the party determined to be responsible for the breach either by settlement or by the trier of fact shall be responsible for all costs occasioned by the breach, including counsel and litigation costs. If the trier of fact fails to determine the relative degrees of fault of Design-Builder and Design-Build Subcontractor in connection with any claim by Owner, then Design-Builder and Design-Build Subcontractor agree that the allocation of fault shall be determined pursuant to Section 13.4.

13.4 Disputes Not Involving Owner.

13.4.1 For any claim, dispute or controversy not arising out of, or relating to, problems caused by Owner or for which Owner is responsible, Design-Build Subcontractor and Design-Builder will first attempt to resolve such claim, dispute or controversy at the field level through discussions between Design-Builder's Representative and Design-Build Subcontractor's Representative.

13.4.2 If a claim, dispute or controversy cannot be resolved through Section 13.4.1, Design-Builder's Senior Representative and Design-Build Subcontractor's Senior Representative, upon the request of either party, shall meet as soon as conveniently possible, but in no case later than thirty (30) days after such a request is made, to attempt to resolve such claim, dispute or controversy. Five (5) days prior to any meetings between the Senior Representatives, the parties will exchange relevant information that will assist the parties in resolving the claim, dispute or controversy.

13.4.3 If after meeting the Senior Representatives determine that the claim, dispute or controversy cannot be resolved on terms satisfactory to both parties, the parties shall submit within thirty (30) days of the conclusion of the meeting by the Senior Representatives the claim, dispute or controversy to non-binding mediation. The mediation shall be conducted by a mutually agreeable impartial mediator, or if the parties cannot so agree, a mediator designated by the American Arbitration Association ("AAA") pursuant to its Construction Industry Mediation Rules. The mediation will be governed by and conducted pursuant to a mediation agreement negotiated by the parties or, if the parties cannot so agree, by procedures established by the mediator. Unless otherwise mutually agreed by Design-Builder and Design-Build Subcontractor and consistent with the mediator's schedule, the mediation shall commence within ninety (90) days of the submission of the dispute for mediation. Persons with authority to resolve the dispute shall be present at the mediation.

13.5 Arbitration.

13.5.1 Any claims, disputes or controversies between the parties arising out of or relating to the Agreement, or the breach thereof, which have not been resolved in accordance with the procedures set forth in Section 13.4 above, shall be decided by arbitration in accordance with the Construction Industry Arbitration Rules of the AAA then in effect, unless the parties mutually agree otherwise.

13.5.2 The award of the arbitrator(s) shall be final and binding upon the parties without the right of appeal to the courts. Judgment may be entered upon it in accordance with applicable law by any court having jurisdiction thereof.

13.5.3 Design-Build Subcontractor and Design-Builder expressly agree that any arbitration pursuant to this Section 13.5 may be joined or consolidated with any arbitration involving any other person or entity (i) necessary to resolve the claim, dispute or controversy, or (ii) substantially involved in or affected by such claim, dispute or controversy. Both Design-Builder and Design-Build Subcontractor will include appropriate provisions in all contracts they execute with other parties in connection with the Project to require such joinder or consolidation.

13.5.4 The prevailing party in any arbitration, or any other final, binding dispute proceeding upon which the parties may agree, shall be entitled to recover from the other party reasonable attorneys' fees and expenses incurred by the prevailing party.

13.6 Duty to Continue Performance.

13.6.1 Unless provided to the contrary in the Contract Documents, Design-Build Subcontractor shall continue to perform the Work and Design-Builder shall continue to satisfy its payment obligations to Design-Build Subcontractor, pending the final resolution of any dispute or disagreement between Design-Builder and Design-Build Subcontractor.

13.7 CONSEQUENTIAL DAMAGES.

13.7.1 NOTWITHSTANDING ANYTHING HEREIN TO THE CONTRARY (EXCEPT AS SET FORTH IN SECTION 13.7.2 BELOW), NEITHER DESIGN-BUILDER NOR DESIGN-BUILD SUBCONTRACTOR SHALL BE LIABLE TO THE OTHER FOR ANY CONSEQUENTIAL LOSSES OR DAMAGES, WHETHER ARISING IN CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHERWISE, INCLUDING BUT NOT LIMITED TO LOSSES OF USE, PROFITS, BUSINESS, REPUTATION OR FINANCING.

13.7.2 Notwithstanding Section 13.7.1 above, Design-Builder shall be entitled to recover against Design-Build Subcontractor (i) any liquidated damages that Owner may assess against Design-Builder which are attributable to Design-Build Subcontractor, even though both parties recognize that such liquidated damages may include some damages that might otherwise be deemed to be consequential and (ii) any liability of Design-Build Subcontractor for consequential damages that may be imposed upon the Design-Builder by the Design-Build Agreement.

Article 14

Miscellaneous

14.1 Assignment.

14.1.1 Neither Design-Build Subcontractor nor Design-Builder shall, without the written consent of the other, assign, transfer, or sublet any portion or part of the Work or the obligations required by the Contract Documents.

14.2 Successorship.

14.2.1 Design-Builder and Design-Build Subcontractor intend that the provisions of the Contract Documents are binding upon the parties, their employees, agents, heirs, successors and assigns.

14.3 Governing Law.

14.3.1 The Agreement and all Contract Documents shall be governed by the laws of the place of the Project, without giving effect to its conflict of law principles.

14.4 Severability.

14.4.1 If any provision or any part of a provision of the Contract Documents shall be finally determined to be superseded, invalid, illegal, or otherwise unenforceable pursuant to any applicable Legal Requirements or court order, such determination shall not impair or otherwise affect the validity, legality, or enforceability of the remaining provision or parts of the provision of the Contract Documents, which shall remain in full force and effect as if the unenforceable provision or part were deleted.

14.5 No Waiver.

14.5.1 The failure of either Design-Builder or Design-Build Subcontractor to insist, in any one or more instances, on the performance of any of the obligations required by the other under the Contract Documents shall not be construed as a waiver or relinquishment of such obligation or right with respect to future performance.

14.6 Headings.

14.6.1 The headings used in this Agreement, or any other Contract Document, are for ease of reference only and shall not in any way be construed to limit or alter the meaning of any provision.

14.7 Notice.

14.7.1 Whenever the Contract Documents require that notice be provided to the other party, notice will be deemed to have been validly given (i) if delivered in person to the individual intended to receive such notice, (ii) four (4) days after being sent by registered or certified mail, postage prepaid to the address indicated in the Agreement, or (iii) if transmitted by facsimile, by the time stated in a machine generated confirmation that notice was received at the number of the intended recipient.

14.8 Amendments.

14.8.1 The Contract Documents may not be changed, altered, or amended in any way except in writing signed by a duly authorized representative of each party.

14.9 Survival.

14.9.1 Design-Build Subcontractor's obligations under this Agreement shall not be released and shall specifically survive the completion of all services hereunder by Design-Build Subcontractor, final payment to Design-Build Subcontractor, and the termination of this Agreement for any reason.

Article 15

Electronic Data

15.1 Electronic Data.

15.1.1 The parties recognize that Contract Documents, including drawings, specifications and three-dimensional modeling (such as Building Information Models) and other Work Product may be transmitted among Design-Builder, Design-Build Subcontractor and others in electronic media as an alternative to paper hard copies (collectively "Electronic Data").

15.2 Transmission of Electronic Data.

15.2.1 Design-Builder shall determine, after consultation with Design-Build Subcontractor, the software and the format for the transmission of Electronic Data. Each party shall be responsible for securing the legal rights to access the agreed-upon format, including, if necessary, obtaining appropriately licensed copies of the applicable software or electronic program to display, interpret and/or generate the Electronic Data.

15.2.2 Neither party makes any representations or warranties to the other with respect to the functionality of the software or computer program associated with the electronic transmission of Work Product. Unless specifically set forth in the Agreement, ownership of the Electronic Data does

not include ownership of the software or computer program with which it is associated, transmitted, generated or interpreted.

15.2.3 By transmitting Work Product in electronic form, the transmitting party does not transfer or assign its rights in the Work Product. The rights in the Electronic Data shall be as set forth in Article 4 of the Agreement. Under no circumstances shall the transfer of ownership of Electronic Data be deemed to be a sale by the transmitting party of tangible goods.

15.3 Electronic Data Protocol.

15.3.1 The parties acknowledge that Electronic Data may be altered or corrupted, intentionally or otherwise, due to occurrences beyond their reasonable control or knowledge, including but not limited to compatibility issues with user software, manipulation by the recipient, errors in transcription or transmission, machine error, environmental factors, and operator error. Consequently, the parties understand that there is some level of increased risk in the use of Electronic Data for the communication of design and construction information and, in consideration of this, agree, and shall require their independent contractors, Subcontractors and Design Consultants to agree, to the following protocols, terms and conditions set forth in this Section 15.3.

15.3.2 Electronic Data will be transmitted in the format determined in Section 15.2.1 above, including file conventions and document properties, unless prior arrangements are made in advance in writing.

15.3.3 The Electronic Data represents the information at a particular point in time and is subject to change. Therefore, the parties shall agree upon protocols for notification by the author to the recipient of any changes which may thereafter be made to the Electronic Data, which protocol shall also address the duty, if any, to update such information if such information changes prior to Final Completion of the Project.

15.3.4 The transmitting party specifically disclaims all warranties, expressed or implied, including, but not limited to, implied warranties of merchantability and fitness for a particular purpose, with respect to the media transmitting the Electronic Data. However, transmission of the Electronic Data via electronic means shall not invalidate or negate any duties pursuant to the applicable standard of care with respect to the creation of the Electronic Data, unless such data is materially changed or altered after it is transmitted to the receiving party, and the transmitting party did not participate in such change or alteration.

15.4 In the event the Design-Build Agreement contains a provision governing Electronic Data, and there is a conflict between the provision in the Design-Build Agreement and this Article 15, the provision in the Design-Build Agreement takes precedence notwithstanding the order of precedence set forth in Section 1.4.2.

Article 16

Confidential Information

16.1 Confidential and/or Proprietary Information.

16.1.1 Confidential Information is defined as information which is determined by the transmitting party to be of a confidential or proprietary nature and: (i) the transmitting party identifies as either confidential or proprietary; (ii) the transmitting party takes steps to maintain the confidential or proprietary nature of the information; and (iii) the document is not otherwise available in or considered to be in the public domain. The receiving party agrees to maintain the confidentiality of the Confidential Information and agrees to use the Confidential Information solely in connection with the Project.

16.1.2 Design-Build Subcontractor may receive information from Design-Builder that is either confidential or proprietary to either Design-Builder or to Owner. Such information shall be labeled

as confidential and/or proprietary. Design-Build Subcontractor agrees to maintain the confidential nature of such information and to execute any such additional agreements as may be required by Owner or Design-Builder with respect to such information.

16.1.3 In the event the Design-Build Agreement contains a provision governing Confidential Information, and there is a conflict between the provision in the Design-Build Agreement and this Article 16, the provision in the Design-Build Agreement takes precedence notwithstanding the order of precedence set forth in Section 1.4.2.

Article 17

Other Provisions

17.1 Other provisions, if any, are as follows:

(Insert any additional provisions, including those that relate to options that might have been selected by Design-Builder and Owner in the Design-Build Agreement related to Warranty Reserves, alternatives to Liquidated Damages, etc. as the parties may deem commercially appropriate.)

Exhibit A – Scope-of-Work
Exhibit B – Project Criteria
Exhibit C – Project Schedule
Exhibit D – Insurance Requirements
Exhibit E – Project Specific Requirements

In executing this Agreement, Design-Builder and Subcontractor each individually represents that it has the necessary financial resources to fulfill its obligations under this Agreement, and each has the necessary corporate approvals to execute this Agreement, and perform the Work described herein.

DESIGN-BUILDER:	**SUBCONTRACTOR:**
DBS Group, LLC	
(Name of Design-Builder)	*(Name of Subcontractor)*
(Signature)	*(Signature)*
Printed Name:	Printed Name:
Title:	Title:
Date:	Date:

Caution: You should sign an original DBIA document which has this caution printed in blue. An original assures that changes will not be obscured as may occur when documents are reproduced.

Standard Form of Agreement Between Design-Builder and Subcontractor (Where Subcontractor Does Not Provide Design Services)

This document has important legal consequences. Consultation with an attorney is recommended with respect to its completion or modification.

This **AGREEMENT** is made as of the _____ day of _____ in the year of ___, by and between the following parties, for services in connection with the Project identified below:

DESIGN-BUILDER:
(Name and address)
DBS Group, LLC
2700 National Drive, Suite 101
Onalaska, WI 54650

SUBCONTRACTOR:
(Name and address)

PROJECT:
(Include Project name and location as it will appear in the Contract Documents)

OWNER:
(Name and address)

In consideration of the mutual covenants and obligations contained herein, Design-Builder and Subcontractor agree as set forth herein.

Article 1

General

1.1 Basic Purpose.

1.1.1 Design-Builder has contracted with Owner to provide the services necessary for the design and construction of the Project as set forth in the Design-Build Agreement. Subcontractor, through itself, and Sub-Subcontractors, agrees to provide all construction and other aspects of the Work consistent with the Contract Documents. Design-Builder and Subcontractor agree that to the extent applicable to the performance of the Work hereunder, Subcontractor shall have the same rights, responsibilities, and obligations as to Design-Builder as Design-Builder by the Design-Build Agreement has against and to Owner, except as may be modified herein. Notwithstanding the foregoing, if Design-Builder and Owner have checked boxes indicating the selection of optional provisions from the Design-Build Agreement, those optional provisions are only passed through to the Subcontractor to the extent, those provisions have been expressly set forth in Article 17.

1.2 Basic Definitions.

1.2.1 Terms used in this Agreement shall have the meanings set forth in the Design-Build Agreement between Owner and Design-Builder unless otherwise provided herein, with the following specific terms defined as follows:

1.2.1.1 *Agreement* refers to this executed contract between Design-Builder and Subcontractor under DBIA Document 570, *Standard Form of Agreement Between Design-Builder and Subcontractor (Where Subcontractor Does Not Provide Design Services)*, 2010 Edition.

1.2.1.2 *Construction Documents* are the documents consisting of Drawings and Specifications, prepared or assembled by Design-Builder in accordance with the Design-Build Agreement.

1.2.1.3 *Day* or *Days* shall mean calendar days unless otherwise specifically noted in the Contract Documents.

1.2.1.4 *Design-Build Agreement* refers to the contract between Design-Builder and Owner for the design and construction of the Project under either DBIA Document No. 525, *Standard Form of Agreement Between Owner and Design-Builder – Lump Sum* (2010 Edition), or DBIA Document No. 530, *Standard Form of Agreement Between Owner and Design-Builder – Cost Plus Fee with an Option for a Guaranteed Maximum Price* (2010 Edition), including the DBIA Document No. 535, *Standard Form of General Conditions of Contract Between Owner and Design-Builder* (2010 Edition), and all exhibits, attachments, and other Contract Documents enumerated and incorporated therein.

1.2.1.5 *Design Consultant* is a qualified, licensed design professional who is not an employee of Design-Builder, but is retained by Design-Builder, or employed or retained by anyone under contract with Design-Builder, to furnish design services required under the Design-Build Agreement.

1.2.1.6 Final Completion is the date on which all Work is complete in accordance with the Contract Documents, including but not limited to any items identified in the punch list prepared under the Design-Build Agreement and the submission of all documents set forth in Section 7.5.2.

1.2.1.7 Force Majeure Events are those events that are beyond the control of

Subcontractor, Design-Builder and Owner, including the events of war, floods, labor disputes, earthquakes, epidemics, adverse weather conditions not reasonably anticipated, and other acts of God.

1.2.1.8 *Hazardous Conditions* are any materials, wastes, substances and chemicals deemed to be hazardous under applicable Legal Requirements, or the handling, storage, remediation, or disposal of which are regulated by applicable Legal Requirements.

1.2.1.9 *Legal Requirements* are all applicable federal, state and local laws, codes, ordinances, rules, regulations, orders and decrees of any government or quasi-government entity having jurisdiction over the parties, the Project or Site, the practices involved in the Project or Site, or any Work.

1.2.1.10 *Owner's Project Criteria* are developed by or for Owner to describe Owner's program requirements and objectives for the Project, including use, space, price, time, site and expandability requirements, as well as submittal requirements and other requirements governing Design-Builder's performance of the Work. Owner's Project Criteria may include conceptual documents, design criteria, design performance specifications, design specifications, and LEED® or other sustainable design criteria and other Project-specific technical materials and requirements.

1.2.1.11 *Project Schedule* refers to the schedule setting forth the dates by which the various stages of both the design and construction of the Project must be performed so as to satisfy Design-Builder's obligations to Owner.

1.2.1.12 *Site* is the land or premises on which the Project is located.

1.2.1.13 *Sub-Subcontractor* is any person or entity retained by Subcontractor as an independent contractor to perform a portion of the Subcontractor's Work and shall include materialmen and suppliers.

1.2.1.14 *Substantial Completion or Substantially Complete* is the date on which the Project, or an agreed upon portion of the Project, is sufficiently complete in accordance with the Contract Documents so that Owner can occupy and use the Project or a portion thereof for its intended purposes.

1.2.1.15 *Work* is comprised of all Subcontractor's construction and other services required by the Contract Documents, including procuring and furnishing all supervision, labor, inspection, testing, start-up, materials, tools, equipment, machinery, transportation, temporary utilities, temporary facilities and all other items and services reasonably inferable from this Agreement and the other Contract Documents necessary to complete the portion of the Project described in Exhibit A.

1.3 Contract Documents.

1.3.1 The Contract Documents are comprised of the following:

1.3.1.1 All written modifications, amendments, minor changes and Change Orders to this Agreement;

1.3.1.2 This Agreement, including all exhibits. (*list for example, performance standard requirements, performance incentive arrangements, markup exhibits, allowances, unit prices, or exhibit detailing offsite reimbursable personnel*);

1.3.1.3 Written Supplementary Conditions, if any, executed by Design-Builder and Subcontractor.

1.3.1.4 The Construction Documents; and

1.3.1.5 The Design-Build Agreement, but only to the extent the Design-Build Agreement relates to the Work and the terms and conditions under which the Work shall be performed.

1.4 Interpretation and Intent.

1.4.1 Design-Builder and Subcontractor, prior to execution of the Agreement, shall carefully review all the Contract Documents for any conflicts or ambiguities. Design-Builder and Subcontractor will discuss and resolve any identified conflicts or ambiguities prior to execution of the Agreement.

1.4.2 The Contract Documents are intended to be complementary and interpreted in harmony so as to avoid conflict, with words and phrases interpreted consistent with construction and design industry standards. In the event of any inconsistency, conflict, or ambiguity between or among the Contract Documents, the Contract Documents shall take precedence in the order in which they are listed in Section 1.3 hereof.

1.5 Mutual Obligations and Acknowledgments.

1.5.1 Design-Builder and Subcontractor commit at all times to cooperate fully with each other, and proceed on the basis of trust and good faith, to permit each party to realize the benefits afforded under the Contract Documents. Design-Builder and Subcontractor shall perform their respective responsibilities, obligations and services in a timely manner to facilitate the other's timely and efficient performance and so as not to delay or interfere with the other's performance of its obligations under the Contract Documents.

1.5.2 Subcontractor acknowledges that it has reviewed the Design-Build Agreement, and has had the opportunity to meet with Design-Builder to review, discuss, and familiarize itself with the Design-Build Agreement, as well as all documents incorporated therein and attached thereto, to the extent it deemed necessary in its sole discretion.

1.6 Entire Agreement.

1.6.1 Subject to the limitation in Section 1.3.1.4, the Contract Documents, all of which are incorporated by reference into this Agreement, form the entire agreement between Design-Builder and Subcontractor and are as fully binding on the parties as if repeated herein. No oral representations or other agreements have been made by the parties except as specifically stated in the Contract Documents.

Article 2

Subcontractor's Services and Responsibilities

2.1 General.

2.1.1 Within seven (7) days after execution of this Agreement, Design-Builder and Subcontractor will meet to discuss issues affecting the administration and schedule of the Work, and implement the necessary procedures, including but not limited to those relating to schedule updates, submittals, and payment, to facilitate the ability of the parties to perform their obligations under this Agreement.

2.1.2 Subcontractor's Representative shall be reasonably available to Design-Builder and shall have the necessary expertise and experience required to supervise the Work. Subcontractor's Representative shall communicate regularly with Design-Builder and shall be vested with the authority to act on behalf of Subcontractor. Subcontractor shall replace its Representative upon the reasonable request of Design-Builder.

2.1.3 Subcontractor shall only communicate with Owner, Design-Builder's Design Consultant or separate contractors of Design-Builder or Owner through Design-Builder.

2.2 Review of Site and Contract Documents.

2.2.1 Subcontractor represents that it has examined the Site and the Contract Documents prior to executing this Agreement so as to reasonably ascertain the nature of the Work and the various conditions affecting the Work.

2.2.2 Subcontractor shall promptly report to Design-Builder any errors, inconsistencies, omissions, or violations of Legal Requirements that Subcontractor discovers. Subcontractor shall be liable to Design-Builder for any damages resulting from any such errors, inconsistencies, omissions, or violations of Legal Requirements which Subcontractor discovers and fails to report to Design-Builder. Nothing in this Agreement shall be deemed to transfer any design liability from Design-Builder to Subcontractor.

2.3 Construction Services Generally.

2.3.1 Subcontractor shall perform all construction activities efficiently and with the requisite expertise, skill and competence to satisfy the requirements of the Contract Documents and the Project Schedule.

2.3.2 At the request of Design-Builder, Subcontractor shall attend meetings with Design-Builder, Owner, and/or separate design professionals or contractors of Design-Builder or Owner to discuss design and/or construction issues which may arise during the Project.

2.4 Submittals and Substitutions.

2.4.1 In accordance with the Contract Documents and the Project Schedule, Subcontractor shall submit for Design-Builder's review and approval submittals, including shop drawings, product data and samples. Design-Builder shall advise Subcontractor on or before the meeting required by Section 2.1.1 hereof of the submittal requirements for the Project. Any variances with the Construction Documents shall be specifically identified in Subcontractor's submittals. Design-Builder's review and approval shall not relieve Subcontractor of its responsibilities to perform the Work in accordance with the Construction Documents unless Design-Builder expressly approves in writing any such variance in its response to Subcontractor's submittals. Subcontractor shall make any necessary revisions to the submittals requested by Design-Builder.

2.4.2 Subcontractor shall not make any substitutions in the Work or procedures or methods specified by Owner, Design-Builder or the Construction Documents for performing the Work unless it first receives written approval for such substitution from Design-Builder.

2.5 Sub-Subcontractors.

2.5.1 Subcontractor shall employ only Sub-Subcontractors who are duly licensed and qualified to perform the Work consistent with the Contract Documents. Subcontractor agrees that each Sub-

Subcontractor shall be fully bound to Subcontractor in the same manner as Subcontractor is bound to Design-Builder for all the requirements of the Contract Documents to the extent applicable to the Sub-Subcontractor's scope of work.

2.5.2 Subcontractor assumes responsibility to Design-Builder for the proper performance of the Work of Sub-Subcontractors and any acts and omissions in connection with such performance. Subcontractor shall coordinate the activities of all Sub-Subcontractors. Nothing in this Agreement is intended or deemed to relieve Subcontractor from responsibility for the work performed by its Sub-Subcontractors, or create any legal or contractual relationship between Owner or Design-Builder and any Sub-Subcontractor, including but not limited to any third-party beneficiary rights.

2.6 Work of Others.

2.6.1 Subcontractor agrees to reasonably cooperate with, and coordinate its activities so as not to interfere with, those parties performing work at the Site, including Owner's and Design-Builder's separate contractors, so that the Project can be completed in an orderly and coordinated manner without unreasonable disruption.

2.6.2 If any part of the Work depends upon other work performed by Design-Builder, or Design-Builder's or Owner's separate contractors, Subcontractor shall, prior to proceeding with that part of the Work, inspect such other work and promptly notify Design-Builder of any discovered discrepancies or defects that would render it unacceptable for the proper performance of the Work. Subcontractor shall not proceed with such part of the Work without further direction from Design-Builder. Design-Builder shall promptly correct or cause to be corrected any such discrepancy or defect in the other work. Except to the extent such discrepancies or defects in such other work are latent, Subcontractor shall be liable for appropriate losses or damages incurred due to any discrepancies or defects in such other work not reported to Design-Builder by Subcontractor.

2.7 Site Cleanup.

2.7.1 Subcontractor shall keep the Site reasonably free from debris, trash and construction wastes resulting from the performance of the Work. Upon Substantial Completion of the Work, or a portion of the Work, Subcontractor shall remove all debris, trash, construction wastes, materials, equipment, machinery and tools arising from the Work or applicable portions thereof to permit Owner to occupy the Project or a portion of the Project for its intended use.

2.8 Inspection.

2.8.1 At all reasonable times, Subcontractor shall provide sufficient facilities for inspection of the Work by Design-Builder at the Site and at all locations where portions of the Work are in progress or various stages of completion. When appropriate portions of the Work are ready for inspection, Subcontractor shall notify Design-Builder.

2.9 Patents and Copyrights.

2.9.1 Subcontractor shall pay all license fees and royalties due for items, materials, methods, systems or processes applicable to the Work which are subject to copyrights or patent rights and which are selected by Subcontractor.

2.10 Legal Requirements.

2.10.1 Subcontractor shall perform the Work in accordance with all applicable Legal Requirements.

2.10.2 The Contract Price and/or the times for completion of the Work shall be adjusted to compensate Subcontractor for the effects, if any, of any changes in the Legal Requirements enacted after the date of the Agreement affecting the performance of the Work.

2.11 Government Approvals and Permits.

2.11.1 Subcontractor shall obtain and pay for the necessary permits, approvals, licenses, government charges and inspection fees required for the prosecution of the Work as set forth in Exhibit A.

2.11.2 Subcontractor shall provide reasonable assistance to Design-Builder in obtaining those permits, approvals and licenses, if any, that are the responsibility of Owner or Design-Builder and related to the Work.

2.12 Project Safety.

2.12.1 Subcontractor recognizes the importance of performing the Work in a safe manner so as to prevent damage, injury or loss to (i) all individuals at the Site, whether working or visiting, (ii) the Work, including materials and equipment incorporated into the Work or stored on-Site or off-Site, (iii) the work of others on the Project, and (iv) all other property at the Site or adjacent thereto. Subcontractor assumes responsibility for implementing and monitoring all safety precautions and programs related to the performance of the Work.

2.12.2 Subcontractor and Sub-Subcontractors shall comply with all Legal Requirements relating to safety, as well as any Owner-specific and/or Design-Builder-specific safety requirements set forth in the Contract Documents or established for the Project, provided that such Owner-specific and/or Design-Builder-specific requirements do not violate any applicable Legal Requirement. Subcontractor will immediately report in writing any safety-related injury, loss, damage or accident arising from the Work to Design-Builder's Representative and, to the extent mandated by Legal Requirements, to all government or quasi-government authorities having jurisdiction over safety-related matters involving the Project or the Work.

2.13 Warranty.

2.13.1 Subcontractor warrants to Design-Builder that the construction, including all materials and equipment furnished as part of the construction, shall be new unless otherwise specified in the Contract Documents, of good quality, in conformance with the Contract Documents and free of defects in materials and workmanship. Subcontractor's warranty obligation excludes defects caused by abuse, alterations, or failure to maintain the Work in a commercially reasonable manner. Nothing in this warranty is intended to limit any manufacturer's warranty which provides Owner and/or Design-Builder with greater warranty rights than set forth in this Section 2.13 or the Contract Documents. Subcontractor will provide and, if requested, assign to Design-Builder all manufacturers' warranties upon Substantial Completion.

2.14 Correction of Defective Work.

2.14.1 Subcontractor agrees to correct any of the Work that is found not to be in conformance with the Contract Documents, including that part of the Work subject to Section 2.13 hereof, within a period of one year from the date of Substantial Completion of the Work or any portion of the Work, or within such longer period to the extent required by any specific warranty included in the Contract Documents.

2.14.2 Subcontractor shall, within three (3) days of receipt of written notice from Design-Builder that the Work is not in conformance with the Contract Documents, take meaningful steps to

commence correction of such nonconforming Work, including the correction, removal or replacement of the nonconforming Work and any damage caused to other parts of the Work or the Project affected by the nonconforming Work. If Subcontractor fails to commence the necessary steps within such three (3) day period, Design-Builder, in addition to any other remedies provided under the Contract Documents, may provide Subcontractor with written notice that Design-Builder will commence correction of such nonconforming Work with its own forces. If Design-Builder does perform such corrective Work, Subcontractor shall be responsible for all reasonable costs incurred by Design-Builder in performing such correction. If the nonconforming Work creates an emergency requiring an immediate response in Design-Builder's reasonable opinion, the three (3) day period identified herein shall be deemed inapplicable.

2.14.3 The one year period referenced in Section 2.14.1 above applies only to Subcontractor's obligation to correct nonconforming Work and is not intended to constitute a period of limitations for any other rights or remedies Design-Builder may have regarding Subcontractor's obligations under the Contract Documents.

2.15 Start-Up and Training.

2.15.1 If required as part of Subcontractor's Work, Subcontractor shall be responsible for the start-up, testing, and commissioning of the Work, and shall train Owner's personnel with respect to the operation and maintenance of the Work.

2.16 Hazardous Conditions.

2.16.1 Subcontractor is responsible for Hazardous Conditions introduced to the Site by itself, Sub-Subcontractors or anyone for whose acts they may be liable. Subcontractor shall indemnify, defend and hold harmless Owner, Design-Builder and their officers, directors, employees and agents from and against all claims, losses, damages, liabilities, and expenses, including attorneys' fees and expenses, arising out of or resulting from those Hazardous Conditions introduced to the Site by Subcontractor, Sub-Subcontractors or anyone for whose acts they may be liable.

Article 3

Design-Builder's Services and Responsibilities

3.1 Timely Reviews and Approvals.

3.1.1 Design-Builder shall provide timely reviews and approvals of all submittals, consistent with the turnaround times set forth in the Project Schedule, or as agreed to by the parties at the meeting required under Section 2.1.1 hereof.

3.2 Design-Builder's Representative.

3.2.1 Design-Builder's Representative shall be responsible for providing Design-Builder-supplied information and approvals in a timely manner to permit Subcontractor to fulfill its obligations under the Contract Documents.

3.3 Furnishing of Services and Information.

3.3.1 Unless expressly stated to the contrary in the Contract Documents, and to the extent Design-Builder has received such items from Owner, Design-Builder shall provide for

Subcontractor's information the items listed below. Design-Builder does not warrant the accuracy or completeness of such items provided, however, that Subcontractor is entitled to rely on these items to the same extent Design-Builder is entitled to rely upon such items in the Design-Build Agreement:

3.3.1.1 Surveys describing the property, boundaries, topography and reference points for use during construction, including existing service and utility lines;

3.3.1.2 Geotechnical studies describing subsurface conditions, and other surveys describing other latent or concealed physical conditions at the Site;

3.3.1.3 Temporary and permanent easements, zoning and other requirements and encumbrances affecting land use, or necessary to permit the proper construction of the Project and enable Subcontractor to perform the Work;

3.3.1.4 A legal description of the Site;

3.3.1.5 Record drawings of any existing structures at the Site;

3.3.1.6 Environmental studies, reports and impact statements describing the environmental conditions, including Hazardous Conditions, in existence at the Site;

3.3.1.7 Owner's Project Criteria;

3.3.1.8 All permits, approvals, and licenses set forth in the Owner's Permit List attached as an exhibit to the Design-Build Agreement; and

3.3.1.9 Test and inspection reports.

3.3.2 Design-Builder shall provide Subcontractor with a copy of the Design-Build Agreement, including all exhibits, attachments, and other Contract Documents enumerated and incorporated therein.

3.3.3 Upon Subcontractor's reasonable request, Design-Builder shall provide Subcontractor with information in Design-Builder's possession regarding Owner's financial ability to pay for the Work set forth in this Agreement.

3.3.4 Design-Builder shall provide Subcontractor with the Project Schedule and appropriate updates thereto.

3.3.5 Design-Builder shall obtain those permits, approvals and licenses that are not required to be provided by Owner pursuant to the Design-Build Agreement or by Subcontractor pursuant to Section 2.11.1 hereof. Design-Builder shall provide reasonable assistance to Subcontractor in obtaining those permits, approvals and licenses that are Subcontractor's responsibility.

3.4 Notification of Errors.

3.4.1 Design-Builder shall notify Subcontractor of any errors, inconsistencies, or omissions Design-Builder discovers in the Work. Notwithstanding anything to the contrary in this Agreement, nothing in this Agreement shall relieve Subcontractor of responsibility for errors, inconsistencies, or omissions in the Work.

3.5 Attendance at Design Meetings.

3.5.1 Design-Builder shall afford Subcontractor and its Sub-Subcontractors the opportunity to

attend all necessary design meetings with Owner, Design-Builder's Design Consultant or others furnishing portions of the design for the Project.

3.6 Review and Approval of Submittals.

3.6.1 Design-Builder shall review and approve submittals, including shop drawings, product data and samples, submitted by Subcontractor. Design-Builder's review and approval of submittals shall be only for the purpose of confirming general conformance with the Construction Documents. Design-Builder's review and approval shall not relieve Subcontractor of its responsibilities to perform the Work in accordance with the Construction Documents unless Design-Builder expressly approves in writing any such variance in its response to Subcontractor's submittals. If revisions are necessary to a submittal prior to Design-Builder's approval, Design-Builder shall inform Subcontractor of any such necessary revisions.

3.7 Design-Builder's Separate Contractors.

3.7.1 Design-Builder is responsible for all work performed on the Project or at the Site by separate contractors under Design-Builder's control. Design-Builder shall contractually require its separate contractors to cooperate with, and coordinate their activities so as not to interfere with, Subcontractor's ability to timely complete its Work consistent with the Contract Documents.

Article 4

Ownership of Work Product

4.1 Work Product.

4.1.1 The Subcontractor shall have no ownership and property rights in any drawings, specifications, and other documents and electronic data ("Work Product") furnished by Design-Builder to Subcontractor under this Agreement. Design-Builder shall be granted ownership of all Work Product, if any, furnished by Subcontractor to Design- Builder under this Agreement.

4.2 Indemnification for Use of Work Product.

4.2.1 If either Design-Builder or Subcontractor uses the Work Product furnished to them by the other on any other project, it agrees that it shall do so at its sole risk and without liability or legal exposure to the other party, Owner, or anyone working through them. Such party further agrees that it shall defend, indemnify and hold harmless the other party from and against any and all claims, damages, liabilities, losses and expenses, including attorneys' fees, arising out of or resulting from such use of the Work Product on another project.

Article 5

Time of Performance

5.1 Date of Commencement.

5.1.1 The Work shall commence five (5) days after Subcontractor's receipt of Design-Builder's Notice to Proceed ("Date of Commencement") unless the parties mutually agree otherwise in writing.

5.2 Time of Completion.

5.2.1 Subcontractor shall diligently and continuously prosecute and complete the Work in accordance with the Project Schedule as it may be revised and issued from time to time during the performance of the Work, and any other scheduling requirements listed in the Contract Documents.

5.2.2 Subcontractor shall participate and cooperate in the development of schedules and other efforts to achieve timely completion of the Work. Subcontractor shall provide Design-Builder information for the scheduling of the times and sequence of operations required for the Work to meet Design-Builder's overall schedule requirements, shall continuously monitor the Project Schedule, including any revisions thereto, so as to be fully familiar with the timing, phasing and sequence of operation of the Work and of other work on the Project, and shall execute the Work in accordance with the requirements of the Project Schedule including any revisions thereto.

5.2.3 Subcontractor shall timely perform the various stages of the Work so that Design-Builder can achieve the dates set forth in the Project Schedule, including any revisions thereto.

5.3 Time is of the Essence.

5.3.1 Design-Builder and Subcontractor mutually agree that time is of the essence with respect to the dates and times set forth in the Contract Documents and the Project Schedule.

5.4 Delays to the Work.

5.4.1 If Subcontractor is delayed in the performance of the Work due to acts, omissions, conditions, events, or circumstances beyond its control and due to no fault of its own or those for whom Subcontractor is responsible, the time for performance shall be reasonably extended by Change Order. By way of example, events that may entitle Subcontractor to an extension of the time for completion of the work include acts or omissions of Design-Builder, Owner or anyone under Design-Builder's or Owner's control (including separate contractors), changes in the Work, Differing Site Conditions, Hazardous Conditions and Force Majeure events.

5.4.2 In addition to Subcontractor's right to a time extension for those events set forth in Section 5.4.1 above, Subcontractor shall also be entitled to an appropriate adjustment of the Contract Price provided, however, that the Contract Price shall not be adjusted for Force Majeure events unless otherwise provided for in Article 17.

5.4.3 Notwithstanding any other provision to the contrary, any delay and resulting damages that arise out of, or relate to, problems caused by Owner or for which Owner is responsible shall be resolved pursuant to Section 13.3 hereof.

5.4.4 If the Project is delayed due to the Subcontractor or anyone for whom Subcontractor is responsible, and not due to Design-Builder or Owner, Subcontractor shall compensate and indemnify Design-Builder for all costs, damages, and expenses arising from such delay, including but not limited to any liquidated damages or other damages that Owner may assess against Design-Builder which are attributable to Subcontractor or anyone for whom Subcontractor is responsible. In addition, Subcontractor shall, at the direction of Design-Builder and at Subcontractor's own cost and expense, work such overtime and take such other measures as may be necessary to make up for all time lost in the completion of the Project due to such delay.

Article 6

Contract Price

6.1 Contract Price.

6.1.1 Design-Builder shall pay Subcontractor in accordance with Article 6 hereof the sum of _____Dollars ($_____) ("Contract Price"), subject to adjustments made in accordance with the Contract Documents. Unless otherwise provided in the Contract Documents, the Contract Price is deemed to include all sales, use, consumer and other taxes mandated by applicable Legal Requirements. Design-Builder is not responsible for Subcontractor's bidding or estimating mistakes or miscalculation of market conditions.

6.2 Markups for Changes.

6.2.1 If the Contract Price requires an adjustment due to changes in the Work, and the cost of such changes is determined under Sections 12.6.1.3 or 12.6.1.4 hereof, the following markups shall be allowed on such changes:

6.2.1.1 For additive Change Orders, including additive Change Orders arising from both additive and deductive items, it is agreed that Subcontractor shall receive a Fee of Ten percent (10%) of the additional Costs of the Work incurred for that Change Order.

6.2.1.2 For deductive Change Orders, including deductive Change Orders arising from both additive and deductive items, the deductive amounts shall include:

[Check one box only]

☐ No additional reduction to account for Subcontractor's Fee or any other markup.

or

☒ An amount equal to the sum of: (a) Ten percent (10%) applied to the direct costs of the net reduction (which amount will account for a reduction associated with Subcontractor's Fee).

Article 7

Procedure for Payment

7.1 Schedule of Values.

7.1.1 Unless required by Design-Builder upon execution of this Agreement, within ten (10) days of execution of the Agreement, Subcontractor shall submit for Design-Builder's review and approval a schedule of values for all of the Work. The Schedule of Values will (i) subdivide the Work into its respective parts; (ii) include values for all items comprising the Work; and (iii) serve as the basis for monthly progress payments made to Subcontractor throughout the Work.

7.2 Progress Payments.

7.2.1 Beginning with the first month after the Date of Commencement, Subcontractor shall submit on the Twenty-Fifth (25th) day of each month for Design-Builder's review and approval, Subcontractor's Application for Payment requesting payment for all Work performed as of the date of the Application for Payment. The Application for Payment shall be accompanied by all supporting documentation required by the Contract Documents and/or established at the meeting required by Section 2.1.1 hereof. Design-Builder will submit Subcontractor's proper Application for Payment to Owner with Design-Builder's Application.

7.2.2 The Application for Payment may request payment for equipment and materials not yet incorporated into the Project, provided that (i) Design-Builder is satisfied that the equipment and materials are suitably stored at either the Site or another acceptable location, (ii) the equipment and materials are protected by suitable insurance, and (iii) upon payment, Design-Builder will receive the equipment and materials free and clear of all liens and encumbrances.

7.2.3 The Application for Payment shall constitute Subcontractor's representation that the Work has been performed consistent with the Contract Documents, has progressed to the point indicated in the Application for Payment, and that title to all Work will pass to Owner free and clear of all claims, liens, encumbrances, and security interests upon the incorporation of the Work into the Project, or upon Subcontractor's receipt of payment, whichever occurs earlier.

7.2.4 Design-Builder shall make payment on Subcontractor's properly submitted and accurate Application for Payment within five (5) days after Design-Builder's receipt of payment from Owner on account of Subcontractor's monthly Application for Payment, but in each case less the total of payments previously made, and less amounts properly withheld under this Agreement.

7.3 Retainage on Progress Payments.

7.3.1 Design-Builder will retain from each of Subcontractor's Application for Payment Ten percent (10%). Unless mutually agreed otherwise between the parties, retainage will be included in Design-Builder's final payment to Subcontractor, provided Design-Builder has received such retained amounts from Owner.

7.4 Withholding of Payments/Joint Checks.

7.4.1 If Design-Builder determines that Subcontractor is not entitled to all or part of an Application for Payment, it will notify Subcontractor in writing at least five (5) days prior to the date payment is due. The notice shall indicate the specific amounts Design-Builder intends to withhold, the reasons and contractual basis for the withholding, and the specific measures Subcontractor must take to rectify Design-Builder's concerns. Design-Builder and Subcontractor will attempt to resolve Design-Builder's concerns prior to the date payment is due. If the parties cannot resolve such concerns, Design-Builder shall pay Subcontractor the uncontested amount of the Application for Payment, and Subcontractor may pursue its rights under the Contract Documents, including those under Article 13 hereof.

7.4.2 Design Builder shall have the right to issue joint checks to Subcontractor and any entity or individual whom Subcontractor shall engaged to perform Work upon written notice by Design Builder. Upon receipt of said written notice, Subcontractor agrees to provide all information reasonably requested by Design Builder to facilitate the issuance of joint checks.

7.5 Final Payment.

7.5.1 Subcontractor shall submit its Final Application for Payment to Design-Builder in accordance with Section 7.5.2 below. Design-Builder shall make payment on Subcontractor's properly submitted and accurate Final Application for Payment within ten (10) days after Design-Builder's receipt of final payment from Owner on account of Subcontractor's Final Application for Payment, provided also that Subcontractor has satisfied the requirements for final payment set forth in Section 7.5.2 below.

7.5.2 At the time of submission of its Final Application for Payment, Subcontractor shall provide the following information:

7.5.2.1 An affidavit that there are no claims, obligations or liens outstanding or unsatisfied for labor, services, material, equipment, taxes or other items performed, furnished or incurred for or in connection with the Work which will in any way affect Design-Builder's or Owner's interests;

7.5.2.2 A general release executed by Subcontractor waiving, upon receipt of final payment by Subcontractor, all claims, except those claims previously made in writing to Design-Builder and remaining unsettled at the time of final payment;

7.5.2.3 Consent of Subcontractor's surety, if any, to final payment;

7.5.2.4 All operating manuals, warranties and other deliverables required by the Contract Documents; and

7.5.2.5 Certificates of insurance confirming that required coverages will remain in effect consistent with the requirements of the Contract Documents.

7.5.3 Upon making final payment, Design-Builder waives all claims against Subcontractor except claims relating to (i) Subcontractor's failure to satisfy its payment obligations, if such failure affects Design-Builder's or Owner's interests; (ii) Subcontractor's failure to complete the Work consistent with the Contract Documents, including defects appearing after final completion of the Work; and (iii) the terms of any special warranties required by the Contract Documents.

7.6 Pay When Paid.

7.6.1 Subcontractor agrees that all payments to Subcontractor hereunder, whether progress or final payment, or for changes or delays to the Work, shall not be due until after Design-Builder actually receives payment on account of same from Owner.

7.7 Interest.

7.7.1 Payments due and unpaid under this Agreement shall bear interest commencing five (5) days after payment is due at the rate of Eight percent (8%) per month until paid.

7.8 Advance Payments.

7.8.1 Design-Builder has the right, at its sole option, to advance any payment due Subcontractor under this Agreement.

7.9 Payment Not Acceptance.

7.9.1 No payment to Subcontractor under this Agreement shall be evidence of, or construed to be, acceptance of defective, faulty, improper or non-conforming work.

7.10 Subcontractor's Payment Obligations.

7.10.1 Subcontractor will pay its Sub-Subcontractors, in accordance with its contractual obligations to such parties, all the amounts Subcontractor has received from Design-Builder on account of their work. Subcontractor will impose similar requirements on its Sub-Subcontractors to pay those parties with whom they have contracted. Subcontractor will indemnify and defend Owner and Design-Builder against any claims for payment and mechanic's liens as set forth in Section 11.3 hereof, providing Design-Builder is not in breach of its contractual obligations to make payment to Subcontractor for its Work.

7.11 Record Keeping and Finance Controls.

7.11.1 With respect to changes in the Work performed on a cost basis by Subcontractor pursuant to the Contract Documents, Subcontractor shall keep full and detailed accounts and exercise such controls as may be necessary for proper financial management, using accounting and control systems in accordance with generally accepted accounting principles and as may be provided in the Contract Documents. During the performance of the Work and for a period of three (3) years after final payment of the Work, Design-Builder and Design-Builder's accountants shall be afforded access to and the right to audit from time-to-time, upon reasonable notice, Subcontractor's records, books, correspondence, receipts, subcontracts, purchase orders, vouchers, memoranda and other data relating to the changes in the Work, all of which Subcontractor shall preserve for a period of three (3) years after final payment. Such inspection shall take place at Subcontractor's offices during normal business hours unless another location and time is agreed to by the parties. Any multipliers or markups agreed to by Subcontractor and Design-Builder as part of this Agreement are only subject to audit to confirm that such multiplier or markup has been charged in accordance with this Agreement, with the composition of such multiplier or markup not being subject to audit.

Article 8

Stop Work and Termination

8.1 Design-Builder's Right to Stop Work.

8.1.1 Design-Builder may, without cause and for its convenience, order Subcontractor in writing to stop and suspend the Work. Such suspension shall not exceed sixty (60) consecutive days or aggregate more than ninety (90) days during the duration of the Project.

8.1.2 Subcontractor is entitled to seek an adjustment of the Contract Price and/or times for completion of the Work if its cost or time to perform the Work has been adversely impacted by any suspension or stoppage of work by Design-Builder. Notwithstanding anything to the contrary herein, if Design-Builder's suspension of the Work is the result of Owner's suspension of Design-Builder's work under the Design-Build Agreement, then Design-Builder shall pay Subcontractor only those amounts Design-Builder actually receives from Owner on account of the Work.

8.2 Design-Builder's Right to Terminate for Convenience.

8.2.1 Upon ten (10) days' written notice to Subcontractor, Design-Builder may, for its convenience and without cause, elect to terminate this Agreement. In such event, Design-Builder shall have the right to use the existing Work Product, if any, for purposes of completing the Project, and shall pay Subcontractor for the following:

8.2.1.1 All Work executed and for proven loss, cost or expense in connection with the Work;

8.2.1.2 The reasonable costs and expenses attributable to such termination, including amounts due in settlement of terminated contracts with Sub-Subcontractors; and

8.2.1.3 ***[choose one of the following]***

☒ The fair and reasonable sums for overhead and profit on the sum of items 8.2.1.1 and 8.2.1.2 above.

or

☐ Overhead and profit in the amount of _____ percent (_____%) on the sum of items 8.2.1.1 and 8.2.1.2 above.

8.2.2 If Design-Builder's termination of Subcontractor for convenience is the result of Owner's termination of Design-Builder for convenience under the Design-Build Agreement, then Design-Builder shall pay Subcontractor only those amounts Design-Builder actually receives from Owner on behalf of Subcontractor.

8.3 Design-Builder's Right to Terminate for Cause.

8.3.1 If Subcontractor fails to (i) provide a sufficient number of skilled workers, (ii) supply the materials required by the Contract Documents, (iii) comply with applicable Legal Requirements, (iv) timely pay, without cause, its Sub-Subcontractors, (v) prosecute the Work with promptness and diligence to ensure that the Work is completed in accordance with the Project Schedule, as such schedule may be adjusted, or (vi) perform material obligations under the Contract Documents, then Design-Builder shall have the rights, in addition to any other rights and remedies provided in the Contract Documents or by law, set forth in Sections 8.3.2 and 8.3.3 below.

8.3.2 Upon the occurrence of an event set forth in Section 8.3.1 above, Design-Builder may provide written notice to Subcontractor that it intends to terminate the Agreement unless the problem cited is cured, or commenced to be cured, within three (3) days of Subcontractor's receipt of such notice. If Subcontractor fails to cure, or reasonably commence to cure, such problem, then Design-Builder may give a second written notice to Subcontractor of its intent to terminate within an additional three (3) day period. If Subcontractor, within such second three (3) day period, fails to cure, or reasonably commence to cure, such problem, then Design-Builder may declare the Agreement terminated for default by providing written notice to Subcontractor of such declaration.

8.3.3 Upon declaring the Agreement terminated pursuant to Section 8.3.2 above, Design-Builder may enter upon the premises and take possession, for the purpose of completing the Work, of all materials, equipment, scaffolds, tools, appliances and other items thereon, which have been purchased or provided for the performance of the Work, all of which Subcontractor hereby transfers, assigns and sets over to Design-Builder for such purpose, and to employ any person or persons to complete the Work and provide all of the required labor, services, materials, equipment and other items. In the event of such termination, Subcontractor shall not be entitled to receive any further payments under the Contract Documents until the Work shall be finally completed in accordance with the Contract Documents. At such time, if the unpaid balance of the Contract Price exceeds the cost and expense incurred by Design-Builder in completing the Work, such excess shall be paid by Design-Builder to Subcontractor. If Design-Builder's cost and expense of completing the Work exceeds the unpaid balance of the Contract Price, then Subcontractor shall be obligated to pay the difference to Design-Builder. Such costs and expense shall include not only the cost of completing the Work, but also losses, damages, costs and expenses, including attorneys' fees and expenses, incurred by Design-Builder in connection with the reprocurement and defense of claims arising from Subcontractor's default, subject to the waiver of consequential damages set forth in Section 13.7 hereof.

8.3.4 If Design-Builder improperly terminates the Agreement for cause, Subcontractor agrees that the termination for cause will be converted automatically to a termination for convenience in accordance with the provisions of Section 8.2 of the Agreement.

8.4 Subcontractor's Right to Stop Work.

8.4.1 If Design-Builder fails to pay any amounts due Subcontractor under this Agreement, Subcontractor may, in addition to any other rights afforded under the Contract Documents or at law, stop work in accordance with Section 8.4.2.

8.4.2 Subcontractor shall provide Design-Builder with written notice that Subcontractor will stop work unless said failure to pay the amount is cured within seven (7) days from Design-Builder's receipt of Subcontractor's notice. If Design-Builder does not cure the problem within such seven (7) day period, Subcontractor may stop work. In such case, Subcontractor shall be entitled to make a claim for adjustment to the Contract Price and the times for completion of the Work to the extent it has been adversely impacted by such stoppage. To the extent Design-Builder's failure to pay is related to a dispute between the parties, the dispute will be resolved in accordance with Article 13 and the parties will continue performance in accordance with Section 13.6.

8.5 Subcontractor's Right to Terminate For Cause.

8.5.1 Subcontractor, in addition to any other rights and remedies afforded under the Contract Documents or at law, may terminate the Agreement for cause in accordance with Section 8.5.2 below if Design-Builder fails to cure the problems set forth in Section 8.4.1 above within thirty (30) days after Subcontractor has stopped the work.

8.5.2 Upon the occurrence of the event set forth in Section 8.5.1 above, Subcontractor may provide written notice to Design-Builder that it intends to terminate the Agreement unless the problem cited is cured, or commenced to be cured, within seven (7) days of Design-Builder's receipt of such notice. If Design-Builder fails to cure, or reasonably commence to cure, such problem, then Subcontractor may give a second written notice to Design-Builder of its intent to terminate within an additional seven (7) day period. If Design-Builder, within such second seven (7) day period, fails to cure, or reasonably commence to cure, such problem, then Subcontractor may declare the Agreement terminated for default by providing written notice to Design-Builder of such declaration. In such case, Subcontractor shall be entitled to recover in the same manner as if Design-Builder had terminated this Agreement for its convenience under Section 8.2 of the Agreement.

8.6 Bankruptcy of Design-Builder or Subcontractor.

8.6.1 If either Design-Builder or Subcontractor institutes or has instituted against it a case under the United States Bankruptcy Code (such party being referred to as the "Bankrupt Party"), such event may impair or frustrate the Bankrupt Party's ability to perform its obligations under the Contract Documents. Accordingly, should such event occur:

8.6.1.1 The Bankrupt Party, its trustee or other successor, shall furnish, upon request of the non-Bankrupt Party, adequate assurance of the ability of the Bankrupt Party to perform all future material obligations under the Contract Documents, which assurances shall be provided within ten (10) days after receiving notice of the request; and

8.6.1.2 The Bankrupt Party shall file an appropriate action within the bankruptcy court to seek assumption or rejection of the Agreement within sixty (60) days of the institution of the bankruptcy filing and shall diligently prosecute such action.

If the Bankrupt Party fails to comply with its foregoing obligations, the non-Bankrupt Party shall be entitled to request the bankruptcy court to reject the Agreement, declare the Agreement terminated and pursue any other recourse available to the non-Bankrupt Party under this Article 8.

8.6.2 The rights and remedies under Section 8.6.1 above shall not be deemed to limit the ability of the non-Bankrupt Party to seek any other rights and remedies provided by the Contract Documents or by law, including its ability to seek relief from any automatic stays under the United States Bankruptcy Code.

Article 9

Representatives of the Parties

9.1 Design-Builder's Representatives.

9.1.1 Design-Builder designates the individual listed below as its Senior Representative ("Design-Builder's Senior Representative"), which individual has the authority and responsibility for avoiding and resolving disputes under Section 13.4 of the Agreement: *(Identify individual's name, title, address and telephone numbers)*

Chris Walters, President
DBS Group, LLC
2700 National Drive, Suite 101
Onalaska, WI 54650
Phone: (608) 881-6007
Fax: (608) 881-6017

9.1.2 Design-Builder designates the individual listed below as its Design-Builder's Representative, which individual has the authority and responsibility set forth in Section 3.2 of the Agreement: *(Identify individual's name, title, address and telephone numbers)*

_____, Project Manager
DBS Group, LLC
2700 National Drive, Suite 101
Onalaska, WI 54650
Phone: (608) 881-6007
Fax: (608) 881-6017

9.2 Subcontractor's Representatives.

9.2.1 Subcontractor designates the individual listed below as its Senior Representative ("Subcontractor's Senior Representative"), which individual has the authority and responsibility for avoiding and resolving disputes under Section 13.4 of the Agreement: *(Identify individual's name, title, address and telephone numbers)*

9.2.2 Subcontractor designates the individual listed below as its Subcontractor's Representative, which individual has the authority and responsibility set forth in Section 2.1.2 of the Agreement: *(Identify individual's name, title, address and telephone numbers)*

Article 10

Insurance and Bonds

10.1 Subcontractor's Insurance Requirements.

10.1.1 Subcontractor is responsible for procuring and maintaining, from insurance companies authorized to do business in the state in which the Project is located, the insurance coverages set forth in Exhibit D - Insurance Requirements, with the minimum ratings set forth in said Exhibit, for certain claims which may arise from or out of the performance of this Agreement and obligations under the Contract Documents.

10.1.2 Subcontractor shall require its Sub-Subcontractors to procure and maintain, from insurance companies authorized to do business in the state in which the Project is located, the insurance coverages set forth in Exhibit D – Insurance Requirements.

10.1.3 Subcontractor's and its Sub-Subcontractors' insurance coverage set forth in Exhibit D – Insurance Requirements shall specifically delete any design-build or similar exclusions that could compromise coverages because of the design-build delivery of the Project.

10.1.4 Prior to commencing any services hereunder, Subcontractor shall provide Design-Builder with certificates evidencing that (i) all insurance obligations required by the Contract Documents are in full force and in effect and will remain in effect for the duration required by the Contract Documents and (ii) no insurance coverage will be canceled, renewal refused, or materially changed unless at least thirty (30) days prior written notice is given to Design-Builder.

10.1.5 Except as otherwise stated in the Agreement, the insurance policies required herein shall list Design-Builder, and any other entities required by the Contract Documents, if any, as an additional insured.

10.1.6 If any of the foregoing coverages are required to remain in force after final payment, an additional certificate evidencing continuation of such coverage shall be submitted with the final Application for Payment.

10.2 Property Insurance.

10.2.1 In accordance with the Contract Documents, Owner or Design-Builder shall procure and maintain property insurance upon the entire Project.

10.3 Waiver of Subrogation.

10.3.1 Design-Builder and Subcontractor waive against each other and Owner, Sub-Subcontractors, Design Consultants, Owner's or Design-Builder's separate contractors, agents and employees of each and all of them, all damages covered by property insurance provided herein, except such rights as they may have to the proceeds of such insurance. Design-Builder and Subcontractor shall, where appropriate, require similar waivers of subrogation from Design Consultant and Sub-Subcontractors and separate contractors of Design-Builder, and shall require

each of them to include similar waivers in their contracts. These waivers of subrogation shall not contain any restriction or limitation that will impair the full and complete extent of its applicability to any person or entity unless agreed to in writing prior to the execution of this Agreement.

10.4 Bonds and Other Performance Security.

10.4.1 Subcontractor shall provide the following performance bond and labor and material payment bond or other performance security: *(Indicate the amount of bonds and any other conditions of the bonds or other security.)* ***(Not Required)***

Article 11

Indemnification

11.1 Patent and Copyright Infringement.

11.1.1 Subcontractor shall defend any action or proceeding brought against Owner or Design-Builder based on any claim that the Work, or any part thereof, or the operation or use of the Work or any part thereof, constitutes infringement of any United States patent or copyright, now or hereafter issued. Design-Builder shall give prompt written notice to Subcontractor of any such action or proceeding and will reasonably provide authority, information and assistance in the defense of same. Subcontractor shall indemnify and hold harmless Owner and Design-Builder from and against all damages and costs, including but not limited to attorneys' fees and expenses awarded against Owner or Design-Builder in any such action or proceeding. Subcontractor agrees to keep Design-Builder informed of all developments in the defense of such actions.

11.1.2 If Owner is enjoined from the operation or use of the Work, or any part thereof, as the result of any patent or copyright suit, claim, or proceeding, Subcontractor shall at its sole expense take reasonable steps to procure the right to operate or use the Work. If Subcontractor cannot so procure such right within a reasonable time, Subcontractor shall promptly, at Subcontractor's option and at Subcontractor's expense, (i) modify the Work so as to avoid infringement of any patents, or copyrights, or (ii) replace said Work with Work that does not infringe or violate any such patent or copyright.

11.1.3 Sections 11.1.1 and11.1.2 above shall not be applicable to any suit, claim or proceeding based on infringement or violation of a patent or copyright (i) relating to a particular process or product of a particular manufacturer specified by Owner or Design-Builder or (ii) arising from modifications to the Work by Owner or Design-Builder after acceptance of the Work. If the suit, claim or proceeding is based upon events set forth in the preceding sentence, Design-Builder shall defend, indemnify and hold harmless Subcontractor to the same extent Subcontractor is obligated to defend, indemnify and hold harmless Design-Builder in Section 11.1.1 above.

11.1.4 The obligations set forth in this Section 11.1 shall constitute the sole agreement between the parties relating to liability for infringement or violation of any patent or copyright.

