Project Manual

Lancaster, SC

Architect's Project Number:
23213

Issued Date
8 September, 2024

DP3
ARCHITECTS

SECTION 00 01 02
PROJECT INFORMATION

PART 1 GENERAL

1.01 PROJECT IDENTIFICATION

A. Project Name: Mariachis Mexican Restaurant. 1229 Hwy 9 Bypass, Lancaster, SC

B. Project Number: 23213

C. The Owner, here in after referred to as Owner: Rogelio Marin.

D. Owner's Project Manager: Benjamin R. Urueta, AIA.
   1. Agency: DP3 Architects, LTD.
   2. Address: 15 Sout Mains St. Suite400
   3. City, State, Zip: Greenville, SC 29601.
   4. Phone/Fax: P 864.232.8200 F864.232.7587.
   5. E-mail: burueta@dp3architects.com.

1.02 NOTICE TO PROSPECTIVE BIDDERS

1.03 PROJECT DESCRIPTION

A. Summary Project Description: Construction of a new 4,259 square foot restaurant and bar located 1229 Hwy 9 Bypass, Lancaster, SC

1.04 PROCUREMENT TIMETABLE

A. The Owner reserves the right to change the schedule or terminate the entire procurement process at any time.

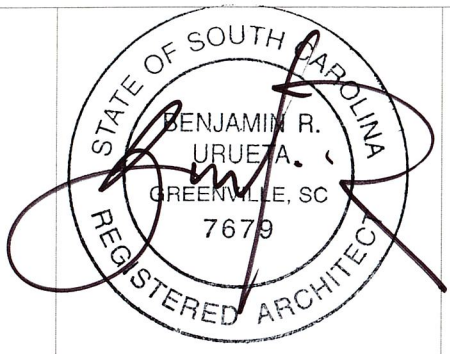
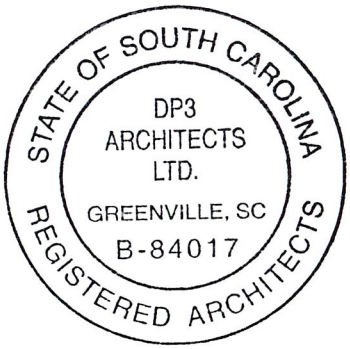
1.05 PROCUREMENT DOCUMENTS

A. Availability of Documents: Complete sets of procurement documents may be obtained:
   1. From Owner’s Project Manager via electronic download.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

ARCHITECT:	**Benjamin R. Urueta AIA** 15 S Main Street, Suite 400 Greenville, SC 29601 [P] 864.232.8200 [F] 864.232.7587	 8 September 2024	

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INVITATION TO BID

The owner is soliciting sealed bids from qualified contractors for the construction of a new free standing, approximately 4,228sf full service restaurant and bar located at 1229 Highway 9 Bypass W, Lancaster, SC 29720.

Due Date:
Please submit two (2) sealed packets by **2 PM (EDST) on September 5, 2024**. Mail or deliver to the Owner at the address listed below. Late, faxed or e-mailed responses will not be considered.

BID ENVELOPE LABEL:	**MARIACHIS RESTAURANTE MEXICANO** **GENERAL CONTRACTOR'S NAME** **GENERAL CONTRACTOR'S ADDRESS** **DATE OF SUBMISSION**
ADDRESS:	**DP3 Architects, Ltd.** **15 S. Main Street, Suite 400** **Greenville, SC 29601** **[P] 864.232.8200** **[F] 864.232.7587**

At the call of time, the bids will be opened privately. Faxed, e-mailed or late bids will not be considered. Document link for downloading documents will be provided by the Architect.

All questions regarding discrepancies, omissions or clarifications of the drawings or specifications shall be submitted in writing by email to Ben Urueta burueta@dp3architects.com Deadline for questions is **noon (EDST), August 26, 2024**.

Prices submitted are valid for **60 days**.

Construction Bids:
The owner reserves the right to reject any and all bids and to waive any formalities and technicalities in this process.

No bid will be accepted from a contractor who is not fully licensed as applicable, by the Laws and Regulations Applicable to the General Contracting in the State of South Carolina.

Bids shall be unconditional and accepted without alteration or correction.

Incomplete or unsigned bids or proposals will be rejected.

No bid will be accepted unless it is prepared on a bid form furnished.

Notice of Intent to Award:
A Notice of Award will be issued on or after **September 12, 2024.** The successful bidder will attend a Pre-Construction meeting at a date and place to be announced. A "Notice to Proceed" will be issued at the Pre Construction meeting. The successful bidder has seven (7) days from the "Notice of Award" to submit all required bonds, insurances and licenses.

Discrepancies and Omissions/Addenda:
Should Bidders find discrepancies in or omissions from the Invitation to Bid documents, or should their intent or meaning appear unclear or ambiguous, they must notify the Owner or the Owner's Representative in writing requesting resolution. Replies to such notices may be made in the form of Addenda to the Bid documents, which will be issued simultaneously to all Bidders. Bidders must acknowledge receipt of all Addenda in their bid submittal. The Owner will not be bound by any oral interpretations or clarifications of the bid documents.

Any bidder in response to an invitation for bids shall set forth in his bid the name of those subcontractor(s) that will perform the work as identified in the invitation for bids. No prime contractor whose bid is accepted shall substitute any person as subcontractor in place of the subcontractor listed in the original bid without prior approval from the Agency. The request for substitution must be made to the architect in writing.

Bid security, an amount equal to at least 5% of the amount of the bid, shall be required for all competitive sealed bidding for construction contracts. Bid security shall be a bond provided by a surety company with an "A" minimum rating as stated in the most current publication of "Best's Key Rating Guide, Property Liability", and authorized to do business in this State, or the equivalent in cash, or otherwise supplied in a form satisfactory to the Agency. Noncompliance will require that the bid be rejected except that a bidder who fails to provide bid security in the proper amount or a bid bond with the proper rating shall be given one working day from bid opening to cure such deficiencies. If the bidder cannot cure these deficiencies within one working day of bid opening, his bid shall be rejected. After the bids are opened, the bond shall be irrevocable for the period specified in the bond. If a bidder is permitted to withdraw a bid before award, no action shall be had against the bidder or the bid security.

The following bonds or security shall be delivered to the Agency and shall become binding on the parties upon the execution of the contract:

(a) **performance bond** satisfactory to the Agency, executed by a surety company authorized to do business in this State, or otherwise secured in a manner satisfactory to the Agency in an amount equal to 100% of the price specified in the contract; and

(b) **payment bond** satisfactory to the Agency, executed by a surety company authorized to do business in this State, or otherwise secured in a manner satisfactory to the Agency, for the protection of all persons supplying labor and materials to the contractor or its subcontractors for the performance of the work provided for in the contract. The bond shall be in an amount equal to 100% of the price specified in the contract.

Please submit a letter verifying that you are able to obtain performance and payment bonding for at least your bid amount.

No architect or engineer performing design work, or construction manager performing construction management services pursuant to a contract awarded under this invitation to bid, may perform other work on this project as a contractor or subcontractor.

Project Description:

The Project consists of the construction of a new free standing, approximately 4,228sf full service restaurant and bar. The building will be a steel frame, metal framing, single-ply roofing membrane, brick veneer and cementitious siding/tile system.

The project is located at 1229 Highway 9 Bypass W, Lancaster, SC 29720

Construction disciplines required for the project include, but are not limited to:

Site work:	Demolition existing paving, excavation, rough and finish grading, branch utilities, paving, landscaping
Concrete:	Cast in place
Masonry:	Unit masonry assemblies, standard, CMU, brick veneer, cementitious siding, tile.
Metals:	Metal stud framing, structural steel framing, and miscellaneous steel.
Wood & Plastics:	Casework and custom millwork assemblies
Thermal & Moisture Protection:	Insulation, Damp-proofing, waterproofing, and membrane roofing.
Doors & Windows:	Hollow metal doors and frames, wooden doors and frames, wooden panel doors, storefront frames with insulating glass.
Finishes:	Gypsum board assemblies, paint, stain
Specialties:	Toilet accessories
Equipment:	Kitchen Equipment–provided by Owner, installed by Contractor
Furnishings:	As noted on the drawings
Special Construction:	None
Conveying systems:	None
Plumbing:	Standard
Mechanical:	Package HVAC units
Electrical:	Standard
Sprinkler System:	NFPA 13

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INSTRUCTIONS TO BIDDERS

1.01. DEFINITIONS

A. Bidding Documents include the Invitation to Bid, Instructions to Bidders, the bid form, other sample bidding and contract forms, and the proposed Contract Documents including any Addenda issued prior to receipt of bids. The Contract Documents proposed for the Work consist of the Owner-Contractor Agreement, the Conditions of the Contract (General, Supplementary, and other Conditions), the Drawings, the Specifications, and all Addenda issued prior to and all Modifications issued after execution of the Contract.

B. All definitions set forth in the General Conditions of the Contract for Construction, AIA Document A201, or in other Contract Documents are applicable to the Bidding Documents.

C. Addenda are written or graphic instruments issued by the Architect prior to the execution of the Contract which modify or interpret the Bidding Documents by addition, deletions, clarifications, or corrections.

D. A Bid is a complete and properly signed proposal to do the Work or designated portion thereof for the sums stipulated therein, submitted in accordance with the Bidding Documents.

E. The Base Bid is the sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents as the base, to which work may be added or from which work may be deleted for sums stated in Alternate Bids.

F. An Alternate Bid (or Alternate) is an amount stated in the Bid to be added to or deducted from the amount of the Base Bid if the corresponding change in the Work, as described in the Bidding Documents, is accepted.

G. A Unit Price is an amount stated in the Bid as a price per unit of measurement for materials or services as described in the Bidding Documents or in the proposed Contract Document.

H. A bidder is a person or entity who submits a Bid.

I. A Sub-Bidder is a person or entity who submits a bid to a Bidder for materials or labor for a portion of the work.

2.01. BIDDER'S REPRESENTATIONS

A. Each Bidder by making his Bid represents that:

1. He has read and understands the Bidding Documents and his Bid is made in accordance therewith.

2. He has visited the site, has familiarized himself with local conditions under which the Work is to be performed and has correlated his observations with the requirements of the proposed Contract Documents.

3. His Bid is based upon the materials, systems and equipment required by the Bidding Documents without exception.

3.01 BIDDING DOCUMENTS

A. COPIES

1. Document link for downloading documents will be provided by the Architect.

2. Bidding Documents will not be issued directly to Sub-bidders or others.

3. Bidders shall use complete sets of Bidding Documents in preparing Bids; neither the Owner nor the Architect assume any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

4. The Owner or the Architect in making copies of the Bidding Documents available on the above terms do so only for the purpose of obtaining Bids on the Work and do not confer a license or grant for any other use.

5. No prints or sets of drawings will be issued by the Owner. Cost of reproduction for printing shall be paid by the Contractor.

B. INTERPRETATIONS OR CORRECTION OF BIDDING DOCUMENTS:

1. Bidders shall promptly notify the Architect of any ambiguity, inconsistency or error which they may discover upon examination of the Bidding Documents or of the site and local conditions.

2. Bidders and Sub-bidders requiring clarification or interpretation of the Bidding Documents shall make a written request which shall reach the Architect at least seven days prior to the date for receipt of Bids.

3. Any interpretation, correction or change of the Bidding Documents will be made by Addendum. Interpretations, corrections or changes of the Bidding Documents made in any other manner will not be binding, and Bidders shall not rely upon such interpretations, corrections and changes.

4. Where discrepancies exist within the Contract Documents the proposal for the work shall be based on the better quality or greater quantity of work involved. No other method of estimating shall be used in preparing the bid proposal, unless contrary instructions are issued in the form of an Addendum before bid proposal due date

5. Any claim by the Contractor or Subcontractors that they, in submitting their respective bid proposals, did not include all items as shown in the Contract may be rejected. Documents will be given no consideration for an adjustment of any kind. If any item is specified in a Section which would not normally furnish this item, it shall be the responsibility of the Contractor to provide the work in question, without any additional cost to the Owner.

C. SUBSTITUTIONS:

1. Contractor's bids shall be based on providing materials and equipment as specified.

2. The materials, products, and equipment described in the Bidding Documents establish a standard of required function, quality to be met by any proposed substitution.

3. There shall be no substitutions unless an item is specifically designated as "or equal." All other items shall be provided exactly as specified.

4. Substitutions for items specified "or equal" shall be considered only after bids have been submitted and only considered within fifteen days after the date of agreement. The burden of proof or merit of the proposed substitution is upon the proposer. The Architect's decision of approval or disapproval of a proposed substitution shall be final.

D. ADDENDA:

1. Addenda will be issued to all General Contractors invited to bid.

2. Copies of Addenda will be made available for inspection wherever Bidding Documents are on file for that purpose.

3. No Addenda will be issued later than four days prior to the date for receipt of Bids except an Addendum withdrawing the request for Bids or one which includes postponement of the date for receipt of Bids.

4. Each Bidder shall ascertain prior to submitting his bid that he has received all Addenda issued, and he shall acknowledge their receipt in his Bid.

5.01 SCHEDULE OF VALUES

A. FORMAT

1. The Contractor shall furnish to the Owner, a Schedule of Values within twenty-four (24) hours of the due date of the bids. Follow the format included in the Bid Form.
2. The Schedule of Values will be subject to the Owner’s final acceptance.

6.01 COMMENCEMENT AND COMPLETION OF THE WORK

A. SUBSTANTIAL COMPLETION

1. The Contractor understands that time is of the essence in completing the work, and agrees, if awarded the Contract, to begin work within five days of receipt of the building permit, and to complete the entire work to the satisfaction of the Owner and Architect within one hundred eighty (180) calendar days.

2. Substantial Completion shall be in accordance with the General Conditions of the contract (AIA-A201) paragraph 8.1.3 and 9.8.

B. FINAL COMPLETION

1. The Contractor agrees that said work shall be at the point of Final Completion within fourteen (14) calendar days after the Date of Substantial Completion.

2. Final completion shall be defined as all punch list and close-out items 100% completed and in accordance with the General Conditions of the Contract (AIA-A201) paragraph 9.10.

7.01 POST BID INFORMATION

A. SUBMITTALS:

1. The Bidder shall, within seven days (7) of notification of selection for the award of a Contract for the Work, submit the following information to the Architect:

    a. A designation of the Work to be performed by the Bidder with his own forces;

    b. The proprietary names and the suppliers of principal items or systems of materials and equipment proposed for the Work;

    c. A list of names of the Subcontractors or other persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for the principal portions of the Work.

2. The Bidder will be required to establish to the satisfaction of the Architect and the Owner the reliability and responsibility of the persons or entities proposed to furnish and perform the Work described in the Bidding Documents.

3. Prior to the award of the Contract, the Architect will notify the Bidder in writing if either the Owner or the Architect, after due investigation, has reasonable objection to any such proposed person or entity. If the Owner or Architect has reasonable objection to any such proposed person or entity, the Bidder may, at his option, (1) withdraw his Bid, or (2) submit an acceptable substitute person or entity with an adjustment in his bid price to cover the difference in cost occasioned by such substitution. The Owner may, at his discretion, accept the adjusted bid price or he may disqualify the Bidder.

4. Persons and entities proposed by the Bidder and to whom the Owner and the Architect have made no reasonable objection under the provisions of Subparagraph 5.01B and 5.01C must be used on the Work for which they were proposed and shall not be changed except with the written consent of the Owner and the Architect.

8.01 FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR

A. FORM TO BE USED:

1. Unless otherwise required in the Bidding Documents, the Agreement for the Work will be written on AIA Document A101, Standard Form of Agreement Between Owner and Contractor, where the basis of payment is a Stipulated Sum.

9.01 GENERAL BIDDING REQUIREMENTS

A. SALES AND USE TAX:

1. The Contractor agrees to comply with and to require all of his Subcontractors to comply with all the provisions of applicable State Sales Excise Tax Law and Compensation Use Tax Law and all Amendments to same. The Contractor further agrees to indemnify and save harmless the Owner, of and from any and all claims and demands made against it by virtue of the failure of the Contractor or any Subcontractor to comply with the provisions of any or all said Laws and Amendments.

B. SOCIAL SECURITY ACT:

1. The Contractor agrees to comply with and to require all of his Subcontractors to comply with all the provisions of the Act of Congress approved August 14, 1935, known and cited as the “Social Security Act” and also the provisions of the act of the State Legislature approved, and known as the State Unemployment Compensation Law and all other laws

and regulations pertaining to labor and workmen and all amendments and to such data, and the Contractor further agrees to indemnify and save harmless the Owner of and from any and all claims and demands made against it by virtue of the failure of the Contractor or any Subcontractors to comply with the provision of any or all of said Acts and Amendments.

C. NONDISCRIMINATION:

1. In connection with the performance of work under this Contract, the Contractor agrees not to discriminate against any employee or applicant for employment because of race, religion, color or national origin. The aforesaid provision shall include, but not be limited to, the following: employment, upgrading, demotion, or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship. The Contractor agrees to post hereafter in conspicuous places, available for employees and applicants for employment, notices to be provided by the Owner setting forth the provisions of the nondiscrimination clause. The Contractor further agrees to insert the foregoing provision in all Subcontracts thereunder, except subcontracts for standard commercial supplies or raw materials.

D. LEGAL CONTROLS:

1. The Contractor’s attention is directed to the fact that all applicable State Laws, Municipal Ordinances, and the rules and regulation of all authorities having jurisdiction over construction of the project shall apply to the contract throughout, and they will be deemed to be included in the contract as thought herein written out in full.

E. CONTRACTORS LICENSE LAW:

1. Contractor shall comply with, State and City Contractor’s license laws and be duly registered and licensed thereunder.

END OF SECTION

SECTION 00 41 00

FORM FOR GENERAL BID

(Failure to furnish all requested data will be cause for considering Bidder non-responsive and may render this Bid invalid on that basis.)

BID FOR: Mariachis Restaurante Mexicano
1229 Highway 9 Bypass W
Lancaster, SC 29720

SUBMITTED TO: DP3 Architects, LTD
15 S. Main Street, Suite 400
Greenville, SC 29601

SUBMITTED BY: _____

Address _____

City, State and Zip Code _____

This bid includes addenda numbered and dated (if none, so state).

#_____ _____
#_____ _____
#_____ _____
#_____ _____
#_____ _____

BASE BID

The proposed Contract Price is _____ dollars.
($).

Unit Prices requested in Section 01270 are as follows:

Unit Price No. 1	Rock Removal	_____/CY
Unit Price No. 2	Excavating Unsatisfactory Soils and Hauling Offsite	_____/CY
Unit Price No. 3	Excavating Unsatisfactory Soils and Stockpiling Onsite	_____/CY
Unit Price No. 4	Backfill of Excavations of Unsatisfactory Soils or Rock with Satisfactory Soils from an Onsite Source	_____/CY
Unit Price No. 5	Backfill of Excavations of Unsatisfactory Soils or Rock with Borrow Soil	_____/CY

General Notes:

1. The undersigned, hereinafter called Bidder, in compliance with the “Notice to Bidders,” accepting all of the terms and conditions of the “Instructions to Bidders,” including without limitation those dealing with the disposition of Bid Security; proposes and agrees, if awarded the Contract, to enter into an Agreement with the Owner in the form of Agreement included in the Contract Documents, to furnish all materials, equipment, machinery, tools, apparatus, means of transportation and labor

necessary to complete the work to be performed under this Contract within the Contract Time indicated in this Bid, in full and complete accordance with the shown, noted, described and reasonably intended requirements of the Contract Documents, to the full and entire satisfaction of the Owner, for the amounts contained in the Bid Schedules.

2. This Bid will remain open for sixty 60 days after the day of Bid opening. If awarded a contract, Bidder will sign the Agreement and submit the Contract Security and other documents required by the Contract Documents within ten (10) days after the date indicated in Owner's Notice of Award.

3. In submitting this Bid, Bidder represents that:

   a. Bidder has become thoroughly familiar with the terms and conditions of the proposed Contract Documents accepting the same as sufficient to indicate and convey understanding of all the conditions and requirements under the Contract which will be executed for the Work.

   b. Bidder has examined the site and locality where the Work is to be performed, the legal requirements (federal, state and local laws, ordinances, rules and regulations) and the conditions affecting cost, progress or performance of the Work and has made such independent investigations as Bidder deems necessary.

   c. This Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; Bidder has not solicited or induced any person, firm or corporation to refrain from bidding; and Bidder has not sought by collusion to obtain for himself any advantage over any other Bidder or over Owner.

   d. That no member of the Commission or other officers or employees of said Owner is interested directly or indirectly in the Bid or in any portion of the Bid nor in the Contract or any part of the Contract which may be awarded the undersigned on the basis of such Bid.

   e. The description under each bid item, being briefly stated, implies, although it does not mention, all incidentals and that prices stated are intended to cover all such work, materials and incidentals as constitute Bidder's obligations as described in the Specifications, and any details not specifically mentioned, but evidently included in the Contract shall be compensated for in the item which most logically includes it.

   f. The Bid includes all sales taxes and other applicable taxes and fees.

4. Contract Time: Bidder agrees that:

   a. He will commence work with an adequate force and equipment at the time stated in the Notice to Proceed, and complete all work in the number of days stipulated from the date stated in said notice without working overtime or on Saturdays, Sundays, or legal holidays except as specifically allowed by the Contract Documents and approved by the Owner.

   b. Work shall commence five (5) days after the receipt of the building permit and the work shall be complete to the satisfaction of the owner within one hundred eighty (180) calendar days.

   c. The following schedule depicts working days per calendar month (non-cumulative) that shall be anticipated as normal inclement weather. Such time will not be considered justification for an extension of time. Inclement weather days in excess of normal inclement weather days listed, are justification for extension of time. Inclement weather days on Saturday, Sunday and holidays will not be allowed unless work has been scheduled and the Architect notified prior to said days. Time extensions will be granted only if the critical path has been affected. Extensions of time will be calendar days and not working days. Requests for extensions of time shall be made, in writing, within 21 days of the event(s) giving rise to the request.

Inclement weather days are defined as days, before project “dry-in”, in which weather is too cold or too wet for masonry work to occur, provided the critical path is affected. For a wet weather day to occur, ¼” of rain must fall during that day before 12:00 noon for it to be considered. Hot weather will not be justification for an inclement weather day.

January	6 days
February	5 Days
March	5 Days
April	4 Days
May	5 Days
June	4 Days
July	6 Days
August	7 Days
September	5 Days
October	4 Days
November	4 Days
December	5 Days

d. Liquidated Damages. OWNER and CONTRACTOR recognize that time is of the essence of this Agreement and that OWNER will suffer financial loss if the Work is not substantially complete within the times specified above. They also recognize the delays, expense and difficulties involved in proving in a legal or arbitration preceding the actual loss suffered by OWNER if the Work is not completed on time. Accordingly, instead of requiring any such proof, OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty) items e and f below shall be enforced.

e. CONTRACTOR shall pay OWNER Two Hundred Fifty Dollars ($250) for each calendar day that expires after the time specified above for completion and readiness for final payment.

f. CONTRACTOR understands and hereby expressly agrees that in addition to liquidated damages specified in Article 2.2 above, to pay the OWNER the actual costs to OWNER for any inspector or inspectors necessarily employed by OWNER on the Work until the Work is completed and ready for final payment. Further, the CONTRACTOR agrees that the sums to be paid the OWNER may be deducted from the sum due the CONTRACTOR for work performed as provided in Article 14 of the General Conditions.

5. Execution of Contract: Bidder agrees that:

a. In case of failure on his part to execute the said Contract and Bonds within 15 days after the date indicated in the “Notice of Award”, the check or bid bond accompanying this Bid, and the money payable thereon, shall be paid to the Owner as liquidated damages for such failure; otherwise the Bid Bond or check accompanying this Bid shall be returned to the undersigned.

6. Bid Documentation: The following documents are attached to and made a part of this Bid:

a. Non-collusion Affidavit

b. The undersigned acknowledges that a **Bid security, in an amount equal to at least 5% of the amount of the bid**, is required for all competitive sealed bidding for construction contracts. The Bid Security shall be provided as indicated in the Invitation to Bid.

c. The undersigned acknowledges that a Performance and Payment Bonds, as outlined in the Invitation to Bid, shall be delivered to the owner.

d. Bidder’s Affidavit.

7. Name, business address (mailing and street) phone number and e-mail address of Bidder to which all formal Notices shall be sent:

_____

_____

_____

_____

8. The terms used in this Bid, which are defined in the General Provisions of the Construction Contract included as a part of the Contract Documents, have the meanings assigned to them in the General Provisions.

9. The undersigned, as Bidder, declares that he has examined the project and informed himself fully in regard to all conditions pertaining to this project; that he has examined the Drawings and Project Manual for the work and Contractual Documents relative thereto and that he has satisfied himself relative to the work to be performed.

10. Adjustments to Base Bid: The OWNER may elect to award only a portion of the project at the prices provided by the successful Bidder. The Bidder agrees that his proposal may not be withdrawn for a period of 60 calendar days after the scheduled closing time for receiving bids.

11. The Bidder agrees that his proposal may not be withdrawn for a period of 60 calendar days after the scheduled closing time for receiving bids.

12. The Bidder acknowledges by his signature that the Owner reserves the right to reject any or all bids and to waiver informalities in the bidding.

13. The undersigned agrees to submit, within twenty-four (24) hours of the bid due date, the attached Schedule of Values Form, completed in its entirety, as part of the Bid Submittal. Such Schedule of Values Form shall be submitted to the place designated for receipt of Bids. Bid forms not followed by a properly completed Schedule of Values shall be considered incomplete and shall receive no further consideration. An incomplete Schedule of Values will not be accepted.

14. The Undersigned has included all required Certificates of Insurance, etc.

15. The Undersigned hereby affirms and states that the prices quoted herein constitute the total costs for the work involved in the respective items and that this cost also includes taxes, insurance, royalties, transportation charges, use of tools and equipment, superintendence, overhead, profits and other work, services and conditions necessarily involved in the work done and the materials furnished, in accordance with the requirements of the Contract.

16. The BIDDER hereby states that he proposes, if awarded the Contract, to use the following subcontractors on this project: (List only one subcontractor for each item.)

Sub-Trade	Name
Grading	_____
HVAC	_____
Plumbing	_____
Electrical	_____

17. The Bidder shall state on the line below, if a corporation, the name of state in which incorporated and the date of said corporation.

Signed this _____ day of _____, 2024.

_____
Contractor

By:_____
(Signature of individual, partner or officer signing the Bid)

Its:_____
(Title)

(SEAL)

License Number_____
(Seal required if Bidder is a Corporation)
NOTE: If Contractor is a Corporation, Secretary should attest seal. Seal is required If Bidder is a Corporation.

SCHEDULE OF VALUES

(This Schedule of Values is part of the BID and shall be e-mailed to the office of the Architect at burueta@dp3architects.com within 24 hours of the Bid Date and Time).

Division	*Category*	*Subtotal*
Zero	General Conditions	
One	Temporary Facilities	
	Cleaning	
Two	Sitework	
	Demolition	
	Trenching, Backfilling & Compacting	
	Pavement & Marking	
Three & Four	Cast-in-Place Concrete & Masonry	
Five	Structural Steel & Misc. Metals	
Six	Carpentry (Rough & Finish)	
	Casework	
Seven	Thermal and Moisture Protection	
Eight	Doors, Frames & Hardware	
	Glass & Glazing	
Nine	Wall & Ceiling Systems	
	Flooring	
	Painting	
Ten	Specialties	
Eleven	Food Service Equipment	
Twelve	Furnishings	
Twenty-one	Fire Suppression Systems	
Twenty-two	Plumbing	
Twenty-three	HVAC Equipment & Ductwork	
Twenty-six	Lighting, Panels, Switchgear & Conductors	
	Permits	
	Fees	
	Insurance	
	Bid Security	
	Performance & Payment Bond	
	Overhead/Profit	
	Tax (If Applicable)	
	PROJECT TOTAL	

INSURANCE REQUIREMENTS

The contractor shall procure and maintain, during the life of the contract, insurance coverage, for not less than any limits of liability shown between and shall include contractual liability insurance as applicable to the contractor's obligations, with a carrier authorized to do business in the State of South Carolina.

All coverage shall be primary and shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability. Original endorsements, signed by a person authorized to bind coverage on its behalf, shall be furnished to the Owner by the successful bidder.

CERTIFICATES OF INSURANCE MUST BE INCLUDED IN THE BID.

a. Commercial General Liability: The contractor shall maintain insurance for protection against all claims arising from injury to person or persons not in the employment of the contractor and against all claims resulting from damage to any property due to any act or omission of the contractor, his agents, or employees in the operation of the work or the execution of this contract.

   Contractor shall maintain General Liability coverage required for a period of not less than five (5) years after project completion. General Liability must include Products/Completed Operations coverage.

   Where the work to be performed involves excavation of other underground work or construction, the property damage insurance provided shall cover all claims due to destruction of subsurface property such as wire, conduits, pipes, etc. caused by the contractor's operation. The minimum shall be as follows:

   Bodily Injury (Injury or Accidental Death)
   And Property Damage……..$1,000,000.00 General Liability
   $2,000,000.00 Aggregate

b. Comprehensive Automobile Liability: The contractor shall maintain Automobile Liability Insurance for protection against all claims arising from the use of vehicles, rented vehicles, or other vehicles in the prosecution of the work included in the contract. Such insurance shall cover the use of automobiles and trucks on and off the site of the project. The minimum amounts of Automobile Liability Insurance shall be as follows:

   Bodily Injury (Injury or Accidental Death)
   and Property Damage……$1,000,000.00 Combined Single Limit

c. South Carolina Workers' Compensation Insurance: The contractor shall maintain Workers' Compensation Insurance for all of his/her employees who are in any way connected with the performance under this agreement. Such insurance shall comply with all applicable state laws.

   South Carolina Workers' Compensation……Statutory Limits
   Employers Liability Insurance $500,000.00 Each Accident
   $500,000.00 Disease Each Employee
   $500,000.00 Disease Policy Limit

Contractor shall provide the Agency with a Certificate of Insurance showing proof of insurance acceptable to the Agency. Certificates containing wording that releases the insurance company from liability of non-notification of cancellation of insurance policy are not acceptable.

Contractor and/or its insurers are responsible for payment of any liability arising out of Workers' Compensation, unemployment or employee benefits offered to its employees.

Insurance is to be placed with insurers with a current AM Best's rating of not less than A: VII, and licensed to operate in South Carolina by the South Carolina Department of Insurance, unless otherwise acceptable to the Agency.

Workers' Compensation policy is to be endorsed to include a waiver of subrogation in favor of the Agency, its officers, officials, employees and agents.

Deductibles, Co-Insurance Penalties & Self-Insured Retention: The contractor shall agree to be fully and solely responsible for any costs or expenses as a result of a coverage deductible, or insurance penalty, or self-insured retention; including any loss not covered because of the operation of such deductible, co-insurance penalty or self-insured retention.

Subcontractors' Insurance: The contractor shall agree to cause each subcontractor employed by the contractor to purchase and maintain insurance of the type specified herein, unless the contractor's insurance provides coverage on behalf of the subcontractor. When requested by the Agency, the contractor shall agree to obtain and furnish copies of certificates of insurance evidencing coverage by each subcontractor.

BIDDER'S AFFIDAVIT

(This Affidavit is part of the BID)

STATE OF)
)
COUNTY OF)

Being duly sworn deposes and says that he resides at

That he is _____
(Give Name and Title)

who signed the above Proposal or BID, that he was duly authorized to sign and that the BID is the true offer of the BIDDER, that the seal attached is that seal of the BIDDER and that all the declarations and statements contained in the BID are true to the best of his knowledge and belief.

_____
(Affiant)

Subscribed and sworn to before me this _____ day of _____, 2024.

_____
(Notary Public)

My Commission expires _____, 202_____.

(SEAL)

END OF SECTION

SECTION 00 42 00

SITE REPORTS

REPORT OF SUBSURFACE EXPLORATION
AND
GEOTECHNICAL ENGINEERING EVALUATION

ECS Southeast, LLC

Geotechnical Engineering Report

Monterrey Restaurante Mexicano

Lancaster, Lancaster County, South Carolina

ECS Project No. 08:15667

November 7, 2023

November 7, 2023

Mr. Michael Zibert
DP3 Architects, LTD
15 South Main Street, Suite 400
Greenville, South Carolina 29601

ECS Project No. 08:15667

Reference: Geotechnical Engineering Report
Monterrey Restaurante Mexicano
Lancaster, Lancaster County, South Carolina

Dear Mr. Zibert:

ECS Southeast, LLC (ECS) has completed the subsurface exploration, laboratory testing, and geotechnical engineering recommendations for the above-referenced project. Our services were performed in general accordance with our agreed to scope of work. This report presents our understanding of the geotechnical aspects of the project along with the results of the field exploration and laboratory testing conducted, and our design and construction recommendations.

It has been our pleasure to be of service to DP3 Architects, LTD during the design phase of this project. We would appreciate the opportunity to remain involved during the continuation of the design and construction phase to confirm subsurface conditions assumed for this report. Should you have any questions concerning the information contained in this report, or if we can be of further assistance to you, please contact us at (704)525-5152.

Respectfully submitted,

ECS Southeast, LLC

Bhabani Shankar Dhital
Staff Project Manager
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SVardaoulis@ecslimited.com

DocuSigned by:
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11/7/2023

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER No. 31044 CHRISTOPHER JAMES CONWAY

SOUTH CAROLINA ECS SOUTHEAST, LLP No. COA3239 CERTIFICATE OF AUTHORIZATION

Christopher J. Conway, P.E.
Principal Engineer
CConway@ecslimited.com
SC Registration No. 31044

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APPENDICES

EXECUTIVE SUMMARY

The below information summarizes the main findings of the exploration, particularly those that may have a cost impact on the planned development. Further, our principal foundation recommendations are summarized. Information gleaned from the Executive Summary should not be utilized in lieu of reading the entire geotechnical report.

This report contains the results of our subsurface exploration and geotechnical engineering recommendations for the proposed restaurant located at 1229 Highway 9 Bypass in Lancaster, Lancaster County, South Carolina.

- Existing fill soils were encountered at each boring location and extended to depths ranging from approximately 2 to 12 feet below existing grades. Records of the fill placement were not provided to us; therefore, the fill is considered undocumented. ECS does not recommend supporting structures, slabs, or pavements on existing undocumented fill soils. Existing fill may be reused (i.e. removed and replaced in controlled lifts) provided they meet the guidelines for Structural Fill.
- Potentially expansive and moisture sensitive Elastic SILT (MH) and Fat CLAY (CH) soils were encountered at Borings B-01 and B-02 and extended to depths of approximately 12 and 8 feet below existing grades, respectively. MH soils with a Plasticity Index (PI) greater than 30 and CH soils should not be used for direct support of pavements. A minimum separation of 2 feet should be provided between high plasticity, potentially expansive MH soils (PI > 30) and CH soils and foundation, slab, and pavement subgrade elevations.
- Lower consistency soils (N-value of 6 bpf or less) were encountered at Borings B-01, B-02, and B-03 and extended to depths ranging from approximately 3 to 12 feet below the existing grades. Depending on final site grades, existing fill remediation procedures selected, and construction phase testing (i.e., proofrolling, DCP testing), lower consistency/loose soils may require undercutting, moisture conditioning, and/or compaction prior to fill placement or construction of pavements and structures.
- Due to the risk associated with constructing on undocumented fill, three potential options for support of the proposed structure can be considered.
    - Full depth removal of undocumented fill and replacement with Structural Fill.
    - Implementation of a ground improvement system (i.e. aggregate piers or rigid inclusions).
    - Relocate and/or rotate building footprint towards the southern portion of the site to reduce the depth of fill remediation necessary.
- In pavement areas, the consequences associated with leaving all or portions of existing undocumented fill in-place are typically less than within building structure areas. Bearing the pavements on existing fill is a risk-based decision that only the Owner can make. If the Owner is willing to accept some risk of premature pavement distress and increased maintenance, the planned pavements may be supported on the existing fill provided it responds favorably to proofrolling loads. Alternatively, the risk may be reduced by incorporating geosynthetics into the pavement section, partial undercuts and replacement/reworking of existing fill, and/or increasing the pavement section thickness.
- Based on our subsurface findings, a Seismic Site Class "**D**" appears to be appropriate based upon average N-value method.