11.2 Tax Claim Indemnification.

11.2.1 If, in accordance with Design-Builder's direction, an exemption for all or part of the Work is claimed for taxes, Design-Builder shall indemnify, defend and hold harmless Subcontractor from and against any liability, penalty, interest, fine, tax assessment, attorneys' fees or other expenses or costs incurred by Subcontractor as a result of any action taken by Subcontractor in accordance with Design-Builder's directive.

11.3 Payment Claim Indemnification.

11.3.1 Providing that Design-Builder is not in breach of its contractual obligation to make payments to Subcontractor for the Work, Subcontractor shall indemnify, defend and hold harmless Owner and Design-Builder from any claims or mechanic's liens brought against Owner, Design-Builder, or against the Project as a result of the failure of Subcontractor, or those for whose acts it is responsible, to pay for any services, materials, labor, equipment, taxes or other items or obligations furnished or incurred for, or in connection with the Work. Within three (3) days of receiving written notice from Design-Builder that such a claim or mechanic's lien has been filed, Subcontractor shall commence to take the steps necessary to discharge said claim or lien, including, if necessary, the furnishing of a mechanic's lien bond. If Subcontractor fails to do so, Design-Builder will have the right to discharge the claim or lien and hold Subcontractor liable for costs and expenses incurred, including attorneys' fees.

11.4 Subcontractor's General Indemnification.

11.4.1 Subcontractor, to the fullest extent permitted by law, shall indemnify, hold harmless and defend Owner, Design-Builder, their officers, directors, employees and agents from and against claims, losses, damages, and liabilities, including attorneys' fees and expenses, for bodily injury, sickness or death, and property damage or destruction (other than to the Work itself) to the extent resulting from the negligent acts or omissions of Subcontractor, Sub-Subcontractors, anyone employed directly or indirectly by any of them or anyone for whose acts any of them may be liable.

11.4.2 If an employee of Subcontractor, anyone employed directly or indirectly by Subcontractor or anyone for whose acts any of them may be liable has a claim against any party indemnified pursuant to Section 11.4.1 above, Subcontractor's indemnity obligation set forth in Section 11.4.1 above shall not be limited by any limitation on the amount of damages, compensation or benefits payable by or for Subcontractor, Sub-Subcontractors, or other entity under any employee benefit acts, including workers' compensation or disability acts.

11.5 Design-Builder's General Indemnification.

11.5.1 Design-Builder, to the fullest extent permitted by law, shall indemnify, hold harmless and defend Subcontractor and its officers, directors, employees and agents from and against claims, losses, damages, liabilities, including attorneys' fees and expenses, for bodily injury, sickness or death, and property damage or destruction (other than to the Work itself) to the extent resulting from the negligent acts or omissions of Design-Builder, Design Consultant, Design-Builder's other contractors, anyone employed directly or indirectly by any of them or anyone for whose acts any of them may be liable.

11.5.2 If an employee of Design-Builder, anyone employed directly or indirectly by Design-Builder or anyone for whose acts any of them may be liable has a claim against any party indemnified pursuant to Section 11.5.1 above, Design-Builder's indemnity obligation set forth in Section 11.5.1 above shall not be limited by any limitation on the amount of damages, compensation or benefits payable by or for Design-Builder, Design-Builder's Design Consultant, Design-Builder's other contractors, or other entity under any employee benefit acts, including workers' compensation or disability acts.

Article 12

Changes to the Contract Price and Time

12.1 Owner-Generated Changes.

12.1.1 If Owner issues changes affecting the Work, Subcontractor agrees, if directed by Design-Builder, to meet with Design-Builder and Owner to review and discuss the changes. Subcontractor shall only be entitled to adjustments in its Contract Price and the times for completion of the Work attributable to such Owner-generated changes to the extent Design-Builder actually receives such adjustments from Owner. If Subcontractor disputes the adjustment, such dispute shall be resolved pursuant to Section 13.3 of this Agreement.

12.2 Design-Builder Generated Changes.

12.2.1 Changes to the Work issued by Design-Builder shall be governed by the provisions set forth in the following sections of this Article 12.

12.3 Change Orders.

12.3.1 A Change Order is a written instrument issued after execution of the Agreement signed by Design-Builder and Subcontractor, stating their agreement upon all of the following:

12.3.1.1 The scope of the change in the Work;

12.3.1.2 The amount of the adjustment to the Contract Price; and

12.3.1.3 The extent of the adjustment to the times for completion of the Work.

12.3.2 All changes in the Work authorized by applicable Change Order shall be performed under the applicable conditions of the Contract Documents. Design-Builder and Subcontractor shall negotiate, in good faith and as expeditiously as possible, the appropriate adjustments for such changes.

12.3.3 If Design-Builder requests a proposal for a change in the Work from Subcontractor and subsequently elects not to proceed with the change, a Change Order shall be issued to reimburse Subcontractor for reasonable costs incurred for preparing the proposal.

12.4 Work Change Directives.

12.4.1 A Work Change Directive is a written order prepared and signed by Design-Builder directing a change in the Work prior to agreement on an adjustment in the Contract Price and/or the times for completion of the Work.

12.4.2 Design-Builder and Subcontractor shall negotiate, in good faith and as expeditiously as possible, the appropriate adjustments for the Work Change Directive. Upon reaching an agreement, the parties shall prepare and execute an appropriate Change Order reflecting the terms of the agreement.

12.5 Minor Changes in the Work.

12.5.1 Minor changes in the Work are changes that do not involve an adjustment in the Contract Price and/or times for completion of the Work and do not materially and adversely affect the Work, including the design, quality, performance and workmanship required by the Contract Documents. Design-Builder may make minor changes in the Work consistent with the intent of the Contract Documents, provided, however, that Design-Builder shall promptly inform Subcontractor, in writing, of any such changes.

12.6 Contract Price Adjustment.

12.6.1 The increase or decrease in Contract Price resulting from a change in the Work shall be determined by one or more of the following methods:

12.6.1.1 Unit prices set forth in the Agreement or as subsequently agreed between the parties;

12.6.1.2 A mutually accepted, lump sum, properly itemized and supported by sufficient substantiating data to permit evaluation by Design-Builder;

12.6.1.3 Costs, fees and any other markups set forth in the Agreement; and

12.6.1.4 If an increase or decrease cannot be agreed to as set forth in items 12.6.1.1 through 12.6.1.3 above and Design-Builder issues a Work Change Directive, the cost of the change of the Work shall be determined by the reasonable expense and savings in the performance of the Work resulting from the change, including a reasonable overhead and profit, as may be set forth in this Agreement. If the net result of both additions and deletions to the Work is an increase in the Contract Price, reasonable overhead and profit shall be calculated on the basis of the net increase to the Contract Price. Subcontractor shall maintain a documented, itemized accounting evidencing the expenses and savings associated with such changes.

12.6.2 If unit prices are set forth in the Contract Documents or are subsequently agreed to by the parties, but application of such unit prices will cause substantial inequity to Design-Builder or Subcontractor because of differences in the character or quantity of such unit items as originally contemplated, such unit prices shall be equitably adjusted.

12.6.3 If Design-Builder and Subcontractor disagree upon whether Subcontractor is entitled to be paid for any services required by Design-Builder, or if there are any other disagreements over the scope of Work or proposed changes to the Work, Design-Builder and Subcontractor shall resolve the disagreement pursuant to Article 13 hereof. As part of the negotiation process, Subcontractor shall furnish Design-Builder with a good faith estimate of the costs to perform the disputed services in accordance with Design-Builder's interpretations. If the parties are unable to agree and Design-Builder expects Subcontractor to perform the services in accordance with Design-Builder's interpretations, Subcontractor shall proceed to perform the disputed services, conditioned upon Design-Builder issuing a written order to Subcontractor (i) directing Subcontractor to proceed and (ii) specifying Design-Builder's interpretation of the services that are to be performed.

12.7 Emergencies.

12.7.1 In any emergency affecting the safety of persons and/or property, Subcontractor shall act, at its discretion, to prevent threatened damage, injury or loss. Any change in the Contract Price and/or times for completion of the Work on account of emergency work shall be determined as provided in this Article 12.

Article 13

Contract Adjustments and Disputes

13.1 Requests for Contract Adjustments and Relief.

13.1.1 If either Subcontractor or Design-Builder believes that it is entitled to relief against the other for any event arising out of or related to the Work or the Project, such party shall provide written notice to the other party of the basis for its claim for relief. Such notice shall be in accordance with specific notice requirements contained in applicable sections of the Contract Documents and, if possible, be made prior to incurring any cost or expense. Subcontractor shall provide Design-Builder written notice of claims for which Owner may be responsible in sufficient time for Design-Builder to meet its notice requirements to Owner set forth in the Contract Documents. In the absence of any specific notice requirement, written notice shall be given within a reasonable time, not to exceed ten (10) days, after the occurrence giving rise to the claim for relief or after the claiming party reasonably should have recognized the event or condition giving rise to the request, whichever is later. Such notice shall be in accordance with the Contract Documents and shall include sufficient information to advise the other party of the circumstances giving rise to the claim for relief, the specific contractual adjustment or relief requested and the basis of such request. Subcontractor shall comply with all documentation requirements set forth in the Design-Build Agreement when submitting its claim to Design-Builder.

13.2 Dispute Avoidance and Resolution.

13.2.1 The parties are fully committed to working with each other throughout the Project and agree to communicate regularly with each other at all times so as to avoid or minimize disputes or disagreements. If disputes or disagreements do arise, Subcontractor and Design-Builder each commit to resolving such disputes or disagreements in an amicable, professional and expeditious manner so as to avoid unnecessary losses, delays and disruptions to the Work.

13.3 Disputes Involving Owner.

13.3.1 To the extent a claim, dispute or controversy arises out of, or relates to, problems caused by Owner or for which Owner is responsible ("Owner Disputes"), such Owner Disputes shall be resolved pursuant to the dispute resolution clause set forth in the Design-Build Agreement. Both Design-Builder and Subcontractor agree to cooperate in the presentation and prosecution or defense of Owner Disputes. If, after a request for an extension of time or additional compensation from Subcontractor, Design-Builder believes that the event causing the delay or additional compensation is the responsibility of Owner, then Design-Builder will cooperate with and assist Subcontractor in presenting a request for an extension of time or additional compensation to Owner. Notwithstanding the above, Design-Builder reserves the right not to submit a claim to Owner. In such cases, the claim shall be resolved pursuant to Section 13.4.

13.3.2 Notwithstanding any other provisions herein to the contrary, Design-Builder and Subcontractor each agree to accept the relief as to a time extension or additional compensation obtained from Owner, if any, as well as all other aspects of the final decision following appeal or the expiration of the time for appeal, as full and final resolution of any Owner Dispute.

13.3.3 If Design-Builder asserts a claim against Owner involving Subcontractor, each party shall bear its own costs for outside counsel and third-party consultants retained to prosecute claims against Owner and for any other litigation costs. Each party shall present its portion of the claim to Owner.

13.3.4 If Owner contends that the Contract Documents have been breached, or otherwise asserts a claim or set-off against Design-Builder, the party determined to be responsible for the breach either by settlement or by the trier of fact shall be responsible for all costs occasioned by the breach, including counsel and litigation costs. If the trier of fact fails to determine the relative degrees of fault of Design-Builder and Subcontractor in connection with any claim by Owner, then Design-

Builder and Subcontractor agree that the allocation of fault shall be determined pursuant to Section 13.4.

13.4 Disputes Not Involving Owner.

13.4.1 For any claim, dispute or controversy not arising out of, or relating to, problems caused by Owner or for which Owner is responsible, Subcontractor and Design-Builder will first attempt to resolve such claim, dispute or controversy at the field level through discussions between Design-Builder's Representative and Subcontractor's Representative.

13.4.2 If a claim, dispute or controversy cannot be resolved through Section 13.4.1, Design-Builder's Senior Representative and Subcontractor's Senior Representative, upon the request of either party, shall meet as soon as conveniently possible, but in no case later than thirty (30) days after such a request is made, to attempt to resolve such claim, dispute or controversy. Five (5) days prior to any meetings between the Senior Representatives, the parties will exchange relevant information that will assist the parties in resolving the claim, dispute or controversy.

13.4.3 If after meeting the Senior Representatives determine that the claim, dispute or controversy cannot be resolved on terms satisfactory to both parties, the parties shall submit within thirty (30) days of the conclusion of the meeting by the Senior Representatives the claim, dispute or controversy to non-binding mediation. The mediation shall be conducted by a mutually agreeable impartial mediator, or if the parties cannot so agree, a mediator designated by the American Arbitration Association ("AAA") pursuant to its Construction Industry Mediation Rules. The mediation will be governed by and conducted pursuant to a mediation agreement negotiated by the parties or, if the parties cannot so agree, by procedures established by the mediator. Unless otherwise mutually agreed by Design-Builder and Subcontractor and consistent with the mediator's schedule, the mediation shall commence within ninety (90) days of the submission of the dispute for mediation. Persons with authority to resolve the dispute shall be present at the mediation.

13.5 Arbitration.

13.5.1 Any claims, disputes or controversies between the parties arising out of or relating to the Agreement, or the breach thereof, which have not been resolved in accordance with the procedures set forth in Section 13.4 above, shall be decided by arbitration in accordance with the Construction Industry Arbitration Rules of the AAA then in effect, unless the parties mutually agree otherwise.

13.5.2 The award of the arbitrator(s) shall be final and binding upon the parties without the right of appeal to the courts. Judgment may be entered upon it in accordance with applicable law by any court having jurisdiction thereof.

13.5.3 Subcontractor and Design-Builder expressly agree that any arbitration pursuant to this Section 13.5 may be joined or consolidated with any arbitration involving any other person or entity (i) necessary to resolve the claim, dispute or controversy, or (ii) substantially involved in or affected by such claim, dispute or controversy. Both Design-Builder and Subcontractor will include appropriate provisions in all contracts they execute with other parties in connection with the Project to require such joinder or consolidation.

13.5.4 The prevailing party in any arbitration, or any other final, binding dispute proceeding upon which the parties may agree, shall be entitled to recover from the other party reasonable attorneys' fees and expenses incurred by the prevailing party.

13.6 Duty to Continue Performance.

13.6.1 Unless provided to the contrary in the Contract Documents, Subcontractor shall continue to perform the Work and Design-Builder shall continue to satisfy its payment obligations to

Subcontractor, pending the final resolution of any dispute or disagreement between Design-Builder and Subcontractor.

13.7 CONSEQUENTIAL DAMAGES.

13.7.1 NOTWITHSTANDING ANYTHING HEREIN TO THE CONTRARY (EXCEPT AS SET FORTH IN SECTION 13.7.2 BELOW), NEITHER DESIGN-BUILDER NOR SUBCONTRACTOR SHALL BE LIABLE TO THE OTHER FOR ANY CONSEQUENTIAL LOSSES OR DAMAGES, WHETHER ARISING IN CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHERWISE, INCLUDING BUT NOT LIMITED TO LOSSES OF USE, PROFITS, BUSINESS, REPUTATION OR FINANCING.

13.7.2 Notwithstanding Section 13.7.1 above, Design-Builder shall be entitled to recover against Subcontractor (i) any liquidated damages that Owner may assess against Design-Builder which are attributable to Subcontractor, even though both parties recognize that such liquidated damages may include some damages that might otherwise be deemed to be consequential and (ii) any liability of Subcontractor for consequential damages that may be imposed upon the Design-Builder by Design-Build Agreement.

Article 14

Miscellaneous

14.1 Assignment.

14.1.1 Neither Subcontractor nor Design-Builder shall, without the written consent of the other, assign, transfer or sublet any portion or part of the Work or the obligations required by the Contract Documents.

14.2 Successorship.

14.2.1 Design-Builder and Subcontractor intend that the provisions of the Contract Documents are binding upon the parties, their employees, agents, heirs, successors and assigns.

14.3 Governing Law.

14.3.1 The Agreement and all Contract Documents shall be governed by the laws of the place of the Project, without giving effect to its conflict of law principles.

14.4 Severability.

14.4.1 If any provision or any part of a provision of the Contract Documents shall be finally determined to be superseded, invalid, illegal, or otherwise unenforceable pursuant to any applicable Legal Requirements or court order, such determination shall not impair or otherwise affect the validity, legality, or enforceability of the remaining provision or parts of the provision of the Contract Documents, which shall remain in full force and effect as if the unenforceable provision or part were deleted.

14.5 No Waiver.

14.5.1 The failure of either Design-Builder or Subcontractor to insist, in any one or more instances, on the performance of any of the obligations required by the other under the Contract Documents shall not be construed as a waiver or relinquishment of such obligation or right with respect to future performance.

14.6 Headings.

14.6.1 The headings used in this Agreement, or any other Contract Document, are for ease of reference only and shall not in any way be construed to limit or alter the meaning of any provision.

14.7 Notice.

14.7.1 Whenever the Contract Documents require that notice be provided to the other party, notice will be deemed to have been validly given (i) if delivered in person to the individual intended to receive such notice, (ii) four (4) days after being sent by registered or certified mail, postage prepaid to the address indicated in the Agreement, or (iii) if transmitted by facsimile, by the time stated in a machine generated confirmation that notice was received at the number of the intended recipient.

14.8 Amendments.

14.8.1 The Contract Documents may not be changed, altered, or amended in any way except in writing signed by a duly authorized representative of each party.

14.9 Survival.

14.9.1 Subcontractor's obligations under this Agreement shall not be released and shall specifically survive the completion of all services hereunder by Subcontractor, final payment to Subcontractor, and the termination of this Agreement for any reason.

Article 15

Electronic Data

15.1 Electronic Data.

15.1.1 The parties recognize that Contract Documents, including drawings, specifications and three-dimensional modeling (such as Building Information Models) and other Work Product may be transmitted among Design-Builder, Subcontractor and others in electronic media as an alternative to paper hard copies (collectively "Electronic Data").

15.2 Transmission of Electronic Data.

15.2.1 Design-Builder shall determine, after consultation with Subcontractor, the software and the format for the transmission of Electronic Data. Each party shall be responsible for securing the legal rights to access the agreed-upon format, including, if necessary, obtaining appropriately licensed copies of the applicable software or electronic program to display, interpret and/or generate the Electronic Data.

15.2.2 Neither party makes any representations or warranties to the other with respect to the functionality of the software or computer program associated with the electronic transmission of Work Product. Unless specifically set forth in the Agreement, ownership of the Electronic Data does not include ownership of the software or computer program with which it is associated, transmitted, generated or interpreted.

15.2.3 By transmitting Work Product in electronic form, the transmitting party does not transfer or assign its rights in the Work Product. The rights in the Electronic Data shall be as set forth in Article 4 of the Agreement. Under no circumstances shall the transfer of ownership of Electronic Data be deemed to be a sale by the transmitting party of tangible goods.

15.3 Electronic Data Protocol.

15.3.1 The parties acknowledge that Electronic Data may be altered or corrupted, intentionally or otherwise, due to occurrences beyond their reasonable control or knowledge, including but not limited to compatibility issues with user software, manipulation by the recipient, errors in transcription or transmission, machine error, environmental factors, and operator error. Consequently, the parties understand that there is some level of increased risk in the use of Electronic Data for the communication of design and construction information and, in consideration of this, agree, and shall require their independent contractors, Subcontractors and Design Consultants to agree, to the following protocols, terms and conditions set forth in this Section 15.3.

15.3.2 Electronic Data will be transmitted in the format determined in Section 15.2.1 above, including file conventions and document properties, unless prior arrangements are made in advance in writing.

15.3.3 The Electronic Data represents the information at a particular point in time and is subject to change. Therefore, the parties shall agree upon protocols for notification by the author to the recipient of any changes which may thereafter be made to the Electronic Data, which protocol shall also address the duty, if any, to update such information if such information changes prior to Final Completion of the Project.

15.3.4 The transmitting party specifically disclaims all warranties, expressed or implied, including, but not limited to, implied warranties of merchantability and fitness for a particular purpose, with respect to the media transmitting the Electronic Data. However, transmission of the Electronic Data via electronic means shall not invalidate or negate any duties pursuant to the applicable standard of care with respect to the creation of the Electronic Data, unless such data is materially changed or altered after it is transmitted to the receiving party, and the transmitting party did not participate in such change or alteration.

15.4 In the event the Design-Build Agreement contains a provision governing Electronic Data, and there is a conflict between the provision in the Design-Build Agreement and this Article 15, the provision in the Design-Build Agreement takes precedence, notwithstanding the order of precedence set forth in Section 1.4.2.

Article 16

Confidential Information

16.1 Confidential and/or Proprietary Information.

16.1.1 Confidential Information is defined as information which is determined by the transmitting party to be of a confidential or proprietary nature and: (i) the transmitting party identifies as either confidential or proprietary; (ii) the transmitting party takes steps to maintain the confidential or proprietary nature of the information; and (iii) the document is not otherwise available in or considered to be in the public domain. The receiving party agrees to maintain the confidentiality of the Confidential Information and agrees to use the Confidential Information solely in connection with the Project.

16.1.2 Subcontractor may receive information from Design-Builder that is either confidential or proprietary to either Design-Builder or to Owner. Such information shall be labeled as confidential and/or proprietary. Subcontractor agrees to maintain the confidential nature of such information and to execute any such additional agreements as may be required by Owner or Design-Builder with respect to such information.

16.1.3 In the event the Design-Build Agreement contains a provision governing Confidential Information, and there is a conflict between the provision in the Design-Build Agreement and this

Article 16, the provision in the Design-Build Agreement takes precedence, notwithstanding the order of precedence set forth in Section 1.4.2.

Article 17

Other Provisions

17.1 Other provisions, if any, are as follows:

(Insert any additional provisions, including those that relate to options that might have been selected by Design-Builder and Owner in the Design-Build Agreement related to Warranty Reserves, alternatives to Liquidated Damages, etc. as the parties may deem commercially appropriate.)

Exhibit A – Scope-of-Work
Exhibit B – Project Criteria
Exhibit C – Project Schedule
Exhibit D – Insurance Requirements
Exhibit E – Project Specific Requirements

In executing this Agreement, Design-Builder and Subcontractor each individually represents that it has the necessary financial resources to fulfill its obligations under this Agreement, and each has the necessary corporate approvals to execute this Agreement, and perform the Work described herein.

DESIGN-BUILDER:	**SUBCONTRACTOR:**
DBS Group, LLC	
(Name of Design-Builder)	*(Name of Subcontractor)*
(Signature)	*(Signature)*
Printed Name:	Printed Name:
Title:	Title:
Date:	Date:

Caution: You should sign an original DBIA document which has this caution printed in blue. An original assures that changes will not be obscured as may occur when documents are reproduced.

SUBCONTRACT AGREEMENT

This Agreement is entered into on _____

Description: DBS Group Job # 18093

Between Contractor:	**And Subcontractor:**	**To Contact:**
DBS Group, LLC		Attn:
2700 National Drive, Suite 101		Phone:
Onalaska, WI 54650		Email:

Contractor entered into a contract (the "DBS Group Contract") dated _____ with Owner (defined below) hereinafter referred to as the Prime Contract.

With the Owner **For the following Project:** **The Architect for this Project is:**

The Subcontract Documents consists of (1) this Agreement; (2) the Prime Contract (a copy of which has been made available to Subcontractor); (3) any additional documents listed in this Agreement; and (4) written modifications to this Agreement issued after the execution of this Agreement.

WORK OF THIS SUBCONTRACT: Subcontractor acknowledges it has received and carefully examined to the extent it deemed necessary in its sole discretion all of the Subcontract Documents, including plans and specifications and is familiar with all of the requirements therein insofar as they affect the work to be done by Subcontractor. Subcontractor shall furnish and pay for all supervision, labor, materials, tools, safety measures, equipment, services, cleanup, hoisting, hauling, unloading, storage, protection, scaffolding, quality assurance and testing, field measurements, office facilities, utilities, shop drawings and samples, and all other items incidental or required or otherwise reasonably implied as necessary to fully perform this Agreement in strict conformance with the Subcontract Documents for the installation, completion, and operation of all work described as follows ("Subcontract Work"): **See Exhibit A – Scope of Work**

OTHER DOCUMENTS FORMING PART OF THIS AGREEMENT ARE AS FOLLOWS: Exhibits A-E

DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION: Time is of the essence of Subcontractor's obligations. Subcontractor's date of commencement is the date of this Agreement, unless a different date is stated below, and the Subcontract Work shall be substantially completed by Subcontractor not later than:

SUBCONTRACT SUM AND PROGRESS PAYMENTS:

Contractor shall pay Subcontractor for completed performance of the Subcontract the sum of _____, ($_____) subject to additions and deductions as provided in the Subcontract Documents (the "Subcontract Sum"). Said Subcontract Sum includes all applicable taxes, freight and transportation costs (terms will be FOB jobsite), and unloading unless otherwise noted.

The Terms and Conditions printed on the attached pages are part of this Agreement. Unless otherwise provided, the definitions herein apply to the Terms and Conditions.

DBS GROUP, LLC **SUBCONTRACTOR**

_____ _____ _____ _____

Name/Title **Date** **Name/Title** **Date**

TERMS AND CONDITIONS

These Terms and Conditions are part of the Agreement between Contractor and Subcontractor. This Agreement comprises the entire agreement between the parties hereto and is effective on the date set forth above. No other agreement, representation, or understanding concerning the same has been made and no oral statement, understanding, or agreement shall affect the terms hereof. This Agreement shall be binding on, and inure to, the benefit of the heirs, successors, and assigns of the parties hereto. To the best knowledge and belief of the parties, this Agreement contains no provision that is contrary to federal or state law, ruling, or regulation. If any provision of this Agreement shall conflict with any such law, ruling, or regulation, however, then such provision shall continue in effect only to the extent permissible. In the event any provision is wholly inoperative, the remaining provisions shall, nevertheless, remain in full force and effect. Subcontractor is an independent contractor and shall not be deemed an agent, employee, or partner of Contractor.

A. THE CONTRACTOR SHALL:

1. Have the right to terminate this Agreement, upon three days written notice to Subcontractor; in the event Subcontractor fails to comply with any term of this Agreement. Following termination, Subcontractor shall be liable to Contractor for all costs to complete the Subcontract Work, along with any other damages incurred by Contractor and caused by any breach of this Subcontract by Subcontractor or any other fault of Subcontractor including any related attorney, consultant, or expert fees. In the event of termination pursuant to the terms of this Paragraph 1, Subcontractor shall not be entitled to any further payment hereunder until after the Subcontract Work is completed and Contractor is reimbursed or credited for amounts due hereunder from Subcontractor. If it is later determined that any termination by Contractor under this Paragraph 1 was exercised without legal right or improperly, then both parties voluntarily agree that the termination shall be deemed to be a termination for convenience pursuant to the terms of Paragraph 2 herein.

2. Have the right, unconditionally and for any reason and at any time for Contractor's own convenience, to terminate this Agreement by written notice and to require Subcontractor to cease Subcontract Work hereunder. Such termination shall be effective at the time and in the manner specified in the notice and shall be without prejudice to any claims that Contractor, or Owner may have against Subcontractor. Subcontractor shall be paid seven (7) days after Contractor receives payment from Owner for the direct value of the Subcontract Work completed by Subcontractor in full compliance with this Agreement as of the date of termination, and Subcontractor shall have no right to any payment for Subcontract Work not performed (including hard costs, overhead, or profit) or any other claimed damages. Subcontractor shall remain responsible and liable for Subcontract Work performed prior to the date of the termination.

3. Have the right to order changes in the Subcontract Work, and Subcontractor shall perform the changes ordered by the Contractor. If Subcontractor claims that any order is a change for which Subcontractor is entitled to additional compensation or time to perform, Subcontractor must give written notice to Contractor to that effect within three (3) days of the order and before commencing any work on the change (whichever is earlier). If Subcontractor has provided the written notice and the order is a change (or if Contractor acknowledges in writing that there is a change order for which the Subcontract Sum and time to perform is subject to adjustment), the Subcontract Sum and time to perform shall be adjusted as mutually agreed, or if there is no mutual agreement, in a reasonable amount for any requested change. The adjustment to the Subcontract Sum shall be equal to the net increase or decrease in Subcontractor's costs (not including overhead) directly affected by the change plus a markup for overhead and profit not to exceed ten (10) percent of those costs. Subcontractor shall track and document all impacts to cost and time to perform caused by a change.

4. Have the right to issue joint checks to Subcontractor and any entity or individual whom Subcontractor has engaged to perform Subcontract Work upon written notice by Contractor.

B. THE SUBCONTRACTOR SHALL:

1. Perform the Subcontract Work in strict conformance with the Subcontract Documents and diligently according to the schedule and sequencing provided to Subcontractor by Contractor (as Contractor may change that schedule and sequencing from time to time). Subcontractor shall be responsible for its means and methods. Subcontractor shall cooperate fully with Contractor to coordinate with other subcontractors and Contractor.

2. Warrant that Subcontractor is qualified to perform the Subcontract Work and that all representations made by Subcontractor to Contractor remain truthful and accurate and were truthful and accurate when made.

3. Submit shop drawings and other submittals required by the Subcontract Documents so as to cause no delay in the Subcontract Work or in the performance of the DBS Group Contract.

4. Give notices and comply with all laws, ordinances, rules, codes, and regulations bearing on the performance of the Subcontract Work.

5. Comply with OSHA regulations and take reasonable safety precautions with respect to the performance of this Agreement.

6. Not assign this Agreement, or any part of the Subcontract Work, without the written consent of Contractor. Any assignment without Contractor's written consent shall be void and not binding on Contractor, and even if there is written consent, Subcontractor must incorporate this Agreement into its agreements with assignees, sub-subcontractors and suppliers and give Contractor the same rights and remedies against them as Contractor has against Subcontractor.

7. Keep the jobsite and surrounding area clean from debris caused by the Subcontract Work of this Agreement. If cleanup of materials is not performed on a daily basis, Contractor has the right to do so and charge Subcontractor for all costs incurred plus a fifteen percent (15%) markup on those costs.

8. Provide lien waivers and releases as requested by Contractor and promptly pay Subcontractor's subcontractors and suppliers. Except only to the extent liens and claims result from the uncured failure of Contractor to make timely payment, Subcontractor shall, to the fullest extent permitted by law, (i) indemnify, save harmless and defend Owner, and Contractor from all bond claims, lien claims, and other claims

for payment (whether asserted by Subcontractor or anyone else contributing to the performance of the Subcontract Work) and related damages and costs, including attorneys' fees, and (ii) upon request by Contractor, satisfy and remove any liens and claims against Contractor; Owner; the Project; or Contractor's, or Owner's property or sureties within fifteen (15) days. Following receipt of written notice by Contractor, Subcontractor shall provide to Contractor all information reasonably requested by Contractor to facilitate the issuance of joint checks. See "C, Payment Release Procedure" below.

9. To the fullest extent permitted by law, shall indemnify, and hold harmless the Owner, Contractor, Architect, and agents and employees of any of them from and against claims, damages, losses and expenses, including claims for which the Owner, Contractor and Architect may be or claimed to be liable, and attorneys' fees, including legal fees and disbursements paid or incurred to enforce the provisions of this paragraph, on account of death, injury or damage to persons or property, or to any and all other interests, received or sustained by any person, firm or corporation but only to the extent caused by the acts or omissions of Subcontractor, its subcontractors, agents, consultants and all other persons responsible for any of the Work under a contract with the Subcontractor, or anyone for whom Subcontractor is responsible. In claims against any person or entity indemnified under this Paragraph by an employee of Subcontractor, a sub-subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification obligation under this Paragraph shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for Subcontractor or a sub-subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts. The obligations under this Paragraph shall not be limited in any way by the amount or type of insurance required to be provided to or for the benefit of an indemnitee.

10. Purchase and maintain insurance of the following types of coverage and limits of liability:

Workers' Compensation Statutory Limits

Employer's Liability, including "Stop Gap" coverage and USL&H (If Applicable)
$1,000,000 each accident
$1,000,000 disease-policy limit
$1,000,000 disease-each employee

Commercial General Liability
$1,000,000 each occurrence
$2,000,000 products/completed operations aggregate
$2,000,000 general aggregate (per project)

Commercial Automobile Liability			$1,000,000 any auto, including owned, non-owned and hired autos
Umbrella Liability Excess Liability			$1,000,000 each occurrence $1,000,000 aggregate
Professional Liability (If Applicable)	**[ ] YES**	**[ ] NO**	$1,000,000 each claim $1,000,000 annual aggregate
Contractor's Pollution Liability (including coverage for mold) (If Applicable)	**[ ] YES**	**[ ] NO**	$1,000,000 per claim or incident $2,000,000 aggregate

Employer's Liability, Commercial General Liability and Automobile Liability insurance may be arranged under single policies for the full minimum limits required, or by a combination of underlying policies with the balance provided by an Excess or Umbrella Liability policy.

Subcontractor shall endorse its Commercial General Liability, Commercial Automobile Liability, Umbrella/Excess Liability and Contractor's Pollution Liability (if applicable) policies to add Contractor, and Owner as "additional insureds". Such "additional insured" coverage shall be primary coverage (and non-contributory) for claims against Contractor, and Owner arising out of the ongoing and completed operations of Subcontractor under this Agreement.

Waivers of subrogation to be provided in favor of Contractor as respects to Commercial General Liability and Workers Compensation policies.

In addition to procuring and maintaining Commercial General Liability, and any Umbrella/Excess Liability insurance, for the duration of the contract, Subcontractor agrees to continue to procure and maintain the products-completed operations liability insurance coverage for a minimum of three (3) years after the date that the Work is substantially complete. All terms and conditions of such coverage shall be maintained during this completed operations period, including the required coverage limits and the requirement to provide Contractor and Owner with coverage as an additional insured for completed operations.

Professional Liability and/or Contractor's Pollution Liability, if applicable to the Subcontractor's Work, shall be maintained for the longer of the expiration of all applicable statutes of limitations and repose for claims arising out of or in any way related to the Subcontractor's Work, three (3) years after completion of the Subcontractor's Work, or such longer period as the contract documents may require. Any retroactive date on such Professional Liability and/or Contractor's Pollution Liability policy shall be prior to the commencement of any work under this Subcontract. Contractor's Pollution Liability, if applicable, can be provided on an occurrence or claims-made basis.

All insurance policies shall contain a provision that coverage afforded thereunder shall not be cancelled, allowed to expire, or have restrictive modifications added, without thirty (30) days prior written notice to Contractor. Subcontractor shall deliver to Contractor certificates of insurance acceptable to Contractor prior to Subcontractor's commencement of the Subcontract Work. Such Certificates of Insurance shall

be in a form acceptable to Contractor and shall provide satisfactory evidence that Subcontractor has complied with all insurance requirements, including evidence that Contractor, and the Owner have been added as “additional insureds.” These certificates shall contain a provision that coverages afforded under the policies will not be canceled, allowed to expire, materially altered, or have restrictive modifications added until at least 30 days' prior written notice has been given to Contractor.

The above required insurance shall be placed with admitted insurers that maintain an A/M Best rating of not less than A- VII, unless otherwise approved by Contractor.

11. Warrants the Subcontract Work to be in strict compliance with the Subcontract Documents, of high quality and good workmanship, and to at least meet all applicable codes and standards of the profession. All material shall be new unless otherwise agreed to by Contractor in writing. Subcontractor shall promptly correct Subcontract Work not complying with the Subcontract Documents if notified by Contractor, or Owner within one year of final completion of the General Contract or such longer period as may be contained in any of the Subcontract Documents. This one year or longer period shall not be a period of limitations and is only for the specific duty of Subcontractor to correct the Subcontract Work. Contractor, and Owner shall also have the benefit of such other warranties as may contained in the Subcontract Documents.

12. Shall have the right to terminate the Agreement for nonpayment of amounts due for 60 days or longer if Contractor does not subsequently make payment within fifteen days (15) days after receipt of written notice from Subcontractor of Subcontractor’s intent to terminate.

13. Agrees that if Subcontractor begins Subcontract Work without signing and returning this Agreement, Subcontractor will be deemed to have accepted and agreed to the terms of this Agreement.

14. Shall pay to Contractor all costs and expenses including but not limited to court or arbitration costs, attorneys' fees, expert witness and investigation fees, incurred by Contractor in enforcing the terms of this Contract.

15. Arbitration. If the Contractor in its sole discretion decides and directs in writing that any claims, disputes, or other matters in question should be submitted for resolution to a court, which written direction may be issued at any time prior to the first day of an arbitration hearing, then such claim, dispute, or other matter in question shall be resolved in court as directed by the Contractor, and the Contractor shall not be required to arbitrate such claim, dispute, or other matter in question and shall not be bound by any arbitration award resolving such claim, dispute, or other matter in question. Unless the Contractor in its sole discretion otherwise decides and directs in writing that any claims, disputes, or other matters in question should be submitted for resolution to a court, which written direction may be issued at any time prior to the first day of an arbitration hearing, the parties shall resolve claims, disputes, and other matters in question as follows:

15.1.1. The Subcontractor and the Contractor shall arbitrate all claims, disputes and other matters in question arising out of or relating to this Subcontract or the breach thereof, except for decisions on matters relating to artistic effect, and except for claims, disputes, or other matters in question that have been waived or directed by the Contractor to be resolved in court. All arbitration proceedings shall be venued and held in La Crosse, Wisconsin unless otherwise mutually agreed, and all such proceedings shall be in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association then in existence.

15.1.2. The Subcontractor specifically agrees to arbitrate with the Contractor and other parties in a joint proceeding, all common issues, and to permit pre-hearing discovery in the time and manner provided by the then-applicable Federal Rules of Civil Procedure if requested by the Contractor.

15.1.3. Notice of the demand for arbitration shall be filed in writing with the other party to the Subcontract and with the American Arbitration Association (“AAA”) unless the parties mutually agree to arbitration outside of the AAA. Notwithstanding any otherwise applicable period of limitations, the Subcontractor's demand for arbitration or assertion of the claim in a lawsuit shall be made within three (3) months after the claim, dispute, or other matter in question has arisen. The Subcontractor shall have complied with such requirement and any other notice requirements or time deadlines for claims, disputes, or other matters in question and shall have complied with all obligations to preserve records and permit access, inspection, auditing, and copying of its records by the Contractor; otherwise, the Subcontractor's claim, dispute, or other matter in question shall be deemed waived, released, and barred for all time. The Subcontractor shall be deemed to have waived and released any such claims, disputes, and other matters in questions and shall be barred from pursuing any such claims, disputes, or other matters by arbitration, litigation or otherwise. The Contractor shall be entitled to an order of the court staying arbitration or litigation of any waived, released, or barred claims, disputes, or other matters in question of the Subcontractor, and the Subcontractor shall pay all of the Contractor's related costs and expenses, including attorneys’ fees (and expert fees) related thereto or to enforcing this paragraph.

15.1.4. This agreement to arbitrate shall be specifically enforceable under the Federal Arbitration Act. The award rendered by the arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

16. Contractor and Subcontractor shall abide by the requirements of 41 CFR §§ 60-1.4(a), 60-300.5(a) and 60-741.5(a). These regulations prohibit discrimination against qualified individuals based on their status as protected veterans or individuals with disabilities, and prohibit discrimination against all individuals based on their race, color, religion, sex, or national origin. Moreover, these regulations require that covered prime contractors and subcontractors take affirmative action to employ and advance in employment individuals without regard to race, color, religion, sex, national origin, protected veteran status or disability.

C. PROGRESS PAYMENTS:

1. Progress payments are based upon applications for payment submitted to Contractor by Subcontractor. Subcontractor shall submit progress billings by the 25th of the month for all work to be completed by the 30th of that month. Contractor shall pay Subcontractor each progress payment, less 10% retainage, within five working days of receipt of payment from Owner for the Subcontract Work that is the subject of the progress payment. If a progress billing is received after the application date identified above, the billing shall be included by Contractor in the next progress billing to the Owner. Retainage shall be held until satisfactory evidence is presented that Subcontractor has completed all Subcontract Work, Subcontractor has paid all of its subcontractors, suppliers, and workmen, all Subcontract Work requiring inspection has been inspected and approved, and payment of retainage by the Owner to Contractor has been made.

2. A "Waiver and Release to Date and Contractor's Affidavit" is sent with each payment for the amount of that payment and must be signed by Subcontractor, notarized and returned to DBS Group, LLC before subsequent payments will be released. Subcontractor must provide the waiver/affidavit which lists all of its subcontractors and suppliers as required by the Subcontract Documents or by Contractor. Contractor is not required to make any payment unless and until Subcontractor has delivered all required waivers to Contractor.

3. If any lower tier subcontractor(s)/material supplier(s) greater than $10,000 are identified on the "Waiver and Release to Date and Contractor's Affidavit", a "2nd Tier Final Waiver and Release and Contractor's Affidavit" will be sent to Subcontractor. This form must be forwarded on to Subcontractor's lower tier subcontractor(s)/material supplier(s) to be filled out COMPLETELY, signed and notarized by them indicating that they have been paid in full from Subcontractor. These forms must be received by DBS Group, LLC before any final payment will be released to Subcontractor.

4. Certain close-out documents will be requested from Subcontractor by Contractor, including (but not limited to) a one-year warranty letter, O&M manuals (if applicable) and As-Builts (if applicable). Final payment may be held until the requested close-out documents are received from Subcontractor.

ACORD

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement (s).

PRODUCER

INSURANCE AGENCY
ADDRESS
CITY, STATE, ZIP

CONTACT NAME: PRODUCER NAME

PHONE (A/C No. Ext) | FAX (A/C No):

E-MAIL ACCRESS: EMAIL

PRODUCER CUSTOMER ID #:

SAMPLE CERT

INSURED

SUBCONTRACTOR
ADDRESS
CITY STATE ZIP

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A: INSURANCE COMPANY	
INSURER B: INSURANCE COMPANY	
INSURER C: INSURANCE COMPANY	
INSURER D: INSURANCE COMPANY	
INSURER E:	
INSURER F:	

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YY)	POLICY EXP (MM/DD/YY)	LIMITS	
A	GENERAL LIABLITY ☑ COMMERCIAL GENERAL LIABILITY ☐ CLAIMS MADE ☑ OCCUR. ☐ _____ ☐ _____ GEN'L AGGREGATE LIMIT APPLIES PER: ☐ POLICY ☑ PROJECT ☐ LOC		.	GI123456	M/D/Y	M/D/Y	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS-COMP/OP AGG	$ 1,000,000 $ 1,000,000 $ 100,000 $ 2,000,000 $ 2,000,000 $ 2,000,000
A	AUTOMOBILE LIABILITY ☑ ANY AUTO ☑ ALL OWNED AUTOS ☑ SCHEDULED AUTOS ☑ HIRED AUTOS ☑ NON-OWNED AUTOS ☐			AL123456	M/D/Y	M/D/Y	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ 1,000,000 $ $ $
B	☐ UMBRELLA LIAB ☐ OCCUR ☐ EXCESS LIAB ☐ CLAIMS-MADE ☐ DEDUCTIBLE ☐ RETENTION $						EACH OCCURRENCE AGGREGATE	$ 1,000,000 $ 1,000,000
C	WORKERS COMPENSATION AND EMPLOYERS LIABILITY ANY PROPRIETOR/PARNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y/N If yes, describe under DESCRIPTION OF OPERATIONS below	N/A		WC123456	M/D/Y	M/D/Y	X WC STATU-TORY LIMITS / OTH-ER E.L. EACH ACCIDENT E.L. DISEASE–EA EMPLOYEE E.L. DISEASE–POLICY LIMIT	$ 1,000,000 $ 1,000,000 $ 1,000,000
D	Contractor's Pollution Liability *(only if required in subcontract)*			CPL123456	M/D/Y	M/D/Y	Each Occurrence Aggregate Each Claim	$ 1,000,000 $ 2,000,000 $ 1,000,000
D	Professional Liability/Error Omission *(only If required in subcontract)*			PLEO123456	M/D/Y	M/D/Y	Annual Aggregate Each Claim	$ 1,000,000 $ 1,000,000

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

Sleepy Hollow Ford - Viroqua, WI, DBS Group LLC Project 18097 and/or any and all Projects performed for Certificate Holder

It is hereby agreed that the Owner, DBS Group, LLC and any others per the contract are named as additional insured with respect to all work and services performed on the above-mentioned project. Such insurance afforded the additional insured is primary and non-contributory with any insurance purchased or maintained by the additional insured. The additional insured forms shall be CG 2010 (10/01) and CG 2037 (10/01) or their equivalent, including coverage for ongoing and completed operations. Waiver of subrogation in favor of the owner and contractor applies on the Work Comp, General liability, Automobile, and umbrella liability policies.

CERTIFICATE HOLDER

DBS Group, LLC
2700 National Drive, Suite 101
Onalaska, WI 54650

Email: rlundi@dbsg.com

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE
Signature

EXHIBIT D
INSURANCE REQUIREMENTS

Prior to commencing Work, Subcontractor shall, at its sole expense, procure and maintain insurance of the types, and in the form and amounts described below from insurer(s) authorized to transact business in the state where Work or operations will be performed by Subcontractor. Such insurance and required coverage in forms acceptable to Design-Builder shall be placed with admitted insurers that maintain an A.M. Best's rating of not less than A- VII, unless otherwise approved by the Design-Builder. The Insurance requirements described below shall be maintained uninterrupted for the duration of the Project, including any warranty periods, and shall protect Subcontractor, and others for whom and/or to whom Subcontractor may be liable, for liabilities in connection with work performed by or on behalf of Subcontractor, its agents, representatives, employees or subcontractors.

1. **Commercial General and Umbrella Liability Insurance.** Subcontractor shall maintain commercial general liability ("CGL") and, if necessary, commercial umbrella insurance, with a limit of not less than $1,000,000 per occurrence, bodily injury or property damage liability; $1,000,000 per offense, personal and advertising injury liability; $2,000,000 products-completed operations aggregate; and $2,000,000 general aggregate applicable to claims other than products-completed operations. To the extent that Subcontractor's CGL and any commercial umbrella insurance are subject to aggregate limits, the policy shall be endorsed so as to apply such aggregate limits separately to the Project.

   Coverage afforded under Subcontractor's CGL and any commercial umbrella insurance shall be provided on an occurrence basis and shall be subject to the terms of the Insurance Services Office ("ISO") Commercial General Liability Coverage Form CG 0001, or a substitute form providing coverage at least as broad as the ISO form specified. There shall be no limitations or exclusions of coverage beyond those contained in the standard coverage form and coverage shall include liability arising from premises, operations, independent contractors, products-completed operations including construction defect, contractual liability or personal injury and advertising injury.

   Design-Builder, its officers, directors and employees and Project Owner(s) shall be included as additional insureds under Subcontractor's CGL, and any commercial umbrella insurance, with respect to liabilities arising out of both the ongoing and completed operations of Subcontractor. Such additional insured coverage shall be subject to the terms of ISO additional insured endorsement forms CG 2010 10/01 (ongoing operations) and form CG 2037 10/01 (products-completed operations), or substitute form(s) providing equivalent coverage.

   Additional insured coverage afforded by Subcontractors CGL, and any commercial umbrella insurance, shall be primary and not excess over or contributing with any insurance or self-insurance maintained or available to Design-Builder or Project Owner. Such primary and non-contributory insurance shall be subject to the terms of ISO form CG 2001 (Primary and Noncontributory – Other insurance Condition) or its equivalent. Any other insurance or self-insurance maintained by Design-Builder or Project owner shall be excess of, and non-contributory with, the coverage afforded by Subcontractors CGL and commercial umbrella insurance, if any.

   Waiver of subrogation to be provided in favor or Design-Builder.

In addition to procuring and maintaining CGL, and any commercial umbrella insurance, for the duration of the contract, Subcontractor agrees to continue to procure and maintain the products-completed operations liability insurance coverage for a minimum of three *3* years after the date that the Work is substantially complete. All terms and conditions of such coverage shall be maintained during this completed operations period, including the required coverage limits and the requirement to provide Design-Builder and Project Owner with coverage as an additional insured for completed operations.

2. **Commercial Automobile and Umbrella Liability Insurance.** Subcontractor shall maintain automobile liability and, if necessary, commercial umbrella insurance, with a limit of not less than $1,000,000 each accident. Such insurance shall cover liability for bodily injury and property damage arising from the use or operation of any auto, including those owned, hired or otherwise operated or used by or on behalf of Subcontractor. The coverage shall be subject to the terms of ISO *Business Auto Coverage Form CA 0001* (1990 edition or later), or a substitute form providing equivalent coverage.

3. **Workers' Compensation / Employers Liability and Umbrella Insurance.** Subcontractor shall maintain workers' compensation coverage providing statutory benefits. Subcontractor shall additionally maintain employers liability insurance and commercial umbrella insurance, with a limit of not less than: $1,000,000, bodily injury by accident - each accident; $1,000,000, bodily injury by disease-policy limit; and $1,000,000, bodily injury by disease each employee. Workers' Compensation coverage must extend to every employee, including owners/officers of a closely held corporation and/or individuals operating as a sole proprietorship or partnership. Workers Compensation must provide coverage in the state where the Project is located.

   Where applicable, evidence of coverage shall be required for U.S. Longshore and Harbor workers Compensation, Maritime coverage, Federal Employer's Liability Act and other unique exposures requiring endorsement of coverage.

4. **Contractors Pollution Liability Insurance.** If Applicable □ Yes ☒ No If required, Subcontractor shall maintain Contractors Pollution Liability coverage with a limit of not less than $1,000,000 per claim or incident, $2,000,000 annual aggregate. Coverage shall be maintained for the longer of the expiration of all applicable statutes of limitations and repose for claims arising out of or in any way related to the Subcontractor's Work, three (3) years after completion of Subcontractor's Work, or such longer period as the contract documents may require.

   If the policy is written on a claims made basis, any retroactive date shall be prior to the commencement of any work under this Subcontract.

   Design-Builder, its officers, directors and employees and Project Owner(s) shall be included as additional insureds

   Affirmative coverage for mold, if applicable □ Yes □ No

5. **Professional Liability Insurance.** If Applicable □ Yes ☒ No If required, Subcontractor shall maintain professional liability coverage with a limit of not less than $1,000,000 each wrongful act, $2,000,000 policy aggregate.

Coverage shall be maintained for the longer of the expiration of all applicable statutes of limitations and repose for claims arising out of or in any way related to the Subcontractor's work, three (3) years after completion of the Subcontractor's Work, or such longer period as the contract documents may require.

Claims-made coverage is permitted, provided the retroactive date shall be prior to the commencement of any work under this Subcontract.

6. **Leased Employees**. Use of leased employees by Subcontractor is expressly prohibited without Design-Builder's written permission. If permitted by Design-Builder, Subcontractor shall:

a. Provide Design-Builder with a complete copy of its Agreement with the Leasing Company;
b. Require that Leasing Company provide workers' compensation, employers liability and commercial general liability with coverage limits in amounts no less than Subcontractor insurance requirements for the same coverages.
c. Require that Leasing Company provide Alternate Employer Endorsement naming Design-Builder as alternate employer on Leasing Company's workers' compensation policy.
d. Require that Leasing Company add Design-Builder as an additional insured on its commercial general liability insurance policy, with primary/non-contributory wording.
e. Require that Leasing Company provide waiver of subrogation in favor of Design-Builder on both Leasing Company's workers' compensation and commercial general liability insurance policies.
f. Provide Design-Builder with a copy of the Leasing Company's certificate of insurance, with endorsements, evidencing the required coverage.

7. **No Representation of Coverage Adequacy.** In specifying minimum Subcontractor insurance requirements, Design-Builder does not represent that such insurance is adequate to protect Subcontractor for loss, damage or liability arising from its work. Subcontractor is solely responsible to inform itself of types or amounts of insurance it may need beyond these requirements to protect itself.

The insurance requirements set forth in minimum amounts shall not be construed to relieve Subcontractor for liability in excess of such coverage, nor shall it preclude Design-Builder from taking such other actions as is available to it under any other provision of the Subcontract. To the extent Subcontractor maintains insurance greater than these minimum requirements, Subcontractor agrees that such insurance shall be applicable to any of Subcontractor's liability obligations hereunder.

Any acceptance of certificates of insurance by Design-Builder shall in no way limit or relieve Subcontractor of its duties and responsibilities under the Subcontract, including the duty to indemnify and hold harmless Design-Builder.

Compliance. Failure of Subcontractor to maintain the required insurance shall constitute a default under this Subcontract and, at Design-Builder's option, shall allow Design Builder to terminate this Subcontract for cause, withhold payment and/or purchase the required insurance at Subcontractor's expense.

Cross-Liability coverage/non-standard restrictive endorsements. All liability policies shall include cross liability coverage and a standard ISO separation of insureds provision, or its equivalent. No liability policy shall include or be endorsed to include any non-standard provisions restricting coverage for the named insured or the persons/entities required to be named as additional insureds under this Agreement, including but not limited to cross liability coverage exclusions or limitations.

8. The Subcontractor shall maintain in effect all insurance coverage required under this Exhibit "D", or by the General Contract, at the Subcontractor's sole expense. If the Subcontractor fails to procure and maintain the insurance coverage set forth herein, Design-Builder may, but shall not be obligated to, obtain such insurance and charge all costs for such insurance to the Subcontractor.

9. All insurance policies shall contain a provision that coverage afforded thereunder shall not be cancelled, or restrictive modifications added, without thirty (30) days prior written notice to the Design-Builder. Certificates of insurance shall be filed with the Design-Builder prior to the start of the Subcontractor's work. Such Certificates of Insurance shall be in a form acceptable to the Design-Builder and shall provide satisfactory evidence that the Subcontractor has complied with all insurance requirements, including evidence that the Design-Builder and the Owner have been added as "additional insureds".

SEE ATTACHED SAMPLE CERTIFICATE OF INSURANCE

10. Builder's Risk Insurance per the terms of the General Contract, shall be provided by □ Owner □Design-Builder. If the Design-Builder provides Builder's Risk coverage, the Subcontractor shall be named as an "additional insured" under the policy.

11. To the extent coverage afforded by builder's risk or any other property applicable to the work, regardless of whether such insurance is owned by or for the benefit of the Subcontractor, the Design-Builder, the Owner or their respective subcontractors and agents, the Design-Builder and Subcontractor agree to waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents and employees, each of the other, and (2) the Owner and any of its contractors, subcontractors, agents and employees whether under subrogation or otherwise, for loss or damage to the extent covered by such insurance, except such rights as they may have to the proceeds of such insurance. If policies of insurance referred to in this paragraph require an endorsement to provide for continued coverage where there is a waiver of subrogation, then the owners of such policies will cause them to be so endorsed. A waiver of subrogation shall be effective as to a party even though that party would otherwise have a duty of indemnification, contractor or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the party had an insurable interest in the property damaged.

12. Any deductible amount applied to any loss payable under any builder's risk or other property insurance applicable to the work or Project shall be borne by the insured party whose work is damaged in direct proportion as their individual losses shall bear to the total losses incurred in a single event, regardless of whether such loss is to work installed and completed, to materials stored on or off site, or to materials in transit. Neither the Design-Builder nor the Owner represents that any builder's risk or property insurance applicable to the work, if any, is adequate to protect the interests of the Subcontractor. It shall be the obligation of the Subcontractor to determine whether such insurance is in effect and provides adequate protection for its insurable interests, or whether the Subcontractor should

purchase and maintain supplementary property insurance that it deems necessary to protect its interests in the work.

Exhibit E

PROJECT SAFETY ORIENTATION

Project Name Perk Coffee - Macon, MO

Project Address 1600 Block N. Missouri St.; Macon, MO 63552

DBS Group is committed to providing a safe work environment for all employees accessing the site. All DBS Group employees, subcontractors and subcontractor's employees must be aware of and comply with these guidelines while performing work at this Project. **Failure to do so may result in immediate removal from the site.**

1. **Contact Information:** TBD Project Superintendent _____(Phone)
   TBD Project Manager _____(Phone)
2. **Parking/Site Logistics -** Park in assigned construction parking lot areas and verify gates and traffic routes with Project Superintendent.
3. **Jobsite Hours -** 7:00 a.m. - 3:30 p.m. (or as indicated by Project Superintendent). All other hours must be approved in advance by Project Superintendent.
   Note: No Personnel are allowed to work without DBS Group representation on site without prior approval by DBS Group Project Superintendent or Project Manager.
4. **Dress Code -** Clothing must be free of holes, tears and inappropriate messages. Sleeved t-shirts and long pants are required.
5. **Subcontractor Employees -** All must attend a Project Safety Orientation meeting with the Project Superintendent and display sticker on hard hat evidencing attendance.
6. **Competent Person -** All subcontractors shall provide the DBS Group Superintendent with the name and contact information of the Competent Person and an Alternate Competent Person.
7. **Code of Conduct -** Foul, abusive and sexually suggestive comments will not be tolerated. Failure to follow this rule may result in permanent removal from the Project.
8. **Tobacco Use -** Smoking and chewing tobacco are allowed only in designated areas.
9. **Alcohol and Illegal Drugs -** All are strictly prohibited on site. Any suspicion of use will result in permanent removal from the site.
10. **Radios -** Radios are allowed at the discretion of the Project Superintendent.
11. **Water -** Subcontractor must supply their employees with water daily. In addition, they shall supply single serving cups and a trash can for disposal.
12. **Sanitary Facilities –** No employees shall deface facilities.
13. **Personal Protective Equipment (PPE) -** Subcontractors are required to provide their employees with all required PPE meeting OSHA requirements before being allowed to work on site, including but not limited to the following:
    A. **Hard Hats** – ANSI-approved hard hats are required to be worn at all times. Orientation sticker must be displayed on hard hat along with employee's name. No offensive stickers on hard hats or hard hats older than 5 years.
    B. **Safety Glasses** – Safety glasses with side shields are required to be worn as per OSHA requirements.
    C. **Safety Vests** – High visibility Type II safety vests or high visibility t-shirts are required to be worn at all times.
    D. **Foot Wear** – Over the ankle, standard construction foot wear is required. NO TENNIS SHOES.
    E. **Special PPE** – As required.

    All furnished PPE shall comply with applicable OSHA and ANSI standards.
14. **Construction Clean-up -** To be completed on a DAILY BASIS by subcontractors. Each subcontractor is

responsible to have their own broom, shovel and garbage can and to remove their trash and put it into the dumpster provided by DBS Group.