1.0 INTRODUCTION

The purpose of this study was to provide subsurface exploration and geotechnical information for the design of the proposed Monterrey Restaurante Mexicano located at 1229 Highway 9 Bypass in Lancaster, Lancaster County, South Carolina. The recommendations developed for this report are based on the project information supplied by the Client. Our services were provided in accordance with our proposal No. 08:29441P, dated September 13, 2023, as authorized by Mr. Michael Zibert, and includes the Terms and Conditions of Service outlined within the agreement.

This report contains the procedures and results of our subsurface exploration and laboratory testing programs, review of existing site conditions, engineering analyses, and recommendations for the design and construction of the geotechnical aspects of the project. The report includes the following items.

- Information on site conditions including surface drainage, geologic information, and special site features.
- Description of the field exploration and laboratory tests performed.
- Final logs of the soil borings and records of the field exploration and laboratory tests performed.
- Recommendations regarding foundation options for the structure and settlement potential.
- Recommendations regarding slab-on-grade construction and design.
- Seismic site classification per International Building Code (IBC) based on the average N-value method.
- Light and Heavy Duty pavement sections recommendations.
- Evaluation of the on-site materials for reuse as Structural Fill to support ground slabs and pavements.
- Recommendations for minimum soil cover during frost heaving, compaction requirements for fill and backfill areas, and slab-on-grade construction.
- Recommendations regarding site preparation and construction observations and testing.

2.0 PROJECT INFORMATION

2.1 PROJECT LOCATION/CURRENT SITE USE/PAST SITE USE

The project site is located at 1229 Highway 9 Bypass in Lancaster, Lancaster County, South Carolina as shown below and on the Site Location Diagram in Appendix A. According to the Lancaster County Online Geographic Information Systems (GIS) website, the approximate 0.81-acre site is identified as Parcel Identification Number (PIN) 0067G-0A-006.00.

The subject site currently consists of grasses and gravel in northern portion, and concrete pavement in southern portion. The site is bordered to the north by Highway 9 Bypass W, to the south by Arundel Street, to the east by a quick change oil service center, and to the west by a restaurant. Based on review of available historic imagery, since at least 1955, the site appeared to be heavily wooded. Sometime between 1964 and 1983, clearing had occurred during construction of the Highway 9 Bypass W roadway and surrounding commercial and residential developments. The subject site appeared to be cleared and graded in 1994 and remained mostly undisturbed until 2013 when is appears the concrete pavement was placed. The site appeared to be used for parking and has generally remained in a similar condition since that time.

Based on the available Lancaster County Online Geographic Information System (GIS), the site generally slopes down from the southern boundary at an elevation of approximately 490 feet towards the northern boundary at an elevation of approximately 481 feet. The previous use discussion is not considered a comprehensive or in-depth review of the site history, rather a quick overview of available aerial imagery.

2.2 PROPOSED CONSTRUCTION

ECS understands that the proposed development will include the construction of a restaurant structure and associated paved parking/drive areas. At the time of this report, grading plans or a proposed finished floor elevation were not provided. We have assumed that proposed grades will closely match existing grades with anticipated maximum cut/fill depths of 2 feet, or less. The following information explains our understanding of the planned structure.

PROJECT UNDERSTANDING	
SUBJECT	**DESIGN INFORMATION / ASSUMPTIONS**
Number Of Stories	One-story
Usage	Restaurant
Framing	Wood and/or Masonry
Column Loads	50 kips maximum
Wall Loads	3 kips per linear foot (klf) maximum

3.0 FIELD EXPLORATION AND LABORATORY TESTING

Our exploration procedures are explained in greater detail in Appendix B including the insert titled Subsurface Exploration Procedure. Our scope of work included drilling four (4) soil borings to depths ranging from approximately 10 to 20 feet below existing grades. The borings were located using GPS technology and existing site features as reference, and their approximate locations are shown on the Boring Location Diagram in Appendix A. The topographic data and elevations noted on the boring logs and referenced in this report were estimated from Lancaster County GIS topographic information and should be considered approximate. The users of the reported elevations do so at their own risk. If more accurate boring locations and elevations are desired, we recommend that the borings be surveyed by a registered surveyor.

3.1 SUBSURFACE CHARACTERIZATION

The site is located in the Piedmont Physiographic Province of South Carolina. The native soils in the Piedmont Province consist mainly of residuum with underlying saprolites weathered from the parent bedrock, which can be found in both weathered and unweathered states. In a mature weathering profile of the Piedmont Province, the soils are generally found to be finer grained at the surface where more

extensive weathering has occurred. The particle size of the soils generally becomes more granular with increasing depth and gradually changes first to weathered and finally to unweathered parent bedrock.

The natural geology has been modified in the past by grading that included disturbance of near surface soils, and/or the placement of fill materials. The quality of man-made fills can vary significantly, and it is often difficult to assess the engineering properties of existing fills. Furthermore, there is no specific correlation between N-values from standard penetration tests performed in soil test borings and the degree of compaction of existing fill soils; however, a qualitative assessment of existing fills can sometimes be made based on the N-values obtained and observations of the materials sampled in the test borings.

The following sections provide generalized characterizations of the subsurface materials. Please refer to the subsurface cross section in Appendix A and boring logs in Appendix B for more detailed information.

GENERALIZED SUBSURFACE CONDITIONS			
Approximate Depth (ft)	**Stratum**	**Description**	**Ranges of SPT(1) N-values (bpf)**
0 to 0.8	N/A	Varying amounts of surficial organic laden soil, gravel, and concrete. (2)	N/A
0.2 to 12	I	FILL – Elastic SILT (MH), Sandy SILT (ML), and Fat CLAY (CH). (3)	1 to 13
2 to 17	II	RESIDUUM – Sandy SILT (ML).	5 to 56
12 to 18.9	III	PARTIALLY WEATHERED ROCK (PWR) – SAMPLED AS Sandy SILT (ML) and Silty SAND (SM). (4) (5)	100+ (50/5” to 50/3”)

Notes:
(1) Standard Penetration Testing in blows per foot (bpf).
(2) Surficial materials are driller reported; therefore, they should not be used in surficial material removal takeoffs.
(3) Existing fill was encountered at each boring location.
(4) PWR is defined as residual material exhibiting SPT N-values of 100+ bpf.
(5) Partially Weathered Rock (PWR) was encountered at Borings B-02 and B-03 beginning at depths of approximately 17 and 12 feet below existing grades, respectively.

3.2 GROUNDWATER OBSERVATIONS

Groundwater measurements were attempted at the termination of drilling and prior to demobilization from the site. Groundwater was not apparent within the borings at the time of drilling to the explored depths. Cave-in depths were measured at each of the boring locations and ranged from approximately 7 to 16 feet below existing grades. Cave-in of a soil test boring can be caused by groundwater hydrostatic pressure, weak soil layers, and/or drilling activities. Variations in the long-term water table may occur as a result of changes in precipitation, evaporation, surface water runoff, construction activities, and other factors.

3.3 LABORATORY TESTING

The laboratory testing consisted of selected tests performed on samples obtained during our field exploration. Classification, moisture content, percent fines (-200 wash), and Atterberg limit tests were performed. The results are included on the boring logs in Appendix B and Laboratory Testing Summary in Appendix C.

Each sample was visually classified on the basis of texture and plasticity in accordance with ASTM D2488 Standard Practice for Description and Identification of Soils (Visual-Manual Procedures) and including USCS classification symbols, and ASTM D2487 Standard Practice for Classification for Engineering

Purposes (Unified Soil Classification System, USCS). After classification, the samples were grouped in the major zones noted on the boring logs in Appendix B. The group symbols for each soil type are indicated in parentheses along with the soil descriptions. The stratification lines between strata on the logs are approximate; in situ, the transitions may be gradual.

4.0 DESIGN RECOMMENDATIONS

4.1 FOUNDATIONS

Existing fill was encountered at each boring location and extended to depths ranging from approximately 2 to 12 feet below existing grades. Records of the fill placement were not provided to us; therefore, the fill is considered undocumented. ECS does not recommend supporting the structure (foundations or floor slab) on existing undocumented fill. If records of the previous site preparation are available, they should be obtained and provided to us for review and revisions to our recommendations, if warranted. The following potential options may be considered for the support of proposed structure:

- Shallow foundations after full-depth removal and replacement of the existing fill with Structural Fill.
- Shallow foundations with implementation of a ground improvement system (i.e. aggregate piers or rigid inclusions).
- Shift and/or rotate the structure to bear on residual soils and/or newly-placed Structural Fill (some remediation of existing fill is anticipated for this option).

The selection of the most appropriate foundation system should weigh the constructability and financial cost of the system with the intended use and settlement tolerance of the structure.

4.1.1 Shallow Foundation after Removal and Replacement of Existing Fill Soils

To reduce the risk of constructing on undocumented fill soils, full-depth removal of existing fill and replacement with compacted Structural Fill may be considered so that the structure bears on newly placed Structural Fill. Excavation depths ranging from approximately 2 to 8 feet, or greater, below the current site grades are anticipated to remove existing fill from below the proposed building footprint. The excavations shall extend a minimum horizontal margin equal to 1 times the depth of undercut beyond the outside edge of perimeter foundations (i.e. for a 10 foot undercut depth, the width would need to extend at least 10 feet outside of the building footprint limits).

Following undercut operations, ECS should observe the exposed subgrade soils for stability. Unstable areas should be remediated, as outlined in the “Site Construction Recommendations” sections of this report, prior to backfilling operations. The excavated area should be backfilled in accordance with Section 5.2.6 of this report. Existing soil materials excavated during undercut operations may be re-used, provided they are free of deleterious materials and meet the project requirements for Structural Fill. Otherwise, the excavated fill should be legally disposed of off-site.

Provided the subgrade is prepared as recommended in this report, the proposed structure can be supported by conventional shallow foundation systems bearing on newly placed Structural Fill. We recommend the foundation design use the following parameters:

FOUNDATION DESIGN RECOMMENDATIONS		
Design Parameter	**Column Footing**	**Wall Footing**
Net Allowable Bearing Pressure (1)	2,500 psf (2)	
Acceptable Bearing Soil Material	Newly-Placed Structural Fill	
Minimum Width	24 inches	18 inches
Minimum Footing Embedment Depth (below slab or finished grade) (3)	18 inches	18 inches
Minimum Exterior Frost Depth (below final exterior grade)	12 inches	12 inches
Estimated Total Settlement (4)	1 inch, or less	1 inch, or less
Estimated Differential Settlement (5)	½ inch, or less	½ inch, or less

(1) Net allowable bearing pressure is the applied pressure in excess of the surrounding overburden soils above the base of the foundation.
(2) Following remediation of existing fill.
(3) For bearing considerations.
(4) Based on assumed structural loads. If final loads are different, ECS must be contacted to update foundation recommendations and settlement calculations.
(5) Based on assumed maximum column/wall loads and variability in borings. Differential settlement can be re-evaluated once the foundation plans are more complete.

4.1.2 Shallow Foundations on Ground Improvement

If full depth removal and replacement of existing fill is impractical or economically undesirable, an alternate approach is to implement a ground improvement system (i.e. aggregate piers or rigid inclusions) to reinforce existing fill soils. For this project we recommend the ground improvement system extend through the existing fill into residual materials.

After installation of the ground improvement system, conventional spread footing foundations are constructed on the improved soil and ground improvement system. Aggregate piers or rigid inclusions are typically installed by a design/build contractor. Should this option be pursued, the selected ground improvement design/build contractor should be engaged to specify a minimum allowable bearing pressure and allowable total and differential settlement tolerances. Depending on foundation loading conditions, we anticipate an allowable bearing pressure of up to 4,000 psf may be achievable at this project site following implementation of a ground improvement system.

If ground improvement is selected, the contract documents should specify a maximum allowable total and differential settlement of the ground improvement system. These values will depend on the structural tolerances of the building.

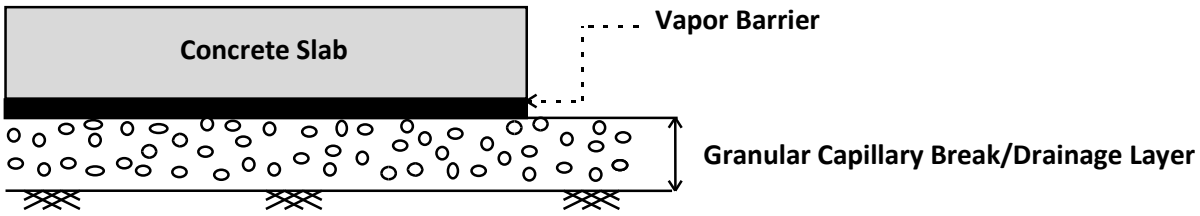
The ground improvement system should be designed by a design-build contractor and the proposed soil improvement plan should be reviewed by ECS before construction begins. While design of this system would be performed by others, the design should be such that total settlements are limited to 1 inch and differential settlements are limited to 1/2 inch. The design-build contractor should also be made aware of changes in site grades required to achieve final site grades and should plan construction sequencing accordingly.

4.1.3 Shift and/or Rotate Structure

Moving, rotating, and/or shifting the proposed structure towards the southern portion of the site to an area where shallower existing fill depths were encountered may be considered. This option would still require remediation of existing fill as outlined in Section 4.1.1; however, the depth of existing undocumented fill requiring remediation would likely be reduced.

4.2 SLABS ON GRADE

Provided subgrades and structural fills are prepared as outlined in this report and the existing undocumented fill is remediated, the proposed floor slabs can be constructed as Ground Supported Slabs (or Slab-On-Grade) bearing on residual soils, newly placed Structural Fill, or a ground improvement system. We assume the slabs will bear on residual soils, newly placed Structural Fill, or a ground improvement system. The following graphic depicts our soil-supported slab recommendations:



1. Drainage Layer Thickness: 4 inches, minimum
2. Drainage Layer Material: GRAVEL (GP, GW), SAND (SP, SW)
3. Subgrade compacted to **100%** maximum dry density per ASTM D698

Soft, yielding, existing fill materials, and/or moisture sensitive soils may be encountered in some areas. Those soils should be removed and replaced with compacted Structural Fill in accordance with the recommendations included in this report.

Subgrade Modulus: Provided the Structural Fill and Granular Drainage Layer are constructed in accordance with our recommendations, the slab may be designed assuming a modulus of subgrade reaction, k_1 of 100 pci (lbs per cubic inch). The modulus of subgrade reaction value is based on a 1 foot by 1 foot plate load test basis.

Vapor Barrier: Before the placement of concrete, a vapor barrier may be placed on top of the granular drainage layer to provide additional protection against moisture penetration through the floor slab. When a vapor barrier is used, special attention should be given to surface curing of the slab to reduce the potential for uneven drying, curling and/or cracking of the slab. Depending on proposed flooring material types, the Structural Engineer and/or the Architect may choose to eliminate the vapor barrier.

Slab Isolation: Soil-supported slabs should be isolated from the foundations and foundation-supported elements of the structure so that differential movement between the foundations and slab will not induce excessive shear and bending stresses in the floor slab. Where the structural configuration prevents the use of a free-floating slab such as in a turn down footing/monolithic slab configuration, the slab should be designed with appropriate reinforcement and load transfer devices (if necessary) to preclude overstressing of the slab.

4.3 SEISMIC DESIGN CONSIDERATIONS

Seismic Site Classification: The International Building Code (IBC) requires site classification for seismic design based on the upper 100 feet of a soil profile. The Standard Penetration Resistance (N-value) method was used in classifying this site.

The seismic site class definitions for the weighted average of SPT N-values in the upper 100 feet of the soil profile are shown in the following table:

SEISMIC SITE CLASSIFICATION		
Site Class	**Soil Profile Name**	**$\bar{N}$ value (bpf)**
A	Hard Rock	N/A
B	Rock	N/A
C	Very Dense Soil and Soft Rock	>50
D	Stiff Soil Profile	15 to 50
E	Soft Soil Profile	<15

Based upon our subsurface findings, a Seismic Site Class of "**D**" appears to be appropriate for the site. If desired, in-situ shear wave velocity measurement at the site can be performed to determine if an improved site class is available, or to confirm the Seismic Site Class obtained using the N-value method. The site-specific testing would include gathering in-situ shear wave velocity measurements by a Refraction Microtremor (ReMi, MAM, and/or MASW) geophone array.

4.4 PAVEMENTS

In pavement areas, the consequences associated with leaving all or portions of existing undocumented fill in-place are typically less than within building structure areas. Bearing the pavements on the existing fill is a risk-based decision that only the Owner can make. If the Owner is willing to accept some risk of premature pavement distress and increased maintenance, the planned pavements may be supported on the existing fill provided it responds favorably to proofrolling loads. The risk can be reduced by partial removal or undercutting and replacement of the fill soils, the use of geosynthetics in the pavement section, and/or the use of a more robust pavement section. Alternatively, full depth removal and replacement of the existing fill should be performed. Existing fill meeting the requirement of Structural Fill may be reused provided they are free of deleterious and debris laden materials and properly moisture conditioned.

Newly placed Structural Fill is considered suitable for support of pavements, although moisture control during earthwork operations, including the use of discing or appropriate drying equipment may be necessary. For the purpose of design, we have assumed a CBR value of 4.

ECS was not provided traffic loading information, so we have assumed loadings typical of this type of project. Based upon a 20-year life, with equivalent single axle loadings of approximately 10,000 and 85,000 ESALs for light-duty and heavy-duty pavements, respectively. ECS should be allowed to review these recommendations and make appropriate revisions based upon the formulation of the final traffic design criteria for the project. It is important to note that the design sections do not account for construction traffic loading.

MATERIAL	FLEXIBLE PAVEMENT		RIGID PAVEMENT
	Heavy Duty	Light Duty	Portland Cement Concrete (PCC)
Portland Cement Concrete (f'_c = 4000 psi, air entrained)	-	-	6 inches
Asphaltic Concrete Surface Course (Type B or C)	3 inches	2 inches	-
Graded Aggregate Base Course	8 inches	6 inches	6 inches

Notes:

- Pavement material shall conform and be placed in accordance with SCDOT standard specifications.
- Aggregate base course material shall be compacted to a minimum density of 100% of its Modified Proctor Value (ASTM D1557/AASHTO T180).

In general, heavy duty sections are areas that will be subjected to delivery trucks, buses, garbage trucks, or other similar vehicles including main drive lanes of the development. Light duty sections are appropriate for passenger vehicular traffic and automobile parking areas. Additionally, the above noted light and heavy-duty pavement sections are capable of supporting an 80,000 pound emergency vehicle (i.e. firetruck) on a periodic basis.

Vehicles servicing front-loading trash dumpsters frequently impose concentrated front-wheel loads on pavements during loading. This type of loading typically results in rutting of bituminous pavements and ultimately pavement failures and costly repairs. Therefore, we suggest that the pavements in trash pickup areas utilize a Portland Cement Concrete (PCC) pavement section. Such a PCC section would typically consist of 6 inches of 4,000 psi, air-entrained concrete over not less than 6 inches of compacted aggregate base course. Appropriate steel reinforcing (if required) and jointing in accordance with current version of ACI 330 should also be incorporated into the design and construction of PCC pavements.

We emphasize that good base course drainage is essential for successful pavement performance. Water buildup in the base course may result in premature pavement failures. The subgrade and pavement should be graded to provide effective runoff to either the outer limits of the paved area or to catch basins so that standing water will not accumulate on the subgrade or pavement.

It should be noted that these design recommendations may not satisfy local jurisdictional or South Carolina Department of Transportation (SCDOT) traffic guidelines. Roadways constructed for public use and to be dedicated to the local jurisdiction or State for repair and maintenance must be designed in accordance with the appropriate jurisdictional requirements.

5.0 SITE CONSTRUCTION RECOMMENDATIONS

5.1 SUBGRADE PREPARATION

5.1.1 Stripping and Grubbing

The subgrade preparation should consist of stripping vegetation, topsoil, previous construction, foundations and utilities, and soft or unsuitable materials from the 10-foot expanded building and 5-foot expanded pavement limits, and 5 feet beyond the toe of structural fills. Existing utilities should be abandoned and removed or grouted in place. ECS should be retained to observe that topsoil and unsuitable surficial materials have been removed prior to the placement of Structural Fill, ground improvement systems, or construction of structures.

5.1.2 Proofrolling

Prior to fill placement or other construction on subgrades, the subgrades should be observed by ECS, especially in the areas of the razed structures. The exposed subgrade should be thoroughly proofrolled with construction equipment having a minimum axle load of 10 tons [e.g. fully loaded tandem-axle dump truck]. Proofrolling should be traversed in two perpendicular directions with overlapping passes of the vehicle under the observation of ECS. This procedure is intended to assist in identifying localized yielding materials.

Where proofrolling identifies areas that are unstable or "pumping", those areas should be repaired prior to the placement of any subsequent Structural Fill or other construction materials. Methods of stabilization include undercutting, moisture conditioning, or chemical stabilization. The situation should be discussed with ECS to determine the appropriate procedure. Test pits may be excavated to explore the shallow subsurface materials to help in determining the cause of the observed unstable materials, and to assist in selecting appropriate remedial actions to stabilize the subgrade.

5.1.3 Site Temporary Dewatering

If full depth undercut and replacement of existing fill is selected, temporary dewatering activities should be anticipated during construction. If encountered during construction activities, water and/or groundwater should be lowered and continuously maintained at a minimum depth of 2 feet below the working elevations to permit subgrade preparation and utility installation. If required, the temporary dewatering system should be installed and operational prior to excavation beneath the water table. Design and permitting of a temporary dewatering system should be the responsibility of the Contractor. However, based on our experience with similar conditions, conventional construction dewatering systems such as trenches, sumps and pumps and/or well point systems should be possible to control groundwater and rainfall runoff provided an appropriate discharge location is identified and available. Additionally, permitting to discharge temporary dewatering effluent should be anticipated.

If dewatering operations are performed at the site, ECS recommends that the dewatering operations be performed in accordance with Local, State, and Federal Government regulatory requirements for surface water discharges. ECS would be pleased to provide consulting on those requirements, if requested.

5.2 EARTHWORK OPERATIONS

5.2.1 Existing Man-Placed Fill

Existing fill soils were encountered at each of boring location and extended to depths ranging from approximately 2 to 12 feet below existing grades. SPT N-values observed within the existing fill ranged from 1 to 13 blows fer foot (bpf). Based on the low and variable N-values, it appears that the existing fill may have been placed in an uncontrolled manner. ECS had not been provided with test records (such as proofrolling, compaction testing, etc.) at the time of this report; therefore, the existing fill should be considered undocumented. If records of the fill placement are available, they should be provided to us for review and as further input to our evaluations. ECS does not recommend supporting project foundations or slabs on existing undocumented fill.

Undocumented fill poses risks associated with undetected deleterious inclusions within the fill and/or deleterious materials at the virgin ground/fill interface that are covered by the fill. Deleterious materials can consist of significant amounts of organics derived from organic rich strippings, rubbish, construction or demolition debris, stumps and roots and logs. If these materials are covered over by or are within undocumented fill, the organic materials tend to decompose slowly in the anaerobic conditions in or

under the fill. Decomposition can occur over periods ranging from several years to several decades. As the organic materials decompose, a void is created which can create soft conditions and even subsidence in areas above the organics. Additionally, voids can be present within nested debris. Where these types of conditions exist under or within undocumented fill, they are sometimes in discreet pockets that can go undetected by normal subsurface exploration techniques, i.e. soil test borings and test pits.

Foundations and Slabs: ECS does not recommend supporting foundations and slabs on the existing undocumented fill materials. The risk associated with undocumented fill can be reduced by full depth removal of existing fill and replacement with Structural Fill. Existing fill free of organic and/or other deleterious materials can be reused (i.e. removed and re-worked) provided it meets the requirements for Structural Fill. Alternatively, in lieu of removal and replacement, a ground improvement system (i.e. aggregate piers or rigid inclusions) may be considered to improve the existing fill and support the structure.

Pavements: The existing fill may be considered for support in pavement areas provided the Owner is willing to accept the risks of increased pavement maintenance. The risk associated with undocumented fills can be reduced, by removing and replacing the existing fill with Structural Fill, partial undercuts in select areas, and/or removing and re-working (i.e. re-compacting existing fill in controlled lifts). ECS cannot be responsible for premature distress of the pavements if the Owner elects to support the pavements on existing undocumented fill.

5.2.2 Existing Adjacent Structures

Construction operations in the vicinity of existing structures, including full depth removal of existing fill, should not undermine or disturb existing foundations or structures. Depending on the proximity of the proposed structure to the existing structures, the Contractor should be prepared to shore, brace, underpin, etc. existing foundations to mitigate the risks associated with excavations near the existing structure. Additionally, the ground improvement design-build contractor should consider the adjacent structures as it relates to design and installation of their system. Vibratory rolling should not be performed in the vicinity of existing structures. Regardless, construction activities may result in localized distress of existing exterior finishes.

5.2.3 Expansive and Moisture Sensitive Soils

Potentially expansive and moisture sensitive soils are those materials classified as Elastic SILT (MH) and Fat Clay (CH). Moisture sensitive soils were encountered at Borings B-01 and B-02 and extended to depths of approximately 12 and 8 feet below existing grades, respectively. Moisture sensitive soils will degrade quickly when disturbed and/or with elevated moisture content.

High plasticity, expansive, moisture sensitive soils consisting of MH soils (PI>30) and CH soils should not be used for direct support of slabs, foundations, and pavements. Depending on their expansive properties, MH soils (PI>30) and CH soils encountered within proposed structural areas should be undercut and replaced with low plasticity Structural Fill to a minimum depth of 2 feet below subgrade elevations in slab and foundation areas. Upon completion of the undercut, the resulting subgrade soils should be evaluated for stability prior to the placement of Structural Fill. The recommended separation can also be provided through the addition of new Structural Fill. Alternatively, chemical (lime) stabilization may be considered to improve/modify high plasticity, moisture sensitive soils in lieu of undercut and replacement and/or for re-use as Structural Fill. If lime stabilization is selected, quicklime or hydrated lime materials as specified in ASTM C977 should be utilized.

5.2.4 Below Grade Excavation

Based on the results of the soil test borings and the provided grading plan, we do not anticipate difficult excavation due to weathered rock or rock material will be encountered, unless utility excavations extend into the PWR materials. Grading plans and utility depths were not provided to us at the time of this report. The site civil designer should consider PWR depths in their design.

In mass excavation for general site work, dense soils and PWR can usually be removed by ripping with a single-tooth ripper attached to a large crawler tractor or by breaking it out using large track mounted excavation equipment. In confined excavations such as foundations, utility trenches, etc., removal of PWR may require use of heavy-duty backhoes, pneumatic spades, or blasting.

As a general guide, we recommend the following definitions be used to define rock:

General Excavation

> Rip Rock: Material that cannot be removed by scrapers, loaders, pans, dozers, large excavators (with minimum ISO curling forces of 45,000 lbs), or graders; and requires the use of a single-tooth ripper mounted on a crawler tractor having a minimum draw bar pull rated at not less than 56,000 pounds.
>
> Blast Rock: Material which cannot be excavated with a single-tooth ripper mounted on a crawler tractor having a minimum draw bar pull rated at not less than 56,000 pounds or by a Caterpillar 977 front-end loader or equivalent; and a bucket occupying an original volume of at least one (1) cubic yard.

Trench Excavation

> Blast Rock: Material which cannot be excavated with a backhoe having a bucket curling force rated at not less than 25,400 pounds and occupying an original volume of at least one-half (1/2) cubic yard.

As noted in the Subsurface Characterization section of this report, the weathering process in the Piedmont can be erratic and significant depth variations of denser materials can occur in relatively short distances. In some cases, isolated, boulders or rock seams may be present in the soil matrix.

5.2.5 Lower Consistency/Loose Soils

Lower consistency/loose soils, with an N-value of 6 bpf or less, were encountered at Borings B-01, B-02, and B-03 and extended to depths ranging from approximately 3 to 12 feet below existing grades. Depending on existing fill remediation procedures, final site grades, and construction phase evaluations (i.e. proofrolling and Dynamic Cone Penetrometer testing), lower consistency/loose soils may require remedial improvement such as undercutting, moisture conditioning, and/or compaction prior to fill placement or construction of pavements and structures. The near surface lower-consistency soils were generally encountered within the existing fill and may be remediated during removal and replacement operations, if selected. Otherwise, some remediation of lower consistency soils should be anticipated if the Owner elects to allow existing fill to remain within proposed pavement areas.

5.2.6 Structural Fill

Prior to placement of Structural Fill, representative bulk samples (about 50 pounds) of on-site and/or off-site borrow should be submitted to ECS for laboratory testing, which will typically include Atterberg limits, natural moisture content, grain-size distribution, and moisture-density relationships (i.e., Proctors) for compaction. Import materials should be tested prior to being hauled to the site to determine if they meet project specifications.

Structural Fill Materials: Materials for use as Structural Fill should consist of inorganic soils classified as CL, ML, SM, SC, SW, SP, GM, or GC, or a combination of these group symbols, per ASTM D2487. These materials should be free of organic matter, debris, and should contain no particle sizes greater than 4 inches in the largest diameter. Open graded materials and gravels (GW and GP), which contain void space in their mass, should not be used in Structural Fills unless properly encapsulated with filter fabric. Structural Fill material should have the index properties in the table below:

STRUCTURAL FILL INDEX PROPERTIES	
Subject	**Property**
Building and Pavement Areas	LL < 50, PI < 30
Maximum Particle Size	4 inches
Maximum Organic Content	5% by dry weight
Minimum Dry Unit Weight (ASTM D698)	90 pounds per cubic foot

STRUCTURAL FILL COMPACTION REQUIREMENTS	
Subject	**Requirement**
Compaction Standard	Standard Proctor, ASTM D698
Required Compaction (greater than 24 inches below finished soil subgrade)	95% of Maximum Dry Density
Required Compaction (within 24 inches of finished soil subgrade)	100% of Maximum Dry Density
Moisture Content	-3 to +3 % points of the soil's optimum value
Loose Thickness (maximum) (1)	8 inches prior to compaction

(1) Thinner lifts may be required depending on compaction equipment utilized.

Unsatisfactory Materials: Unsatisfactory fill materials include materials which do not satisfy the requirements for suitable materials, as well as topsoil and organic materials (OH, OL), Elastic SILT (MH), Fat CLAY (CH), and materials with a maximum dry density of less than 90 pcf per ASTM D698.

On-Site Borrow Suitability: Soils that meet the definition of Structural Fill are present on the site including soils classified as Sandy SILT (ML); however, moisture conditioning (i.e. wetting and/or drying) should be anticipated.

Fill Compaction Control: The expanded limits of the proposed construction areas should be well defined, including the limits of the fill zones for buildings, pavements, and slopes, etc., at the time of fill placement. Grade controls should be maintained throughout the filling operations. Filling operations should be

observed on a full-time basis by ECS to determine that the minimum compaction requirements are being achieved.

Compaction Equipment: Compaction equipment appropriate for the soil type being compacted should be used to compact the subgrades and fill materials. Sheepsfoot compaction equipment should be used for fine-grained soils (Clays and Silts). A steel drum roller should be used for compaction of coarse-grained soils (Sands) as well as for sealing compacted surfaces.

Fill Placement: Fill materials should not be placed on frozen soils, on frost-heaved soils, and/or on excessively wet soils. Borrow fill materials should not contain frozen materials at the time of placement, and frozen or frost-heaved soils should be removed prior to placement of Structural Fill or other fill soils and aggregates. Excessively wet soils or aggregates should be scarified, aerated, and moisture conditioned. Where fill materials will be placed to widen existing embankment fills, or placed up against sloping ground, the soil subgrade should be scarified, and the new fill benched or keyed into the existing material. Fill material should be placed in horizontal lifts.

5.2.7 General Construction Considerations

Because the site has been previously developed and filled, we emphasize the importance of comprehensive subgrade evaluations prior to Structural Fill placement and/or other construction activities. These evaluations may include proofrolling the subgrade soils, performing hand auger borings, and excavation of test pits within previously disturbed, built-over, and filled areas. The mentioned evaluations would help in identifying areas of soft, loose, otherwise unsuitable materials, or buried debris, which would require remedial activities. We recommend a contingency for unforeseen conditions in the earthwork phase of construction.

Moisture Conditioning: During the cooler and wetter periods of the year, delays and additional costs should be anticipated. At these times, reduction of soil moisture may need to be accomplished by a combination of mechanical manipulation and the use of chemical additives, such as lime or cement, in order to lower moisture contents to levels appropriate for compaction. Alternatively, during the drier times of the year, such as the summer months, moisture may need to be added to the soil to provide adequate moisture for successful compaction according to the project requirements.

Subgrade Protection: Measures should also be taken to limit site disturbance, especially from rubber-tired heavy construction equipment, and to control and remove surface water from development areas, including structural and pavement areas. It would be advisable to designate a haul road and construction staging area to limit the areas of disturbance and to prevent construction traffic from excessively degrading sensitive subgrade soils and existing pavement areas. Haul roads and construction staging areas could be covered with excess depths of aggregate to protect those subgrades. The aggregate can later be removed and used as Structural Fill provided it meets project specifications.

Surface Drainage: Surface drainage conditions should be properly maintained. Surface water should be directed away from the construction area, and the work area should be sloped away from the construction area at a gradient of at least 1 percent to reduce the potential of ponding water and the subsequent saturation of the surface soils. At the end of each workday, the subgrade soils should be sealed by rolling the surface with a smooth drum roller to minimize infiltration of surface water.

Excavation Safety: Excavations and slopes should be constructed and maintained in accordance with OSHA excavation safety standards. The Contractor is solely responsible for designing, constructing, and maintaining stable temporary excavations and slopes. The Contractor's responsible person, as defined in 29 CFR Part 1926, should evaluate the soil exposed in the excavations as part of the Contractor's safety procedures. In no case should slope height, slope inclination, or excavation depth, including utility trench excavation depth, exceed those specified in local, state, and federal safety regulations. ECS is providing this information solely as a service to our Client. ECS is not assuming responsibility for construction site safety or the Contractor's activities; such responsibility is not being implied and should not be inferred.

5.3 FOUNDATION AND SLAB OBSERVATIONS

Protection of Foundation Excavations: Exposure to the environment may weaken the soils at the foundation bearing level. Therefore, foundation concrete should be placed the same day that excavations are made, and the bearing capacity has been verified. If the bearing soils are softened by surface water intrusion or exposure, the softened soils must be removed from the foundation excavation bottom immediately prior to placement of concrete. If the excavation must remain open overnight, or if rainfall becomes imminent while the bearing soils are exposed, a 2 to 3-inch thick "mud mat" of "lean" concrete should be placed on the bearing soils before the placement of reinforcing steel.

Footing Subgrade Observations: Following remediation of existing fill and high plasticity soils, most of the soils at the foundation bearing elevations are anticipated to be acceptable for support of the proposed structures. It is important to have ECS observe the foundation subgrade prior to placing foundation concrete, to confirm the bearing soils are what was anticipated.

Slab Subgrade Observations: Prior to placement of a drainage layer, the subgrade should be prepared in accordance with the recommendations found in Section 5.1.2 Proofrolling.

5.4 UTILITY INSTALLATIONS

Utility Subgrades: The soils encountered in our exploration are anticipated to be generally acceptable for support of utility pipes; however, difficult excavation may be encountered within deeper utility excavations. PWR and/or rock materials encountered at utility subgrade excavations should be undercut an additional 6-inches and replaced with bedding material to reduce potential point load stress. The pipe subgrades should be observed and probed for stability by ECS. Loose or unsuitable materials encountered should be removed and replaced with suitable compacted Structural Fill, or pipe stone bedding material.

Utility Backfilling: Granular bedding material should be at least 4 inches thick, but not less than that specified by the civil engineer's project drawings and specifications. We recommend that the bedding materials be placed up to the springline of the pipe. Fill placed for support of the utilities, as well as backfill over the utilities, should satisfy the requirements for Structural Fill and Fill Placement.

6.0 CLOSING

ECS has prepared this report to guide the geotechnical-related design and construction aspects of the project. We performed these services in accordance with the standard of care expected of professionals in the industry performing similar services on projects of like size and complexity at this time in the region. No other representation expressed or implied, and no warranty or guarantee is included or intended in this report.

The description of the proposed project is based on information provided to ECS by the Client. If any of this information is inaccurate or changes, either because of our interpretation of the documents provided or site or design changes that may occur later, ECS should be contacted so we can review our recommendations and provide additional or alternate recommendations that reflect the proposed construction.

We recommend that ECS review the project plans and specifications so we can confirm that those plans/specifications are in accordance with the recommendations of this geotechnical report.

Field observations, and quality assurance testing during earthwork and foundation installation are an extension of, and integral to, the geotechnical design. ECS should be retained to apply our expertise throughout the geotechnical phases of construction, and to provide consultation and recommendation should issues arise.

ECS is not responsible for the conclusions, opinions, or recommendations of others based on the data in this report

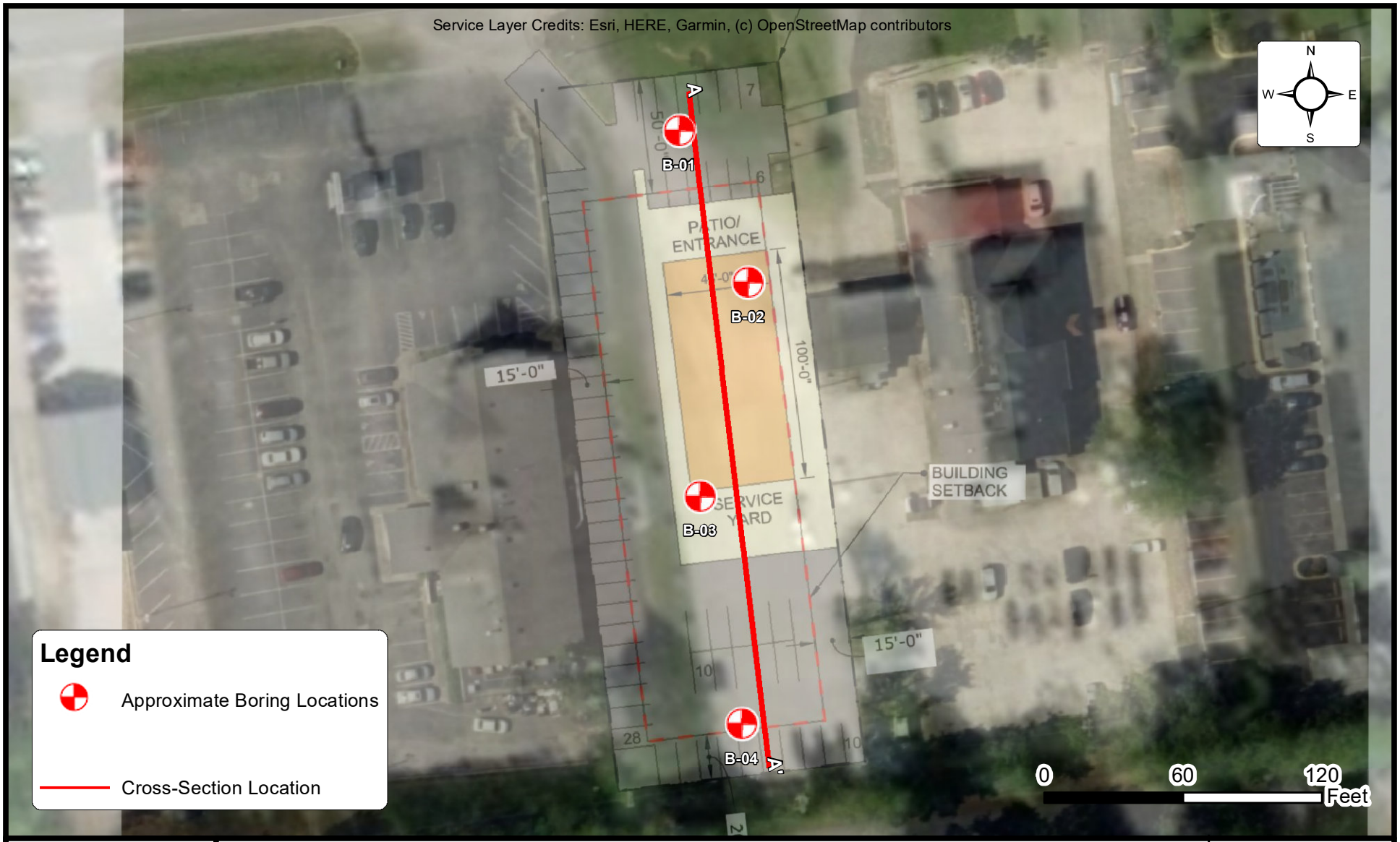
Appendix A - Drawings and Reports

Site Location Diagram
Boring Location Diagram(s)
Subsurface Cross-Section(s)

SITE LOCATION DIAGRAM
MONTERREY RESTAURANTE MEXICANO

LANCASTER, LANCASTER COUNTY, SOUTH CAROLINA
DP3 ARCHITECTS, LTD

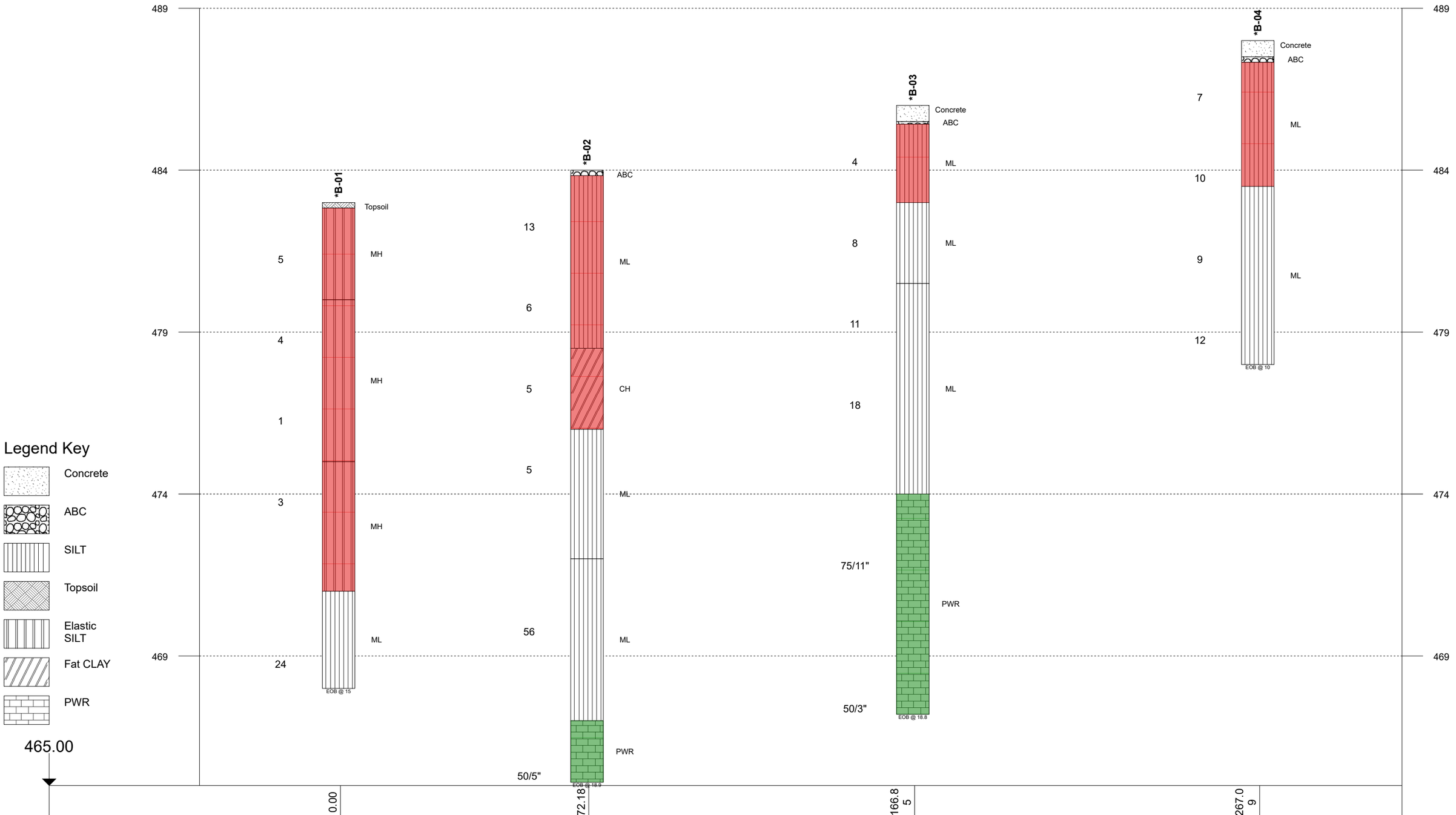
ENGINEER	CJC
SCALE	AS NOTED
PROJECT NO.	08:15667
FIGURE	1
DATE	11/7/2023



BORING LOCATION DIAGRAM
MONTERREY RESTAURANTE MEXICANO

LANCASTER, LANCASTER COUNTY, SOUTH CAROLINA
DP3 ARCHITECTS, LTD

ENGINEER	CJC
SCALE	AS NOTED
PROJECT NO.	08:15667
FIGURE	2
DATE	11/7/2023



Legend Key

- Concrete
- ABC
- SILT
- Topsoil
- Elastic SILT
- Fat CLAY
- PWR

465.00

Notes:

1- EOB: END OF BORING AR: AUGER REFUSAL SR: SAMPLER REFUSAL.
2- THE NUMBER BELOW THE STRIPS IS THE DISTANCE ALONG THE BASELINE.
3- SEE INDIVIDUAL BORING LOG AND GEOTECHNICAL INFORMATION.
4- STANDARD PENETRATION TEST RESISTANCE (LEFT OF BORING) IN BLOWS PER FOOT (ASTM D1586).

Plastic Limit Water Content Liquid Limit
X———●———△
[FINES CONTENT %]
BOTTOM OF CASING
100 LOSS OF CIRCULATION
CALIBRATED PENETROMETER

WL (First Encountered)
WL (Completion)
WL (Estimated Seasonal High Water)
WL (Stabilized)

Fill
Possible Fill
Probable Fill
Rock

SUBSURFACE CROSS-SECTION A-A'

Monterrey Restaurante Mexicano
DP3 Architects, LTD
Lancaster, Lancaster County, South Carolina

Project No: 08:15667 Date: 11/07/2023

Appendix B – Field Operations

Reference Notes
Exploration Procedures
Boring Logs

REFERENCE NOTES FOR BORING LOGS

MATERIAL[1,2]

	ASPHALT	
	CONCRETE	
	GRAVEL	
	TOPSOIL	
	VOID	
	BRICK	
	AGGREGATE BASE COURSE	
	GW	WELL-GRADED GRAVEL gravel-sand mixtures, little or no fines
	GP	POORLY-GRADED GRAVEL gravel-sand mixtures, little or no fines
	GM	SILTY GRAVEL gravel-sand-silt mixtures
	GC	CLAYEY GRAVEL gravel-sand-clay mixtures
	SW	WELL-GRADED SAND gravelly sand, little or no fines
	SP	POORLY-GRADED SAND gravelly sand, little or no fines
	SM	SILTY SAND sand-silt mixtures
	SC	CLAYEY SAND sand-clay mixtures
	ML	SILT non-plastic to medium plasticity
	MH	ELASTIC SILT high plasticity
	CL	LEAN CLAY low to medium plasticity
	CH	FAT CLAY high plasticity
	OL	ORGANIC SILT or CLAY non-plastic to low plasticity
	OH	ORGANIC SILT or CLAY high plasticity
	PT	PEAT highly organic soils

DRILLING SAMPLING SYMBOLS & ABBREVIATIONS

SS	Split Spoon Sampler	PM	Pressuremeter Test
ST	Shelby Tube Sampler	RD	Rock Bit Drilling
WS	Wash Sample	RC	Rock Core, NX, BX, AX
BS	Bulk Sample of Cuttings	REC	Rock Sample Recovery %
PA	Power Auger (no sample)	RQD	Rock Quality Designation %
HSA	Hollow Stem Auger		

PARTICLE SIZE IDENTIFICATION

DESIGNATION		PARTICLE SIZES
Boulders		12 inches (300 mm) or larger
Cobbles		3 inches to 12 inches (75 mm to 300 mm)
Gravel:	Coarse	¾ inch to 3 inches (19 mm to 75 mm)
	Fine	4.75 mm to 19 mm (No. 4 sieve to ¾ inch)
Sand:	Coarse	2.00 mm to 4.75 mm (No. 10 to No. 4 sieve)
	Medium	0.425 mm to 2.00 mm (No. 40 to No. 10 sieve)
	Fine	0.074 mm to 0.425 mm (No. 200 to No. 40 sieve)
Silt & Clay ("Fines")		<0.074 mm (smaller than a No. 200 sieve)

COHESIVE SILTS & CLAYS

UNCONFINED COMPRESSIVE STRENGTH, Q_P[4]	SPT[5] (BPF)	CONSISTENCY[7] (COHESIVE)
<0.25	<2	Very Soft
0.25 - <0.50	2 - 4	Soft
0.50 - <1.00	5 - 8	Firm
1.00 - <2.00	9 - 15	Stiff
2.00 - <4.00	16 - 30	Very Stiff
4.00 - 8.00	31 - 50	Hard
>8.00	>50	Very Hard

GRAVELS, SANDS & NON-COHESIVE SILTS

SPT[5]	DENSITY
<5	Very Loose
5 - 10	Loose
11 - 30	Medium Dense
31 - 50	Dense
>50	Very Dense

RELATIVE AMOUNT[7]	COARSE GRAINED (%)[8]	FINE GRAINED (%)[8]
Trace	≤5	≤5
With	10 - 20	10 - 25
Adjective *(ex: "Silty")*	25 - 45	30 - 45

WATER LEVELS[6]

- WL (First Encountered)
- WL (Completion)
- WL (Seasonal High Water)
- WL (Stabilized)

FILL AND ROCK

FILL | POSSIBLE FILL | PROBABLE FILL | ROCK

[1]Classifications and symbols per ASTM D 2488-17 (Visual-Manual Procedure) unless noted otherwise.

[2]To be consistent with general practice, "POORLY GRADED" has been removed from GP, GP-GM, GP-GC, SP, SP-SM, SP-SC soil types on the boring logs.

[3]Non-ASTM designations are included in soil descriptions and symbols along with ASTM symbol [Ex: (SM-FILL)].

[4]Typically estimated via pocket penetrometer or Torvane shear test and expressed in tons per square foot (tsf).

[5]Standard Penetration Test (SPT) refers to the number of hammer blows (blow count) of a 140 lb. hammer falling 30 inches on a 2 inch OD split spoon sampler required to drive the sampler 12 inches (ASTM D 1586). "N-value" is another term for "blow count" and is expressed in blows per foot (bpf). SPT correlations per 7.4.2 Method B and need to be corrected if using an auto hammer.

[6]The water levels are those levels actually measured in the borehole at the times indicated by the symbol. The measurements are relatively reliable when augering, without adding fluids, in granular soils. In clay and cohesive silts, the determination of water levels may require several days for the water level to stabilize. In such cases, additional methods of measurement are generally employed.

[7]Minor deviation from ASTM D 2488-17 Note 14.

[8]Percentages are estimated to the nearest 5% per ASTM D 2488-17.

SUBSURFACE EXPLORATION PROCEDURE: STANDARD PENETRATION TESTING (SPT) ASTM D 1586 Split-Barrel Sampling

Standard Penetration Testing, or **SPT**, is the most frequently used subsurface exploration test performed worldwide. This test provides samples for identification purposes, as well as a measure of penetration resistance, or N-value. The N-Value, or blow counts, when corrected and correlated, can approximate engineering properties of soils used for geotechnical design and engineering purposes.

SPT Procedure:

- Involves driving a hollow tube (split-spoon) into the ground by dropping a 140-lb hammer a height of 30-inches at desired depth
- Recording the number of hammer blows required to drive split-spoon a distance of 18-24 inches (in 3 or 4 Increments of 6 inches each)

- Auger is advanced* and an additional SPT is performed
- One SPT typically performed for every two to five feet. An approximate 1.5 inch diameter soil sample is recovered.

**Drilling Methods May Vary*— The predominant drilling methods used for SPT are open hole fluid rotary drilling and hollow-stem auger drilling.

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
DP3 Architects, LTD	**08:15667**	**B-01**	**1 of 1**
PROJECT NAME:	DRILLER/CONTRACTOR:		
Monterrey Restaurante Mexicano	**Presley Drilling**		
SITE LOCATION: **Lancaster, Lancaster County, South Carolina**			LOSS OF CIRCULATION
NORTHING: **1055012.8**	EASTING: **2059873.2**	STATION:	SURFACE ELEVATION: **483**
			BOTTOM OF CASING

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
					Topsoil Thickness[2"]			
	S-1	SS	18	18	(MH FILL) ELASTIC SILT, light reddish brown, moist, contains gravel			2-3-2 (5)
	S-2	SS	18	18	(MH FILL) ELASTIC SILT, brown to grayish brown, moist			3-2-2 (4)
5	S-3	SS	18	18			478	1-WOH-1 (1)
	S-4	SS	18	18	(MH FILL) SANDY ELASTIC SILT, grayish brown, moist			1-2-1 (3)
10							473	
	S-5	SS	18	18	(ML) Residuum, SANDY SILT, grayish brown, moist, very stiff			7-10-14 (24)
15					**END OF BORING AT 15 FT**		468	
20							463	
25							458	
30							453	

STANDARD PENETRATION BLOWS/FT (20 40 60 80 100)
ROCK QUALITY DESIGNATION & RECOVERY
RQD
REC

LIQUID LIMIT
PLASTIC LIMIT
CALIBRATED PENETROMETER TSF (1 2 3 4 5)
WATER CONTENT %
[FINES CONTENT] % (10 20 30 40 50)

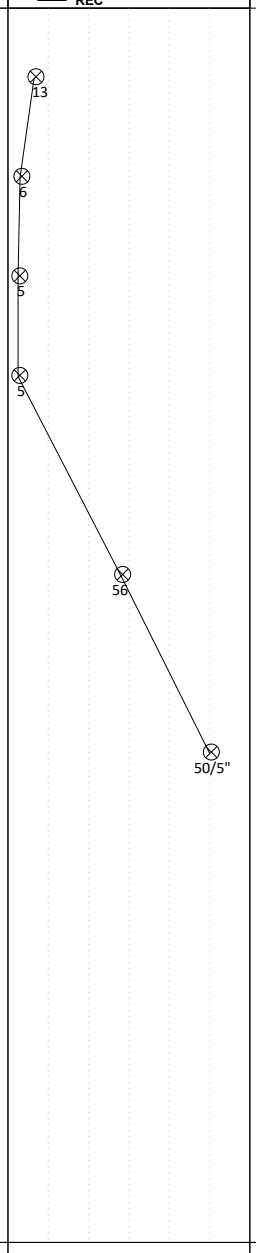
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

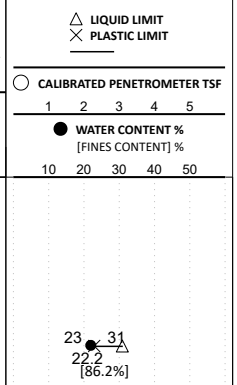
WL (First Encountered) **GNE**	BORING STARTED: **Oct 13 2023**	CAVE IN DEPTH: **12.0**	
WL (Completion) **GNE**	BORING COMPLETED: **Oct 13 2023**	HAMMER TYPE: **Manual**	
WL (Seasonal High Water)	EQUIPMENT: **SIMCO 2800 ATV**	LOGGED BY: **BD6**	DRILLING METHOD: **HSA 2.25**
WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
DP3 Architects, LTD	**08:15667**	**B-02**	**1 of 1**
PROJECT NAME:	DRILLER/CONTRACTOR:		
Monterrey Restaurante Mexicano	**Presley Drilling**		
SITE LOCATION:			LOSS OF CIRCULATION
Lancaster, Lancaster County, South Carolina			
NORTHING:	EASTING:	STATION:	SURFACE ELEVATION:
1054947.2	**2059903.4**		**484**

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
					ABC Stone Thickness[2"]			
	S-1	SS	18	18	(ML FILL) SILT, light reddish brown to gray, moist			4-5-8 (13)
	S-2	SS	18	18				3-3-3 (6)
5							479	
	S-3	SS	18	18	(CH FILL) SANDY FAT CLAY, grayish brown, moist			3-2-3 (5)
	S-4	SS	18	18	(ML) Residuum, SANDY SILT, brown, moist, firm			2-2-3 (5)
10							474	
					(ML) SANDY SILT, brown, moist, very hard			
	S-5	SS	18	18				11-20-36 (56)
15							469	
					(PWR) PARTIALLY WEATHERED ROCK SAMPLED AS SILTY SAND, brown, moist			
	S-6	SS	5	5				50/5" (50/5")
20					END OF BORING AT 18.9 FT		464	
25							459	
30							454	



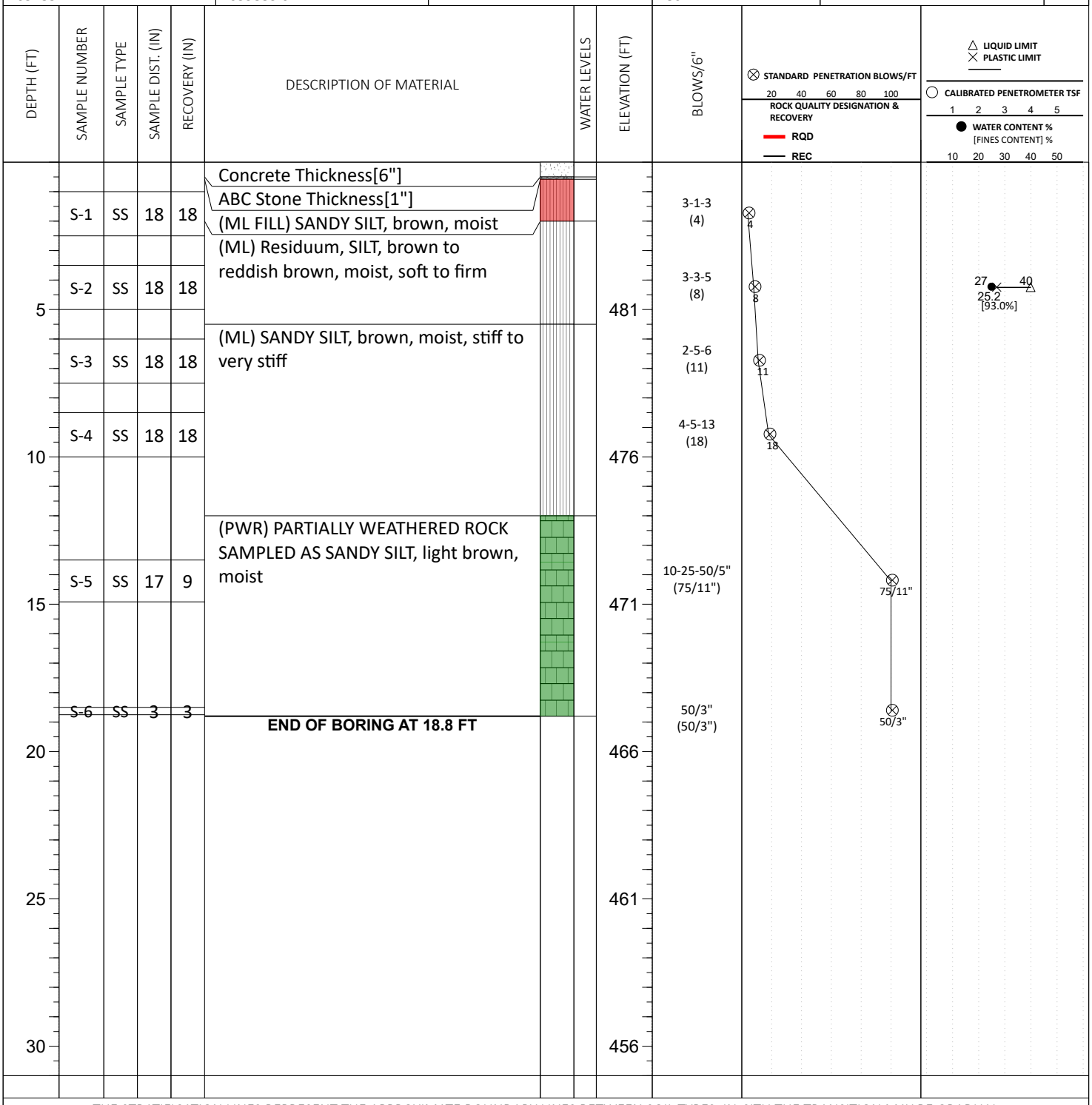


THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

WL (First Encountered) **GNE**	BORING STARTED: **Oct 13 2023**	CAVE IN DEPTH: **16.0**	
WL (Completion) **GNE**	BORING COMPLETED: **Oct 13 2023**	HAMMER TYPE: **Manual**	
WL (Seasonal High Water)	EQUIPMENT: **SIMCO 2800 ATV**	LOGGED BY: **BD6**	DRILLING METHOD: **HSA 2.25**
WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
DP3 Architects, LTD	**08:15667**	**B-03**	**1 of 1**
PROJECT NAME:	DRILLER/CONTRACTOR:		
Monterrey Restaurante Mexicano	**Presley Drilling**		
SITE LOCATION:			LOSS OF CIRCULATION
Lancaster, Lancaster County, South Carolina			
NORTHING:	EASTING:	STATION:	SURFACE ELEVATION:
1054854.7	**2059883.0**		**486**



THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

WL (First Encountered) **GNE**	BORING STARTED: **Oct 13 2023**	CAVE IN DEPTH: **11.9**	
WL (Completion) **GNE**	BORING COMPLETED: **Oct 13 2023**	HAMMER TYPE: **Manual**	
WL (Seasonal High Water)	EQUIPMENT: **SIMCO 2800 ATV**	LOGGED BY: **BD6**	DRILLING METHOD: **HSA 2.25**
WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

Appendix D – Other Information

Important Information About This Geotechnical Engineering Report

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
DP3 Architects, LTD	**08:15667**	**B-04**	**1 of 1**
PROJECT NAME:	DRILLER/CONTRACTOR:		
Monterrey Restaurante Mexicano	**Presley Drilling**		
SITE LOCATION:			LOSS OF CIRCULATION
Lancaster, Lancaster County, South Carolina			
NORTHING:	EASTING:	STATION:	SURFACE ELEVATION:
1054756.2	**2059901.4**		**488**

BOTTOM OF CASING

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
					Concrete Thickness[6"]			
					ABC Stone Thickness[2"]			
	S-1	SS	18	18	(ML FILL) SANDY SILT, grayish brown, moist			2-3-4 (7)
	S-2	SS	18	18				4-5-5 (10)
5					(ML) Residuum, SANDY SILT, grayish brown, moist, stiff		483	
	S-3	SS	18	18				3-4-5 (9)
	S-4	SS	18	18				4-5-7 (12)
10					**END OF BORING AT 10 FT**		478	
15							473	
20							468	
25							463	
30							458	

STANDARD PENETRATION BLOWS/FT
20 40 60 80 100
ROCK QUALITY DESIGNATION & RECOVERY
RQD
REC

LIQUID LIMIT
PLASTIC LIMIT
CALIBRATED PENETROMETER TSF
1 2 3 4 5
WATER CONTENT %
[FINES CONTENT] %
10 20 30 40 50

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

WL (First Encountered) **GNE**	BORING STARTED: **Oct 13 2023**	CAVE IN DEPTH: **7.0**	
WL (Completion) **GNE**	BORING COMPLETED: **Oct 13 2023**	HAMMER TYPE: **Manual**	
WL (Seasonal High Water)	EQUIPMENT: **SIMCO 2800 ATV**	LOGGED BY: **BD6**	DRILLING METHOD: **HSA 2.25**
WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

Appendix C – Laboratory Testing

Laboratory Testing Summary

Laboratory Testing Summary

Sample Location	Sample Number	Depth (ft)	^MC (%)	Soil Type	Atterberg Limits			**Percent Passing No. 200 Sieve	Moisture - Density		CBR (%)		#Organic Content (%)
					LL	PL	PI		<Maximum Density (pcf)	<Optimum Moisture (%)	0.1 in.	0.2 in.	
B-02	S-2	3.5-5.0	22.2	ML	31	23	8	86.2					
B-03	S-2	3.5-5.0	25.2	ML	40	27	13	93.0					

Notes: See test reports for test method, ^ASTM D2216-19, *ASTM D2488, **ASTM D1140-17, #ASTM D2974-20e1 < See test report for D4718 corrected values

Definitions: MC: Moisture Content, Soil Type: USCS (Unified Soil Classification System), LL: Liquid Limit, PL: Plastic Limit, PI: Plasticity Index, CBR: California Bearing Ratio, OC: Organic Content

Project: Monterrey Restaurante Mexicano
Client: DP3 Architects, LTD

Project No.: 08:15667
Date Reported: 11/07/2023

Office / Lab	Address	Office Number / Fax
ECS Southeast LLC - Charlotte	1812 Center Park Drive Suite D Charlotte, NC 28217	(704)525-5152 (704)357-0023

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, clients can benefit from a lowered exposure to the subsurface problems that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed below, contact your GBA-member geotechnical engineer. Active involvement in the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Geotechnical-Engineering Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. *Those who rely on a geotechnical-engineering report prepared for a different client can be seriously misled*. No one except authorized client representatives should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. *And no one – not even you – should apply this report for any purpose or project except the one originally contemplated.*

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read it *in its entirety*. Do not rely on an executive summary. Do not read selected elements only. *Read this report in full.*

You Need to Inform Your Geotechnical Engineer about Change

Your geotechnical engineer considered unique, project-specific factors when designing the study behind this report and developing the confirmation-dependent recommendations the report conveys. A few typical factors include:

- the client's goals, objectives, budget, schedule, and risk-management preferences;
- the general nature of the structure involved, its size, configuration, and performance criteria;
- the structure's location and orientation on the site; and
- other planned or existing site improvements, such as retaining walls, access roads, parking lots, and underground utilities.

Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.*

This Report May Not Be Reliable

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, that it could be unwise to rely on a geotechnical-engineering report whose reliability may have been affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If your geotechnical engineer has not indicated an "apply-by" date on the report, ask what it should be*, and, in general, *if you are the least bit uncertain* about the continued reliability of this report, contact your geotechnical engineer before applying it. A minor amount of additional testing or analysis – if any is required at all – could prevent major problems.

Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface through various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing were performed*. The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgment to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team from project start to project finish, so the individual can provide informed guidance quickly, whenever needed.

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, *they are not final*, because the geotechnical engineer who developed them relied heavily on judgment and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* revealed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a full-time member of the design team, to:

- confer with other design-team members,
- help develop specifications,
- review pertinent elements of other design professionals' plans and specifications, and
- be on hand quickly whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction observation.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for informational purposes only*. To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report, but they may rely on the factual data relative to the specific times, locations, and depths/elevations referenced. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely*. Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures*. If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. As a general rule, *do not rely on an environmental report prepared for a different client, site, or project, or that is more than six months old.*

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, none of the engineer's services were designed, conducted, or intended to prevent uncontrolled migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, ***proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration.*** Confront the risk of moisture infiltration by including building-envelope or mold specialists on the design team. ***Geotechnical engineers are not building-envelope or mold specialists.***

GEOPROFESSIONAL BUSINESS ASSOCIATION

Telephone: 301/565-2733
e-mail: info@geoprofessional.org www.geoprofessional.org

SECTION 00 52 00

STANDARD FORM OF AGREEMENT

INSERT AIA DOCUMENT A101 HERE

Standard Form of Agreement Between Owner and Contractor – Stipulated Sum
2017 EDITION

THIS DOCUMENT IN ITS ENTIRETY IS HEREBY DECLARED A PART OF THESE CONTRACT DOCUMENTS.

(Copies of this document may be procured locally through the American Institute of Architects or the Association of General Contractors)

END OF SECTION

SECTION 00 53 00

SUPPLEMENT TO AGREEMENT FORM

1.01 The "Standard Form of Agreement between Owner and Contractor - Stipulated Sum," AIA Document No. A101, June 2017 Edition, is part of these specifications.

1.02 The completed Form of Agreement will include the following:

A. Progress Payment

1. Based upon Applications for Payment submitted to the Architect by the Contractor, the Owner shall make the progress payments on account of the Contract Sum to the Contractor as provided in the Conditions of the Contract as follows:

2. Thirty (30) days from receipt of certified requisition by the Architect, Ninety (90%) percent of the proportion of the Contract Sum properly allocable to labor, materials and equipment incorporated in the Work and Ninety (90%) percent of the portion of the Contract sum properly allocable to materials and equipment suitably stored at the site or at some other location agreed upon in writing by the parties, up to five (5) days prior to the date on which the Application for Payment is submitted, less the aggregate of previous payments in case: and upon Substantial Completion of the entire Work, a sum sufficient to increase the total payments to ninety-five (95) percent of the Contract Sum, less such retainage as the Architect shall determine for all incomplete work and unsettled claims.

B. Final Payment

1. Final Payment, constituting the entire unpaid balance of the Contract Sum, shall be paid by the Owner to the contractor Forty-five (45) days after Substantial Completion of the Work unless otherwise stipulated in the Certificate of Substantial Completion, provided the work has then been completed, the Contract fully performed, and all closeout documents submitted to the Architect.

END OF SECTION

SECTION 00 72 00

GENERAL CONDITIONS

INSERT AIA DOCUMENT A201 HERE

General Conditions of the Contract for Construction
2007 Edition

THIS DOCUMENT IN ITS ENTIRETY, IS HEREBY DECLARED A PART OF THESE CONTRACT DOCUMENTS.

(Copies of this document may be procured locally through the American Institute of Architect or the Association of General Contractors)

END OF SECTION

SECTION 01 10 00

SUMMARY

PART 1 GENERAL

1.01 PROJECT

A. Project Name: Mariachis Restaurante Mexicano.

B. Owner's Name: Rogelio Marin.

C. Architect's Name: DP3 Architects, Ltd..

D. The Project consists of the construction of new, approximately 4,228 sf restaurant and bar located at 1229 Highway 9 Bypass W, Lancaster, SC 29720

1.02 CONTRACT DESCRIPTION

A. Contract Type: A single prime contract based on a Stipulated Price as described in Document 00 52 00 - Agreement Form.

1.03 ITEMS BY OWNER

A. The following items are owner provided and installed. The contractor will take complete control and responsibility for scheduling these owner provided items and subcontractors. It is the contractors responsibility to accept, unload, inventory, and store on site all owner provided items shipped directly to the site. The day the material is delivered to the site is the only day that the owner will accept reports of damaged or missing items. After this day the contractor takes full responsibility for the replacement of any materials lost, stolen, or damaged. Any materials that are found defective must be returned to the vendor or else the owner will back charge the contractor for the additional replacement costs.