15. **Environmental Spills –** All spills must be reported to the DBS Group Superintendent immediately.
16. **Accidents/Injuries**
    A. **Emergencies** – Call 911
    B. **First Aid Kits** – A first aid kit is available from the Project Superintendent and is available in the jobsite trailer. All subcontractors are required to supply their own first aid kits and identify its location to their employees.
    C. **Fire Extinguishers/Eye Wash Stations** – Located on jobsite at locations as indicated by Project Superintendent.
    D. **Injuries** – ALL injuries (no matter how small) shall be reported to your Company Supervisor as well as the DBS Project Superintendent immediately.
17. **Subcontractor Safety Plan -** Subcontractor shall provide a copy of their Safety Plan to the DBS Project Superintendent to be maintained in the job trailer.
18. **Weekly Tool Box Talks -** All subcontractor employees are required to attend the weekly Tool Box talk held by the DBS Project Superintendent. For those employees not attending he weekly Tool Box talk, evidence that the subcontractor/employee attended their own Tool Box meeting must be provided.
19. **Globally Harmonized system (GHS)/Hazard Communication -** Every Subcontractor and employee should be familiar with all the changes in the OSHA Hazcom 2012 Standard.
    A. Subcontractor is required to provide copies of all Safety Data Sheets (SDS) for chemicals to be brought on-site to the DBS Group Superintendent.
    B. Subcontractors are required to train employees on the new label elements and the safety data sheet format to facilitate recognition and understanding.
    C. Employee acknowledges that they have received the necessary training indicated in 17(B) from their employer.
20. **Hot Work Permit -** A Hot Work Permit shall be issued by the DBS Group Superintendent prior to performing any activities including, but not limited to the following:
    A. Gas Cutting
    B. Gas or electric welding
    C. Soldering
    D. Brazing
    E. Flame heating
    F. Thawing of pipes
    G. Torch-applied roofing
    H. Grinding and metal cutting
21. **Confined Space –** Prior to entering a Confined Space, employees must seek out the subcontractors "Competent Person" to make sure that all safety concerns are complied with.
22. **Temporary Power –** Must be coordinated with DBS Group Superintendent. No electrical cords will be allowed to be driven on by equipment. All cords must be picked up on a weekly basis and checked for damage.
23. **Lock Out/Tag Out –** Policies must be in place. Do not modify electrical panels without obtaining authorization and proper training and lock out/tag out. No work shall take place in an energized panel.
24. **Ground Fault Circuit Interrupter** (GFCI) devices are to be included in any temporary or permanent electrical systems being used by Contractor
25. **Roofing –** Any subcontractor performing work on the roof structure is required and responsible to ensure OSHA compliant fall protection systems are in place at all times while on the roof. Only authorized subcontractors performing work in their SOW are permitted on the roof at any time. If at any time a subcontractor is in violation of this requirement, immediate dismissal from the project may be implemented.
26. **Ladders –** All must extend over the roof 3' or work platform they are used to access and be tied off. No leaning step ladder against wall to work and no standing above the top two steps.

27. **Scaffolding Use**
    A. Subcontractor's Competent Person must supervise the erecting and dismantling of all scaffolds. It is the subcontractor's responsibility to ensure the Competent Person is properly trained in such scaffolding.
    B. Scaffold platforms must cover the entire walking or working area with minimal gaps between the individual planks and the work surface. The Competent Person is responsible for periodically inspecting all scaffold planks.
    C. Individuals assigned to inspect scaffolding must be trained in the requirements of the scaffolds they will be evaluating. All inspections must be documented. Inspections should start as soon as the components arrive on site and not end until they are removed at the end of the job.
    D. Inspector shall use color-coded tags to indicate the condition of the scaffold and whether additional requirements, such as using personal fall protection, are needed. The color coding system works like this:

    Red – Scaffold is incomplete and must not be used
    Green – Scaffold has been installed, inspected and is ready for use

    Fall protection on scaffolds should start at 6 feet or subcontractor must provide a fall protection plan per OSHA standard 1926
28. **Fall Protection –** 100% Fall Protection required 100% of the time for any potential fall hazard over 6'. NO EXCEPTIONS.
29. **Material/Equipment Deliver and Storage –** All activities must be coordinated with the DBS Group Superintendent. Subcontractors must receive, inventory and store all materials/equipment in a location approved by the DBS Group Superintendent.
30. **Equipment Inspections (cranes, forklifts, aerial lifts and scissor lifts)**
    A. Subcontractors shall provide documentation of verification of most recent inspection of the above equipment prior to usage.
    B. Subcontractor shall provide daily inspection reports for the above.
31. **Equipment Operator Certifications**
    A. Subcontractor acknowledges that all employees that will be operating equipment are certified to operate said equipment, if applicable.
    B. Employee acknowledges that he/she is certified to operate equipment that they will be operating, if applicable. – obtain copies of certification cards from employees
    C. All personnel operating a lift of any sort must be harnessed off at all times.

I hereby certify that I have read and understand all Project Safety Orientation information above:

Signature	Company
Name	Trade/SOW
Date	Sticker #
Signature	Company
Name	Trade/SOW
Date	Sticker #

Exhibit F

COVID-19 Precaution Certification

As a result of the declared COVID-19 pandemic, significant regulations, orders, guidelines, and restrictions have been placed on work and personal interactions. Those circumstances are continuing to evolve and we trust that you are taking steps to ensure that all on-site individuals, products, and equipment will comply with the latest requirements and guidelines from state and local government and the federal government, including the CDC.

As a follow-up to the Center for Disease Controls (CDC) announcement in May, 2021, OSHA has instructed employers to follow the CDC's guidelines as well. Effective immediately, DBS Group will allow fully vaccinated people on jobsites to resume their pre-COVID pandemic activities without wearing a mask or social distancing, except where required by federal, state or local laws and local business and workplace guidance. In addition, fully vaccinated people can refrain from testing following a known exposure, if asymptomatic.

In general, people are considered fully vaccinated:

- 2 weeks after their second dose in a 2-dose series, such as the Pfizer or Moderna vaccines, or
- 2 weeks after a single-dose vaccine, such as Johnson & Johnson's Janssen vaccine

If you do not meet these requirements, you are NOT fully vaccinated. And, if not fully vaccinated, please continue to take all precautions noted below.

We will not be asking people to provide documentation of their vaccine status but will rather operate under an honor system.

If you prefer to continue wearing a mask, please feel free to do so.

The mask wearing and social distancing protocols described herein will apply to our customers, vendors and downstream vendors that visit our jobsites.

In a further proactive effort to maintain a virus-free work site, we are requiring that all entities with whom we have contracts for the Project provide the following written certification:

Subcontractor hereby certifies that based upon reasonable investigation of all such individuals, and to the best of its knowledge, no individual employed by or representing Subcontractor **that has not been fully vaccinated** will be allowed onto the Project site who has:

1. Traveled to a county or area that has a travel warning of Level 2 or 3 as listed by the CDC in the past 14 days.

2. Come into close contact (within 6 feet) with anyone, including but not limited to family members, who have a suspected or confirmed COVID–19 diagnosis in the past 14 days.

3. Had a fever (greater than 100.4F or 38.0C) OR symptoms of lower respiratory illness such as cough, shortness of breath, or difficulty breathing in the past 14 days.

4. Is currently experiencing a fever (greater than 100.4F or 38.0C) OR symptoms of lower respiratory illness such as cough, shortness of breath, or difficulty breathing.

5. Tested positive for COVID–19 in the past 14 days.

Subcontractor further certifies and agrees that it will notify DBS Group LLC immediately via telephone, email or next-day delivery letter, if it becomes aware of information thereafter that an individual employed by it or representing it met any of the above criteria prior to being on site or within 14 days after being on-site. In that instance, Subcontractor is directed and agrees not to provide the name of the individual, but does agree to provide all dates on which that individual was on the Project site.

On behalf of _____, I hereby certify and agree as stated above.

By: _____

Name: _____

Title: _____

Dated: _____

STANDARD FORM OF GENERAL CONDITIONS OF CONTRACT BETWEEN OWNER AND DESIGN-BUILDER

Document No. 535
Second Edition, 2010

Washington, DC

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Article 1

General

1.1 Mutual Obligations

1.1.1 *Owner and Design-Builder* commit at all times to cooperate fully with each other, and proceed on the basis of trust and good faith, to permit each party to realize the benefits afforded under the Contract Documents.

1.2 Basic Definitions

1.2.1 *Agreement* refers to the executed contract between Owner and Design-Builder under either DBIA Document No. 525, *Standard Form of Agreement Between Owner and Design-Builder - Lump Sum* (2010 Edition) or DBIA Document No. 530, *Standard Form of Agreement Between Owner and Design-Builder - Cost Plus Fee with an Option for a Guaranteed Maximum Price* (2010 Edition).

1.2.2 *Basis of Design Documents* are as follows: For DBIA Document No. 530, *Standard Form of Agreement Between Owner and Design-Builder - Cost Plus Fee With an Option for a Guaranteed Maximum Price*, the Basis of Design Documents are those documents specifically listed in, as applicable, the GMP Exhibit or GMP Proposal as being the "Basis of Design Documents." For DBIA Document No. 525, *Standard Form of Agreement Between Owner and Design-Builder – Lump Sum*, the Basis of Design Documents are the Owner's Project Criteria, Design-Builder's Proposal and the Deviation List, if any.

1.2.3 *Construction Documents* are the documents, consisting of Drawings and Specifications, to be prepared or assembled by the Design-Builder consistent with the Basis of Design Documents unless a deviation from the Basis of Design Documents is specifically set forth in a Change Order executed by both the Owner and Design-Builder, as part of the design review process contemplated by Section 2.4 of these General Conditions of Contract.

1.2.4 *Day* or *Days* shall mean calendar days unless otherwise specifically noted in the Contract Documents.

1.2.5 *Design-Build Team* is comprised of the Design-Builder, the Design Consultant, and key Subcontractors identified by the Design-Builder.

1.2.6 *Design Consultant* is a qualified, licensed design professional who is not an employee of Design-Builder, but is retained by Design-Builder, or employed or retained by anyone under contract with Design-Builder, to furnish design services required under the Contract Documents. A Design Sub-Consultant is a qualified, licensed design professional who is not an employee of the Design Consultant, but is retained by the Design Consultant or employed or retained by anyone under contract to Design Consultant, to furnish design services required under the Contract Documents.

1.2.7 *Final Completion* is the date on which all Work is complete in accordance with the Contract Documents, including but not limited to, any items identified in the punch list prepared under Section 6.6.1 and the submission of all documents set forth in Section 6.7.2.

1.2.8 *Force Majeure Events* are those events that are beyond the control of Design-Builder, including the events of war, floods, labor disputes, earthquakes, epidemics, adverse weather conditions not reasonably anticipated, and other acts of God.

1.2.9 *General Conditions of Contract* refer to this DBIA Document No. 535, *Standard Form of General Conditions of Contract Between Owner and Design-Builder* (2010 Edition).

1.2.10 *GMP Exhibit* means that exhibit attached to DBIA Document No. 530, *Standard Form of*

Agreement Between Owner and Design-Builder - Cost Plus Fee With an Option for a Guaranteed Maximum Price, which exhibit will have been agreed upon by Owner and Design-Builder prior to the execution of the Agreement.

1.2.11 *GMP Proposal* means that proposal developed by Design-Builder in accordance with Section 6.6 of DBIA Document No. 530, *Standard Form of Agreement Between Owner and Design-Builder - Cost Plus Fee With an Option for a Guaranteed Maximum Price*.

1.2.12 *Hazardous Conditions* are any materials, wastes, substances and chemicals deemed to be hazardous under applicable Legal Requirements, or the handling, storage, remediation, or disposal of which are regulated by applicable Legal Requirements.

1.2.13 *Legal Requirements* are all applicable federal, state and local laws, codes, ordinances, rules, regulations, orders and decrees of any government or quasi-government entity having jurisdiction over the Project or Site, the practices involved in the Project or Site, or any Work.

1.2.14 *Owner's Project Criteria* are as identified in the Agreement.

1.2.15 *Site* is the land or premises on which the Project is located.

1.2.16 *Subcontractor* is any person or entity retained by Design-Builder as an independent contractor to perform a portion of the Work and shall include materialmen and suppliers.

1.2.17 *Sub-Subcontractor* is any person or entity retained by a Subcontractor as an independent contractor to perform any portion of a Subcontractor's Work and shall include materialmen and suppliers.

1.2.18 *Substantial Completion* or *Substantially Complete* means the date on which the Work, or an agreed upon portion of the Work, is sufficiently complete in accordance with the Contract Documents so that Owner can occupy and use the Project or a portion thereof for its intended purposes.

1.2.19 *Work* is comprised of all Design-Builder's design, construction and other services required by the Contract Documents, including procuring and furnishing all materials, equipment, services and labor reasonably inferable from the Contract Documents.

Article 2

Design-Builder's Services and Responsibilities

2.1 General Services.

2.1.1 Design-Builder's Representative shall be reasonably available to Owner and shall have the necessary expertise and experience required to supervise the Work. Design-Builder's Representative shall communicate regularly with Owner and shall be vested with the authority to act on behalf of Design-Builder. Design-Builder's Representative may be replaced only with the mutual agreement of Owner and Design-Builder.

2.1.2 Design-Builder shall provide Owner with a monthly status report detailing the progress of the Work, including (i) whether the Work is proceeding according to schedule, (ii) whether discrepancies, conflicts, or ambiguities exist in the Contract Documents that require resolution, (iii) whether health and safety issues exist in connection with the Work; (iv) status of the contingency account to the extent provided for in the Standard Form of Agreement Between Owner and Design-Builder - Cost Plus Fee with an Option for a Guaranteed Maximum Price; and (v) other items that

require resolution so as not to jeopardize Design-Builder's ability to complete the Work for the Contract Price and within the Contract Time(s).

2.1.3 Unless a schedule for the execution of the Work has been attached to the Agreement as an exhibit at the time the Agreement is executed, Design-Builder shall prepare and submit, at least three (3) days prior to the meeting contemplated by Section 2.1.4 hereof, a schedule for the execution of the Work for Owner's review and approval. Any aspects of the schedule to which Owner does not object within seven (7) days are deemed to be approved by the Owner. The schedule shall indicate the dates for the start and completion of the various stages of Work, including the dates when Owner information and approvals are required to enable Design-Builder to achieve the Contract Time(s). The schedule shall be revised as required by conditions and progress of the Work, but such revisions shall not relieve Design-Builder of its obligations to complete the Work within the Contract Time(s), as such dates may be adjusted in accordance with the Contract Documents. Owner's review of, response to, and approval of, the schedule shall not be construed as relieving Design-Builder of its complete and exclusive control over the means, methods, sequences and techniques for executing the Work.

2.1.4 The parties will meet within seven (7) days after execution of the Agreement to discuss issues affecting the administration of the Work and to implement the necessary procedures, including those relating to submittals and payment, to facilitate the ability of the parties to perform their obligations under the Contract Documents.

2.2 Design Professional Services.

2.2.1 Design-Builder shall, consistent with applicable state licensing laws, provide through qualified, licensed design professionals employed by Design-Builder, or procured from qualified, independent licensed Design Consultants, the necessary design services, including architectural, engineering and other design professional services, for the preparation of the required drawings, specifications and other design submittals to permit Design-Builder to complete the Work consistent with the Contract Documents. Nothing in the Contract Documents is intended or deemed to create any legal or contractual relationship between Owner and any Design Consultant.

2.3 Standard of Care for Design Professional Services.

2.3.1 The standard of care for all design professional services performed to execute the Work shall be the care and skill ordinarily used by members of the design profession practicing under similar conditions at the same time and locality of the Project.

2.4 Design Development Services.

2.4.1 Design-Builder and Owner shall, consistent with any applicable provision of the Contract Documents, agree upon any interim design submissions that Owner may wish to review, which interim design submissions may include design criteria, drawings, diagrams and specifications setting forth the Project requirements. Interim design submissions shall be consistent with the Basis of Design Documents, as the Basis of Design Documents may have been changed through the design process set forth in this Section 2.4.1. On or about the time of the scheduled submissions, Design-Builder and Owner shall meet and confer about the submissions, with Design-Builder identifying during such meetings, among other things, the evolution of the design and any changes to the Basis of Design Documents, or, if applicable, previously submitted design submissions. Changes to the Basis of Design Documents, including those that are deemed minor changes under Section 9.3.1, shall be processed in accordance with Article 9. Minutes of the meetings, including a full listing of all changes, will be maintained by Design-Builder and provided to all attendees for review. Following the design review meeting, Owner shall review and approve the interim design submissions and meeting minutes in a time that is consistent with the turnaround times set forth in Design-Builder's schedule.

2.4.2 Design-Builder shall submit to Owner Construction Documents setting forth in detail drawings and specifications describing the requirements for construction of the Work. The Construction Documents shall be consistent with the latest set of interim design submissions, as such submissions may have been modified in a design review meeting and recorded in the meetings minutes. The parties shall have a design review meeting to discuss, and Owner shall review and approve, the Construction Documents in accordance with the procedures set forth in Section 2.4.1 above. Design-Builder shall proceed with construction in accordance with the approved Construction Documents and shall submit one set of approved Construction Documents to Owner prior to commencement of construction.

2.4.3 Owner's review and approval of interim design submissions, meeting minutes, and the Construction Documents is for the purpose of mutually establishing a conformed set of Contract Documents compatible with the requirements of the Work. Neither Owner's review nor approval of any interim design submissions, meeting minutes, and Construction Documents shall be deemed to transfer any design liability from Design-Builder to Owner. If Owner fails to review and approve any design submission or the Construction Documents timely, the Contract Price and Scheduled Substantial Completion Date shall be equitably adjusted.

2.4.4 To the extent not prohibited by the Contract Documents or Legal Requirements, Design-Builder may prepare interim design submissions and Construction Documents for a portion of the Work to permit construction to proceed on that portion of the Work prior to completion of the Construction Documents for the entire Work.

2.5 Legal Requirements.

2.5.1 Design-Builder shall perform the construction Work in accordance with all Legal Requirements and shall provide all notices applicable to the Work as required by the Legal Requirements.

2.5.2 The Contract Price and/or Contract Time(s) shall be adjusted to compensate Design-Builder for the effects of any changes in the Legal Requirements enacted after the date of the Agreement affecting the performance of the Work, or if a Guaranteed Maximum Price is established after the date of the Agreement, the date the parties agree upon the Guaranteed Maximum Price. Such effects may include, without limitation, revisions Design-Builder is required to make to the Construction Documents because of changes in Legal Requirements.

2.6 Government Approvals and Permits.

2.6.1 Except as identified in an Owner's Permit List attached as an exhibit to the Agreement, Design-Builder shall obtain and pay for all necessary permits, approvals, licenses, government charges and inspection fees required for the prosecution of the Work by any government or quasi-government entity having jurisdiction over the Project.

2.6.2 Design-Builder shall provide reasonable assistance to Owner in obtaining those permits, approvals and licenses that are Owner's responsibility.

2.7 Design-Builder's Construction Phase Services.

2.7.1 Unless otherwise provided in the Contract Documents to be the responsibility of Owner or a separate contractor, Design-Builder shall provide through itself or Subcontractors the necessary supervision, labor, inspection, testing, start-up, material, equipment, machinery, temporary utilities and other temporary facilities to permit Design-Builder to complete construction of the Project consistent with the Contract Documents.

2.7.2 Design-Builder shall perform all construction activities efficiently and with the requisite expertise, skill and competence to satisfy the requirements of the Contract Documents. Design-

Builder shall at all times exercise complete and exclusive control over the means, methods, sequences and techniques of construction.

2.7.3 Design-Builder shall employ only Subcontractors who are duly licensed and qualified to perform the Work consistent with the Contract Documents. Owner may reasonably object to Design-Builder's selection of any Subcontractor, provided that the Contract Price and/or Contract Time(s) shall be adjusted to the extent that Owner's decision impacts Design-Builder's cost and/or time of performance.

2.7.4 Design-Builder assumes responsibility to Owner for the proper performance of the Work of Subcontractors and any acts and omissions in connection with such performance. Nothing in the Contract Documents is intended or deemed to create any legal or contractual relationship between Owner and any Subcontractor or Sub-Subcontractor, including but not limited to any third-party beneficiary rights.

2.7.5 Design-Builder shall coordinate the activities of all Subcontractors. If Owner performs other work on the Project or at the Site with separate contractors under Owner's control, Design-Builder agrees to reasonably cooperate and coordinate its activities with those of such separate contractors so that the Project can be completed in an orderly and coordinated manner without unreasonable disruption.

2.7.6 Design-Builder shall keep the Site reasonably free from debris, trash and construction wastes to permit Design-Builder to perform its construction services efficiently, safely and without interfering with the use of adjacent land areas. Upon Substantial Completion of the Work, or a portion of the Work, Design-Builder shall remove all debris, trash, construction wastes, materials, equipment, machinery and tools arising from the Work or applicable portions thereof to permit Owner to occupy the Project or a portion of the Project for its intended use.

2.8 Design-Builder's Responsibility for Project Safety.

2.8.1 Design-Builder recognizes the importance of performing the Work in a safe manner so as to prevent damage, injury or loss to (i) all individuals at the Site, whether working or visiting, (ii) the Work, including materials and equipment incorporated into the Work or stored on-Site or off-Site, and (iii) all other property at the Site or adjacent thereto. Design-Builder assumes responsibility for implementing and monitoring all safety precautions and programs related to the performance of the Work. Design-Builder shall, prior to commencing construction, designate a Safety Representative with the necessary qualifications and experience to supervise the implementation and monitoring of all safety precautions and programs related to the Work. Unless otherwise required by the Contract Documents, Design-Builder's Safety Representative shall be an individual stationed at the Site who may have responsibilities on the Project in addition to safety. The Safety Representative shall make routine daily inspections of the Site and shall hold weekly safety meetings with Design-Builder's personnel, Subcontractors and others as applicable.

2.8.2 Design-Builder and Subcontractors shall comply with all Legal Requirements relating to safety, as well as any Owner-specific safety requirements set forth in the Contract Documents, provided that such Owner-specific requirements do not violate any applicable Legal Requirement. Design-Builder will immediately report in writing any safety-related injury, loss, damage or accident arising from the Work to Owner's Representative and, to the extent mandated by Legal Requirements, to all government or quasi-government authorities having jurisdiction over safety-related matters involving the Project or the Work.

2.8.3 Design-Builder's responsibility for safety under this Section 2.8 is not intended in any way to relieve Subcontractors and Sub-Subcontractors of their own contractual and legal obligations and responsibility for (i) complying with all Legal Requirements, including those related to health and safety matters, and (ii) taking all necessary measures to implement and monitor all safety precautions and programs to guard against injuries, losses, damages or accidents resulting from

their performance of the Work.

2.9 Design-Builder's Warranty.

2.9.1 Design-Builder warrants to Owner that the construction, including all materials and equipment furnished as part of the construction, shall be new unless otherwise specified in the Contract Documents, of good quality, in conformance with the Contract Documents and free of defects in materials and workmanship. Design-Builder's warranty obligation excludes defects caused by abuse, alterations, or failure to maintain the Work in a commercially reasonable manner or in accordance with Design-Builder's instructions. Design-Builder's warranty also excludes defects caused by persons other than Design-Builder or anyone for whose acts Design-Builder may be liable. Nothing in this warranty is intended to limit any manufacturer's warranty which provides Owner with greater warranty rights than set forth in this Section 2.9 or the Contract Documents. Design-Builder will provide Owner with all manufacturers' warranties upon Substantial Completion. ALL OTHER WARRANTIES BY DESIGN-BUILDER, EXPRESSED OR IMPLIED, INCLUDING THE WARRANTY OF MERCHANTABILITY AND THE WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY DISCLAIMED.

2.10 Correction of Defective Work.

2.10.1 Design-Builder agrees to correct any Work that is found to not be in conformance with the Contract Documents, including that part of the Work subject to Section 2.9 hereof, within a period of one year from the date of Substantial Completion of the Work or any portion of the Work, or within such longer period to the extent required by any specific warranty included in the Contract Documents.

2.10.2 Design-Builder shall, within seven (7) days of receipt of written notice from Owner that the Work is not in conformance with the Contract Documents, take meaningful steps to commence correction of such nonconforming Work, including the correction, removal or replacement of the nonconforming Work and any damage caused to other parts of the Work affected by the nonconforming Work. If Design-Builder fails to commence the necessary steps within such seven (7) day period, Owner, in addition to any other remedies provided under the Contract Documents, may provide Design-Builder with written notice that Owner will commence correction of such nonconforming Work with its own forces. If Owner does perform such corrective Work, Design-Builder shall be responsible for all reasonable costs incurred by Owner in performing such correction. If the nonconforming Work creates an emergency requiring an immediate response, the seven (7) day period identified herein shall be deemed inapplicable.

2.10.3 The one-year period referenced in Section 2.10.1 above applies only to Design-Builder's obligation to correct nonconforming Work and is not intended to constitute a period of limitations for any other rights or remedies Owner may have regarding Design-Builder's other obligations under the Contract Documents.

Article 3

Owner's Services and Responsibilities

3.1 Duty to Cooperate.

3.1.1 Owner shall, throughout the performance of the Work, cooperate with Design-Builder and perform its responsibilities, obligations and services in a timely manner to facilitate Design-Builder's timely and efficient performance of the Work and so as not to delay or interfere with Design-Builder's performance of its obligations under the Contract Documents.

3.1.2 Owner shall provide timely reviews and approvals of interim design submissions and

Construction Documents consistent with the turnaround times set forth in Design-Builder's schedule.

3.1.3 Owner shall give Design-Builder timely notice of any Work that Owner notices to be defective or not in compliance with the Contract Documents.

3.2 Furnishing of Services and Information.

3.2.1 Unless expressly stated to the contrary in the Contract Documents, Owner shall provide, at its own cost and expense, for Design-Builder's information and use the following, all of which Design-Builder is entitled to rely upon in performing the Work:

3.2.1.1 Surveys describing the property, boundaries, topography and reference points for use during construction, including existing service and utility lines;

3.2.1.2 Geotechnical studies describing subsurface conditions, and other surveys describing other latent or concealed physical conditions at the Site;

3.2.1.3 Temporary and permanent easements, zoning and other requirements and encumbrances affecting land use, or necessary to permit the proper design and construction of the Project and enable Design-Builder to perform the Work;

3.2.1.4 A legal description of the Site;

3.2.1.5 To the extent available, record drawings of any existing structures at the Site; and

3.2.1.6 To the extent available, environmental studies, reports and impact statements describing the environmental conditions, including Hazardous Conditions, in existence at the Site.

3.2.2 Owner is responsible for securing and executing all necessary agreements with adjacent land or property owners that are necessary to enable Design-Builder to perform the Work. Owner is further responsible for all costs, including attorneys' fees, incurred in securing these necessary agreements. Owner is responsible for paying for all assessments related to the Project.

3.3 Financial Information.

3.3.1 At Design-Builder's request, Owner shall promptly furnish reasonable evidence satisfactory to Design-Builder that Owner has adequate funds available and committed to fulfill all of Owner's contractual obligations under the Contract Documents. If Owner fails to furnish such financial information in a timely manner, Design-Builder may stop Work under Section 11.3 hereof or exercise any other right permitted under the Contract Documents.

3.3.2 Design-Builder shall cooperate with the reasonable requirements of Owner's lenders or other financial sources. Notwithstanding the preceding sentence, after execution of the Agreement Design-Builder shall have no obligation to execute for Owner or Owner's lenders or other financial sources any documents or agreements that require Design-Builder to assume obligations or responsibilities other than those existing obligations Design-Builder has under the Contract Documents.

3.4 Owner's Representative.

3.4.1 Owner's Representative shall be responsible for providing Owner-supplied information and approvals in a timely manner to permit Design-Builder to fulfill its obligations under the Contract Documents. Owner's Representative shall also provide Design-Builder with prompt notice if it observes any failure on the part of Design-Builder to fulfill its contractual obligations, including any

errors, omissions or defects in the performance of the Work. Owner's Representative shall communicate regularly with Design-Builder and shall be vested with the authority to act on behalf of Owner.

3.5 Government Approvals and Permits.

3.5.1 Owner shall obtain and pay for all necessary permits, approvals, licenses, government charges and inspection fees set forth in the Owner's Permit List attached as an exhibit to the Agreement.

3.5.2 Owner shall provide reasonable assistance to Design-Builder in obtaining those permits, approvals and licenses that are Design-Builder's responsibility.

3.6 Owner's Separate Contractors.

3.6.1 Owner is responsible for all work performed on the Project or at the Site by separate contractors under Owner's control. Owner shall contractually require its separate contractors to cooperate with, and coordinate their activities so as not to interfere with, Design-Builder in order to enable Design-Builder to timely complete the Work consistent with the Contract Documents.

Article 4

Hazardous Conditions and Differing Site Conditions

4.1 Hazardous Conditions.

4.1.1 Unless otherwise expressly provided in the Contract Documents to be part of the Work, Design-Builder is not responsible for any Hazardous Conditions encountered at the Site. Upon encountering any Hazardous Conditions, Design-Builder will stop Work immediately in the affected area and duly notify Owner and, if required by Legal Requirements, all government or quasi-government entities with jurisdiction over the Project or Site.

4.1.2 Upon receiving notice of the presence of suspected Hazardous Conditions, Owner shall take the necessary measures required to ensure that the Hazardous Conditions are remediated or rendered harmless. Such necessary measures shall include Owner retaining qualified independent experts to (i) ascertain whether Hazardous Conditions have actually been encountered, and, if they have been encountered, (ii) prescribe the remedial measures that Owner must take either to remove the Hazardous Conditions or render the Hazardous Conditions harmless.

4.1.3 Design-Builder shall be obligated to resume Work at the affected area of the Project only after Owner's expert provides it with written certification that (i) the Hazardous Conditions have been removed or rendered harmless and (ii) all necessary approvals have been obtained from all government and quasi-government entities having jurisdiction over the Project or Site.

4.1.4 Design-Builder will be entitled, in accordance with these General Conditions of Contract, to an adjustment in its Contract Price and/or Contract Time(s) to the extent Design-Builder's cost and/or time of performance have been adversely impacted by the presence of Hazardous Conditions.

4.1.5 To the fullest extent permitted by law, Owner shall indemnify, defend and hold harmless Design-Builder, Design Consultants, Subcontractors, anyone employed directly or indirectly by any of them, and their officers, directors, employees and agents, from and against any and all claims, losses, damages, liabilities and expenses, including attorneys' fees and expenses, arising out of or resulting from the presence, removal or remediation of Hazardous Conditions at the Site.

4.1.6 Notwithstanding the preceding provisions of this Section 4.1, Owner is not responsible for Hazardous Conditions introduced to the Site by Design-Builder, Subcontractors or anyone for whose acts they may be liable. To the fullest extent permitted by law, Design-Builder shall indemnify, defend and hold harmless Owner and Owner's officers, directors, employees and agents from and against all claims, losses, damages, liabilities and expenses, including attorneys' fees and expenses, arising out of or resulting from those Hazardous Conditions introduced to the Site by Design-Builder, Subcontractors or anyone for whose acts they may be liable.

4.2 Differing Site Conditions.

4.2.1 Concealed or latent physical conditions or subsurface conditions at the Site that (i) materially differ from the conditions indicated in the Contract Documents or (ii) are of an unusual nature, differing materially from the conditions ordinarily encountered and generally recognized as inherent in the Work are collectively referred to herein as "Differing Site Conditions." If Design-Builder encounters a Differing Site Condition, Design-Builder will be entitled to an adjustment in the Contract Price and/or Contract Time(s) to the extent Design-Builder's cost and/or time of performance are adversely impacted by the Differing Site Condition.

4.2.2 Upon encountering a Differing Site Condition, Design-Builder shall provide prompt written notice to Owner of such condition, which notice shall not be later than fourteen (14) days after such condition has been encountered. Design-Builder shall, to the extent reasonably possible, provide such notice before the Differing Site Condition has been substantially disturbed or altered.

Article 5

Insurance and Bonds

5.1 Design-Builder's Insurance Requirements. Design-Builder and Owner shall procure the insurance coverages set forth in the Exhibit B attached hereto.

5.2 Bonds and Other Performance Security.

5.2.1 If Owner requires Design-Builder to obtain performance and labor and material payment bonds, or other forms of performance security, the amount, form and other conditions of such security shall be as set forth in the Agreement.

5.2.2 All bonds furnished by Design-Builder shall be in a form satisfactory to Owner. The surety shall be a company qualified and registered to conduct business in the state in which the Project is located.

Article 6

Payment

6.1 Schedule of Values.

6.1.1 Unless required by the Owner upon execution of this Agreement, within ten (10) days of execution of the Agreement, Design-Builder shall submit for Owner's review and approval a schedule of values for all of the Work. The Schedule of Values will (i) subdivide the Work into its respective parts, (ii) include values for all items comprising the Work and (iii) serve as the basis for monthly progress payments made to Design-Builder throughout the Work.

6.1.2 The Owner will timely review and approve the schedule of values so as not to delay the submission of the Design-Builder's first application for payment. The Owner and Design-Builder

shall timely resolve any differences so as not to delay the Design-Builder's submission of its first application for payment.

6.2 Monthly Progress Payments.

6.2.1 On or before the date established in the Agreement, Design-Builder shall submit for Owner's review and approval its Application for Payment requesting payment for all Work performed as of the date of the Application for Payment. The Application for Payment shall be accompanied by all supporting documentation required by the Contract Documents and/or established at the meeting required by Section 2.1.4 hereof.

6.2.2 The Application for Payment may request payment for equipment and materials not yet incorporated into the Project, provided that (i) Owner is satisfied that the equipment and materials are suitably stored at either the Site or another acceptable location, (ii) the equipment and materials are protected by suitable insurance and (iii) upon payment, Owner will receive the equipment and materials free and clear of all liens and encumbrances.

6.2.3 All discounts offered by Subcontractor, Sub-Subcontractors and suppliers to Design-Builder for early payment shall accrue one hundred percent to Design-Builder to the extent Design-Builder advances payment. Unless Owner advances payment to Design-Builder specifically to receive the discount, Design-Builder may include in its Application for Payment the full undiscounted cost of the item for which payment is sought.

6.2.4 The Application for Payment shall constitute Design-Builder's representation to Owner that the Work described herein has been performed consistent with the Contract Documents, has progressed to the point indicated in the Application for Payment, and that title to all Work will pass to Owner free and clear of all claims, liens, encumbrances, and security interests upon the incorporation of the Work into the Project, or upon Design-Builder's receipt of payment, whichever occurs earlier.

6.3 Withholding of Payments.

6.3.1 On or before the date established in the Agreement, Owner shall pay Design-Builder all amounts properly due. If Owner determines that Design-Builder is not entitled to all or part of an Application for Payment as a result of Design-Builder's failure to meet its obligations hereunder, it will notify Design-Builder in writing at least five (5) days prior to the date payment is due. The notice shall indicate the specific amounts Owner intends to withhold, the reasons and contractual basis for the withholding, and the specific measures Design-Builder must take to rectify Owner's concerns. Design-Builder and Owner will attempt to resolve Owner's concerns prior to the date payment is due. If the parties cannot resolve such concerns, Design-Builder may pursue its rights under the Contract Documents, including those under Article 10 hereof.

6.3.2 Notwithstanding anything to the contrary in the Contract Documents, Owner shall pay Design-Builder all undisputed amounts in an Application for Payment within the times required by the Agreement.

6.4 Right to Stop Work and Interest.

6.4.1 If Owner fails to pay timely Design-Builder any amount that becomes due, Design-Builder, in addition to all other remedies provided in the Contract Documents, may stop Work pursuant to Section 11.3 hereof. All payments due and unpaid shall bear interest at the rate set forth in the Agreement.

6.5 Design-Builder's Payment Obligations.

6.5.1 Design-Builder will pay Design Consultants and Subcontractors, in accordance with its

contractual obligations to such parties, all the amounts Design-Builder has received from Owner on account of their work. Design-Builder will impose similar requirements on Design Consultants and Subcontractors to pay those parties with whom they have contracted. Design-Builder will indemnify and defend Owner against any claims for payment and mechanic's liens as set forth in Section 7.3 hereof.

6.6 Substantial Completion.

6.6.1 Design-Builder shall notify Owner when it believes the Work, or to the extent permitted in the Contract Documents, a portion of the Work, is Substantially Complete. Within five (5) days of Owner's receipt of Design-Builder's notice, Owner and Design-Builder will jointly inspect such Work to verify that it is Substantially Complete in accordance with the requirements of the Contract Documents. If such Work is Substantially Complete, Owner shall prepare and issue a Certificate of Substantial Completion that will set forth (i) the date of Substantial Completion of the Work or portion thereof, (ii) the remaining items of Work that have to be completed before final payment, (iii) provisions (to the extent not already provided in the Contract Documents) establishing Owner's and Design-Builder's responsibility for the Project's security, maintenance, utilities and insurance pending final payment, and (iv) an acknowledgment that warranties commence to run on the date of Substantial Completion, except as may otherwise be noted in the Certificate of Substantial Completion.

6.6.2 Upon Substantial Completion of the entire Work or, if applicable, any portion of the Work, Owner shall release to Design-Builder all retained amounts relating, as applicable, to the entire Work or completed portion of the Work, less an amount equal to the reasonable value of all remaining or incomplete items of Work as noted in the Certificate of Substantial Completion.

6.6.3 Owner, at its option, may use a portion of the Work which has been determined to be Substantially Complete, provided, however, that (i) a Certificate of Substantial Completion has been issued for the portion of Work addressing the items set forth in Section 6.6.1 above, (ii) Design-Builder and Owner have obtained the consent of their sureties and insurers, and to the extent applicable, the appropriate government authorities having jurisdiction over the Project, and (iii) Owner and Design-Builder agree that Owner's use or occupancy will not interfere with Design-Builder's completion of the remaining Work.

6.7 Final Payment.

6.7.1 After receipt of a Final Application for Payment from Design-Builder, Owner shall make final payment by the time required in the Agreement, provided that Design-Builder has achieved Final Completion.

6.7.2 At the time of submission of its Final Application for Payment, Design-Builder shall provide the following information:

6.7.2.1 An affidavit that there are no claims, obligations or liens outstanding or unsatisfied for labor, services, material, equipment, taxes or other items performed, furnished or incurred for or in connection with the Work which will in any way affect Owner's interests;

6.7.2.2 A general release executed by Design-Builder waiving, upon receipt of final payment by Design-Builder, all claims, except those claims previously made in writing to Owner and remaining unsettled at the time of final payment;

6.7.2.3 Consent of Design-Builder's surety, if any, to final payment;

6.7.2.4 All operating manuals, warranties and other deliverables required by the Contract Documents; and

6.7.2.5 Certificates of insurance confirming that required coverages will remain in effect consistent with the requirements of the Contract Documents.

6.7.3 Upon making final payment, Owner waives all claims against Design-Builder except claims relating to (i) Design-Builder's failure to satisfy its payment obligations, if such failure affects Owner's interests, (ii) Design-Builder's failure which is not yet apparent to complete the Work consistent with the Contract Documents, including defects appearing after Substantial Completion and (iii) the terms of any special warranties required by the Contract Documents.

6.7.4 Deficiencies in the Work discovered after Substantial Completion, whether or not such deficiencies would have been included on the Punch List if discovered earlier, shall be deemed warranty Work. Such deficiencies shall be corrected by Design-Builder under Sections 2.9 and 2.10 herein, and shall not be a reason to withhold final payment from Design-Builder, provided, however, that Owner shall be entitled to withhold from the Final Payment the reasonable value of completion of such deficient work until such work is completed.

Article 7

Indemnification

7.1 Patent and Copyright Infringement.

7.1.1 Design-Builder shall defend any action or proceeding brought against Owner based on any claim that the Work, or any part thereof, or the operation or use of the Work or any part thereof, constitutes infringement of any United States patent or copyright, now or hereafter issued. Owner shall give prompt written notice to Design-Builder of any such action or proceeding and will reasonably provide authority, information and assistance in the defense of same. Design-Builder shall indemnify and hold harmless Owner from and against all damages and costs, including but not limited to attorneys' fees and expenses awarded against Owner or Design-Builder in any such action or proceeding. Design-Builder agrees to keep Owner informed of all developments in the defense of such actions.

7.1.2 If Owner is enjoined from the operation or use of the Work, or any part thereof, as the result of any patent or copyright suit, claim, or proceeding, Design-Builder shall at its sole expense take reasonable steps to procure the right to operate or use the Work. If Design-Builder cannot so procure such right within a reasonable time, Design-Builder shall promptly, at Design-Builder's option and at Design-Builder's expense, (i) modify the Work so as to avoid infringement of any such patent or copyright or (ii) replace said Work with Work that does not infringe or violate any such patent or copyright.

7.1.3 Sections 7.1.1 and 7.1.2 above shall not be applicable to any suit, claim or proceeding based on infringement or violation of a patent or copyright (i) relating solely to a particular process or product of a particular manufacturer specified by Owner and not offered or recommended by Design-Builder to Owner or (ii) arising from modifications to the Work by Owner or its agents after acceptance of the Work. If the suit, claim or proceeding is based upon events set forth in the preceding sentence, Owner shall defend, indemnify and hold harmless Design-Builder to the same extent Design-Builder is obligated to defend, indemnify and hold harmless Owner in Section 7.1.1 above.

7.1.4 The obligations set forth in this Section 7.1 shall constitute the sole agreement between the parties relating to liability for infringement of violation of any patent or copyright.

7.2 Tax Claim Indemnification.

7.2.1 If, in accordance with Owner's direction, an exemption for all or part of the Work is claimed for taxes, Owner shall indemnify, defend and hold harmless Design-Builder from and against any liability, penalty, interest, fine, tax assessment, attorneys' fees or other expenses or costs incurred by Design-Builder as a result of any action taken by Design-Builder in accordance with Owner's directive. Owner shall furnish Design-Builder with any applicable tax exemption certificates necessary to obtain such exemption, upon which Design-Builder may rely.

7.3 Payment Claim Indemnification.

7.3.1 Provided that Owner is not in breach of its contractual obligation to make payments to Design-Builder for the Work, Design-Builder shall indemnify, defend and hold harmless Owner from any claims or mechanic's liens brought against Owner or against the Project as a result of the failure of Design-Builder, or those for whose acts it is responsible, to pay for any services, materials, labor, equipment, taxes or other items or obligations furnished or incurred for or in connection with the Work. Within three (3) days of receiving written notice from Owner that such a claim or mechanic's lien has been filed, Design-Builder shall commence to take the steps necessary to discharge said claim or lien, including, if necessary, the furnishing of a mechanic's lien bond. If Design-Builder fails to do so, Owner will have the right to discharge the claim or lien and hold Design-Builder liable for costs and expenses incurred, including attorneys' fees.

7.4 Design-Builder's General Indemnification.

7.4.1 Design-Builder, to the fullest extent permitted by law, shall indemnify, hold harmless and defend Owner, its officers, directors, and employees from and against claims, losses, damages, liabilities, including attorneys' fees and expenses, for bodily injury, sickness or death, and property damage or destruction (other than to the Work itself) to the extent resulting from the negligent acts or omissions of Design-Builder, Design Consultants, Subcontractors, anyone employed directly or indirectly by any of them or anyone for whose acts any of them may be liable.

7.4.2 If an employee of Design-Builder, Design Consultants, Subcontractors, anyone employed directly or indirectly by any of them or anyone for whose acts any of them may be liable has a claim against Owner, its officers, directors, employees, or agents, Design-Builder's indemnity obligation set forth in Section 7.4.1 above shall not be limited by any limitation on the amount of damages, compensation or benefits payable by or for Design-Builder, Design Consultants, Subcontractors, or other entity under any employee benefit acts, including workers' compensation or disability acts.

7.5 Owner's General Indemnification.

7.5.1 Owner, to the fullest extent permitted by law, shall indemnify, hold harmless and defend Design-Builder and any of Design-Builder's officers, directors, and employees, from and against claims, losses, damages, liabilities, including attorneys' fees and expenses, for bodily injury, sickness or death, and property damage or destruction (other than to the Work itself) to the extent resulting from the negligent acts or omissions of Owner's separate contractors or anyone for whose acts any of them may be liable.

Article 8

Time

8.1 Obligation to Achieve the Contract Times.

8.1.1 Design-Builder agrees that it will commence performance of the Work and achieve the Contract Time(s) in accordance with Article 5 of the Agreement.

8.2 Delays to the Work.

8.2.1 If Design-Builder is delayed in the performance of the Work due to acts, omissions, conditions, events, or circumstances beyond its control and due to no fault of its own or those for whom Design-Builder is responsible, the Contract Time(s) for performance shall be reasonably extended by Change Order. By way of example, events that will entitle Design-Builder to an extension of the Contract Time(s) include acts or omissions of Owner or anyone under Owner's control (including separate contractors), changes in the Work, Differing Site Conditions, Hazardous Conditions, and Force Majeure Events.

8.2.2 In addition to Design-Builder's right to a time extension for those events set forth in Section 8.2.1 above, Design-Builder shall also be entitled to an appropriate adjustment of the Contract Price provided, however, that the Contract Price shall not be adjusted for Force Majeure Events unless otherwise provided in the Agreement.

Article 9

Changes to the Contract Price and Time

9.1 Change Orders.

9.1.1 A Change Order is a written instrument issued after execution of the Agreement signed by Owner and Design-Builder, stating their agreement upon all of the following:

9.1.1.1 The scope of the change in the Work;

9.1.1.2 The amount of the adjustment to the Contract Price; and

9.1.1.3 The extent of the adjustment to the Contract Time(s).

9.1.2 All changes in the Work authorized by applicable Change Order shall be performed under the applicable conditions of the Contract Documents. Owner and Design-Builder shall negotiate in good faith and as expeditiously as possible the appropriate adjustments for such changes.

9.1.3 If Owner requests a proposal for a change in the Work from Design-Builder and subsequently elects not to proceed with the change, a Change Order shall be issued to reimburse Design-Builder for reasonable costs incurred for estimating services, design services and services involved in the preparation of proposed revisions to the Contract Documents.

9.2 Work Change Directives.

9.2.1 A Work Change Directive is a written order prepared and signed by Owner directing a change in the Work prior to agreement on an adjustment in the Contract Price and/or the Contract Time(s).

9.2.2 Owner and Design-Builder shall negotiate in good faith and as expeditiously as possible the appropriate adjustments for the Work Change Directive. Upon reaching an agreement, the parties shall prepare and execute an appropriate Change Order reflecting the terms of the agreement.

9.3 Minor Changes in the Work.

9.3.1 Minor changes in the Work do not involve an adjustment in the Contract Price and/or Contract Time(s) and do not materially and adversely affect the Work, including the design, quality,

performance and workmanship required by the Contract Documents. Design-Builder may make minor changes in the Work consistent with the intent of the Contract Documents, provided, however, that Design-Builder shall promptly inform Owner, in writing, of any such changes and record such changes on the documents maintained by Design-Builder.

9.4 Contract Price Adjustments.

9.4.1 The increase or decrease in Contract Price resulting from a change in the Work shall be determined by one or more of the following methods:

9.4.1.1 Unit prices set forth in the Agreement or as subsequently agreed to between the parties;

9.4.1.2 A mutually accepted lump sum, properly itemized and supported by sufficient substantiating data to permit evaluation by Owner;

9.4.1.3 Costs, fees and any other markups set forth in the Agreement; or

9.4.1.4 If an increase or decrease cannot be agreed to as set forth in items 9.4.1.1 through 9.4.1.3 above and Owner issues a Work Change Directive, the cost of the change of the Work shall be determined by the reasonable expense and savings in the performance of the Work resulting from the change, including a reasonable overhead and profit, as may be set forth in the Agreement.

9.4.2 If unit prices are set forth in the Contract Documents or are subsequently agreed to by the parties, but application of such unit prices will cause substantial inequity to Owner or Design-Builder because of differences in the character or quantity of such unit items as originally contemplated, such unit prices shall be equitably adjusted.

9.4.3 If Owner and Design-Builder disagree upon whether Design-Builder is entitled to be paid for any services required by Owner, or if there are any other disagreements over the scope of Work or proposed changes to the Work, Owner and Design-Builder shall resolve the disagreement pursuant to Article 10 hereof. As part of the negotiation process, Design-Builder shall furnish Owner with a good faith estimate of the costs to perform the disputed services in accordance with Owner's interpretations. If the parties are unable to agree and Owner expects Design-Builder to perform the services in accordance with Owner's interpretations, Design-Builder shall proceed to perform the disputed services, conditioned upon Owner issuing a written order to Design-Builder (i) directing Design-Builder to proceed and (ii) specifying Owner's interpretation of the services that are to be performed. If this occurs, Design-Builder shall be entitled to submit in its Applications for Payment an amount equal to fifty percent (50%) of its reasonable estimated direct cost to perform the services, and Owner agrees to pay such amounts, with the express understanding that (i) such payment by Owner does not prejudice Owner's right to argue that it has no responsibility to pay for such services and (ii) receipt of such payment by Design-Builder does not prejudice Design-Builder's right to seek full payment of the disputed services if Owner's order is deemed to be a change to the Work.

9.5 Emergencies.

9.5.1 In any emergency affecting the safety of persons and/or property, Design-Builder shall act, at its discretion, to prevent threatened damage, injury or loss. Any change in the Contract Price and/or Contract Time(s) on account of emergency work shall be determined as provided in this Article 9.

Article 10

Contract Adjustments and Disputes

10.1 Requests for Contract Adjustments and Relief.

10.1.1 If either Design-Builder or Owner believes that it is entitled to relief against the other for any event arising out of or related to the Work or Project, such party shall provide written notice to the other party of the basis for its claim for relief. Such notice shall, if possible, be made prior to incurring any cost or expense and in accordance with any specific notice requirements contained in applicable sections of these General Conditions of Contract. In the absence of any specific notice requirement, written notice shall be given within a reasonable time, not to exceed twenty-one (21) days, after the occurrence giving rise to the claim for relief or after the claiming party reasonably should have recognized the event or condition giving rise to the request, whichever is later. Such notice shall include sufficient information to advise the other party of the circumstances giving rise to the claim for relief, the specific contractual adjustment or relief requested and the basis of such request.

10.2 Dispute Avoidance and Resolution.

10.2.1 The parties are fully committed to working with each other throughout the Project and agree to communicate regularly with each other at all times so as to avoid or minimize disputes or disagreements. If disputes or disagreements do arise, Design-Builder and Owner each commit to resolving such disputes or disagreements in an amicable, professional and expeditious manner so as to avoid unnecessary losses, delays and disruptions to the Work.

10.2.2 Design-Builder and Owner will first attempt to resolve disputes or disagreements at the field level through discussions between Design-Builder's Representative and Owner's Representative which shall conclude within fourteen (14) days of the written notice provided for in Section 10.1.1 unless the Owner and Design-Builder mutually agree otherwise.

10.2.3 If a dispute or disagreement cannot be resolved through Design-Builder's Representative and Owner's Representative, Design-Builder's Senior Representative and Owner's Senior Representative, upon the request of either party, shall meet as soon as conveniently possible, but in no case later than thirty (30) days after such a request is made, to attempt to resolve such dispute or disagreement. Five (5) days prior to any meetings between the Senior Representatives, the parties will exchange relevant information that will assist the parties in resolving their dispute or disagreement.

10.2.4 If after meeting the Senior Representatives determine that the dispute or disagreement cannot be resolved on terms satisfactory to both parties, the parties shall submit within thirty (30) days of the conclusion of the meeting of Senior Representatives the dispute or disagreement to non-binding mediation. The mediation shall be conducted by a mutually agreeable impartial mediator, or if the parties cannot so agree, a mediator designated by the American Arbitration Association ("AAA") pursuant to its Construction Industry Mediation Rules. The mediation will be governed by and conducted pursuant to a mediation agreement negotiated by the parties or, if the parties cannot so agree, by procedures established by the mediator. Unless otherwise mutually agreed by the Owner and Design-Builder and consistent with the mediator's schedule, the mediation shall commence within ninety (90) days of the submission of the dispute to mediation.

10.3 Arbitration.

10.3.1 Any claims, disputes or controversies between the parties arising out of or relating to the Agreement, or the breach thereof, which have not been resolved in accordance with the procedures set forth in Section 10.2 above, shall be decided by arbitration in accordance with the Construction Industry Arbitration Rules of the AAA then in effect, unless the parties mutually agree otherwise.

10.3.2 The award of the arbitrator(s) shall be final and binding upon the parties without the right of appeal to the courts. Judgment may be entered upon it in accordance with applicable law by any court having jurisdiction thereof.

10.3.3 Design-Builder and Owner expressly agree that any arbitration pursuant to this Section 10.3 may be joined or consolidated with any arbitration involving any other person or entity (i) necessary to resolve the claim, dispute or controversy, or (ii) substantially involved in or affected by such claim, dispute or controversy. Both Design-Builder and Owner will include appropriate provisions in all contracts they execute with other parties in connection with the Project to require such joinder or consolidation.

10.3.4 The prevailing party in any arbitration, or any other final, binding dispute proceeding upon which the parties may agree, shall be entitled to recover from the other party reasonable attorneys' fees and expenses incurred by the prevailing party.

10.4 Duty to Continue Performance.

10.4.1 Unless provided to the contrary in the Contract Documents, Design-Builder shall continue to perform the Work and Owner shall continue to satisfy its payment obligations to Design-Builder, pending the final resolution of any dispute or disagreement between Design-Builder and Owner.

10.5 CONSEQUENTIAL DAMAGES.

10.5.1 NOTWITHSTANDING ANYTHING HEREIN TO THE CONTRARY (EXCEPT AS SET FORTH IN SECTION 10.5.2 BELOW), NEITHER DESIGN-BUILDER NOR OWNER SHALL BE LIABLE TO THE OTHER FOR ANY CONSEQUENTIAL LOSSES OR DAMAGES, WHETHER ARISING IN CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHERWISE, INCLUDING BUT NOT LIMITED TO LOSSES OF USE, PROFITS (EXCEPT THAT DESIGN-BUILDER IS NOT BARRED FROM RECOVERING PROFIT AND ANTICIPATED PROFIT ARISING DIRECTLY FROM THE WORK), BUSINESS, REPUTATION OR FINANCING.

10.5.2 The consequential damages limitation set forth in Section 10.5.1 above is not intended to affect the payment of liquidated damages or lost early completion bonus, if any, set forth in Article 5 of the Agreement, which both parties recognize has been established, in part, to reimburse Owner or reward Design-Builder for some damages that might otherwise be deemed to be consequential.

10.5.3 Notwithstanding anything to the contrary herein, Design-Builder shall be liable for errors or omissions in design in accordance with the standard set forth in paragraph 2.3 herein.

Article 11

Stop Work and Termination for Cause

11.1 Owner's Right to Stop Work.

11.1.1 Owner may, without cause and for its convenience, order Design-Builder in writing to stop and suspend the Work. Such suspension shall not exceed sixty (60) consecutive days or aggregate more than ninety (90) days during the duration of the Project.

11.1.2 Design-Builder is entitled to seek an adjustment of the Contract Price and/or Contract Time(s) if its cost or time to perform the Work has been adversely impacted by any suspension of stoppage of the Work by Owner.

11.2 Owner's Right to Perform and Terminate for Cause.

11.2.1 If Design-Builder persistently fails to (i) provide a sufficient number of skilled workers, (ii)

supply the materials required by the Contract Documents, (iii) perform construction Work in compliance with applicable Legal Requirements, (iv) timely pay, without cause, Design Consultants or Subcontractors, (v) prosecute the Work with promptness and diligence to ensure that the Work is completed by the Contract Time(s), as such times may be adjusted, or (vi) perform material obligations under the Contract Documents, then Owner, in addition to any other rights and remedies provided in the Contract Documents or by law, shall have the rights set forth in Sections 11.2.2 and 11.2.3 below.

11.2.2 Upon the occurrence of an event set forth in Section 11.2.1 above, Owner may provide written notice to Design-Builder that it intends to terminate the Agreement unless the problem cited is cured, or commenced to be cured, within seven (7) days of Design-Builder's receipt of such notice. If Design-Builder fails to cure, or reasonably commence to cure, such problem, then Owner may give a second written notice to Design-Builder of its intent to terminate within an additional seven (7) day period. If Design-Builder, within such second seven (7) day period, fails to cure, or reasonably commence to cure, such problem, then Owner may declare the Agreement terminated for default by providing written notice to Design-Builder of such declaration.

11.2.3 Upon declaring the Agreement terminated pursuant to Section 11.2.2 above, Owner may enter upon the premises and take possession, for the purpose of completing the Work, of all materials, equipment, scaffolds, tools, appliances and other items thereon, which have been purchased or provided for the performance of the Work, all of which Design-Builder hereby transfers, assigns and sets over to Owner for such purpose, and to employ any person or persons to complete the Work and provide all of the required labor, services, materials, equipment and other items. In the event of such termination, Design-Builder shall not be entitled to receive any further payments under the Contract Documents until the Work shall be finally completed in accordance with the Contract Documents. At such time, if the unpaid balance of the Contract Price exceeds the cost and expense incurred by Owner in completing the Work, such excess shall be paid by Owner to Design-Builder. Notwithstanding the preceding sentence, if the Agreement establishes a Guaranteed Maximum Price, Design-Builder will only be entitled to be paid for Work performed prior to its default. If Owner's cost and expense of completing the Work exceeds the unpaid balance of the Contract Price, then Design-Builder shall be obligated to pay the difference to Owner. Such costs and expense shall include not only the cost of completing the Work, but also losses, damages, costs and expense, including attorneys' fees and expenses, incurred by Owner in connection with the reprocurement and defense of claims arising from Design-Builder's default, subject to the waiver of consequential damages set forth in Section 10.5 hereof.

11.2.4 If Owner improperly terminates the Agreement for cause, the termination for cause will be converted to a termination for convenience in accordance with the provisions of Article 8 of the Agreement.

11.3 Design-Builder's Right to Stop Work.

11.3.1 Design-Builder may, in addition to any other rights afforded under the Contract Documents or at law, stop the Work for the following reasons:

11.3.1.1 Owner's failure to provide financial assurances as required under Section 3.3 hereof; or

11.3.1.2 Owner's failure to pay amounts properly due under Design-Builder's Application for Payment.

11.3.2 Should any of the events set forth in Section 11.3.1 above occur, Design-Builder has the right to provide Owner with written notice that Design-Builder will stop the Work unless said event is cured within seven (7) days from Owner's receipt of Design-Builder's notice. If Owner does not cure the problem within such seven (7) day period, Design-Builder may stop the Work. In such case, Design-Builder shall be entitled to make a claim for adjustment to the Contract Price and

Contract Time(s) to the extent it has been adversely impacted by such stoppage.

11.4 Design-Builder's Right to Terminate for Cause.

11.4.1 Design-Builder, in addition to any other rights and remedies provided in the Contract Documents or by law, may terminate the Agreement for cause for the following reasons:

11.4.1.1 The Work has been stopped for sixty (60) consecutive days, or more than ninety (90) days during the duration of the Project, because of court order, any government authority having jurisdiction over the Work, or orders by Owner under Section 11.1.1 hereof, provided that such stoppages are not due to the acts or omissions of Design-Builder or anyone for whose acts Design-Builder may be responsible.

11.4.1.2 Owner's failure to provide Design-Builder with any information, permits or approvals that are Owner's responsibility under the Contract Documents which result in the Work being stopped for sixty (60) consecutive days, or more than ninety (90) days during the duration of the Project, even though Owner has not ordered Design-Builder in writing to stop and suspend the Work pursuant to Section 11.1.1 hereof.

11.4.1.3 Owner's failure to cure the problems set forth in Section 11.3.1 above after Design-Builder has stopped the Work.

11.4.2 Upon the occurrence of an event set forth in Section 11.4.1 above, Design-Builder may provide written notice to Owner that it intends to terminate the Agreement unless the problem cited is cured, or commenced to be cured, within seven (7) days of Owner's receipt of such notice. If Owner fails to cure, or reasonably commence to cure, such problem, then Design-Builder may give a second written notice to Owner of its intent to terminate within an additional seven (7) day period. If Owner, within such second seven (7) day period, fails to cure, or reasonably commence to cure, such problem, then Design-Builder may declare the Agreement terminated for default by providing written notice to Owner of such declaration. In such case, Design-Builder shall be entitled to recover in the same manner as if Owner had terminated the Agreement for its convenience under Article 8 of the Agreement.

11.5 Bankruptcy of Owner or Design-Builder.

11.5.1 If either Owner or Design-Builder institutes or has instituted against it a case under the United States Bankruptcy Code (such party being referred to as the "Bankrupt Party"), such event may impair or frustrate the Bankrupt Party's ability to perform its obligations under the Contract Documents. Accordingly, should such event occur:

11.5.1.1 The Bankrupt Party, its trustee or other successor, shall furnish, upon request of the non-Bankrupt Party, adequate assurance of the ability of the Bankrupt Party to perform all future material obligations under the Contract Documents, which assurances shall be provided within ten (10) days after receiving notice of the request; and

11.5.1.2 The Bankrupt Party shall file an appropriate action within the bankruptcy court to seek assumption or rejection of the Agreement within sixty (60) days of the institution of the bankruptcy filing and shall diligently prosecute such action.