B. Exterior Signage
   1. Contractor to provide final utility connections.

C. Cash Register Computer System
   1. Conduit provided and installed by contractor.

D. Telephone System
   1. Conduit provided and installed by contractor.

E. Food Equipment, Including Stainless Steel Panels
   1. Contractor to provide final utility connections.

F. Table, Chairs, Booth Assemblies

G. Kitchen Exhaust Hoods

H. Beer and Soda System

I. Music System and Speakers

J. Cooler/Freezer Assembly, Refrigeration Lines, Units, and Evaporators

K. Hood Fire Suppression System

L. Dish Machine

M. Blinds

N. Grease Guards

O. Safe

P. Decor (unless noted otherwise on drawings)

Q. Stainless Steel Wall Panels and Corner Guards

END OF SECTION

SECTION 01 20 00
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. Procedures for preparation and submittal of application for final payment.

1.02 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 Architect for approval.

C. Forms filled out by hand will not be accepted.

D. Submit Schedule of Values in duplicate within 15 days after date of Owner-Contractor Agreement.

E. Include in each line item, the amount of Allowances specified in this section. For unit cost Allowances, identify quantities taken from Contract Documents multiplied by the unit cost to achieve the total for the item.

F. Revise schedule to list approved Change Orders, with each Application For Payment.

1.03 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 Architect for approval.

D. Forms filled out by hand will not be accepted.

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. Submit four copies of each Application for Payment.

H. Include the following with the application:
   1. Transmittal letter as specified for Submittals in Section 01 30 00.
   2. Construction progress schedule, revised and current as specified in Section 01 30 00.

I. When Architect requires substantiating information, submit data justifying dollar amounts in question. Provide one copy of data with cover letter for each copy of submittal. Show application number and date, and line item by number and description.

1.04 MODIFICATION PROCEDURES

A. For minor changes not involving an adjustment to the Contract Sum or Contract Time, Architect will issue instructions directly to Contractor.

B. For other required changes, Architect will issue a document signed by Owner instructing Contractor to proceed with the change, for subsequent inclusion in a Change Order.
   1. The document will describe the required changes and will designate method of determining any change in Contract Price or Contract Time.
   2. Promptly execute the change.

C. For changes for which advance pricing is desired, Architect 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. Contractor shall prepare and submit a fixed price quotation within 7 days.

D. Contractor may propose a change by submitting a request for change to Architect, 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 60 00.

E. Computation of Change in Contract Amount: As specified in the Agreement and Conditions of the Contract.

F. Execution of Change Orders: Architect will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.

1.05 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 70 00.

END OF SECTION

SECTION 01 32 16
CONSTRUCTION PROGRESS SCHEDULE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Preliminary schedule.

B. Construction progress schedule, bar chart type.

1.02 SUBMITTALS

A. Within 10 days after date of Agreement, submit preliminary schedule defining planned operations for the first 60 days of Work, with a general outline for remainder of Work.

B. Within 10 days after joint review, submit complete schedule.

C. Submit updated schedule with each Application for Payment.

D. Submit the number of opaque reproductions that Contractor requires, plus two copies that will be retained by Architect.

1.03 SCHEDULE FORMAT

A. Listings: In chronological order according to the start date for each activity. Identify each activity with the applicable specification section number.

B. Sheet Size: Multiples of 8-1/2 x 11 inches (216 x 280 mm).

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PRELIMINARY SCHEDULE

A. Prepare preliminary schedule in the form of a horizontal bar chart.

3.02 CONTENT

A. Define planned operations for the first 60 days of Work with a general outline for remainder of work.

B. Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction.

3.03 SUBMITTALS SCHEDULE

A. Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, resubmittal, ordering, manufacturing, fabrication, and delivery when establishing dates.
   1. Coordinate Submittals Schedule with list of subcontractors, the Schedule of Values, and Contractor's Construction Schedule.

B. Submit 4 copies of schedule. Arrange the following information in a tabular format.
   1. Scheduled date for first submittal.
   2. Specification Section number and title.
   3. Submittal category (action or informational.)
   4. Name of subcontractor.
   5. Description of the Work covered.
   6. Scheduled date for Architect's final release or approval.

C. After review, revise as necessary as result of review, and resubmit within 10 days.

3.04 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction, in the form of a horizontal bar chart.

B. Identify each item by specification section number.

C. Identify work of separate stages and other logically grouped activities.

D. Show accumulated percentage of completion of each item, and total percentage of Work completed, as of the first day of each month.
E. Coordinate content with Schedule of Values.
F. Provide legend for symbols and abbreviations used.
G. Include a separate bar for each major portion of Work or operation.
H. Identify the first work day of each week.
I. Identify activities modified since previous submittal, major changes in Work, and other identifiable changes.

3.05 FIELD CONDITION REPORTS

A. Immediately upon the discovery of a difference between field conditions and the Contract Documents, prepare a detailed report. Submit with a request for information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

3.06 BAR CHARTS

A. Include a separate bar for each major portion of Work or operation.
B. Identify the first work day of each week.

3.07 DAILY CONSTRUCTION REPORTS

A. Prepare a daily construction report recording the following information concerning events at the Project site.
   1. List of subcontractors at Project site.
   2. Equipment at Project site.
   3. Material deliveries.
   4. High and low temperatures and weather conditions.
   5. Accidents.
   6. Stoppages, delays, shortages, and losses.
   7. Meter readings and similar recordings.
   8. Orders and requests of authorities having jurisdiction.
   9. Services connected and disconnected.
   10. Equipment or system tests or startups.

3.08 REVIEW AND EVALUATION OF SCHEDULE

A. Participate in joint review and evaluation of schedule with DP3 Architects at each submittal.
B. Evaluate project status to determine work behind schedule and work ahead of schedule.
C. After review, revise as necessary as result of review, and resubmit within 10 days.

3.09 UPDATING SCHEDULE

A. Maintain schedules to record actual start and finish dates of completed activities.
B. Indicate progress of each activity to date of revision, with projected completion date of each activity.
C. Annotate diagrams to graphically depict current status of Work.
D. Identify activities modified since previous submittal, major changes in Work, and other identifiable changes.
E. Indicate changes required to maintain Date of Substantial Completion.
F. Submit reports required to support recommended changes.

3.10 DISTRIBUTION OF SCHEDULE

A. Distribute copies of updated schedules to Contractor's project site file, to Subcontractors, suppliers, Architect, Owner, and other concerned parties.

B. Post copies in Project meeting rooms and in temporary field offices.

C. When revisions are made, distribute updated schedules to the same parties and post in the same locations.

D. Instruct recipients to promptly report, in writing, problems anticipated by projections shown in schedules.

END OF SECTION

SECTION 01 40 00
QUALITY REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Mock-ups.

B. Control of installation.

C. Tolerances.

D. Testing and inspection services.

E. Manufacturers' field services.

1.02 RELATED REQUIREMENTS

A. Section 01 42 16 - Definitions.

B. Section 01 42 19 - Reference Standards.

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. Test Reports: After each test/inspection, promptly submit two copies of report to Architect and to Contractor.
   1. Include:
      a. Date issued.
      b. Project title and number.
      c. Name of inspector.
      d. Date and time of sampling or inspection.
      e. Identification of product and specifications section.
      f. Location in the Project.
      g. Type of test/inspection.
      h. Date of test/inspection.
      i. Results of test/inspection.
      j. Conformance with Contract Documents.
      k. When requested by Architect, provide interpretation of results.
   2. Test report submittals are for Architect'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. Certificates: When specified in individual specification sections, submit certification by the manufacturer and Contractor or installation/application subcontractor to Architect, in quantities specified for Product Data.
   1. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
   2. Certificates may be recent or previous test results on material or product, but must be acceptable to Architect.

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. Erection Drawings: Submit drawings for Architect'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 Architect or Owner.

1.04 REFERENCES AND STANDARDS - SEE SECTION 01 42 19

1.05 TESTING AND INSPECTION AGENCIES

A. Owner will employ and pay for services of an independent testing agency to perform other specified testing.

B. Employment of agency in no way relieves Contractor of obligation to perform Work in accordance with requirements of Contract Documents.

PART 3 EXECUTION

2.01 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 Architect 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.

2.02 MOCK-UPS

A. Tests will be performed under provisions identified in this section and identified in the respective product specification sections.

B. Assemble and erect specified items with specified attachment and anchorage devices, flashings, seals, and finishes.

C. Accepted mock-ups shall be a comparison standard for the remaining Work.

D. Where mock-up has been accepted by Architect and is specified in product specification sections to be removed, remove mock-up and clear area when directed to do so.

2.03 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 Architect before proceeding.

C. Adjust products to appropriate dimensions; position before securing products in place.

2.04 TESTING AND INSPECTION

A. Testing Agency Duties:
   1. Provide qualified personnel at site. Cooperate with Architect and Contractor in performance of services.
   2. Perform specified sampling and testing of products in accordance with specified standards.
   3. Ascertain compliance of materials and mixes with requirements of Contract Documents.
   4. Promptly notify Architect and Contractor of observed irregularities or non-conformance of Work or products.
   5. Perform additional tests and inspections required by Architect.

6. Submit reports of all tests/inspections specified.

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 Contractor.
   4. Agency has no authority to stop the Work.

C. 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 Architect 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 Contractor beyond specified requirements.
   6. Arrange with Owner's agency and pay for additional samples, tests, and inspections required by 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 Architect.

E. Re-testing required because of non-conformance to specified requirements shall be paid for by Contractor.

2.05 MANUFACTURERS' FIELD SERVICES

A. When specified in individual specification sections, require 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 and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

2.06 DEFECT ASSESSMENT

A. Replace Work or portions of the Work not conforming to specified requirements.

B. If, in the opinion of Architect, it is not practical to remove and replace the Work, Architect will direct an appropriate remedy or adjust payment.

END OF SECTION

SECTION 01 42 16
DEFINITIONS

PART 1 GENERAL

1.01 SUMMARY

A. Other definitions are included in individual specification sections.

1.02 DEFINITIONS

A. Furnish: To supply, deliver, unload, and inspect for damage.

B. Install: To unpack, assemble, erect, apply, place, finish, cure, protect, clean, start up, and make ready for use.

C. Product: Material, machinery, components, equipment, fixtures, and systems forming the work result. Not materials or equipment used for preparation, fabrication, conveying, or erection and not incorporated into the work result. Products may be new, never before used, or re-used materials or equipment.

D. Project Manual: The book-sized volume that includes the procurement requirements (if any), the contracting requirements, and the specifications.

E. Provide: To furnish and install.

F. Supply: Same as Furnish.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 42 19
REFERENCE STANDARDS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Requirements relating to referenced standards.

1.02 QUALITY ASSURANCE

A. For products or 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. Should specified reference standards conflict with Contract Documents, request clarification from the Architect before proceeding.

C. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of the Architect shall be altered by the Contract Documents by mention or inference otherwise in any reference document.

END OF SECTION

SECTION 01 50 00
TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Temporary utilities.

B. Temporary telecommunications services.

C. Temporary sanitary facilities.

D. Temporary Controls: Barriers, enclosures, and fencing.

E. Vehicular access and parking.

F. Waste removal facilities and services.

G. Project identification sign.

H. Field offices.

1.02 TEMPORARY UTILITIES - SEE SECTION 01 51 00

A. The General Contractor shall be responsible for providing and paying for all electrical power, lighting, water, heating and cooling, and ventilation required for construction purposes from the date of Notice to Proceed until Substantial Completion.

B. Use trigger-operated nozzles for water hoses, to avoid waste of water.

1.03 TELECOMMUNICATIONS SERVICES

A. Provide, maintain, and pay for telecommunications services to field office at time of project mobilization.

1.04 TEMPORARY SANITARY FACILITIES

A. Provide and maintain required facilities and enclosures. Provide at time of project mobilization.

B. Maintain daily in clean and sanitary condition.

1.05 BARRIERS

A. Provide barriers to prevent unauthorized entry to construction areas, to prevent access to areas that could be hazardous to workers or the public, to allow for owner's use of site and to protect existing facilities and adjacent properties from damage from construction operations and demolition.

B. 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.

D. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

1.06 FENCING

A. Construction: Contractor's option.

B. Provide 6 foot (1.8 m) high fence around construction site; equip with vehicular and pedestrian gates with locks.

1.07 VEHICULAR ACCESS AND PARKING - SEE SECTION 01 55 00

A. Coordinate access and haul routes with governing authorities and Owner.

B. Provide and maintain access to fire hydrants, free of obstructions.

C. Provide means of removing mud from vehicle wheels before entering streets.

D. Provide temporary parking areas to accommodate construction personnel. When site space is not adequate, provide additional off-site parking.

1.08 WASTE REMOVAL

A. Provide waste removal facilities and services as required to maintain the site in clean and orderly condition.

B. 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.

C. Open free-fall chutes are not permitted. Terminate closed chutes into appropriate containers with lids.

1.09 PROJECT IDENTIFICATION

A. Provide project identification sign of design and construction indicated on Drawings.

B. Erect on site at location indicated.

C. No other signs are allowed without Owner permission except those required by law.

1.10 FIELD OFFICES - SEE SECTION 01 52 13

A. Office: Weathertight, with lighting, electrical outlets, heating, cooling equipment, and equipped with sturdy furniture, drawing rack and drawing display table.

B. Provide space for Project meetings, with table and chairs to accommodate 6 persons.

C. Locate offices a minimum distance of 30 feet (10 m) from existing and new structures.

1.11 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.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 60 00
PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. General product requirements.

B. Transportation, handling, storage and protection.

C. Product option requirements.

D. Substitution limitations and procedures.

E. Procedures for Owner-supplied products.

F. Maintenance materials, including extra materials, spare parts, tools, and software.

1.02 RELATED REQUIREMENTS

A. Document 00 21 13 - Instructions to Bidders: Product options and substitution procedures prior to bid date.

B. Section 01 40 00 - Quality Requirements: Product quality monitoring.

1.03 SUBMITTALS

A. 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.

B. 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.

C. 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 NEW PRODUCTS

A. Provide new products unless specifically required or permitted by the Contract Documents.

B. Where all other criteria are met, Contractor shall give preference to products that:
   1. If used on interior, have lower emissions, as defined in Section 01 61 16.
   2. If wet-applied, have lower VOC content, as defined in Section 01 61 16.
   3. Have a published GreenScreen Chemical Hazard Analysis.

2.02 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.

2.03 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. Instructions to Bidders specify time restrictions for submitting requests for substitutions during the bidding period. Comply with requirements specified in this section.

B. Architect will consider requests for substitutions only within 15 days after date of Agreement.

C. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents.

D. A request for substitution constitutes a representation that the submitter:
   1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
   2. Will provide the same warranty for the substitution as for the specified product.
   3. Will coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to Owner.
   4. Waives claims for additional costs or time extension that may subsequently become apparent.

E. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.

F. Substitution Submittal Procedure:
   1. Submit three copies of request for substitution for consideration. Limit each request to one proposed substitution.
   2. Submit shop drawings, product data, and certified test results attesting to the proposed product equivalence. Burden of proof is on proposer.
   3. The Architect will notify Contractor in writing of decision to accept or reject request.

3.02 OWNER-SUPPLIED PRODUCTS

A. Owner's Responsibilities:
   1. Arrange for and deliver Owner reviewed shop drawings, product data, and samples, to Contractor.
   2. Arrange and pay for product delivery to site.
   3. On delivery, inspect products jointly with Contractor.
   4. Submit claims for transportation damage and replace damaged, defective, or deficient items.
   5. Arrange for manufacturers' warranties, inspections, and service.

B. Contractor's Responsibilities:
   1. Review Owner reviewed shop drawings, product data, and samples.
   2. Receive and unload products at site; inspect for completeness or damage jointly with Owner.
   3. Handle, store, install and finish products.
   4. Repair or replace items damaged after receipt.

3.03 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.

3.04 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. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.

G. Prevent contact with material that may cause corrosion, discoloration, or staining.

H. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

I. 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 70 00
EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Examination, preparation, and general installation procedures.

B. Pre-installation meetings.

C. Cutting and patching.

D. Surveying for laying out the work.

E. Cleaning and protection.

F. Starting of systems and equipment.

G. Demonstration and instruction of Owner personnel.

H. Closeout procedures, except payment procedures.

1.02 RELATED REQUIREMENTS

A. Section 01 10 00 - Summary: Limitations on working in existing building; continued occupancy; work sequence; identification of salvaged and relocated materials.

B. Section 01 30 00 - Administrative Requirements: Submittals procedures.

C. Section 01 40 00 - Quality Requirements: Testing and inspection procedures.

D. Section 01 78 00 - Closeout Submittals: Project record documents, operation and maintenance data, warranties and bonds.

1.03 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Survey work: Submit name, address, and telephone number of Surveyor before starting survey work.
   1. On request, submit documentation verifying accuracy of survey work.
   2. Submit a copy of site drawing signed by the Land Surveyor, that the elevations and locations of the work are in conformance with Contract Documents.
   3. Submit surveys and survey logs for the project record.

C. 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 Owner or separate Contractor.

1.04 QUALIFICATIONS

A. For survey work, employ a land surveyor registered in the State in which the Project is located and acceptable to Architect. Submit evidence of Surveyor's Errors and Omissions insurance coverage in the form of an Insurance Certificate.

1.05 PROJECT CONDITIONS

A. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.

B. Dust Control: Execute work by methods to minimize raising dust from construction operations. Provide positive means to prevent air-borne dust from dispersing into atmosphere and over adjacent property.

C. Noise Control: Provide methods, means, and facilities to minimize noise produced by construction operations.

D. Pest and Rodent Control: Provide methods, means, and facilities to prevent pests and insects from damaging the work.

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.

C. Product Substitution: For any proposed change in materials, submit request for substitution described in Section 01 60 00.

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 misfabrication.

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, convene a preinstallation meeting at the site prior to commencing work of the section.

B. Require attendance of parties directly affecting, or affected by, work of the specific section.

C. Notify Architect four days in advance of meeting date.

D. Prepare agenda and preside at meeting:
   1. Review conditions of examination, preparation and installation procedures.
   2. Review coordination with related work.

E. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

3.04 LAYING OUT THE WORK

A. Verify locations of survey control points prior to starting work.

B. Promptly notify Architect of any discrepancies discovered.

C. Contractor shall locate and protect survey control and reference points.

D. Protect survey control points prior to starting site work; preserve permanent reference points during construction.

E. Promptly report to Architect the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.

F. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Architect.

G. Utilize recognized engineering survey practices.

H. Establish elevations, lines and levels. Locate and lay out by instrumentation and similar appropriate means:
   1. Site improvements including pavements; stakes for grading, fill and topsoil placement; utility locations, slopes, and invert elevations.
   2. Grid or axis for structures.
   3. Building foundation, column locations, ground floor elevations.

I. Periodically verify layouts by same means.

J. Maintain a complete and accurate log of control and survey work as it progresses.

3.05 GENERAL INSTALLATION REQUIREMENTS

A. 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.

B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.

C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.

D. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.

E. Make neat transitions between different surfaces, maintaining texture and appearance.

3.06 CUTTING AND PATCHING

A. Whenever possible, execute the work by methods that avoid cutting or patching.

B. 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.

C. 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.

D. Employ original installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.

E. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.

F. Restore work with new products in accordance with requirements of Contract Documents.

G. Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

H. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material in accordance with Section 07 84 00, to full thickness of the penetrated element.

I. 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.

3.07 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 periodically and dispose off-site; do not burn or bury.

3.08 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. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.

E. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

F. 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.

G. Prohibit traffic from landscaped areas.

H. Remove protective coverings when no longer needed; reuse or recycle plastic coverings if possible.

3.09 SYSTEM STARTUP

A. Coordinate schedule for start-up of various equipment and systems.

B. Notify Architect and owner 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 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.

3.10 DEMONSTRATION AND INSTRUCTION

A. Demonstrate operation and maintenance of products to Owner's personnel two weeks prior to date of Substantial Completion.

B. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at scheduled time, at equipment location.

C. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.

D. Provide a qualified person who is knowledgeable about the Project to perform demonstration and instruction of owner personnel.

3.11 ADJUSTING

A. Adjust operating products and equipment to ensure smooth and unhindered operation.

3.12 FINAL CLEANING

A. Use cleaning materials that are nonhazardous.

B. 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.

C. Remove all labels that are not permanent. Do not paint or otherwise cover fire test labels or nameplates on mechanical and electrical equipment.

D. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.

E. Clean filters of operating equipment.

F. Clean debris from roofs, gutters, downspouts, and drainage systems.

G. Clean site; sweep paved areas, rake clean landscaped surfaces.

H. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

3.13 CLOSEOUT PROCEDURES

A. Make submittals that are required by governing or other authorities.

B. Notify Architect when work is considered ready for Substantial Completion.

C. Submit written certification that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for Architect's review.

D. Correct items of work listed in executed Certificates of Substantial Completion and comply with requirements for access to Owner-occupied areas.

E. Notify Architect when work is considered finally complete.

F. Complete items of work determined by Architect's final inspection.

END OF SECTION

SECTION 01 74 19

CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 GENERAL

1.01 WASTE MANAGEMENT REQUIREMENTS

A. Owner requires that this project generate the least amount of trash and waste possible.

B. Employ processes that ensure the generation of as little waste as possible due to error, poor planning, breakage, mishandling, contamination, or other factors.

C. Minimize trash/waste disposal in landfills; reuse, salvage, or recycle as much waste as economically feasible.

D. Methods of trash/waste disposal that are not acceptable are:
   1. Burning on the project site.
   2. Burying on the project site.
   3. Dumping or burying on other property, public or private.
   4. Other illegal dumping or burying.

E. Regulatory Requirements: Contractor is responsible for knowing and complying with regulatory requirements, including but not limited to Federal, state and local requirements, pertaining to legal disposal of all construction and demolition waste materials.

1.02 DEFINITIONS

A. Clean: Untreated and unpainted; not contaminated with oils, solvents, caulk, or the like.

B. Construction and Demolition Waste: Solid wastes typically including building materials, packaging, trash, debris, and rubble resulting from construction, remodeling, repair and demolition operations.

C. Hazardous: Exhibiting the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity or reactivity.

D. Nonhazardous: Exhibiting none of the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity, or reactivity.

E. Nontoxic: Neither immediately poisonous to humans nor poisonous after a long period of exposure.

F. Recyclable: The ability of a product or material to be recovered at the end of its life cycle and remanufactured into a new product for reuse by others.

G. Recycle: To remove a waste material from the project site to another site for remanufacture into a new product for reuse by others.

H. Recycling: The process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for the purpose of using the altered form. Recycling does not include burning, incinerating, or thermally destroying waste.

I. Return: To give back reusable items or unused products to vendors for credit.

J. Reuse: To reuse a construction waste material in some manner on the project site.

K. Salvage: To remove a waste material from the project site to another site for resale or reuse by others.

L. Sediment: Soil and other debris that has been eroded and transported by storm or well production run-off water.

M. Source Separation: The act of keeping different types of waste materials separate beginning from the first time they become waste.

N. Toxic: Poisonous to humans either immediately or after a long period of exposure.

O. Trash: Any product or material unable to be reused, returned, recycled, or salvaged.

P. Waste: Extra material or material that has reached the end of its useful life in its intended use. Waste includes salvageable, returnable, recyclable, and reusable material.

1.03 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

PART 3 EXECUTION

2.01 WASTE MANAGEMENT PROCEDURES

A. See Section 01 30 00 for additional requirements for project meetings, reports, submittal procedures, and project documentation.

B. See Section 01 50 00 for additional requirements related to trash/waste collection and removal facilities and services.

C. See Section 01 60 00 for waste prevention requirements related to delivery, storage, and handling.

D. See Section 01 70 00 for trash/waste prevention procedures related to demolition, cutting and patching, installation, protection, and cleaning.

2.02 WASTE MANAGEMENT PLAN IMPLEMENTATION

A. Manager: Designate an on-site person or persons responsible for instructing workers and overseeing and documenting results of the Waste Management Plan.

B. Communication: Distribute copies of the Waste Management Plan to job site foreman, each subcontractor, Owner, and Architect.

C. Instruction: Provide on-site instruction of appropriate separation, handling, and recycling, salvage, reuse, and return methods to be used by all parties at the appropriate stages of the project.

D. Meetings: Discuss trash/waste management goals and issues at project meetings.
   1. Pre-bid meeting.
   2. Pre-construction meeting.
   3. Regular job-site meetings.

E. Facilities: Provide specific facilities for separation and storage of materials for recycling, salvage, reuse, return, and trash disposal, for use by all contractors and installers.
   1. Provide containers as required.
   2. Provide adequate space for pick-up and delivery and convenience to subcontractors.
   3. Keep recycling and trash/waste bin areas neat and clean and clearly marked in order to avoid contamination of materials.

F. Hazardous Wastes: Separate, store, and dispose of hazardous wastes according to applicable regulations.

G. Recycling: Separate, store, protect, and handle at the site identified recyclable waste products in order to prevent contamination of materials and to maximize recyclability of identified materials. Arrange for timely pickups from the site or deliveries to recycling facility in order to prevent contamination of recyclable materials.

H. Reuse of Materials On-Site: Set aside, sort, and protect separated products in preparation for reuse.

I. Salvage: Set aside, sort, and protect products to be salvaged for reuse off-site.

END OF SECTION

SECTION 01 78 00
CLOSEOUT SUBMITTALS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Project Record Documents.

B. Operation and Maintenance Data.

C. Warranties and bonds.

1.02 RELATED REQUIREMENTS

A. Section 00 72 00 - General Conditions: Performance bond and labor and material payment bonds, warranty, and correction of work.

B. Section 01 30 00 - Administrative Requirements: Submittals procedures, shop drawings, product data, and samples.

C. Section 01 70 00 - 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 Architect with claim for final Application for Payment.

B. Operation and Maintenance Data:
   1. Submit two copies of preliminary draft or proposed formats and outlines of contents before start of Work. Architect will review draft and return one copy with comments.
   2. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit completed documents within ten days after acceptance.
   3. Submit one copy of completed documents 15 days prior to final inspection. This copy will be reviewed and returned after final inspection, with Architect comments. Revise content of all document sets as required prior to final submission.
   4. Submit two sets of revised final documents in final form within 10 days after final inspection.

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. Specifications.
   3. Addenda.
   4. Change Orders and other modifications to the Contract.
   5. Reviewed shop drawings, product data, and samples.
   6. Manufacturer's instruction for assembly, installation, and adjusting.

B. Ensure entries are complete and accurate, enabling future reference by Owner.

C. Store record documents separate from documents used for construction.

D. Record information concurrent with construction progress.

E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
   1. Manufacturer's name and product model and number.
   2. Product substitutions or alternates utilized.
   3. Changes made by Addenda and modifications.

F. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
   1. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
   2. Field changes of dimension and detail.
   3. Details not on original Contract drawings.

3.02 OPERATION AND MAINTENANCE DATA

A. Source Data: 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. Do not use Project Record Documents as maintenance drawings.

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.

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. Panelboard Circuit Directories: Provide electrical service characteristics, controls, and communications; typed.

C. 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.

D. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and trouble shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

E. Provide servicing and lubrication schedule, and list of lubricants required.

F. Include manufacturer's printed operation and maintenance instructions.

G. Include sequence of operation by controls manufacturer.

H. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

I. Provide control diagrams by controls manufacturer as installed.

J. Include test and balancing reports.

K. Additional Requirements: As specified in individual product specification sections.

3.05 ASSEMBLY OF 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 instructional manual.

C. Binders: Commercial quality, 8-1/2 by 11 inch (216 by 280 mm) three D side ring binders with durable plastic covers; 2 inch (50 mm) maximum ring size. When multiple binders are used, correlate data into related consistent groupings.

D. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; identify title of Project; identify subject matter of contents.

E. Provide tabbed dividers for each separate product and system, with typed description of product and major component parts of equipment.

F. Text: Manufacturer's printed data, or typewritten data on 24 pound paper.

G. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

H. H. Arrange content by systems under section numbers and sequence of Table of Contents of this Project Manual.

I. 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 DP3 Architects, Contractor, Subcontractors, 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 special finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents.

J. Table of Contents: Provide title of Project; names, addresses, and telephone numbers of DP3 Architects, Consultants, and Contractor with name of responsible parties; schedule of products and systems, indexed to content of the volume.

3.06 WARRANTIES AND BONDS

A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within 10 days after completion of the applicable item of work. Except for items put into use with Owner's 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, and are notarized.

C. Co-execute submittals when required.

D. Retain warranties and bonds until time specified for submittal.

E. Include originals of each in operation and maintenance manuals, indexed separately on Table of Contents.

END OF SECTION

SECTION 03 35 11
CONCRETE FLOOR FINISHES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Surface treatments for concrete floors and slabs.

1.02 ADMINISTRATIVE REQUIREMENTS

A. Coordinate the work with concrete floor placement and concrete floor curing.

1.03 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Manufacturer's published data on each finishing product, including information on compatibility of different products and limitations.

C. Maintenance Data: Provide data on maintenance and renewal of applied finishes.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in manufacturer's sealed packaging, including application instructions.

1.05 FIELD CONDITIONS

A. Maintain light level equivalent to a minimum 200 W light source at 8 feet (2.5 m) above the floor surface over each 20 foot (6 m) square area of floor being finished.

B. Do not finish floors until interior heating system is operational.

C. Maintain ambient temperature of 50 degrees F (10 degrees C) minimum.

PART 2 PRODUCTS

2.01 POLISHED CONCRETE SYSTEM

A. Polished Concrete System: Materials, equipment, and procedures designed and furnished by a single manufacturer to produce dense polished concrete of the specified sheen.
   1. Acceptable Systems:
      a. ARDEX Engineered Cements; ULTRAFLOR Polished Concrete System; with ARDEX PC-T Concrete Topping with ARDEX PC Finish sealer: www.ardexamericas.com.
      b. L&M Construction Chemicals, Inc., a subsidiary of Laticrete International, Inc.; FGS Permashine Concrete Polishing System: www.lmcc.com.
      c. L.M. Scofield Company; SCOFIELD® Formula One™ Ground & Polished Concrete Systems : www.scofield.com.
      d. W.R. Meadows, Inc; Induroshine with Bellatrix sealer: www.wrmeadows.com.
      e. Substitutions: See Section 01 60 00 - Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that floor surfaces are acceptable to receive the work of this section.

B. Verify that flaws in concrete have been patched and joints filled with methods and materials suitable for further finishes.

3.02 GENERAL

A. Apply materials in accordance with manufacturer's instructions.

3.03 FLOOR FINISHING

A. Finish concrete floor surfaces in accordance with ACI301 and ACI 302.1R.

B. Wood flat surfaces that will receive quarry tile or ceramic tile with full bed setting system.

C. Steel trowel surfaces that will receive carpeting or reseilient flooring.

D. Steel trowel surfaces that are scheduled to be exposed.

E. In areas with floor drains, mantain design floor elevation at walls: slope surfaces uniformily to drains at 1/8 inch per foot (10 mm per m) nominal.

3.04 FLOOR SURFACE TREATMENT

A. Apply hardener to scheduled floor surfaces in accordance with manufacturer's intructions.

B. Apply selaer to scheduled floor surfaces in accordanc with manufacturer's instructions.

3.05 CONCRETE POLISHING

A. Execute using materials, equipment, and procedures specified by manufacturer, using manufacturer approved installer.
   1. Final Polished Sheen: Satin finish; other sheens are included as comparison to illustrate required sheen; final sheen is before addition of any sealer or coating, regardless of whether that is also specified or not.
   2. Satin Finish: Reflecting images from side lighting.

END OF SECTION

SECTION 03 35 43

Formatted Specification for the
ULTRAFLOR® ARDEX® DIAMATIC® Polished Concrete System (Color)

PART I – GENERAL

1.01 SUMMARY

A. This is the recommended specification for ULTRAFLOR® ARDEX® DIAMATIC® Polished Concrete System

B. Complete installation details are provided in the ARDEX and DIAMATIC Technical Brochures available at www.ardex.com and www.diamaticusa.com.

1.02 SECTION INCLUDES

A. Products and procedures for the installation of the ULTRAFLOR ARDEX DIAMATIC Polished Concrete System using a multi-step dry mechanical process and accessories indicated, specified or required to complete system and achieve specified finish:

a. DIAMATIC Mechanical Diamond Grinding and Polishing Equipment

b. ULTRAFLOR ARDEX DIAMATIC Concrete Repair and Topping Materials

c. ULTRAFLOR ARDEX DIAMATIC Concrete Treatment Chemicals

B. Products and procedures for the initial and long term maintenance of the ULTRAFLOR ARDEX DIAMATIC Polished Concrete System.

C. All equipment, diamond products, concrete repair and topping materials, crack and joint treatments and chemicals are specified by DIAMATIC Management Services, DIAMATIC AND ARDEX.

1.03 SUBMITTALS

A. Product Data: Submit Manufacturer's technical literature for each product indicated, specified or required. Include manufacturer's technical data, application instructions, recommendations and MSDS.

B. Installer Qualifications: Data for company, principal personnel, experience, and training. Provide a letter documenting installer's accreditation and certification compliance, as specified under quality assurance.

C. Test Reports: Provide field quality control sheen gloss reading and static coefficient of friction test results conducted as specified and recorded on floor plan diagram confirming compliance with specified performance criteria.

D. Warranty: Provide manufacturer's warranty of ULTRAFLOR System materials, contractor workmanship and finish standards.

E. Maintenance Data: Provide manufacturer's instructions for maintenance of installed work, including methods and frequency recommended for maintaining optimum condition under intended use. These instructions should contain precautions against cleaning products and methods, which may be detrimental to finishes and performance.

1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications: The ULTRAFLOR ARDEX DIAMATIC Polished Concrete System consists of a process and products engineered and manufactured by ARDEX and DIAMATIC. Any substitutions are not permitted and void warranty.

B. Installer Qualifications:

a. Installer must be experienced and factory-trained in the installation of the ULTRAFLOR ARDEX DIAMATIC Polished Concrete System, including the use of DIAMATIC equipment and diamond abrasives, and ARDEX DIAMATIC concrete preparation, joint treatment and chemical hardening and finishing materials.

b. Installer must be experienced in performing specified work similar in design, products and scope of this project, with a documented track record of successful, in-service performance and with sufficient production capabilities, facilities and personnel to produce specified work.

c. A factory-trained, competent supervisor must be maintained on site during all times during which specified work is performed.

d. Installer must provide written documentation from the manufacturer confirming the Installer's accreditation and training from both ARDEX and DIAMATIC on installation of the ULTRAFLOR ARDEX DIAMATIC Polished Concrete System and related equipment and processes.

C. Mock-Up: Before performing the work in this section, an adequate number of on-site mock-ups of the ULTRAFLOR ARDEX DIAMATIC Polished Concrete System representative of specified process, surface, finish, color and joint design/treatments must be installed for review and approval. These mock-ups should be installed using the same Installer personnel who will perform work. Approved mock-ups may become part of completed work, if undisturbed at time of substantial completion.

D. Static Coefficient of Friction: A reading of not less than 0.6 for level floor surfaces shall be achieved and documented, as determined by certified an NFSI walkway auditor using the NFSI 101-A quality control test.

E. Test Reports: Comply with the provisions of the following specifications and standards, except as otherwise noted or specified, or as accepted or directed by the Owner and/or Architect. All test data shall be recorded and submitted upon completion of job.

a. Section 03 30 00, Cast-In-Place Concrete

b. ASTM E1155, Standard Test Method for Determining Floor Flatness and Levelness using the F number system

c. ASTM E430, Standard Test Method for Measurement of Gloss of High-Gloss Surfaces by Abridged Goniophotometry

d. ASTM G23-81 Standard Test Method for Ultraviolet Light and Water Spray Resistance

e. ACI 302 1 R-04 Guide for Concrete Floor and Slab Construction

F. Pre-Installation Conference: Prior to the installation of the ULTRAFLOR ARDEX DIAMATIC Polished Concrete System, an on-site conference shall be conducted to review specification requirements.

a. Required attendees include the Owner, Architect, General Contractor, ULTRAFLOR ARDEX DIAMATIC Polished Concrete System Subcontractor, ARDEX Representative and DIAMATIC Representative.

b. The minimum agenda shall include:

i. Tour of work area, inspection and discussion of preparation of substrate and other pre-Installation conditions and issues.

ii. Review of System requirements, including drawings, specifications and other contract documents.

iii. Review of required submittals and completion status.

iv. Review and finalization of installation schedule, and verification of availability of required materials, trained Installer personnel, equipment and facilities to execute specification and avoid delays.

v. Review of required inspection, testing, certification and material usage accounting procedures.

vi. Review of methods and procedures for installation, including manufacturer's written instructions.

vii. Review of governing regulations and requirements for insurance, certifications, inspection and testing, if applicable.

viii. Review of temporary protection requirements during and after installation.

ix. Review of cleaning procedures during and after installation.

x. Documentation proceedings, including corrective measures or actions required, and provision of a written copy of record to each participant.

1.05 DELIVERY, STORAGE AND HANDLING

A. Deliver all materials in original containers, bearing manufacturer's labels indicating brand name and directions for storage, factory numbered and sealed until ready for installation.

B. Maintain records of product container numbers.

C. Store all materials in a dry, climate-controlled environment at a minimum of 55°F (13°C) and maximum of 85°F (29°C).

1.06 SITE CONDITIONS

A. Comply with manufacturer's written instructions for substrate temperature and moisture content, ambient temperature and humidity, ventilation and other conditions affecting the floor finish.

B. Close areas to traffic during and after ULTRAFLOR ARDEX DIAMATIC Polished Concrete System application for a time period recommended by the manufacturer.

C. Inspect the existing substrate and document unsatisfactory conditions in writing. Verify that surfaces and site conditions are ready to receive work. Correct unacceptable conditions prior to installation of System. Commencement of work constitutes acceptance of substrate conditions.

D. Existing concrete must be cured for a sufficient time period recommended by DIAMATIC and ARDEX before the application can begin.

E. Where new or existing concrete is not within specified tolerances, install the ULTRAFLOR ARDEX DIAMATIC Polished Concrete System Concrete Repair and Topping Materials at the required thickness to achieve tolerances. Comply with tolerance requirements in Section 03 30 00.

F. Protect existing concrete and the new ULTRAFLOR ARDEX DIAMATIC Polished Concrete System from contamination by petroleum, oil, hydraulic fluid, acid and acidic detergents, paint and other liquid dripping from trades and equipment working over these substrates. If construction equipment must be used on these substrates, diaper all components that may drip fluids.

G. Prohibit the placement and storage of construction materials over new ULTRAFLOR ARDEX DIAMATIC Polished Concrete System, to include ferrous metals and steel members.

H. Prohibit vehicle parking and pipe cutting operations over existing concrete and the new ULTRAFLOR ARDEX DIAMATIC Polished Concrete System.

I. Moisture Vapor and Alkalinity Testing

1. Test existing concrete floors for alkalinity/pH, according to method indicated in ASTM F710. Acceptable results: pH between 9 and 10.

2. Test existing concrete for moisture vapor transmission according to methods indicated in ASTM F1869. Acceptable results: not more than 5 pounds per 1,000 square feet in 24 hours.

3. Test existing concrete for relative humidity using in situ probes according to ASTM F2170. Acceptable results: not more than 80%.

1.07 LIST OF MANUFACTURERS

A. ARDEX Engineered Cements: www.ARDEX.com; 1-888-512-7339
400 ARDEX Park Drive Aliquippa, PA. 15001

B. DIAMATIC USA; www.DIAMATICusa.com; 1-866-295-5512
5220 Gaines Street, San Diego, CA. 92110

C. No substitutions permitted.

1. Note: In some cases, and only with DIAMATIC's approval, burnishing, grinding and polishing machines may be substituted, provided that the specified DIAMATIC abrasives and blades can still be used.

PART 2 – PRODUCTS

2.01 SYSTEM INTEGRITY

A. The ULTRAFLOR ARDEX DIAMATIC Polished Concrete System is an engineered and integrated complete installation system requiring strict adherence to all specified installation processes, equipment, diamond abrasives, concrete preparation, joint treatment and chemicals to achieve the intended result. Any substitutions from the specified products and/or processes will void the system warranty.

2.01 MATERIALS

A. DIAMATIC EQUIPMENT

1. DIAMATIC Micro Polisher - Burnishers: Specific weight and RPM are required to reach temperature of 100˚F for application of FLOR-FINISH.

2. DIAMATIC BMG-780 or BMG-735: Planetary Grinder and Polisher, Large Platform: 32" planetary floor polisher. Head pressure of 600 lbs.

3. DIAMATIC BMG580PRO: Planetary Grinder and Polisher Medium Platform: 27" planetary floor polisher for smaller and intermediate areas.

4. DIAMATIC BMG435PRO: Planetary Grinder and Polisher Small Platform: 17" planetary floor polisher for small areas.

5. DIAMATIC 5" Low Speed Grinder: Hand Held Polishing Tool: 5" hand floor polisher for edges with variable speed control range of 500 – 2200 RPM.

6. DIAMATIC 180EC: Walk Behind Edging grinder/polisher.

7. Vacuums: Dust Collection must be designed for filtering of concrete dust. Minimum air speed of 300 CFM for Large and Medium Platform equipment.

8. DIAMATIC BDC1324, BDC317P, BDC3140P, 6-54DC.

9. Crack Chaser: 7" Crack Vac with dolly or hand held 5" grinder with .375" thick/VCut diamond.

10. DIAMATIC Crack Vac or 5" high-speed grinder.

11. DIAMATIC Condor Applicator (densifier and polymer application, also for maintenance).

12. Blastrac/DIAMATIC ride on and walk behind floor scrapers with beveled steel scraper blades of various widths for removal of floor coverings.

13. DIAMATIC BMC335 Shaver: Self-propelled shaver/leveler for slab surface demolition and leveling.

14. Power generator capable of supplying a minimum output of 30kw and up, and 480 Volt three phase power.

15. DIAMATIC Diamond Abrasives and Blades

    i. Metal Bonded Diamonds – 18/20, 30/40 Grit of soft, medium and hard bonded metal.

        a. **Note:** Concrete has hardness levels of soft, medium and hard. The hardness of the concrete will determine the required hardness of the metal bonded diamonds:

            1. Hard Concrete: Soft metal bonded diamonds

            2. Medium Concrete: Medium metal bonded diamonds

            3. Soft Concrete: Hard metal bonded diamonds

    ii. Transitional Diamonds, Ceramic Bonded - #0 Grit.

    iii. Resin Bonded Diamonds - 200, 400 Grit.

    iv. FLOR-GRIT Diamond Impregnated Pads - 800, 1500, 3000 Grit.

    v. Metal Bonded Diamond blades 1/8” to 3/4” (3 mm to 18 mm) thick.

B. ULTRAFLOR ARDEX DIAMATIC CONCRETE TREATMENT CHEMICALS

1. ARDEX DIAMATIC FLOR-COLOR™ Lithium Pigmented Densifier for standard concrete and terrazzo surfaces

2. ARDEX DIAMATIC FLOR-FINISH Stain and Wear Protection Treatment (high-gloss)

3. DIAMATIC FLOR Maintainer™ Gloss, Stain and Wear Protection Routine Maintenance Treatment

C. ARDEX CRACK AND JOINT TREATMENT MATERIALS

1. For complete installation instructions and required tools, please refer to the individual ARDEX Technical Brochures available for each product.

2. ARDEX ARDIBOND AP™ Fast-Setting, All-Purpose Repair Epoxy

3. ARDEX ARDISEAL™ RAPID PLUS Semi-Rigid Joint Sealant

4. ARDEX ARDIFIX™ Low Viscosity Rigid Polyurethane Crack and Joint Repair

D. ARDEX DIAMATIC ULTRAFLOR CONCRETE REPAIR AND TOPPING MATERIALS

1. For complete installation instructions and required tools, please refer to the individual ARDEX Technical Brochures available for each product.

2. For polishing instructions, please refer to the individual ULTRAFLOR ARDEX DIAMATIC specifications for each component.

3. Where a self-leveling topping material is needed for interior application prior to polishing, ARDEX DIAMA-TOP Polished Concrete Topping shall be installed (Gray or White).

4. Any pinholes that need to be filled shall be filled with ARDEX DIAMA-FILL™ Filling Compound for Polished Concrete, Concrete Terrazzo and Other Cementitious Wear Surfaces (Medium Gray, Beige, White or Black) applied at the appropriate time during the polishing process.

5. Where a thin coat interior or exterior smoothing application is required prior to polishing, ARDEX DIAMA-COAT™ Concrete Coating (gray) **or** ARDEX DIAMA-COAT FINE™ Concrete Coating shall be installed (white or gray)

6. Where a micro-finish is required for interior application prior to polishing, ARDEX DIAMA-SKIN™ Polished Concrete Finish shall be installed (white or gray)

7. Where interior or exterior patching is required prior to polishing, ARDEX DIAMA-PATCH™ Concrete Patch shall be installed.

8. Where less than 1/8” width crack repair is required prior to polishing, ARDEX ARDI-FIX shall be installed.

9. Where greater than 1/8” width crack repair is required prior to polishing, ARDEX ARDI-BOND AP shall be installed.

10. Where concrete control joints are required to be repaired prior to polishing, ARDEX ARDI-SEAL RAPID PLUS shall be installed.

E. DIAMATIC PROTECTION MATERIALS

1. To prevent minor damage from light trade traffic during build out of site, DIAMATIC PRIMO-COVER Protective Floor Covering or DIAMATIC ECONO-COVER Protective Floor Covering for the ULTRAFLOR ARDEX DIAMATIC Polished Concrete System shall be installed.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Inspect all concrete substrates and conditions under which the ULTRAFLOR ARDEX DIAMATIC Polished Concrete System to be installed.

B. Verify that all surfaces and site conditions are ready to receive work; document and correct conditions detrimental to timely and proper installation of work. Beginning work constitutes acceptance of substrate condition.

C. Verify that existing concrete has cured a minimum of 28 days and meets finish and surface profile requirements in Division 03 Section “Cast-In-Place Concrete,” before installing the ULTRAFLOR ARDEX DIAMATIC Polished Concrete System.

D. Conduct pre-installation conference, per Section 1.3 F.

3.02 PREPARATION

A. DEMOLITION

1. Clear surfaces of any debris and construction materials.

2. If a generator is not provided by the Installer, power connections for the equipment of the ULTRAFLOR ARDEX DIAMATIC Polished Concrete System shall be located and prepared by general contractor.

3. Prepare the existing concrete mechanically via scarification, shot blasting or other means, including diamond grinding by using aggressive, metal bonded DIAMATIC Polycrystalline diamonds (18/20 Grit or 30/40 Grit), to remove all contaminants and provide a sound concrete surface free of laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil and other contaminants.

4. Chemical preparation of the substrate is NOT acceptable, including but not limited to acid etching, sweeping compounds, solvents and adhesive removers.

5. Suppress dust during demolition with the use of dust collection equipment using HEPA/concrete filtration devices to reduce or eliminate airborne concrete and substrate dust.

6. Where existing concrete is cracked, damaged, spalled, not within specified tolerance, or contains unacceptable levels of alkalinity or moisture vapor, the Installer of the ULTRAFLOR ARDEX DIAMATIC Polished Concrete System will evaluate conditions and proceed with appropriate ULTRAFLOR System components.

B. CONCRETE REPAIR

1. Cracks (Indoor/Outdoor)

i. Crack repair shall be completed after the first metal bond diamond grind and floor cleaning.

1. Cracks to be repaired in the concrete surface shall be crack chased out on a high-speed angle grinder to a minimum depth of 3/8” and made to eliminate any feathered edges.

2. The edges of the crack may be taped or coated with ARDEX DIAMATIC FLOR-SIL to eliminate possible staining from repair material.

3. Clean out any dust or debris and then apply ARDEX ARDIBOND AP or ARDEX ARDIFIX to fill the crack chased areas. Read and follow ARDEX ARDIBOND AP or ARDEX ARDIFIX detailed instructions as outlined in the Technical Data Sheet.

4. All crack filling material shall be overfilled. Immediately after application of ARDEX ARDIBOND AP or ARDEX ARDIFIX, silica sand or the concrete grindings may be broadcast to rejection over the crack repair material. The silica or floor grindings will reduce the visibility of the repaired crack and take on a similar color and appearance to surrounding concrete when stained.

ii. Cracks smaller than 1/8” can be left as a part of the finished concrete, unless otherwise specified. Cracks shall be vacuumed to remove all loose debris and dirt.

iii. **OR** Cracks smaller than 1/8” can be filled with ARDEX ARDIFIX.

iv. Cracks greater than 1/8” shall be filled with ARDEX ARDIBOND AP.

v. Cracks shall be overfilled and broadcast to refusal with play sand or concrete shavings, and shall be subsequently ground down to the level of the concrete surface.

vi. All crack filling material shall installed and allowed to cure in strict accordance with the manufacturer’s recommendations before proceeding with the next step in the ULTRAFLOR process.

C. Spalls (Indoor/Outdoor)

1. Spall repair to be completed after the first metal bond diamond grind and floor cleaning, or prior to the beginning of the ULTRAFLOR process installation.

2. For complete installation details for spall repair materials, please refer to the ARDEX Technical Brochure.

3. For polishing instructions, please refer to the individual ULTRAFLOR ARDEX DIAMATIC specifications for each component.

4. Spalls up to 4” (10 cm) wide and 1” (2.5 cm) deep shall be filled with ARDEX DIAMA-PATCH. Allow a minimum of 16 to 24 hours drying time prior to beginning the ULTRAFLOR polishing process.

5. **OR** Spalls up to 4” (10 cm) wide and 1” (2.5 cm) deep can be filled with ARDEX ARDIBOND AP or ARDEX ARDIFIX. Overfill all applications and broadcast sand or concrete grindings to refusal so that they may be ground down to match the level of the concrete surface after dry time.

6. Spalls greater than 4” (10 cm) wide and 1” (2.5 cm) deep shall be filled with ARDEX DIAMA-PATCH. Allow a minimum of 16 to 24 hours drying time prior to beginning the ULTRAFLOR polishing process.

D. Large Area Concrete Repair (Indoor)

1. Where large area concrete repair is needed, ARDEX DIAMA-TOP shall be used in accordance with the information presented in the ARDEX Technical Brochure. For polishing instructions, please refer to the ARDEX DIAMA-TOP component specification.

E. Joint Fill (Indoor/Outdoor)

1. All joint fill materials shall be installed in accordance with the written recommendations provided in the ARDEX Technical Brochures.

2. If the joint filling will occur after the polishing process, apply ARDEX DIAMATIC FLOR- SIL or ARDEX DIAMATIC FLOR-HARD, tape, or soap to the edge of the concrete to keep the joint filler from staining the concrete.

3. Prior to filling joints, repair badly spalled joint edges per ACI 302.1R-04.

    i. Grind the outside edges of all spalls to eliminate any feathered edges and make sure that the minimum depth of the spall is ½". Mechanically prepare the joint area, and chip out any concrete less than ½" in depth.

    ii. Apply ARDEX ARDIBOND AP or ARDEX ARDIFIX to the spalled area using a putty knife to reform the edges and surface to the original shape.

4. Once the spalled areas are repaired, the entire joint and spall areas shall be filled with ARDEX ARDIBOND AP. Once cured, saw cut the joint to the original dimensions, and then clean the joint and fill with ARDEX ARDISEAL RAPID PLUS.

5. Slightly overfill the joint with enough material to shave flush with the concrete. If the level of the joint filler sinks down, immediately add enough product to over fill the joint. Shave the joint filler flush with the concrete with a shaving tool with a sharp blade. ARDISEAL RAPID PLUS can be shaved in 30 to 40 minutes at 70°F (21°C).

6. Remove all tape and/or soap from the surface around the joint.

7. MicroPolish the surface with appropriate grit DIAMATIC FLOR-GRIT pad.

3.02 GLOSS ATTAINMENT (ASTM E430)

A. Gloss readings are not to be obtained through the use of any microfilming products, sealers, coatings, enhancers or as the result of resin transfer from resin bond abrasives.

B. Readings shall be taken not less than 10' (3 m) on center in field areas and within 1' (0.3 m) of floor area perimeters. In no case shall a reading be below 2% of specified minimum sheen:

    1. Level B Sheen – Medium Gloss reading of 41 to 60.

C. For instructions on achieving gloss levels, refer to the appropriate sub-section of section 3.06 below.

3.04 POLISHING

A. Use the grinding and polishing steps outlines below to achieve the desired gloss level. Please note that when grinding and polishing a cross hatch pattern should be used.

B. Medium Gloss

1. GRIND/POLISH #1: 30/40 Grit Metal Bonded Diamonds.
2. Broom and vacuum the floor to remove all residual dust.
3. Concrete Repair Installation, as necessary.
4. If required, apply ARDEX DIAMA-FILL to concrete surface:
    i. Inspect concrete after the initial metal bond grind to determine if there are superficial pinholes.
    ii. For surfaces with a large number of pinholes, mix and apply a thin fill coat of ARDEX DIAMA-FILL to a properly cleaned surface after the initial metal bond grind.
    iii. Select the ARDEX DIAMA-FILL product from the medium gray, beige white or black color options that best match the existing concrete color.
    iv. Allow to dry for 16-24 hours before continuing to the next polishing step.
5. GRIND/POLISH #2: #0 Transitional Diamonds, Ceramic Bonded.
6. Broom and vacuum the floor to remove all residual dust.
7. GRIND/POLISH #3: 200 Grit Resin Bonded Diamonds.
8. Broom and vacuum the floor to remove all residual dust.
9. GRIND/POLISH #4: 400 Grit Resin Bonded Diamonds.
10. Broom and vacuum the floor to remove all residual dust.
11. Apply DIAMATIC FLOR-COLOR per application instructions at a rate of 400 square feet per gallon (Actual rates may vary due to concrete porosity).
12. Allow DIAMATIC FLOR-COLOR to dry before continuing on to the next step.
13. MICROPOLISH/BURNISH #1: FLOR-GRIT 800 Diamond Impregnated Pad
14. Dry mop the floor clean to remove all debris.
15. Apply ARDEX DIAMATIC FLOR-FINISH per application instructions at a rate of 2,000 square feet per gallon (Actual rates may vary due to concrete porosity).
16. Allow to dry a minimum of 15 minutes.
17. MICROPOLISH/BURNISH #2: FLOR-GRIT 1500 Diamond Impregnated Pad.
18. Dry mop the floor clean to remove all debris.
19. Apply ARDEX DIAMATIC FLOR-FINISH per application instructions at a rate of 2,500 square feet per gallon (Actual rates may vary due to concrete porosity).

20. Allow to dry a minimum of 15 minutes.

21. MICROPOLISH/BURNISH #3: FLOR-GRIT 3000 Diamond Impregnated Pad.

3.05 EDGES

A. Where desired, polished edge work of ARDEX DIAMA-TOP shall be done with a 5" or 7" DIAMATIC Hand Held or Walk Behind polishing tool. The edge polishing process will match the corresponding steps outlined above for the desired gloss level, and each edge polishing step shall be done immediately after the matching main polishing step.

B. For polishing standard concrete edges, please refer to the main specification.

C. NOTE: All grinding and polishing completed with grinder/polisher equipment connected to a dust collector.

3.06 ACCEPTANCE

A. Remove all installation materials and any foreign materials resulting from the installation, from the site.

B. Clean adjacent surfaces and materials.

C. Perform post job walk to ensure that the ULTRAFLOR ARDEX Concrete System has been completed per the process spec.

D. Take pictures of final product for documentation and submittal, if requested or required.

3.07 PROTECTION

A. Prevent any spills or stains from coming into contact with the floor. Clean any spills that may occur as quickly as possible.

B. **Avoid moisture for 72 hours after installation.** Don't permit standing water for this period or place any protective plastic sheeting, rubber matting, rugs or furniture that can prevent proper drying, thereby trapping moisture, which can result in a cloudy effect on the floor.

C. Light pedestrian use only in the 24 hours after installation. Normal traffic recommended 14 days after completion of ULTRAFLOR ARDEX DIAMATIC Concrete Topping System.

D. Protect the finished ULTRAFLOR ARDEX DIAMATIC Polished Concrete System from continuing construction and build out as needed by installing the DIAMATIC PRIMO-COVER Protective Floor Covering or DIAMATIC ECONO-COVER Protective Floor Covering.

1. The installation of the DIAMATIC Protective Covering must be approved by the Installer and General Contractor of the ULTRAFLOR installation.

2. If the DIAMATIC Protective Cover is damaged during use, then that section must be cut out and replaced to maintain the integrity of the protective covering.

3. The DIAMATIC Protective Cover can be removed after build out is complete.

3.08 ONGOING MAINTENANCE

A. IMPORTANT NOTICE: Maintaining the ULTRAFLOR ARDEX DIAMATIC Polished Concrete System and adherence to a recommended cleaning schedule will help the floor hold its mechanically polished gloss longer and greatly reduces the absorption of spilled liquids. The treated concrete floor is easily maintained by regular cleaning with the Maintenance/Post Cleaning procedure, accompanied by Micro-Polishing.

B. Newly Installed ULTRAFLOR ARDEX DIAMATIC Polished Concrete System

1. **Restrict water cleaning for 72 hours after installation of ULTRAFLOR.** Use only a dry mop to clean. Avoid putting mats or covering treated surface to allow coating to fully cure out.

2. DO NOT USE cleaners that are acidic or that have citrus (de-limonene) or Butyl compounds. Although the ULTRAFLOR ARDEX DIAMATIC Polished Concrete System is chemical and stain resistant, the application of these high acid cleaners may etch the surface and cause a residual stain. Regular maintenance and cleaning will help prolong surface shine.

C. Daily Maintenance and Cleaning

1. Once the system is fully cured out (min. 72 hours), routinely sweep, dry mop and wash with neutral pH cleaners or water using a mechanical auto scrubber with vacuum to pick up any residual standing water.

2. DO NOT USE cleaners that are acidic or that have citrus (de-limonene) or Butyl compounds. Although the ULTRAFLOR ARDEX DIAMATIC Polished Concrete System is chemical and stain resistant, the application of these high acid cleaners may etch the surface and cause a residual stain. Regular maintenance and cleaning will help prolong surface shine.

D. Bi-Monthly or Monthly Cleaning (dependent upon floor wear and traffic)

1. Follow the daily maintenance process.

2. Apply DIAMATIC FLOR-MAINTAINER diluted with parts water using a DIAMATIC CONDOR APPLICATOR or microfiber pad at a coverage rate of 8000 to 10000 square feet per gallon.

3. Burnish/MicroPolish with DIAMATIC FLOR-GRIT 3000 diamond impregnated pad.

4. Dry mop to remove any debris.

5. DO NOT USE cleaners that are acidic or that have citrus (de-limonene) or Butyl compounds. Although the ULTRAFLOR ARDEX DIAMATIC Polished Concrete System is chemical and stain resistant, the application of these high acid cleaners may etch the surface and cause a residual stain. Regular maintenance and cleaning will help prolong surface shine.

E. ULTRAFLOR Rejuvenation (recommended application every 1 to 2 years depending upon floor wear and traffic)

1. Follow the daily maintenance process.

2. Application of ARDEX DIAMATIC FLOR-FINISH applied with Condor applicator or microfiber pads. Follow manufacture application instructions.

3. Burnish/MicroPolish with DIAMATIC FLOR-GRIT 3000 diamond impregnated pad.

4. Dry mop to remove any debris.

5. DO NOT USE cleaners that are acidic or that have citrus (de-limonene) or Butyl compounds. Although the ULTRAFLOR ARDEX DIAMATIC Polished Concrete System is chemical and stain resistant, the application of these high acid cleaners may etch the surface and cause a residual stain. Regular maintenance and cleaning will help prolong surface shine.

END OF SECTION

SECTION 04 21 00

CLAY UNIT MASONRY

PART 1 GENERAL

1.01 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 general requirements apply to this section.

1.1 SUMMARY

A. Section Includes thin brick units and related materials

1. Thin Brick
2. Mortar
3. Cleaning
4. Embedded Flashing
5. Weepholes/Vents
6. Expansion Joints
7. Metal Lath
8. Fasteners

B. Related Sections

1. Division 03 Section – "Cast-in-Place Concrete"
2. Division 03 Section – "Precast Concrete"
3. Division 04 Section – "Unit Masonry"
4. Division 05 Section – "Structural Metal Framing"
5. Division 05 Section – "Cold Form Metal Framing"
6. Division 05 Section – "Metal Fabrications"
7. Division 06 Section – "Rough Carpentry"
8. Division 06 Section – "Sheathing"
9. Division 07 Section – "Damp proofing and Waterproofing"
10. Division 07 Section – "Thermal Protection"
11. Division 07 Section – "Flashing and Sheet Metal"
12. Division 07 Section – "Joint Protection"
13. Division 08 Section – "Wall Vents"
14. Division 09 Section – "Plaster and Gypsum Board"
15. Division 09 Section – "Tile"

1.2 REFERENCES

A. ASTM A 240 – Standard Specification for Chromium and Chromium Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications

B. ASTM A 653 – Standard Specification for Steel Sheet, Zinc Coated (Galvanized) or Zinc Iron Alloy Coated (Galvannealed) by the Hot Dip Process

C. ASTM A 925 – Standard Specification for Zinc 5% Aluminum Mischmetal Alloy Coated Steel Overhead Ground Wire Strand

D. ASTM C 67 – Standard Test Methods for Sampling and Testing Brick and Structural Clay Tile

E. ASTM C 270 – Standard Specification for Mortar for Unit Masonry

F. ASTM C 847 – Standard Specification for Metal Lath

G. ASTM C 1063 – Standard Specification for Installation of Lathing and Furring to Receive Interior and Exterior Portland Cement Based Plaster

H. ASTM C 1088 – Standard Specification for Thin Veneer Brick Units Made From Clay or Shale

I. ASTM C 1330 – Standard Specification for Preblended Dry Mortar Mix for Unit Masonry

J. ASTM D 226 – Standard Specification for Asphalt Saturated Organic Felt Used in Roofing and Waterproofing

K. ASTM D 1056 – Standard Specification for Flexible Cellular Materials—Sponge or Expanded Rubber

L. TMS 602/ACI 530.1/ASCE 6 – Specifications for Masonry Structures

1.3 SUBMITTALS

A. Submit under provisions of Section 013000

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. Shop Drawings

1. Indicate masonry sizes, layout, patterns, corbels, racking, coursing, color arrangement, perimeter conditions, shape requirements and location, junctions with dissimilar materials, connections, and other related components.

2. Locate and detail expansion and control joints.

D. Samples: Furnish not less than five individual thin brick as samples for each thin brick specified, showing extreme variations in color and texture.

1.4 QUALITY ASSURANCE

A. Masonry Standard: Comply with TMS 602/ACI 530.1/ASCE 6 unless modified by requirements in the Contract Documents.

B. Comply with all applicable codes, regulations, and standards. Where provision of applicable codes, regulations, and standards conflict with requirements of this section, the more demanding shall govern.

C. Manufacturer Qualifications:

1. Obtain materials from one manufacturer to ensure compatibility.

2. Obtain materials from company specializing in manufacturing products specified in this section with a minimum 5 years documented experience.

D. Installer Qualifications:

1. Proof of a minimum of five years experience with related thin masonry installations.

2. At least one supervisory journeyman who shall be present at all times during execution

of work, who shall be thoroughly familiar with design requirement, type of materials being installed, reference standards and other requirements, and who shall direct all work performed at jobsite.

E. Material Certificates: Prior to delivery, submit to Architect/Engineer certificates indicating compliance with the applicable specifications for Thin Brick Grades, Types or Classes included in these specifications.

F. Thin Brick Test Reports: Submit test reports substantiating compliance with requirements: Sample and test in accordance with ASTM C 67.

1. Testing and reports shall be completed by an independent laboratory.

a. Test reports for each type of thin brick shall be submitted to the Architect/Engineer for review.

b. Thin Brick Test reports shall indicate:

1) 2-hour cold water absorption
2) 5-hour boil absorption
3) Saturation coefficient
4) Initial rate of absorption
5) Efflorescence

G. Costs of Tests: Cost of tests shall be borne by the purchaser, unless tests indicate that units do not conform to the requirements of the specifications, in which case cost shall be borne by the seller.

H. Shop drawings: Submit individual drawings to be approved by architect for special shaped thin brick units.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store products in dry location in manufacturer's unopened packaging until ready for installation.

B. Store all materials off the ground to prevent contamination by mud, dust or other materials likely to cause staining or other defects.

C. Protect materials from contamination, dampness, freezing, or overheating in accordance with manufacturer's instructions.

D. Store different types of materials separately.

1.6 PROJECT CONDITIONS

A. Comply with requirements of referenced standards and recommendations of material manufacturers for environmental conditions before, during, and after installation.

B. Protection of Work:

1. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by material manufacturers for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

2. Stain Prevention:

a. Prevent grout or mortar from staining the face of masonry.

b. Remove immediately grout or mortar in contact with face of such masonry.

c. Protect all sills, ledges and projections from droppings of mortar.

d. Protect the wall from rain-splashed mud and mortar splatter by spreading coverings on ground and over wall surface.

e. Turn scaffold boards closest to the wall on edge when work is not in progress to prevent rain from splashing mortar and dirt onto masonry.

C. Cold Weather Requirements:

1. Do not use frozen materials or materials mixed or coated with ice or frost.

2. Do not build on frozen substrates.

3. Remove and replace unit masonry damaged by frost or by freezing conditions.

4. Comply with cold-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.

D. Hot Weather Requirements:

1. Comply with hot-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.

2. Protect mortar from uneven and excessive evaporation.

a. The face of the installed thin brick may be dampened with water prior mortar installation to reduce the absorption of moisture from the mortar joint and increase bond.

b. Veneer may be fogged with water to allow the mortar enough time to set. Apply only enough moisture to consistently dampen the wall without allowing water to run down the face.

PART 2: PRODUCTS

2.1 MASONRY UNITS, GENERAL

A. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other defects exceeding limits stated in the standard. Do not install units where such defects will be exposed in the completed work.

2.2 MANUFACTURERS

A. Acceptable Manufacturer: Glen-Gery Corporation located at 1166 Spring Street • P.O. Box 7001, Wyomissing, PA 19610 Tel: 610-562-3076 • Web: www.glengery.com

B. Substitutions: Not permitted.

2.3 CLAY MASONRY UNITS

A. General: Provide shapes indicated and as follows:

1. Provide special shapes for applications where flats (stretcher units) cannot accommodate special conditions, including those at corners, movement joints, bond beams, sashes, shelf angles and lintels. Mitered units shall not be used at standard corners.

2. Provide special shapes for applications requiring thin brick of size, form, color, and texture on exposed surfaces that cannot be produced by sawing.

3. Provide special shapes for applications where shapes produced by sawing would result in sawed surfaces being exposed to view.

B. All Thin Brick specified and shown on drawings as manufactured by the Glen-Gery Corporation.

1. Thin Brick: ASTM C 1088, Grade Exterior

1) Modular Size: 2-1/4" (57.2 mm) high, 7-5/8" (193.7 mm) long

C. Provide thin brick similar in texture, color and physical properties to those available for inspection at the Architect/Engineer's office and/or as supplied on the approved sample panel.

2.4 MORTAR

A. Mortar for thin brick

1. Mortar shall conform to ASTM C 270 Standard Specification for Mortar for Unit Masonry under the guidelines provided in BIA Technical Notes #8 Series.

B. Cold Weather Additives (including accelerators) shall not be used in thin brick mortar mix.

2.5 MASONRY CLEANERS

A. Proprietary Acidic Cleaner: Manufacturer's standard-strength cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from new masonry without discoloring or damaging masonry surfaces. Use product expressly approved for intended use by manufacturer of masonry units being cleaned..

1. Diedrich Technologies, Inc.

a. 202 New Masonry Detergent

b. 202V Vana-Stop®

2.6 RELATED MATERIALS

A. Embedded Flashing Materials

1. Metal Flashing: Provide metal flashing ***[, where flashing is exposed or partly exposed and where indicated,]*** complying with Division 07 Section "Sheet Metal Flashing and Trim".

a. Stainless Steel: ASTM A 240/A 240M, Type 304, 0.016" (0.40 mm) thick (minimum).

b. Copper: ASTM B 370, Temper H00, cold-rolled copper sheet, 16-oz./sq. ft. (4.9-kg/sq. m) weight or 0.0216" (0.55 mm) thick or ASTM B 370, Temper H01, high-yield copper sheet, 12-oz./sq. ft. (3.7-kg/sq. m) weight or 0.0162" (0.41 mm) thick.

c. Galvanized Sheet Steel: ASTM A653 0.024" (0.61 mm) (24-gauge) thick (minimum), with minimum ASTM A925 G-60 coating.

d. Fabricate through-wall flashing with drip edge ***[where] [unless otherwise]*** indicated.

Fabricate by extending flashing 1/2" (13 mm) out from wall, with outer edge bent down 30 degrees and hemmed.

2. Flexible Flashing:

a. Rubberized-Asphalt Flashing: Composite flashing product consisting of a pliable, adhesive rubberized-asphalt compound, bonded to a high-density, cross-laminated polyethylene film to produce an overall thickness of not less than *[0.030" (0.76 mm)]*.

b. Elastomeric Thermoplastic Flashing: Composite flashing product consisting of a polyester-reinforced ethylene interpolymer alloy as follows:

1) Monolithic Sheet: Elastomeric thermoplastic flashing, 0.040" (1.0 mm) thick.

2) Self-Adhesive Sheet: Elastomeric thermoplastic flashing, 0.025" (0.6 mm) thick, with a 0.015"- (0.4-mm-) thick coating of rubberized-asphalt adhesive.

c. Adhesives, Primers, and Seam Tapes for Flashings: Flashing manufacturer's standard products or products recommended by flashing manufacturer for bonding flashing sheets to each other and to substrates.

B. Weepholes/Vents

1. Glen-Gery Thin Tech® air vent: Impact resistant polypropylene copolymer, Density 2000 grams/sq meter. Size: 3/8". (10 mm) x 1/2". (13 mm) x 4'. (122 cm).

C. Expansion Joints

1. Compressible Filler: pre-molded filler strips complying with ASTM D 1056, Type 2, Class A, Grade 1 formulated from
[neoprene] [urethane] [or] [PVC].

2. Backer Rod: Non-gassing polyethylene or flexible polyurethane foam rod 25% wider than width of joint to be filled.

D. Weather Barriers: Provide material as designated in Division 7.

1. Provide a minimum protection equal to No.15 asphalt felt, complying with ASTM D 226 for Type 1 felt or other approved materials.

PART 3: EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates and foundations as well as rough-in and built-in construction have been properly prepared.

1. Walls must be structurally sound and the substrate system designed with a wall deflection not greater than L/360.

B. Verify substrate including, concrete, masonry or framing as well as sheathings, water resistant barriers are properly installed.

C. If substrate, foundations or flashings are the responsibility of another installer, notify Architect and General contractor of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation. All surfaces must be free of water, snow, dirt,

mud, oil and other foreign materials prior to application.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

C. Trim or flash in place per manufacturer's details and/or BIA Technical Note 7A on flashing of Brick Walls.

3.3 INSTALLATION

A. Install Glen-Gery Thin Brick in accordance with manufacturers written installation instructions.

B. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement joints, returns, and offsets.

1. Avoid using less-than-half-size units, particularly at corners and jambs.

2. Ensure unfinished or cut faces are not exposed to view upon completion.

C. Select and arrange exposed masonry units to produce a uniform blend of color and texture.

1. Mix units from several pallets or cubes as they are placed.

D. Lay masonry in bond pattern as indicated on drawings or general notes.

E. Comply with tolerances in TMS 602/ACI 530.1/ASCE 6.

3.7 CLEANING

A. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove adhesive ass well as mortar fins and smears before tooling joints.

B. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:

1. Cut out all defective mortar joints and holes in exposed masonry and provide new mortar.

2. Clean preselected sample wall area with specified cleaning solution as per manufacturer's recommendations. Do not proceed with cleaning until approved by Architect.