If the Bankrupt Party fails to comply with its foregoing obligations, the non-Bankrupt Party shall be entitled to request the bankruptcy court to reject the Agreement, declare the Agreement terminated and pursue any other recourse available to the non-Bankrupt Party under this Article 11.

11.5.2 The rights and remedies under Section 11.5.1 above shall not be deemed to limit the ability of the non-Bankrupt Party to seek any other rights and remedies provided by the Contract Documents or by law, including its ability to seek relief from any automatic stays under the United

States Bankruptcy Code or the right of Design-Builder to stop Work under any applicable provision of these General Conditions of Contract.

Article 12

Electronic Data

12.1 Electronic Data.

12.1.1 The parties recognize that Contract Documents, including drawings, specifications and three-dimensional modeling (such as Building Information Models) and other Work Product may be transmitted among Owner, Design-Builder and others in electronic media as an alternative to paper hard copies (collectively "Electronic Data").

12.2 Transmission of Electronic Data.

12.2.1 Owner and Design-Builder shall agree upon the software and the format for the transmission of Electronic Data. Each party shall be responsible for securing the legal rights to access the agreed-upon format, including, if necessary, obtaining appropriately licensed copies of the applicable software or electronic program to display, interpret and/or generate the Electronic Data.

12.2.2 Neither party makes any representations or warranties to the other with respect to the functionality of the software or computer program associated with the electronic transmission of Work Product. Unless specifically set forth in the Agreement, ownership of the Electronic Data does not include ownership of the software or computer program with which it is associated, transmitted, generated or interpreted.

12.2.3 By transmitting Work Product in electronic form, the transmitting party does not transfer or assign its rights in the Work Product. The rights in the Electronic Data shall be as set forth in Article 4 of the Agreement. Under no circumstances shall the transfer of ownership of Electronic Data be deemed to be a sale by the transmitting party of tangible goods.

12.3 Electronic Data Protocol.

12.3.1 The parties acknowledge that Electronic Data may be altered or corrupted, intentionally or otherwise, due to occurrences beyond their reasonable control or knowledge, including but not limited to compatibility issues with user software, manipulation by the recipient, errors in transcription or transmission, machine error, environmental factors, and operator error. Consequently, the parties understand that there is some level of increased risk in the use of Electronic Data for the communication of design and construction information and, in consideration of this, agree, and shall require their independent contractors, Subcontractors and Design Consultants to agree, to the following protocols, terms and conditions set forth in this Section 12.3.

12.3.2 Electronic Data will be transmitted in the format agreed upon in Section 12.2.1 above, including file conventions and document properties, unless prior arrangements are made in advance in writing.

12.3.3 The Electronic Data represents the information at a particular point in time and is subject to change. Therefore, the parties shall agree upon protocols for notification by the author to the recipient of any changes which may thereafter be made to the Electronic Data, which protocol shall also address the duty, if any, to update such information, data or other information contained in the electronic media if such information changes prior to Final Completion of the Project.

12.3.4 The transmitting party specifically disclaims all warranties, expressed or implied, including,

but not limited to, implied warranties of merchantability and fitness for a particular purpose, with respect to the media transmitting the Electronic Data. However, transmission of the Electronic Data via electronic means shall not invalidate or negate any duties pursuant to the applicable standard of care with respect to the creation of the Electronic Data, unless such data is materially changed or altered after it is transmitted to the receiving party, and the transmitting party did not participate in such change or alteration.

Article 13

Miscellaneous

13.1 Confidential Information.

13.1.1 Confidential Information is defined as information which is determined by the transmitting party to be of a confidential or proprietary nature and: (i) the transmitting party identifies as either confidential or proprietary; (ii) the transmitting party takes steps to maintain the confidential or proprietary nature of the information; and (iii) the document is not otherwise available in or considered to be in the public domain. The receiving party agrees to maintain the confidentiality of the Confidential Information and agrees to use the Confidential Information solely in connection with the Project. Confidential Information shall not include information that: (a) becomes part of the public domain, by publication or otherwise, through no unauthorized act or omission of the receiving party; (b) is lawfully in the receiving party's possession prior to disclosure; (c) is independently developed without use of the Confidential Information as demonstrated by documents or other written records and such records were created prior to the disclosure by the receiving party.

13.2 Assignment.

13.2.1 Neither Design-Builder nor Owner shall, without the written consent of the other assign, transfer or sublet any portion or part of the Work or the obligations required by the Contract Documents.

13.3 Successorship.

13.3.1 Design-Builder and Owner intend that the provisions of the Contract Documents are binding upon the parties, their employees, agents, heirs, successors and assigns.

13.4 Governing Law.

13.4.1 The Agreement and all Contract Documents shall be governed by the laws of the place of the Project, without giving effect to its conflict of law principles.

13.5 Severability.

13.5.1 If any provision or any part of a provision of the Contract Documents shall be finally determined to be superseded, invalid, illegal, or otherwise unenforceable pursuant to any applicable Legal Requirements, such determination shall not impair or otherwise affect the validity, legality, or enforceability of the remaining provision or parts of the provision of the Contract Documents, which shall remain in full force and effect as if the unenforceable provision or part were deleted.

13.6 No Waiver.

13.6.1 The failure of either Design-Builder or Owner to insist, in any one or more instances, on the performance of any of the obligations required by the other under the Contract Documents shall not be construed as a waiver or relinquishment of such obligation or right with respect to future performance.

13.7 Headings.

13.7.1 The headings used in these General Conditions of Contract, or any other Contract Document, are for ease of reference only and shall not in any way be construed to limit or alter the meaning of any provision.

13.8 Notice.

13.8.1 Whenever the Contract Documents require that notice be provided to the other party, notice will be deemed to have been validly given (i) if delivered in person to the individual intended to receive such notice, (ii) four (4) days after being sent by registered or certified mail, postage prepaid to the address indicated in the Agreement, or (iii) if transmitted by facsimile, by the time stated in a machine generated confirmation that notice was received at the facsimile number of the intended recipient.

13.9 Amendments.

13.9.1 The Contract Documents may not be changed, altered, or amended in any way except in writing signed by a duly authorized representative of each party.

SECTION 00 7300

SUPPLEMENTAL CONDITIONS

FORM OF GENERAL CONDITIONS

1.01 Special Reports

A. Attached is the geotechnical report for this project.

RELATED REQUIREMENTS

Not Used.

END OF DOCUMENT

Terracon GeoReport

Geotechnical Engineering Report

Niemann Foods Haymakers – Macon, Missouri
Macon, Missouri
June 27, 2016
Terracon Project No. 09165036

Prepared for:
Niemann Foods, Inc. (NFI)
Quincy, Illinois

Prepared by:
Terracon Consultants, Inc.
St. Louis, Missouri

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GENERAL COMMENTS

Our work was conducted with the understanding of the project as described in the proposal, and incorporated collaboration with the design team prior to completing our services. Terracon requested verification of all stated assumptions. Revision of our understanding to reflect actual conditions important to our work was based on these verifications and was reflected in the final report. The design team should also collaborate with Terracon to prepare the final design plans and specifications. This facilitates the incorporation of our opinions related to implementation of our geotechnical recommendations.

Our analysis and opinions are based upon our understanding of the geotechnical conditions in the area, the data obtained from the site exploration performed and from our understanding of the project. Variations can occur between exploration point locations, across the site, and due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. So, Terracon should be retained to provide observation and testing services during grading, excavation, foundation construction and other earth-related construction phases of the project. If variations appear, we can provide further evaluation and supplemental recommendations. If variations are noted in the absence of our observation and testing services on-site, we should be immediately notified so that we can provide evaluation and supplemental recommendations.

Our scope of services does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

Our services and any correspondence are intended for the exclusive use of our client for specific application to the project discussed and are accomplished in accordance with generally accepted geotechnical engineering practices. No warranties, either express or implied, are intended or made.

Site characteristics as provided are for design purposes and not to estimate construction costs. Any use of our report in that regard is done at the sole risk of the construction estimator as there may be variations on the site that are not apparent in the data that could significantly impact construction costs. Any parties charged with estimating construction costs should seek their own site characterization for those specific purposes to obtain the specific level of detail necessary for costing. Site safety, and cost estimating including, excavation support, and dewatering requirements/design are the responsibility of others. In the event that changes in the nature, design, or location of the project are planned, our conclusions and recommendations shall not be considered valid unless we review the changes and either verify or modify our conclusions in writing.

PROJECT DESCRIPTION

Our initial understanding of the project was provided in our proposal and was discussed in the project planning stage. A period of collaboration has transpired since the project was initiated and our final understanding of the project conditions is as follows:

Item	Description
Project location	The approximate address is 436 E Briggs Drive in Macon, Missouri. Latitude: 39.7515ºN Longitude: 92.4671ºW
Existing improvements	Existing asphalt and concrete from previous facilities. Some structural elements might be encountered from previous structures.
Current ground cover	Asphalt, concrete, gravel, and grass
Existing topography	The site is relatively level.
Proposed construction	We understand that a Haymakers convenience store with two fueling canopies will be constructed.
Proposed structure	The proposed one-story building will be approximately 100 feet by 50 feet. Two canopies are anticipated, one will have 3 pump islands and the other will have 5 pump islands.
Maximum loads (estimated by Terracon)	Wall loads: less than 1.5 kips/ft Column loads: less than 50 kips Floor loads: less than 150 psf
Grading	Less than 3 feet is anticipated.
Cut and fill slopes	None anticipated.
Retaining walls	None anticipated.

SITE CONDITIONS

The following description of site conditions is derived from our site visit in association with the field exploration and our review of publically available geologic and topographic maps.

Item	Description
Project location	The approximate address is 436 E. Briggs Drive in Macon, Missouri. Latitude: 39.7515ºN Longitude: 92.4671ºW
Existing improvements	Existing asphalt and concrete from previous facilities. Some structural elements might be encountered from previous structures.
Current ground cover	Asphalt, gravel, and grass
Existing topography	The site is relatively level.
Geology	Based on the 2003 Geologic Map of Missouri, Missouri Department of Natural Resources, bedrock at this site consists primarily of the Pennsylvanian aged Cherokee Group (Pc) and the Pennsylvanian aged Marmaton Group (Pm). The Cherokee Group is predominantly shale with minor amounts of carbonate and sandstone. This group contains most of the mineable coal beds in Missouri. The Marmaton Group consists of a succession of shale, limestone, clay, and coal beds.

EXPLORATION AND TESTING PROCEDURES

We have completed the following work scope for field exploration and laboratory testing for this project.

Field Exploration

Eight (8) borings, designated B-1 through B-8, were performed on the site. All of the borings were extended to 10 to 20 feet below the existing ground surface. No rock coring was performed.

The locations of the borings were estimated using a handheld GPS device and reference to available site features. The ground surface elevations at the boring locations were obtained using a surveyor's level and rod and were rounded to the nearest ½-foot. The elevations are referenced to the finished floor of the shop at the project site, which was assigned an elevation of 100.0 feet.

The borings were drilled with a CME 550X, ATV-mounted, rotary drill rig using continuous-flight, solid-stem augers to advance the boreholes through soils. Samples of the soils encountered in the borings were obtained using the split-barrel and thin-walled tube sampling procedures.

In the split-barrel sampling procedure, the number of blows required to advance a standard 2-inch O.D. split-barrel sampler the last 12 inches of the typical total 18-inch penetration by means of a 140-pound hammer with a free fall of 30 inches, is the standard penetration resistance (SPT N-value). This value is used to estimate the in-situ relative density of cohesionless soils and the consistency of cohesive soils.

A CME automatic SPT hammer was used to advance the split-barrel sampler in the borings performed on this site. A greater efficiency is achieved with the automatic hammer compared to the conventional safety hammer operated with a cathead and rope. This higher efficiency (90% for Drill Rig 960) has an appreciable effect on the SPT N-value. The effect of the automatic hammer's efficiency has been considered in the interpretation and analysis of the subsurface information for this report.

In the thin-walled tube sampling procedure, a seamless thin-walled steel tube with a sharpened beveled edge is pushed hydraulically into the cohesive or moderately cohesive soil at a selected depth at the base of the borehole. A relatively undisturbed sample of the soil is retained in the tube, and extracted in the laboratory for further testing.

The samples were tagged for identification, sealed to reduce moisture loss, and taken to our laboratory for further observation, testing, and classification. Information provided on the boring logs attached to this report includes soil descriptions, consistency evaluations, boring depths, sampling intervals, and groundwater conditions. The borings were backfilled with auger cuttings prior to the drill crew leaving the site.

A field log of each boring was prepared by the drill crew. These logs included visual classifications of the materials encountered during drilling as well as the driller's interpretation of the subsurface conditions between samples. Final boring logs included with this report represent the engineer's interpretation of the field logs and include modifications based on laboratory observation and tests of the samples.

Laboratory Testing

Soil samples were tested in the laboratory to measure their natural water content (ASTM D4959). The thin-walled tube samples were tested for dry density and unconfined compressive strength (ASTM D2166). A hand penetrometer was used to estimate the unconfined compressive strength of some cohesive samples. The hand penetrometer has been correlated with unconfined compression tests and provides a better estimate of soil consistency than visual examination alone. An Atterberg limits test (ASTM D4318) was performed on a selected sample.

As part of the testing program, samples were examined in our laboratory and classified in accordance with the General Notes and the Unified Soil Classification System (USCS) based on the material's texture and plasticity (ASTM D2487 and ASTM D2488). The USCS group symbol is shown on the boring logs, and a brief description of the USCS is included within this report.

Procedural standards noted above are for reference to methodology in general. In some cases, variations to methods are applied as a result of local practice or professional judgment.

GEOTECHNICAL OVERVIEW

The near surface soils predominantly consist of existing fill with lean and fat clays in most of the borings. Underlying the fill, native medium stiff to stiff, lean and fat clays with varying amounts of sand and gravel are generally present. A 2-foot thick, medium dense, clayey sand layer was encountered in Boring B-5 at a depth of 18 feet. Geotechnical considerations for this project are the presence of undocumented fill and high plastic clays and associated shrink-swell potential.

The **Shallow Foundation** section addresses support of the building bearing on native medium stiff to stiff native soil or engineered fill. The **Floor Slab** section addresses slab-on-grade support of the building.

Existing Undocumented Fill

Existing fill was encountered to a depth of approximately 2 to 3 feet in most of the borings. Deeper existing fill could be present elsewhere on the site. No documentation or records regarding the placement of this fill were provided for our review. If records are available, Terracon should be supplied with these documents to better assess the suitability of the existing fill. Further exploration and testing (e.g., borings, test pits) of the existing fill could be performed prior to construction, if requested.

Foundations for the new building or canopies should not bear on or above the undocumented fill materials. The existing fill could be removed and replaced so that the foundations and floor slabs for the new structure bear on properly placed and compacted engineered fill extending to suitable native soils. If the fill is completely removed and replaced, it should be removed within the proposed building footprint plus at least 5 feet outside of the building perimeter. The existing fill materials could be removed and re-used as fill elsewhere on-site.

Undocumented fill may contain soft or loose soils or other unsuitable materials and these conditions may not be disclosed by the widely-spaced, relatively small-diameter borings. If these conditions are present and are not discovered and corrected during construction, larger than normal settlement resulting in cracking, differential movement, or other damage could occur in floor slabs, pavements, and utility lines supported on or above the existing fill. Typically, larger than normal settlement of floor slabs results in reflective cracking of overlying rigid floor coverings (if any), unlevel floors, and “bumps” at locations of differential movement.

Provided the owner is willing to accept the risks associated with supporting floor slabs and/or pavements over the existing fill materials in exchange for reduced construction costs, portions of the existing undocumented fill could be left in place for support of floor slabs and new pavements. If this alternative is chosen, at least 24 inches and 12 inches of new engineered fill should be placed directly below the floor slab and pavement sections, respectively (building foundations should be extended through the existing fills to bear on native soils). If the owner is not willing to

accept the risks of supporting floor slabs and/or pavements over existing undocumented fill materials, the existing fill should be completely removed and replaced.

Swell Potential

The fat clay (CH) soils encountered in the borings are moderate to high in plasticity (PI≥25) and prone to volume change with variations in moisture content. For this reason, we recommend that at least the upper 24 inches of soil below the bottom of the floor slab consist of low plasticity (LP) material as defined in the **Earthwork** section of this report. The LP layer should also be confirmed or placed below other flatwork abutting the structure.

This report provides recommendations to help mitigate the effects of soil shrinkage and expansion. However, even if these procedures are followed, some movement and at least minor cracking in the structure could still occur. The severity of cracking and other cosmetic damage such as uneven floor slabs on grade will likely increase if any modification of the site results in excessive wetting or drying of the expansive soils. Eliminating the risk of movement and cosmetic distress may not be feasible, but it may be possible to further reduce the risk of movement if more extensive measures are used during construction. Additional reductions in potential floor slab movements could be achieved by using a thicker LP zone. LP material may be available on site, imported, or the high plasticity soils could be chemically modified to reduce their volume change susceptibility. We would be pleased to discuss other construction alternatives with you upon request.

Demolition of Existing Structures

Demolition of the existing building, retaining walls, etc. should include removal of all above- and below-grade elements including floor slabs, foundation walls, and footings. Attention should be given to removing all loose or poorly compacted existing fill materials that are often located adjacent to existing and former foundation walls.

All existing utilities should also be properly abandoned and/or relocated. This should include removal of all poorly compacted trench backfill extending into the proposed building area. In addition, care should be taken by contractors to protect all existing improvements to remain, such as pavements and utilities. Excavations created by demolition and removal of existing features should be backfilled with engineered fill that is placed and compacted as recommended in this report.

GEOTECHNICAL MODEL

Subsurface conditions on the project site can be generalized as follows:

Stratum	Approximate Depth to Bottom of Stratum (feet)	Boring	Material Description	Consistency/Density
Surface	0.3	B-1, B-2 and B-5	Asphalt	N/A
	0.5 to 1.0	B-2, B-3, B-5 and B-6	Aggregate base	
	0.3 to 0.4	B-7 and B-8	Top soil	
1	2 to 3	B-2, B-3, B-4, B-5, B-6 and B-8	Fill: Fat clay and lean clay with varying amounts of gravel	N/A
2	Undetermined[1]	All except B-1	Lean clay (CL) and Fat clay (CH), with varying amounts of	Medium stiff to stiff, with a soft zone in B-4
3	Undetermined[2]	B-1	Clayey sand (SC)	Medium dense

1. All the borings except B-1 were terminated at their proposed depths of 20 feet in this stratum.
2. Boring B-1 was terminated at its proposed depth of 20 feet in this stratum.

Conditions encountered at each boring location are indicated on the individual boring logs. Stratification boundaries on the boring logs represent the approximate location of changes in soil types; in situ, the transition between materials may be gradual. Details for each of the borings can be found in **Exploration Results**. A discussion of field sampling and laboratory testing procedures and test results are presented in **Exploration and Testing Procedures**.

Groundwater

The boreholes were observed while drilling and after completion for the presence and level of groundwater. Groundwater was encountered only in Boring B-5 at a depth of 16 feet while drilling. The absence of observed water does not necessarily mean that the boring terminated above the groundwater level. A relatively long period of time may be necessary for a groundwater level to develop and stabilize in a borehole. Long-term observations in piezometers or observation wells sealed from the influence of surface water are often required to define groundwater levels.

Groundwater level fluctuations occur due to seasonal variations, the amount of rainfall and runoff, and other factors not evident at the time the borings were performed. In addition, perched water can develop over or within cohesive materials. Therefore, groundwater levels during construction, or at other times in the life of the structure, may vary from the levels indicated on the boring logs.

The possibility of groundwater level fluctuations should be considered when developing the design and construction plans for the project.

SEISMIC CONSIDERATIONS

Based on the results of our site characterization program, we conclude that Site Class D is appropriate for the subject site.

Description	Value
2012 International Building Code Site Classification (IBC) [1]	D [2]
Site Latitude	39.7515º N
Site Longitude	92.4671º W
S_{DS} Spectral Acceleration for a Short Period [3]	0.128g
S_{D1} Spectral Acceleration for a 1-Second Period [3]	0.121g

1. In general accordance with the *2012 International Building Code*, Table 1613.5.2. IBC Site Class is based on the average characteristics of the upper 100 feet of the subsurface profile.
2. The *2012 International Building Code* (IBC) uses a site soil profile determination extending to a depth of 100 feet for seismic site classification. The current scope does not include a 100-foot soil profile determination. Borings were extended to a maximum depth of 20 feet. Additional exploration to deeper depths, or seismic velocity testing would be required to confirm the conditions below the current depth of exploration.
3. These values were obtained using online seismic design maps and tools provided by the USGS (http://earthquake.usgs.gov/hazards/designmaps/).

SITE PREPARATION

We anticipate construction will be initiated by removal of the existing pavement, and any vegetation that may be present in the construction area. After completing these operations, the exposed subgrade should be thoroughly proofrolled (under the observation of Terracon personnel) with a loaded tandem-axle dump truck, or other heavy, rubber-tired construction equipment weighing at least 20 tons, to locate any zones that are soft or unstable. Where excessive rutting or pumping occurs during proofrolling, the exposed subgrade should be removed and replaced or scarified/reworked and recompacted in place to the recommendations for structural fill (see below for details) prior to the placement of new fill.

Subsurface conditions, as identified by the field and laboratory testing programs, have been reviewed and evaluated with respect to the proposed project plans known to us at this time.

Soil Stabilization

Methods of subgrade improvement could include scarification, moisture conditioning and recompaction, removal of unstable materials and replacement with granular fill (with or without geosynthetics) and chemical stabilization. The appropriate method of improvement, if required, would be dependent on factors such as schedule, weather, the size of the area to be stabilized, and the nature of the instability. More detailed recommendations can be provided during construction as the need for subgrade stabilization occurs. Performing site grading operations during warm seasons and dry periods would help to reduce the amount of subgrade stabilization required.

If the exposed subgrade is unstable during proofrolling operations, it could be stabilized using one of the methods outlined below.

- **Scarification and Recompaction** – It may be feasible to scarify, dry, and recompact the exposed soils. The success of this procedure would depend primarily upon favorable weather and sufficient time to dry the soils. Stable subgrades likely would not be achievable if the thickness of the unstable soil is greater than about 1 foot, if the unstable soil is at or near groundwater levels, or if construction is performed during a period of wet or cool weather when drying is difficult.

- **Crushed Stone** – The use of crushed stone is the most common procedure to improve subgrade stability. Typical undercut depths would be expected to range from about 6 to 30 inches below finished subgrade elevation with this procedure. The use of high modulus geotextiles (i.e., engineering fabric or geogrid) could also be considered after underground work such as utility construction is completed. Prior to placing the fabric or geogrid, we recommend that all below-grade construction, such as utility line installation, be completed to avoid damaging the fabric or geogrid. Equipment should not be operated above the fabric or

geogrid until one full lift of crushed stone fill is placed above it. The maximum particle size of granular material placed over geotextile fabric or geogrid should meet the manufacturer's specifications, and generally should not exceed 1½ inches.

- **Chemical Stabilization** – Improvement of subgrades with Portland cement, lime kiln dust, Code L, or Class C fly ash could be considered for improving unstable soils. Chemical modification should be performed by a prequalified contractor having experience with successfully stabilizing subgrades in the project area on similar sized projects with similar soil conditions. Results of chemical analysis of the additive materials should be provided to the geotechnical engineer prior to use. The hazards of chemicals blowing across the site or onto adjacent property should also be considered. Additional testing would be needed to develop specific recommendations to improve subgrade stability by blending chemicals with the site soils. Additional testing could include, but not be limited to, evaluating various stabilizing agents, the optimum amounts required, the presence of sulfates in the soil, and freeze-thaw durability of the subgrade

Further evaluation of the need and recommendations for subgrade stabilization can be provided during construction as the geotechnical conditions are exposed.

Material Types

Compacted structural fill should meet the following material property requirements:

Fill Type [1]	USCS Classification	Acceptable Location for Placement
Moderate to High Plasticity Material [2]	CH or CL (LL≥45 or PI≥25)	Below upper 2 feet of all floor slabs or any other lightly loaded structures
Granular Material[3]	GM, GC, SM, or SC	All locations and elevations (must also meet LP material requirements for use in LP zone)
Low Plasticity (LP) Material[4]	CL (LL<45 & PI<25), Granular Material[3], lime-modified soil[5]	All locations and elevations

1. Controlled, compacted fill should consist of approved materials that are free of organic matter and debris. Frozen material should not be used, and fill should not be placed on a frozen subgrade. A sample of each material type should be submitted to the geotechnical engineer for evaluation.
2. Delineation of moderate to high plasticity clays should be performed in the field by a qualified geotechnical engineer or their representative, and could require additional laboratory testing.
3. Aggregate, limestone screenings, or granular material such as sand, gravel or crushed stone. Fines must be low plasticity. Granular LP materials must contain at least 15% fines, by weight.
4. The recommended moisture content and density of LP material placed within 24 inches of the bottom of foundations and slabs must be maintained prior to construction. Material should be approved by the geotechnical engineer.
5. The use of a lime-modified subgrade will require additional lab testing with the chosen chemical and site soils.

Compaction Requirements

Engineered fill should meet the following compaction requirements:

Item	Description
Fill Lift Thickness	9 inches or less in loose thickness when heavy, self-propelled compaction equipment is used 4 to 6 inches in loose thickness when hand-guided equipment (i.e., jumping jack or plate compactor) is used
Compaction Requirements [1]	At least 95% of the material's maximum standard Proctor dry density (ASTM D 698)
Moisture Content – Cohesive Soil	-1 to +3% of the optimum moisture content as determined by the standard Proctor test at the time of placement and compaction
Moisture Content – Granular Material	Workable moisture levels [2]

1. We recommend that compacted structural fill be tested for moisture content and compaction during placement. Should the results of the in-place density tests indicate the specified moisture or compaction limits have not been met, the area represented by the test should be reworked and retested as required until the specified moisture and compaction requirements are achieved.
2. Specifically, moisture levels should be maintained low enough to allow for satisfactory compaction to be achieved without the cohesionless fill material pumping when proofrolled.

Construction Observation and Testing

The exposed subgrade and each lift of compacted fill should be tested, evaluated, and reworked, as necessary, until approved by the geotechnical engineer's representative prior to placement of additional lifts. We recommend that each lift of fill be tested for density and moisture content at a frequency of one test for every 2,500 square feet of compacted fill in the building area and every 5,000 square feet outside of the building area. We recommend one density and moisture content test for every 50 linear feet of compacted utility trench backfill.

Utility Trench Backfill

All trench excavations should be made with sufficient working space to permit construction including backfill placement and compaction. Utility trenches should be capped with at least 18 inches of cohesive fill in non-pavement areas to reduce the infiltration and conveyance of surface water through the trench backfill.

Utility trenches are a common source of water infiltration and migration. All utility trenches that extend beneath the building should be effectively sealed to restrict water intrusion and flow

through the trenches that could migrate below the building. We recommend constructing an effective clay "trench plug" that extends at least 5 feet out from the face of the building exterior. The plug material should consist of lean clay compacted at a water content at or above the soil's optimum water content. The lean clay fill should be placed to completely surround the utility line and be compacted in accordance with the recommendations in this report.

Grading and Drainage

Final grades should slope away from the structure on all sides to prevent ponding of water. Gutters and downspouts should drain water a minimum of 10 feet beyond the footprint of the proposed structure. This can be accomplished through the use of splash-blocks, downspout extensions, and flexible pipes that are designed to attach to the end of the downspout. Flexible pipe should only be used if it is daylighted in such a manner that it gravity-drains collected water. Splash-blocks should also be considered below hose bibs and water spigots.

Trees or other vegetation whose root systems have the ability to remove excessive moisture from the subgrade and foundation soils should not be planted next to the structure. Trees and shrubbery should be kept away from the exterior of the structure a distance at least equal to their expected mature height.

Earthwork Construction Considerations

Upon completion of filling and grading, care should be taken to maintain the subgrade moisture content prior to construction of floor slabs. Construction traffic over the completed subgrades should be avoided to the extent practical. The site should also be graded to prevent ponding of surface water on the prepared subgrades or in excavations. If the subgrade should become excessively wet or dry, frozen, or disturbed, the affected material should be removed or these materials should be scarified, moisture conditioned, and recompacted prior to floor slab construction.

Surface water should not be allowed to pond on the site and soak into the soil during construction. Construction staging should provide drainage of surface water and precipitation away from the building areas. Any water that collects over or adjacent to construction areas should be promptly removed, along with any softened or disturbed soils. Surface water control in the form of sloping surfaces, drainage ditches and trenches, and sump pits and pumps will be important to avoid ponding and associated delays due to precipitation and seepage.

As indicated in the **Geotechnical Model**, groundwater was observed in only in Boring B-5 while drilling and could be anticipated that the groundwater table could rise and affect overexcavation efforts, especially for overexcavation and replacement of lower strength soils. A temporary dewatering system consisting of sumps with pumps could be necessary to achieve the recommended depth of overexcavation.

As a minimum, excavations should be performed in accordance with OSHA 29 CFR, Part 1926, Subpart P, “Excavations” and its appendices, and in accordance with any applicable local, state, and federal safety regulations. The contractor should be aware that slope height, slope inclination, and excavation depth should in no instance exceed those specified by these safety regulations. Flatter slopes than those dictated by these regulations may be required depending upon the soil conditions encountered and other external factors. These regulations are strictly enforced and if they are not followed, the owner, contractor, and/or earthwork and utility subcontractor could be liable and subject to substantial penalties.

Construction site safety is the sole responsibility of the contractor who controls the means, methods, and sequencing of construction operations. Under no circumstances shall the information provided herein be interpreted to mean that Terracon is assuming any responsibility for construction site safety or the contractor's activities; such responsibility shall neither be implied nor inferred.

Terracon should be retained during the construction phase of the project to observe earthwork and to perform necessary tests and observations during subgrade preparation, proofrolling, placement and compaction of controlled compacted fills, backfilling of excavations into the completed subgrade, and just prior to construction of building floor slabs.

SHALLOW FOUNDATIONS

Design Parameters

Parameter	Isolated Columns	Continuous
Maximum net allowable bearing pressure	2,500 psf	2,500 psf
Required bearing stratum [2]	Existing native soils or newly placed compacted structural fill. Bearing stratum should be observed by Terracon.	
Minimum foundation dimensions	30 inches	18 inches
Ultimate passive pressure [3]	300 pcf, equivalent fluid density	
Ultimate coefficient of sliding friction [3]	0.35	
Minimum embedment below finished grade [4]	30 inches	30 inches
Est. total settlement from structural loads [5]	Less than about 1 inch	
Estimated differential settlement [5]	About three-fourths (3/4) of total settlement	

1. The maximum net allowable bearing pressure is the pressure in excess of the minimum surrounding overburden pressure at the footing base elevation. A factor of safety of 3 has been applied. These bearing pressure values can be increased by 1/3 for transient loads.
2. Assumes any unsuitable or soft soils, if encountered, will be undercut and replaced with compacted structural fill.
3. The shallow foundation excavation sides must be nearly vertical and the concrete should be placed neat against these vertical faces for the passive earth pressure values to be valid. Passive resistance in the upper 2½ feet of the soil profile should be neglected. If passive resistance is used to resist lateral loads, the base friction should be neglected. A factor of safety of at least 2.0 should be applied to this value when designing for lateral force resistance.
4. For frost protection and to reduce the effects of seasonal moisture variations in the subgrade soils. For perimeter footings and footings beneath unheated areas.
5. Settlements as a result of the structural loads as noted in **Project Description**. Additional settlements will occur from the placement of fill.

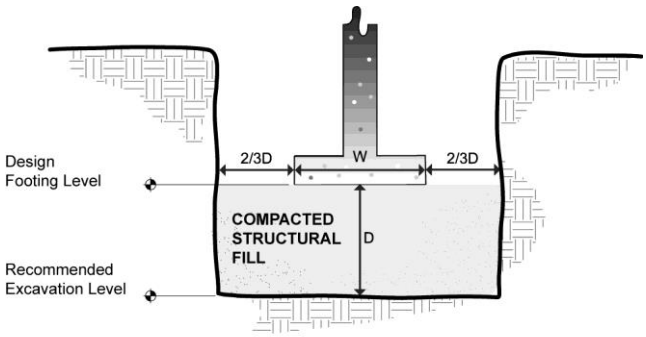
Foundation Construction Considerations

The base of all foundation excavations should be free of water and loose soil prior to placing concrete. Concrete should be placed soon after excavating to reduce bearing soil disturbance. If the soils at the bearing level become excessively dry, wet, frozen, or otherwise disturbed, the affected soil should be removed prior to placing concrete. A lean concrete mud-mat should be placed over the bearing soils if the excavations must remain open for an extended period of time.

It is recommended that the geotechnical engineer be retained to observe and test the foundation bearing materials.

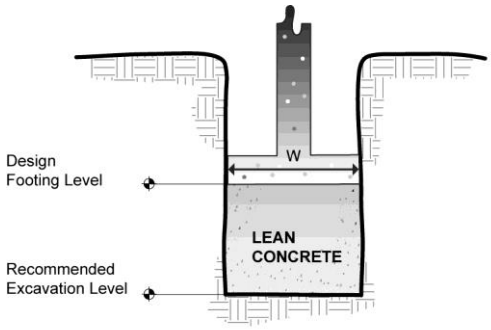
Although groundwater was not encountered in the borings at depths expected to affect foundation excavations, it could still be encountered during foundation excavation or in other excavation activities. In addition, some surface and/or perched groundwater may enter foundation excavations during construction. It is anticipated any water entering foundation excavations from these sources can be removed using sump pumps or gravity drainage. Additional measures may be required if greater inflow occurs.

If unsuitable bearing soils are encountered in footing excavations, the excavation could be extended deeper to suitable soils. The footing could then bear directly on these soils at the lower level or on lean concrete backfill placed in the excavations. As an alternative, the footings could also bear on properly compacted structural backfill extending down to the suitable soils. Overexcavation for compacted structural fill placement below footings should extend laterally beyond all edges of the footings at least 8 inches per foot of overexcavation depth below footing base elevation. The overexcavation should then be backfilled per recommendations provided in **Site Preparation** up to the footing base elevation. The overexcavation and backfill procedure is illustrated in the following figure.



Overexcavation / Backfill

NOTE: Excavations in sketches shown vertical for convenience. Excavations should be sloped as necessary for safety.



Lean Concrete Backfill

NOTE: Excavations in sketches shown vertical for convenience. Excavations should be sloped as necessary for safety.

FLOOR SLABS

Design Parameters

Item	Description
Floor slab support	24-inch LP zone and special subgrade preparation [1]
Modulus of subgrade reaction	150 pounds per square inch per inch (psi/in) for point loading conditions [2]
Aggregate base course/capillary break [3]	4 inches of free draining granular material

1. If the subgrade should become excessively wet or dry prior to construction of floor slabs, the affected material should be removed or the materials scarified, moisture conditioned, and recompacted. Upon completion of grading operations in the building areas, care should be taken to maintain the recommended subgrade moisture content and density until construction of the building floor slabs.
2. Value is based on the recommended LP zone.
3. The floor slab design should include a capillary break, comprised of free-draining, compacted, granular material, at least 4 inches thick and can be considered as part of the LP zone. Free-draining granular material should have less than 5 percent fines (material passing the #200 sieve). Other design considerations such as cold temperatures and condensation development could warrant more extensive design provisions.

Where appropriate, saw-cut control joints should be placed in the slab to help control the location and extent of cracking. For additional recommendations refer to the ACI Design Manual. Joints or any cracks that develop should be sealed with a water-proof, non-extruding compressible compound.

The use of a vapor retarder should be considered beneath concrete slabs on grade that will be covered with wood, tile, carpet or other moisture sensitive or impervious coverings, or when the slab will support equipment sensitive to moisture. When conditions warrant the use of a vapor retarder, the slab designer should refer to ACI 302 and/or ACI 360 for procedures and cautions regarding the use and placement of a vapor retarder.

Floor Slab Construction Considerations

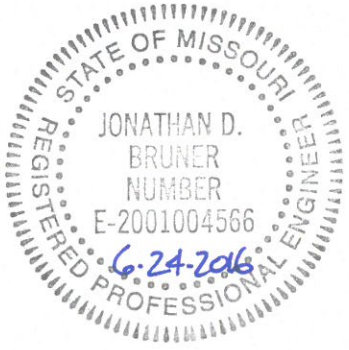
On most projects, site grading is generally accomplished early in the construction phase. However as construction proceeds, the subgrade may be disturbed due to utility excavations, construction traffic, desiccation, rainfall, etc. As a result, the floor slab subgrade may not be suitable for placement of base rock and concrete, and corrective action may be required.

Prior to placement of the base aggregate, we recommend that the floor slab subgrade be rough graded and then thoroughly evaluated for stability, uniformity and moisture condition. If there is no conflict with installed utilities, we recommend the subgrade be proofrolled. Granular soils

should be proofrolled and densified by using a heavy, smooth drum, vibratory roller (minimum 10-ton). Proofrolling in clay soils can be performed with a loaded, tandem-axle dump truck. During the evaluations, particular attention should be paid to high traffic areas that were rutted and disturbed earlier and to areas where backfilled trenches are located. Areas where unsuitable conditions are located should be repaired by removing and replacing the affected material with properly compacted fill. All floor slab subgrade areas should be moisture conditioned and properly compacted to the recommendations in this report immediately prior to placement of the aggregate base and concrete.

Report written by:

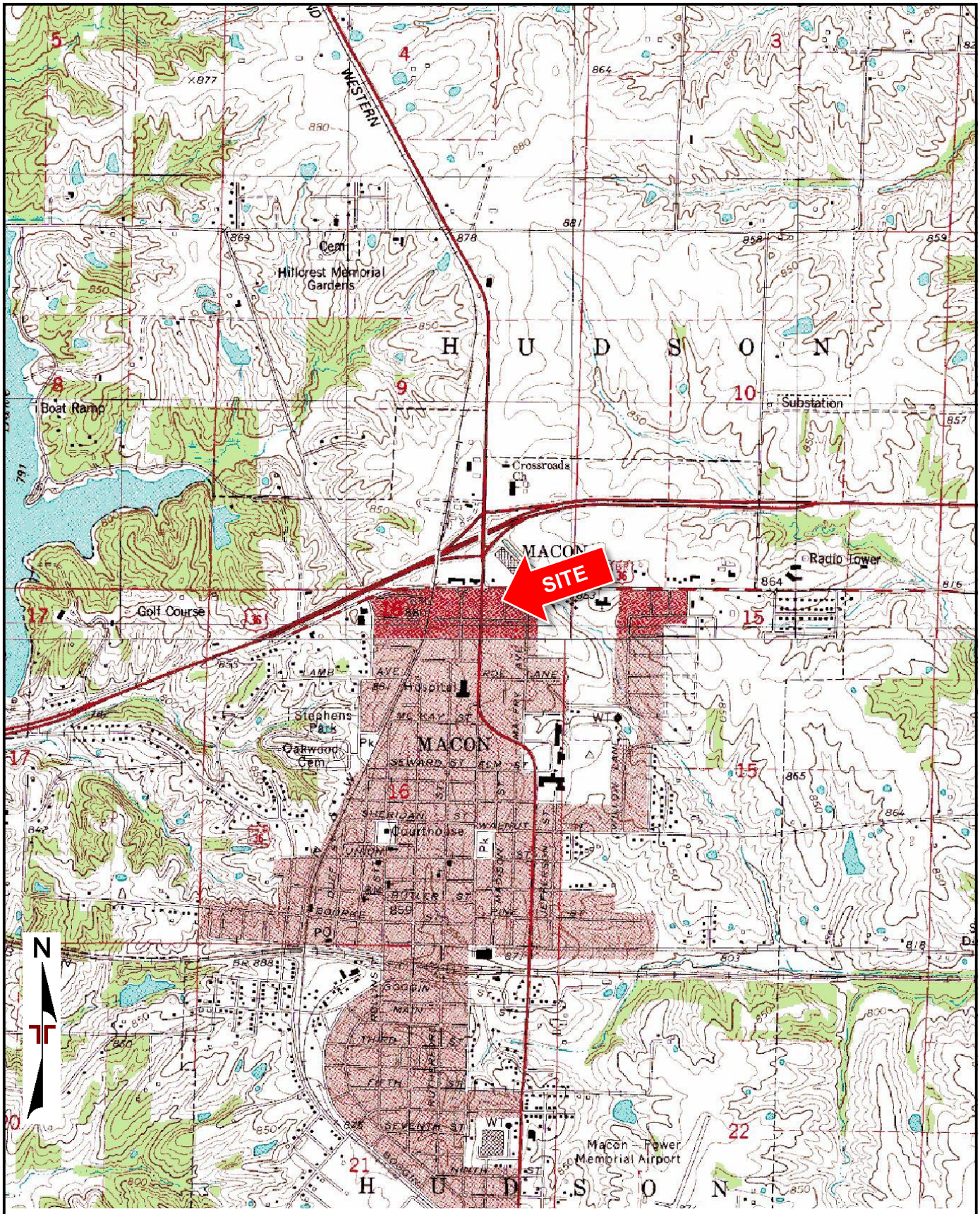
P. Ben Luetkemeyer, R.G.
Senior Staff Geophysicist



I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Missouri.

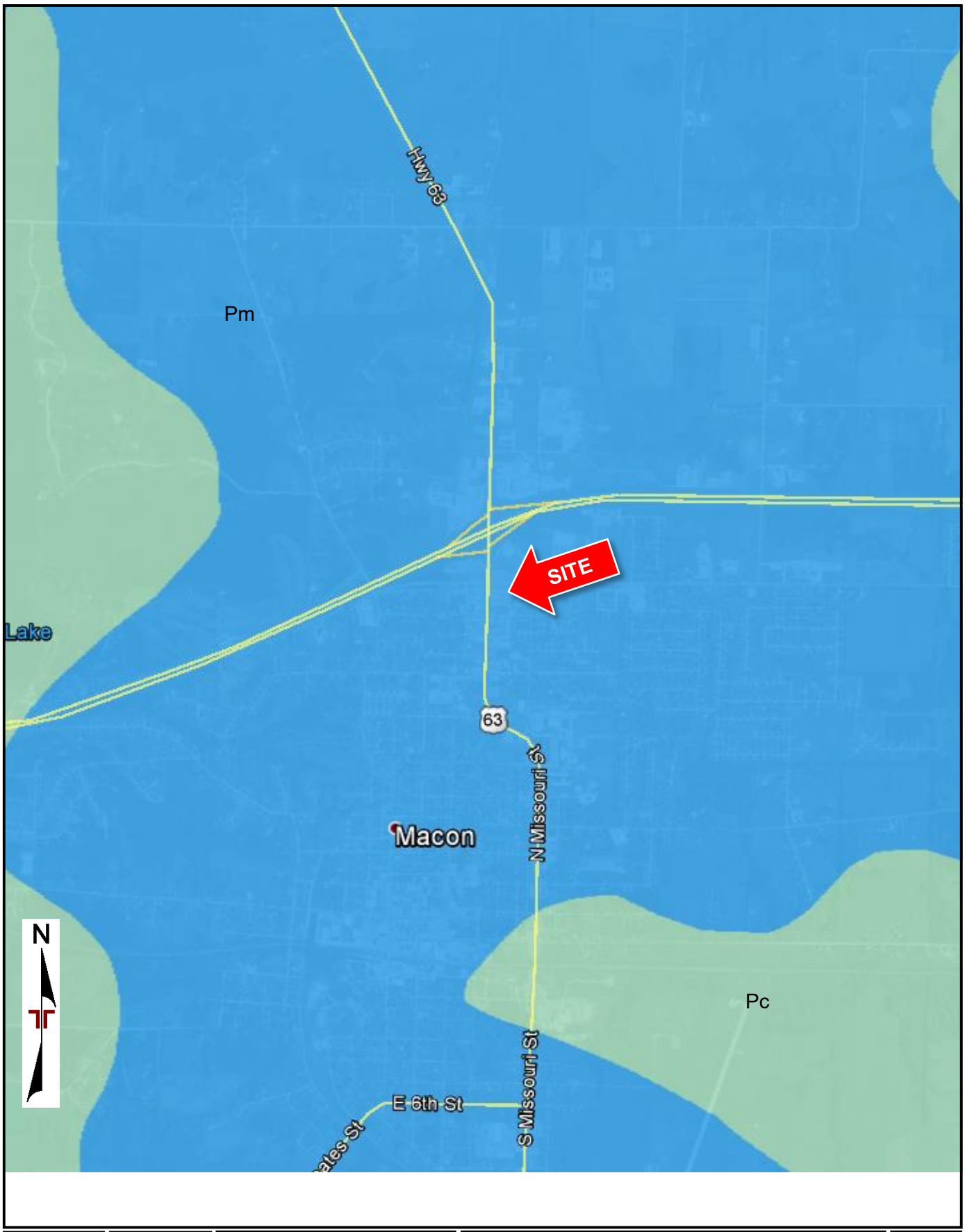
Jonathon D. Bruner, P.E. Date 6/24/2016

My license renewal date is December 31, 2017.



TOPOGRAPHIC MAP IMAGE COURTESY OF THE U.S. GEOLOGICAL SURVEY
QUADRANGLES INCLUDE: AXTELL, MO (1/1/1979) and MACON, MO (1/1/1971).

Project Manager: BWR	Project No. 09165036	Terracon 3601 Mojave Ct Ste A Columbia, MO 65202-4043	SITE LOCATION	Exhibit
Drawn by: SM	Scale: 1"=2,000'		Niemann Foods Haymakers 436 E Briggs Drive Macon, Missouri	A-1
Checked by: AGM	File Name: 09165036.A-1-3			
Approved by: AGM	Date: 6-9-2016			



Project Manager: BWR Drawn by: SM Checked by: AGM Approved by: AGM	Project No. 09165036 Scale: NTS File Name: 09165036.A-1-3 Date: 6-9-2016	Terracon 3601 Mojave Ct Ste A Columbia, MO 65202-4043	GEOLOGIC MAP Niemann Foods Haymakers 436 E Briggs Drive Macon, Missouri	Exhibit A-2

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

AERIAL PHOTOGRAPHY PROVIDED BY MICROSOFT BING MAPS

Project Manager: BWR Drawn by: SM Checked by: AGM Approved by: AGM	Project No. 09165036 Scale: AS SHOWN File Name: 09165036.A- Date: 6-9-2016	Terracon 3601 Mojave Ct Ste A Columbia, MO 65202-4043	EXPLORATION PLAN Niemann Foods Haymakers 436 E Briggs Drive Macon, Missouri	Exhibit A-3

Project Manager: BWR	Project No. 09165036	Terracon 3601 Mojave Ct Ste A Columbia, MO 65202-4043	BORING LOCATION DIAGRAM Niemann Foods Haymakers 436 E Briggs Drive Macon, Missouri
Drawn by: SM	Scale: NTS		
Checked by: AGM	File Name: 09165036.A-		
Approved by: AGM	Date: 6-9-2016		

Exhibit

A-4

BORING LOG NO. B-1

PROJECT: Niemann Foods Haymakers

CLIENT: Niemann Foods, Inc.
Quincy, Illinois

SITE: 436 E Briggs Drive
Macon, Missouri

LOCATION See Exhibit A-2

Latitude: 39.75158896° Longitude: -92.46697015°

Surface Elev.: 115.4 (Ft.)

DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	SAMPLE NUMBER	LABORATORY TORVANE/HP (psf)	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
0.3	115											
ASPHALT												
FAT CLAY (CH), greenish gray, medium stiff				X	12	1-3-4 N=7	1	3000 (HP)		31		82-23-59
3.0	112.5											
LEAN CLAY (CL), brown and gray, medium stiff		5		X	15	2-2-3 N=5	2	3000 (HP)		21		
				X	16	3-3-3 N=6	3	3000 (HP)		24		
8.0	107.5											
FAT CLAY (CH), gray, medium stiff to stiff		10		X	18	3-3-4 N=7	4	5000 (HP)		22		
trace sand		15		X	18	4-5-6 N=11	5	7500 (HP)		22		
trace gravel and sand, gray and brown												
18.0	97.5											
CLAYEY SAND (SC), brown and gray, medium dense		20		X	10	3-5-6 N=11	6	5000 (HP)		17		
20.0	95.5											
Boring Terminated at 20 Feet												

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic SPT Hammer

Advancement Method:
Solid-Stem Auger

Abandonment Method:
Boring backfilled with soil cuttings upon completion.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
11600 Lilburn Park Rd
Saint Louis, MO

Boring Started: 5/31/2016 | Boring Completed: 5/31/2016

Drill Rig: CME-550 | Driller: SB

Project No.: 09165036 | Exhibit: A-5

BORING LOG NO. B-2

PROJECT: Niemann Foods Haymakers

CLIENT: Niemann Foods, Inc.
Quincy, Illinois

SITE: 436 E Briggs Drive
Macon, Missouri

LOCATION See Exhibit A-2

Latitude: 39.75146666° Longitude: -92.46706957°

Surface Elev.: 114.7 (Ft.)

DEPTH	ELEVATION (Ft.)	Description
0.3	114.5	**4" Asphalt**
0.8	114	**4" Aggregate base**
		FILL - FAT CLAY, greenish gray
3.0	111.5	
		LEAN CLAY (CL), gray brown, medium stiff to stiff
8.0	106.5	
		FAT CLAY (CH), gray, stiff
		trace gravel
18.0	96.5	
		LEAN CLAY (CL), with sand, gray, stiff
20.0	94.5	
		Boring Terminated at 20 Feet

DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	SAMPLE NUMBER	LABORATORY TORVANE/HP (psf)	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
			8	2-2-3 N=5	1	3000 (HP)		35		
5			12		2	3000 (HP)	2728	27	99	
			18	2-3-3 N=6	3	5000 (HP)		22		
10			16	3-4-5 N=9	4	3000 (HP)				
15			18	3-4-6 N=10	5	4000 (HP)				
20			16	3-4-5 N=9	6	2000 (HP)		19		

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic SPT Hammer

Advancement Method:
Solid-Stem Auger

Abandonment Method:
Boring backfilled with soil cuttings upon completion.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
11600 Lilburn Park Rd
Saint Louis, MO

Boring Started: 5/31/2016 | Boring Completed: 5/31/2016

Drill Rig: CME-550 | Driller: SB

Project No.: 09165036 | Exhibit: A-6

BORING LOG NO. B-3

PROJECT: Niemann Foods Haymakers

CLIENT: Niemann Foods, Inc.
Quincy, Illinois

SITE: 436 E Briggs Drive
Macon, Missouri

LOCATION See Exhibit A-2

Latitude: 39.75135136° Longitude: -92.46717932°

Surface Elev.: 114.6 (Ft.)

DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	SAMPLE NUMBER	LABORATORY TORVANE/HP (psf)	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
0.8	114											
4" Aggregate base												
				X	7	1-2-3 N=5	1	3000 (HP)		38		
3.0	111.5											
LEAN CLAY, gray, medium stiff to very stiff				X	13	4-5-6 N=11	2	2000 (HP)		27		
		5										
trace brown				■	24		3	4000 (HP)	3085	22	109	
				X	0	2-3-3 N=6	4					
		10										
trace sand and gravel				X	18	4-5-7 N=12	5	3000 (HP)		19		
		15										
20.0	94.5			X	18	3-4-5 N=9	6	5500 (HP)		19		
		20										
Boring Terminated at 20 Feet												

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic SPT Hammer

Advancement Method:
Solid-Stem Auger

Abandonment Method:
Boring backfilled with soil cuttings upon completion.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
11600 Lilburn Park Rd
Saint Louis, MO

Boring Started: 5/31/2016 | Boring Completed: 5/31/2016

Drill Rig: CME-550 | Driller: SB

Project No.: 09165036 | Exhibit: A-7

BORING LOG NO. B-4

PROJECT: Niemann Foods Haymakers

CLIENT: Niemann Foods, Inc.
Quincy, Illinois

SITE: 436 E Briggs Drive
Macon, Missouri

LOCATION See Exhibit A-2

Latitude: 39.75168209° Longitude: -92.46746091°

Surface Elev.: 115.5 (Ft.)

DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	SAMPLE NUMBER	LABORATORY TORVANE/HP (psf)	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
2.0	113.5			X	6	1-2-3 N=5	1	3000 (HP)		29		
				X	10	2-3-3 N=6	2	2000 (HP)		21		
6.0	109.5	5										
				X	18	2-3-3 N=6	3	2000 (HP)		27		
				X	18	4-6-6 N=12	4	2500 (HP)		26		
13.0	102.5	10										
				X	18	2-3-3 N=6	5	4000 (HP)		20		
		15										
				X	18	4-7-7 N=14	6	7000 (HP)		15		
20.0	95.5	20										

FILL - LEAN CLAY, trace crushed limestone, gray brown

LEAN CLAY (CL), gray, medium stiff

FAT CLAY (CH), trace sand and gravel, brown and gray, medium stiff to stiff

LEAN CLAY (CL), with sand and gravel, brown and gray, stiff

Boring Terminated at 20 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic SPT Hammer

Advancement Method:
Solid-Stem Auger

Abandonment Method:
Boring backfilled with soil cuttings upon completion.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
11600 Lilburn Park Rd
Saint Louis, MO

Boring Started: 5/31/2016 | Boring Completed: 5/31/2016

Drill Rig: CME-550 | Driller: SB

Project No.: 09165036 | Exhibit: A-8

BORING LOG NO. B-5

PROJECT: Niemann Foods Haymakers

CLIENT: Niemann Foods, Inc.
Quincy, Illinois

SITE: 436 E Briggs Drive
Macon, Missouri

LOCATION See Exhibit A-2

Latitude: 39.75147471° Longitude: -92.46748052°

Surface Elev.: 115.2 (Ft.)

DEPTH	ELEVATION (Ft.)	Description
0.3	115	**4" Asphalt**
0.7	114.5	**4" Aggregate base**
2.0	113	**FILL - FAT CLAY**, greenish gray
8.0	107	**LEAN CLAY (CL)**, gray and brown, medium stiff to stiff
13.0	102	**FAT CLAY (CH)**, trace sand and gravel, gray and brown, stiff
20.0	95	**LEAN CLAY (CL)**, trace sand and gravel, brown, medium stiff to stiff
		Boring Terminated at 20 Feet

DEPTH (Ft.)	RECOVERY (In.)	FIELD TEST RESULTS	SAMPLE NUMBER	LABORATORY TORVANE/HP (psf)	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
	12	2-4-4 N=8	1	3000 (HP)		31		
5	18	5-5-5 N=10	2	3000 (HP)		26		
	18	2-2-3 N=5	3	2000 (HP)		23		
10	24		4	5000 (HP)	2874	23	104	
	18	4-5-6 N=11	5	6000 (HP)		21		
15								
	16	2-3-3 N=6	6	2000 (HP)		21		
20								

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic SPT Hammer

Advancement Method:
Solid-Stem Auger

Abandonment Method:
Boring backfilled with soil cuttings upon completion.

Notes:

WATER LEVEL OBSERVATIONS

While drilling

Terracon
11600 Lilburn Park Rd
Saint Louis, MO

Boring Started: 5/31/2016 | Boring Completed: 5/31/2016

Drill Rig: CME-550 | Driller: SB

Project No.: 09165036 | Exhibit: A-9

BORING LOG NO. B-6

PROJECT: Niemann Foods Haymakers

CLIENT: Niemann Foods, Inc.
Quincy, Illinois

SITE: 436 E Briggs Drive
Macon, Missouri

LOCATION See Exhibit A-2

Latitude: 39.75128578° Longitude: -92.46753017°

Surface Elev.: 115.3 (Ft.)

DEPTH	ELEVATION (Ft.)	Description
0.5	115	**4" Aggregate base**
		FILL - FAT CLAY, trace crushed limestone, reddish brown
3.0	112.5	
		LEAN CLAY (CL), gray, medium stiff to stiff
		brown
12.0	103.5	
		LEAN CLAY (CL), trace sand, fine grained, brown and gray, medium stiff to stiff
20.0	95.5	
		Boring Terminated at 20 Feet

DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	SAMPLE NUMBER	LABORATORY TORVANE/HP (psf)	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
			13	2-2-4 N=6	1	3000 (HP)		33		
5			15	3-4-4 N=8	2	4000 (HP)		27		
			18	3-3-3 N=6	3	3000 (HP)		25		
10			18	2-3-4 N=7	4	6000 (HP)		24		
15			18	4-6-8 N=14	5	8000 (HP)	2874	19	104	
20			18	3-4-4 N=8	6	7000 (HP)		18		

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic SPT Hammer

Advancement Method:
Solid-Stem Auger

Abandonment Method:
Boring backfilled with soil cuttings upon completion.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
11600 Lilburn Park Rd
Saint Louis, MO

Boring Started: 5/31/2016 | Boring Completed: 5/31/2016

Drill Rig: CME-550 | Driller: SB

Project No.: 09165036 | Exhibit: A-10

BORING LOG NO. B-7

PROJECT: Niemann Foods Haymakers

CLIENT: Niemann Foods, Inc.
Quincy, Illinois

SITE: 436 E Briggs Drive
Macon, Missouri

LOCATION See Exhibit A-2

Latitude: 39.75110507° Longitude: -92.46723287°

Surface Elev.: 115.4 (Ft.)

GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	SAMPLE NUMBER	LABORATORY TORVANE/HP (psf)	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
	0.3	115											
4" Topsoil													
FAT CLAY (CH), gray and brown, medium stiff					X	12	2-2-3 N=5	1	4000 (HP)		41		
	3.0	112.5											
LEAN CLAY (CL), gray and brown, medium stiff													
			5		X	18	2-3-3 N=6	2	3000 (HP)		28		
					X	18	2-2-3 N=5	3	3000 (HP)		23		
					X	18	2-3-4 N=7	4	3000 (HP)		24		
	10.0	105.5	10										
Boring Terminated at 10 Feet													

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic SPT Hammer

Advancement Method:
Solid-Stem Auger

Abandonment Method:
Boring backfilled with soil cuttings upon completion.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
11600 Lilburn Park Rd
Saint Louis, MO

Boring Started: 5/31/2016	Boring Completed: 5/31/2016
Drill Rig: CME-550	Driller: SB
Project No.: 09165036	Exhibit: A-11

BORING LOG NO. B-8

PROJECT: Niemann Foods Haymakers

CLIENT: Niemann Foods, Inc.
Quincy, Illinois

SITE: 436 E Briggs Drive
Macon, Missouri

LOCATION See Exhibit A-2

Latitude: 39.75096874° Longitude: -92.46716359°

Surface Elev.: 116.7 (Ft.)