3. Clean thin brick in accordance with manufacturer's written instructions.

4. Protect adjacent stone and non-masonry surfaces from contact with cleaner by covering them with liquid strippable masking agent or polyethylene film and waterproof masking tape.

5. All cleaning practices and product used shall be in accordance with cleaning products manufacturer's written instructions.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify adequacy of backing and support framing.

3.02 INSTALLATION

A. Install work in accordance with AWI/AWMAC/WI (AWS) requirements for grade indicated.

B. Set and secure materials and components in place, plumb and level.

C. Carefully scribe work abutting other components, with maximum gaps of 1/32 inch (0.79 mm). Do not use additional overlay trim to conceal larger gaps.

D. Install components using finish screws or nails at the option of the contractor.

3.03 TOLERANCES

A. Maximum Variation from True Position: 1/16 inch (1.6 mm).

B. Maximum Offset from True Alignment with Abutting Materials: 1/32 inch (0.79 mm).

END OF SECTION

SECTION 05 50 00
METAL FABRICATIONS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Shop fabricated steel items, including: roof ladder, dumpster gates (large), personnel dumpster access gate, bollards, and gate bollards.

1.02 REFERENCE STANDARDS

A. ANSI A14.3 - American National Standard for Ladders -- Fixed -- Safety Requirements; 2008.

B. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2012.

C. SSPC-Paint 15 - Steel Joist Shop Primer; Society for Protective Coatings; 1999 (Ed. 2004).

1.03 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable.

PART 2 PRODUCTS

2.01 MATERIALS - STEEL

A. Pipe: ASTM A53/A53M, Grade B Schedule 40, black finish.

B. Shop and Touch-Up Primer: SSPC-Paint 15, complying with VOC limitations of authorities having jurisdiction.

2.02 FABRICATION

A. Fit and shop assemble items in largest practical sections, for delivery to site.

B. Fabricate items with joints tightly fitted and secured.

C. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.

D. Exposed Mechanical Fastenings: Flush countersunk screws or bolts; unobtrusively located; consistent with design of component, except where specifically noted otherwise.

E. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

2.03 FABRICATED ITEMS

A. Ladders: Steel; in compliance with ANSI A14.3; with mounting brackets and attachments; prime paint finish.
   1. Side Rails: 3/8 x 2 inches (9 x 50 mm) members spaced at 20 inches (500 mm).
   2. Rungs: one inch (25 mm) diameter solid round bar spaced 12 inches (300 mm) on center.
   3. Space rungs 7 inches (175 mm) from wall surface.

B. Bollards: Steel pipe, concrete filled, crowned cap, as detailed; prime paint finish.

2.04 FINISHES - STEEL

A. Prime paint all steel items.

B. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.

C. Prime Painting: One coat.

2.05 FABRICATION TOLERANCES

A. Squareness: 1/8 inch (3 mm) maximum difference in diagonal measurements.

B. Maximum Offset Between Faces: 1/16 inch (1.5 mm).

C. Maximum Misalignment of Adjacent Members: 1/16 inch (1.5 mm).

D. Maximum Bow: 1/8 inch (3 mm) in 48 inches (1.2 m).

E. Maximum Deviation From Plane: 1/16 inch (1.5 mm) in 48 inches (1.2 m).

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field conditions are acceptable and are ready to receive work.

3.02 INSTALLATION

A. Install items plumb and level, accurately fitted, free from distortion or defects.

B. Provide for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.

C. Obtain approval prior to site cutting or making adjustments not scheduled.

D. After erection, prime welds, abrasions, and surfaces not shop primed, except surfaces to be in contact with concrete.

END OF SECTION

SECTION 06 10 00
ROUGH CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Sheathing.

B. Preservative treated wood materials.

C. Concealed wood blocking, nailers, and supports.

1.02 REFERENCE STANDARDS

A. ASTM C1396/C1396M - Standard Specification for Gypsum Board; 2014.

B. AWPA U1 - Use Category System: User Specification for Treated Wood; American Wood Protection Association; 2012.

C. PS 1 - Structural Plywood; 2009.

D. PS 20 - American Softwood Lumber Standard; National Institute of Standards and Technology, Department of Commerce; 2010.

1.03 DELIVERY, STORAGE, AND HANDLING

A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.
   1. If no species is specified, provide any species graded by the agency specified; if no grading agency is specified, provide lumber graded by any grading agency meeting the specified requirements.
   2. Grading Agency: Any grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee (www.alsc.org) and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.

B. Lumber fabricated from old growth timber is not permitted.

2.02 DIMENSION LUMBER FOR CONCEALED APPLICATIONS

A. Sizes: Nominal sizes as indicated on drawings, S4S.

B. Moisture Content: S-dry or MC19.

C. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:
   1. Lumber: S4S, No. 2 or Standard Grade.
   2. Boards: Standard or No. 3.

2.03 CONSTRUCTION PANELS

A. Wall Sheathing: Plywood, PS 1, Grade C-D, Exposure I.

B. Wall Sheathing: Gypsum, complying with requirements of ASTM C1396/C1396M for gypsum sheathing, V-shaped long edges, 1/2 inch (12.5 mm).

2.04 FACTORY WOOD TREATMENT

A. Treated Lumber and Plywood: Comply with requirements of AWPA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.
   1. Preservative-Treated Wood: Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWPA standards.

B. Preservative Treatment:

1. Preservative Pressure Treatment of Lumber Above Grade: AWPA U1, Use Category UC3B, Commodity Specification A using waterborne preservative to 0.25 lb/cu ft (4.0 kg/cu m) retention.
    a. Kiln dry lumber after treatment to maximum moisture content of 19 percent.
    b. Treat lumber exposed to weather.
    c. Treat lumber in contact with roofing, flashing, or waterproofing.
    d. Treat lumber in contact with masonry or concrete.

PART 3 EXECUTION

3.01 PREPARATION

A. Where wood framing bears on cementitious foundations, install full width sill flashing continuous over top of foundation, lap ends of flashing minimum of 4 inches (100 mm) and seal.

3.02 INSTALLATION - GENERAL

A. Select material sizes to minimize waste.

B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.

C. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.

3.03 BLOCKING, NAILERS, AND SUPPORTS

A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.

B. In metal stud walls, provide continuous blocking around door and window openings for anchorage of frames, securely attached to stud framing.

C. In walls, provide blocking attached to studs as backing and support for wall-mounted items, unless item can be securely fastened to two or more studs or other method of support is explicitly indicated.

D. Specifically provide the following non-structural framing and blocking:
    1. Cabinets and shelf supports
    2. Wall brackets.
    3. Grab bars.
    4. Towel and bath accessories.
    5. Wall mounted door stops.

3.04 INSTALLATION OF CONSTRUCTION PANELS

A. Wall Sheathing: Secure with long dimension perpendicular to wall studs, with ends over firm bearing and staggered, using nails, screws, or staples.

3.05 CLEANING

A. Waste Disposal: Comply with the requirements of Section 01 74 19.
    1. Comply with applicable regulations.
    2. Do not burn scrap on project site.
    3. Do not burn scraps that have been pressure treated.
    4. Do not send materials treated with pentachlorophenol, CCA, or ACA to co-generation facilities or “waste-to-energy” facilities.

B. Do not leave any wood, shavings, sawdust, etc. on the ground or buried in fill.

C. Prevent sawdust and wood shavings from entering the storm drainage system.

END OF SECTION

SECTION 06 20 00
FINISH CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Finish carpentry items.

B. Wood door frames, glazed frames.

C. Wood casings and moldings.

D. Exterior wood columns.

1.02 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Shop Drawings: Indicate materials, component profiles, fastening methods, jointing details, and accessories.
   1. Provide the information required by AWI/AWMAC/WI (AWS).

1.03 QUALITY ASSURANCE

A. Fabricator Qualifications: Company specializing in fabricating the products specified in this section with minimum five years of documented experience.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Protect work from moisture damage.

PART 2 PRODUCTS

2.01 FINISH CARPENTRY ITEMS

A. Quality Grade: Unless otherwise indicated provide products of quality specified by AWI/AWMAC/WI (AWS) for Premium Grade.

B. Woodwork Items:
   1. Exterior Doors and Interior Doors: Oak; prepare for stain finish.
   2. Molding, Bases, Chair Rail, Casisngs, and Miscellaneous Trim: Southern Yellow Pine; prepare for stain finish.
   3. Exterior Wood Columns: Ponderosa Pine Vigas; prepare for stain finish.
   4. Exposed wood decking; Southern yellow pine. 1x6 V grooved tongue and groove boards; prepare for stain finish.
   5. Interior wood vigas: Ponderosa Pine Vigas, prepare for stain finish.

2.02 WOOD-BASED COMPONENTS

A. Wood fabricated from old growth timber is not permitted.

2.03 ACCESSORIES

A. Lumber for Shimming, and : blocking Softwood lumber of pine species.

B. Wood filler: Solvent base, tinted to match surface finish color.

C. Wood Filler: Solvent base, tinted to match surface finish color.

2.04 FABRICATION

A. Shop assemble work for delivery to site, permitting passage through building openings.

B. When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide trim for scribing and site cutting.

2.05 SHOP FINISHING

A. Sand work smooth and set exposed nails and screws.

B. Apply wood filler in exposed nail and screw indentations.

C. On items to receive transparent finishes, use wood filler that matches surrounding surfaces and is of type recommended for the applicable finish.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify adequacy of backing and support framing.

3.02 INSTALLATION

A. Install work in accordance with AWI/AWMAC/WI (AWS) requirements for grade indicated.

B. Set and secure materials and components in place, plumb and level.

C. Carefully scribe work abutting other components, with maximum gaps of 1/32 inch (0.79 mm). Do not use additional overlay trim to conceal larger gaps.

D. Install components using finish screws or nails at the option of the contractor.

3.03 TOLERANCES

A. Maximum Variation from True Position: 1/16 inch (1.6 mm).

B. Maximum Offset from True Alignment with Abutting Materials: 1/32 inch (0.79 mm).

END OF SECTION

SECTION 06 41 00
ARCHITECTURAL WOOD CASEWORK

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Specially fabricated cabinet units.

B. Countertops.

C. Cabinet hardware.

D. Factory finishing.

E. Preparation for installing utilities.

1.02 RELATED REQUIREMENTS

A. Section 08 80 00 - Glazing: Glass for casework.

B. Section 09 90 00 - Painting and Coating: Site finishing of cabinet exterior.

1.03 REFERENCE STANDARDS

A. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards; 2009.

B. NEMA LD 3 - High-Pressure Decorative Laminates; National Electrical Manufacturers Association; 2005.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene a preinstallation meeting not less than one week before starting work of this section; require attendance by all affected installers.

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Indicate materials, component profiles, fastening methods, jointing details, and accessories.

C. Product Data: Provide data for hardware accessories.

D. Samples: Submit actual samples of architectural cabinet construction, minimum 12 inches (300 mm) square, illustrating proposed cabinet, countertop, and shelf unit substrate and finish.

E. Samples: Submit actual sample items of proposed pulls, hinges, shelf standards, and locksets, demonstrating hardware design, quality, and finish.

1.06 QUALITY ASSURANCE

A. Fabricator Qualifications: Company specializing in fabricating the products specified in this section with minimum five years of documented experience.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Protect units from moisture damage.

1.08 FIELD CONDITIONS

A. During and after installation of custom cabinets, maintain temperature and humidity conditions in building spaces at same levels planned for occupancy.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Single Source Responsibility: Provide and install this work from single fabricator.

2.02 CABINETS

A. Quality Grade: Unless otherwise indicated provide products of quality specified by AWI//AWMAC/WI Architectural Woodwork Standards (AWS) for Premium Grade.

B. Wood Veneer Faced Cabinet: Premium Grade.

C. Cabinets at Bar:

1. Finish - Exposed Exterior Surfaces: Wood.
2. Finish - Exposed Interior Surfaces: Wood.
3. Door and Drawer Front Edge Profiles: Square edge with thin applied band.
4. Cabinet Design Series: As indicated on drawings.
5. Adjustable Shelf Loading: 50 lbs. per sq. ft..
6. Cabinet Style: Flush overlay.
7. Cabinet Doors and Drawer Fronts: Flush style.

2.03 WOOD-BASED COMPONENTS

A. Wood fabricated from old growth timber is not permitted.

B. Hardwood Edgebanding: Use solid hardwood edgebanding matching species, color, grain, and grade for exposed portions of cabinetry.

2.04 LAMINATE MATERIALS

A. Manufacturers:
1. Wilsonart International, Inc: www.wilsonart.com.
2. Substitutions: See Section 01 60 00 - Product Requirements.

B. High Pressure Decorative Laminate (HPDL): NEMA LD 3, types as recommended for specific applications.

C. Color: To be chosen from full range of colors.

2.05 COUNTERTOPS

A. Bar Countertops and vertical surfaces:
1. Corian Quartz – Night Soapstone matte 2cm thick

B. Plastic Laminate Countertops: Medium density fiberboard substrate covered with HPDL, conventionally fabricated and self-edge banded.

2.06 ACCESSORIES

A. Adhesive: Type recommended by fabricator to suit application.

B. Vinyl Countertop Edge: PVC anchor type tee-molding edging in width to match thickness of countertop, color as scheduled, used at locations as indicated.

2.07 HARDWARE

A. Adjustable Shelf Supports: Standard side-mounted system using surface mounted metal shelf standards or multiple holes for pin supports and coordinated self rests, polished chrome finish, for nominal 1 inch (25 mm) spacing adjustments.

B. Catches: Magnetic.

C. Hinges: European style concealed self-closing type, steel with polished finish.

2.08 SITE FINISHING MATERIALS

A. Stain, Shellac, Varnish and Finishing Materials: As specified in Section 09 90 00.

2.09 FABRICATION

A. Assembly: Shop assemble cabinets for delivery to site in units easily handled and to permit passage through building openings.

B. Edging: Fit shelves, doors, and exposed edges with specified edging. Do not use more than one piece for any single length.

C. Fitting: When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide matching trim for scribing and site cutting.

D. Plastic Laminate: Apply plastic laminate finish in full uninterrupted sheets consistent with manufactured sizes. Fit corners and joints hairline; secure with concealed fasteners. Slightly bevel arises. Locate counter butt joints minimum 2 feet (600 mm) from sink cut-outs.

E. Matching Wood Grain: Comply with requirements of quality standard for specified Grade and as follows:

F. Mechanically fasten back splash to countertops as recommended by laminate manufacturer at 16 inches (400 mm) on center.

G. Provide cutouts for plumbing fixtures. Verify locations of cutouts from on-site dimensions. Prime paint cut edges.

2.10 SHOP FINISHING

A. Sand work smooth and set exposed nails and screws.

B. For opaque finishes, apply wood filler in exposed nail and screw indentations and sand smooth.

C. On items to receive transparent finishes, use wood filler matching or blending with surrounding surfaces and of types recommended for applied finishes.

D. Finish work in accordance with AWI/AWMAC/WI Architectural Woodwork Standards (AWS), Section 5 - Finishing for Grade specified and as follows:

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify adequacy of backing and support framing.

B. Verify location and sizes of utility rough-in associated with work of this section.

3.02 INSTALLATION

A. Set and secure custom cabinets in place, assuring that they are rigid, plumb, and level.

B. Use fixture attachments in concealed locations for wall mounted components.

C. Use concealed joint fasteners to align and secure adjoining cabinet units.

D. Carefully scribe casework abutting other components, with maximum gaps of 1/32 inch (1 mm). Do not use additional overlay trim for this purpose.

E. Secure cabinets to floor using appropriate angles and anchorages.

F. Countersink anchorage devices at exposed locations. Conceal with solid wood plugs of species to match surrounding wood; finish flush with surrounding surfaces.

G. Site glaze glass materials using the Interior Dry method specified in Section 08 80 00.

3.03 ADJUSTING

A. Test installed work for rigidity and ability to support loads.

B. Adjust moving or operating parts to function smoothly and correctly.

3.04 CLEANING

A. Clean casework, counters, shelves, hardware, fittings, and fixtures.

END OF SECTION

SECTION 07 21 00
THERMAL INSULATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Batt insulation and vapor retarder in exterior wall, ceiling, and roof construction.

B. Batt insulation for filling perimeter window and door shim spaces and crevices in exterior wall and roof.

1.02 REFERENCE STANDARDS

A. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2012.

B. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2014.

C. ASTM E136 - Standard Test Method for Behavior of Materials in a Vertical Tube Furnace At 750 Degrees C; 2012.

1.03 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on product characteristics, performance criteria, and product limitations.

C. Manufacturer's Installation Instructions: Include information on special environmental conditions required for installation and installation techniques.

D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

1.04 FIELD CONDITIONS

A. Do not install insulation adhesives when temperature or weather conditions are detrimental to successful installation.

PART 2 PRODUCTS

2.01 MANUFACTURERS

2.02 APPLICATIONS

A. Insulation in Metal Framed Walls: Batt insulation with separate vapor retarder.

2.03 BATT INSULATION MATERIALS

A. Glass Fiber Batt Insulation: Flexible preformed batt or blanket, complying with ASTM C665; friction fit.
   1. Flame Spread Index: 25 or less, when tested in accordance with ASTM E84.
   2. Smoke Developed Index: 450 or less, when tested in accordance with ASTM E84.
   3. Combustibility: Non-combustible, when tested in accordance with ASTM E136, except for facing, if any.
   4. Formaldehyde Content: Zero.
   5. Thermal Resistance: R of 19 (____).
   6. Facing: Unfaced.
   7. Manufacturers:
      a. CertainTeed Corporation: www.certainteed.com.
      b. Johns Manville Corporation: www.jm.com.
      c. Owens Corning Corp: www.owenscorning.com.
   8. Substitutions: See Section 01 60 00 - Product Requirements.

2.04 ACCESSORIES

A. Tape: Bright aluminum self-adhering type, mesh reinforced, 2 inch (50 mm) wide.

B. Insulation Fasteners: Impaling clip of unfinished steel with washer retainer and clips, to be adhered to surface to receive insulation, length to suit insulation thickness and substrate, capable of securely and rigidly fastening insulation in place.

C. Nails or Staples: Steel wire; electroplated or galvanized; type and size to suit application.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that substrate, adjacent materials, and insulation materials are dry and that substrates are ready to receive insulation and adhesive.

B. Verify substrate surfaces are flat, free of honeycomb, fins, irregularities, or materials or substances that may impede adhesive bond.

3.02 BATT INSTALLATION

A. Install insulation and vapor retarder in accordance with manufacturer's instructions.

B. Install in exterior wall and roof spaces without gaps or voids. Do not compress insulation.

C. Trim insulation neatly to fit spaces. Insulate miscellaneous gaps and voids.

D. Fit insulation tightly in cavities and tightly to exterior side of mechanical and electrical services within the plane of the insulation.

E. Staple or nail facing flanges in place at maximum 6 inches (150 mm) on center.

F. Tape seal butt ends, lapped flanges, and tears or cuts in membrane.

G. At metal framing, place vapor retarder on warm side of insulation; lap and seal sheet retarder joints over member face.

H. Tape seal tears or cuts in vapor retarder.

I. Extend vapor retarder tightly to full perimeter of adjacent window and door frames and other items interrupting the plane of the membrane. Tape seal in place.

J. Coordinate work of this section with requirements for vapor retarder specified in Section 07 25 00.

K. Coordinate work of this section with construction of air barrier seal specified in Section 07 25 00.

3.03 PROTECTION

A. Do not permit installed insulation to be damaged prior to its concealment.

END OF SECTION

SECTION 07 25 00
WEATHER BARRIERS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Water-Resistive Barrier: Under exterior wall cladding, over sheathing or other substrate; not air tight or vapor retardant.

B. Air Barriers: Materials that form a system to stop passage of air through exterior walls, joints between exterior walls and roof, and joints around frames of openings in exterior walls.

1.02 RELATED REQUIREMENTS

A. Section 07 24 00 - Exterior Insulation and Finish Systems: Water-resistive barrier under exterior insulation.

B. Section 07 54 00 - Thermoplastic Membrane Roofing: Vapor retarder installed as part of roofing system.

1.03 REFERENCE STANDARDS

A. AATCC Test Method 127 - Water Resistance: Hydrostatic Pressure Test; 2013.

B. ASTM D1970/D1970M - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection; 2013.

C. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2014.

D. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials; 2013.

E. ASTM E2178 - Standard Test Method for Air Permeance of Building Materials; 2013.

F. ICC-ES AC38 - Acceptance Criteria for Water-Resistive Barriers; ICC Evaluation Service, Inc.; 2013.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on material characteristics.

1.05 FIELD CONDITIONS

A. Maintain temperature and humidity recommended by the materials manufacturers before, during and after installation.

PART 2 PRODUCTS

2.01 WEATHER BARRIER ASSEMBLIES

A. Water-Resistive Barrier: Provide on exterior walls under exterior cladding.
   1. Use building paper unless otherwise indicated.

B. Air Barrier:
   1. On outside surface of inside wythe of exterior masonry cavity walls use air barrier coating.

2.02 WATER-RESISTIVE BARRIER MATERIALS (NEITHER AIR BARRIER NOR VAPOR RETARDER)

A. Building Paper: Asphalt-saturated Kraft building paper complying with requirements of ICC-ES AC38 Grade D.
   1. Water Resistance: 60 minutes, minimum when tested in accordance with ASTM D779.

2.03 AIR BARRIER MATERIALS (WATER VAPOR PERMEABLE AND WATER-RESISTIVE)

A. Air Barrier Sheet, Mechanically Fastened:
   1. Air Permeance: 0.004 cubic feet per minute per square foot (0.02 L/s/sq m), maximum, when tested in accordance with ASTM E2178.
   2. Water Vapor Permeance: 5 perms (286 ng/(Pa s sq m)), minimum, when tested in accordance with ASTM E96/E96M Procedure A (desiccant method).

3. Water Penetration Resistance: Withstand a water head of 21 inches (55 cm), minimum, for minimum of 5 hours, when tested in accordance with AATCC 127.
4. Ultraviolet and Weathering Resistance: Approved in writing by manufacturer for minimum of 6 months weather exposure.
5. Surface Burning Characteristics: Flame spread index of 25 or less, smoke developed index of 50 or less, when tested in accordance with ASTM E84.
6. Products:
    a. DuPont Building Innovations; Tyvek Commercial Wrap with Tyvek Fluid Applied Flashing - Brush Formulation, Tyvek Fluid Applied Flashing and Joint Compound, FlexWrap NF, StraightFlash, StraightFlash VF, Tyvek Wrap Caps, and Tyvek Tape: www.dupont.com.
    b. Fiberweb, Inc; Typar MetroWrap: www.typar.com.
    c. VaproShield, LLC; WrapShield: www.vaproshield.com.

B. Air Barrier, Fluid Applied: Vapor permeable, elastomeric waterproofing.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that surfaces and conditions are ready to accept the work of this section.

3.02 PREPARATION

A. Remove projections, protruding fasteners, and loose or foreign matter that might interfere with proper installation.

3.03 INSTALLATION

A. Install materials in accordance with manufacturer's instructions.

B. Water-Resistive Barriers: Install continuous barrier over surfaces indicated, with sheets lapped to shed water but with seams not sealed.

C. Air Barriers: Install continuous air tight barrier over surfaces indicated, with sealed seams and with sealed joints to adjacent surfaces.

D. Mechanically Fastened Sheets - On Exterior:
1. Install sheets shingle-fashion to shed water, with seams generally horizontal.
2. Overlap seams as recommended by manufacturer but at least 6 inches.
3. Overlap at outside and inside corners as recommended by manufacturer but at least 12 inches (305 mm).
4. For applications specified to be air tight, seal seams, laps, penetrations, tears, and cuts with self-adhesive tape; use only large-headed, gasketed fasteners recommended by the manufacturer.
5. Install water-resistive barrier over jamb flashings.
6. Install air barrier and vapor retarder UNDER jamb flashings.
7. Install head flashings under weather barrier.
8. At openings to be filled with frames having nailing flanges, wrap excess sheet into opening; at head, seal sheet over flange and flashing.

E. Openings and Penetrations in Exterior Weather Barriers:
1. Install flashing over sills, covering entire sill frame member, extending at least 5 inches (125 mm) onto weather barrier and at least 6 inches (150 mm) up jambs; mechanically fasten stretched edges.
2. At openings to be filled with frames having nailing flanges, seal head and jamb flanges using a continuous bead of sealant compressed by flange and cover flanges with at least 4 inches (100 mm) wide; do not seal sill flange.
3. At openings to be filled with non-flanged frames, seal weather barrier to all sides of opening framing, using flashing at least 9 inches (230 mm) wide, covering entire depth of framing.
4. At head of openings, install flashing under weather barrier extending at least 2 inches (50 mm) beyond face of jambs; seal weather barrier to flashing.

5. At interior face of openings, seal gap between window/door frame and rough framing, using joint sealant over backer rod.
6. Service and Other Penetrations: Form flashing around penetrating item and seal to weather barrier surface.

3.04 FIELD QUALITY CONTROL

A. Do not cover installed weather barriers until required inspections have been completed.

3.05 PROTECTION

A. Do not leave materials exposed to weather longer than recommended by manufacturer.

B. Do not leave paper- or felt-based barriers exposed to weather for longer than one week.

END OF SECTION

SECTION 07 46 46
SIDING

1.1 SECTION INCLUDES

A. Fiber cement lap siding, panels, shingle, trim, fascia, and accessories; James Hardie HZ10 Engineered for Climate Siding.

B. Factory-finished fiber cement lap siding, panels, shingle, trim, fascia, and accessories; James Hardie HZ10 Engineered for Climate Siding.

1.2 RELATED SECTIONS

A. Section 05 40 00 - Cold-Formed Metal Framing.

B. Section 06 10 00 - Rough Carpentry.

C. Section 06 10 00 - Rough Carpentry.

D. Section 07 21 19 - Foamed-In-Place Insulation.

1.3 REFERENCES

A. ASTM D3359 - Standard Test Method for Measuring Adhesion by Tape Test, Tool, and Tape.

B. ASTM E136 - Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 degrees C.

1.4 SUBMITTALS

A. Submit under provisions of Section 01 30 00 - Administrative Requirements.

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. Shop Drawings: Provide detailed drawings of atypical non-standard applications of cementitious siding materials which are outside the scope of the standard details and specifications provided by the manufacturer.

D. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.

E. Verification Samples: For each finish product specified, two samples, minimum size 4 by 6 inches (100 by 150 mm), representing actual product, color, and patterns.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Minimum of 2 years' experience with installation of similar products.

B. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
   1. Finish areas designated by Architect.
   2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
   3. Remodel mock-up area as required to produce acceptable work.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Store siding on edge or lay flat on a smooth level surface. Protect edges and corners from chipping. Store sheets under cover and keep dry prior to installing.

C. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.7 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 the manufacturer's absolute limits.

1.8 WARRANTY

A. Product Warranty: Limited, non-pro-rated product warranty.
   1. Hardie Soffit HZ10 panels for 30 years.
   2. Hardie Trim HZ10 boards for 15 years.

B. Finish Warranty: Limited product warranty against manufacturing finish defects.
   1. When used for its intended purpose, properly installed and maintained according to Hardie's published installation instructions, James Hardie's ColorPlus finish with ColorPlus Technology, for a period of 15 years from the date of purchase: will not peel; will not crack; and will not chip. Finish warranty includes the coverage for labor and material.

C. Workmanship Warranty: Application limited warranty for 2 years.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: James Hardie Building Products, Inc., which is located at: 303 E. Wacker Dr.; Chicago, IL 60601 ; Toll Free Tel: 877-236-7526; Email:request info (info@jameshardie.com);
Web:https://www.jameshardiepros.com|https://www.jameshardie.com

B. Substitutions: Not permitted.

C. Requests for approval of equal substitutions will be considered in accordance with the provisions of Section 01 60 00 - Product Requirements.

2.2 SIDING AND TRIM

A. Hardie Plank HZ10 lap siding, Hardie Panel HZ10 vertical siding, Hardie Soffit HZ10 panels and Hardie Shingle HZ10 siding requirement for materials:
   1. Fiber-cement siding - complies with ASTM C 1186 Type A Grade II.
   2. Fiber-cement siding - complies with ASTM E 136 as a noncombustible material.
   3. Fiber-cement siding - complies with ASTM E 84 Flame Spread Index = 0, Smoke Developed Index = 5.
   4. CAL-FIRE, Fire Engineering Division Building Materials Listing - Wildland Urban Interface (WUI) Listed Product.

5. ICC-ES evaluation reports ESR-2290, ESR-1844, and ESR-2273 (IBC, IRC, CBC, CRC).
6. City of Los Angeles, Research Report No. 24862.
7. Miami Dade County, -Notice of Acceptance -20-070.06
8. US Department of Housing and Urban Development Materials Release -1263.
9. California DSA PA-019.
10. City of New York M EA 223-93-M.
11. Florida State Product Approval -FL13192, FL13223, and FL13265.
12. Texas Department of Insurance Product Evaluation EC-23.

B. Vertical Siding: Hardie Panel HZ10 siding as manufactured by James Hardie Building Products, Inc.
   1. Type: Smooth Vertical siding panel 4 feet by 8 feet (1219 mm by 2438 mm).

C. Trim:
   1. Hardie Trim HZ10 boards as manufactured by James Hardie Building Products, Inc.
      a. Product: Batten Boards, 2-1/2 inch (63 mm) width.
      b. Product: 4/4 Boards, 3-1/2 inch (89 mm) width.
      c. Texture: Smooth.
      d. Length: 12 feet (3658 mm).
      e. Thickness: 3/4 inch (19 mm).
   2. Hardie Trim HZ10 Fascia boards as manufactured by James Hardie Building Products, Inc.
   3. Artisan HZ10 Accent trim as manufactured by James Hardie Building Products, Inc.
   4. Fiber-cement trim - complies with ASTM C 1186 Type A Grade II.
   5. Fiber-cement trim - complies with ASTM E 136 as a noncombustible material.
   6. Fiber-cement trim - complies with ASTM E 84 Flame Spread Index = 0, Smoke Developed Index = 5.
   7. Intertek Product Listing.

2.3 FINISHES

A. Factory Primer: Provide factory applied universal primer.
   1. Primer: Factory primed by James Hardie.
   2. Topcoat: Refer to Section 09 90 00 - Painting and Coating and Exterior Finish Schedule.

B. Factory Finish: Refer to Exterior Finish Schedule.
   1. Product: ColorPlus Technology by James Hardie.
   2. Definition: Factory applied finish; defined as a finish applied in the same facility and company that manufactures the siding substrate.
   3. Process:
      a. Factory applied finish by fiber cement manufacturer in a controlled environment within the fiber cement manufacturer's own facility utilizing a multi-coat, heat cured finish within one manufacturing process.
      b. Each finish color must have documented color match to delta E of 0.5 or better between product lines, manufacturing lots or production runs as measured by photospectrometer and verified by third party.
   4. Protection: Factory applied finish protection such as plastic laminate that is removed once siding is installed
   5. Accessories: Complete finishing system includes pre-packaged touch-up kit provided by fiber cement manufacturer. Provide quantities as recommended by the manufacturer.

C. Factory Finish Color for Trim, and Siding Colors:
   1. Statement Colors:
      a. Arctic White JH10-20.

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until the substrates have been properly prepared.

B. If framing preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

C. Nominal 2 inch by 4 inch (51 mm by 102 mm) wood framing selected for minimal shrinkage and complying with local building codes, including the use of water-resistive barriers or vapor barriers where required. Minimum 1-1/2 inches (38 mm) face and straight, true, of uniform dimensions and properly aligned.
   1. Install water-resistive barriers and claddings to dry surfaces.
   2. Repair any punctures or tears in the water-resistive barrier prior to the installation of the siding.
   3. Protect siding from other trades.

D. Minimum 20 gauge (1 mm) 3-5/8 inch (92 mm) C-Stud 16 inches maximum on center or 16 gauge (1.6 mm) 3-5/8 inches (92 mm) C-Stud 24 inches (610 mm) maximum on center metal framing complying with local building codes, including the use of water-resistive barriers and/or vapor barriers where required. Minimum 1-1/2 inches (38 mm) face and straight, true, of uniform dimensions and properly aligned.
   1. Install water-resistive barriers and claddings to dry surfaces.
   2. Repair any punctures or tears in the water-resistive barrier prior to the installation of the siding.
   3. Protect siding from other trades.

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. Install a water-resistive barrier is required in accordance with local building code requirements.

D. The water-resistive barrier must be appropriately installed with penetration and junction flashing in accordance with local building code requirements.

E. Install Engineered for Climate Hardie Weather Barrier in accordance with local building code requirements.

F. Use Hardie Weather Barrier Seam Tape and joint and laps.

G. Install and Hardie Weather Barrier flashing, Hardie Weather Barrier Flex Flashing.

3.3 INSTALLATION - HARDIE PANEL HZ10 VERTICAL SIDING

A. Install materials in strict accordance with manufacturer's installation instructions.

B. Install metal Z flashing and provide a 1/4 inch (6 mm) gap at horizontal panel joints.

C. Place fasteners no closer than 3/8 inch (9.5 mm) from panel edges and 2 inches (51 mm) from panel corners.

D. Allow minimum vertical clearance between the edge of siding and any other material in strict accordance with the manufacturer's installation instructions.

E. Maintain clearance between siding and adjacent finished grade.

F. Specific framing and fastener requirements refer to Tables 2 and 3 in National Evaluation Service Report No. NER-405.

G. Factory Finish Touch Up: Apply touch up paint to cut edges in accordance with manufacturer's printed instructions.
   1. Touch-up nicks, scrapes, and nail heads in pre-finished siding using the manufacturer's touch-up kit pen.
   2. Touch-up of nails shall be performed after application, but before plastic protection wrap is removed to prevent spotting of touch-up finish.
   3. Use touch-up paint sparingly. If large areas require touch-up, replace the damaged area with new pre-finished siding. Match touch up color to siding color through use of manufacturer's branded touch-up kits.

3.4 INSTALLATION - HARDIE TRIM HZ10 BOARDS

A. Install materials in strict accordance with manufacturer's installation instructions. Install flashing around all wall openings.

B. Fasten through trim into structural framing or code complying sheathing. Fasteners must penetrate a minimum of 3/4 inch (19 mm) or full thickness of sheathing. Additional fasteners may be required to ensure adequate security.

C. Place fasteners no closer than 3/4 inch (19 mm) and no further than 2 inches (51 mm) from side edge of trim board and no closer than 1 inch (25 mm) from end. Fasten maximum 16 inches (406 mm) on center.

D. Maintain clearance between trim and adjacent finished grade.

E. Trim inside corner with a single board trim both side of corner.

F. Outside Corner Board Attach Trim on both sides of corner with 16 gage corrosion resistant finish nail 1/2 inch (13 mm) from edge spaced 16 inches (406 mm) apart, weather cut each end spaced minimum 12 inches (305 mm) apart.

G. Allow 1/8 inch gap between trim and siding.

H. Seal gap with high quality, paint-able caulk.

I. Shim frieze board as required to align with corner trim.

J. Fasten through overlapping boards. Do not nail between lap joints.

K. Overlay siding with single board of outside corner board then align second corner board to outside edge of first corner board. Do not fasten HardieTrim boards to HardieTrim boards.

L. Shim frieze board as required to align with corner trim.

M. Install HardieTrim Fascia boards to rafter tails or to sub fascia.

3.5 FINISHING

A. Finish unprimed siding with a minimum one coat high quality, alkali resistant primer and one coat of either, 100 percent acrylic or latex or oil based, exterior grade topcoats or two coats high quality alkali resistant 100 percent acrylic or latex, exterior grade topcoat within 90 days of

B. installation. Follow paint manufacturer's written product recommendation and written application instructions.

C. Finish factory primed siding with a minimum of one coat of high quality 100 percent acrylic or latex or oil based exterior grade paint within 180 days of installation. Follow paint manufacturer's written product recommendation and written application instructions.

3.6 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 54 00

THERMOPLASTIC MEMBRANE ROOFING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Mechanically attached system with thermoplastic roofing membrane.

B. Insulation, flat and tapered.

C. Vapor retarder.

D. Flashings.

E. Roofing cant strips, stack boots, roofing expansion joints, and walkway pads.

1.02 REFERENCE STANDARDS

A. ASTM C1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board; 2014.

B. ASTM D6878/D6878M - Standard Specification for Thermoplastic Polyolefin Based Sheet Roofing; 2011a.

C. ASTM E1980 - Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces; 2011.

1.03 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data indicating membrane materials, flashing materials, insulation, vapor retarder, surfacing, and fasteners.

C. Specimen Warranty: For approval.

D. Warranty:
   1. Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.04 QUALITY ASSURANCE

A. Perform work in accordance with NRCA Roofing and Waterproofing Manual.

B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver products in manufacturer's original containers, dry, undamaged, with seals and labels intact.

B. Store products in weather protected environment, clear of ground and moisture.

C. Protect foam insulation from direct exposure to sunlight.

1.06 WARRANTY

A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.

B. System Warranty: Provide manufacturer's system warranty agreeing to repair or replace roofing that leaks or is damaged due to wind or other natural causes.
   1. Warranty Term: 20 years.
   2. For repair and replacement include costs of both material and labor in warranty.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Thermoplastic Polyolefin Membrane Materials:
   1. Firestone Building Products, LLC: www.firestonebpco.com.
   2. GAF; EverGuard TPO: www.gaf.com.
   3. GenFlex Roofing Systems, LLC: www.genflex.com.

B. Insulation:
   1. Carlisle SynTec; SecurShield Insulation: www.carlisle-syntec.com.
   2. GAF; EnergyGuard PolyIso Insulation: www.gaf.com.
   3. Owens Corning Corp: www.owenscorning.com.

2.02 ROOFING - UNBALLASTED APPLICATIONS

A. Thermoplastic Membrane Roofing: One ply membrane, fully adhered, over insulation.

B. Roofing Assembly Requirements:
   1. Solar Reflectance Index (SRI): 78, minimum, calculated in accordance with ASTM E1980.
      a. Field applied coating may not be used to achieve specified SRI.
   2. Roof Covering External Fire-Resistance Classification: UL Class A.
   3. Insulation Thermal Value (R), minimum: 25 (_____); provide insulation of thickness required.

C. Acceptable Insulation Types - Constant Thickness Application: Any of the types specified.
   1. Minimum 2 layers of cellulose, perlite, molded polystyrene, polyisocyanurate, glass fiber, extruded polystyrene, or composite board.
   2. Bottom layer of cellulose, perlite, molded polystyrene, polyisocyanurate, glass fiber, extruded polystyrene, composite, or cellular glass board covered with single layer of cellulose, perlite, molded polystyrene, polyisocyanurate, glass fiber, extruded polystyrene, or composite board.

D. Acceptable Insulation Types - Tapered Application: Any of the types specified.
   1. Tapered perlite or extruded polystyrene board.
   2. Tapered perlite, extruded polystyrene, or cellular glass board covered with uniform thickness cellulose, perlite, molded polystyrene, polyisocyanurate, glass fiber, extruded polystyrene, or composite board.
   3. Uniform thickness cellulose, perlite, composite, polyisocyanurate, extruded polystyrene, molded polystyrene, glass fiber, or cellular glass board covered with tapered extruded polystyrene or perlite board.

2.03 ROOFING MEMBRANE AND ASSOCIATED MATERIALS

A. Fabric - Reinforced Thermosplastic Polyolefin Sheet:
   1. Material: Thermoplastic Polyolefin (TPO) complying with ASTM D6878.
   2. Reinforcing: Internal fabric.
   3. Thickness: 0.060 inch (1.5mm), minimum
   4. Sheet Width: Factory fabricated into largest sheets possible.
   5. Color: White.

B. Membrane:
   1. Material: Thermoplastic polyolefin (TPO) complying with ASTM D6878.
   2. Reinforcing: Internal fabric.
   3. Thickness: 0.045 inch (1.1 mm), minimum.
   4. Sheet Width: Factory fabricated into largest sheets possible.
   5. Color: White.

C. Seaming Materials: As recommended by membrane manufacturer.

D. Membrane Fasteners: As recommended and approved by membrane manufacturer.

E. Vapor Retarder: Reinforced Kraft paper laminate complying with requirements of fire rating classification; compatible with roofing and insulation materials.
   1. Fire-retardant adhesive.

F. Flexible Flashing Material: Same material as membrane.

2.04 DECK SHEATHING AND COVER BOARDS

2.05 INSULATION

A. Polyisocyanurate Board Insulation: Rigid cellular foam, complying with ASTM C1289, Type II, Class 1, cellulose felt or glass fiber mat both faces; Grade 1 and with the following characteristics:
   1. Compressive Strength: 16 psi (110 kPa)
   2. Board Thickness: 1.5 inch (37.5 mm).
   3. Tapered Board: Slope as indicated; minimum thickness _____inch (_____mm); fabricate of fewest layers possible.
   4. Thermal Resistance: R-value of 11.
   5. Manufacturers:
      a. Dow Chemical Co: www.dow.com.
      b. GAF: www.gaf.com.
      c. Atlas Roofing Corporation: www.atlasroofing.com

2.06 ACCESSORIES

A. Prefabricated Roofing Expansion Joint Flashing: As specified in Section 07 71 00.

B. Stack Boots: Prefabricated flexible boot and collar for pipe stacks through membrane; same material as membrane.

C. Cant and Edge Strips: Wood fiberboard, compatible with roofing materials; cants formed to 45 degree angle.

D. Insulation Joint Tape: Glass fiber reinforced type as recommended by insulation manufacturer, compatible with roofing materials; 6 inches (150 mm) wide; self adhering.

E. Insulation Fasteners: Appropriate for purpose intended and approved by roofing manufacturer.
   1. Length as required for thickness of insulation material and penetration of deck substrate, with metal washers.

F. Membrane Adhesive: As recommended by membrane manufacturer.

G. Surface Conditioner for Adhesives: Compatible with membrane and adhesives.

H. Thinners and Cleaners: As recommended by adhesive manufacturer, compatible with membrane.

I. Insulation Adhesive: As recommended by insulation manufacturer.

J. Roofing Nails: Galvanized, hot dipped type, size and configuration as required to suit application.

K. Strip Reglet Devices: Galvanized steel, maximum possible lengths per location, with attachment flanges.

L. Sealants: As recommended by membrane manufacturer.

M. Walkway Pads: Suitable for maintenance traffic, contrasting color or otherwise visually distinctive from roof membrane.
   1. Size: 18 x 18 inch (460 x 460 mm).
   2. Surface Color: White or yellow.

PART 3 EXECUTION

3.01 INSTALLATION - GENERAL

A. Perform work in accordance with NRCA Roofing and Waterproofing Manual and manufacturer's instructions.

B. Do not apply roofing membrane during unsuitable weather.

C. Do not apply roofing membrane when ambient temperature is outside the temperature range recommended by manufacturer.

D. Do not apply roofing membrane to damp or frozen deck surface or when precipitation is expected or occurring.

E. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed the same day.

3.02 EXAMINATION

A. Verify that surfaces and site conditions are ready to receive work.

B. Verify deck is supported and secure.

C. Verify deck is clean and smooth, flat, free of depressions, waves, or projections, properly sloped and suitable for installation of roof system.

D. Verify deck surfaces are dry and free of snow or ice.

E. Verify that roof openings, curbs, and penetrations through roof are solidly set, and cant strips are in place.

3.03 METAL DECK PREPARATION

A. Install prefromed sound absorbing glass fiber insulation strips supplied by metal deck manufacturer in acoustic deck flutes. Install in accordance with manufacturer's instructions.

3.04 VAPOR RETARDER AND INSULATION - UNDER MEMBRANE

A. Apply vapor retarder to deck surface with adhesive in accordance with manufacturer's instructions.
   1. Extend vapor retarder under cant strips and blocking to deck edge.
   2. Install flexible flashing from vapor retarder to air seal material of wall construction, lap and seal to provide continuity of the air barrier plane.

B. Ensure vapor retarder is clean and dry, continuous, and ready for application of insulation.

C. Attachment of Insulation:
   1. Mechanically fasten insulation to deck in accordance with roofing manufacturer's instructions and Factory Mutual requirements.

D. Lay subsequent layers of insulation with joints staggered minimum 6 inch (150 mm) from joints of preceding layer.

E. Place tapered insulation to the required slope pattern in accordance with manufacturer's instructions.

F. On metal deck, place boards parallel to flutes with insulation board edges bearing on deck flutes.

G. Lay boards with edges in moderate contact without forcing. Cut insulation to fit neatly to perimeter blocking and around penetrations through roof.

H. Tape joints of insulation in accordance with roofing and insulation manufacturers' instructions.

I. At roof drains, use factory-tapered boards to slope down to roof drains over a distance of 18 inches (450 mm).

J. Do not apply more insulation than can be covered with membrane in same day.

3.05 MEMBRANE APPLICATION

A. Roll out membrane, free from wrinkles or tears. Place sheet into place without stretching.

B. Shingle joints on sloped substrate in direction of drainage.

C. Overlap edges and ends and seal seams by contact adhesive, minimum 3 inches (75 mm). Seal permanently waterproof. Apply uniform bead of sealant to joint edge.

D. Mechanical Attachment: Apply membrane and mechanical attachment devices in accordance with manufacturer's instructions.

E. At intersections with vertical surfaces:
   1. Extend membrane over cant strips and up a minimum of 4 inches (100 mm) onto vertical surfaces.
   2. Fully adhere flexible flashing over membrane and up to nailing strips.

F. Around roof penetrations, seal flanges and flashings with flexible flashing.

G. Install roofing expansion joints where indicated. Make joints watertight.
   1. Install prefabricated joint components in accordance with manufacturer's instructions.

H. Coordinate installation of roof drains and sumps and related flashings.

3.06 FIELD QUALITY CONTROL

A. See Section 01 40 00 - Quality Requirements, for general requirements for field quality control and inspection.

3.07 CLEANING

A. Remove bituminous markings from finished surfaces.

B. In areas where finished surfaces are soiled by work of this section, consult manufacturer of surfaces for cleaning advice and conform to their documented instructions.

C. Repair or replace defaced or damaged finishes caused by work of this section.

3.08 PROTECTION

A. Protect installed roofing and flashings from construction operations.

B. Where traffic must continue over finished roof membrane, protect surfaces using durable materials.

END OF SECTION

SECTION 07 62 00
SHEET METAL FLASHING AND TRIM

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Fabricated sheet metal items, including flashings, counterflashings, gutters, downspouts, and other items indicated in Schedule.

B. Reglets and accessories.

1.02 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Indicate material profile, jointing pattern, jointing details, fastening methods, flashings, terminations, and installation details.

1.03 QUALITY ASSURANCE

A. Perform work in accordance with SMACNA Architectural Sheet Metal Manual requirements and standard details, except as otherwise indicated.

B. Prevent contact with materials that could cause discoloration or staining.

PART 2 PRODUCTS

2.01 SHEET MATERIALS

A. Galvanized Steel: ASTM A653/A653M, with G90/Z275 zinc coating; minimum 0.02 inch (0.6 mm) thick base metal.

2.02 ACCESSORIES

A. Fasteners: Galvanized steel, with soft neoprene washers.

B. Underlayment: Polyethylene, 6 mils (0.15 mm).

C. Primer: Zinc chromate type.

D. Protective Backing Paint: Zinc molybdate alkyd.

E. Sealant: Type _____specified in Section 07 90 05.

F. Plastic Cement: ASTM D4586, Type I.

G. Reglets: Surface mounted type, galvanized steel; face and ends covered with plastic tape .

2.03 FABRICATION

A. Form sections true to shape, accurate in size, square, and free from distortion or defects.

B. Form pieces in longest possible lengths.

C. Hem exposed edges on underside 1/2 inch (13 mm); miter and seam corners.

D. Form material with flat lock seams, except where otherwise indicated. At moving joints, use sealed lapped, bayonet-type or interlocking hooked seams.

E. Fabricate corners from one piece with minimum 18 inch (450 mm) long legs; seam for rigidity, seal with sealant.

F. Fabricate flashings to allow toe to extend 2 inches (50 mm) over roofing gravel. Return and brake edges.

2.04 GUTTER AND DOWNSPOUT FABRICATION

A. Gutters Patio and High Roof Locations: Copper Semi-circular profile. Refer to drawings for details.

B. Downspouts High Roof Locations: Round profile. Refer to drawings for details.

C. Downspouts Patio: Rainchain copper. Rain Chains Direct.

D. Downspouts Rear Locations: SMACNA Architectural Sheet metal rectangular profile

E. Color: For collector heads and downspouts, Paint to match adjacent wall color.

F. Accessories: Profiled to suit gutters and downspouts.
   1. Anchorage Devices: In accordance with SMACNA requirements.
   2. Gutter Supports: Brackets.
   3. Downspout Supports: Brackets.

G. Downspout Boots: Steel.

H. Seal metal joints.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify roof openings, curbs, pipes, sleeves, ducts, and vents through roof are solidly set, reglets in place, and nailing strips located.

B. Verify roofing termination and base flashings are in place, sealed, and secure.

3.02 PREPARATION

A. Install starter and edge strips, and cleats before starting installation.

B. Back paint concealed metal surfaces with protective backing paint to a minimum dry film thickness of 15 mil (0.4 mm).

3.03 INSTALLATION

A. Conform to drawing details.

B. Insert flashings into reglets to form tight fit. Secure in place with lead wedges. Pack remaining spaces with lead wool. Seal flashings into reglets with sealant.

C. Secure flashings in place using concealed fasteners. Use exposed fasteners only where permitted.

D. Apply plastic cement compound between metal flashings and felt flashings.

E. Fit flashings tight in place. Make corners square, surfaces true and straight in planes, and lines accurate to profiles.

F. Seal metal joints watertight.

G. Secure gutters and downspouts in place using concealed fasteners.

H. Slope gutters 1/4 inch per 10 feet (2.1 mm per m), minimum.

I. Connect downspouts to downspout boots. Grout connection watertight.

3.04 FIELD QUALITY CONTROL

A. See Section 01 40 00 - Quality Requirements, for field inspection requirements.

B. Inspection will involve surveillance of work during installation to ascertain compliance with specified requirements.

3.05 SCHEDULE

END OF SECTION

SECTION 07 72 00
ROOF ACCESSORIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Roof hatches.

1.02 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Manufacturer's data sheets on each product to be used.
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation methods.
   4. Maintenance requirements.

1.03 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Store products under cover and elevated above grade.

PART 2 PRODUCTS

2.01 ROOF HATCHES

A. Manufacturers - Roof Hatches:
   1. Bilco Co.Type S (ladder access, standard size, solid cover): www.bilco.com.

B. Roof Hatches: Factory-assembled steel frame and cover, complete with operating and release hardware.
   1. Style: Provide flat metal covers unless otherwise indicated.
   2. Mounting: Provide frames and curbs suitable for mounting conditions indicated on the drawings.
   3. For Ladder Access: Single leaf; 30 by 36 inches (762 by 914 mm).

C. Frames/Curbs: One-piece curb and frame with integral cap flashing to receive roof flashings; extended bottom flange to suit mounting.
   1. Material: Galvanized steel, 14 gage, 0.0747 inch (1.90 mm) thick.
   2. Finish: Factory prime paint.
   3. Insulation: 1 inch (25 mm) rigid glass fiber, located on outside face of curb.

D. Metal Covers: Flush, insulated, hollow metal construction.
   1. Capable of supporting 40 psf (1.92 kPa) live load.
   2. Material: Galvanized steel; outer cover 14 gage, 0.0747 inch (1.90 mm) thick, liner 22 gage, 0.03 inch (0.76 mm) thick.
   3. Finish: Factory prime paint.
   4. Insulation: 1 inch (25 mm) rigid glass fiber.
   5. Gasket: Neoprene, continuous around cover perimeter.

E. Hardware: Steel, zinc coated and chromate sealed, unless otherwise indicated or required by manufacturer.
   1. Lifting Mechanisms: Compression or torsion spring operator with shock absorbers that automatically opens upon release of latch; capable of lifting covers despite 10 psf (475 kPa) load.
   2. Hinges: Heavy duty pintle type.
   3. Hold open arm with vinyl-coated handle for manual release.
   4. Latch: Upon closing, engage latch automatically and reset manual release.
   5. Manual Release: Pull handle on interior.
   6. Locking: Padlock hasp on interior.

PART 3 EXECUTION

3.01 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.

3.02 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.

3.03 INSTALLATION

A. Install in accordance with manufacturer's instructions, in manner that maintains roofing weather integrity.

3.04 CLEANING

A. Clean installed work to like-new condition.

3.05 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 90 05
JOINT SEALERS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Sealants and joint backing.

B. Precompressed foam sealers.

1.02 REFERENCE STANDARDS

A. ASTM C834 - Standard Specification for Latex Sealants; 2010.

B. ASTM C919 - Standard Practice for Use of Sealants in Acoustical Applications; 2012.

C. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2014.

D. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2013.

1.03 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data indicating sealant chemical characteristics.

C. Manufacturer's Installation Instructions: Indicate special procedures.

1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.

1.05 MOCK-UP

A. Provide mock-up of sealant joints in conjunction with window under provisions of Section 01 40 00.

B. Construct mock-up with specified sealant types and with other components noted.

C. Locate where directed.

D. Mock-up may remain as part of the Work.

1.06 FIELD CONDITIONS

A. Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.

1.07 WARRANTY

A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.

B. Correct defective work within a five year period after Date of Substantial Completion.

C. Warranty: Include coverage for installed sealants and accessories which fail to achieve airtight seal, exhibit loss of adhesion or cohesion, or do not cure.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Silicone Sealants:
   1. Bostik Inc: www.bostik-us.com.
   2. Momentive Performance Materials, Inc (formerly GE Silicones): www.momentive.com.
   3. Pecora Corporation: www.pecora.com.
   4. BASF Construction Chemicals-Building Systems: www.chemrex.com.
   5. Substitutions: See Section 01 60 00 - Product Requirements.

B. Polyurethane Sealants:
   1. Bostik Inc: www.bostik-us.com.
   2. Pecora Corporation: www.pecora.com.
   3. BASF Construction Chemicals-Building Systems: www.chemrex.com.
   4. Substitutions: See Section 01 60 00 - Product Requirements.

C. Acrylic Sealants (ASTM C920):
   1. Tremco Global Sealants: www.tremcosealants.com.
   2. Red Devil; Siliconized Acrylic Construction Grade (35 Year) Sealant: www.reddevil.com.
   3. Sherwin-Williams Company; Shermax Urethanized Elastomeric Sealant: www.sherwin-williams.com.
   4. Substitutions: See Section 01 60 00 - Product Requirements.

D. Butyl Sealants:
   1. Bostik Inc: www.bostik-us.com.
   2. Pecora Corporation: www.pecora.com.
   3. Sherwin-Williams Company; Storm Blaster All Season Sealant: www.sherwin-williams.com.
   4. Substitutions: See Section 01 60 00 - Product Requirements.

E. Acrylic Emulsion Latex Sealants:
   1. Bostik Inc: www.bostik-us.com.
   2. Pecora Corporation: www.pecora.com.
   3. BASF Construction Chemicals-Building Systems: www.chemrex.com.
   4. Substitutions: See Section 01 60 00 - Product Requirements.

F. Preformed Compressible Foam Sealers:
   1. EMSEAL Joint Systems, Ltd: www.emseal.com.
   2. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 SEALANTS

A. General Purpose Exterior Sealant: Polyurethane; ASTM C920, Grade NS, Class 25, Uses M, G, and A; single component.
   1. Color: To be selected by Architect from manufacturer's standard range.
   2. Applications: Use for:
      a. Control, expansion, and soft joints in masonry.
      b. Joints between concrete and other materials.
      c. Joints between metal frames and other materials.
      d. Other exterior joints for which no other sealant is indicated.

B. Exterior Metal Lap Joint Sealant: Butyl or polyisobutylene, nondrying, nonskinning, noncuring.
   1. Applications: Use for:
      a. Concealed sealant bead in sheet metal work.
      b. Concealed sealant bead in siding overlaps.

C. General Purpose Interior Sealant: Acrylic emulsion latex; ASTM C834, Type OP, Grade NF single component, paintable.
   1. Color: Match adjacent finished surfaces.
   2. Color: To be selected by Architect from manufacturer's standard range.
   3. Applications: Use for:
      a. Interior wall and ceiling control joints.
      b. Joints between door and window frames and wall surfaces.
      c. Other interior joints for which no other type of sealant is indicated.

D. Tile Sealant: Clear silicone; ASTM C920, Uses I, M and A; single component, mildew resistant.
   1. Applications: Use for:
      a. Joints between plumbing fixtures and floor and wall surfaces.
      b. Joints between kitchen and bath countertops and wall surfaces.

E. Acoustical Sealant for Concealed Locations: Permanently tacky non-hardening butyl sealant.
   1. Applications: Use for concealed locations only:
      a. Sealant bead between top stud runner and structure and between bottom stud track and floor.

F. Interior Floor Joint Sealant: Polyurethane, self-leveling; ASTM C920, Grade P, Class 25, Uses T, M and A; single component.

1. Color: To be selected by Architect from manufacturer's standard range.
2. Applications: Use for:
    a. Expansion joints in floors.

G. Concrete Paving Joint Sealant: Polyurethane, self-leveling; ASTM C920, Class 25, Uses T, I, M and A; single component.
1. Color: Gray.
2. Applications: Use for:
    a. Joints in sidewalks and vehicular paving.

2.03 ACCESSORIES

A. Primer: Non-staining type, recommended by sealant manufacturer to suit application.

B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.

C. Joint Backing: Round foam rod compatible with sealant; ASTM D 1667, closed cell PVC; oversized 30 to 50 percent larger than joint width.

D. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that substrate surfaces are ready to receive work.

B. Verify that joint backing and release tapes are compatible with sealant.

3.02 PREPARATION

A. Remove loose materials and foreign matter that could impair adhesion of sealant.

B. Clean and prime joints in accordance with manufacturer's instructions.

C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.

D. Protect elements surrounding the work of this section from damage or disfigurement.

3.03 INSTALLATION

A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.

B. Perform installation in accordance with ASTM C1193.

C. Perform acoustical sealant application work in accordance with ASTM C919.

D. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer, except where specific dimensions are indicated.

E. Install bond breaker where joint backing is not used.

F. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.

G. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.

H. Tool joints concave.

3.04 CLEANING

A. Clean adjacent soiled surfaces.

3.05 PROTECTION

A. Protect sealants until cured.

END OF SECTION

SECTION 08 11 13
HOLLOW METAL DOORS AND FRAMES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Non-fire-rated steel doors and frames.

B. Steel frames for wood doors.

C. Thermally insulated steel doors.

D. Steel glazing frames.

E. Accessories, including glazing, louvers, and matching panels.

1.02 RELATED REQUIREMENTS

A. Section 08 80 00 - Glazing: Glass for doors and borrowed lites.

1.03 REFERENCE STANDARDS

A. ANSI/ICC A117.1 - American National Standard for Accessible and Usable Buildings and Facilities; International Code Council; 2009.

B. ANSI A250.8 - SDI-100 Recommended Specifications for Standard Steel Doors and Frames; 2003 (R2008).

C. ANSI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames; 1998 (R2011).

D. BHMA A156.115 - Hardware Preparation in Steel Doors and Steel Frames; 2006.

E. NAAMM HMMA 840 - Guide Specifications for Installation and Storage of Hollow Metal Doors and Frames; The National Association of Architectural Metal Manufacturers; 2007.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Materials and details of design and construction, hardware locations, reinforcement type and locations, anchorage and fastening methods, and finishes; and one copy of referenced grade standard.

C. Shop Drawings: Details of each opening, showing elevations, glazing, frame profiles, and identifying location of different finishes, if any.

D. Installation Instructions: Manufacturer's published instructions, including any special installation instructions relating to this project.

E. Manufacturer's Certificate: Certification that products meet or exceed specified requirements.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

B. Maintain at the project site a copy of all reference standards dealing with installation.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Store in accordance with NAAMM HMMA 840.

B. Protect with resilient packaging; avoid humidity build-up under coverings; prevent corrosion.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Steel Doors and Frames:
   1. Assa Abloy Ceco, Curries, or Fleming: www.assaabloydss.com.
   2. Windsor Republic Doors: www.republicdoor.com
   3. Steel craft, an Allegion brand: www.allegion.com/us.

2.02 DOORS AND FRAMES

A. Requirements for All Doors and Frames:
   1. Accessibility: Comply with ANSI/ICC A117.1.
   2. Door Top Closures: Flush with top of faces and edges.
   3. Door Edge Profile: Beveled on both edges.
   4. Door Texture: Smooth faces.
   5. Glazed Lights: Non-removable stops on non-secure side; sizes and configurations as indicated on drawings.
   6. Hardware Preparation: In accordance with BHMA A156.115, with reinforcement welded in place, in addition to other requirements specified in door grade standard.
   7. Finish: Factory primed, for field finishing.

B. Combined Requirements: If a particular door and frame unit is indicated to comply with more than one type of requirement, comply with all the specified requirements for each type; for instance, an exterior door that is also indicated as being sound-rated must comply with the requirements specified for exterior doors and for sound-rated doors; where two requirements conflict, comply with the most stringent.

2.03 STEEL DOORS

A. Exterior Doors:
   1. Grade: NAAMM HMMA 861, physical performance Level A.
   2. Core: Polystyrene foam.
   3. Top Closures for Outswinging Doors: Flush with top of faces and edges.
   4. Texture: Smooth faces.
   5. Weatherstripping: Separate, see Section 08 71 00.
   6. Finish: Factory primed, for field finishing.

B. Interior Doors, Non-Fire-Rated:
   1. Grade: NAAMM HMMA 860, physical performance Level A.
   2. Thickness: 1-3/4 inches (44 mm).
   3. Texture: Smooth faces.
   4. Finish: Factory primed, for field finishing.
      a. Panels: Same construction, performance, and finish as doors.

2.04 STEEL FRAMES

A. General:
   1. Comply with the requirements of grade specified for corresponding door.
   2. Finish: Same as for door.
   3. Provide mortar guard boxes for hardware cut-outs in frames to be installed in masonry or to be grouted.
   4. Frames in Masonry Walls: Size to suit masonry coursing with head member 4 inches (100 mm) high to fill opening without cutting masonry units.

B. Exterior Door Frames: Fully welded.
   1.
   2. Weatherstripping: Separate, see Section 08 71 00.

C. Interior Door Frames, Non-Fire-Rated: Fully welded type.
   1. Finish: Factory primed, for field finishing.
   2. Weatherstripping: Separate, see Section 08 71 00

D. Frames for Interior Glazing or Borrowed Lights: Construction and face dimensions to match door frames, and as indicated on drawings.

2.05 ACCESSORY MATERIALS

A. Louvers: Roll formed steel with overlapping frame; finish same as door components; factory-installed.
   1. Style: Standard straight slat blade.

B. Glazing: As specified in Section 08 80 00, factory installed.

C. Removable Stops: Formed sheet steel, shape as indicated on drawings, mitered or butted corners; prepared for countersink style tamper proof screws.

D. Grout for Frames: Portland cement grout of maximum 4-inch slump for hand troweling; thinner pumpable grout is prohibited.

E. Silencers: Resilient rubber, fitted into drilled hole; 3 on strike side of single door, 3 on center mullion of pairs, and 2 on head of pairs without center mullions.

F. Temporary Frame Spreaders: Provide for all factory- or shop-assembled frames.

2.06 FINISH MATERIALS

A. Primer: Rust-inhibiting, complying with ANSI A250.10, door manufacturer's standard.

B. Bituminous Coating: Asphalt emulsion or other high-build, water-resistant, resilient coating.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that opening sizes and tolerances are acceptable.

3.02 PREPARATION

A. Coat inside of frames to be installed in masonry or to be grouted, with bituminous coating, prior to installation.

3.03 INSTALLATION

A. Install in accordance with the requirements of the specified door grade standard and NAAMM HMMA 840.

B. Utilize 3 jamb anchors and 1 sill anchor per jamb.

C. Coordinate frame anchor placement with wall construction.

D. Grout frames in masonry construction, using hand trowel methods; brace frames so that pressure of grout before setting will not deform frames.

E. Coordinate installation of hardware.

F. Coordinate installation of glazing.

G. Coordinate installation of electrical connections to electrical hardware items.

H. Touch up damaged factory finishes.

3.04 TOLERANCES

A. Clearances Between Door and Frame: As specified in ANSI A250.8 - SDI-100.

B. Maximum Diagonal Distortion: 1/16 in (1.5 mm) measured with straight edge, corner to corner.

3.05 ADJUSTING

A. Adjust for smooth and balanced door movement.

3.06 SCHEDULE

A. Refer to Door and Frame Schedule appended to this section.

END OF SECTION

SECTION 08 14 16
FLUSH WOOD DOORS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Flush wood doors; flush and flush glazed configuration; entry doors..

1.02 RELATED REQUIREMENTS

A. Section 08 11 13 - Hollow Metal Doors and Frames.

B. Section 08 71 00 - Door Hardware.

C. Section 08 80 00 - Glazing.

1.03 REFERENCE STANDARDS

A. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards; 2009.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Indicate door core materials and construction; veneer species, type and characteristics.

C. Shop Drawings: Show doors and frames, elevations, sizes, types, swings, undercuts, beveling, blocking for hardware, factory machining, factory finishing, cutouts for glazing and other details.

D. Specimen warranty.

E. Samples: Submit two samples of door veneer, 12x12 inch (304.8x304.8 mm) in size illustrating wood grain, stain color, and sheen.

F. Warranty, executed in Owner's name.

1.05 QUALITY ASSURANCE

A. Maintain one copy of the specified door quality standard on site for review during installation and finishing.

B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Package, deliver and store doors in accordance with specified quality standard.

B. Accept doors on site in manufacturer's packaging. Inspect for damage.

C. Protect doors with resilient packaging sealed with heat shrunk plastic. Do not store in damp or wet areas; or in areas where sunlight might bleach veneer. Seal top and bottom edges with tinted sealer if stored more than one week. Break seal on site to permit ventilation.

1.07 WARRANTY

A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.

B. Interior Doors: Provide manufacturer's warranty for the life of the installation.

C. Include coverage for delamination of veneer, warping beyond specified installation tolerances, defective materials, and telegraphing core construction.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Wood Veneer Faced Doors:
   1. Algoma Hardwoods, Inc. : www.algomahardwoods.com
   2. Eggers Industries: www.eggersindustries.com.
   3. Graham Wood Doors: www.grahamdoors.com.
   4. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 DOORS AND PANELS

A. All Doors: See drawings for locations and additional requirements.
   1. Quality Level: Custom Grade, Standard Duty performance, in accordance with AWI/AWMAC/WI (AWS).
   2. Wood Veneer Faced Doors: 5-ply unless otherwise indicated.

B. Interior Doors: 1-3/4 inches (44 mm) thick unless otherwise indicated; flush construction.
   1. Provide solid core doors at all locations.
   2. Wood veneer facing with factory transparent finish where indicated on drawings.

2.03 DOOR AND PANEL CORES

A. Non-Rated Solid Core and 20 Minute Rated Doors: Type staved lumber core (SLC), plies and faces as indicated.

2.04 DOOR FACINGS

A. Veneer Facing for Transparent Finish: Oak, veneer grade in accordance with quality standard indicated, plain sliced (flat cut), with book match between leaves of veneer, running match of spliced veneer leaves assembled on door or panel face.
   1. Vertical Edges: Any option allowed by quality standard for grade.
   2. "Pair Match" each pair of doors; "Set Match" pairs of doors within 10 feet (3 m) of each other when doors are closed.
   3. Transoms: Continuous match to doors.

2.05 ACCESSORIES

A. Glazing Stops: Wood, of same species as door facing, butted corners; prepared for countersink style tamper proof screws.

2.06 DOOR CONSTRUCTION

A. Fabricate doors in accordance with door quality standard specified.

B. Cores Constructed with stiles and rails:
   1. Provide solid blocks at lock edge for hardware reinforcement.
   2. Provide solid blocking for other throughbolted hardware.

C. Where supplementary protective edge trim is required, install trim after veneer facing has been applied full-width.

D. Factory machine doors for hardware other than surface-mounted hardware, in accordance with hardware requirements and dimensions.

E. Factory fit doors for frame opening dimensions identified on shop drawings, with edge clearances in accordance with specified quality standard.

F. Provide edge clearances in accordance with the quality standard specified.

2.07 FACTORY FINISHING - WOOD VENEER DOORS

A. Finish work in accordance with AWI/AWMAC/WI (AWS), Section 5 - Finishing for Grade specified and as follows:
   1. Transparent:
      a. System - 1, Lacquer, Nitrocellulose.
      b. Stain: As selected by Architect.
      c. Sheen: Satin.

B. Factory finish doors in accordance with approved sample.

C. Seal door top edge with color sealer to match door facing.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that opening sizes and tolerances are acceptable.

C. Do not install doors in frame openings that are not plumb or are out-of-tolerance for size or alignment.

3.02 INSTALLATION

A. Install doors in accordance with manufacturer's instructions and specified quality standard.

B. Factory-Finished Doors: Do not field cut or trim; if fit or clearance is not correct, replace door.

C. Use machine tools to cut or drill for hardware.

D. Coordinate installation of doors with installation of frames and hardware.

E. Coordinate installation of glazing.

F. Install door louvers plumb and level.

3.03 TOLERANCES

A. Conform to specified quality standard for fit and clearance tolerances.

B. Conform to specified quality standard for telegraphing, warp, and squareness.

3.04 ADJUSTING

A. Adjust doors for smooth and balanced door movement.

B. Adjust closers for full closure.

3.05 SCHEDULE - SEE DRAWINGS

END OF SECTION

SECTION 08 38 15

DOUBLE-ACTING TRAFFIC DOORS

PART 2 PRODUCTS

END OF SECTION

SECTION 08 43 13
ALUMINUM-FRAMED STOREFRONTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Aluminum-framed storefront, with vision glass.

B. Perimeter sealant.

1.02 RELATED REQUIREMENTS

A. Section 07 90 05 - Joint Sealers: Perimeter sealant and back-up materials.

B. Section 08 80 00 - Glazing: Glass and glazing accessories.

1.03 REFERENCE STANDARDS

A. AAMA CW-10 - Care and Handling of Architectural Aluminum From Shop to Site; American Architectural Manufacturers Association; 2012.

B. AAMA 501.2 - Field Check of Metal Storefronts, Curtain Walls, and Sloped Glazing Systems for Water Leakage; American Architectural Manufacturers Association; 2009 (part of AAMA 501).

C. ASCE 7 - Minimum Design Loads for Buildings and Other Structures; American Society of Civil Engineers; 2011.

D. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2010.

E. ASTM B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate [Metric]; 2010.

F. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2013.

G. ASTM B221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes [Metric]; 2013.

H. ASTM E330/E330M - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference; 2014.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordinate with installation of other components that comprise the exterior enclosure.

B. Preinstallation Meeting: Conduct a preinstallation meeting one week before starting work of this section; require attendance by all affected installers.

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide component dimensions, describe components within assembly, anchorage and fasteners, glass and infill, door hardware, internal drainage details..

C. Shop Drawings: Indicate system dimensions, framed opening requirements and tolerances, affected related Work, expansion and contraction joint location and details, and field welding required.

D. Design Data: Provide framing member structural and physical characteristics, engineering calculations, dimensional limitations.

E. Samples: Submit two samples 12 x12 inches (304.8 x 304.8 mm) in size illustrating finished aluminum surface, glass, infill panels, glazing materials.

F. Manufacturer's Certificate: Certify that the products supplied meet or exceed the specified requirements.

G. Report of field testing for water leakage.

H. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

1.06 QUALITY ASSURANCE

A. Manufacturer and Installer Qualifications: Company specializing in manufacturing aluminum glazing systems with minimum three years of documented experience.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Handle products of this section in accordance with AAMA CW-10.