DEPTH	ELEVATION (Ft.)	Description
0.4	116.5	**5" Topsoil**
		FILL - LEAN CLAY, trace gravel, dark brown
2.0	114.5	
		LEAN CLAY (CL), gray and brown, medium stiff to stiff
8.0	108.5	
		FAT CLAY (CH), gray and brown, stiff
10.0	106.5	
		Boring Terminated at 10 Feet

DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	SAMPLE NUMBER	LABORATORY TORVANE/HP (psf)	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
			16	2-2-2 N=4	1	3000 (HP)		38		
5			16	4-4-5 N=9	2	3000 (HP)		26		
			18	2-3-3 N=6	3	5500 (HP)		22		
10			16		4	3000 (HP)	3649	24	104	

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic SPT Hammer

Advancement Method:
Solid-Stem Auger

Abandonment Method:
Boring backfilled with soil cuttings upon completion.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

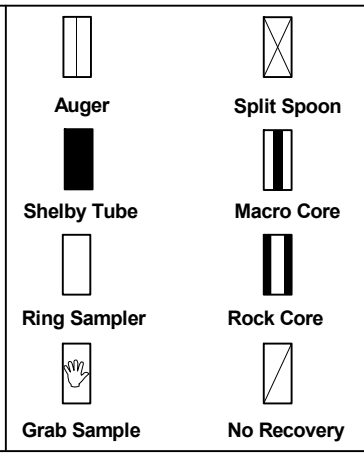
Terracon
11600 Lilburn Park Rd
Saint Louis, MO

Boring Started: 5/31/2016	Boring Completed: 5/31/2016
Drill Rig: CME-550	Driller: SB
Project No.: 09165036	Exhibit: A-12

GENERAL NOTES

DESCRIPTION OF SYMBOLS AND ABBREVIATIONS

SAMPLING



WATER LEVEL

Water Initially Encountered

Water Level After a Specified Period of Time

Water Level After a Specified Period of Time

Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.

FIELD TESTS

(HP)	Hand Penetrometer
(T)	Torvane
(b/f)	Standard Penetration Test (blows per foot)
(PID)	Photo-Ionization Detector
(OVA)	Organic Vapor Analyzer

DESCRIPTIVE SOIL CLASSIFICATION

Soil classification is based on the Unified Soil Classification System. Coarse Grained Soils have more than 50% of their dry weight retained on a #200 sieve; their principal descriptors are: boulders, cobbles, gravel or sand. Fine Grained Soils have less than 50% of their dry weight retained on a #200 sieve; they are principally described as clays if they are plastic, and silts if they are slightly plastic or non-plastic. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size. In addition to gradation, coarse-grained soils are defined on the basis of their in-place relative density and fine-grained soils on the basis of their consistency.

LOCATION AND ELEVATION NOTES

Unless otherwise noted, Latitude and Longitude are approximately determined using a hand-held GPS device. The accuracy of such devices is variable. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

STRENGTH TERMS

RELATIVE DENSITY OF COARSE-GRAINED SOILS (More than 50% retained on No. 200 sieve.) Density determined by Standard Penetration Resistance			CONSISTENCY OF FINE-GRAINED SOILS (50% or more passing the No. 200 sieve.) Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance			
Descriptive Term (Density)	**Standard Penetration or N-Value Blows/Ft.**	**Ring Sampler Blows/Ft.**	**Descriptive Term (Consistency)**	**Unconfined Compressive Strength, Qu, psf**	**Standard Penetration or N-Value Blows/Ft.**	**Ring Sampler Blows/Ft.**
Very Loose	0 - 3	0 - 6	Very Soft	less than 500	0 - 1	< 3
Loose	4 - 9	7 - 18	Soft	500 to 1,000	2 - 4	3 - 4
Medium Dense	10 - 29	19 - 58	Medium-Stiff	1,000 to 2,000	4 - 8	5 - 9
Dense	30 - 50	59 - 98	Stiff	2,000 to 4,000	8 - 15	10 - 18
Very Dense	> 50	≥ 99	Very Stiff	4,000 to 8,000	15 - 30	19 - 42
			Hard	> 8,000	> 30	> 42

RELATIVE PROPORTIONS OF SAND AND GRAVEL

Descriptive Term(s) of other constituents	Percent of Dry Weight
Trace	< 15
With	15 - 29
Modifier	> 30

GRAIN SIZE TERMINOLOGY

Major Component of Sample	Particle Size
Boulders	Over 12 in. (300 mm)
Cobbles	12 in. to 3 in. (300mm to 75mm)
Gravel	3 in. to #4 sieve (75mm to 4.75 mm)
Sand	#4 to #200 sieve (4.75mm to 0.075mm
Silt or Clay	Passing #200 sieve (0.075mm)

RELATIVE PROPORTIONS OF FINES

Descriptive Term(s) of other constituents	Percent of Dry Weight
Trace	< 5
With	5 - 12
Modifier	> 12

PLASTICITY DESCRIPTION

Term	Plasticity Index
Non-plastic	0
Low	1 - 10
Medium	11 - 30
High	> 30

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UNIFIED SOIL CLASSIFICATION SYSTEM

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests [A]					Soil Classification	
					Group Symbol	Group Name [B]
Coarse Grained Soils: More than 50% retained on No. 200 sieve	**Gravels:** More than 50% of coarse fraction retained on No. 4 sieve	**Clean Gravels:** Less than 5% fines [C]	$Cu \geq 4$ and $1 \leq Cc \leq 3$ [E]		GW	Well-graded gravel [F]
			$Cu < 4$ and/or $1 > Cc > 3$ [E]		GP	Poorly graded gravel [F]
		Gravels with Fines: More than 12% fines [C]	Fines classify as ML or MH		GM	Silty gravel [F,G,H]
			Fines classify as CL or CH		GC	Clayey gravel [F,G,H]
	Sands: 50% or more of coarse fraction passes No. 4 sieve	**Clean Sands:** Less than 5% fines [D]	$Cu \geq 6$ and $1 \leq Cc \leq 3$ [E]		SW	Well-graded sand [I]
			$Cu < 6$ and/or $1 > Cc > 3$ [E]		SP	Poorly graded sand [I]
		Sands with Fines: More than 12% fines [D]	Fines classify as ML or MH		SM	Silty sand [G,H,I]
			Fines classify as CL or CH		SC	Clayey sand [G,H,I]
Fine-Grained Soils: 50% or more passes the No. 200 sieve	**Silts and Clays:** Liquid limit less than 50	**Inorganic:**	PI > 7 and plots on or above "A" line [J]		CL	Lean clay [K,L,M]
			PI < 4 or plots below "A" line [J]		ML	Silt [K,L,M]
		Organic:	Liquid limit - oven dried	< 0.75	OL	Organic clay [K,L,M,N]
			Liquid limit - not dried			Organic silt [K,L,M,O]
	Silts and Clays: Liquid limit 50 or more	**Inorganic:**	PI plots on or above "A" line		CH	Fat clay [K,L,M]
			PI plots below "A" line		MH	Elastic Silt [K,L,M]
		Organic:	Liquid limit - oven dried	< 0.75	OH	Organic clay [K,L,M,P]
			Liquid limit - not dried			Organic silt [K,L,M,Q]
Highly organic soils:	Primarily organic matter, dark in color, and organic odor				PT	Peat

[A] Based on the material passing the 3-inch (75-mm) sieve

[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

[C] Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.

[D] Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay

[E] $Cu = D_{60}/D_{10}$ $\quad Cc = \dfrac{(D_{30})^2}{D_{10} \times D_{60}}$

[F] If soil contains ≥ 15% sand, add "with sand" to group name.

[G] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

[H] If fines are organic, add "with organic fines" to group name.

[I] If soil contains ≥ 15% gravel, add "with gravel" to group name.

[J] If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

[K] If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.

[L] If soil contains ≥ 30% plus No. 200 predominantly sand, add "sandy" to group name.

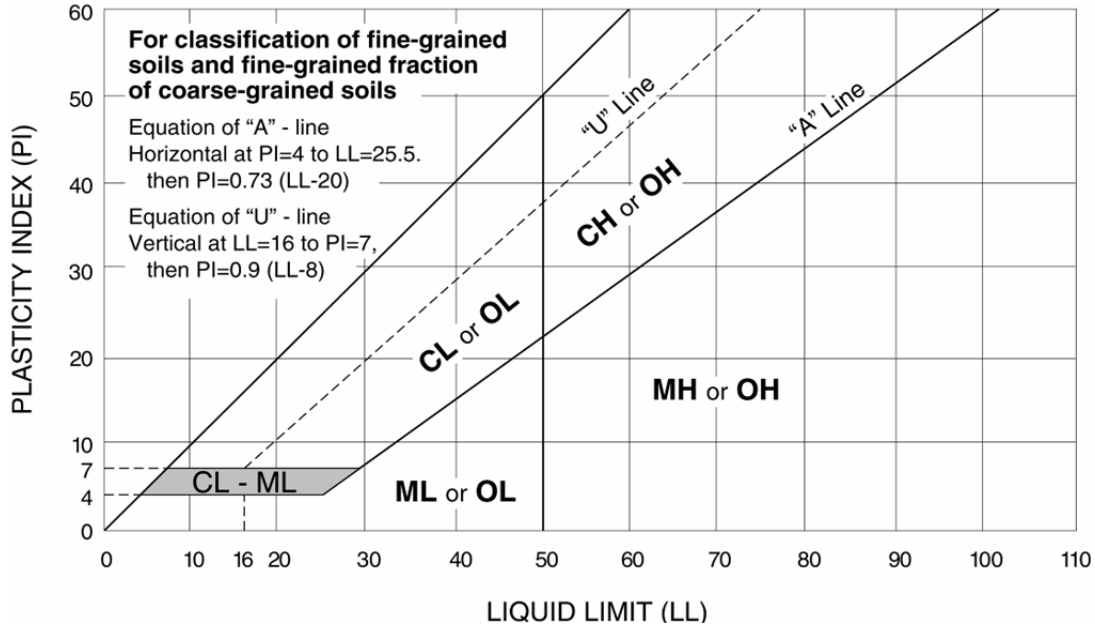
[M] If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.

[N] PI ≥ 4 and plots on or above "A" line.

[O] PI < 4 or plots below "A" line.

[P] PI plots on or above "A" line.

[Q] PI plots below "A" line.



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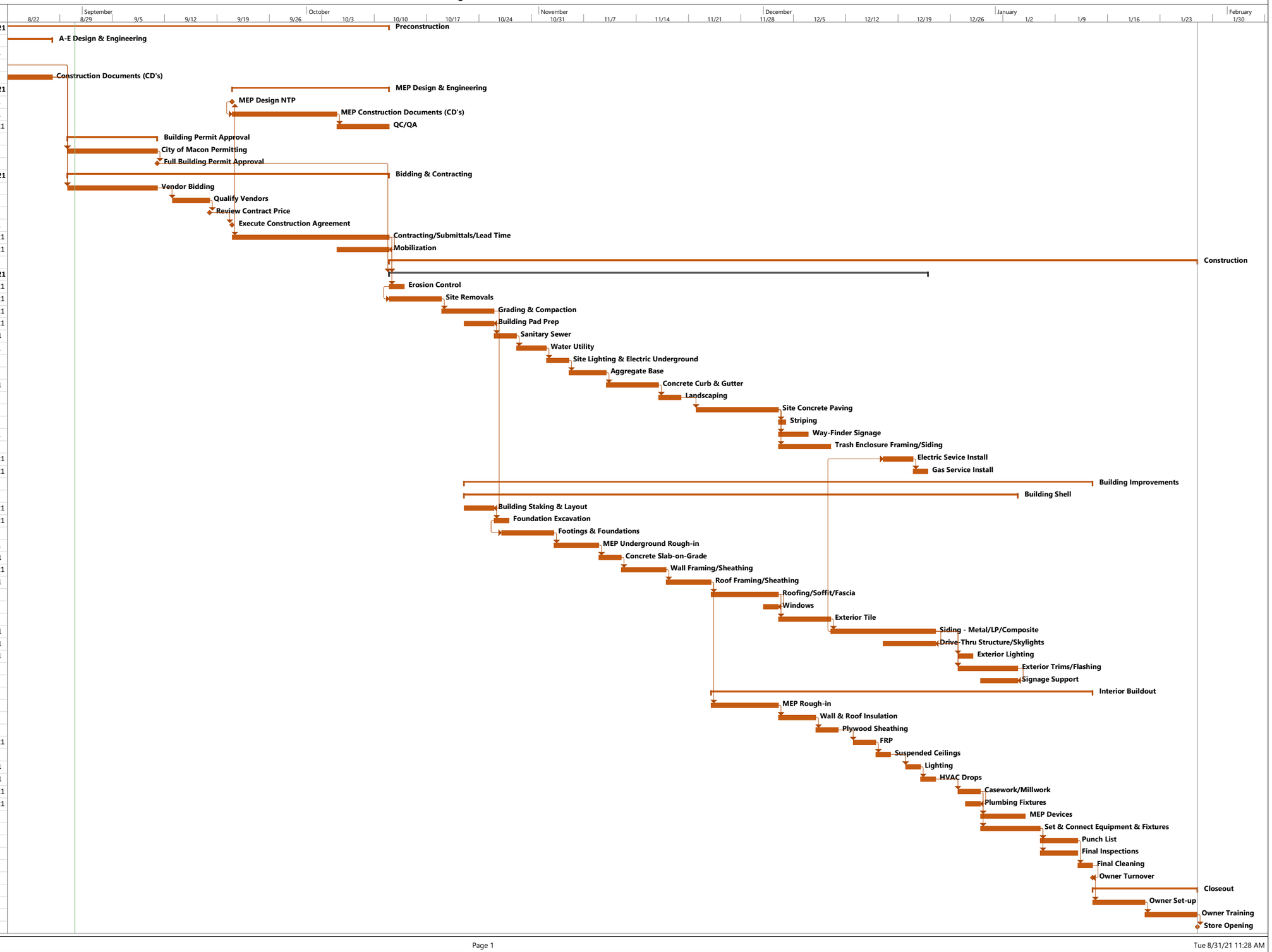
DBS GROUP
BREAKING NEW GROUND IN CONSTRUCTION.

NFI Perk Coffee - Macon, MO
Issued-For-Bid Schedule
August 30, 2021

NFI
NIEMANN FOODS, INC

ID	Task Name	Duration	Start	Finish
1	**Preconstruction**	**66 days**	**Mon 7/12/21**	**Mon 10/11/21**
2	**A-E Design & Engineering**	**35 days**	**Mon 7/12/21**	**Fri 8/27/21**
3	Design Services NTP	0 days	Mon 7/12/21	Mon 7/12/21
4	Owner Programming	10 days	Mon 7/19/21	Fri 7/30/21
5	Construction Documents (CD's)	20 days	Mon 8/2/21	Fri 8/27/21
6	**MEP Design & Engineering**	**15 days**	**Mon 9/20/21**	**Mon 10/11/21**
7	MEP Design NTP	0 days	Mon 9/20/21	Mon 9/20/21
8	MEP Construction Documents (CD's)	10 days	Tue 9/21/21	Mon 10/4/21
9	QC/QA	5 days	Tue 10/5/21	Mon 10/11/21
10	**Building Permit Approval**	**10 days**	**Mon 8/30/21**	**Fri 9/10/21**
11	City of Macon Permitting	10 days	Mon 8/30/21	Fri 9/10/21
12	Full Building Permit Approval	0 days	Fri 9/10/21	Fri 9/10/21
13	**Bidding & Contracting**	**31 days**	**Mon 8/30/21**	**Mon 10/11/21**
14	Vendor Bidding	10 days	Mon 8/30/21	Fri 9/10/21
15	Qualify Vendors	5 days	Mon 9/13/21	Fri 9/17/21
16	Review Contract Price	0 days	Fri 9/17/21	Fri 9/17/21
17	Execute Construction Agreement	0 days	Mon 9/20/21	Mon 9/20/21
18	Contracting/Submittals/Lead Time	15 days	Tue 9/21/21	Mon 10/11/21
19	Mobilization	5 days	Tue 10/5/21	Mon 10/11/21
20	**Construction**	**74 days**	**Tue 10/12/21**	**Thu 1/27/22**
21	**Site Improvements**	**50 days**	**Tue 10/12/21**	**Wed 12/22/21**
22	Erosion Control	2 days	Tue 10/12/21	Wed 10/13/21
23	Site Removals	5 days	Tue 10/12/21	Mon 10/18/21
24	Grading & Compaction	5 days	Tue 10/19/21	Mon 10/25/21
25	Building Pad Prep	2 days	Fri 10/22/21	Mon 10/25/21
26	Sanitary Sewer	3 days	Tue 10/26/21	Thu 10/28/21
27	Water Utility	2 days	Fri 10/29/21	Mon 11/1/21
28	Site Lighting & Electric Underground	3 days	Tue 11/2/21	Thu 11/4/21
29	Aggregate Base	3 days	Fri 11/5/21	Tue 11/9/21
30	Concrete Curb & Gutter	5 days	Wed 11/10/21	Tue 11/16/21
31	Landscaping	3 days	Wed 11/17/21	Fri 11/19/21
32	Site Concrete Paving	7 days	Mon 11/22/21	Thu 12/2/21
33	Striping	1 day	Fri 12/3/21	Fri 12/3/21
34	Way-Finder Signage	2 days	Fri 12/3/21	Mon 12/6/21
35	Trash Enclosure Framing/Siding	5 days	Fri 12/3/21	Thu 12/9/21
36	Electric Sevice Install	2 days	Fri 12/17/21	Mon 12/20/21
37	Gas Service Install	2 days	Tue 12/21/21	Wed 12/22/21
38	**Building Improvements**	**56 days**	**Fri 10/22/21**	**Thu 1/13/22**
39	**Building Shell**	**48 days**	**Fri 10/22/21**	**Mon 1/3/22**
40	Building Staking & Layout	2 days	Fri 10/22/21	Mon 10/25/21
41	Foundation Excavation	2 days	Tue 10/26/21	Wed 10/27/21
42	Footings & Foundations	5 days	Wed 10/27/21	Tue 11/2/21
43	MEP Underground Rough-in	4 days	Wed 11/3/21	Mon 11/8/21
44	Concrete Slab-on-Grade	3 days	Tue 11/9/21	Thu 11/11/21
45	Wall Framing/Sheathing	4 days	Fri 11/12/21	Wed 11/17/21
46	Roof Framing/Sheathing	4 days	Thu 11/18/21	Tue 11/23/21
47	Roofing/Soffit/Fascia	5 days	Wed 11/24/21	Thu 12/2/21
48	Windows	2 days	Wed 12/1/21	Thu 12/2/21
49	Exterior Tile	5 days	Fri 12/3/21	Thu 12/9/21
50	Siding - Metal/LP/Composite	10 days	Fri 12/10/21	Thu 12/23/21
51	Drive-Thru Structure/Skylights	5 days	Fri 12/17/21	Thu 12/23/21
52	Exterior Lighting	2 days	Mon 12/27/21	Tue 12/28/21
53	Exterior Trims/Flashing	5 days	Mon 12/27/21	Mon 1/3/22
54	Signage Support	2 days	Thu 12/30/21	Mon 1/3/22
55	**Interior Buildout**	**33 days**	**Wed 11/24/21**	**Thu 1/13/22**
56	MEP Rough-in	5 days	Wed 11/24/21	Thu 12/2/21
57	Wall & Roof Insulation	3 days	Fri 12/3/21	Tue 12/7/21
58	Plywood Sheathing	3 days	Wed 12/8/21	Fri 12/10/21
59	FRP	3 days	Mon 12/13/21	Wed 12/15/21
60	Suspended Ceilings	2 days	Thu 12/16/21	Fri 12/17/21
61	Lighting	2 days	Mon 12/20/21	Tue 12/21/21
62	HVAC Drops	2 days	Wed 12/22/21	Thu 12/23/21
63	Casework/Millwork	3 days	Mon 12/27/21	Wed 12/29/21
64	Plumbing Fixtures	2 days	Tue 12/28/21	Wed 12/29/21
65	MEP Devices	3 days	Thu 12/30/21	Tue 1/4/22
66	Set & Connect Equipment & Fixtures	5 days	Thu 12/30/21	Thu 1/6/22
67	Punch List	3 days	Fri 1/7/22	Tue 1/11/22
68	Final Inspections	3 days	Fri 1/7/22	Tue 1/11/22
69	Final Cleaning	2 days	Wed 1/12/22	Thu 1/13/22
70	Owner Turnover	0 days	Thu 1/13/22	Thu 1/13/22
71	**Closeout**	**10 days**	**Fri 1/14/22**	**Thu 1/27/22**
72	Owner Set-up	5 days	Fri 1/14/22	Thu 1/20/22
73	Owner Training	5 days	Fri 1/21/22	Thu 1/27/22
74	Store Opening	0 days	Thu 1/27/22	Thu 1/27/22



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SECTION 01 1000

SUMMARY

PART 1 GENERAL

1.01 PROJECT

A. Project Name: **Perk Coffee**
1600 Block N. Missouri St.
Macon, MO 63552

B. Owner's Name: Niemann Holdings, LLC
1501 North 12th Street PO C-847
Quincy, IL 62306

C. Design Builder: DBS Group, LLC
2700 National Drive, Suite 101
Onalaska, WI 54650

D. The Project consists of a new, ground-up 610 SF drive-up coffee building and related site work. The scope of work shall include general construction (shell and interior buildout), miscellaneous site work, mechanical, electrical, and plumbing.

1.02 CONTRACT DESCRIPTION

A. Contract Type: Standard Subcontractor Agreement based on a Stipulated Price as described in Section 00 5200 - Subcontractor Agreement.

1.03 CONTRACTOR USE OF SITE AND PREMISES

A. Arrange use of site and premises to allow:
1. Owner occupancy.
2. Work by Others.

B. Provide access to and from site as required by law and Owner:

1.04 SPECIFICATION SECTIONS APPLICABLE TO ALL CONTRACTS

A. Unless otherwise noted, all provisions of the sections listed below apply to all contracts. Specific items of work listed under individual contract descriptions constitute exceptions.

B. Section 01 2000 - Price and Payment Procedures

C. Section 01 3000 - Administrative Requirements

D. Section 01 3300 – Submittal Procedures

E. Section 01 4000 - Quality Requirements

F. Section 01 5000 - Temporary Facilities and Controls

G. Section 01 5100 - Temporary Utilities

H. Section 01 5213 - Field Offices and Sheds

I. Section 01 5721 - Indoor Air Quality Controls

J. Section 01 5813 - Temporary Project Signage

K. Section 01 6000 - Product Requirements

L. Section 01 7000 - Execution and Closeout Requirements

N. Section 01 7800 - Closeout Submittal.

O. Section 01 7900 - Demonstration and Training

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 2000

PRICE AND PAYMENT PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Procedures for preparation and submittal of applications for progress payments.

B. Documentation of changes in Contract Sum and Contract Time.

C. Change procedures.

D. Correlation of Contractor submittals based on changes.

E. Procedures for preparation and submittal of application for final payment.

1.02 RELATED REQUIREMENTS

A. Document 00 5200 - Agreement Form: Contract Sum, retainage, payment period, monetary values of unit prices.

B. Document 00 7200 - General Conditions: Additional requirements for progress payments, final payment, changes in the Work.

C. Document 01 7800 - Closeout Submittals.

1.03 SCHEDULE OF VALUES

A. Form to be used: AIA G703.

B. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit sample to Design Builder for approval prior to first application for payment.

C. Submit a printed schedule on AIA Form G703 - Application and Certificate for Payment Continuation Sheet.

D. Submit Schedule of Values in duplicate within 10 days after date of execution of the Contractor - Sub Contractor Agreement.

E. Include within each line item, a direct proportional amount of Sub-Contractor's overhead and profit.

F. Revise schedule to list approved Change Orders, with each Application for Payment.

1.04 APPLICATIONS FOR PROGRESS PAYMENTS

A. Payment Period: Submit at intervals stipulated in the Agreement.

B. Form to be used: AIA G702.

C. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit sample to Design Builder for approval prior to first application for payment.

D. Form: AIA G702 Application and Certificate for Payment and AIA G703 - Continuation Sheet including continuation sheets when required.

E. For each item, provide a column for listing each of the following:
   1. Item Number.
   2. Description of work.
   3. Scheduled Values.
   4. Previous Applications.
   5. Work in Place and Stored Materials under this Application.
   6. Authorized Change Orders.
   7. Total Completed and Stored to Date of Application.
   8. Percentage of Completion.
   9. Balance to Finish.
   10. Retainage.

F. Execute certification by signature of authorized officer.

G. List each authorized Change Order as a separate line item, listing Change Order number and dollar amount as for an original item of Work.

H. Submit two copies of each Application for Payment.

I. Include the following with the application:
   1. Partial release of liens from major Subcontractors and vendors.

J. When Design Builder requires substantiating information, submit data justifying dollar amounts in question.

1.05 MODIFICATION PROCEDURES

A. For changes for which advance pricing is desired, Design Builder will issue a document that includes a detailed description of a proposed change with supplementary or revised drawings and specifications, a change in Contract Time for executing the change with a stipulation of any overtime work required and the period of time during which the requested price will be considered valid. Sub-Contractor shall prepare and submit a fixed price quotation within seven days.

B. Sub-Contractor may propose a change by submitting a request for change to Design Builder, describing the proposed change and its full effect on the Work, with a statement describing the reason for the change, and the effect on the Contract Sum and Contract Time with full documentation and a statement describing the effect on Work by separate or other contractors. Document any requested substitutions in accordance with Section 01 6000.

C. Computation of Change in Contract Amount: As specified in the Agreement and Conditions of the Contract.
   1. For change requested by Design Builder for work falling under a fixed price contract, the amount will be based on Sub-Contractor's price quotation.
   2. For change requested by Sub-Contractor, the amount will be based on the Sub-Contractor's request for a Change Order as approved by Design Builder.
   3. For change ordered by Design Builder without a quotation from Sub-Contractor, the amount will be determined by Design Builder based on the Sub-Contractor's substantiation of costs as specified for Time and Material work.

D. Substantiation of Costs: Provide full information required for evaluation.
   1. provide following data:
      a. Quantities of products, labor, and equipment.
      b. Taxes, insurance, and bonds.
      c. Overhead and profit.
      d. Justification for any change in Contract Time.
      e. Credit for deletions from Contract, similarly documented.
   2. Support each claim for additional costs with additional information:
      a. Origin and date of claim.
      b. Dates and times work was performed, and by whom.
      c. Time records and wage rates paid.
      d. Invoices and receipts for products, equipment, and subcontracts, similarly documented.
   3. For Time and Material work, submit itemized account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract.

E. Execution of Change Orders: Design Builder will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.

F. After execution of Change Order, promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Sum.

1.06 APPLICATION FOR FINAL PAYMENT

A. Prepare Application for Final Payment as specified for progress payments, identifying total adjusted Contract Sum, previous payments, and sum remaining due.

B. Application for Final Payment will not be considered until the following have been accomplished:
   1. All closeout procedures specified in Section 01 7000.
   2. Final lien waivers from all second tier sub-contractors.
   3. Final lien waivers from all material suppliers providing greater than $10,000.00 of material for contract.
   4. All close out submittals required by Section 01 7800 has been delivered and approved..

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 3000

ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Preconstruction meeting.

B. Pre-Installation Meetings.

C. Progress meetings.

D. Construction progress schedule.

E. Progress photographs.

F. Coordination drawings.

G. Submittals for review, information, and project closeout.

H. Electronic Submittal procedures.

1.02 RELATED REQUIREMENTS

A. Document 00 7200 - General Conditions: Dates for applications for payment.

B. Section 01 7000 - Execution and Closeout Requirements: Additional coordination requirements.

C. Section 01 7800 - Closeout Submittals: Project record documents.

1.03 PROJECT COORDINATION

A. Cooperate with the Design Builder Project Superintendent in allocation of mobilization areas of site; for field offices and sheds, for access, traffic, and parking facilities.

B. During construction, coordinate use of site and facilities through the Design Builder Project Superintendent.

C. Comply with Design Builder procedures for intra-project communications; submittals, reports and records, schedules, coordination drawings, and recommendations; and resolution of ambiguities and conflicts.

D. Comply with instructions of the Design Builder Project Superintendent for use of temporary utilities and construction facilities.

E. Coordinate field engineering and layout work under instructions of the Design Builder Project Superintendent.

F. Make the following types of submittals to Design Builder through the Project Manager:
   1. Requests for interpretation.
   2. Requests for substitution.
   3. Shop drawings, product data, and samples.
   4. Test and inspection reports.
   5. Manufacturer's instructions and field reports.
   6. Applications for payment and change order requests.
   7. Progress schedules.
   8. Coordination drawings.
   9. Closeout submittals.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PRECONSTRUCTION MEETING

A. Design Builder will schedule a meeting following issue of Notice to Proceed.

B. Attendance Required:
   1. Design Builder and its consultants.
   2. Sub-Contractors.
   3. Vendors.

C. Agenda:
   1. Execution of Sub-Contractor Agreement.
   2. Submission of insurance certificates.
   3. Distribution of Contract Documents.
   4. Submission of list of Subcontractors, and list of long lead time items.
   5. Designation of personnel representing the parties to Contract, and Design Builder.
   6. Designation/introduction of personnel representing the parties to Contract and Design Builder.
   7. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
   8. Scheduling.
   9. Scheduling activities of a Geotechnical Engineer and testing agencies.
   10. Use of premises by Owner and Sub-Contractor.
   11. Owner's requirements for occupancy.
   12. Construction facilities and controls provided by Owner.
   13. Temporary utilities provided by Owner.
   14. Survey and building layout.
   15. Security and housekeeping procedures.
   16. Safety.
   17. Schedules.
   18. Application for payment procedures.
   19. Procedures for testing.
   20. Procedures for maintaining record documents.
   21. Requirements for start-up of equipment.
   22. Inspection and acceptance of equipment put into service during construction period.
   23. Design Builder Water Response and Mold Management Program.

D. Design Builder will record minutes and distribute copies after meeting, with copies to Design Builder, Owner, all participants, and those affected by decisions made.

3.02 PRE-INSTALLATION MEETINGS

A. All sub-contractors are required to participate in an on-site Preparatory Meeting.
   1. This meeting MUST take place for each definable feature of work, prior to commencement of the on-site activities of each feature.
   2. This meeting will not be scheduled until ALL required submittals for the Work have been submitted and reviewed and ALL review comments have been addressed and corrected.
   3. The Sub Contractor foreman must attend this meeting in person.
   4. The following items will be reviewed:
      a. Hazard analysis for the Work.
      b. Schedule.
      c. DBS Group, LLC d/b/a DBSG, LLC. Standard Operating Procedures.
      d. Quality expectations.
   5. Sub-Contractor work effort may not commence until this meeting has occurred.

B. All sub-contractors are required to participate in an on-site Initial Meeting
    1. Following the first full day's activities on site, all sub-contractors on site personnel are required to participate in a review meeting with the on-site superintendent for the following purposes:
        a. Observation and review of day's work.
        b. Discussion of any issues arising from this observation including but not limited to: Work Quality, Safety, Work Force, Site Use or Access, Schedule.
    2. Sub-Contractor general work effort may not resume until this meeting has occurred and sub-contractor has taken any corrective or remedial measures dictated by and approved by the on-site superintendent.

3.03 PROGRESS MEETINGS

A. Design Builder will schedule and administer progress meetings, prepare agenda with copies for participants, and preside at meetings throughout progress of the Work at the maximum of weekly intervals.

B. Attendance Required: Job superintendent, Subcontractors and suppliers actively engaged in current work or scheduled to be on site in the upcoming 30 days, Owner, Design Builder, as appropriate to agenda topics for each meeting.

C. Agenda:
    1. Safety and site security.
    2. Review of Work progress.
    3. Field observations, problems, and decisions.
    4. Identification of problems that impede, or will impede, planned progress.
    5. Review of submittals schedule and status of submittals.
    6. Maintenance of progress schedule.
    7. Corrective measures to regain projected schedules (if needed).
    8. Planned progress during succeeding work period.
    9. Maintenance of quality and work standards.
    10. Effect of proposed changes on progress schedule and coordination.
    11. Other business relating to Work.

D. Design Builder will record minutes and distribute copies after meeting to participants, with copies to Design Builder, Owner, participants, and those affected by decisions made.

3.04 CONSTRUCTION PROGRESS SCHEDULE

A. Per project schedule: See Section 00 3113 Preliminary Construction Schedule.

3.05 COORDINATION DRAWINGS

A. Provide information required by Project Manager for preparation of coordination drawings.

3.06 SUBMITTALS FOR REVIEW

A. When the following are specified in individual sections and/or submittal register set forth by Design Builder, submit them for review:
    1. Product data.
    2. Shop drawings.
    3. Samples for selection.
    4. Samples for verification.

B. Submit to Design Builder for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.

C. Samples will be reviewed only for aesthetic, color, or finish selection.

D. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below and for record documents purposes described in Section 01 7800 - Closeout Submittals

3.07 SUBMITTALS FOR INFORMATION

A. When the following are specified in individual sections, submit them for information:
   1. Design data.
   2. Test reports.
   3. Inspection reports.
   4. Manufacturer's instructions.
   5. Manufacturer's field reports.
   6. Other types indicated.

3.08 SUBMITTALS FOR PROJECT CLOSEOUT

A. Provide documents and materials as noted in Section 01 7800 - Closeout Submittals.

B. Submit to Design Builder for Owner's benefit within 30 days after project completion and prior to final application for payment.

3.09 ELECTRONIC SUBMITTAL PROCEDURES

A. Summary:
   1. Shop drawing and product data submittals shall be transmitted to Design Builder in electronic (PDF) format using software designated by the Design Builder designed to have the capability for transmitting submittals between construction team members.
   2. The intent of electronic submittals is to expedite the construction process by reducing paperwork, improving information flow, and decreasing turnaround time.
   3. The electronic submittal process is not intended for color samples, color charts, or physical material samples.

B. Procedures:
   1. Submittal Preparation – Subcontractors shall submit electronically in PDF format.
   2. Subcontractors shall review and apply a stamp certifying that the submittal complies with the requirements of the Contract Documents including verification of manufacturer / product, dimensions and coordination of information with other parts of the work.
   3. Design Builder review comments will be made available.
   4. Distribution of reviewed submittals to sub-subcontractors and suppliers is the responsibility of the Sub-contractor.
   5. Submit paper copies of reviewed submittals at project closeout for record purposes in accordance with Section 01 7800 - Closeout Submittals.

END OF SECTION

SECTION 01 3300

SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

B. Related Requirements:

1. Section 01 3000 "Administrative Requirements" for submitting schedules and reports, including Sub-Contractor's construction schedule.

2. Section 01 3114 "Project Management Software" for submitting all submittals items digitally except required physical samples.
3. Section 01 7800 "Closeout Submittals" for submitting operation and maintenance manuals.
4. Section 01 7800 "Closeout Submittals" for submitting record Drawings, record Specifications, and record Product Data.
5. Section 01 7900 "Demonstration and Training" for submitting video recordings of demonstration of equipment and training of Owner's personnel.

1.2 DEFINITIONS

A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action.

B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements.

1.3 ACTION SUBMITTALS

A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and additional time for handling and reviewing submittals required by those corrections.

1.4 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

A. Architect's Digital Data Files: Electronic copies of digital data files of the Contract Drawings may be provided by Architect for Contractor's use in preparing submittals.

1. Architect will furnish Contractor one set of digital data drawing files of the

Contract Drawings for use in preparing Shop Drawings and Project Record Drawings.

a. Architect makes no representations as to the accuracy or completeness of digital data drawing files as they relate to the Contract Drawings.
b. Contractor shall execute a data licensing agreement prior to issuance of digital data file by architect.

B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.

a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

1. Initial Review: Allow [10] days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
3. Resubmittal Review: Allow [10] days for review of each resubmittal.

D. Electronic Submittals: Identify and incorporate information in each electronic submittal file as follows:

1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
2. Name file with submittal number or other unique identifier, including revision identifier.

a. File name shall use project identifier and Specification Section number followed by a decimal point and then a sequential number (e.g., LNHS-06 1000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., LNHS-06 1000.01.A).

3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Architect.
4. Transmittal Form for Electronic Submittals: Use software-generated form from electronic project management software electronic form acceptable to Owner**,** containing the following information:

a. Project name.
b. Date.

c. Name of firm or entity that prepared submittal.
d. Names of subcontractor, manufacturer, and supplier.
e. Category and type of submittal.
f. Submittal purpose and description.
g. Specification Section number and title.
h. Specification paragraph number or drawing designation and generic name for each of multiple items.
i. Drawing number and detail references, as appropriate.
j. Location(s) where product is to be installed, as appropriate.
k. Related physical samples submitted directly.
l. Indication of full or partial submittal.
m. Transmittal number, numbered consecutively.
n. Submittal and transmittal distribution record.
o. Other necessary identification.
p. Remarks.

5. Metadata: Include the following information as keywords in the electronic submittal file metadata:

a. Project name.
b. Number and title of appropriate Specification Section.
c. Manufacturer name.
d. Product name.
e. Insert required information.

E. Options: Identify options requiring selection by Architect.

F. Deviations: Identify deviations from the Contract Documents on submittals.

G. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.

1. Note date and content of previous submittal.
2. Note date and content of revision in label or title block and clearly indicate extent of revision.
3. Resubmit submittals until they are marked with approval notation from Architect's action stamp.

H. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

I. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's/Construction Manager's action stamp.

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

A. General Submittal Procedure Requirements:

1. Post electronic submittals as PDF electronic files directly to Project Web site

specifically established for Project.

a. Architect will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.

2. Action Submittals: Submit one of each submittal unless otherwise indicated.
3. Informational Submittals: Submit one of each submittal unless otherwise indicated. Architect will not return copies.
4. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.

a. Provide a digital signature with digital certificate on electronically-submitted certificates and certifications where indicated.
b. Provide a copy of a notarized statement of original paper copy of certificates and certifications where indicated.

B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.
3. Include the following information, as applicable:

a. Manufacturer's catalog cuts.
b. Manufacturer's product specifications.
c. Standard color charts.
d. Statement of compliance with specified referenced standards.
e. Testing by recognized testing agency.
f. Application of testing agency labels and seals.
g. Notation of coordination requirements.
h. Availability and delivery time information.

4. For equipment, include the following in addition to the above, as applicable:

a. Wiring diagrams showing factory-installed wiring.
b. Printed performance curves.
c. Operational range diagrams.
d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.

5. Submit Product Data before or concurrent with Samples.

6. Submit Product Data in the following format:

a. PDF electronic file.

C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:

    a. Identification of products.
    b. Schedules.
    c. Compliance with specified standards.
    d. Notation of coordination requirements.
    e. Notation of dimensions established by field measurement.
    f. Relationship and attachment to adjoining construction clearly indicated.
    g. Seal and signature of professional engineer if specified.

2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches, but no larger than 30 by 42 inches.

3. Submit Shop Drawings in the following format:

    a. PDF electronic file.

D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.

1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
2. Identification: Attach label on unexposed side of Samples that includes the following:

    a. Generic description of Sample.
    b. Product name and name of manufacturer.
    c. Sample source.
    d. Number and title of applicable Specification Section.

3. For projects where electronic submittals are required, provide corresponding electronic submittal of Sample transmittal, digital image file illustrating Sample characteristics, and identification information for record.
4. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.

    a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
    b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.

5. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.

    a. Number of Samples: Submit [**one**] <**Insert number**> full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.

6. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.

    a. Number of Samples: Submit sets of Samples. Architect/Construction Manager will retain [**one**] Sample sets; remainder will be returned.

        1) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least [three] sets of paired units that show approximate limits of variations.

E. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:

1. Submit product schedule in the following format:

    a. PDF electronic file.

F. Coordination Drawings Submittals: Comply with requirements specified in Section 01 3100 "Project Management and Coordination."

G. Contractor's Construction Schedule: Comply with requirements specified in Section 01 3000 "Administrative Requirements."

H. Application for Payment and Schedule of Values: Comply with requirements specified in Section 01 2000 "Price and Payment Procedures.

I. Test and Inspection Reports and Schedule of Tests and Inspections Submittals: Comply with requirements specified in Section 01 4000 "Quality Requirements."

J. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Section 01 7000 "Execution and Closeout Requirements."

K. Maintenance Data: Comply with requirements specified in Section 01 7800 "Closeout Submittals."

L. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.

M. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.

N. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

O. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

P. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

Q. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

R. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

S. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

T. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project.

U. Schedule of Tests and Inspections: Comply with requirements specified in Section 01 4000 "Quality Requirements."

V. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.

W. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

X. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

Y. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

2.2 DELEGATED-DESIGN SERVICES

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Sub-Contractor by the Contract

Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.

B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF electronic file **and** requested number of paper copies of any documents required by authorities having jurisdiction, signed and sealed by the responsible design professional, for each product and system specifically assigned to Sub-Contractor to be designed or certified by a design professional.

1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

PART 3 - EXECUTION

1. ARCHITECT/CONSTRUCTION MANAGER'S ACTION

B. Action Submittals: Architect/Construction Manager will review each submittal, make marks to indicate corrections or revisions required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate required action.

C. Informational Submittals: Architect/Construction Manager will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.

D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.

E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

END OF SECTION 01 3300

SECTION 01 4000

QUALITY REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. References and standards.

B. Quality assurance submittals.

C. Mock-ups.

D. Control of installation.

E. Tolerances.

F. Testing and inspection services.

G. Manufacturers' field services.

1.02 RELATED REQUIREMENTS

A. Section 00 7200 - General Conditions: Inspections and approvals required by public authorities.

B. Section 01 3000 - Administrative Requirements: Submittal procedures.

C. Section 01 6000 - Product Requirements: Requirements for material and product quality.

1.03 SUBMITTALS

A. Testing Agency Qualifications:
   1. Prior to start of Work, submit agency name, address, and telephone number, and names of full time registered Engineer and responsible officer.

B. Design Data: Submit for Design Builder's knowledge as contract administrator for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents, or for Owner's information.

C. Test Reports: After each test/inspection, promptly submit two copies of report to Design Builder and to Sub-Contractor.
   1. Test report submittals are for Design Builder's knowledge as contract administrator for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents, or for Owner's information.

D. Manufacturer's Instructions: When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, for the Owner's information. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

E. Manufacturer's Field Reports: Submit reports for Design Builder's benefit as contract administrator or for Owner.
   1. Submit report in duplicate within 7 days of observation to Design Builder for information.
   2. Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.

F. Erection Drawings: Submit drawings for Design Builder's benefit as contract administrator or for Owner.
   1. Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.
   2. Data indicating inappropriate or unacceptable Work may be subject to action by Design Builder or Owner.

1.04 REFERENCES AND STANDARDS

A. For products and workmanship specified by reference to a document or documents not included in the Project Manual, also referred to as reference standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

B. Conform to reference standard of date of issue current on date specified in the individual specification sections, except where a specific date is established by applicable code.

C. Obtain copies of standards where required by product specification sections.

D. Should specified reference standards conflict with Contract Documents, request clarification from Design Builder before proceeding.

E. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of Design Builder shall be altered from the Contract Documents by mention or inference otherwise in any reference document.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 CONTROL OF INSTALLATION

A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.

B. Comply with manufacturers' instructions, including each step in sequence.

C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Design Builder before proceeding.

D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Have Work performed by persons qualified to produce required and specified quality.

F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.

G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

3.02 TOLERANCES

A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.

B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Design Builder before proceeding.

C. Adjust products to appropriate dimensions; position before securing products in place.

3.03 TESTING AND INSPECTION

A. See individual specification sections for testing and inspection required.

B. Limits on Testing/Inspection Agency Authority:
   1. Agency may not release, revoke, alter, or enlarge on requirements of Contract Documents.
   2. Agency may not approve or accept any portion of the Work.
   3. Agency may not assume any duties of Sub-Contractor.
   4. Agency has no authority to stop the Work.

C. Sub-Contractor Responsibilities:
   1. Deliver to agency at designated location, adequate samples of materials proposed to be used that require testing, along with proposed mix designs.
   2. Cooperate with laboratory personnel, and provide access to the Work and to manufacturers' facilities.
   3. Provide incidental labor and facilities:
      a. To provide access to Work to be tested/inspected.
      b. To obtain and handle samples at the site or at source of Products to be tested/inspected.
      c. To facilitate tests/inspections.
      d. To provide storage and curing of test samples.
   4. Notify Design Builder and laboratory 24 hours prior to expected time for operations requiring testing/inspection services.
   5. Employ services of an independent qualified testing laboratory and pay for additional samples, tests, and inspections required by Sub-Contractor beyond specified requirements.

D. Re-testing required because of non-conformance to specified requirements shall be performed by the same agency on instructions by Design Builder.

E. Re-testing required because of non-conformance to specified requirements shall be paid for by Sub-Contractor.

3.04 MANUFACTURERS' FIELD SERVICES

A. When specified in individual specification sections, required material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust and balance of equipment as applicable, and to initiate instructions when necessary.

B. Report observations to Design Builder and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

3.05 DEFECT ASSESSMENT

A. Replace Work or portions of the Work not conforming to specified requirements.

B. If, in the opinion of Design Builder, it is not practical to remove and replace the Work, Design Builder will direct an appropriate remedy or adjust payment.

END OF SECTION

SECTION 01 5000

TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Temporary telecommunications services.

B. Temporary telephone and facsimile service.

C. Temporary sanitary facilities.

D. Temporary Controls: Barriers, enclosures, and fencing.

E. Security requirements.

F. Vehicular access and parking.

G. Waste removal facilities and services.

H. Project identification sign.

I. Field offices.

1.02 TEMPORARY UTILITIES - See Section 01 5100

1.03 TELECOMMUNICATIONS SERVICES

A. Sub-contractor shall provide, maintain, and pay for his own telephone service at time of project mobilization. Provide contact person and telephone number to Design Builder.

1.04 TEMPORARY SANITARY FACILITIES

A. Design Builder will provide and maintain required facilities and enclosures at time of project mobilization.

1.05 BARRIERS

A. Design Builder will provide barriers to prevent unauthorized entry to construction areas, to allow for owner's use of site and to protect existing facilities and adjacent properties from damage from construction operations and demolition.

B. Design Builder will provide barricades and covered walkways required by governing authorities for public rights-of-way and for public access to existing building.

C. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

1.07 EXTERIOR ENCLOSURES

A. Design Builder will provide temporary weather tight closure of exterior openings to accommodate acceptable working conditions, to allow for temporary heating and maintenance of required ambient temperatures identified in individual specification sections, and to prevent entry of unauthorized persons. Provide access doors with self-closing hardware and locks.

1.08 INTERIOR ENCLOSURES

A. Design Builder will provide temporary partitions as indicated to separate work areas from Owner-occupied areas, to prevent penetration of dust and moisture into Owner-occupied areas.

B. Construction: Framing and reinforced polyethylene sheet materials with closed joints and sealed edges at intersections with existing surfaces:

1.09 SECURITY

A. Subcontractors are responsible to secure their own materials and equipment.

1.10 VEHICULAR ACCESS AND PARKING

A. Design Builder will coordinate access and haul routes with governing authorities and Owner.

B. All contractors will maintain access to fire hydrants, free of obstructions.

C. Design Builder will provide means of removing mud from vehicle wheels before entering streets.

D. Design Builder will provide temporary parking areas to accommodate construction personnel.

1.11 WASTE REMOVAL

A. See Section 01 7419 - Waste Management, for additional requirements.

B. Provide waste removal facilities and services as required to maintain the site in clean and orderly condition.

C. Provide containers with lids. Remove trash from site periodically.

D. If materials to be recycled or re-used on the project must be stored on-site, provide suitable non-combustible containers; locate containers holding flammable material outside the structure unless otherwise approved by the authorities having jurisdiction.

E. Open free-fall chutes are not permitted. Terminate closed chutes into appropriate containers with lids.

1.12 PROJECT IDENTIFICATION

A. Design Builder will provide project identification sign.

B. Sub-contractor signs may be allowed to be erected on site at location established by Design Builder. Verify with Project Manager

C. No other signs are allowed without Design Builder permission except those required by law.

1.13 FIELD OFFICES - See Section 01 5213

A. Design Builder Office: Design Builder Office will provide a weather tight construction office for its own use, with lighting, electrical outlets, heating, cooling equipment, and equipped with sturdy furniture, drawing rack and drawing display table.

B. Design Builder Office will provide space for Project meetings, with table and chairs to accommodate 10 persons.

C. Locate construction offices a minimum distance of 30 feet (10 m) from existing and new structures.

1.14 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

A. Remove temporary utilities, equipment, facilities, materials, prior to Substantial Completion inspection.

B. Remove underground installations to a minimum depth of 2 feet (600 mm). Grade site as indicated.

C. Clean and repair damage caused by installation or use of temporary work.

D. Restore existing facilities used during construction to original condition.

E. Restore new permanent facilities used during construction to specified condition.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 5100

TEMPORARY UTILITIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Temporary Utilities: Electricity, Lighting, Heat, Ventilation, and Water.

1.02 RELATED REQUIREMENTS

1.03 TEMPORARY ELECTRICITY

A. Cost: By Electrical Sub-Contractor.

B. Power Service Characteristics: 200 amp at Convenience Store Building.

100 amp at DBS job trailer.

C. Provide power outlets for construction operations, with branch wiring and distribution boxes located at each floor. Provide flexible power cords as required.

D. Provide main service disconnect and over-current protection at convenient location and meter.

E. Permanent convenience receptacles may be utilized during construction.

F. Provide adequate distribution equipment, wiring, and outlets to provide single phase branch circuits for power and lighting.

1.04 TEMPORARY LIGHTING FOR CONSTRUCTION PURPOSES

A. Provide and maintain overhead lighting for construction operations per EM 385, OSHA CFR 1926 or local ordinance to achieve a minimum lighting level of 1 watt/sq ft utilizing a minimum of 1 lamp per room.

B. Provide branch wiring from power source to distribution boxes with lighting conductors, pigtails, and lamps as required.

C. Maintain lighting and provide routine repairs.

D. Temporary task lighting above and beyond the requirements described above shall be furnished by the individual trade(s) working in the room(s).

E. Do not utilize extension cords in excess of 100 feet in order to meet requirements.

F. Provide additional lighting as construction proceeds to maintain required light levels.

1.05 TEMPORARY HEATING

A. Provide heating devices and heat as needed to maintain specified conditions for construction operations.

B. Maintain minimum ambient temperature of 50 degrees F (10 degrees C) in areas where construction is in progress, unless indicated otherwise in specifications.

C. Should the permanent systems be used to heat the building prior to turnover, the Mechanical Contractor shall maintain and replace filters, clean coils at turnover, and provide an extended warranty to include any use prior to turnover. Prior to turnover, any systems which have been used, must be properly cleaned and/or refurbished as required to maintain the equipment manufacturer's warranties.

D. Prior to operation of permanent equipment for temporary heating purposes, verify that installation is approved for operation, equipment is lubricated and filters are in place.

1.06 TEMPORARY VENTILATION

A. Existing ventilation equipment may not be used.

1.07 TEMPORARY WATER SERVICE

A. Provide and maintain suitable quality water service for construction operations at time of project mobilization.

B. Connect to existing water source.
   1. Exercise measures to conserve water.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 5213

FIELD OFFICES AND SHEDS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Temporary Field Offices for use of Sub-Contractors.

B. Maintenance and removal.

1.02 RELATED REQUIREMENTS

A. Section 01 5000 - Temporary Facilities and Controls: Temporary sanitary facilities, temporary telephone service, and temporary facsimile service.

B. Section 01 5000 - Temporary Facilities and Controls: Parking and access to field offices.

PART 2 PRODUCTS

2.01 MATERIALS, EQUIPMENT, FURNISHINGS

A. Materials, Equipment, Furnishings: Serviceable, new or used, adequate for required purpose.

2.02 CONSTRUCTION

A. Portable or mobile buildings, or buildings constructed with floors raised above ground, securely fixed to foundations, with steps and landings at entrance doors.

2.03 SUB CONTRACTOR OFFICE AND FACILITIES

A. Size: For Sub-Contractor's needs.

PART 3 EXECUTION

3.01 PREPARATION

A. Fill and grade sites for temporary structures to provide drainage away from buildings.

3.02 MAINTENANCE AND CLEANING

A. Bi-Monthly janitorial services for offices; periodic cleaning and maintenance for offices.

B. Maintain approach walks free of mud, water, and snow.

3.03 REMOVAL

A. At completion of Work remove buildings, foundations, utility services, and debris. Restore areas.

END OF SECTION

SECTION 01 5721

INDOOR AIR QUALITY CONTROLS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Construction procedures to promote adequate indoor air quality after construction.

1.02 PROJECT GOALS

A. Dust and Airborne Particulates: Prevent deposition of dust and other particulates in HVAC ducts and equipment.
   1. Cleaning of ductwork is not contemplated under this Contract.
   2. Sub-Contractor shall bear the cost of cleaning required due to failure to adequately protect and maintain protection of ducts and equipment from construction dust.
   3. Establish condition of existing ducts and equipment prior to start of alterations.

B. Airborne Contaminants: Procedures and products have been specified to minimize indoor air pollutants.
   1. Furnish products meeting the specifications.
   2. Avoid construction practices that could result in contamination of installed products leading to indoor air pollution.

1.03 DEFINITIONS

A. Absorptive Materials: Gypsum board, acoustical ceiling tile and panels, carpet and carpet tile, fabrics, fibrous insulation, and other similar products.

B. Contaminants: Gases, vapors, regulated pollutants, airborne mold and mildew, and the like, as specified.

C. Particulates: Dust, dirt, and other airborne solid matter.

D. Wet Work: Concrete, plaster, coatings, and other products that emit water vapor or volatile organic compounds during installation, drying, or curing.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

PART 3 EXECUTION

2.01 CONSTRUCTION PROCEDURES

A. Prevent the absorption of moisture and humidity by adsorptive materials by:
   1. Sequencing the delivery of such materials so that they are not present in the building until wet work is completed and dry.
   2. Delivery and storage of such materials in fully sealed moisture-impermeable packaging.
   3. Provide sufficient ventilation for drying within reasonable time frame.

B. Begin construction ventilation when building is substantially enclosed.

C. If extremely dusty or dirty work must be conducted inside the building, shut down HVAC systems for the duration; remove dust and dirt completely before restarting systems.

D. When working in a portion of an occupied building, prevent movement of air from construction area to occupied area.

E. HVAC equipment and supply air ductwork may be used for ventilation during construction:
   1. Operate HVAC system on 100 percent outside air, with 1.5 air changes per hour, minimum.
   2. Ensure that air filters are correctly installed prior to starting use; replace filters when they

lose efficiency.

3. Do not use return air ductwork for ventilation unless absolutely necessary.
4. Where return air ducts must be used for ventilation, install auxiliary filters at return inlets, sealed to ducts; use filters with at least the equivalent efficiency as those required at supply air side; inspect and replace filters when they lose efficiency.

F. Do not store construction materials or waste in mechanical or electrical rooms.

G. Prior to use of return air ductwork without intake filters clean up and remove dust and debris generated by construction activities.
   1. Inspect duct intakes, return air grilles, and terminal units for dust.
   2. Clean plenum spaces, including top sides of lay-in ceilings, outsides of ducts, tops of pipes and conduit.
   3. Clean tops of doors and frames.
   4. Clean mechanical and electrical rooms, including tops of pipes, ducts, and conduit, equipment, and supports.
   5. Clean return plenums of air handling units.
   6. Remove intake filters last, after cleaning is complete.

H. Do not perform dusty or dirty work after starting use of return air ducts without intake filters.

I. Use other relevant recommendations of SMACNA IAQ Guideline for Occupied Buildings Under Construction for avoiding unnecessary contamination due to construction procedures.

END OF SECTION

SECTION 01 5813

TEMPORARY PROJECT SIGNAGE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Project identification sign.

B. Sub-Contractor signage restrictions.

1.02 QUALITY ASSURANCE

A. Design sign and structure to withstand 50 miles/hr. (80 km/hr.) wind velocity.

B. Sign Painter: Experienced and professional sign painter.

C. Finishes, Painting: Adequate to withstand weathering, fading, and chipping for duration of construction.

PART 2 PRODUCTS

2.01 SIGN MATERIALS

A. Structure and Framing: New or used, wood, structurally adequate/freshly painted.

B. Sign Surfaces: Exterior grade plywood with medium density overlay, minimum 3/4 inch (19 mm) thick, standard large sizes to minimize joints.

C. Rough Hardware: Galvanized.

D. Paint and Primers: Exterior quality, two coats; sign background of color as selected.

E. Lettering: Exterior quality paint, contrasting colors.

2.02 PROJECT IDENTIFICATION SIGN

A. One painted sign, 32 sq. ft. area, and bottom 6 feet above ground.

B. Content:
   1. Project title, logo and name of Owner as indicated on Contract Documents.
   2. Names and titles of Design Builder and Consultants.

C. Graphic Design, Colors, Style of Lettering: Designated by Design Builder.

PART 3 EXECUTION

3.01 INSTALLATION

A. Erect at designated location.

B. Install sign surface plumb and level, with butt joints. Anchor securely.

C. Sub-Contractor Signage Restrictions:
   1. No Sub-Contractor may erect or install signage of a size larger than the primary site sign noted above.
   2. All Sub-Contractor signage must be pre-approved by the Design Builder on site Superintendent prior to erection or installation.
   3. Signage may only be installed in locations as directed by the Design Builder on site Superintendent.
   4. All signage erected or installed in contravention of these restrictions will be removed and disposed of without warning or prior notification.

3.02 MAINTENANCE

A. Maintain signs and supports clean, repair deterioration and damage.

3.03 REMOVAL

A. Remove signs, framing, supports, and foundations at completion of Project and restore the area.

END OF SECTION

SECTION 01 6000

PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. General product requirements.

B. Re-use of existing products.

C. Transportation, handling, storage and protection.

D. Product option requirements.

E. Substitution limitations and procedures.

F. Procedures for Owner-supplied products.

G. Maintenance materials, including extra materials, attic stock, spare parts, tools, and software.

1.02 RELATED REQUIREMENTS

A. Section 01 4000 - Quality Requirements: Product quality monitoring.

1.03 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for electronic submittal protocol.

B. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.

C. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

D. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
   1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.

PART 2 PRODUCTS

2.01 EXISTING PRODUCTS

A. Do not use materials and equipment removed from existing premises unless specifically required or permitted by the Contract Documents.

B. Unforeseen historic items encountered remain the property of the Owner; notify Owner promptly upon discovery; protect, remove, handle, and store as directed by Owner.

C. Existing materials and equipment indicated to be removed, but not to be re-used, relocated, reinstalled, delivered to the Owner, or otherwise indicated as to remain the property of the Owner, become the property of the Sub-Contractor; remove from site.

D. Reused Products: Reused products include materials and equipment previously used in the existing premises, salvaged and refurbished as specified.

2.02 NEW PRODUCTS

A. Provide new products unless specifically required or permitted by the Contract Documents.

B. Do not use products having any of the following characteristics:

1. Made using or containing CFC's or HCFC's.

C. Provide interchangeable components of the same manufacture for components being replaced.

D. Wiring Terminations: Provide terminal lugs to match branch circuit conductor quantities, sizes, and materials indicated. Size terminal lugs to NFPA 70, include lugs for terminal box.

E. Cord and Plug: Provide minimum 6 foot (2 m) cord and plug including grounding connector for connection to electric wiring system. Cord of longer length is specified in individual specification sections.

2.03 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.

B. Products Specified by naming one or more Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.

C. Products Specified by naming one or more Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

2.04 MAINTENANCE MATERIALS

A. Furnish extra materials, spare parts, tools, and software of types and in quantities specified in individual specification sections.

B. Deliver to Project site; obtain receipt prior to final payment.

PART 3 EXECUTION

3.01 SUBSTITUTION PROCEDURES

A. Refer to Section 00 2113 Instructions to Bidders. No Substitutions will be accepted during the bid period.

3.02 TRANSPORTATION AND HANDLING

A. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.

B. Transport and handle products in accordance with manufacturer's instructions.

C. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.

D. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.

E. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

F. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

3.03 STORAGE AND PROTECTION

A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication.

B. Store and protect products in accordance with manufacturers' instructions.

C. Store with seals and labels intact and legible.

D. Store sensitive products in weather tight, climate controlled, enclosures in an environment

favorable to product.

E. For exterior storage of fabricated products, place on sloped supports above ground.

F. Provide off-site storage and protection when site does not permit on-site storage or protection.

G. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.

H. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.

I. Prevent contact with material that may cause corrosion, discoloration, or staining.

J. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

K. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

END OF SECTION

SECTION 01 7000

EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Examination, preparation, and general installation procedures.

B. Requirements for alterations work, including selective demolition, except removal, disposal, and/or remediation of hazardous materials and toxic substances.

C. Pre-installation meetings.

D. Cutting and patching.

E. Surveying for laying out the work.

F. Cleaning and protection.

G. Starting of systems and equipment.

H. Demonstration and instruction of Owner personnel.

I. Closeout procedures, except payment procedures.

J. General requirements for maintenance service.

1.02 RELATED REQUIREMENTS

A. Section 01 3000 - Administrative Requirements: Submittals procedures.

B. Section 01 4000 - Quality Requirements: Testing and inspection procedures.

C. Section 01 5000 - Temporary Facilities and Controls: Temporary exterior enclosures.

D. Section 01 5100 - Temporary Utilities: Temporary heating, cooling, and ventilating facilities.

E. Section 01 5721 - Indoor Air Quality Controls.

F. Section 01 7419 - Construction Waste Management and Disposal: Additional procedures for trash/waste removal, recycling, salvage, and reuse.

G. Section 01 7800 - Closeout Submittals: Project record documents, operation and maintenance data, warranties and bonds.

1.03 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Cutting and Patching: Submit written request in advance of cutting or alteration that affects:
   1. Structural integrity of any element of Project.
   2. Integrity of weather exposed or moisture resistant element.
   3. Efficiency, maintenance, or safety of any operational element.
   4. Visual qualities of sight exposed elements.
   5. Work of Design Builder Office or separate Sub-Contractor.

1.04 QUALIFICATIONS

A. For demolition work, employ a firm specializing in the type of work required.

B. For field engineering, employ a professional engineer of the discipline required for specific service on Project.

1.05 PROJECT CONDITIONS

A. Each sub-contractor shall maintain their own excavations free of water. Provide, operate, and maintain pumping equipment.

B. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases. See Section 01 5721 - Indoor Air Quality Controls

C. Erosion and Sediment Control: Prevent erosion and sedimentation.
   1. Minimize amount of bare soil exposed at one time.
   2. Provide temporary measures such as berms, dikes, and drains, to prevent water flow.
   3. Construct fill and waste areas by selective placement to avoid erosive surface silts or clays.
   4. Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.

D. Noise Control: Provide methods, means, and facilities to minimize noise produced by construction operations per local ordinances or owner requirements whichever is stricter.

E. Pollution Control: Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations. Comply with federal, state, and local regulations.

1.06 COORDINATION

A. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.

B. Notify affected utility companies and comply with their requirements.

C. Verify that utility requirements and characteristics of new operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.

D. Coordinate space requirements, supports, and installation of mechanical and electrical work that are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

E. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.

F. Coordinate completion and clean-up of work of separate sections.

G. After Owner occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

PART 2 PRODUCTS

2.01 PATCHING MATERIALS

A. New Materials: As specified in product sections; match existing products and work for patching and extending work.

B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.

B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.

C. Examine and verify specific conditions described in individual specification sections.

D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or mis-fabrication.

E. Verify that utility services are available, of the correct characteristics, and in the correct locations.

F. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

3.02 PREPARATION

A. Clean substrate surfaces prior to applying next material or substance.

B. Seal cracks or openings of substrate prior to applying next material or substance.

C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

3.03 PREINSTALLATION MEETINGS

A. When required in individual specification sections, attend a pre-installation meeting prior to commencing work of the section.

B. Require attendance of parties directly affecting, or affected by, work of the specific section.

3.04 LAYING OUT THE WORK

A. Verify locations of survey control points prior to starting work.

B. Promptly notify Design Builder of any discrepancies discovered.

C. Design Builder will locate and protect survey control and reference points.

D. Promptly report to Design Builder the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.

E. Replace dislocated survey control points based on original survey control. Party responsible for dislocating survey control points shall pay for replacement.

F. Design Builder will provide a minimum of two permanent bench marks on site, referenced to established control points. Locations, with horizontal and vertical data, will be located on project record documents.

G. Periodically verify layouts to established benchmarks.

3.05 GENERAL INSTALLATION REQUIREMENTS

A. Design Builder will provide all column and grid lines on the existing structure for use of all sub-contractors. All other layout to be provided by sub-contractor requiring same.

B. All required field measuring of existing or new construction is the responsibility of the

subcontractor and/or supplier.

C. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.

D. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.

E. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.

F. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.

G. Make neat transitions between different surfaces, maintaining texture and appearance.

3.06 ALTERATIONS

A. Drawings showing existing construction and utilities are based on existing record documents only.
   1. Sub - Contractor shall verify that pertinent construction and utility arrangements are as shown.
   2. Report discrepancies to Design Builder before disturbing existing installation.
   3. Beginning of alterations work constitutes acceptance of existing conditions.

B. Keep areas in which alterations are being conducted separated from other areas that are still occupied.
   1. Provide, erect, and maintain temporary dustproof partitions.
   2. Provide sound retardant partitions of construction in locations indicated on drawings.

C. Maintain weatherproof exterior building enclosure except for interruptions required for replacement or modifications; take care to prevent water and humidity damage.
   1. Where openings in exterior enclosure exist, provide construction to make exterior enclosure weatherproof.
   2. Insulate existing ducts or pipes that are exposed to outdoor ambient temperatures by alterations work.

D. Remove existing work as indicated and as required to accomplish new work.
   1. Immediately inform Design Builder upon discovery of rotted wood, corroded metals, and deteriorated masonry and concrete.
   2. Remove items indicated on drawings.
   3. Relocate items indicated on drawings.
   4. Where new surface finishes are to be applied to existing work, perform removals, patch, and prepare existing surfaces as required to receive new finish; remove existing finish if necessary for successful application of new finish.
   5. Where new surface finishes are not specified or indicated, patch holes and damaged surfaces to match adjacent finished surfaces as closely as possible.

E. Services (Including but not limited to HVAC, Plumbing, Fire Protection, Electrical, and Telecommunications): Remove, relocate, and extend existing systems to accommodate new construction.
   1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components; if necessary, modify installation to allow access or provide access panel.
   2. Where existing systems or equipment are not active and Contract Documents require reactivation, put back into operational condition; repair supply, distribution, and equipment as required.

3. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
    a. Disable existing systems only to make switchovers and connections; minimize duration of outages.
    b. Provide temporary connections as required to maintain existing systems in service.
4. Verify that abandoned services serve only abandoned facilities.
5. Remove abandoned pipe, ducts, conduits, and equipment, including those above accessible ceilings; remove back to source of supply where possible, otherwise cap stub and tag with identification; patch holes left by removal using materials specified for new construction.

F. Protect existing work to remain.
    1. Prevent movement of structure; provide shoring and bracing if necessary.
    2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
    3. Repair adjacent construction and finishes damaged during removal work.
    4. Patch as specified for patching new work.

G. Adapt existing work to fit new work: Make as neat and smooth transition as possible.

H. When existing finished surfaces are cut so that a smooth transition with new work is not possible, terminate existing surface along a straight line at a natural line of division and make recommendation to Design Builder.

I. Where removal of partitions or walls results in adjacent spaces becoming one, rework floors, walls, and ceilings to a smooth plane without breaks, steps, or bulkheads.

J. Where a change of plane of 1/4 inch (6 mm) occurs in existing work, submit recommendation for providing a smooth transition for Design Builder review and request instructions.

K. Modify existing wood doors as necessary to clear new floor finish. Refinish trim as required.

L. Patching: Where the existing surface is not indicated to be refinished, patch to match the surface finish that existed prior to cutting. Where the surface is indicated to be refinished, patch so that the substrate is ready for the new finish.

M. Refinish existing surfaces as indicated:

N. Where rooms or spaces are indicated to be refinished, refinish all visible existing surfaces to remain to the specified condition for each material, with a neat transition to adjacent finishes.

O. If mechanical or electrical work is exposed accidentally during the work, re-cover and refinish to match.
    1. Patch as specified for patching new work.

P. Remove demolition debris and abandoned items from alterations areas and dispose of; do not burn or bury.

Q. Comply with all other applicable requirements of this section.

3.07 CUTTING AND PATCHING

A. Whenever possible, execute the work by methods that avoid cutting or patching.

B. See Alterations article above for additional requirements.

C. Perform whatever cutting and patching is necessary to:
   1. Complete the work.
   2. Fit products together to integrate with other work.
   3. Provide openings for penetration of mechanical, electrical, and other services.
   4. Match work that has been cut to adjacent work.
   5. Repair areas adjacent to cuts to required condition.
   6. Repair new work damaged by subsequent work.
   7. Remove samples of installed work for testing when requested.
   8. Remove and replace defective and non-conforming work.

D. Execute cutting and patching including excavation and fill to complete the work, to uncover work in order to install improperly sequenced work, to remove and replace defective or non-conforming work, to remove samples of installed work for testing when requested, to provide openings in the work for penetration of mechanical and electrical work, to execute patching to complement adjacent work, and to fit products together to integrate with other work. Provide clean-up of dust, water or other debris caused by cutting procedures.

E. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.

F. Employ skilled and experienced installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.

G. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.

H. Restore work with new products in accordance with requirements of Contract Documents.

I. Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

J. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with appropriate fire rated material in accordance with Section 078413 - Penetration Firestopping, to full thickness of the penetrated element.

K. Patching:
   1. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
   2. Match color, texture, and appearance.
   3. Repair patched surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. If defects are due to condition of substrate, repair substrate prior to repairing finish.

L. Refinish surfaces to match adjacent finish. For continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.

M. Make neat transitions. Patch work to match adjacent work in texture and appearance. Where new work abuts or aligns with existing, perform a smooth and even transition.

3.08 PROGRESS CLEANING

A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.

B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.

C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.

D. Collect and remove waste materials, debris, and trash/rubbish from site and dispose to designated location; do not burn or bury. If subcontractor fails to perform clean-up Design Builder will provide clean-up and charge sub-contractor.

3.09 PROTECTION OF INSTALLED WORK

A. Protect installed work from damage by construction operations.

B. Provide special protection where specified in individual specification sections.

C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.

D. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects.

E. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.

F. Remove protective coverings when no longer needed; reuse or recycle plastic coverings if possible.

3.10 SYSTEM STARTUP

A. Coordinate schedule for start-up with Design Builder Project Superintendent, of various equipment and systems.

B. Notify Design Builder seven days prior to start-up of each item.

C. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions that may cause damage.

D. Verify tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.

E. Verify that wiring and support components for equipment are complete and tested.

F. Execute start-up under supervision of applicable Sub-Contractor personnel and manufacturer's representative in accordance with manufacturers' instructions.

G. When specified in individual specification Sections, require manufacturer to provide authorized representative to be present at site to inspect, check, and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation.

H. Submit a written report that equipment or system has been properly installed and is functioning correctly.

3.11 DEMONSTRATION AND INSTRUCTION

A. See Section 01 7900 - Demonstration and Training.

B. Demonstrate operation and maintenance of products to Owner's personnel prior to date of Substantial Completion.

C. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with Owner's personnel in detail to explain all aspects of operation and maintenance.

D. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.

E. The amount of time required for instruction on each item of equipment and system is that specified in individual sections.

3.12 ADJUSTING

A. Adjust operating products and equipment to ensure smooth and unhindered operation.

B. Testing, adjusting, and balancing HVAC systems: See HVAC Specification Section.

3.13 FINAL CLEANING

A. Design Builder will provide comprehensive cleaning after final acceptance.

B. Use cleaning materials that are nonhazardous.

C. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.

D. Remove all labels that are not permanent. Do not paint or otherwise cover fire test labels or nameplates on mechanical and electrical equipment.

E. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.

F. Clean filters of operating equipment.

G. Clean debris from roofs, gutters, downspouts, and drainage systems.

H. Clean site; sweep paved areas, rake clean landscaped surfaces.

I. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

3.14 CLOSEOUT PROCEDURES

A. Make submittals that are required by governing or other authorities.
   1. Provide copies to Design Builder.

B. Accompany Design Builder Project Superintendent on preliminary inspection to determine items to be listed for completion or correction in Sub-Contractor's Notice of Substantial Completion.

C. Notify Design Builder when work is considered ready for Substantial Completion.

D. Correct items of work listed in executed Certificates of Substantial Completion and comply with requirements for access to Owner-occupied areas.

E. Accompany Design Builder Project Superintendent on preliminary final inspection.

F. Notify Design Builder when work is considered finally complete.

G. Complete items of work determined by Design Builder's final inspection.

3.15 MAINTENANCE

A. Provide service and maintenance of components indicated in specification sections.

B. Maintenance Period: As indicated in specification sections or, if not indicated, not less than one year from the Date of Substantial Completion or the length of the specified warranty, whichever is longer.

END OF SECTION

SECTION 01 7800

CLOSEOUT SUBMITTALS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Project Record Documents.

B. Operation and Maintenance Data (inclusive of any product data and extended manufacturer's warranties).

C. Warranties (and bonds if applicable).

1.02 RELATED REQUIREMENTS

A. Section 00 7200 - General Conditions: Performance bond and labor and material payment bonds, warranty, and correction of work.

B. Section 01 3000 - Administrative Requirements: Submittals procedures, shop drawings, product data, and samples.

C. Section 01 7000 - Execution and Closeout Requirements: Contract closeout procedures.

D. Individual Product Sections: Specific requirements for operation and maintenance data.

E. Individual Product Sections: Warranties required for specific products or Work.

1.03 SUBMITTALS

A. Project Record Documents: Submit documents to Design Builder with claim for final Application for Payment.

B. Operation and Maintenance Data:
   1. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit completed documents within ten days after acceptance.
   2. Submit final documents within 10 days after final inspection, electronically if possible.

C. Warranties and Bonds:
   1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within 10 days after acceptance.
   2. Make other submittals within 10 days after Date of Substantial Completion, prior to final Application for Payment.
   3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within 10 days after acceptance, listing the date of acceptance as the beginning of the warranty period.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PROJECT RECORD DOCUMENTS

A. Maintain on site one set of the following record documents; record actual revisions to the Work:
   1. Drawings.
   2. Addenda.
   3. Change Orders and other modifications to the Contract.

B. Ensure entries are complete and accurate, enabling future reference by Design Builder.

C. Store record documents separate from documents used for construction.

D. Record information concurrent with construction progress.

E. Record Drawings (as-builts): Legibly mark each item in red pencil or red ink to record actual construction including:
   1. Measured depths of foundations in relation to finish main floor datum.
   2. Field changes of dimension and detail.
   3. Details not on original Contract drawings.

3.02 OPERATION AND MAINTENANCE DATA

A. For Each Product or System: List names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.

B. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.

C. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.

D. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

3.03 OPERATION AND MAINTENANCE DATA FOR MATERIALS AND FINISHES

A. For Each Product, Applied Material, and Finish:
   1. Product data, with catalog number, size, composition, and color and texture designations.
   2. Information for re-ordering custom manufactured products.

B. Instructions for Care and Maintenance: Manufacturer's recommendations for cleaning agents and methods, precautions against detrimental cleaning agents and methods, and recommended schedule for cleaning and maintenance.

C. Moisture protection and weather-exposed products: Include product data listing applicable reference standards, chemical composition, and details of installation. Provide recommendations for inspections, maintenance, and repair.

D. Additional information as specified in individual product specification sections.

E. Provide a listing in Table of Contents for design data.

3.04 OPERATION AND MAINTENANCE DATA FOR EQUIPMENT AND SYSTEMS

A. For Each Item of Equipment and Each System:
   1. Description of unit or system, and component parts.
   2. Identify function, normal operating characteristics, and limiting conditions.
   3. Include performance curves, with engineering data and tests.
   4. Complete nomenclature and model number of replaceable parts.

B. Panel board Circuit Directories: Provide electrical service characteristics, controls, and communications; typed.

C. Include color coded wiring diagrams as installed.

D. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.

E. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and troubleshooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

F. Provide servicing and lubrication schedule, and list of lubricants required.

G. Include manufacturer's printed operation and maintenance instructions.

H. Include sequence of operation by controls manufacturer.

I. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

J. Provide control diagrams by controls manufacturer as installed.

K. Provide Sub-Contractor's coordination drawings, with color coded piping diagrams as installed.

L. Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.

M. Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.

N. Include test and balancing reports.

O. Additional Requirements: As specified in individual product specification sections.

3.05 OPERATION AND MAINTENANCE MANUALS

A. Prepare instructions and data by personnel experienced in maintenance and operation of described products.

B. Prepare data in the form of an electronic instructional manual in pdf format.

C. Cover: Identify each document with typed title OPERATION AND MAINTENANCE INSTRUCTIONS; identify title of Project; identify subject matter of contents.

D. Provide subtitle pages for each separate product and system, with typed description of product and major component parts of equipment.

E. Text: Manufacturer's data printed data clearly scanned to pdf.

F. Drawings: Provide electronic pdf file, submit electronically or via cd or dvd, no USB drives.

G. Arrange content by systems under section numbers and sequence of Table of Contents of this Project Manual.

H. Contents: Prepare a Table of Contents for each volume, with each product or system description identified, in three parts as follows:
   1. Part 1: Directory, listing names, addresses, and telephone numbers of Design Builder, Sub-Contractor, and major equipment suppliers.
   2. Part 2: Operation and maintenance instructions, arranged by system and subdivided by specification section. For each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Identify the following:
      a. Significant design criteria.
      b. List of equipment.
      c. Parts list for each component.
      d. Operating instructions.
      e. Maintenance instructions for equipment and systems.
      f. Maintenance instructions for finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents.

3. Part 3: Project documents and certificates, including the following:
    a. Shop drawings and product data.
    b. Air and water balance reports.
    c. Certificates.
    d. Photocopies of warranties and bonds.

J. Provide a listing in Table of Contents for design data.

3.06 WARRANTIES AND BONDS

A. Provide warranties, executed in triplicate by responsible Subcontractors, suppliers, and manufacturers, within 10 days after substantial completion of the applicable item of work. For items put into use with Design Builder permission, leave date of beginning of time of warranty until the Date of Substantial completion is determined.

B. Verify that documents are in proper form, contain full information.

C. Co-execute submittals when required.

D. Retain warranties until time specified for submittal.

E. Include photocopies of each in operation and maintenance manuals, indexed separately on Table of Contents.

END OF SECTION

SECTION 01 7900

DEMONSTRATION AND TRAINING

PART 1 GENERAL

1.01 SUMMARY

A. Demonstration of products and systems where indicated in specific specification sections.

B. Training of Owner personnel in operation and maintenance is required for:
   1. All software-operated systems.
   2. HVAC systems and equipment.
   3. Plumbing equipment.
   4. Electrical systems and equipment.
   5. Conveying systems.
   6. Landscape irrigation.
   7. Items specified in individual product Sections.

C. Training of Owner personnel in care, cleaning, maintenance, and repair is required for:
   1. Roofing, waterproofing, and other weather-exposed or moisture protection products.
   2. Finishes, including flooring, wall finishes, and ceiling finishes.
   3. Fixtures and fittings.
   4. Items specified in individual product Sections.

1.02 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Training Reports:
   1. Identification of each training session, date, time, and duration.
   2. Sign-in sheet showing names and job titles of attendees.
   3. List of attendee questions and written answers given, including copies of and references to supporting documentation required for clarification; include answers to questions that could not be answered in original training session.

1.03 QUALITY ASSURANCE

A. Instructor Qualifications: Familiar with design, operation, maintenance and troubleshooting of the relevant products and systems.
   1. Provide as instructors the most qualified trainer of those contractors and/or installers who actually supplied and installed the systems and equipment.
   2. Where a single person is not familiar with all aspects, provide specialists with necessary qualifications.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 DEMONSTRATION - GENERAL

A. Demonstrations conducted during system start-up do not qualify as demonstrations for the purposes of this section, unless approved in advance by Design Builder.

B. Demonstration may be combined with Owner personnel training if applicable.

C. Operating Equipment and Systems: Demonstrate operation in all modes, including start-up, shut-down, seasonal changeover, emergency conditions, and troubleshooting, and maintenance procedures, including scheduled and preventive maintenance.
   1. Perform demonstrations prior to Substantial Completion.
   2. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.

D. Non-Operating Products: Demonstrate cleaning, scheduled and preventive maintenance, and repair procedures.
   1. Perform demonstrations prior to Substantial Completion.

3.02 TRAINING - GENERAL

A. Conduct training on-site unless otherwise indicated.

B. Do not start training until Functional Testing is complete, unless otherwise specified or approved by Design Builder.

C. Design Builder is responsible for determining that the training was satisfactorily completed.

D. Training schedule will be subject to availability of Owner's personnel to be trained; re-schedule training sessions as required by Owner; once schedule has been approved by Owner failure to conduct sessions according to schedule will be cause for Owner to charge Sub-Contractor for personnel "show-up" time.

E. Review of Facility Policy on Operation and Maintenance Data: During training discuss:
   1. The location of the O and M manuals and procedures for use and preservation; backup copies.
   2. Typical contents and organization of all manuals, including explanatory information, system narratives, and product specific information.
   3. Typical uses of the O and M manuals.

F. Product and System-Specific Training:
   1. Review the applicable O and M manuals.
   2. For systems, provide an overview of system operation, design parameters and constraints, and operational strategies.
   3. Review instructions for proper operation in all modes, including start-up, shut-down, seasonal changeover and emergency procedures, and for maintenance, including preventative maintenance.
   4. Provide hands-on training on all operational modes possible and preventive maintenance.
   5. Emphasize safe and proper operating requirements; discuss relevant health and safety issues and emergency procedures.
   6. Discuss common troubleshooting problems and solutions.
   7. Discuss any peculiarities of equipment installation or operation.
   8. Discuss warranties and guarantees, including procedures necessary to avoid voiding coverage.
   9. Review recommended tools and spare parts inventory suggestions of manufacturers.
   10. Review spare parts and tools required to be furnished by Sub-Contractor.
   11. Review spare parts suppliers and sources and procurement procedures.

G. Be prepared to answer questions raised by training attendees; if unable to answer during training session, provide written response.

END OF SECTION

SECTION 03 3000

CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes, for the following:

1. Footings.
2. Foundation walls.
3. Slabs-on-grade.
    a. See 03 3543 Concrete Polishing System for mix requirements for areas receiving polished concrete finish.

1.2 ACTION SUBMITTALS

A. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

B. Steel Reinforcement Shop Drawings: Placing drawings that detail fabrication, bending, and placement. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement.

1.3 QUALITY ASSURANCE

A. Installer Qualifications: A qualified installer who employs on Project personnel qualified as ACI-certified Flatwork Technician and Finisher and a supervisor who is an ACI-certified Concrete Flatwork Technician.

B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.

C. Testing Agency Qualifications: An independent agency, qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.

D. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:

1. ACI 301, "Specifications for Structural Concrete," Sections 1 through 5.
2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."

E. Concrete Testing Service: Engage a qualified independent testing agency to perform material evaluation tests and to design concrete mixtures.

F. Pre-installation Conference: Conduct conference at Project site.

1. Before submitting design mixtures, review concrete design mixture and examine procedures for ensuring quality of concrete materials. Require representatives of each entity directly concerned with cast-in-place concrete to attend, including the following:

a. Ready-mix concrete manufacturer.

2. Review special inspection and testing and inspecting agency procedures for field quality control, construction contraction and isolation joints, and joint-filler strips, semi-rigid joint fillers, vapor-retarder installation, steel reinforcement installation, and concrete protection.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage.

PART 2 - PRODUCTS

2.1 FORM-FACING MATERIALS

A. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.

B. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.

1. Formulate form-release agent with rust inhibitor for steel form-facing materials.

C. Form Ties: Factory-fabricated, removable or snap-off metal or glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.

1. Furnish units that will leave no corrodible metal closer than 1 inch to the plane of exposed concrete surface.
2. Furnish ties that, when removed, will leave holes no larger than 1 inch in diameter in concrete surface.
3. Furnish ties with integral water-barrier plates to walls indicated to receive dampproofing or waterproofing.

2.2 STEEL REINFORCEMENT

A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.

B. Plain-Steel Welded Wire Reinforcement: ASTM A 185/A 185M, plain, fabricated from as-drawn steel wire into flat sheets.

2.3 REINFORCEMENT ACCESSORIES

A. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and

fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:

2.4 CONCRETE MATERIALS

A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:

1. Portland Cement: ASTM C 150, Type I/II, gray. Supplement with the following:

B. Normal-Weight Aggregates: ASTM C 33, coarse aggregate, graded..

1. Maximum Coarse-Aggregate Size: as indicated.1 inch
2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

C. Water: ASTM C 94/C 94M and potable.

2.5 ADMIXTURES

A. Air-Entraining Admixture: ASTM C 260.

B. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
2. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.

2.6 VAPOR RETARDERS

A. Sheet Vapor Retarder: Polyethylene sheet, ASTM D 4397, not less than 6 mils thick.

2.7 CURING MATERIALS

A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.

B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

C. Water: Potable.

D. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.

2.8 RELATED MATERIALS

A. Expansion and Isolation Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber.

B. Semi-rigid Joint Filler: Two-component, semi-rigid, 100 percent solids, epoxy resin with a Type A shore durometer hardness of 80 per ASTM D 2240.

2.9 CONCRETE MIXTURES, GENERAL

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.

B. Admixtures: Use admixtures according to manufacturer's written instructions.

1. Use water-reducing admixture in concrete, as required, for placement and workability.
2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.

2.10 CONCRETE MIXTURES FOR BUILDING ELEMENTS

A. Footings: Proportion normal-weight concrete mixture as follows:

1. Minimum Compressive Strength: 4000 psi at 28 days.
2. Maximum Water-Cementitious Materials Ratio: 0.45.
3. Slump Limit: 8 inches for concrete with verified slump of 2 to 4 inches before adding high-range water-reducing admixture or plasticizing admixture, plus or minus 1 inch.

B. Foundation Walls: Proportion normal-weight concrete mixture as follows:

1. Minimum Compressive Strength: 4000 psi at 28 days.
2. Maximum Water-Cementitious Materials Ratio: 0.45.
3. Slump Limit: 8 inches for concrete with verified slump of 2 to 4 inches before adding high-range water-reducing admixture or plasticizing admixture, plus or minus 1 inch.

C. Slabs-on-Grade: Proportion normal-weight concrete mixture as follows:

1. Minimum Compressive Strength: 4000 psi at 28 days.
2. Slump Limit: 4 inches, plus or minus 1 inch.

2.11 FABRICATING REINFORCEMENT

A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.12 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M and ASTM C 1116/C 1116M, and furnish batch ticket information.

1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 FORMWORK

A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.

B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.

C. Limit concrete surface irregularities, designated by ACI 347 as abrupt or gradual, as follows:

1. Class C, 1/2 inch for rough-formed finished surfaces.

D. Construct forms tight enough to prevent loss of concrete mortar.

E. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.

1. Install keyways, reglets, recesses, and the like, for easy removal.
2. Do not use rust-stained steel form-facing material.

F. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.

G. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.

H. Chamfer exterior corners and edges of permanently exposed concrete.

I. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.

J. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.

K. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.

L. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.2 EMBEDDED ITEMS

A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

3.3 REMOVING AND REUSING FORMS

A. General: Formwork for sides of beams, walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F for 24 hours after placing concrete. Concrete has to be hard enough to not be damaged by form-removal operations and curing and protection operations need to be maintained.

1. Leave formwork for beam soffits, joists, slabs, and other structural elements that supports weight of concrete in place until concrete has achieved at least 70 percent of its 28-day design compressive strength.
2. Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.

B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.

C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

3.4 VAPOR RETARDERS

A. Sheet Vapor Retarders: Place, protect, and repair sheet vapor retarder according to ASTM E 1643 and manufacturer's written instructions.

1. Lap joints 6 inches and seal with manufacturers recommended tape.

3.5 STEEL REINFORCEMENT

A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.

1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.

B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that would reduce bond to concrete.

C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.

1. Weld reinforcing bars according to AWS D1.4/D 1.4M, where indicated.

D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.

E. Install welded wire reinforcement in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.

3.6 JOINTS

A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.

B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.

1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.

C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness as follows:

1. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.

D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.

1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface unless otherwise indicated.

3.7 CONCRETE PLACEMENT

A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.

B. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301 and 03 3543 Polished Concrete Finishing.

C. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.

1. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.
2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.

3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.

D. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.

1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
2. Maintain reinforcement in position on chairs during concrete placement.
3. Screed slab surfaces with a straightedge and strike off to correct elevations.
4. Slope surfaces uniformly to drains where required.
5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleed water appears on the surface. Do not further disturb slab surfaces before starting finishing operations.

E. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.

1. When average high and low temperature is expected to fall below 40 deg F for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.
2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.

F. Hot-Weather Placement: Comply with ACI 301 and as follows:

1. Maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

3.8 FINISHING FORMED SURFACES

A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces not exposed to public view.

B. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed

surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

3.9 FINISHING FLOORS AND SLABS

A. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture.

1. Apply float finish to surfaces to receive trowel finish.

C. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.

1. Apply a trowel finish to surfaces exposed to view or to be covered with resilient flooring, carpet, ceramic or quarry tile set over a cleavage membrane, paint, or another thin-film-finish coating system.
2. Finish surfaces to the following tolerances, according to ASTM E 1155, for a randomly trafficked floor surface:

    a. Specified overall values of flatness, F(F) 45; and of levelness, F(L) 35; with minimum local values of flatness, F(F) 35; and of levelness, F(L) 25

D. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, ramps, and elsewhere as indicated.

1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Architect before application.

3.10 MISCELLANEOUS CONCRETE ITEMS

A. Filling In: Fill in holes and openings left in concrete structures after work of other trades is in place unless otherwise indicated. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete the Work.

3.11 CONCRETE PROTECTING AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.

B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.

C. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for the remainder of the curing period.

D. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.

E. Cure concrete according to ACI 308.1, by one or a combination of the following methods:

1. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

    a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive floor coverings.
    b. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive penetrating liquid floor treatments.
    c. Cure concrete surfaces to receive floor coverings with either a moisture-retaining cover or a curing compound that the manufacturer certifies will not interfere with bonding of floor covering used on Project.

2. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

3.12 JOINT FILLING

A. Prepare, clean, and install joint filler according to manufacturer's written instructions.

1. Defer joint filling until concrete has aged at least one month(s). Do not fill joints until construction traffic has permanently ceased.

B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joint clean and dry.

C. Install semi-rigid joint filler full depth in saw-cut joints and at least 2 inches deep in formed joints. Overfill joint and trim joint filler flush with top of joint after hardening.

3.13 CONCRETE SURFACE REPAIRS

A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.

B. Patching Mortar: Mix dry-pack patching mortar, consisting of one part portland cement to two and one-half parts fine aggregate passing a No. 16 sieve, using only enough water for handling and placing.

C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.

1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch in any dimension to solid concrete. Limit cut depth to 3/4 inch. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement so that, when dry, patching mortar will match surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Architect.

D. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.

1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
2. After concrete has cured at least 14 days, correct high areas by grinding.
3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
4. Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.
5. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch to match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.

6. Repair defective areas, except random cracks and single holes 1 inch or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least a 3/4-inch clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mixture as original concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
7. Repair random cracks and single holes 1 inch or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.

E. Perform structural repairs of concrete, subject to Architect's approval, using epoxy adhesive and patching mortar.

F. Repair materials and installation not specified above may be used, subject to Architect's approval.

3.14 FIELD QUALITY CONTROL

A. Testing and Inspecting: Engage a qualified testing and inspecting agency to perform tests and inspections and to submit reports.
1. Testing Frequency: Obtain at least one composite sample for each 100 cu. yd. (76 cu. m) or fraction thereof of each concrete mixture placed each day.

    a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.

2. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
3. Air Content: ASTM C 231, pressure method, for normal-weight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
4. Compression Test Specimens: ASTM C 31/C 31M.
    a. Cast and field cure four two standard cylinder specimens for each composite sample.

5. Compressive-Strength Tests: ASTM C 39/C 39M;

    a. Test one field-cured specimen at 7 days and two specimens at 28 days. Retain fourth specimen for testing at 56 days if necessary.
    b. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.

6. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
7. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi (3.4 MPa).
8. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
9. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
10. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42/C 42M or by other methods as directed by Architect.
11. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
12. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.

END OF SECTION

CONCRETE MIX DESIGN SUBMITTAL FORM

Project:
City:
General Contractor:
Concrete Contractor:
Concrete Strength (Class):
Use (describe):

Design Mix Information

	Please check one
Based on Standard Deviation Analysis	
Trial Mix Test Data	

Design Characteristics:

Density	pcf
Strength	psi (28 day)
Air	% specified

MATERIALS	***Type/ Source***	***Specific Gravity***	***Weight/ lb.***	***Absolute Vol. cu.ft.***
Cement				
Fly Ash				
Slag				
Coarse Aggregate				
Fine Aggregate				
Water				
Air				
Other				
		TOTAL		27.0 cu. ft.

* Water/Cementitious Ratio (lbs. water/lbs. cement) = _____%

ADMIXTURES

	Manufacturer	Dosage oz/cwt
Water Reducer		
Air Entraining Agent		
High Range Water Reducer		
Non-Corrosive Accelerator		
Other		

Slump before HRWR *inches*
Slump after HRWR *inches*
Standard Deviation Analysis (from experience records):

# of Test Cylinders Evaluated:
Standard Deviation:
USE THE LARGER VALUE:
f'cr = f 'c + 1.34s or f 'cr = f 'c + 2.33s - 500 for 5000 PSI or less
f 'cr = 0.90 f 'c + 2.33s for higher strengths
(Refer to ACI 301 for increased deviation factor when less than 30 tests are available)

LABORATORY TEST DATA

Compressive Strength	Age (days)	Mix # 1	Mix #2	Mix #3
	7	psi	psi	psi
	7	psi	psi	psi
	28	psi	psi	psi
	28	psi	psi	psi
	28 average	psi	psi	psi

F'cr = f'c + 1200 psi for 5000 psi or less Or 1.10 f'c + 700 psi
for strengths higher than 5000 psi at 28 days

REQUIRED ATTACHMENTS:

Please Check

Combined Aggregate Gradation Report
Standard Deviation Analysis of Compressive Strength Data or Trial Mixture Test Data
Admixture Compatibility certification letter

Submitted by:
Name:
Address:
Phone #:
Main Plant Location:
Miles from Project:
Secondary Plant Location:
Miles from Project:
Date:

SECTION 05 1200

STRUCTURAL STEEL FRAMING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes structural steel and grout.

1.2 DEFINITIONS

A. Structural Steel: Elements of structural-steel frame, as classified by AISC 303, "Code of Standard Practice for Steel Buildings and Bridges."

1.3 ACTION SUBMITTALS

A. Shop Drawings: Show fabrication of structural-steel components.

1.4 QUALITY ASSURANCE

A. Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."

B. Comply with applicable provisions of the following specifications and documents:

1. AISC 303.
2. AISC 360.
3. RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."

PART 2 - PRODUCTS

2.1 STRUCTURAL-STEEL MATERIALS

A. W-Shapes: ASTM A 992/A 992M.

B. Channels, Angles, S-Shapes: ASTM A.

C. Plate and Bar: ASTM A 36/A 36M.

D. Cold-Formed Hollow Structural Sections: ASTM A 500, Grade B, structural tubing.

E. Welding Electrodes: Comply with AWS requirements.

2.2 BOLTS, CONNECTORS, AND ANCHORS

A. High-Strength Bolts, Nuts, and Washers: ASTM A 325, Type 1, heavy-hex steel structural bolts; ASTM A 563, Grade C, heavy-hex carbon-steel nuts; and ASTM F 436, Type 1, hardened carbon-steel washers; all with plain finish.

B. High-Strength Bolts, Nuts, and Washers: ASTM A 490, Type 1, heavy-hex steel structural bolts; ASTM A 563, Grade DH, heavy-hex carbon-steel nuts; and ASTM F 436, Type 1, hardened

carbon-steel washers with plain finish.

C. Unheaded Anchor Rods: ASTM F 1554, Grade 55.

1. Configuration: Straight.
2. Finish: Plain.

D. Threaded Rods: ASTM A 36/A 36M.

1. Finish: Plain.

2.3 PRIMER

A. Primer: Fabricator's standard lead- and chromate-free, non-asphaltic, rust-inhibiting primer complying with MPI#79 and compatible with topcoat.

2.4 GROUT

A. Nonmetallic, Shrinkage-Resistant Grout: ASTM C 1107, factory-packaged, nonmetallic aggregate grout, noncorrosive and non-staining, mixed with water to consistency suitable for application and a 30-minute working time.

2.5 FABRICATION

A. Structural Steel: Fabricate and assemble in shop to greatest extent possible. Fabricate according to AISC's "Code of Standard Practice for Steel Buildings and Bridges" and AISC 360.

2.6 SHOP CONNECTIONS

A. Weld Connections: Comply with AWS D1.1/D1.1M for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.

2.7 SHOP PRIMING

A. Shop prime steel surfaces except the following:

1. Surfaces embedded in concrete or mortar. Extend priming of partially embedded members to a depth of 2 inches.
2. Surfaces to be field welded.
3. Surfaces to be high-strength bolted with slip-critical connections.
4. Surfaces to receive sprayed fire-resistive materials (applied fireproofing).

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify, with steel Erector present, elevations of concrete- and masonry-bearing surfaces and locations of anchor rods, bearing plates, and other embedments for compliance with requirements.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 ERECTION

A. Set structural steel accurately in locations and to elevations indicated and according to AISC 303 and AISC 360.

B. Base Bearing Plates: Clean concrete- and masonry-bearing surfaces of bond-reducing materials, and roughen surfaces prior to setting plates. Clean bottom surface of plates.

1. Set plates for structural members on wedges, shims, or setting nuts as required.
2. Weld plate washers to top of baseplate.
3. Snug-tighten anchor rods after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of plate before packing with grout.
4. Promptly pack grout solidly between bearing surfaces and plates so no voids remain. Neatly finish exposed surfaces; protect grout and allow to cure.

C. Maintain erection tolerances of structural steel within AISC's "Code of Standard Practice for Steel Buildings and Bridges."

3.3 FIELD CONNECTIONS

A. Weld Connections: Comply with AWS D1.1/D1.1M [and AWS D1.8/D1.8M] for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.

1. Comply with AISC 303 and AISC 360 for bearing, alignment, adequacy of temporary connections, and removal of paint on surfaces adjacent to field welds.

3.4 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to inspect field welds.

B. Bolted Connections: Bolted connections will be inspected according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."

C. Welded Connections: Field welds will be visually inspected according to AWS D1.1/D1.1M.

D. Correct deficiencies in Work that test reports and inspections indicate does not comply with the Contract Documents.

END OF SECTION

SECTION 05 5000

METAL FABRICATIONS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Miscellaneous steel framing and supports.
2. Shelf angles.
3. Metal ladders.
4. Miscellaneous steel trim.
5. Metal bollards.
6. Structural steel door frames.

1.2 ACTION SUBMITTALS

A. Shop Drawings: Show fabrication and installation details for metal fabrications.

1. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items.

PART 2 - PRODUCTS

2.1 METALS, GENERAL

A. Metal Surfaces, General: Provide materials with smooth, flat surfaces without blemishes.

2.2 FERROUS METALS

A. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.

2.3 FASTENERS

A. General: Unless otherwise indicated, provide Type 304 stainless-steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B 633 or ASTM F 1941, Class Fe/Zn 5, at exterior walls.

2.4 MISCELLANEOUS MATERIALS

A. Galvanizing Repair Paint: High-zinc-dust-content paint complying with SSPC-Paint 20 and compatible with paints specified to be used over it.

B. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187.

2.5 FABRICATION, GENERAL

A. Shop Assembly: Preassemble items in the shop to greatest extent possible. Use connections that maintain structural value of joined pieces.

B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges. Remove sharp or rough areas on exposed surfaces.

C. Weld corners and seams continuously to comply with the following:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
2. Obtain fusion without undercut or overlap.
3. Remove welding flux immediately.
4. At exposed connections, finish exposed welds and surfaces smooth and blended.

D. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners or welds where possible. Locate joints where least conspicuous.

E. Fabricate seams and other connections that will be exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.

F. Where units are indicated to be cast into concrete or built into masonry, equip with integrally welded steel strap anchors not less than 24 inches o.c.

2.6 MISCELLANEOUS FRAMING AND SUPPORTS

A. General: Provide steel framing and supports not specified in other Sections as needed to complete the Work.

B. Fabricate units from steel shapes, plates, and bars of welded construction unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive adjacent construction.

2.7 SHELF ANGLES

A. Fabricate shelf angles from steel angles of sizes indicated and for attachment to concrete framing. Provide horizontally slotted holes to receive 3/4-inch bolts, spaced not more than 6 inches from ends and 24 inches o.c., unless otherwise indicated.

B. For cavity walls, provide vertical channel brackets to support angles from backup masonry and concrete.

C. Galvanize shelf angles located in exterior walls.

2.8 METAL LADDERS

A. General:

1. Comply with ANSI A14.3 unless otherwise indicated.
2. For elevator pit ladders, comply with ASME A17.1.

B. Steel Ladders:

1. Space siderails of elevator pit ladders 12 inches apart.
2. Fit rungs in centerline of siderails; plug-weld and grind smooth on outer rail faces.

2.9 STRUCTURAL-STEEL DOOR FRAMES

A. Fabricate structural-steel door frames from steel shapes fully welded together, with 5/8-by-1-1/2-inch steel channel stops. Plug-weld built-up members and continuously weld

exposed joints. Reinforce frames and drill and tap as necessary to accept finish hardware.

2.10 MISCELLANEOUS STEEL TRIM

A. Unless otherwise indicated, fabricate units from steel shapes, plates, and bars of profiles shown with continuously welded joints and smooth exposed edges. Miter corners and use concealed field splices where possible.

B. Provide cutouts, fittings, and anchorages as needed to coordinate assembly and installation with other work.

2.11 METAL BOLLARDS

A. Fabricate metal bollards from Schedule 40 steel pipe.

B. Prime bollards with zinc-rich primer.

2.12 FINISHES, GENERAL

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Finish metal fabrications after assembly.

2.13 STEEL AND IRON FINISHES

A. Galvanizing: Hot-dip galvanize items as indicated to comply with ASTM A 153/A 153M for steel and iron hardware and with ASTM A 123/A 123M for other steel and iron products.

B. Shop prime iron and steel items not indicated to be galvanized unless they are to be embedded in concrete, sprayed-on fireproofing, or masonry, or unless otherwise indicated.

1. Shop prime with unless indicated.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.

B. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.

C. Field Welding: Comply with the following requirements:

1. Use materials and methods that minimize distortion and develop strength and corrosion

resistance of base metals.

2. Obtain fusion without undercut or overlap.
3. Remove welding flux immediately.
4. At exposed connections, finish exposed welds and surfaces smooth and blended.

D. Fastening to In-Place Construction: Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction.

E. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.

3.2 INSTALLING METAL BOLLARDS

A. Fill bollards solidly with concrete, mounding top surface to shed water.

3.3 ADJUSTING AND CLEANING

A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas. Paint uncoated and abraded areas with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.

END OF SECTION

SECTION 06 1000

ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Wood blocking and nailers.
   2. Plywood backing panels.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
   1. Factory mark each piece of lumber with grade stamp of grading agency.
   2. Provide dressed lumber, S4S, unless otherwise indicated.

B. Maximum Moisture Content of Lumber: 19 percent unless otherwise indicated.

2.2 WOOD-PRESERVATIVE-TREATED LUMBER

A. Preservative Treatment by Pressure Process: AWPA U1; Use Category UC2 for interior construction not in contact with the ground, Use Category UC3b for exterior construction not in contact with the ground, and Use Category UC4a for items in contact with the ground.
   1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium. Do not use inorganic boron (SBX) for sill plates.

B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or that does not comply with requirements for untreated material.

C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.

D. Application: Treat items indicated on Drawings, and the following:

   1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
   2. Wood sills, sleepers, blocking, furring, and similar concealed members in contact with masonry or concrete.

2.3 PLYWOOD BACKING PANELS AND BLOCKING

A. Equipment Backing Panels: PS 1-09, Exposure 1, A-D, fire-retardant treated, in thickness

indicated or, if not indicated, not less than 1/2-inch nominal thickness.

2.4 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.

1. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.

B. Power-Driven Fasteners: NES NER-272.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring, nailers, blocking, and similar supports to comply with requirements for attaching other construction.

B. Do not splice structural members between supports unless otherwise indicated.

C. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.

D. Where wood-preservative-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking.

E. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

1. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.
2. Table R602.3 (1), "Fastener Schedule for Structural Members," and Table R602.3 (2), "Alternate Attachments," in ICC's International Residential Code for One- and Two-Family Dwellings.

3.2 PROTECTION

A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

B. Protect rough carpentry from weather. If, despite protection, rough carpentry becomes sufficiently wet that moisture content exceeds that specified, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION

SECTION 06 1600

SHEATHING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Wall or roof sheathing.

1.2 INFORMATIONAL SUBMITTALS

A. Evaluation Reports: For following products, from ICC-ES:

1. Preservative-treated plywood.
2. Fire-retardant-treated plywood.

PART 2 - PRODUCTS

2.1 WOOD PANEL PRODUCTS

1. Plywood.
2. Oriented strand board.

B. Plywood: Either DOC PS 1 or DOC PS 2 unless otherwise indicated.

C. Oriented Strand Board: DOC PS 2.

2.2 PRESERVATIVE-TREATED PLYWOOD

A. Preservative Treatment by Pressure Process: AWPA U1; Use Category UC2 for interior construction, Use Category UC3b for exterior construction.

B. Mark plywood with appropriate classification marking of an inspection agency acceptable to authorities having jurisdiction.

C. Application: Treat items indicated on Drawings and plywood in contact with masonry or concrete or used with roofing, flashing, vapor barriers, and waterproofing.

2.3 FIRE-RETARDANT-TREATED PLYWOOD

A. General: Where fire-retardant-treated materials are indicated, use materials complying with requirements in this article that are acceptable to authorities having jurisdiction and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.

B. Fire-Retardant-Treated Plywood by Pressure Process: Products with a flame-spread index of 25 or less when tested according to ASTM E 84, and with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the

flame front not extending more than 10.5 feet beyond the centerline of the burners at any time during the test.

1. Exterior Type: Treated materials shall comply with requirements specified above for fire-retardant-treated plywood by pressure process after being subjected to accelerated weathering according to ASTM D 2898. Use for exterior locations and where indicated.
2. Interior Type A: Treated materials shall have a moisture content of 28 percent or less when tested according to ASTM D 3201 at 92 percent relative humidity. Use where exterior type is not indicated.

C. Kiln-dry material after treatment to a maximum moisture content of 15 percent.

D. Identify fire-retardant-treated plywood with appropriate classification marking of qualified testing agency.

E. Application: Treat plywood indicated on Drawings.

2.4 ROOF SHEATHING

A. Plywood Roof Sheathing: Exterior, Structural I sheathing.

B. Oriented-Strand-Board Roof Sheathing: Exposure 1, Structural I sheathing.

2.5 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.

1. For roof and wall sheathing, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Do not use materials with defects that impair quality of sheathing or pieces that are too small to use with minimum number of joints or optimum joint arrangement. Arrange joints so that pieces do not span between fewer than three support members.

B. Cut panels at penetrations, edges, and other obstructions of work; fit tightly against abutting construction unless otherwise indicated.

C. Securely attach to substrate by fastening as indicated, complying with the following:

1. NES NER-272 for power-driven fasteners.
2. Table 2304.9.1, "Fastening Schedule," in ICC's "International Building Code."
3. Table R602.3 (1), "Fastener Schedule for Structural Members," and Table R602.3 (2), "Alternate Attachments," in ICC's "International Residential Code for One- and Two-Family Dwellings."

D. Coordinate wall sheathing installation with flashing and joint-sealant installation so these materials are installed in sequence and manner that prevent exterior moisture from passing through completed assembly.

E. Do not bridge building expansion joints; cut and space edges of panels to match spacing of structural support elements.

3.2 WOOD STRUCTURAL PANEL INSTALLATION

A. General: Comply with applicable recommendations in APA Form No. E30, "Engineered Wood Construction Guide," for types of structural-use panels and applications indicated.

B. Fastening Methods: Fasten panels as indicated below:

1. Wall and Roof Sheathing:

a. Nail to wood framing.
b. Screw to cold-formed metal framing.
c. Space panels 1/8 inch apart at edges and ends.

END OF SECTION

SECTION 06 1753

SHOP-FABRICATED WOOD TRUSSES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Wood roof trusses.

1.2 ACTION SUBMITTALS

A. Shop Drawings: Show fabrication and installation details for trusses.

1. Show location, pitch, span, camber, configuration, and spacing for each type of truss required.
2. Indicate sizes, stress grades, and species of lumber.
3. Indicate locations of permanent bracing required to prevent buckling of individual truss members due to design loads.
4. Indicate locations, sizes, and materials for permanent bracing required to prevent buckling of individual truss members due to design loads.
5. Indicate type, size, material, finish, design values, orientation, and location of metal connector plates.
6. Show splice details and bearing details.

B. Delegated-Design Submittal: For metal-plate-connected wood trusses indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.3 INFORMATIONAL SUBMITTALS

A. Evaluation Reports: For the following, from ICC-ES:

1. Metal-plate connectors.
2. Metal truss accessories.

1.4 QUALITY ASSURANCE

A. Metal Connector-Plate Manufacturer Qualifications: A manufacturer that is a member of TPI and that complies with quality-control procedures in TPI 1 for manufacture of connector plates.

1. Manufacturer's responsibilities include providing professional engineering services needed to assume engineering responsibility.
2. Engineering Responsibility: Preparation of Shop Drawings and comprehensive engineering analysis by a qualified professional engineer.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Handle and store trusses to comply with recommendations in SBCA BCSI, "Building Component Safety Information: Guide to Good Practice for Handling, Installing, Restraining, &

Bracing Metal Plate Connected Wood Trusses."

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design metal-plate-connected wood trusses.

B. Structural Performance: Metal-plate-connected wood trusses shall be capable of withstanding design loads within limits and under conditions indicated. Comply with requirements in TPI 1.

C. Comply with applicable requirements and recommendations of TPI 1, TPI DSB, and SBCA BCSI.

D. Wood Structural Design Standard: Comply with applicable requirements in AF&PA's "National Design Specifications for Wood Construction" and its "Supplement."

2.2 DIMENSION LUMBER

A. Lumber: DOC PS 20 and applicable rules of any rules-writing agency certified by the American Lumber Standard Committee (ALSC) Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.

1. Provide dry lumber with [**19**] percent maximum moisture content at time of dressing.

B. Permanent Bracing: Provide wood bracing that complies with requirements for miscellaneous lumber in **Section 06 1000 Rough Carpentry.**

2.3 METAL CONNECTOR PLATES

A. Manufacturers: Subject to compliance with requirements provide products by one of the following:

1. Alpine Engineered Products, Inc.; a division of ITW Building Components Group, Inc.
2. Cherokee Metal Products, Inc.; Masengill Machinery Company.
3. CompuTrus, Inc.
4. Eagle Metal Products.
5. Jager Building Systems, Inc.
6. MiTek Industries, Inc.
7. Robbins Engineering, Inc.
8. Truswal Systems Corporation.

B. General: Fabricate connector plates to comply with TPI 1.

C. Hot-Dip Galvanized-Steel Sheet: ASTM A 653/A 653M; Structural Steel (SS), high-strength low-alloy steel Type A (HSLAS Type A), or high-strength low-alloy steel Type B (HSLAS Type B); G60 coating designation; and not less than 0.036 inch thick.

2.4 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.

1. Provide fasteners for use with metal framing anchors that comply with written recommendations of metal framing manufacturer.
2. Where trusses are exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.

B. Nails, Brads, and Staples: ASTM F 1667.

2.5 METAL FRAMING ANCHORS AND ACCESSORIES

A. Subject to compliance with requirements, provide **product indicated on Drawings** or comparable product by one of the following:

1. Cleveland Steel Specialty Co.
2. KC Metals Products, Inc.
3. Phoenix Metal Products, Inc.
4. Simpson Strong-Tie Co., Inc.
5. USP Structural Connectors.

B. Allowable design loads, as published by manufacturer, shall comply with or exceed those **of products of manufacturers listed**. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency. Framing anchors shall be punched for fasteners adequate to withstand same loads as framing anchors.

C. Galvanized-Steel Sheet: Hot-dip, zinc-coated steel sheet complying with ASTM A 653/A 653M, G60 coating designation.

2.6 FABRICATION

A. Assemble truss members in design configuration indicated; use jigs or other means to ensure uniformity and accuracy of assembly, with joints closely fitted to comply with tolerances in TPI 1. Position members to produce design camber indicated.

1. Fabricate wood trusses within manufacturing tolerances in TPI 1.

B. Connect truss members by metal connector plates located and securely embedded simultaneously in both sides of wood members by air or hydraulic press.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install wood trusses only after supporting construction is in place and is braced and secured.

B. If trusses are delivered to Project site in more than one piece, assemble trusses before installing.

C. Hoist trusses in place by lifting equipment suited to sizes and types of trusses required, exercising care not to damage truss members or joints by out-of-plane bending or other

causes.

D. Install and brace trusses according to TPI recommendations and as indicated.

E. Anchor trusses securely at bearing points; use metal truss tie-downs or floor truss hangers as applicable. Install fasteners through each fastener hole in metal framing anchors according to manufacturer's fastening schedules and written instructions.

F. Securely connect each truss ply required for forming built-up girder trusses.

G. Install and fasten permanent bracing during truss erection and before construction loads are applied. Anchor ends of permanent bracing where terminating at walls or beams.

1. Install bracing to comply with **Section 06 1000 Rough Carpentry.**
2. Install and fasten strongback bracing vertically against vertical web of parallel-chord floor trusses at centers indicated.

H. Install wood trusses within installation tolerances in TPI 1.

I. Do not alter trusses in field. Do not cut, drill, notch, or remove truss members.

J. Replace wood trusses that are damaged or do not comply with requirements.

END OF SECTION

SECTION 06 6400

PLASTIC PANELING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes glass-fiber reinforced plastic (FRP) wall paneling and trim accessories.

1.2 QUALITY ASSURANCE

A. Surface-Burning Characteristics: As determined by testing identical products according to ASTM E 84 by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1. Flame-Spread Index: 200 or less.
2. Smoke-Developed Index: 450 or less.

PART 2 - PRODUCTS

2.1 PLASTIC SHEET PANELING

A. General: Gelcoat-finished, glass-fiber reinforced plastic panels complying with ASTM D 5319.

B. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. Kemlite Company Inc.
b. Marlite.

2. Nominal Thickness: Not less than 0.075 inch 0.09 inch.
3. Surface Finish: Molded pebble texture.
4. Color: As selected by Architect from manufacturer's full range.

2.2 ACCESSORIES

A. Trim Accessories: Manufacturer's standard one-piece vinyl extrusions designed to retain and cover edges of panels. Provide division bars, inside corners, outside corners, and caps as needed to conceal edges.

1. Color: As selected by Architect from manufacturer's full range.

B. Adhesive: As recommended by plastic paneling manufacturer.

C. Sealant: Single-component, mildew-resistant, neutral-curing silicone Single-component, mildew-resistant, acid-curing silicone sealant recommended by plastic paneling manufacturer and complying with requirements in Section 07 9200 "Joint Sealants."

PART 3 - EXECUTION

3.1 PREPARATION

A. Clean substrates of substances that could impair bond of adhesive, including oil, grease, dirt, and dust.

B. Condition panels by unpacking and placing in installation space before installation according to manufacturer's written recommendations.

C. Lay out paneling before installing. Locate panel joints to provide equal panels at ends of walls not less than half the width of full panels.

3.2 INSTALLATION

A. Install plastic paneling according to manufacturer's written instructions.

B. Install panels in a full spread of adhesive.

C. Install trim accessories with adhesive.

D. Fill grooves in trim accessories with sealant before installing panels and bed inside corner trim in a bead of sealant.

E. Maintain uniform space between panels and wall fixtures. Fill space with sealant.

F. Remove excess sealant and smears as paneling is installed. Clean with solvent recommended by sealant manufacturer and then wipe with clean dry cloths until no residue remains.

END OF SECTION

SECTION 07 2100

THERMAL INSULATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Foam-plastic board insulation.
2. Glass-fiber blanket insulation.
3. Mineral-wool blanket insulation.
4. Spray polyurethane foam insulation.
5.
6. Vapor retarders.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

PART 2 - PRODUCTS

2.1 FOAM-PLASTIC BOARD INSULATION

A. Extruded-Polystyrene Board Insulation: ASTM C 578, with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, per ASTM E 84.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

   a. Owens Corning.

2. Type X, 15 psi, Foamular 150.
3. Type IV, 25 psi, Foamular 250 at Foundation Wall and Floor Slab.

2.2 GLASS-FIBER BLANKET INSULATION

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. CertainTeed Corporation.
2. Johns Manville.
3. Owens Corning.

B. Unfaced, Glass-Fiber Blanket Insulation: ASTM C 665, Type I; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively, per ASTM E 84; passing ASTM E 136 for combustion characteristics.

2.3 MINERAL-WOOL BLANKET INSULATION

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Owens Corning.

B. Unfaced, Mineral-Wool Blanket Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively, per ASTM E 84; passing ASTM E 136 for combustion characteristics.

2.4 SPRAY POLYURETHANE FOAM INSULATION

A. Closed-Cell Foam Insulation: Type II, with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, per ASTM E 84.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. Demilec (USA) LLC, Heatlok Soy 200.

2.5 VAPOR RETARDERS

A. Polyethylene Vapor Retarders: ASTM D 4397, 6 mils thick, with maximum permeance rating of 0.13 perm.

B. Vapor-Retarder Tape: Pressure-sensitive tape of type recommended by vapor-retarder manufacturer for sealing joints and penetrations in vapor retarder.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Comply with insulation manufacturer's written instructions applicable to products and applications indicated.

B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed to ice, rain, or snow at any time.

C. Extend insulation to envelop entire area to be insulated. Cut and fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.

D. Provide sizes to fit applications indicated and selected from manufacturer's standard thicknesses, widths, and lengths. Apply single layer of insulation units to produce thickness indicated unless multiple layers are otherwise shown or required to make up total thickness.

3.2 INSTALLATION OF BELOW-GRADE INSULATION

A. On vertical surfaces, set insulation units using manufacturer's recommended adhesive according to manufacturer's written instructions.

1. If not otherwise indicated, extend insulation a minimum of 48 inches below exterior grade line.

B. On horizontal surfaces, loosely lay insulation units according to manufacturer's written instructions. Stagger end joints and tightly abut insulation units.

3.3 INSTALLATION OF CAVITY-WALL INSULATION

A. Foam-Plastic Board Insulation: Install pads of adhesive spaced approximately 24 inches o.c. both ways on inside face, and as recommended by manufacturer. Fit courses of insulation between wall ties and other obstructions, with edges butted tightly in both directions. Press units firmly against inside substrates.

1. Supplement adhesive attachment of insulation by securing boards with two-piece wall ties designed for this purpose and specified in Section 04 2000 "Unit Masonry."

3.4 INSTALLATION OF INSULATION FOR FRAMED CONSTRUCTION

A. Foam-Plastic Board Insulation: Seal joints between units by applying adhesive, mastic, or sealant to edges of each unit to form a tight seal as units are shoved into place. Fill voids in completed installation with adhesive, mastic, or sealant as recommended by insulation manufacturer.

B. Glass-Fiber or Mineral-Wool Blanket Insulation: Install in cavities formed by framing members according to the following requirements:

1. Use insulation widths and lengths that fill the cavities formed by framing members. If more than one length is required to fill the cavities, provide lengths that will produce a snug fit between ends.
2. Place insulation in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.
3. Maintain 3-inch clearance of insulation around recessed lighting fixtures not rated for or protected from contact with insulation.
4. For metal-framed wall cavities where cavity heights exceed 96 inches, support unfaced blankets mechanically and support faced blankets by taping flanges of insulation to flanges of metal studs.

C. Spray-Applied Insulation: Apply spray-applied insulation according to manufacturer's written instructions. Do not apply insulation until installation of pipes, ducts, conduits, wiring, and electrical outlets in walls is completed and windows, electrical boxes, and other items not indicated to receive insulation are masked. After insulation is applied, make flush with face of studs by using method recommended by insulation manufacturer.

D. Miscellaneous Voids: Install insulation in miscellaneous voids and cavity spaces where required to prevent gaps in insulation using the following materials:

1. Spray Polyurethane Insulation: Apply according to manufacturer's written instructions.

3.5 INSTALLATION OF VAPOR RETARDERS

A. Place vapor retarders on side of construction indicated on Drawings. Extend vapor retarders to extremities of areas to protect from vapor transmission. Secure vapor retarders in place with adhesives or other anchorage system as indicated. Extend vapor retarders to cover miscellaneous voids in insulated substrates, including those filled with loose-fiber insulation.

B. Seal vertical joints in vapor retarders over framing by lapping no fewer than two studs.

1. Fasten vapor retarders to wood framing at top, end, and bottom edges; at perimeter of wall openings; and at lap joints. Space fasteners 16 inches o.c.
2. Before installing vapor retarders, apply urethane sealant to flanges of metal framing including runner tracks, metal studs, and framing around door and window openings. Seal overlapping joints in vapor retarders with vapor-retarder tape according to vapor-retarder manufacturer's written instructions. Seal butt joints with vapor-retarder tape. Locate all joints over framing members or other solid substrates.
3. Firmly attach vapor retarders to metal framing and solid substrates with vapor-retarder fasteners as recommended by vapor-retarder manufacturer.

C. Seal joints caused by pipes, conduits, electrical boxes, and similar items penetrating vapor retarders with vapor-retarder tape to create an airtight seal between penetrating objects and vapor retarders.

D. Repair tears or punctures in vapor retarders immediately before concealment by other work. Cover with vapor-retarder tape or another layer of vapor retarders.

END OF SECTION

SECTION 07 2119

FOAMED-IN-PLACE INSULATION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Foamed-in-Place Insulation.

1.2 SUBMITTALS

A. Product Data: Submit manufacturer's product data, including surface preparation and application instructions.

B. Manufacturer's Certification:
   1. Submit manufacturer's certification that materials comply with specified requirements and are suitable for intended application.

C. Product Evaluation Reports: Submit manufacturer's product evaluation reports from accredited evaluation service.

D. Warranty Documentation: Submit manufacturer's standard warranty.

1.3 QUALITY ASSURANCE

A. Manufacturer's Qualifications:
   1. Manufacturer regularly engaged, for a minimum of 5 years, in the manufacturing of polyurethane foam insulation of similar type to that specified.

B. Applicator's Qualifications:
   1. Applicator regularly engaged, for a minimum of 5 years, in application of polyurethane foam insulation of similar type to that specified.
   2. Certified by manufacturer to install their products.

C. Source Limitations: Provide each type of product from a single manufacturing source to ensure uniformity.

1.4 PRE-INSTALLATION CONFERENCE

A. Convene a conference approximately two weeks before scheduled commencement of the Work.

B. Require attendance of parties directly affecting Work of this Section, including Contractor, applicator, and manufacturer's representative.

C. Review the Following:
   1. Materials.
   2. Protection of in-place conditions.
   3. Surface preparation.

4. Application.
5. Field quality control.
6. Cleaning.
7. Protection.
8. Coordination with other Work.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Delivery Requirements: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.

B. Storage and Handling Requirements:
1. Store and handle materials in accordance with manufacturer's instructions.
2. Keep materials in manufacturer's original, unopened containers and packaging until application.
3. Store materials in clean, dry area indoors.
4. Store materials at 70 to 80 degrees F (21 to 27 degrees C) a minimum of 48 hours before use.
5. Store materials out of direct sunlight.
6. Protect materials from freezing.
7. Protect materials during storage, handling, and application to prevent contamination or damage.

1.6 PROJECT CONDITIONS

A. Ambient and Substrate Temperatures: As recommended by Manufacturer.

B. Moisture: Do not apply polyurethane foam insulation when moisture in form of rain, snow, ice, fog, frost, or dew is expected during application.

C. Relative Humidity: Do not apply polyurethane foam insulation when relative humidity over 85 percent is expected during application.

D. Wind: Do not apply polyurethane foam insulation with wind speed above 12 mph (19 kmh).

E. Do not apply polyurethane foam insulation under ambient conditions outside manufacturer's limits.

1.7 WARRANTY

A. Manufacturer's Warranty: Provide manufacturer's standard limited warranty.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer or equal: Carlisle Spray Foam Insulation (SFI),

2.2 CLOSED-CELL, SPRAY-APPLIED, POLYURETHANE FOAM INSULATION

A. Basis of Design: SealTite Pro Closed Cell; as manufactured by Carlisle Spray Foam Insulation.
a. Core Density,ASTM D1622: 2.0 pcf (32 kg per cu m), nominal.

b. R-Value, Aged,ASTM C518:
1) Thickness, 1 inch (25 mm): 6.9.
2) Thickness, 3 inches (76 mm): 21.
c. Compressive Strength,ASTM D1621: 25 psi (172 kPa), nominal.
d. Tensile Strength,ASTM D1623: 60 psi (414 kPa), nominal.
e. Water Absorption,ASTM D2842: Less than 2 percent.
f. Dimensional Stability,ASTM D2126, Change in Volume:
1) 158 Degrees F (70 degrees C), 97 Percent Relative Humidity: Less than 9 percent.
g. Closed Cell Content,ASTM D2856: Greater than 90 percent.
h. Surface Burning Characteristics, ASTM E84, 4 Inches (102 mm):
1) Flame Spread Index: Less than 25.
2) Smoke Developed Index: Less than 450.
i. Fungi Resistance,ASTM G21: Zero rating.

2. Description: Two-component, HFC-245fa blown, medium-density system.
a. A-Component: Aromatic diisocyanate.
b. B-Component: Polyols, fire-retarding materials, and additives.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine areas to receive polyurethane foam insulation.

B. Notify Contractor of conditions that would adversely affect application.

C. Do not begin surface preparation or application until unacceptable conditions are corrected.

3.2 PREPARATION

A. Protection of In-Place Conditions:
1. Protect adjacent surfaces from contact with overspray.
2. Protect electrical outlet and junction boxes from contact with polyurethane foam insulation.

B. Surface Preparation:
1. Prepare surfaces in accordance with manufacturer's instructions.
2. Remove dirt, dust, debris, oil, grease, rust, loose scale, ice, frost, moisture, and other surface contaminants which could adversely affect application of polyurethane foam insulation.

3.3 INSTALLATION

A. Spray-apply polyurethane foam insulation in accordance with manufacturer's instructions at locations indicated on the Drawings.

B. Material Temperature: Maintain materials in containers at 65 to 85 degrees F (18 to 29 degrees C) while in use.

C. Ensure substrates are dry during application.

D. Insulation Thickness:
   1. Maximum Pass Thickness: 4 inches (102 mm).
   2. Total Thickness: Indicated on the Drawings.

E. Apply polyurethane foam insulation to uniform thickness without voids, pinholes, cracks, and crevices.

3.4 FIELD QUALITY CONTROL

A. Inspect completed application of polyurethane foam insulation, including:
   1. Total thickness.
   2. Free of voids, pinholes, cracks, and crevices.
   3. Adhesion to substrate.

3.5 CLEANING AND PROTECTION

A. Promptly clean surfaces that receive overspray of polyurethane foam insulation.

B. Do not use harsh cleaning materials or methods that could damage surfaces.

C. Protect Work of this Section from damage during construction.

END OF SECTION

SECTION 07 2500

WEATHER BARRIERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Building paper.
   2. Building wrap.
   3. Flexible flashing.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

PART 2 - PRODUCTS

2.1 WATER-RESISTIVE BARRIER

A. Building Paper: ASTM D 226, Type 1 (No. 15 asphalt-saturated organic felt), unperforated.

B. Building Wrap: ASTM E 1677, Type I air barrier; with flame-spread and smoke-developed indexes of less than 25 and 450, respectively, when tested according to ASTM E 84; UV stabilized; and acceptable to authorities having jurisdiction.

   1. Products: Subject to compliance with requirements, provide one of the following:
      a. Dow Chemical Company; Styrofoam Weathermate Plus Brand Housewrap.
      b. DuPont; Tyvek CommercialWrap.
      c. Ludlow Coated Products; Barricade Building Wrap.
      d. Pactiv, Inc.; GreenGuard RainDrop.
      e. Raven Industries Inc.; Fortress Pro Weather Protective Barrier.
      f. Reemay, Inc.; Typar HouseWrap.
      g. Or approved manufacturer.

   2. Water-Vapor Permeance: Not less than 50 g through 1 sq. m of surface in 24 hours per ASTM E 96/E 96M, Desiccant Method (Procedure A).

C. Building-Wrap Tape: Pressure-sensitive plastic tape recommended by building-wrap manufacturer for sealing joints and penetrations in building wrap.

2.2 MISCELLANEOUS MATERIALS

A. Flexible Flashing: Self-adhesive butyl, rubber, or rubberized-asphalt compound, bonded to a high-density polyethylene film, aluminum foil, or spunbonded polyolefin to produce an overall thickness of not less than 0.025 inch.

   1. Products: Subject to compliance with requirements, provide one of the following :
      a. DuPont; DuPont Flashing Tape.
      b. Grace Construction Products; Vycor Butyl Self Adhered Flashing.
      c. Protecto Wrap Company; BT-25 XL.
      d. Raven Industries Inc.; Fortress Flashshield.
      e. Advanced Building Products Inc.; Wind-o-wrap.
      f. Carlisle Coatings & Waterproofing; CCW-705-TWF Thru-Wall Flashing.

g. Fiberweb, Clark Hammerbeam Corp.; Aquaflash 500.
h. Fortifiber Building Systems Group; Fortiflash 25 .
i. Grace Construction; Vycor Plus Self-Adhered Flashing.
j. MFM Building Products Corp.; Window Wrap.
k. Polyguard Products, Inc.; Polyguard JT 20 Tape .
l. Sandell Manufacturing Co., Inc.; Presto-Seal.
m. or approved manufacturer.

PART 3 - EXECUTION

3.1 WATER-RESISTIVE BARRIER INSTALLATION

A. Cover sheathing with water-resistive barrier as follows:

1. Cut back barrier 1/2 inch on each side of the break in supporting members at expansion- or control-joint locations.
2. Apply barrier to cover vertical flashing with a minimum 4-inch overlap unless otherwise indicated.

B. Building Paper: Apply horizontally with a 2-inch overlap and a 6-inch end lap; fasten to sheathing with galvanized staples or roofing nails.

C. Building Wrap: Comply with manufacturer's written instructions.

1. Seal seams, edges, fasteners, and penetrations with tape.
2. Extend into jambs of openings and seal corners with tape.

3.2 FLEXIBLE FLASHING INSTALLATION

A. Apply flexible flashing where indicated to comply with manufacturer's written instructions.

1. Lap seams and junctures with other materials at least 4 inches except that at flashing flanges of other construction, laps need not exceed flange width.
2. Lap flashing over water-resistive barrier at bottom and sides of openings.
3. Lap water-resistive barrier over flashing at heads of openings.

END OF SECTION

SECTION 07410
PREFORMED METAL STANDING SEAM ROOFING AND SIDING

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

A. This section covers the pre-finished, pre-fabricated Architectural standing seam roof and siding system. All metal trim, accessories, fasteners, insulation and sealants indicated on the drawings as part of this section.
B. Drawings and general provisions of the Contract, including general and Supplementary Conditions and Division 01 Specifications, apply to this section.

1.2 SUMMARY

A. Section Includes
    1. Factory formed Standing Seam metal roof panels
B. Related work specified elsewhere.
    1. Section 061000 – Rough Carpentry
    2. Section 061753 Shop-Fabricated Wood Trusses
    3. Section 07600 - Flashing and Sheet Metal

1.3 DEFINITIONS

A. Metal Roof Panel Assembly: Metal roof panels, attachment system components, miscellaneous metal framing, thermal, and accessories necessary for a complete weathertight roofing system.
B. References:
    1. American Society for Testing and Materials (ASTM)
        a. ASTM A 653: Steel Sheet, Zinc Coated by the Hot Dip Process
        b. ASTM A 792: Steel Sheet, Aluminum-Zinc Alloy Coated by the Hot Dip Process
        c. ASTM B 209: Aluminum and Aluminum Alloy Sheet and Plate
        d. ASTM B370 Standard Specification for Copper Sheet and Strip for Building Construction
    2. Sheet Metal and Air Conditioning Contractors National Association (SMACNA)
        a. SMACNA Architectural Sheet Metal Manual, 1993 edition
    3. American Iron and Steel Institute (AISI)
        a. AISI Cold Formed Steel Design Manual
    4. Aluminum Association
        a. Aluminum Design Manual
    5. Metal Construction Association
        a. Preformed metal Wall Guidelines
    6. Code References
        a. ASCE, Minimum Loads for Buildings and Other Structures
        b. BOCA National Building Codes

c. UBC Uniform Building Code
d. SBC Standard Building Code

1.4 QUALITY ASSURANCE

A. Petersen Aluminum Corp, Elk Grove Village, IL, 800-323-1960 products establish a minimum of quality required.
B. Manufacturer and erector shall demonstrate experience of a minimum of five (5) years in this type of project.
C. Panels shall be factory-produced only. No portable, installer-owned or installer-rented machines will be permitted.

1.5 SUBSTITUTIONS

A. The material, products and equipment specified in this section establish a standard for required function, dimension, appearance and quality to be met by any proposed substitution.

1.6 SYSTEM DESCRIPTION

A. Material to comply with:
    1. ASTM A 653 Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot-Dip Process

1.7 ROOF SYSTEM PERFORMANCE TESTING

A. General Performance: Metal roof panels shall comply with performance requirements without failure due to defective manufacture, fabrication, installation or other defects in construction.
B. Roof System shall be designed to meet Standard Building Code Wind Load requirements.
C. Panels to meet:
    1. Water Penetration: When tested per ASTM E-283/1680 and ASTM E-331/1646 there shall be no uncontrolled water penetration or air infiltration through the panel joints.
    2. UL 2218 - Impact Resistance rated.

1.8 WARRANTIES

A. Finish warranty: Manufacturer's standard form in which manufacturer agrees to repair finish or replace standing seam metal roof panels that show evidence of deterioration of factory-applied finish within specified warranty period.
    1. Exposed Panels Finish - deterioration includes the following:
        a. Color fading more than 5 hunter units when tested according to ASTM D 2244

b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214
c. Cracking, checking, peeling or failure of a paint to adhere to a bare metal.

2. Warranty Period: 20 Years from the date of substantial completion

B. Applicator shall furnish written warranty for a two (2) year period from date of substantial completion of building covering repairs required to maintain roof and flashings in watertight condition.

1.9 SUBMITTALS

A. Furnish detailed drawings showing profile and gauge of exterior sheets, location and type of fasteners, location, gauges, shape and method of attachment of all trim locations and types of sealants, and any other details as may be required for a weather-tight installation.
B. Provide finish samples of all colors specified.
C. Shop drawings: Show fabrication and installation layouts of metal roof panels, metal wall panels or metal soffit panels, details of edge conditions, side-seam joints, panel profiles, corners, anchorages, trim, flashings, closures and accessories, and special details. Distinguish between factory and field-assembled work
D. Coordination Drawings: Roof plans, drawn to scale, on which the following are shown and coordinated with each other, base don input from installer of the items involved:
    1. Roof panels and attachments
    2. Trusses, bracings and supports
    3. Roof-mounted items including snow guards and items mounted on roof curbs.

1.10 DELIVERY, STORAGE AND HANDLING

1. Ordering: Comply with manufacturer's ordering instruction and lead time requirements to avoid construction delays.
2. Deliver components, sheets, metal roof panels and other manufactured items so as not to be damaged or deformed. Package metal roof panels for protection during transportation and handling.
3. Unload, store and erect metal roof panels in a manner to prevent bending, warping, twisting and surface damage.
4. Stack metal roof panels on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal roof panels to ensure dryness. Do not store metal roof panels in contact with other materials that might cause staining, denting or other surface damage.
5. Protect strippable protective coating on any metal coated product from exposure to sunlight and high humidity, except to the extent necessary for material installation.

1.11 PROJECT CONDITIONS

A. Weather Limitations: proceed with installation only when existing and forecasted weather conditions permit metal roof panel work to be performed.
B. Field Measurements: Verify actual dimensions of construction contiguous with metal roof panels by field measurements before fabrication.

1.12 COORDINATION

A. Coordinate sizes and locations of roof curbs, equipment supports and roof penetrations with actual equipment provided.
B. Coordinate metal roof panels with rain drainage work, flashing, trim and construction of decks, parapet walls and other adjoining work to provide a leakproof, secure and noncorrosive installation.

PART 2 - PRODUCTS

2.1 PANEL DESIGN

A. General: Provide factory-formed metal roof panels designed to be installed by lapping and interconnecting raised side edges of adjacent panels with joint type indicated and mechanically attaching panels to supports using concealed clips inside laps. Include clips, cleats, pressure plates and accessories required for a weathertight installation.
B. Roof panels shall be standing seam Snap-On Batten in 13" widths with 1 1/2" high seams.
C. Panels to be produced Smooth - Factory Standard.
D. Panels to be designed for attachment with concealed fastener clips, spaced as required by the manufacturer to provide for both positive and negative design loads, while allowing for the expansion and contraction of the entire roof system resulting from variations in temperature.
E. Forming: Use continuous end rolling method. No end laps on panels. No portable rollforming machines will be permitted on this project, no installer-owned or installer-rented machines will be permitted. It is the intent of the Architect to provide Factory-Manufactured panel systems only for this project.

2.2 ACCEPTABLE MANUFACTURERS

A. This project is detailed around the roofing product of Petersen Aluminum Corporation Petersen Aluminum Corp, Elk Grove Village, IL, 800-323-1960, Snap-On Batten.

2.3 MATERIALS AND FINISHES

A. Preformed roofing panels shall be fabricated of 24 GA Steel
B. Color shall be Dark Bronze
C. Finish shall be Kynar 500 or Hylar 5000 Fluorocarbon coating with a top side film thickness of 0.70 to 0.90 mil over a 0.25 to 0.3 mil prime coat to provide a total dry film thickness of 0.95 to 1.25 mil, to meet AAMA 621. Bottom side shall be coated with a primer with a dry film thickness of 0.25 mil. Finish shall conform to all tests for adhesions, flexibility and longevity as specified by Kynar 500 or Hylar 5000 finish supplier.
D. If Strippable coating to be applied on the pre-finished panels to the top side to protect the finish during fabrication, shipping and handling, film shall be removed before installation.

E. Trim: Trim shall be fabricated of the same material and finish to match the profile, and will be press broken in lengths of 10 to 12 feet. Trim shall be formed only by the manufacturer of their approved dealer. Trim to be erected in overlapped condition. Use lap strips only as indicated on drawings. Miter conditions shall be factory welded material to match the sheeting.
F. Closures: use composition or metal profiled closures at the top of each elevation to close ends of the panels. Metal closures to be made in the same material and finish as face sheet.
G. Fasteners: Fasteners shall be of type, material, size, corrosion resistance, holding power and other properties required to fasten miscellaneous framing members to substrates.
H. Substrate shall be Plywood
I. Roofing Underlayment
    1. On all surfaces to be covered with roofing material, furnish and install a 40 mil Peel & Stick membrane, required as outlined by metal panel manufacturer. Membrane to be a minimum of 40 mil thickness, smooth, non-granular, high temperature. **Basis of design:** Carlisle WIP 300 HT High Temperature Protection Self Adhering Roofing Underlayment. Other acceptable manufacturers include:
        a. W.R Grace "Ice & water Shield"
        b. Interwrap Titanium PSU-30
        c. Tamko TW Tile and Metal Underlayment
    2. Underlayment shall be laid in horizontal layers with joints lapped toward the eaves a minimum of 6, and well secured along laps and at ends as necessary to properly hold the felt in place. All underlayment shall be preserved unbroken and whole.
    3. Peel and Stick Underlayment shall lap all hips and ridges at least 12 to form double thickness and shall be lapped 6 over the metal of any valley or built-in gutters and shall be installed as required by the Standing Seam Panel Manufacturer to attain the desired 20 Year Weathertightness Warranty.
J. Sealants
    1. Provide two-part polysulfide class B non-sag type for vertical and horizontal joints or
    2. one part polysulfide not containing pitch or phenolic extenders or
    3. Exterior grade silicone sealant recommended by roofing manufacturer or
    4. One part non-sag, gun grade exterior type polyurethane recommended by the roofing manufacturer.

2.4 FABRICATION

A. Comply with dimensions, profile limitations, gauges and fabrication details shown and if not shown, provide manufacturer's standard product fabrication.
B. Fabricate components of the system in factory, ready for field assembly.
C. Fabricate components and assemble units to comply with fire performance requirements specified.
D. Apply specified finishes in conformance with manufacturer's standard, and according to manufacturer's instructions.

PART 3 - EXECUTION

3.1 INSPECTION

A. Examine alignment of structural steel and related supports, primary and secondary roof framing, solid roof sheathing, prior to installation.
B. For the record, prepare written report, endorsed by installer, listing conditions detrimental to performance of the Work.
C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 FASTENERS

A. Secure units to supports
B. Place fasteners as indicated in manufacturer's standards.

3.3 INSTALLATION

A. Panels shall be installed plumb and true in a proper alignment and in relation to the structural framing. The erector must have at least five years successful experience with similar applications.
B. Install metal panels, fasteners, trim and related sealants in accordance with approved shop drawings and as may be required for a weather-tight installation.
C. Remove all strippable coating and provide a dry-wipe down cleaning of the panels as they are erected.

3.4 DAMAGED MATERIAL

A. Upon determination of responsibility, repair or replace damaged metal panels and trim to the satisfaction of the Architect and Owner.

END OF SECTION

SECTION 07 4243

COMPOSITE WALL PANELS

Part I - General

1.1 SECTION INCLUDES:

A. Exterior, panelized fiber cement cladding system and accessories to complete a drained and back-ventilated rain screen.

1.2 RELATED SECTIONS

B. Section 06 10 00 - Rough Carpentry

C. Section 06 16 00 - Sheathing

E. Section 07 25 00 - Weather Barriers

F. Section 07 62 00 - Flashing and Sheet Metal

G. Section 07 92 00 - Joint Protection

1.3 REFERENCES

A. American Architectural Manufacturers Association (AAMA):

1. AAMA 509-09 – Voluntary Test and Classification Method of Drained and Back Ventilated Rain Screen Wall Cladding Systems

B. ASTM International (ASTM):

1. ASTM C 518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.

2. ASTM C 1185 - Standard Test Methods for Sampling and Testing Non-Asbestos Fiber Cement.

a. ASTM C 1186 – Standard Specification for Flat Fiber-Cement Sheets.

3. ASTM E 119 - Standard Test Methods for Fire Tests of Building Construction and Materials.

4. ASTM E 228 - Standard Test Method for Linear Thermal Expansion of Solid Materials with a Vitreous Silica Dilatometer.

5. ASTM E 330 - Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.

6. ASTM E 331 - Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.

7. ASTM G 23 - Standard Practice for Operating Light-Exposure Apparatus (Carbon-Arc Type) with and without Water for Exposure of Nonmetallic Materials, Replaced by G152 and G153.

C. Underwriters Laboratories (UL):

1. UL 723/ASTM E-84 - Standard Test for Surface Burning Characteristics of Building Materials.

1.4 ACTION SUBMITTALS

A. Submit under provisions of Section 01 33 00.

B. Product Data: Submit manufacturer's product description, standard detail drawings relevant to the project, storage and handling requirements, and installation instructions.

C. Product Test Reports and Code Compliance: Documents demonstrating product compliance with local building code, such as test reports or Evaluation Reports from qualified, independent testing agencies.

D. Shop Drawings: Submit drawings, including plan, section, and elevation drawings, showing installation details that demonstrate product layout, dimensions, finish colors, edge/termination conditions/treatments, compression and control joints, openings, and penetrations.

F. Samples: Submit samples of each product type proposed for use.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications:

1. All fiber cement panels specified in this section must be supplied by a manufacturer with a minimum of 10 years of experience in fabricating and supplying fiber cement cladding systems.

    a. Products covered under this section are to be manufactured in an ISO 9001 certified facility.

2. Provide technical and design support as needed regarding installation requirements and warranty compliance provisions.

B. Installer Qualifications: All products listed in this section are to be installed by a single installer trained by manufacturer or representative.

C. Mock-Up Wall: Provide a mock-up wall as evaluation tool for product and installation workmanship.

D. Pre-Installation Meetings: Prior to beginning installation, conduct conference to verify and discuss substrate conditions, manufacturer's installation instructions and warranty requirements, and project requirements.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Panels must be stored flat and kept dry before installation. A waterproof cover over panels and accessories should be used at all times prior to installation.

B. If panels are exposed to water or water vapor prior to installation, allow to completely dry before installing. Failure to do so may result in panel shrinkage at ship lap joints, and such action may void warranty.

C. Panels MUST be carried on edge. Do not carry or lift panels flat. Improper handling may cause cracking or panel damage.

D. Direct contact between the panels and the ground should be avoided at all times. It is necessary to keep panels clean during installation process.

1.7 WARRANTY

A. Provide manufacturer's 50-year warranty against manufactured defects in fiber cement panels.

B. Provide manufacturer's 15-year warranty against manufactured defects in panel finish.

C. Warranty provides for the original purchaser. See warranty for detailed information on terms, conditions and limitations.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Nichiha Corporation, 18-19 Nishiki 2-chome Naka-ku, Nagoya, Aichi 460-8610, Japan.

B. Acceptable Manufacturer's Representative: Nichiha USA, Inc., 6465 E. Johns Crossing, Suite 250, Johns Creek, GA 30097. Toll free: 1.866.424.4421, Office: 770.805.9466, Fax: 770.805.9467, www.nichiha.com.

1. Basis of Design Product: Nichiha.
    a. Profile colors: As noted on plans.
    b. Optional Accessories:
        i. Manufactured corners with 3-1/2" returns for each profile color.
    c. Dimensions: Nominal - 18" (h) x 6' (l);
        Actual - 455mm (h) x 1,818 mm (l).
    d. Panel Thickness: 5/8 inch (16 mm actual).

C. Substitutions: Not permitted.

2.2 MATERIALS

A. Fiber cement panels manufactured from a pressed, stamped, and autoclaved mix of Portland cement, fly ash, silica, recycled rejects, and wood fiber bundles.

B. Panel surface pre-finished and machine applied.

C. Panels profiled along all four edges, such that both horizontal and vertical joints between the installed panels are ship-lapped.

D. Factory-applied sealant gasket added to top and right panel edges; all joints contain a factory sealant.

2.3 PERFORMANCE REQUIREMENTS:

A. Fiber Cement Cladding – Must comply with ASTM C-1186, Type A requirements:

1. Linear Variation with Change in Moisture Content: 0.17% linear change.
2. Wet Flexural Strength, lower limit: 580 psi.
3. Water Tightness: No water droplets observed on any specimen.
4. Freeze-thaw: No damage or defects observed.
5. Warm Water: No evidence of cracking, delamination, swelling, or other defects observed.
6. Heat-Rain: No crazing, cracking, or other deleterious effects, surface or joint changes observed in any specimen.

B. Mean Coefficient of Linear Thermal Expansion (ASTM E-228): Max 1.0*10^-5 in./in. F.

C. Surface Burning (UL 723/ASTM E-84): Flame Spread: 0, Smoke Developed: 5.

D. Wind Load (ASTM E-330): Refer to manufacturer installation guidelines for ultimate test pressure data corresponding to framing dimensions, fastener type, and attachment clips. Project engineer(s) must determine Zone 4 and 5 design pressures based on project specifics.

1. Minimum lateral deflection: L/120.

E. Water Penetration (ASTM E-331): No water leakage observed into wall cavity.

F. Weather Resistant (ASTM G-23): No cracking, checking, crazing, erosion, or other detrimental effects observed.

G. Steady-State Heat Flux and Thermal Transmission Properties Test (ASTM C-518): thermal resistance R Value of 1.23.

H. Fire Resistant (ASTM E-119): The wall assembly must successfully endure 60-minute fire exposure without developing excessive unexposed surface temperature or allowing flaming on the unexposed side of the assembly.

I. Drained and Back Ventilated Rainscreen (AAMA 509-09): System must pass all component tests.

2.4 INSTALLATION COMPONENTS

A. Ultimate Clip System:
   1. Starter Track: FA 700 (10mm rainscreen) – 10’ (l) galvalume.
   2. Panel Clips: JEL 777 “Ultimate Clip” (10mm rainscreen for 5/8” AWP) – 400 series stainless steel.
      a. Joint Tab Attachments (included).
   3. Single Flange Sealant Backer – FHK 1017 (10mm) – 6.5’ (l) fluorine coated galvalume.
   4. Double Flange Sealant Backer – FH 1020 (10mm) – 10’ (l) fluorine coated galvalume.
   5. Corrugated Spacer – FS 1005 (5mm), FS 1010 (10mm) – 4’ (l).
   6. Finish Clip (optional) – JE310 (5mm)

B. Aluminum Trim (optional): Paint as specified in finish schedule.

C. Fasteners: Corrosion resistant fasteners, such as hot-dipped galvanized screws appropriate to local building codes and practices must be used. Use Stainless Steel fasteners in high humidity and high-moisture regions. Panel manufacturer is not liable for corrosion resistance of fasteners. Do not use aluminum fasteners, staples or fasteners that are not rated or designed for intended use. See manufacturer’s instructions for appropriate fasteners for construction method used.

D. Flashing: Flash all areas specified in manufacturer’s instructions. Do not use raw aluminum flashing. Flashing must be galvanized, anodized, or PVC coated.

E. Sealant: Sealant shall be polyurethane, or hybrid, and comply with ASTM C920.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verification of Conditions:

1. Fiber cement panels can be installed over braced wood, steel studs and sheathing including plywood, OSB, plastic foam or fiberboard sheathing. Fiber cement panels can also be installed over Structural Insulated Panels (SIP's), Concrete Masonry Units (CMU's) and Concrete Block Structures (CBS's) with furring strips, and Pre-Engineered Metal Construction.

2. Allowable stud spacing: See manufacturer's installation instructions for details.

3. A weather resistive barrier is required when installing fiber cement panels. Use an approved weather resistive barrier (WRB) as defined by the 2012 IRC. Refer to local building codes.

4. Appropriate metal flashing should be used to prevent moisture penetration around all doors, windows, wall bottoms, material transitions and penetrations. Refer to local building codes for best practices.

B. Examine site to ensure substrate conditions are within specification for proper installation.

C. Do not begin installation until unacceptable conditions have been corrected.

D. Do not install panels or components that appear to be damaged or defective. Do not install wet panels**.**

3.2 INSTALLATION

A. General: Install products in accordance with the latest installation guidelines of the manufacturer and all applicable building codes and other laws, rules, regulations and ordinances. Review all manufacturer installation, maintenance instructions, and other applicable documents before installation.

1. Consult with your local dealer or Nichiha Technical Department before installing any Nichiha fiber cement product on a building higher than 45 feet or three stories. Special installation conditions may be required.

B. Panel Cutting

1. Always cut fiber cement panels outside or in a well ventilated area. Do not cut the products in an enclosed area.

2. Always wear safety glasses and NIOSH/OSHA approved respirator whenever cutting, drilling, sawing, sanding or abrading the products. Refer to manufacturer MSDS for more information.

3. Use a dust-reducing circular saw with a diamond-tipped or carbide-tipped blade.

a. Recommended circular saw: Makita 7-1/4" Circular Saw with Dust Collector (#5057KB).

b. Recommended blade: Tenryu Board-Pro Plus PCD Blade (#BP-18505).

c. Shears (electric or pneumatic) or jig saw can be used for complicated cuttings, such as service openings, curves, radii and scrollwork.

4. **Silica Dust Warning:** Fiber cement products may contain some amounts of crystalline silica, a naturally occurring, potentially hazardous mineral when airborne in dust form. Consult product MSDS or visit www.osha.gov/SLTC/silicacrystalline/index.html.

3.3 CLEANING AND MAINTENANCE

A. Review manufacturer guidelines for detailed care instructions.

SECTION 07 4643

COMPOSITION SIDING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. ~~Engineered wood cladding.~~
2. ~~Wall panels.~~
3. Trim and fascia.
4. Sealant.
5. Weather barrier.
6. Flashing.

1.2 COORDINATION

A. Coordinate installation with flashings, weather barriers, and other adjoining construction to ensure proper sequencing for weathertight performance.

B. Coordinate with finish coat to be applied over primed cladding, soffits, and trim. Comply with coating manufacturer's written requirements for substrate primer.

1.3 ACTION SUBMITTALS

A. Product Data:

1. ~~Engineered wood cladding.~~
2. ~~Wall panels.~~
3. Trim and fascia.
4. Sealant.
5. Weather barrier.
6. Flashing.

B. Shop Drawings:

1. Included details of construction and installation.

C. Samples: For each exposed product and texture specified, 12 inches long.

1.4 INFORMATIONAL SUBMITTALS

A. Manufacturer Certificates: Signed by manufacturer certifying that engineered wood cladding complies with requirements specified in "Performance Requirements" Article.

1. Submit evidence of meeting performance requirements.

B. Product Test Reports: Based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for engineered wood cladding.

C. Research/Evaluation Reports: For each type of engineered wood cladding required, from ICC- ES.

D. Sample Warranty: For special warranty (Reference 1.11).

1.5 CLOSEOUT SUBMITTALS

A. Maintenance Data: For each type of product.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store and handle materials and products in strict compliance with manufacturer's instructions and recommendations and industry standards.

B. Store products in manufacturer's labeled packaging until ready for installation. Protect from damage.

C. Store products off the ground, on a flat surface, and under a roof or separate waterproof covering.

1.7 FIELD CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's limits.

1.8 WARRANTY

A. Manufacturer's Standard Warranty: Transferable limited warranty.

1. Warranty Period: Fifty years prorated from date of Substantial Completion.

B. Special Warranty: Manufacturer agrees to repair or replace products that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:
   a. Structural failures including buckling.
   b. Deterioration of materials beyond normal weathering.
   c. Fungal degradation.
   d. Cracking, peeling, separating, chipping, flaking, or rupturing of resin-impregnated surface overlay.
   e. Hail damage consisting of a crack, chip, or dent in the surface overlay exceeding 3/8 inch in length or diameter.

2. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturer: Subject to compliance with requirements, provide products from one of the following:

1. LP Building Products; LP SmartSide.
2. Or approved manufacturer.

B. Source Limitations: Obtain products, including related accessories, from single source from single manufacturer.

2.2 BASIS OF DESIGN ENGINEERED WOOD CLADDING

A. Manufacturer:

1. Manufacturer: LP Building Products; LP SmartSide

~~B. Fiber Panel Siding: 76 Series.~~

~~1. Description: Engineered wood siding complying with ANSI A135.6, with resin and linseed oil impregnated surface; EPA-registered zinc-borate-preservative-treated; AWPA compliant; factory finished.~~
~~2. Fire Rating: 1 hour per ASTM E119; ASTM E 84 Class C flamespread.~~
~~3. Thickness: 7/16 inch (11 mm) nominal, average.~~
~~4. Style: As indicated on drawings.~~
~~5. Width: 48 inches (1220 mm), nominal.~~

C. ~~Fiber Lap Siding:~~

~~1. Model: Fiber Lap Siding: 76 Series.~~
~~2. Description: Engineered wood siding complying with ANSI A135.6, with resin and linseed oil impregnated surface; EPA-registered zinc-borate-preservative-treated; AWPA compliant; factory finished.~~
~~3. Thickness: 7/16 inch (11 mm) nominal, average.~~
~~4. Style: As indicated on drawings.~~
~~5. Length: 16 feet (4877 mm).~~

D. Trim and fascia

1. Fiber Trim and Fascia: 540 Series Same material as cladding,
2. Style: Cedar grain.
3. Thickness: 0.910 inch (23 mm).

2.3 ACCESSORIES

A. Fasteners: ASTM A153, hot-dip galvanized or stainless steel nails with 0.113 inch diameter shank and 0.27 inch diameter head, long enough to achieve 1 1-1/2 inch penetration into structural sheathing and framing

B. Sealant: ASTM C920, minimum Class 25 sealant.

C. Weather Barrier Building Wrap: ASTM E1677; made from polyolefin fibers.

1. UV Exposure: Minimum three months.
2. Seam Tape: Weather barrier manufacturer's standard product.

D. Drainable Weather Barrier Building Wrap: ASTM E1677; made from polyolefin fibers.

1. Seam Tape: Weather barrier manufacturer's standard product.

E. Flashing: Galvanized steel at window and door heads and where indicated on Drawings. Refer to Division 07 Section for sheet metal flashing.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify location of concealed framing for support and anchorage of engineered wood cladding soffit and trim and fascia.

B. Verify that substrate has been installed to permit proper installation of engineered wood cladding soffit and trim and fascia.

3.2 PREPARATION

A. Prepare substrates using methods recommended in writing by the cladding manufacturer.

B. Project Location

C. Do not proceed with installation until substrates have been properly prepared and deviations from manufacturer's recommended tolerances are corrected.

D. Commencement of installation constitutes acceptance of conditions.

3.3 INSTALLATION

A. Install in accordance with manufacturer's instructions.

1. Install in accordance with conditions stated in ICC-ES ESR-1301.
2. Properly space joints to allow for equilibration.

B. Do not install to green wood or crooked structural framing. Do not install over rain soaked or buckled materials. Do not install if excessive moisture is present in the interior, including that from curing concrete and plaster.

C. Do not cut cladding to fabricate trim; use trim components.

D. After installation, seal and flash joints except the overlapping horizontal lap joints. Seal around penetrations. Paint exposed cut edges.

3.4 ADJUSTING AND CLEANING

A. Remove damaged, improperly installed, or otherwise defective materials and replace with new materials complying with specified requirements.

B. Clean finished surfaces according to manufacturer's written instructions and maintain in a clean condition during construction.

3.5 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products.

END OF SECTION

SECTION 075300

EPDM THERMOSET SINGLE-PLY ROOFING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. EPDM thermoset single-ply roofing.

B. Membrane flashings.

1.2 RELATED SECTIONS

A. Section 06100 - Rough Carpentry: Roof blocking installation and requirements.

B. Section 07620 - Sheet Metal Flashing and Trim: Metal flashing and counter flashing installation and requirements.

1.3 REFERENCES

A. American Society of Civil Engineers (ASCE) - ASCE 7 - Minimum Design Loads for Buildings and Other Structures, Current Revision.

B. ANSI/SPRI WD-1 "Wind Design Standard for Roofing Assemblies".

C. ASTM International (ASTM):
   1. ASTM D 4637 - Standard Specification for EPDM Sheet Used In Single-Ply Roof Membrane.

D. International Code Council (ICC):
   1. International Building Code (IBC).

E. National Roofing Contractors Association (NRCA) - Low Slope Roofing and Waterproofing Manual, Current Edition.

F. Underwriters Laboratories (UL):
   1. TGFU R1306 - "Roofing Systems and Materials Guide".
   2. UL-790 - Standard Test Method for Fire Tests of Roof Coverings.

G. ANSI/ASHRAE/IESNA Standard 90.1 (2007): Energy Standard for Buildings Except Low-Rise Residential Buildings

1.4 DESIGN CRITERIA

A. Wind Uplift Performance:
   1. Roof system is designed to withstand wind uplift forces as calculated using the current revision of ASCE-7.

B. Fire Resistance Performance:
   1. Roof system will achieve a UL Class A rating when tested in accordance with UL-790.

C. Drainage: Provide a roof system with positive drainage where all standing water dissipates

within 48 hours after precipitation ends.

D. Building Codes:
   1. Roof system will meet the requirements of all federal, state and local code bodies having jurisdiction.

1.5 SUBMITTALS

A. Submit under provisions of Section 01 3000.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation methods.

C. Detail Drawings:
   1. Submit approved plan, section, elevation or isometric drawings which detail the appropriate methods for all flashing conditions found on the project.
   2. Coordinate approved drawings with locations found on the Contract Drawings.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: All products specified in this section will be supplied by a single manufacturer with a minimum of twenty (10) years experience.

B. Installer Qualifications:
   1. All products listed in this section are to be installed by a single installer with a minimum of five (5) years demonstrated experience in installing products of the same type and scope as specified.
   2. Installer must be capable of extending the Manufacturer's Labor and Materials guarantee.
   3. Installer must be capable of extending the Manufacturer's No Dollar Limit guarantee.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Store and dispose of hazardous materials, and materials contaminated by hazardous materials, in accordance with requirements of local authorities having jurisdiction.

1.8 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

B. Refer to Carlisle's Roofing System specification, Part II - Application, for General Job Site Considerations.

C. Material Safety Data Sheets (MSDS) must be on location at all times during the transportation, storage and application of materials.

D. When positioning membrane sheets, exercise care to locate all field splices away from low

spots and out of drain sumps. All field splices should be shingled to prevent bucking of water.

E. When loading materials onto the roof, the Carlisle Authorized Roofing Applicator must comply with the requirements of the building owner to prevent overloading and possible disturbance to the building structure.

F. Proceed with roofing work only when weather conditions are in compliance with the manufacturer's recommended limitations, and when conditions will permit the work to proceed in accordance with the manufacturer's requirements and recommendations.

G. Proceed with work so new roofing materials are not subject to construction traffic. When necessary, new roof sections shall be protected and inspected upon completion for possible damage.

H. Provide protection, such as 3/4 inch thick plywood, for all roof areas exposed to traffic during construction. Plywood must be smooth and free of fasteners and splinters.

I. The surface on which the insulation or roofing membrane is to be applied shall be clean, smooth, dry, and free of projections or contaminants that would prevent proper application of or be incompatible with the new installation, such as fins, sharp edges, foreign materials, oil and grease.

J. New roofing shall be complete and weathertight at the end of the work day.

K. Contaminants such as grease, fats and oils shall not be allowed to come in direct contact with the roofing membrane.

1.9 WARRANTY

A. At project closeout, provide to Owner or Owners Representative an executed copy of the manufacturer's Total-System warranty, outlining its terms, conditions, and exclusions from coverage.
   1. 20 years.
   2. Coverage to be extended to include accidental punctures in accordance with terms stated in the Warranty document.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Carlisle SynTec Systems, which is located at: P. O. Box 7000; Carlisle, PA 17013; Toll Free Tel: 800-4-SYNTEC; Tel: 717-245-7000; Fax: 717-245-7053; Email:request info (Paige.Morey@carlisleccm.com); Web:www.carlisle-syntec.com

B. Requests for substitutions will be considered in accordance with provisions of Section 01 6000.

2.2 SCOPE / APPLICATION

A. Roof System: Provide a waterproof roof system, capable of withstanding uplift forces as specified in Design Criteria.

1. Membrane Attachment: Mechanically Attached.

B. Base Flashing: Provide a waterproof, fully adhered base flashing system at all penetrations, plane transitions and terminations.

2.3 ETHYLENE, PROPYLENE, DIENE TERPOLYMER (EPDM) MEMBRANE

A. Sure-Seal Non-Reinforced Membrane: Cured, non-reinforced EPDM membrane meeting the requirements of ASTM D 4637 Type I.
   1. Color: Black.
   2. Membrane Thickness: 60 mil nominal.
   3. Performance:
      a. Tensile Strength: 1550 psi (10.7 MPa) minimum.
      b. Tear Resistance: 200 lbf/in (35 kN/m) minimum.
      c. Elongation: 480 percent.

2.4 FLASHING ACCESSORIES

A. Sure-Seal (black) Pressure-Sensitive Pipe Seals with Factory-Applied TAPE on the deck flange are available for use with Sure-Seal/Sure-White Roofing systems.

B. Sure-Seal Pourable Sealer Pocket: Pre-fabricated Pourable Sealer Pocket consisting of a 2 inch (51 mm) wide plastic support strip with Factory-Applied, adhesive backed uncured Elastoform Flashing.

C. Sure-Seal Pressure-Sensitive (PS) Inside/Outside Corner: A 7 inch by 9 inch precut 60-mil thick Elastoform Flashing with a 35-mil Factory-Applied TAPE.

D. Sure-Seal/Sure-White Pressure-Sensitive (PS) Curb Flashing - A 60-mil thick, 20 inch (508mm) wide cured EPDM membrane with 5 inch (126 mm) wide Factory-Applied TAPE along one edge to be used to flash curbs/skylights, etc.

E. Sure-Seal Pressure-Sensitive Overlayment Strip: A nominal 40-mil black, semi-cured EPDM membrane laminated to a nominal 35-mil cured, Factory-Applied TAPE for flashing gravel stops, metal edgings and Seam Fastening Plates.

F. Sure-Seal Pressure-Sensitive Cured Cover Strip: Sure-Seal or Sure-White 60-mil cured EPDM membrane laminated to a nominal 35-mil cured Factory-Applied TAPE.

G. Sure-Seal Pressure-Sensitive "T" Joint Covers: A factory cut uncured 60-mil thick EPDM flashing laminated to a nominal 35-mil Factory-Applied TAPE, used to overlay field splice intersections and to cover field splices at angle changes. Available in 6 inch by 6 inch and 12 inch by 12 inch for Sure-Seal applications, and 7 inch by 9 inch for Sure-White applications.

H. Sure-Seal Uncured EPDM Elastoform Flashing: Formable 60-mil thick Sure-Seal or Sure-White uncured EPDM membrane.

I. Sure-Seal Pressure-Sensitive Elastoform Flashing: 60-mil thick uncured EPDM Flashing laminated to a 35-mil Factory-Applied TAPE used in conjunction with Sure-Seal Primer as an option to Sure-Seal Elastoform Flashing.

J. Sure-Seal Fully Pressure Sensitive Curb Flashing: 60 mil Sure-Seal cured EPDM Membrane laminated to a 35 mil 6 inch (152mm) and 12 inch (305mm) SecurTape.

K. Sure-Seal Pressure-Sensitive RUSS (Reinforced Universal Securement Strip):
   1. 6 inch (152 mm) RUSS: A nominal 6 inch (152 mm) wide, 45-mil thick reinforced EPDM membrane with a nominal 3 inch (76mm) wide 30-mil thick cured synthetic rubber pressure-sensitive adhesive laminated to one edge. This product provides perimeter securement, and additional membrane securement at angle changes for Adhered, Ballasted, and Mechanically Fastened Roofing Systems.
   2. 9 inch (228 mm) RUSS: A nominal 9 inch (228 mm) wide, 45-mil thick reinforced EPDM membrane with a nominal 3 inch (76mm) wide 30-mil thick cured synthetic rubber pressure-sensitive adhesive laminated to both edges. This product is used in place of narrow sheets to secure the membrane in the perimeter roof area. The use of this product allows field membrane to be utilized over the entire roof area.

L. Sure-White Pressure-Sensitive RUSS (Reinforced Universal Securement Strip): 6 inch (152 mm) RUSS: A nominal 6 inch (152 mm) wide, 45-mil thick reinforced EPDM membrane with a nominal 3 inch (76mm) wide 30-mil thick cured synthetic rubber pressure-sensitive adhesive laminated to one edge. This product provides perimeter securement, and additional membrane securement at angle changes for Adhered, and Mechanically Fastened Roofing Systems.

2.5 CLEANERS, PRIMERS, ADHESIVES AND SEALANTS

A. Provide as required to maintain factory warranty.

2.6 FASTENING COMPONENTS

A. Provide as required to maintain factory warranty.

2.7 ROOF INSULATION

A. Polyisocyanurate Board Insulation: ASTM C 1289, Type II, Class 1, Grade 2, felt or glass-fiber mat facer on both major surfaces. Install polyisocyanurate insulation on metal roof deck. Minimum R-Value of 10, average R-Value of 30.

B. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated.

2.8 INSULATION ACCESSORIES

A. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening roof insulation and cover boards to substrate, and acceptable to roofing system manufacturer.

B. Insulation Adhesive: Insulation manufacturer's recommended cold-applied adhesive formulated to attach roof insulation to substrate or to another insulation layer.

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

C. Do not commence work until all other work trades have completed jobs that require them to traverse the deck on foot or with equipment.

3.3 MEMBRANE PLACEMENT AND ATTACHMENT (Mechanically Attached)

A. Unroll and position membrane without stretching. Allow the membrane to relax for approximately 1/2 hour prior to attachment. Provide and secure both perimeter and field membrane sheets in accordance with the manufacturer's most current specifications and details.

B. Secure the membrane along the pre-printed blue line approximately 3 inches (76 mm) from the edge of the membrane sheet with the required Sure-Seal Fastener and Polymer Seam Plate or Seam Fastening Plate spaced a maximum of 12 inches (305 mm) on center. The minimum distance between the edge of the fastening plate and the edge of the membrane must be 2 inches (51 mm).

C. As an alternate to the use of fastening plates, Sure-Seal Metal Fastening Bars may be used for membrane securement.

D. Position adjoining field membrane sheets to allow a minimum overlap of 6 inches at locations where Fastening Plates are located (along the length of the membrane); at the same time overlap end roll sections (width of the membrane) a minimum of 3 inches.

3.4 MEMBRANE SPLICING (Adhesive Splice)

A. Fold the top sheet back and clean the dry splice area (minimum 3 inches wide) of both membrane sheets by scrubbing with clean natural fiber rags saturated with Splice Cleaner or HP-250 Primer. When using Sure-Seal (black) PRE-KLEENED membrane, cleaning the splice area is not required unless contaminated with field dirt or other residue.

B. Apply Splicing Cement and In-Seam Sealant in accordance with the manufacturer's current application guidelines, and roll the top sheet onto the mating surface.

C. Roll the splice with a 2 inch wide steel roller and wait at least 2 hours before applying Lap Sealant to the splice edge following the manufacturer's requirements.

D. Field splices without In-Seam Sealant must be overlaid with uncured flashing.

3.5 FLASHING

A. Wall and curb flashing shall be cured EPDM membrane. Continue the deck membrane as wall flashing where practicable.

B. Follow manufacturer's typical flashing procedures for all wall, curb, and penetration flashing including metal edging/coping and roof drain applications.

3.6 DAILY SEALS

A. On phased roofing, when the completion of flashings and terminations is not achieved by the end of the work day, a daily seal must be performed to temporarily close the membrane to prevent water infiltration.

B. Use Sure-Seal Pourable Sealer or other acceptable membrane seal in accordance with the manufacturer's requirements.

3.7 CLEAN UP

A. Perform daily clean-up to collect all wrappings, empty containers, paper, and other debris from the project site. Upon completion, all debris must be disposed of in a legally acceptable manner.

B. Prior to the manufacturer's inspection for warranty, the applicator must perform a pre-inspection to review all work and to verify all flashing has been completed as well as the application of all caulking.

3.8 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

SECTION 07 6200

SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Formed roof drainage sheet metal fabrications.
2. Formed low-slope roof sheet metal fabrications.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: Show installation layouts of sheet metal flashing and trim, including plans, elevations, expansion-joint locations, and keyed details. Distinguish between shop- and field-assembled work.

1. Include details for forming, joining, supporting, and securing sheet metal flashing and trim, including pattern of seams, termination points, fixed points, expansion joints, expansion-joint covers, edge conditions, special conditions, and connections to adjoining work.

1.3 QUALITY ASSURANCE

A. Sheet Metal Flashing and Trim Standard: Comply with SMACNA's "Architectural Sheet Metal Manual" unless more stringent requirements are specified or shown on Drawings.

PART 2 - PRODUCTS

2.1 SHEET METALS

A. General: Protect mechanical and other finishes on exposed surfaces from damage by applying a strippable, temporary protective film before shipping.

B. Stainless-Steel Sheet: ASTM A 240/A 240M or ASTM A 666, Type 304, dead soft, fully annealed; 2D (dull, cold rolled) finish.

C. Metallic-Coated Steel Sheet: Restricted flatness steel sheet, metallic coated by the hot-dip process and pre-painted by the coil-coating process to comply with ASTM A 755/A 755M.

1. Zinc-Coated (Galvanized) Steel Sheet: ASTM A 653/A 653M, G90 coating designation; structural quality.
2. Surface: Manufacturer's standard clear acrylic coating on both sides.

2.2 MISCELLANEOUS MATERIALS

A. General: Provide materials and types of fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and recommended by manufacturer of primary sheet metal or manufactured item unless otherwise indicated.

B. Fasteners: Wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads and recommended by manufacturer of primary sheet metal or manufactured item.

1. General: Blind fasteners or self-drilling screws, gasketed, with hex-washer head.

    a. Exposed Fasteners: Heads matching color of sheet metal using plastic caps or factory-applied coating.
    b. Blind Fasteners: High-strength aluminum or stainless-steel rivets suitable for metal being fastened.
    c. Spikes and Ferrules: Same material as gutter; with spike with ferrule matching internal gutter width.

2. Fasteners for Copper Sheet: Copper, hardware bronze or Series 300 stainless steel.
3. Fasteners for Aluminum Sheet: Aluminum or Series 300 stainless steel.
4. Fasteners for Stainless-Steel Sheet: Series 300 stainless steel.
5. Fasteners for Zinc-Coated (Galvanized) Steel Sheet: Hot-dip galvanized steel according to ASTM A 153/A 153M or ASTM F 2329 or Series 300 stainless steel.

C. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, non-sag, nontoxic, non-staining tape 1/2 inch wide and 1/8 inch thick.

D. Elastomeric Sealant: ASTM C 920, elastomeric polymer sealant; low modulus; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.

E. Butyl Sealant: ASTM C 1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy bodied for hooked-type expansion joints with limited movement.

F. Epoxy Seam Sealer: Two-part, noncorrosive, aluminum seam-cementing compound, recommended by aluminum manufacturer for exterior nonmoving joints, including riveted joints.

G. Bituminous Coating: Cold-applied asphalt emulsion complying with ASTM D 1187.

2.3 FABRICATION, GENERAL

A. General: Custom fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, geometry, metal thickness, and other characteristics of item indicated. Fabricate items at the shop to greatest extent possible.

1. Obtain field measurements for accurate fit before shop fabrication.
2. Form sheet metal flashing and trim without excessive oil canning, buckling, and tool marks and true to line and levels indicated, with exposed edges folded back to form hems.
3. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces exposed to view.

B. Sealed Joints: Form non-expansion but movable joints in metal to accommodate elastomeric sealant.

C. Expansion Provisions: Where lapped expansion provisions cannot be used, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with butyl sealant concealed within joints.

D. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal.

E. Seams: Fabricate nonmoving seams with flat-lock seams. Tin edges to be seamed, form seams, and solder.

F. Seams: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with elastomeric sealant unless otherwise recommended by sealant manufacturer for intended use. Rivet joints where necessary for strength.

2.4 ROOF DRAINAGE SHEET METAL FABRICATIONS (Exclude at PEMB building)

A. Parapet Scuppers: Fabricate scuppers of dimensions required with closure flange trim to exterior, 4-inch- wide wall flanges to interior, and base extending 4 inches beyond cant or tapered strip into field of roof. Fabricate from the following materials:

1. Galvanized Steel: 0.028 inch thick.

B. Downspouts: Fabricate rectangular open-face downspouts to dimensions indicated, complete with mitered elbows. Furnish with metal hangers from same material as downspouts and anchors. Shop fabricate elbows. Fabricate from the following materials:
1. Aluminum-Zinc Alloy-Coated Steel: 0.022 inch thick.

C. Gutters: Fabricate large capacity gutters to dimensions indicated, complete with sealed joints. Furnish with metal hangers from same material as gutter and anchors. Shop fabricate from the following materials:
1. Aluminum-Zinc Alloy-Coated Steel: 0.036 inch thick.

2.5 LOW-SLOPE ROOF SHEET METAL FABRICATIONS

A. Roof-Penetration Flashing: Fabricate from the following materials:

1. Galvanized Steel: 0.028 inch thick.

B. Roof-Drain Flashing: Fabricate from the following materials:

1. Stainless Steel: 0.016 inch thick.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. General: Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement so that completed sheet metal flashing and trim shall not rattle, leak, or loosen, and shall remain watertight. Use fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.

1. Install sheet metal flashing and trim true to line and levels indicated. Provide uniform, neat seams with minimum exposure of solder, welds, and sealant.
2. Install sheet metal flashing and trim to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
3. Space cleats not more than 12 inches apart. Anchor each cleat with two fasteners. Bend tabs over fasteners.
4. Install exposed sheet metal flashing and trim without excessive oil canning, buckling, and tool marks.
5. Install sealant tape where indicated.
6. Torch cutting of sheet metal flashing and trim is not permitted.

B. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating or by other permanent separation as recommended by SMACNA.

1. Coat back side of stainless-steel sheet metal flashing and trim with bituminous coating where flashing and trim will contact wood, ferrous metal, or cementitious construction.
2. Underlayment: Where installing metal flashing directly on cementitious or wood substrates, install a course of felt underlayment and cover with a slip sheet or install a course of polyethylene sheet.

C. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet with no joints allowed within 24 inches of corner or intersection. Where lapped expansion provisions cannot be used or would not be sufficiently watertight, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with sealant concealed within joints.

D. Fastener Sizes: Use fasteners of sizes that will penetrate wood sheathing not less than 1-1/4 inches for nails and not less than 3/4 inch for wood screws metal decking not less than recommended by fastener manufacturer to achieve maximum pull-out resistance.

E. Seal joints as shown and as required for watertight construction.

F. Rivets: Rivet joints in uncoated aluminum where indicated and where necessary for strength.

3.2 ROOF DRAINAGE SYSTEM INSTALLATION

A. General: Install sheet metal roof drainage items to produce complete roof drainage system according to SMACNA recommendations and as indicated. Coordinate installation of roof perimeter flashing with installation of roof drainage system.

B. Parapet Scuppers: Install scuppers where indicated through parapet. Continuously support scupper, set to correct elevation, and seal flanges to interior wall face, over cants or tapered edge strips, and under roofing membrane.

C. Conductor Heads: Anchor securely to wall with elevation of conductor head rim 1 inch below scupper discharge.

D. Downspouts: Join sections with 1-1/2-inch telescoping joints. Provide hangers with fasteners designed to hold downspouts securely to walls. Locate hangers at top and bottom and at approximately 60 inches o.c.

E. Splash Blocks: Install where downspouts discharge on grass.

3.3 ROOF FLASHING INSTALLATION

A. General: Install sheet metal flashing and trim to comply with performance requirements, sheet metal manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, set units true to line, and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.

B. Roof-Penetration Flashing: Coordinate installation of roof-penetration flashing with installation of roofing and other items penetrating roof. Seal with elastomeric butyl sealant and clamp flashing to pipes that penetrate roof.

3.4 CLEANING AND PROTECTION

A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.

B. Clean and neutralize flux materials. Clean off excess solder and sealants.

C. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed unless otherwise indicated in manufacturers written installation instructions.

END OF SECTION

SECTION 07 9200

JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Silicone joint sealants.
2. Urethane joint sealants.
3. Latex joint sealants.

1.2 ACTION SUBMITTALS

A. Product Data: For each joint-sealant product indicated.

B. Joint-Sealant Schedule: Include the following information:

1. Joint-sealant application, joint location, and designation.
2. Joint-sealant manufacturer and product name.
3. Joint-sealant formulation.
4. Joint-sealant color.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. Liquid-Applied Joint Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied joint sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.

1. Suitability for Immersion in Liquids. Where sealants are indicated for Use I for joints that will be continuously immersed in liquids, provide products that have undergone testing according to ASTM C 1247. Liquid used for testing sealants is deionized water, unless otherwise indicated.

B. Stain-Test-Response Characteristics: Where sealants are specified to be non-staining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.

C. Suitability for Contact with Food: Where sealants are indicated for joints that will come in repeated contact with food, provide products that comply with 21 CFR 177.2600.

2.2 SILICONE JOINT SEALANTS

A. Mildew-Resistant Silicone Joint Sealant: ASTM C 920.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited

to, the following:

a. Tremco Incorporated.

2. Type: Single component (S) or multicomponent (M).
3. Grade: Pourable (P) or nonsag (NS).
4. Class: 100/50 50 25.
5. Uses Related to Exposure: Traffic (T) Nontraffic (NT).

2.3 URETHANE JOINT SEALANTS

A. Urethane Joint Sealant: ASTM C 920.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. Tremco Incorporated.

2. Type: Single component (S) or multicomponent (M).
3. Grade: Pourable (P) or nonsag (NS).
4. Class: 100/50 50 25.
5. Uses Related to Exposure: Traffic (T) Nontraffic (NT).

2.4 LATEX JOINT SEALANTS

A. Latex Joint Sealant: Acrylic latex or siliconized acrylic latex, ASTM C 834, Type OP, Grade NF.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. Tremco Incorporated.

2.5 JOINT SEALANT BACKING

A. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin) Type O (open-cell material) Type B (bicellular material with a surface skin) or any of the preceding types, as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

B. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer.

2.6 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials.

C. Masking Tape: Non-staining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions.

1. Remove laitance and form-release agents from concrete.
2. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.

B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.2 INSTALLATION

A. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

B. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of sealant backings.
2. Do not stretch, twist, puncture, or tear sealant backings.
3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.

C. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

D. Install sealants using proven techniques that comply with the following and at the same time backings are installed:

1. Place sealants so they directly contact and fully wet joint substrates.
2. Completely fill recesses in each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

E. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

1. Remove excess sealant from surfaces adjacent to joints.
2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
3. Provide concave joint profile per Figure 8A in ASTM C 1193, unless otherwise indicated.

F. Acoustical Sealant Installation: Comply with ASTM C 919 and with manufacturer's written recommendations.

G. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.3 JOINT-SEALANT SCHEDULE

A. Joint-Sealant Application: Exterior joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Locations:
   a. Control and expansion joints in unit masonry.
   b. Joints in exterior insulation and finish systems.
   c. Perimeter joints between materials listed above and frames of doors windows and louvers.
2. Joint Sealant: Silicone.
3. Joint Sealant: Urethane.
4. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

B. Joint-Sealant Application: Interior joints in horizontal traffic surfaces.

1. Joint Locations:
   a. Isolation joints in cast-in-place concrete slabs.
2. Joint Sealant: Silicone.
3. Joint Sealant: Urethane.
4. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

C. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Locations:
   a. Control and expansion joints on exposed interior surfaces of exterior walls.
   b. Perimeter joints between interior wall surfaces and frames of interior doors windows and elevator entrances.
2. Joint Sealant: Latex.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

D. Joint-Sealant Application: Mildew-resistant interior joints in vertical surfaces and horizontal non-traffic surfaces.
   1. Joint Sealant Location:
      a. Joints between plumbing fixtures and adjoining walls, floors, and counters.
   2. Joint Sealant: Silicone.
   3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

END OF SECTION

SECTION 08 1113

HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes hollow-metal work.

1.2 DEFINITIONS

A. Minimum Thickness: Minimum thickness of base metal without coatings according to NAAMM-HMMA 803 or SDI A250.8.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: Include elevations, door edge details, frame profiles, metal thicknesses, preparations for hardware, and other details.

C. Schedule: Prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Curries Company; an Assa Abloy Group company.

2.2 REGULATORY REQUIREMENTS

A. Fire-Rated Assemblies: Complying with NFPA 80 and listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252 or UL 10C.

2.3 INTERIOR HOLLOW METAL DOORS AND FRAMES

A. Heavy-Duty Doors and Frames: SDI A250.8, Level 2. At locations indicated in the Door and Frame Schedule.

1. Physical Performance: Level B according to SDI A250.4.

2. Doors:
   a. Type: As indicated in the Door and Frame Schedule.
   b. Thickness: 1-3/4 inches.
   c. Face: Uncoated, cold-rolled steel sheet, minimum thickness of 0.042 inch.
   d. Edge Construction: Model 1, Full Flush.

e. Core: Manufacturer's standard.

3. Frames:
   a. Materials: Uncoated, steel sheet, minimum thickness of 0.053 inch.
   b. Construction: Face welded.

4. Exposed Finish: Prime.

2.4 EXTERIOR HOLLOW-METAL DOORS AND FRAMES

A. Extra-Heavy-Duty Doors and Frames: SDI A250.8, Level 3. At locations indicated in the Door and Frame Schedule.

1. Physical Performance: Level A according to SDI A250.4.
2. Doors:
   a. Type: As indicated in the Door and Frame Schedule.
   b. Thickness: 1-3/4 inches.
   c. Face: Metallic-coated steel sheet, minimum thickness of 0.053 inch, with minimum A40 coating.
   d. Edge Construction: Model 1, Full Flush.
   e. Core: Manufacturer's standard insulation material.
3. Thermal-Rated Doors: Provide doors fabricated with thermal-resistance value (R-value) of not less than 2.1 deg F x h x sq. ft./Btu when tested according to ASTM C 1363.
4. Frames:
   a. Materials: Metallic-coated steel sheet, minimum thickness of 0.053 inch, with minimum A40 coating.
   b. Construction: Full profile welded.
5. Exposed Finish: Prime.

2.5 FRAME ANCHORS

A. Jamb Anchors:

1. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, not less than 0.042 inch thick, with corrugated or perforated straps not less than 2 inches wide by 10 inches long; or wire anchors not less than 0.177 inch thick.
2. Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than 0.042 inch thick.

B. Floor Anchors: Formed from same material as frames, minimum thickness of 0.042 inch, and as follows:

1. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.

2.6 MATERIALS

A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.

B. Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.

C. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B.

D. Frame Anchors: ASTM A 879/A 879M, Commercial Steel (CS), 04Z coating designation; mill phosphatized.

1. For anchors built into exterior walls, steel sheet complying with ASTM A 1008/A 1008M or ASTM A 1011/A 1011M, hot-dip galvanized according to ASTM A 153/A 153M, Class B.

E. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.

F. Power-Actuated Fasteners in Concrete: From corrosion-resistant materials.

G. Grout: ASTM C 476, except with a maximum slump of 4 inches, as measured according to ASTM C 143/C 143M.

H. Glazing: Section 08 8000 "Glazing."

I. Bituminous Coating: Cold-applied asphalt mastic, compounded for 15-mil dry film thickness per coat.

2.7 FABRICATION

A. Fabricate hollow-metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for metal thickness. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.

B. Hollow-Metal Doors:

1. Exterior Doors: Provide weep-hole openings in bottoms of exterior doors to permit moisture to escape. Seal joints in top edges of doors against water penetration.
2. Astragals: Provide overlapping astragal on one leaf of pairs of doors where required by NFPA 80 for fire-performance rating or where indicated.

C. Hollow-Metal Frames: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.

1. Sidelight Frames: Provide closed tubular members with no visible face seams or joints, fabricated from same material as door frame. Fasten members at crossings and to jambs by butt welding.
2. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
3. Grout Guards: Weld guards to frame at back of hardware mortises in frames to be grouted.

4. Floor Anchors: Weld anchors to bottoms of jambs with at least four spot welds per anchor; however, for slip-on drywall frames, provide anchor clips or countersunk holes at bottoms of jambs.
5. Jamb Anchors: Provide number and spacing of anchors as follows:

    a. Masonry Type: Locate anchors not more than 16 inches from top and bottom of frame. Space anchors not more than 32 inches o.c., to match coursing, and as follows:

        1) Two anchors per jamb up to 60 inches high.
        2) Three anchors per jamb from 60 to 90 inches high.
        3) Four anchors per jamb from 90 to 120 inches high.

    b. Stud-Wall Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c. and as follows:

        1) Three anchors per jamb up to 60 inches high.
        2) Four anchors per jamb from 60 to 90 inches high.
        3) Five anchors per jamb from 90 to 96 inches high.

6. Door Silencers: Except on weather-stripped frames, drill stops to receive door silencers.

    a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
    b. Double-Door Frames: Drill stop in head jamb to receive two door silencers.

D. Hardware Preparation: Factory prepare hollow-metal work to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to SDI A250.6, the Door Hardware Schedule, and templates.

1. Reinforce doors and frames to receive non-templated, mortised, and surface-mounted door hardware.
2. Comply with applicable requirements in SDI A250.6 and BHMA A156.115 for preparation of hollow-metal work for hardware.

2.8 STEEL FINISHES

A. Prime Finish: Clean, pretreat, and apply manufacturer's standard primer.

1. Shop Primer: SDI A250.10.

2.9 ACCESSORIES

A. Grout Guards: Formed from same material as frames, not less than 0.016 inch thick.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Hollow-Metal Frames: Install hollow-metal frames of size and profile indicated. Comply with SDI A250.11 or NAAMM-HMMA 840 as required by standards specified.

1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary

braces, leaving surfaces smooth and undamaged.

a. At fire-rated openings, install frames according to NFPA 80.
b. Where frames are fabricated in sections because of shipping or handling limitations, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces.
c. Install frames with removable stops located on secure side of opening.
d. Install door silencers in frames before grouting.
e. Remove temporary braces necessary for installation only after frames have been properly set and secured.
f. Check plumb, square, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
g. Field apply bituminous coating to backs of frames that will be filled with grout containing anti-freezing agents.

2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with post installed expansion anchors.

a. Floor anchors may be set with power-actuated fasteners instead of post installed expansion anchors if so indicated and approved on Shop Drawings.

3. Metal-Stud Partitions: Solidly pack mineral-fiber insulation inside frames.
4. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with grout.
5. Installation Tolerances: Adjust hollow-metal door frames for squareness, alignment, twist, and plumb to the following tolerances:

a. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
b. Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.
c. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
d. Plumbness: Plus or minus 1/16 inch, measured at jambs at floor.

B. Hollow-Metal Doors: Fit hollow-metal doors accurately in frames, within clearances specified below. Shim as necessary.

1. Non-Fire-Rated Steel Doors:

a. Between Door and Frame Jambs and Head: 1/8 inch plus or minus 1/32 inch.
b. Between Edges of Pairs of Doors: 1/8 inch to 1/4 inch plus or minus 1/32 inch.
c. At Bottom of Door: 3/4 inch plus or minus 1/32 inch.
d. Between Door Face and Stop: 1/16 inch to 1/8 inch plus or minus 1/32 inch.

2. Fire-Rated Doors: Install doors with clearances according to NFPA 80.

3.2 ADJUSTING AND CLEANING

A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow-metal work that is warped, bowed, or otherwise

unacceptable.

B. Remove grout and other bonding material from hollow-metal work immediately after installation.

C. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.

D. Metallic-Coated Surface Touchup: Clean abraded areas and repair with galvanizing repair paint according to manufacturer's written instructions.

E. Touchup Painting: Cleaning and touchup painting of abraded areas of paint are specified in painting Sections.

END OF SECTION

SECTION 08 3113

ACCESS DOORS AND FRAMES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Access doors and frames for walls and ceilings.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

PART 2 - PRODUCTS

2.1 ACCESS DOORS AND FRAMES FOR WALLS AND CEILINGS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Larsen's Manufacturing Company.

B. Source Limitations: Obtain each type of access door and frame from single source from single manufacturer.

C. Flush Access Doors with Exposed Flanges:
1. Assembly Description: Fabricate door to fit flush to frame. Provide manufacturer's standard-width exposed flange, proportional to door size.
2. Locations: Wall and ceiling.
3. Uncoated Steel Sheet for Door: Nominal 0.060 inch, 16 gage.
   a. Finish: Factory prime.
4. Frame Material: Same material, thickness, and finish as door.
5. Hinges: Manufacturer's standard.
6. Hardware: Latch.

D. Hardware:
1. Latch: Cam latch operated by screwdriver.

2.2 MATERIALS

A. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.

B. Steel Sheet: Uncoated or electrolytic zinc coated, ASTM A 879/A 879M, with cold-rolled steel sheet substrate complying with ASTM A 1008/A 1008M, Commercial Steel (CS), exposed.

C. Frame Anchors: Same type as door face.

D. Inserts, Bolts, and Anchor Fasteners: Hot-dip galvanized steel according to ASTM A 153/A 153M or ASTM F 2329.

2.3 FABRICATION

A. General: Provide access door and frame assemblies manufactured as integral units ready for installation.

B. Metal Surfaces: For metal surfaces exposed to view in the completed Work, provide materials with smooth, flat surfaces without blemishes. Do not use materials with exposed pitting, seam marks, roller marks, rolled trade names, or roughness.

C. Doors and Frames: Grind exposed welds smooth and flush with adjacent surfaces. Furnish attachment devices and fasteners of type required to secure access doors to types of supports indicated.

D. Latching Mechanisms: Furnish number required to hold doors in flush, smooth plane when closed.

2.4 FINISHES

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

C. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

D. Steel and Metallic-Coated-Steel Finishes:
   1. Factory Prime: Apply manufacturer's standard, fast-curing, lead- and chromate-free, universal primer immediately after surface preparation and pretreatment.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with manufacturer's written instructions for installing access doors and frames.

B. Install doors flush with adjacent finish surfaces or recessed to receive finish material.

3.2 ADJUSTING

A. Adjust doors and hardware, after installation, for proper operation.

B. Remove and replace doors and frames that are warped, bowed, or otherwise damaged.

END OF SECTION

08 62 00 – Unit Skylights

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. This section covers all work necessary for the execution and completion of skylight(s) as shown on drawings and specified herein.

B. Work includes but is not limited to the following: design, fabrication, glazing, and erection of skylight(s) as required for a complete and watertight installation.

1.02 REFERENCE

A. American Architectural and Manufacturers Association

1. AAMA/WDMA/CSA/101/I.S. 2/A440-05 North American Fenestration Standard/Specification for windows, doors, and skylights. (includes standard test methods for air infiltration, water penetration, structural loading)
2. AAMA 603.8-92 Pigmented Organic Coating on Extruded Aluminum
3. AAMA 611 - Voluntary Standards for Anodized Architectural Aluminum
4. ASTM A 193 / A 193M - 08b Standard Specification for Alloy-Steel and Stainless Steel Bolting Materials for High Temperature or High Pressure Service and Other Special Purpose Applications\

B. American Standards and Test Methods

1. ASTM B 209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate
2. ASTM B 221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Profiles
3. ASTM D 1667 - 05 Standard Specification for Flexible Cellular Materials - (Closed-Cell Foam)

C. International Building Code 2006

1.03 DESIGN REQUIREMENTS

A. Unit skylights are certified by National Accreditation & Management Institute to North American Fenestration Standard/Specification (NAFS) [AAMA/WDMA/CSA 101/I.S.2/A440] for air and water penetration and structural loading - as required by the International Building Code, section 2405.5 Unit Skylights.

1. Glass glazed skylight(s) are labeled with the following certified product rating:
   a. MST: SKG-C30 74” x 50”
   b. Design Pressure (Download): 90 psf
   c. Negative Design (Uplift): 30 psf
   d. Water Resistance: 6.0 psf
2. Highload / Snowload glass glazed skylight(s) are labeled with the following certified product rating:
   a. Design Pressure (Download): 560 psf
   b. Negative Design (Uplift): 30 psf
   c. Water Resistance: 6.0 psf

1.04 SUBMITTALS

A. Submit full scale shop drawings indicating methods of construction, location and spacing of anchorage, joinery, finishes, size, shape, thickness of framing members, relationship to adjoining work and glazing materials used.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to site in manufacturer’s original and unopened packaging with parts manifest.

B. Store on site in a location and manner to avoid damage. Stacking should be done in a manner that will prevent damage. Store material in a clean, dry location away from high traffic areas. Any protection on the skylights during transportation should remain until installed.

C. Keep handling on site to a minimum. Exercise caution to avoid damage to finishes of material.

PART 2 - PRODUCTS

2.01 MANUFACTURER

A. Manufacturers: Subject to compliance with requirements, available manufacturers offerings products that may be incorporated into the Work include, but are not limited to, the following:

CrystaLite, Inc.
3307 Cedar Street
Everett, WA 98201
1-800-666-6065
www.crystaliteinc.com

2.02 MATERIALS

A. Aluminum.

1. Aluminum extruded components shall be alloy 6063-T5 or 6063-T6, of sufficient thickness for this application, and as required per structural calculations; ASTM B 221.
2. Aluminum sheet and plate shall be alloy 5052-H32 per ASTM B 209.

B. Glazing Materials

1. Acrylic sheet. Shall be used in all heat formed shaped skylights. Color shall be (clear). Thickness as required by the span and loads.

2.03 FINISHES

A. Class II color anodic finish per AA_M12C22A32/A34 complying with AAMA 611. Mechanical finish non-specular as fabricated. Chemical finish etched medium matte. Anodic coating architectural Class II integrally colored or electrolytically deposited color coating 0.4 mil or thicker

2.04 FASTENERS

A. Exterior fasteners and fasteners exposed to wet areas in frame shall be 300 series stainless steel per ASTM 193/A 193M, except pop rivets used on glazing cap are aluminum or stainless steel per manufacturer.
B. Dry area fasteners shall be cadmium-plated steel per ASTM F 1135 or stainless steel.
C. All welding shall be by the TIG process. All exposed welds to be finished to match frame color where practical.

2.05 GLAZING ACCESSORIES

A. Glazing tapes per ASTM D 1667, 2240, 3575. All other gaskets, setting blocks, and other materials used in glazing shall be of a type, quality and compatibility to provide performance of the skylight(s) covered in this section.
B. Silicone sealant per CAN/CGSB 19.13-M87; TT-S-001543A/ASTM C 920, Type S, NS, Class 25 use NT, G, A&O test requirements.

2.06 ACCESSORIES

A. Self-flashing Aluminum Curb
1. Aluminum sheet and plate shall be alloy 5052-H32 per ASTM B 209.

2.07 FABRICATION

A. Skylight(s) shall be factory fabricated and preassembled in largest size assemblies possible with considerations for shipping and jobsite handling.
B. Skylight(s) shall have properly designed weep systems for drainage to exterior.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Framing shall be installed and glazed by experienced workmen in accordance with the approved shop drawings, manufacturer’s instructions and glazing standards.

3.02 CLEANING AND PROTECTION

A. Subsequent to installation of skylight(s) the General Contractor shall be responsible for the cleanup and protection of all materials provided per this section, including, but not limited to glazing materials and framing members. No abrasive materials of any kind shall be used in cleaning of skylight surfaces.

SECTION 087100

DOOR HARDWARE

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:

1. Mechanical door hardware for the following:

a. Swinging doors.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

B. Other Action Submittals:

1. Door Hardware Schedule: Prepared by or under the supervision of Installer, detailing fabrication and assembly of door hardware, as well as installation procedures and diagrams. Coordinate final door hardware schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.

a. Format: Use same scheduling sequence and format and use same door numbers as in the Contract Documents.
b. Content: Include the following information:

1) Identification number, location, hand, fire rating, size, and material of each door and frame.
2) Locations of each door hardware set, cross-referenced to Drawings on floor plans and to door and frame schedule.
3) Complete designations, including name and manufacturer, type, style, function, size, quantity, function, and finish of each door hardware product.

1.3 QUALITY ASSURANCE

A. Installer Qualifications: Supplier of products and an employer of workers trained and approved by product manufacturers and an Architectural Hardware Consultant who is available during the course of the Work to consult with Contractor, Architect, and Owner about door hardware and keying.

B. Source Limitations: Provide electrified door hardware from same manufacturer as mechanical door hardware, unless otherwise indicated. Manufacturers that perform electrical modifications and that are listed by a testing and inspecting agency acceptable to authorities having jurisdiction are acceptable.

C. Fire-Rated Door Assemblies: Where fire-rated door assemblies are indicated, provide door hardware rated for use in assemblies complying with NFPA 80 that are

listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252 or UL 10C, unless otherwise indicated.

D. Smoke- and Draft-Control Door Assemblies: Where smoke- and draft-control door assemblies are required, provide door hardware that meet requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105.

1. Air Leakage Rate: Maximum air leakage of0.3 cfm/sq. ft. at the tested pressure differential of 0.3-inch wg of water.

E. Means of Egress Doors: Latches do not require more than 15 lbf to release the latch. Locks do not require use of a key, tool, or special knowledge for operation.

F. Accessibility Requirements: For door hardware on doors in an accessible route, comply with ICC/ANSI A117.1.

1. Provide operating devices that do not require tight grasping, pinching, or twisting of the wrist and that operate with a force of not more than 5 lbf.
2. Comply with the following maximum opening-force requirements:
   a. Interior, Non-Fire-Rated Hinged Doors: 5 lbf applied perpendicular to door.
   b. Fire Doors: Minimum opening force allowable by authorities having jurisdiction.
3. Bevel raised thresholds with a slope of not more than 1:2. Provide thresholds not more than 1/2 inch high and 3/4 inch high for exterior sliding doors.
4. Adjust door closer sweep periods so that, from an open position of 70 degrees, the door will take at least 3 seconds to move to a point 3 inches from the latch, measured to the leading edge of the door.

PART 2 - PRODUCTS

2.1 SCHEDULED DOOR HARDWARE

A. Provide door hardware for each door as scheduled to comply with requirements in this Section.

1. Door Hardware Sets: Provide quantity, item, size, finish or color indicated, and products equivalent in function and comparable in quality to named products.

B. Designations: Requirements for design, grade, function, finish, size, and other distinctive qualities of each type of door hardware are indicated in Architectural plans. Products are identified by using door hardware designations, as follows:

1. Named Manufacturers' Products: Manufacturer and product designation are listed for each door hardware type required for the purpose of establishing minimum requirements. Manufacturers' names are abbreviated in Part 3 "Door Hardware Schedule" Article.

2. References to BHMA Designations: Provide products complying with these designations and requirements for description, quality, and function.

2.2 HINGES

A. Hinges: BHMA A156.1. Provide template-produced hinges for hinges installed on hollow-metal doors and hollow-metal frames.
1. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on schedule or comparable product by one of the following:
    a. Hager Companies.

2.3 MECHANICAL LOCKS AND LATCHES

A. Strikes: Provide manufacturer's standard strike for each lock bolt or latchbolt complying with requirements indicated for applicable lock or latch and with strike box and curved lip extended to protect frame; finished to match lock or latch.

1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
2. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.
3. Aluminum-Frame Strike Box: Manufacturer's special strike box fabricated for aluminum framing.
4. Rabbet Front and Strike: Provide on locksets for rabbeted meeting stiles.

B. Bored Locks: BHMA A156.2; Grade 1 & 2 as shown on plans; Series 4000.
1. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on schedule or comparable product by one of the following:
    a. Stanley Security Solutions Door Lock.

2.4 EXIT LOCKS AND EXIT ALARMS

A. Exit Locks and Alarms: BHMA A156.29, Grade 1.
1. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on schedule or comparable product by one of the following:
    a. Detex Corporation.

2.5 EXIT DEVICES AND AUXILIARY ITEMS

A. Exit Devices and Auxiliary Items: BHMA A156.3.
1. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on schedule or comparable product by one of the following:
    a. Detex Corporation.

2.6 LOCK CYLINDERS

A. Lock Cylinders: Tumbler type, constructed from brass or bronze, stainless steel, or nickel silver.

1. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on schedule or comparable product by one of the following:

    a. Best Access Systems; Div. of Stanley Security Solutions, Inc.

2.7 OPERATING TRIM

A. Operating Trim: BHMA A156.6; stainless steel, unless otherwise indicated.

1. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on schedule or comparable product by one of the following:

    a. Hiawatha, Inc.

2.8 SURFACE CLOSERS

A. Surface Closers: BHMA A156.4; rack-and-pinion hydraulic type with adjustable sweep and latch speeds controlled by key-operated valves and forged-steel main arm. Comply with manufacturer's written recommendations for size of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Provide factory-sized closers, adjustable to meet field conditions and requirements for opening force.

1. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on schedule or comparable product by one of the following:

    a. Norton Door Controls; an ASSA ABLOY Group company.

2.9 MECHANICAL STOPS AND HOLDERS

A. Wall- and Floor-Mounted Stops: BHMA A156.16; polished cast brass, bronze, or aluminum base metal.

1. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on schedule or comparable product by one of the following:

    a. IVES Hardware; an Ingersoll-Rand company.

2.10 DOOR GASKETING

A. Door Gasketing: BHMA A156.22; air leakage not to exceed 0.50 cfm per foot of crack length for gasketing other than for smoke control, as tested according to ASTM E 283; with resilient or flexible seal strips that are easily replaceable and readily available from stocks maintained by manufacturer.

1. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on schedule or comparable product by one of the following:

    a. Reese Enterprises, Inc.

2.11 THRESHOLDS

A. Thresholds: BHMA A156.21; fabricated to full width of opening indicated.

1. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on schedule or comparable product by one of the following:

    a. Reese Enterprises, Inc.

2.12 METAL PROTECTIVE TRIM UNITS

A. Metal Protective Trim Units: BHMA A156.6; fabricated from 0.050-inch- thick stainless steel; with manufacturer's standard machine or self-tapping screw fasteners.
   1. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on schedule or comparable product by one of the following:
      a. Hiawatha, Inc.

2.13 FABRICATION

A. Fasteners: Provide door hardware manufactured to comply with published templates prepared for machine, wood, and sheet metal screws. Provide screws that comply with commercially recognized industry standards for application intended, except aluminum fasteners are not permitted. Provide Phillips flat-head screws with finished heads to match surface of door hardware, unless otherwise indicated.

   1. Concealed Fasteners: For door hardware units that are exposed when door is closed, except for units already specified with concealed fasteners. Do not use through bolts for installation where bolt head or nut on opposite face is exposed unless it is the only means of securely attaching the door hardware. Where through bolts are used on hollow door and frame construction, provide sleeves for each through bolt.
   2. Fire-Rated Applications:
      a. Wood or Machine Screws: For the following:
         1) Hinges mortised to doors or frames; use threaded-to-the-head wood screws for wood doors and frames.
         2) Strike plates to frames.
         3) Closers to doors and frames.
      b. Steel Through Bolts: For the following unless door blocking is provided:
         1) Surface hinges to doors.
         2) Closers to doors and frames.
         3) Surface-mounted exit devices.
   3. Spacers or Sex Bolts: For through bolting of hollow-metal doors.
   4. Fasteners for Wood Doors: Comply with requirements in DHI WDHS.2, "Recommended Fasteners for Wood Doors."
   5. Gasketing Fasteners: Provide noncorrosive fasteners for exterior applications and elsewhere as indicated.

2.14 FINISHES

A. Provide finishes complying with BHMA A156.18 as indicated in door hardware schedule.

B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Steel Doors and Frames: For surface applied door hardware, drill and tap doors and frames according to ANSI/SDI A250.6.

B. Wood Doors: Comply with DHI WDHS.5 "Recommended Hardware Reinforcement Locations for Mineral Core Wood Flush Doors."

C. Mounting Heights: Mount door hardware units at heights to comply with the following unless otherwise indicated or required to comply with governing regulations.

1. Standard Steel Doors and Frames: ANSI/SDI A250.8.
2. Custom Steel Doors and Frames: HMMA 831.
3. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."

D. Install each door hardware item to comply with manufacturer's written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work. Do not install surface-mounted items until finishes have been completed on substrates involved.

1. Set units level, plumb, and true to line and location. Adjust and reinforce attachment substrates as necessary for proper installation and operation.
2. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.

E. Hinges: Install types and in quantities indicated in door hardware schedule but not fewer than the number recommended by manufacturer for application indicated or one hinge for every 30 inches of door height, whichever is more stringent, unless other equivalent means of support for door, such as spring hinges or pivots, are provided.

F. Lock Cylinders: Install construction cores to secure building and areas during construction period.

1. Replace construction cores with permanent cores as .
2. Furnish permanent cores to Owner for installation.

G. Thresholds: Set thresholds for exterior doors and other doors indicated in full bed of sealant complying with requirements specified in Section 079200 "Joint Sealants."

H. Stops: Provide floor stops for doors unless wall or other type stops are indicated in door hardware schedule. Do not mount floor stops where they will impede traffic.

I. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.

J. Meeting Stile Gasketing: Fasten to meeting stiles, forming seal when doors are closed.

K. Door Bottoms: Apply to bottom of door, forming seal with threshold when door is closed.

L. Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

END OF SECTION

SECTION 09 2900

GYPSUM BOARD

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Interior gypsum board.
2. Gypsum board accessories.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

PART 2 - PRODUCTS

2.1 INTERIOR GYPSUM BOARD

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. USG Corporation.

B. Gypsum Wallboard: ASTM C 1396/C 1396M.

1. Thickness: 5/8 inch.
2. Long Edges: Tapered and featured (rounded or beveled) for prefilling.

C. Gypsum Board, Type X: ASTM C 1396/C 1396M.

1. Thickness: 5/8 inch.
2. Long Edges: Tapered and featured (rounded or beveled) for prefilling.

D. Moisture- and Mold-Resistant Gypsum Board: ASTM C 1396/C 1396M. With moisture- and mold-resistant core and paper surfaces.

1. Core: 5/8 inch, Type X.
2. Long Edges: Tapered.
3. Mold Resistance: ASTM D 3273, score of 10 as rated according to ASTM D 3274.

2.2 TRIM ACCESSORIES

A. Interior Trim: ASTM C 1047.

1. Material: Galvanized or aluminum-coated steel sheet, rolled zinc, plastic, or paper-faced galvanized steel sheet.

2.3 JOINT TREATMENT MATERIALS

A. General: Comply with ASTM C 475/C 475M.

B. Joint Tape:

1. Interior Gypsum Board: Paper.
2. Glass-Mat Gypsum Sheathing Board: 10-by-10 glass mesh.
3. Tile Backing Panels: As recommended by panel manufacturer.

C. Joint Compound for Interior Gypsum Board: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.

2.4 AUXILIARY MATERIALS

A. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.

B. Sound Attenuation Blankets: ASTM C 665, Type I (blankets without membrane facing).

C. Acoustical Joint Sealant: ASTM C 834. Product effectively reduces airborne sound transmission through perimeter joints and openings as demonstrated by testing according to ASTM E 90.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

a. USG Corporation; SHEETROCK Acoustical Sealant.

D. Vapor Retarder: As specified in Section 07 2100 "Thermal Insulation."

PART 3 - EXECUTION

3.1 APPLYING AND FINISHING PANELS

A. Comply with ASTM C 840.

B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.

C. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments, except floors. Provide 1/4- to 1/2-inch- wide spaces at these locations and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.

D. Install trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.

1. Control Joints: Install control joints at locations indicated on Drawings and/or according to ASTM C 840.

E. Prefill open joints, rounded or beveled edges, and damaged surface areas.

F. Apply joint tape over gypsum board joints, except for trim products specifically indicated as not intended to receive tape.

G. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C 840:

1. Level 1: Ceiling plenum areas, concealed areas, Back-of-House and where indicated.
2. Level 2: Panels that are substrate for tile.
3. Level 4: At panel surfaces that will be exposed to public view unless otherwise indicated.

    a. Primer and its application to surfaces are specified in Section 09 9123 "Interior Painting."

H. Texture Finish Application: Prepare and apply primer to gypsum panels and other surfaces receiving texture finishes. Mix and apply finish using powered spray equipment, to produce a uniform texture free of starved spots or other evidence of thin application or of application patterns.

I. Protect adjacent surfaces from drywall compound and texture finishes and promptly remove from floors and other non-drywall surfaces. Repair surfaces stained, marred, or otherwise damaged during drywall application.

J. Remove and replace panels that are wet, moisture damaged, and mold damaged.

END OF SECTION

SECTION 09 3000

TILING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Porcelain tile.
2. Tile backing panels.
3. Setting materials.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

1.3 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match and are from same production runs as products installed and that are packaged with protective covering and identified with labels describing contents.

1. Tile and Trim Units: Furnish quantity of full-size units equal to 3 percent of amount installed for each type, composition, color, pattern, and size indicated.

PART 2 - PRODUCTS

2.1 TILE PRODUCTS

A. ANSI Porcelain Tile Standard: Provide Standard grade tile that complies with ANSI A137.1 for types, compositions, and other characteristics indicated.

B. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:

a. As indicated on Drawings.

1. Composition: Porcelain.
2. Face Size: See Drawings for size and locations.
3. Face: Pattern of design indicated, with square or cushion edges.
4. Finish: Polished / Unpolished. See Finish Key.
5. Tile Color and Pattern: As indicated on Drawings.
6. Grout Color: Custum Building Products. See Finish Key.

2.2 TILE BACKING PANELS

A. Cementitious Backer Units: ANSI A118.9 or ASTM C 1325.

1. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:

a. USG Corporation; DUROCK Cement Board.

2. Thickness: 5/8 inch.

2.3 SETTING MATERIALS

A. Waterproofing and Crack Prevention Membrane
   1. Basis of Design: Custom Building Products – Redgard Waterproofing and Crack Preventative Membrane.

B. Mortar
   1. Basis of Design: Custom Building Products – Prolite Premium Large Format Tile Mortar – 95% mortar coverage.

C. Grout
   1. Basis of Design: Custom Building Products – Prism Ultimate Performance Grout

D. Expansion Joints
   1. Basis of Design: Custom Building Products – Commercial 100% silicone sealant.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions where tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of installed tile.

B. Verify that substrates for setting tile are firm, dry, clean, free of coatings that are incompatible with tile-setting materials including curing compounds and other substances that contain soap, wax, oil, or silicone; and comply with flatness tolerances required by ANSI A108.01 for installations indicated.

3.2 PREPARATION

A. Where indicated, prepare substrates to receive waterproofing by applying a reinforced mortar bed that complies with ANSI A108.1A.

B. Blending: For tile exhibiting color variations, use factory blended tile or blend tiles at Project site before installing.

C. Field-Applied Temporary Protective Coating: If indicated under tile type or needed to prevent grout from staining or adhering to exposed tile surfaces, precoat them with continuous film of temporary protective coating, taking care not to coat unexposed tile surfaces.

3.3 INSTALLATION

A. Comply with TCA's "Handbook for Porcelain Tile Installation" for TCA installation methods specified in tile installation schedules. Comply with parts of the ANSI A108 Series "Specifications for Installation of Porcelain Tile" that are referenced in TCA

installation methods, specified in tile installation schedules, and apply to types of setting and grouting materials used.

1. For the following installations, follow procedures in the ANSI A108 Series of tile installation standards for providing 95 percent mortar coverage:
   a. Tile floors composed of tiles 8 by 8 inches or larger.

B. Extend tile work into recesses and under or behind equipment and fixtures to form complete covering without interruptions unless otherwise indicated. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.

C. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap tile.

D. Provide manufacturer's standard trim shapes where necessary to eliminate exposed tile edges.

E. Jointing Pattern: Lay tile in grid pattern unless otherwise indicated. Lay out tile work and center tile fields in both directions in each space or on each wall area. Lay out tile work to minimize the use of pieces that are less than half of a tile. Provide uniform joint widths unless otherwise indicated.

F. Joint Widths: Unless otherwise indicated, install tile with the following joint widths:

1. Floor / Paver Tile: 1/8 inch.
2. Glazed Wall Tile: 1/16 inch.

G. Lay out tile wainscots to dimensions indicated or to next full tile beyond dimensions indicated.

H. Expansion Joints: Provide expansion joints and other sealant-filled joints, including control, contraction, and isolation joints, where indicated. Form joints during installation of setting materials, mortar beds, and tile. Do not saw-cut joints after installing tiles.

1. Where joints occur in concrete substrates, locate joints in tile surfaces directly above them.
2. Prepare joints and apply sealants to comply with requirements in Section 07 9200 "Joint Sealants."

I. Install cementitious backer units and treat joints according to ANSI A108.11 and manufacturer's written instructions for type of application indicated.

END OF SECTION

SECTION 09 5113

ACOUSTICAL PANEL CEILINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes acoustical panels and exposed suspension systems for ceilings.

PART 2 - PRODUCTS

2.1 ACOUSTICAL PANEL CEILINGS, GENERAL

A. Acoustical Panel Standard: Comply with ASTM E 1264.

B. Metal Suspension System Standard: Comply with ASTM C 635.

~~2.2 ACOUSTICAL PANELS~~

~~A. Basis-of-Design Product: Subject to compliance with requirements, provide Mars ClimaPlus High NRC or comparable product by one of the following:~~

~~1. USG Interiors, Inc.; Subsidiary of USG Corporation.~~

~~a. Color: Flat White 050.~~

~~b. Edge/Joint Detail: Reveal sized to fit flange of exposed suspension-system members.~~

~~c. Thickness: 5/8 inch .~~

~~d. Modular Size: 24 by 24 inches.~~

2.3 LAY-IN PANELS

A. Basis-of-Design Product: Subject to compliance with requirements, provide USG, Sheetrock Lay-In, ClimaPlus, Vinyl or comparable product by one of the following:

1. Armstrong World Industries, Inc.
2. CertainTeed Corp.
   a. Color: White
   b. LR: 0.77
   c. CAC: 35
   d. Edge/Joint Detail: Square
   e. Thickness: 1/2 inch
   f. Modular Size: 24 by 24 inches

2.4 METAL SUSPENSION SYSTEM

A. Basis-of-Design Product: Subject to compliance with requirements, provide USG, DX/DXL/DXLA or comparable product by one of the following:

1. Armstrong World Industries, Inc.
2. CertainTeed Corp.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install acoustical panel ceilings to comply with ASTM C 636/C 636M and seismic design requirements indicated, according to manufacturer's written instructions and CISCA's "Ceiling Systems Handbook."

B. Measure each ceiling area and establish layout of acoustical panels to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width panels at borders, and comply with layout shown on reflected ceiling plans.

1. Arrange directionally patterned acoustical panels as indicated on reflected ceiling plans.

END OF SECTION

SECTION 09 6513

RESILIENT BASE AND ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Resilient base.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

1.3 PROJECT CONDITIONS

A. Maintain ambient temperatures within range recommended by manufacturer in spaces to receive resilient products.

B. Until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer.

C. Install resilient products after other finishing operations, including painting, have been completed.

PART 2 - PRODUCTS

2.1 RESILIENT BASE

A. Resilient Base:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. Armstrong.

B. Resilient Base Standard: ASTM F 1861.

1. Material Requirement: Type TV (vinyl, thermoplastic).
2. Manufacturing Method: Group II (layered).
3. Style: Cove (base with toe).

C. Minimum Thickness: 0.080 inch.

D. Height: 4 inches.

E. Lengths: Cut lengths 48 inches long or coils in manufacturer's standard length.

F. Outside Corners: Job formed.

G. Inside Corners: Job formed.

H. Finish: Satin.

I. Colors and Patterns: Selected from manufacturers full range of standard colors.

2.2 RESILIENT MOLDING ACCESSORY

A. Resilient Molding Accessory:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. Armstrong.

B. Material: Vinyl.

C. Profile and Dimensions: See drawings for profiles required.

D. Colors and Patterns: As selected from manufacturer's standard colors.

2.3 INSTALLATION MATERIALS

A. Trowelable Leveling and Patching Compounds: Latex-modified, Portland cement based or blended hydraulic-cement-based formulation provided or approved by manufacturer for applications indicated.

B. Adhesives: Water-resistant type recommended by manufacturer to suit resilient products and substrate conditions indicated.

PART 3 - EXECUTION

3.1 PREPARATION

A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.

1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
3. Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer.
4. Moisture Testing: Perform tests recommended by manufacturer and as follows. Proceed with installation only after substrates pass testing.

a. Perform anhydrous calcium chloride test, ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. in 24 hours.
b. Perform relative humidity test using in situ probes, ASTM F 2170. Proceed with installation only after substrates have maximum 75 percent relative humidity level measurement.

B. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound and remove bumps and ridges to produce a uniform and smooth substrate.

C. Do not install resilient products until they are same temperature as the space where they are to be installed.

1. Move resilient products and installation materials into spaces where they will be installed at least 48 hours in advance of installation.

D. Sweep and vacuum clean substrates to be covered by resilient products immediately before installation.

3.2 RESILIENT BASE INSTALLATION

A. Comply with manufacturer's written instructions for installing resilient base.

B. Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.

C. Install resilient base in lengths as long as practicable without gaps at seams and with tops of adjacent pieces aligned.

D. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.

E. Do not stretch resilient base during installation.

3.3 RESILIENT ACCESSORY INSTALLATION

A. Comply with manufacturer's written instructions for installing resilient accessories.

B. Resilient Molding Accessories: Butt to adjacent materials and tightly adhere to substrates throughout length of each piece. Install reducer strips at edges of carpet that would otherwise be exposed.

3.4 CLEANING AND PROTECTION

A. Comply with manufacturer's written instructions for cleaning and protection of resilient products.

B. Cover resilient products until Substantial Completion.

END OF SECTION

SECTION 09 9113

EXTERIOR PAINTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes surface preparation and the application of paint systems on the following exterior substrates:
   1. Steel.
   2. Galvanized metal.

1.2 DEFINITIONS

A. Gloss Level 1: Not more than 5 units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.

B. Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.

C. Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.

D. Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.

E. Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.

F. Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

1.3 ACTION SUBMITTALS

A. Product List: For each product indicated. Include printout of current "MPI Approved Products List" for each product category specified, with the proposed product highlighted.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to products listed in other Part 2 articles for the paint category indicated.

2.2 PAINT, GENERAL

A. MPI Standards: Provide products that comply with MPI standards indicated and that are listed in its "MPI Approved Products List."

B. Material Compatibility:

   1. Provide materials for use within each paint system that are compatible with one

another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.

2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

C. VOC Content: Provide materials that comply with VOC limits of authorities having jurisdiction.

D. Colors: As indicated in a color schedule.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:

1. Masonry (Clay and CMU): 12 percent.

C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

D. Proceed with coating application only after unsatisfactory conditions have been corrected.

1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Manual" applicable to substrates and paint systems indicated.

B. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulates.

1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.

3.3 APPLICATION

A. Apply paints according to manufacturer's written instructions and recommendations in "MPI Manual."

B. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.4 CLEANING AND PROTECTION

A. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

B. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.5 EXTERIOR PAINTING SCHEDULE

A. Steel and Iron Substrates:

1. Alkyd System:

a. Prime Coat: Primer, alkyd, anti-corrosive, for metal.
b. Topcoat: Alkyd, exterior, gloss (MPI Gloss Level 6).

B. Galvanized-Metal Substrates:

1. Alkyd System:

a. Prime Coat: Primer, galvanized, cementitious.
b. Topcoat: Alkyd, exterior, gloss (MPI Gloss Level 6).

END OF SECTION

SECTION 09 9123

INTERIOR PAINTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes surface preparation and the application of paint systems on the following interior substrates:

1. Concrete.
2. Steel.
3. Gypsum board.

1.2 DEFINITIONS

A. Gloss Level 1: Not more than 5 units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.

B. Gloss Level 2: Not more than 10 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.

C. Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.

D. Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.

E. Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.

F. Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.

G. Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

1.3 ACTION SUBMITTALS

A. Product List: For each product indicated.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Subject to compliance with requirements, provide product listed in other Part 2 articles for the paint category indicated.

2.2 PAINT, GENERAL

A. Material Compatibility:

1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.

2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.
3. Verify finish of Steel Decking to determine type of Dry Fall/Fog Coating.

B. Colors: As indicated in a color schedule.

1. 10 percent of surface area will be painted with deep tones.

2.3 WATER-BASED PAINTS

A. Latex, Interior, (Gloss Level 4): MPI #43.

1. As indicated on Drawings.

B. Latex, Interior, Semi-Gloss, (Gloss Level 5): MPI #54.

1. As indicated on Drawings.

2.4 DRY FOG/FALL COATINGS

A. Dry Fall, Latex, Flat: MPI #118.

1. As indicated on Drawings.

B. Dry Fall, Alkyd, Flat: MPI #55.

1. As indicated on Drawings.

2.5 FLOOR COATINGS

A. Sealer, Water Based, for Concrete Floors: MPI #99.

1. Food Graded product will be required.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:

1. Concrete: 12 percent.
2. Gypsum Board: 12 percent.

C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

D. Proceed with coating application only after unsatisfactory conditions have been corrected.

1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Manual" applicable to substrates indicated.

B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.

1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.

C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.

1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.

3.3 APPLICATION

A. Apply paints according to manufacturer's written instructions and to recommendations in "MPI Manual."

B. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.4 INTERIOR PAINTING SCHEDULE

A. Concrete Substrates, Traffic Surfaces:

1. Water-Based Clear Sealer System:

a. Topcoat: Sealer, water based, for concrete floors, MPI #99.

B. Steel Substrates:

1. Water-Based Dry-Fall System:

a. Prime Coat: Shop primer specified in Section 05 1200 "Structural Steel Framing" where substrate is specified.
b. Topcoat: Dry fall, latex, flat, MPI #118.

2. Alkyd Dry-Fall System:

    a. Prime Coat: Shop primer specified in Section 05 1200 "Structural Steel Framing" where substrate is specified.
    b. Topcoat: Dry fall, alkyd, flat, MPI #55.

C. Gypsum Board Substrates:

1. Latex System:

    a. Prime Coat: Latex, interior, matching topcoat.
    b. Topcoat: Latex, interior, (Gloss Level 4), MPI #43.
    c. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5), MPI #54.
    d. Topcoat: Level 5 (hi-build primer) at Public viewed areas.

END OF SECTION

SECTION 09 9303

STAINING AND TRANSPARENT FINISHING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes surface preparation and application of wood stains and transparent finishes on the following substrates:

1. Interior Substrates:

a. Plywood paneling wainscot and trim.

1.2 DEFINITIONS

A. MPI Gloss Level 1: Not more than 5 units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.

B. MPI Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.

C. MPI Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.

D. MPI Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.

E. MPI Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

1.3 ACTION SUBMITTALS

A. Samples for Verification: For each type of finish system and in each color and gloss of finish required.

1.4 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials**,** from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Stains and Transparent Finishes: **5** percent, but not less than 1 gal. of each material and color applied.

1.5 QUALITY ASSURANCE

A. Mockups: Apply mockups of each finish system indicated and each color selected to verify preliminary selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.

1. Architect will select one surface to represent surfaces and conditions for application of each type of finish system and substrate.

a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft. (9 sq. m).

b. Other Items: Architect will designate items or areas required.

2. Final approval of stain color selections will be based on mockups.

a. If preliminary stain color selections are not approved, apply additional mockups of additional stain colors selected by Architect at no added cost to Owner.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F (7 deg C).

1. Maintain containers in clean condition, free of foreign materials and residue.
2. Remove rags and waste from storage areas daily.

1.7 FIELD CONDITIONS

A. Apply finishes only when temperature of surfaces to be finished and ambient air temperatures are between 50 and 95 deg F (10 and 35 deg C).

B. Do not apply finishes when relative humidity exceeds 85 percent, at temperatures less than 5 deg F (3 deg C) above the dew point, or to damp or wet surfaces.

C. Do not apply exterior finishes in snow, rain, fog, or mist.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis-of-Design Product: Subject to compliance with requirements, provide products indicated in wood finish systems schedules or comparable products by one of the following:
1. Sherwin-Williams; Paint Stores Group.

B. Products: Subject to compliance with requirements, provide product listed in wood finish systems schedules for the product category indicated.

2.2 MATERIALS, GENERAL

A. MPI Standards: Products shall comply with MPI standards indicated and shall be listed in its "MPI Approved Products List."

B. Material Compatibility:

1. Materials for use within each paint system shall be compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
2. For each coat in a paint system, products shall be recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

C. VOC Content: Products shall comply with VOC limits of authorities having jurisdiction[**and, for interior stains and finishes applied at project site, the following VOC limits, exclusive of colorants added to a tint base**].

1. Clear Wood Finishes, Varnishes: VOC not more than 350 g/L.
2. Shellacs, Clear: VOC not more than 730 g/L.
3. Stains: VOC not more than 250 g/L.
4. Primers, Sealers, and Undercoaters: 200 g/L.

D. Low-Emitting Materials: Interior stains and finishes shall comply with the testing and product requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

E. Stain Colors: **As indicated in a color schedule**.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

B. Maximum Moisture Content of Interior Wood Substrates: **15** percent, when measured with an electronic moisture meter.

C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

D. Proceed with finish application only after unsatisfactory conditions have been corrected.

1. Beginning finish application constitutes Contractor's acceptance of substrates and conditions.

3.2 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates indicated.

B. Remove hardware, covers, plates, and similar items already in place that are removable. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and finishing.

1. After completing finishing operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.

C. Clean and prepare surfaces to be finished according to manufacturer's written instructions for each substrate condition and as specified.

1. Remove dust, dirt, oil, and grease by washing with a detergent solution; rinse thoroughly with clean water and allow to dry. Remove grade stamps and pencil marks by sanding lightly. Remove loose wood fibers by brushing.
2. Remove mildew by scrubbing with a commercial wash formulated for mildew removal and as recommended by stain manufacturer.

3.3 APPLICATION

A. Apply finishes according to manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual."

1. Use applicators and techniques suited for finish and substrate indicated.
2. Finish surfaces behind movable equipment and furniture same as similar exposed surfaces.
3. Do not apply finishes over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.

B. Apply finishes to produce surface films without cloudiness, holidays, lap marks, brush marks, runs, ropiness, or other surface imperfections.

3.4 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

B. After completing finish application, clean spattered surfaces. Remove spattered materials by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

C. Protect work of other trades against damage from finish application. Correct damage by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

D. At completion of construction activities of other trades, touch up and restore damaged or defaced finished wood surfaces.

3.5 INTERIOR WOOD -FINISH-SYSTEM SCHEDULE

1. Semi-transparent Stain System **MPI INT 6.1G**:

    a. Prime Coat: Stain, semitransparent, matching topcoat.
    b. Topcoat: Stain, semitransparent, for interior wood**, MPI #90**.

END OF SECTION

SECTION 10 1423

PANEL SIGNAGE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Room-identification signs.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Sign Schedule: Use same designations specified or indicated on Drawings or as designated by Owner.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Accessibility Standard: Comply with applicable provisions in ICC A117.1 for signs.

2.2 SIGNS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated or comparable product by one of the following:

1. InPro Corporation.

C. Room-Identification Sign: Sign with smooth, uniform surfaces; with message and characters having uniform faces, sharp corners, and precisely formed lines and profiles; and as follows:

1. Basis-of-Design Product: Photopolymer Series, SPX20, Clear PETG.
2. Laminated-Sheet Sign: Photopolymer face sheet with raised graphics laminated to backing sheet to produce composite sheet.
    a. Composite-Sheet Thickness: Manufacturer's standard for size of sign.
    b. Color(s): As selected by Architect from manufacturer's full range.
3. Sign-Panel Perimeter: Finish edges smooth.
    a. Edge Condition: Square cut.
4. Mounting: Surface mounted to wall with two-face tape.

2.3 FABRICATION

A. General: Provide manufacturer's standard sign assemblies according to requirements indicated.

1. Mill joints to a tight, hairline fit. Form assemblies and joints exposed to weather to resist water penetration and retention.
2. Provide welds and brazes behind finished surfaces without distorting or discoloring exposed side. Clean exposed welded and brazed connections of flux, and dress exposed and contact surfaces.
3. Conceal connections if possible; otherwise, locate connections where they are inconspicuous.
4. Internally brace signs for stability and for securing fasteners.
5. Provide rebates, lugs, and brackets necessary to assemble components and to attach to existing work. Drill and tap for required fasteners. Use concealed fasteners where possible; use exposed fasteners that match sign finish.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General: Install signs using mounting methods indicated and according to manufacturer's written instructions.

1. Install signs level, plumb, true to line, and at locations and heights indicated, with sign surfaces free of distortion and other defects in appearance.
2. Install signs so they do not protrude or obstruct according to the accessibility standard.
3. Before installation, verify that sign surfaces are clean and free of materials or debris that would impair installation.
4. Corrosion Protection: Coat concealed surfaces of exterior aluminum in contact with grout, concrete, masonry, wood, or dissimilar metals, with a heavy coat of bituminous paint.

B. Remove temporary protective coverings and strippable films as signs are installed.

END OF SECTION

SECTION 10 2800

TOILET, BATH, AND LAUNDRY ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Public-use washroom accessories.
2. Childcare accessories.
3. Underlavatory guards.
4. Custodial accessories.

1.2 ACTION SUBMITTALS

A. Product Schedule: Indicating types, quantities, sizes, and installation locations by room of each accessory required.

1. Identify locations using room designations indicated.
2. Identify products using designations indicated.

PART 2 - PRODUCTS

2.1 PUBLIC-USE WASHROOM ACCESSORIES

A. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:

1. Bradley Corporation.

B. Grab Bar:

1. Basis-of-Design Product: Bradley 812-2 Brandex.
2. Mounting: Flanges with concealed fasteners.
3. Material: Stainless steel, 0.05 inch thick.

a. Finish: Smooth, No. 4 finish (satin) on ends and slip-resistant texture in grip area.

4. Outside Diameter: 1-1/2 inches.
5. Configuration and Length: As indicated on Drawings.

C. Mirror Unit:

1. Basis-of-Design Product: Bradley 780-2436 Brandex.
2. Frame: Stainless-steel angle, 0.05 inch thick.

a. Corners: Welded and ground smooth.

b. Hangers: Produce rigid, tamper- and theft-resistant installation, using method indicated below.

c. One-piece, galvanized-steel, wall-hanger device with spring-action locking mechanism to hold mirror unit in position with no exposed screws or bolts.
d. Wall bracket of galvanized steel, equipped with concealed locking devices requiring a special tool to remove.
e. Size: 24 inches x 36 inches.

D. Sanitary-Napkin Disposal Unit:
1. Basis-of-Design Product: Subject to compliance with requirements, provide product by manufacturer indicated or comparable product:
a. Bradley Corporation.

2. Mounting: Partition mounted, Surface mounted.
3. Door or Cover: Self-closing, disposal-opening cover.
4. Receptacle: Removable.
5. Material and Finish: Stainless steel, No. 4 finish satin.

E. Coat Hook:
1. Basis-of-Design Product: Subject to compliance with requirements, provide product by manufacturer indicated or comparable product:
a. Bradley Corporation.

2. Description: Double-prong unit.
3. Material and Finish: Stainless steel, No. 4 finish satin.

F. Paper Towel Dispenser: Wausau Paper Opti-Serv 76700.

G. Toilet Tissue Dispenser: Wausau Paper Silhouette 88900. Two roll dispenser.

H. Soap Dispenser: GoJo TFX, Dove Gray.

2.2 CHILDCARE ACCESSORIES

A. Diaper-Changing Station <Insert drawing designation>:
1. Basis-of-Design Product: Subject to compliance with requirements, provide product by manufacturer indicated or comparable product:
a. Koala Kare Products.

2. Description: Horizontal unit that opens by folding down from stored position and with child-protection strap.

a. Engineered to support minimum of 250-lb static load when opened.

3. Mounting: Surface mounted, with unit projecting not more than 4 inches from wall when closed.
4. Operation: By pneumatic shock-absorbing mechanism.
5. Material and Finish: HDPE in manufacturer's standard color.
6. Liner Dispenser: Built in.

2.3 UNDERLAVATORY GUARDS

A. Underlavatory Guard:

1. Basis-of-Design Product: Subject to compliance with requirements, provide product by manufacturer indicated or comparable product:

    a. Plumberex Specialty Products, Inc.

2. Description: Insulating pipe covering for supply and drain piping assemblies that prevents direct contact with and burns from piping; allow service access without removing coverings.
3. Material and Finish: Antimicrobial, molded plastic, white.

2.4 CUSTODIAL ACCESSORIES

A. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:

1. Bradley Corporation.

B. Mop and Broom Holder :

1. Basis-of-Design Product: Bradley 9953 Brandex.
2. Description: Unit with spring activated holders.
3. Length: 24 inches.
4. Hooks: Zero.
5. Mop/Broom Holders: Three, spring-loaded, rubber hat, cam type.
6. Material and Finish: Stainless steel, No. 4 finish (satin).

    a. Shelf: Not less than nominal 0.05-inch- thick stainless steel.
    b. Rod: Approximately 1/4-inch- diameter stainless steel.

2.5 FABRICATION

A. Keys: Provide universal keys for internal access to accessories for servicing and resupplying. Provide minimum of six keys to Owner's representative.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install accessories according to manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.

B. Grab Bars: Install to withstand a downward load of at least 250 lbf, when tested according to ASTM F 446.

END OF SECTION 10 2800

SECTION 10 4416

FIRE EXTINGUISHERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes portable, hand-carried fire extinguishers and mounting brackets for fire extinguishers.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

1.3 QUALITY ASSURANCE

A. NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10, "Portable Fire Extinguishers."

B. Fire Extinguishers: Listed and labeled for type, rating, and classification by an independent testing agency acceptable to authorities having jurisdiction.

C. Coordinate type and capacity of fire extinguishers with fire protection cabinets to ensure fit and function.

PART 2 - PRODUCTS

2.1 PORTABLE, HAND-CARRIED FIRE EXTINGUISHERS

A. Fire Extinguishers: Type, size, and capacity for each fire protection cabinet and mounting bracket indicated.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. Larsen's Manufacturing Company.

2. Instruction Labels: Include pictorial marking system complying with NFPA 10, Appendix B and bar coding for documenting fire extinguisher location, inspections, maintenance, and recharging.

B. Multipurpose Dry-Chemical Type A, B, C: UL-rated, 10 pound nominal capacity, with siliconized mono ammonium phosphate-based dry chemical in manufacturer's standard enameled container.

C. Wet-Chemical Type K: UL-rated, 2.5-gal. nominal capacity, with potassium acetate

citrate carbonate-based chemical in stainless-steel container; with pressure-indicating gage and spray applicator wand.

2.2 MOUNTING BRACKETS

A. Mounting Brackets: Manufacturer's standard steel, designed to secure fire extinguisher to wall or structure, of sizes required for types and capacities of fire extinguishers indicated, with plated or red black baked-enamel finish.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Basis-of-Design Product: Subject to compliance with requirements, provide Larsen's Manufacturing Company or comparable product by one of the following:

a. Larsen's Manufacturing Company.

B. Identification: Lettering complying with authorities having jurisdiction for letter style, size, spacing, and location. Locate as indicated by Architect.

1. Identify bracket-mounted fire extinguishers with the words "FIRE EXTINGUISHER" in red letter decals applied to mounting surface.

a. Orientation: Vertical.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Examine fire extinguishers for proper charging and tagging.

1. Remove and replace damaged, defective, or undercharged fire extinguishers.

B. Install fire extinguishers and mounting brackets in locations indicated and in compliance with requirements of authorities having jurisdiction.

1. Mounting Brackets: 54 inches above finished floor to top of fire extinguisher.

C. Mounting Brackets: Fasten mounting brackets to surfaces, square and plumb, at locations indicated.

END OF SECTION 10 4416