B. Protect finished aluminum surfaces with wrapping. Do not use adhesive papers or sprayed coatings that bond to aluminum when exposed to sunlight or weather.

1.08 FIELD CONDITIONS

A. Do not install sealants when ambient temperature is less than 40 degrees F (5 degrees C). Maintain this minimum temperature during and 48 hours after installation.

1.09 WARRANTY

A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.

B. Correct defective Work within a five year period after Date of Substantial Completion.

C. Provide five year manufacturer warranty against failure of glass seal on insulating glass units, including interpane dusting or misting. Include provision for replacement of failed units.

D. Provide five year manufacturer warranty against excessive degradation of exterior finish. Include provision for replacement of units with excessive fading, chalking, or flaking.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Aluminum-Framed Storefront and Doors:
   1. Kawneer North America: www.kawneer.com.
   2. Oldcastle BuildingEnvelope: www.oldcastlebe.com.
   3. YKK AP America Inc: www.ykkap.com.

2.02 STOREFRONT

A. Aluminum-Framed Storefront: Factory fabricated, factory finished aluminum framing members with infill, and related flashings, anchorage and attachment devices.
   1. Glazing Position: Centered (front to back).
   2. Vertical Mullion Dimensions: 2 inches wide by 4-1/2 inches deep (50 mm wide by 114 mm deep).
   3. Water Leakage Test Pressure Differential: 2.86 lbf/sq ft (140 Pa).
   4. Air Infiltration Test Pressure Differential: 1.57 psf (75 Pa).
   5. Finish: High performance organic coating.
   6. Color: Bronze.

B. Performance Requirements:
   1. Wind Loads: Design and size components to withstand the specified load requirements without damage or permanent set, when tested in accordance with ASTM E330/E330M, using loads 1.5 times the design wind loads and 10 second duration of maximum load.
      a. Design Wind Loads: Comply with requirements of current adopted code.
      b. Member Deflection: Limit member deflection to flexure limit of glass in any direction,
      c. with full recovery of glazing materials.
   2. Movement: Accommodate movement between storefront and perimeter framing and deflection of lintel, without damage to components or deterioration of seals.
   3. Air Infiltration: Limit air infiltration through assembly to 0.06 cu ft/min/sq ft (0.3 L/s/sq m) of wall area, measured at specified differential pressure across assembly in accordance with ASTM E283.
   4. Condensation Resistance Factor: Measure in accordance with AAMA 1503 with 1 inch (25 mm) insulating glass installed.
   5. Water Leakage: None, when measured in accordance with ASTM E331 at specified

pressure differential.

6. System Internal Drainage: Drain to the exterior by means of a weep drainage network any water entering joints, condensation occurring in glazing channel, and migrating moisture occurring within system.
7. Expansion/Contraction: Provide for expansion and contraction within system components caused by cycling temperature range of 170 degrees F (95 degrees C) over a 12 hour period without causing detrimental effect to system components, anchorages, and other building elements.

2.03 COMPONENTS

A. Aluminum Framing Members: Tubular aluminum sections, thermally broken with interior section insulated from exterior, drainage holes and internal weep drainage system.
   1. Glazing stops: Flush.

2.04 MATERIALS

A. Extruded Aluminum: ASTM B221 (ASTM B221M).

B. Sheet Aluminum: ASTM B209 (ASTM B209M).

C. Fasteners: Stainless steel.

D. Exposed Flashings: Aluminum sheet, 20 gage, 0.032 inch (0.81 mm) minimum thickness; finish to match framing members.

E. Concealed Flashings: Galvanized steel, 26 gage, 0.0179 inch (0.45 mm) minimum base metal thickness.

F. Perimeter Sealant: Type as specified in Section 07 90 05.

G. Glass: As specified in section 08 80 00.

H. Glazing Gaskets: Type to suit application to achieve weather, moisture, and air infiltration requirements.

I. Glazing Accessories: As specified in Section 08 80 00.

2.05 FABRICATION

A. Fabricate components with minimum clearances and shim spacing around perimeter of assembly, yet enabling installation and dynamic movement of perimeter seal.

B. Accurately fit and secure joints and corners. Make joints flush, hairline, and weatherproof.

C. Prepare components to receive anchor devices. Fabricate anchors.

D. Coat concealed metal surfaces that will be in contact with cementitious materials or dissimilar metals with bituminous paint.

E. Arrange fasteners and attachments to conceal from view.

F. Reinforce interior horizontal head rail to receive drapery track brackets and attachments.

G. Reinforce framing members for imposed loads.

H. Finishing: Apply factory finish to all surfaces that will be exposed in completed assemblies.
   1. Touch-up surfaces cut during fabrication so that no natural aluminum is visible in completed assemblies, including joint edges.

2.06

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify dimensions, tolerances, and method of attachment with other work.

B. Verify that wall openings and adjoining air and vapor seal materials are ready to receive work of this section.

3.02 INSTALLATION

A. Install wall system in accordance with manufacturer's instructions.

B. Attach to structure to permit sufficient adjustment to accommodate construction tolerances and other irregularities.

C. Provide alignment attachments and shims to permanently fasten system to building structure.

D. Align assembly plumb and level, free of warp or twist. Maintain assembly dimensional tolerances, aligning with adjacent work.

E. Provide thermal isolation where components penetrate or disrupt building insulation.

F. Install sill flashings. Turn up ends and edges; seal to adjacent work to form water tight dam.

G. Where fasteners penetrate sill flashings, make watertight by seating and sealing fastener heads to sill flashing.

H. Coordinate attachment and seal of perimeter air and vapor barrier materials.

I. Pack fibrous insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.

J. Install glass in accordance with Section 08 80 00, using glazing method required to achieve performance criteria.

K. Install perimeter sealant in accordance with Section 07 90 05.

L. Touch-up minor damage to factory applied finish; replace components that cannot be satisfactorily repaired.

3.03 TOLERANCES

A. Maximum Variation from Plumb: 0.06 inches every 3 ft (1.5 mm/m) non-cumulative or 1/16 inches per 10 ft (1.5 mm/3 m), whichever is less.

B. Maximum Misalignment of Two Adjoining Members Abutting in Plane: 1/32 inch (0.8 mm).

3.04 FIELD QUALITY CONTROL

A. See Section 01 40 00 - Quality Requirements, for independent testing and inspection requirements. Inspection will monitor quality of installation and glazing.

B. Test installed storefront for water leakage in accordance with AAMA 501.2.

3.05 ADJUSTING

A. Adjust operating hardware and sash for smooth operation.

3.06 CLEANING

A. Remove protective material from pre-finished aluminum surfaces.

B. Wash down surfaces with a solution of mild detergent in warm water, applied with soft, clean wiping cloths. Take care to remove dirt from corners. Wipe surfaces clean.

C. Remove excess sealant by method acceptable to sealant manufacturer.

3.07 PROTECTION

A. Protect installed products from damage during subsequent construction.

END OF SECTION

SECTION 08 71 00
DOOR HARDWARE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Hardware for wood and hollow steel doors.

B. Thresholds.

C. Weatherstripping, seals and door gaskets.

D. Gate locks.

1.02 RELATED REQUIREMENTS

A. Section 08 11 13 - Hollow Metal Doors and Frames.

1.03 REFERENCE STANDARDS

A. BHMA A156.2 - American National Standard for Bored and Preassembled Locks & Latches; Builders Hardware Manufacturers Association; 2011 (ANSI/BHMA A156.2).

B. BHMA A156.3 - American National Standard for Exit Devices; Builders Hardware Manufacturers Association; 2008 (ANSI/BHMA A156.3).

C. BHMA A156.4 - American National Standard for Door Controls - Closers; Builders Hardware Manufacturers Association, Inc.; 2008 (ANSI/BHMA A156.4).

D. BHMA A156.6 - American National Standard for Architectural Door Trim; Builders Hardware Manufacturers Association; 2010 (ANSI/BHMA A156.6).

E. BHMA A156.8 - American National Standard for Door Controls - Overhead Stops and Holders; Builders Hardware Manufacturers Association, Inc.; 2010 (ANSI/BHMA A156.8).

F. BHMA A156.22 - American National Standard for Door Gasketing and Edge Seal Systems, Builders Hardware Manufacturers Association; 2012 (ANSI/BHMA A156.22).

G. DHI (LOCS) - Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames; Door and Hardware Institute; 2004.

H. DHI WDHS.3 - Recommended Locations for Architectural Hardware for Flush Wood Doors; Door and Hardware Institute; 1993; also in WDHS-1/WDHS-5 Series, 1996.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordinate the manufacture, fabrication, and installation of products onto which door hardware will be installed.

B. Furnish templates for door and frame preparation to manufacturers and fabricators of products requiring internal reinforcement for door hardware.

C. Convey Owner's keying requirements to manufacturers.

D. Preinstallation Meeting: Convene a preinstallation meeting one week prior to commencing work of this section; require attendance by all affected installers.

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Manufacturer's catalog literature for each type of hardware, marked to clearly show products to be furnished for this project.

C. Hardware Schedule: Detailed listing of each item of hardware to be installed on each door. Use door numbering scheme as included in the Contract Documents. Identify electrically operated items and include power requirements.

D. Keying Schedule: Submit for approval of Owner.

E. Manufacturer's Installation Instructions: Indicate special procedures, perimeter conditions requiring special attention..

F. Maintenance Data: Include data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.

G. Keys: Deliver with identifying tags to Owner by security shipment direct from hardware supplier.

H. Warranty: Submit manufacturer's warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

I. Maintenance Materials and Tools: Furnish the following for Owner's use in maintenance of project.
   1. See Section 01 60 00 - Product Requirements, for additional provisions.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.

B. Hardware Supplier Qualifications: Company specializing in supplying commercial door hardware with _____years of experience.

C. Hardware Supplier Personnel: Employ an Architectural Hardware Consultant (AHC) to assist in the work of this section.

1.07 WARRANTY

A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.

PART 2 PRODUCTS

2.01 DOOR HARDWARE - GENERAL

A. Provide all hardware specified or required to make doors fully functional, compliant with applicable codes, and secure to the extent indicated.

B. Provide all items of a single type of the same model by the same manufacturer.

C. Provide products that comply with the following:
   1. Applicable provisions of federal, state, and local codes.

D. Function: Lock and latch function numbers and descriptions of manufactures series as listed in hardware schedule.

E. Finishes: Aged Bronze.

2.02 HINGES

A. Hinges: Provide hinges on every swinging door.
   1. Provide ball-bearing hinges at all doors.
   2. Provide hinges in the quantities indicated.
   3. Provide non-removable pins on exterior outswinging doors.

B. Quantity of Hinges Per Door:
   1. Doors From 60 inches (1.5 m) High up to 90 inches (2.3 m) High: Three hinges.
   2. Doors 90 inches (2.3 m) High up to 120 inches (3 m) High: Four hinges.

C. Manufacturers - Hinges:
   1. Assa Abloy McKinney: www.assaabloydss.com.
   2. C. R. Laurence Co., Inc: www.crl-arch.com.
   3. Hager Companies: www.hagerco.com.

2.03 PUSH/PULLS

A. Push/Pulls: Comply with BHMA A156.6.
   1. Provide push and pull on doors not specified to have lockset, latch set, exit device, or auxiliary lock.
   2. On solid doors, provide matching push plate and pull plate on opposite faces.

B. Manufacturers - Push/Pulls:
   1. Assa Abloy McKinney: www.assaabloydss.com.
   2. C. R. Laurence Co., Inc: www.crl-arch.com.

3. Hager Companies: www.hagerco.com.

2.04 LOCKS AND LATCHES

A. Locks: Provide a lock for every door, unless specifically indicated as not requiring locking.
   1. Hardware Sets indicate locking functions required for each door.
   2. If no hardware set is indicated for a swinging door provide an office lockset.
   3. Trim: Provide lever handle or pull trim on outside of all locks unless specifically stated to have no outside trim.
   4. Lock Cylinders: Provide key access on outside of all locks unless specifically stated to have no locking or no outside trim.

B. Lock Cylinders: Manufacturer's standard tumbler type, six-pin standard core.
   1. Provide cams and/or tailpieces as required for locking devices required.

C. Keying: Grand master keyed.
   1. Include construction keying.
   2. Supply keys in the following quantities:
      a. 4 master keys.
      b. 4 grand master keys.
      c. 2 construction keys.
      d. 2 change keys for each lock.
   3. When providing keying information, comply with DHI Handbook "Keying systems and nomenclature".

D. Latches: Provide a latch for every door that is not required to lock, unless specifically indicated "push/pull" or "not required to latch".

2.05 CYLINDRICAL LOCKSETS

A. Locking Functions: As defined in BHMA A156.2, and as follows:

B. Manufacturers - Cylindrical Locksets:
   1. Assa Abloy Corbin Russwin, Sargent, or Yale: www.assaabloydss.com.
   2. Best Access Systems, division of Stanley Security Solutions: www.bestlock.com.
   3. Schlage, an Allegion brand: www.allegion.com/us.

2.06 FLUSHBOLTS

A. Flushbolts: Lever extension bolts in leading edge of door, one bolt into floor, one bolt into top of frame.
   1. Pairs of Swing Doors: At inactive leaves, provide flush bolts of type as required to comply with code.
   2. Floor Bolts: Provide dustproof strike except at metal thresholds.

B. Manual Flushbolts: Provide lever extensions for top bolt at over-size doors.

C. Manufacturers - Flushbolts:
   1. Assa Abloy McKinney: www.assaabloydss.com.
   2. Hager Companies: www.hagerco.com.
   3. Ives, an Allegion brand: www.allegion.com/us.

2.07 EXIT DEVICES

A. Locking Functions: Functions as defined in BHMA A156.3, and as follows:
   1. Entry/Exit, Free Swing: Key outside retracts latch, latch holdback (dogging) for free swing during occupied hours, not fire-rated; outside trim must be specified as lever or pull.

B. Manufacturers:
   1. Assa Abloy Corbin Russwin, Sargent, or Yale: www.assaabloydss.com.
   2. C. R. Laurence Co., Inc: www.crl-arch.com.
   3. Hager Companies: www.hagerco.com.

2.08 CLOSERS

A. Closers: Complying with BHMA A156.4.

1. Provide surface-mounted, door-mounted closers unless otherwise indicated.
2. Provide a door closer on every exterior door.
3. On pairs of swinging doors, if an overlapping astragal is present, provide coordinator to ensure the leaves close in proper order.
4. At outswinging exterior doors, mount closer in inside of door.

B. Manufacturers - Closers:
1. Assa Abloy Corbin Russwin, Norton, Rixson, Sargent, or Yale: www.assaabloydss.com.
2. Hager Companies: www.hagerco.com.
3. LCN, an Allegion brand: www.allegion.com/us.

2.09 STOPS AND HOLDERS

A. Stops: Complying with BHMA A156.8; provide a stop for every swinging door, unless otherwise indicated.
1. Provide wall stops, unless otherwise indicated.
2. If wall stops are not practical, due to configuration of room or furnishings, provide overhead stop.
3. Stop is not required if positive stop feature is specified for door closer; positive stop feature of door closer is not an acceptable substitute for a stop unless specifically so stated.

B. Manufacturers - Overhead Holders/Stops:
1. Assa Abloy Rixson or Sargent: www.assaabloydss.com.
2. C. R. Laurence Co., Inc: www.crl-arch.com.
3. DORMA Group North America: www.dorma-usa.com/usa.

C. Manufacturers - Wall and Floor Stops/Holders:
1. Assa Abloy McKinney: www.assaabloydss.com.
2. C. R. Laurence Co., Inc: www.crl-arch.com.
3. Hager Companies: www.hagerco.com.

2.10 GASKETING AND THRESHOLDS

A. Gaskets: Complying with BHMA A156.22.
1. On each door in smoke partition, provide smoke gaskets; top, sides, and meeting stile of pairs. If fire/smoke partitions are not indicated on drawings, provide smoke gaskets on each door identified as a "smoke door" and 20-minute rated fire doors.
2. On each exterior door, provide weatherstripping gaskets, unless otherwise indicated; top, sides, and meeting stiles of pairs.
a. Where exterior door is also required to have fire or smoke rating, provide gaskets functioning as both smoke and weather seals.
3. On each exterior door, provide door bottom sweep, unless otherwise indicated.

B. Thresholds:
1. At each exterior door, provide a threshold unless otherwise indicated.

C. Manufacturers - Gasketing and Thresholds:
1. Assa Abloy McKinney: www.assaabloydss.com.
2. Hager Companies: www.hagerco.com.
3. Pemko Manufacturing Co: www.pemko.com.

2.11 PROTECTION PLATES AND ARCHITECTURAL TRIM

A. Protection Plates:
1. Kickplate: Provide on push side of every door with closer, except storefront and all-glass doors.

B. Manufacturers - Protection Plates and Architectural Trim:
1. Assa Abloy McKinney: www.assaabloydss.com.
2. C. R. Laurence Co., Inc: www.crl-arch.com.
3. Hager Companies: www.hagerco.com.

2.12 KEY CONTROLS

A. Fire Department Lock Box: Heavy-duty, surface mounted, solid stainless-steel box with hinged door and interior gasket seal; single drill resistant lock with dust covers and tamper alarm.
   1. Capacity: Holds 10 keys.
   2. Finish: Manufacturer's standard dark bronze.
   3. Products:
      a. Knox Company; Knox-Box Rapid Entry System: www.knoxbox.com.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that doors and frames are ready to receive work; labeled, fire-rated doors and frames are present and properly installed, and dimensions are as indicated on shop drawings.

3.02 INSTALLATION

A. Install hardware in accordance with manufacturer's instructions and applicable codes.

B. Use templates provided by hardware item manufacturer.

C. Do not install surface mounted items until finishes applied to substrate are complete.

D. Mounting heights for hardware from finished floor to center line of hardware item:
   1. For steel doors and frames: Comply with DHI "Recommended Locations for Architectural Hardware for Steel Doors and Frames."
   2. For wood doors: Comply with DHI "Recommended Locations for Architectural Hardware for Wood Flush Doors."

3.03 FIELD QUALITY CONTROL

A. Field inspection and testing will be performed under provisions of Section 01 40 00.

3.04 ADJUSTING

A. Adjust work under provisions of Section 01 70 00.

B. Adjust hardware for smooth operation.

C. Adjust gasketing for complete, continuous seal; replace if unable to make complete seal.

3.05 CLEANING

A. Clean adjacent surfaces soiled by hardware installation. Clean finished hardware per manufacturer's instructions after final adjustments has been made. Replace items that cannot be cleaned to manufacturer's level of finish quality at no additional cost.

3.06 PROTECTION

A. Protect finished Work under provisions of Section 01 70 00.

B. Do not permit adjacent work to damage hardware or finish.

3.07 SCHEDULE - REFER TO DRAWINGS.

END OF SECTION

SECTION 08 80 00
GLAZING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Glass.

B. Glazing compounds and accessories.

1.02 REFERENCE STANDARDS

A. ASTM C864 - Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers; 2005 (Reapproved 2011).

B. ASTM C1036 - Standard Specification for Flat Glass; 2011e1.

C. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass; 2012.

D. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2013.

E. ASTM E1300 - Standard Practice for Determining Load Resistance of Glass in Buildings; 2012a.

F. ASTM E2190 - Standard Specification for Insulating Glass Unit Performance and Evaluation; 2010.

G. GANA (GM) - GANA Glazing Manual; Glass Association of North America; 2009.

H. GANA (SM) - GANA Sealant Manual; Glass Association of North America; 2008.

1.03 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene a preinstallation meeting one week before starting work of this section; require attendance by all affected installers.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data on Glass Types: Provide structural, physical and environmental characteristics, size limitations, special handling or installation requirements.

C. Product Data on Glazing Compounds: Provide chemical, functional, and environmental characteristics, limitations, special application requirements. Identify available colors.

D. Samples: Submit two samples 12 x12 inch (304.8 x 304.8 mm) in size of glass and plastic units, showing coloration and design.

E. Certificates: Certify that products meet or exceed specified requirements.

1.05 QUALITY ASSURANCE

A. Perform Work in accordance with GANA Glazing Manual and GANA Sealant Manual for glazing installation methods.

1.06 MOCK-UP

A. Provide mock-up of typical window including glass and air barrier and vapor retarder seal.

B. Locate where directed.

C. Mock-up may remain as part of the Work.

1.07 FIELD CONDITIONS

A. Do not install glazing when ambient temperature is less than 50 degrees F (10 degrees C).

B. Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

1.08 WARRANTY

A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.

B. Sealed Insulating Glass Units: Provide a five (5) year warranty to include coverage for seal failure, interpane dusting or misting, including replacement of failed units.

PART 2 PRODUCTS

2.01 GLAZING TYPES

A. Type IG-1 - Sealed Insulating Glass Units: Vision glazing.
   1. Application(s): All exterior glazing unless otherwise indicated.
   2. Between-lite space filled with air.
   3. Total Thickness: 1 inch (25 mm).

B. Glass Shelves:
   1. Application: Locations indicated on the drawings.
   2. Type: Fully tempered float glass with ground edges and corners.
   3. Thickness: 3/8 inch (_____mm).

2.02 EXTERIOR GLAZING ASSEMBLIES

A. Structural Design Criteria: Select type and thickness of glass to withstand dead and live loads caused by positive and negative wind pressure acting normal to plane of glass.
   1. Use the procedure specified in ASTM E1300 to determine glass type and thickness.
   2. Limit glass deflection to 1/200 or flexure limit of glass, whichever is less, with full recovery of glazing materials.
   3. Glass thicknesses listed are minimum.

2.03 GLASS MATERIALS

A. Manufacturers:
   1. AGC Glass Company North America, Inc: www.us.agc.com.
   2. Pilkington North America Inc: www.pilkington.com/na.
   3. PPG Industries, Inc: www.ppgideascapes.com.

B. Float Glass: All glazing is to be float glass unless otherwise indicated.
   1. Annealed Type: ASTM C1036, Type I, transparent flat, Class 1 clear, Quality Q3 (glazing select).
   2. Heat-Strengthened and Fully Tempered Types: ASTM C1048.
   3. Tinted Types: Color and performance characteristics as indicated.
   4. Thicknesses: As indicated; for exterior glazing comply with specified requirements for wind load design regardless of specified thickness.

2.04 SEALED INSULATING GLASS UNITS

A. Manufacturers:
   1. Any of the manufacturers specified for float glass.
   2. Substitutions: Refer to Section 01 60 00 - Product Requirements.

B. Sealed Insulating Glass Units: Types as indicated.
   1. Locations: Exterior, except as otherwise indicated.
   2. Durability: Certified by an independent testing agency to comply with ASTM E2190.
   3. Edge Spacers: Aluminum, bent and soldered corners.
   4. Edge Seal: Glass to elastomer with supplementary silicone sealant.
   5. Edge Seal Color: black.
   6. Purge interpane space with dry hermetic air.

2.05 GLAZING COMPOUNDS

A. Manufacturers:
   1. Bostik Inc: www.bostik-us.com.
   2. Momentive Performance Materials, Inc (formerly GE Silicones): www.momentive.com.
   3. Pecora Corporation: www.pecora.com.
   4. BASF Construction Chemicals-Building Systems: www.buildingsystems.basf.com.

2.06 GLAZING ACCESSORIES

A. Setting Blocks: Neoprene, 80 to 90 Shore A durometer hardness, ASTM C864 Option I. Length of 0.1 inch for each square foot (25 mm for each square meter) of glazing or minimum 4 inch (100 mm) x width of glazing rabbet space minus 1/16 inch (1.5 mm) x height to suit glazing method and pane weight and area.

B. Spacer Shims: Neoprene, 50 to 60 Shore A durometer hardness, ASTM C 864 Option I. Minimum 3 inch (75 mm) long x one half the height of the glazing stop x thickness to suit application, self adhesive on one face.

C. Glazing Tape: Closed cell polyvinyl chloride foam, coiled on release paper over adhesive on two sides, maximum water absorption by volume of 2 percent, designed for compression of 25 percent to effect an air barrier and vapor retarder seal.

D. Glazing Tape: Preformed butyl compound with integral resilient tube spacing device; 10 to 15 Shore A durometer hardness; coiled on release paper; black color.

E. Glazing Gaskets: Resilient silicone extruded shape to suit glazing channel retaining slot; ASTM C864 Option I; black color.

F. Glazing Gaskets: Resilient silicone extruded shape to suit glazing channel retaining slot; ASTM C864 Option I; _____color.

G. Glazing Clips: Manufacturer's standard type.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that openings for glazing are correctly sized and within tolerance.

B. Verify that surfaces of glazing channels or recesses are clean, free of obstructions that may impede moisture movement, weeps are clear, and ready to receive glazing.

3.02 PREPARATION

A. Clean contact surfaces with solvent and wipe dry.

B. Seal porous glazing channels or recesses with substrate compatible primer or sealer.

C. Prime surfaces scheduled to receive sealant.

D. Install sealants in accordance with ASTM C1193 and GANA Sealant Manual.

E. Install sealant in accordance with manufacturer's instructions.

3.03 GLAZING METHODS

3.04 INSTALLATION - EXTERIOR/INTERIOR DRY METHOD (GASKET GLAZING)

A. Place setting blocks at 1/4 points with edge block no more than 6 inches (150 mm) from corners.

B. Rest glazing on setting blocks and push against fixed stop with sufficient pressure on gasket to attain full contact.

C. Install removable stops without displacing glazing gasket; exert pressure for full continuous contact.

3.05 INSTALLATION - INTERIOR DRY METHOD (TAPE AND TAPE)

A. Cut glazing tape to length and set against permanent stops, projecting 1/16 inch (1.6 mm) above sight line.

B. Place setting blocks at 1/4 points with edge block no more than 6 inches (150 mm) from corners.

C. Rest glazing on setting blocks and push against tape for full contact at perimeter of pane or unit.

D. Place glazing tape on free perimeter of glazing in same manner described above.

E. Install removable stop without displacement of tape. Exert pressure on tape for full continuous contact.

F. Knife trim protruding tape.

3.06 CLEANING

A. Remove glazing materials from finish surfaces.

B. Remove labels after Work is complete.

C. Clean glass and adjacent surfaces.

3.07 PROTECTION

A. After installation, mark pane with an 'X' by using removable plastic tape or paste; do not mark heat absorbing or reflective glass units.

END OF SECTION

SECTION 09 21 16
GYPSUM BOARD ASSEMBLIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Performance criteria for gypsum board assemblies.

B. Metal stud wall framing.

C. Metal channel ceiling framing.

D. Acoustic insulation.

E. Gypsum sheathing.

F. Cementitious backing board.

G. Gypsum wallboard.

H. Joint treatment and accessories.

I. Water-resistive barrier over exterior wall sheathing.

1.02 RELATED REQUIREMENTS

A. Section 06 10 00 - Rough Carpentry: Wood blocking product and execution requirements.

B. Section 07 25 00 - Weather Barriers: Water-resistive barrier over sheathing.

1.03 REFERENCE STANDARDS

A. ANSI A108.11 - American National Standard for Interior Installation of Cementitious Backer Units; 2013.1.

B. ANSI A118.9 - American National Standard Specifications for Test Methods and Specifications for Cementitious Backer Units; 2013.1.

C. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2013.

D. ASTM C475/C475M - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board; 2012.

E. ASTM C645 - Standard Specification for Nonstructural Steel Framing Members; 2013.

F. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2012.

G. ASTM C754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products; 2011.

H. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board; 2013.

I. ASTM C954 - Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs From 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness; 2011.

J. ASTM C1002 - Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs; 2007 (Reapproved 2013).

K. ASTM C1047 - Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base; 2010a.

L. ASTM C1177/C1177M - Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing; 2013.

M. ASTM C1178/C1178M - Standard Specification for Coated Glass Mat Water-Resistant Gypsum Backing Panel; 2013.

N. ASTM C1280 - Standard Specification for Application of Gypsum Sheathing; 2013.

O. ASTM C1325 - Standard Specification for Non-Asbestos Fiber-Mat Reinforced Cement Substrate Sheets; 2008b.

P. ASTM C1396/C1396M - Standard Specification for Gypsum Board; 2014.

Q. ASTM C1658/C1658M - Standard Specification for Glass Mat Gypsum Panels; 2013.

R. ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber; 2012.

S. ASTM E72 - Standard Test Methods of Conducting Strength Tests of Panels for Building Construction.

T. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2009.

U. ASTM E413 - Classification for Rating Sound Insulation; 2010.

V. GA-216 - Application and Finishing of Gypsum Board; Gypsum Association; 2013.

W. UL (FRD) - Fire Resistance Directory; Underwriters Laboratories Inc.; current edition.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on metal framing, gypsum board, accessories, and joint finishing system.

C. Product Data: Provide manufacturer's data on partition head to structure connectors, showing compliance with requirements.

D. Test Reports: For all stud framing products that do not comply with ASTM C645 or C754, provide independent laboratory reports showing maximum stud heights at required spacings and deflections.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing gypsum board application and finishing, with minimum 5 years of documented experience.

PART 2 PRODUCTS

2.01 GYPSUM BOARD ASSEMBLIES

A. Provide completed assemblies complying with ASTM C840 and GA-216.

B. Interior Partitions Indicated as Acoustic: Provide completed assemblies with the following characteristics:
   1. Acoustic Attenuation: STC of 45-49 calculated in accordance with ASTM E413, based on tests conducted in accordance with ASTM E90.

2.02 METAL FRAMING MATERIALS

A. Manufacturers - Metal Framing, Connectors, and Accessories:
   1. Clarkwestern Dietrich Building Systems LLC: www.clarkdietrich.com.
   2. Marino: www.marinoware.com.
   3. Phillips Manufacturing Company: www.phillipsmfg.com.

B. Non-Loadbearing Framing System Components: ASTM C645; galvanized sheet steel, of size and properties necessary to comply with ASTM C754 for the spacing indicated, with maximum deflection of wall framing of L/240 at 5 psf (240 Pa).
   1. Studs: "C" shaped with flat or formed webs with knurled faces.
   2. Runners: U shaped, sized to match studs.
   3. Ceiling Channels: C shaped.

C. Ceiling Hangers: Type and size as specified in ASTM C754 for spacing required.

2.03 BOARD MATERIALS

A. Manufacturers - Gypsum-Based Board:
   1. American Gypsum: www.americangypsum.com.

2. CertainTeed Corporation: www.certainteed.com.
3. Georgia-Pacific Gypsum: www.gpgypsum.com.
4. National Gypsum Company: www.nationalgypsum.com.
5. USG Corporation: www.usg.com.

B. Gypsum Wallboard: Paper-faced gypsum panels as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
1. Application: Use for vertical surfaces and ceilings, unless otherwise indicated.
2. Glass mat faced gypsum panels as defined in ASTM C1658/C1658M, suitable for paint finish, of the same core type and thickness may be substituted for paper-faced board.
3. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
4. Thickness:
a. Vertical Surfaces: 5/8 inch (16 mm).
b. Ceilings: 1/2 inch (13 mm).

C. Backing Board For Wet Areas: One of the following products:
1. Application: Surfaces behind tile in wet areas including toilets and kitchen.
2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
3. ANSI Cement-Based Board: Non-gypsum-based; aggregated Portland cement panels with glass fiber mesh embedded in front and back surfaces complying with ANSI A118.9 or ASTM C1325.
a. Thickness: 5/8 inch (16 mm).
b. Products:
1) Custom Building Products; Wonderboard: www.custombuildingproducts.com.
2) National Gypsum Company; PemaBase Brand Cement Board: www.nationalgypsum.com.
3) USG Corporation; Durock Brand Cement Board: www.usg.com.
4. Glass Mat Faced Board: Coated glass mat water-resistant gypsum backing panel as defined in ASTM C1178/C1178M.
a. Standard Type: Thickness 5/8 inch (16 mm).
b. Products:
1) Georgia-Pacific Gypsum; DensShield Tile Backer.
2) Temple-Inland Inc; Green Glass Tile Backer
3) National Gypsum Company; Gold Bond eXP Tile Backer.

D. Exterior Sheathing Board: Sizes to minimize joints in place; ends square cut.
1. Application: Exterior sheathing, unless otherwise indicated.
2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
3. Glass Mat Faced Sheathing: Glass mat faced gypsum substrate as defined in ASTM C1177/C1177M.
4. Regular Board Thickness: 1/2 inch (13 mm).
5. Edges: Square, for vertical application.
6. Glass Mat Faced Products:
a. Georgia-Pacific Gypsum; DensGlass Fireguard Sheathing.
b. National Gypsum Company; Gold Bond Brand eXP Extended Exposure Sheathing.
c. Certain Teed Corporation; GlasRoc Brand.

2.04 ACCESSORIES

A. Acoustic Insulation: ASTM C665; preformed glass fiber, friction fit type, unfaced. Thickness: 6 inch (152.4 mm).

B. Water-Resistive Barrier: As specified in Section 07 25 00.

C. Finishing Accessories: ASTM C1047, galvanized steel or rolled zinc, unless otherwise indicated.
1. Types: As detailed or required for finished appearance.
2. Special Shapes: In addition to conventional cornerbead and control joints, provide U-bead at exposed panel edges.

D. Joint Materials: ASTM C475 and as recommended by gypsum board manufacturer for project conditions.
   1. Tape: 2 inch (50 mm) wide, coated glass fiber tape for joints and corners, except as otherwise indicated.
   2. Chemical hardening type compound.

E. High Build Drywall Surfacer: Vinyl acrylic latex-based coating for spray application, designed to take the place of skim coating and separate paint primer in achieving Level 5 finish.

F. Screws for Attachment to Steel Members Less Than 0.03 inch (0.7 mm) In Thickness, to Wood Members, and to Gypsum Board: ASTM C1002; self-piercing tapping type; cadmium-plated for exterior locations.

G. Screws for Attachment to Steel Members From 0.033 to 0.112 inch (0.8 to 2.8 mm) in Thickness: ASTM C954; steel drill screws for application of gypsum board to loadbearing steel studs.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that project conditions are appropriate for work of this section to commence.

3.02 FRAMING INSTALLATION

A. Metal Framing: Install in accordance with ASTM C754 and manufacturer's instructions.

B. Suspended Ceilings and Soffits: Space framing and furring members as indicated.
   1. Level ceiling system to a tolerance of 1/1200.

C. Studs: Space studs as permitted by standard.
   1. Extend partition framing to structure where indicated and to ceiling in other locations.

D. Openings: Reinforce openings as required for weight of doors or operable panels, using not less than double studs at jambs.

E. Blocking: Install wood blocking for support of:
   1. Framed openings.
   2. Wall mounted cabinets.
   3. Plumbing fixtures.
   4. Toilet partitions.
   5. Toilet accessories.
   6. Wall mounted door hardware.

3.03 ACOUSTIC ACCESSORIES INSTALLATION

A. Acoustic Insulation: Place tightly within spaces, around cut openings, behind and around electrical and mechanical items within partitions, and tight to items passing through partitions.

B. Acoustic Sealant: Install in accordance with manufacturer's instructions.

3.04 BOARD AND GLASS MAT FACED BOARD INSTALLATION

A. Comply with ASTM C 840, GA-216, and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.

B. Single-Layer Non-Rated: Install gypsum board in most economical direction, with ends and edges occurring over firm bearing.

C. Exterior Sheathing: Comply with ASTM C1280. Install sheathing vertically, with edges butted tight and ends occurring over firm bearing.
   1. Paper-Faced Sheathing: Immediately after installation, protect from weather by application of water-resistive barrier.

D. Cementitious Backing Board: Install over steel framing members and plywood substrate where indicated, in accordance with ANSI A108.11 and manufacturer's instructions.

E. Installation on Metal Framing: Use screws for attachment of all gypsum board except face layer of non-rated double-layer assemblies, which may be installed by means of adhesive lamination.

F. Moisture Protection: Treat cut edges and holes in moisture resistant gypsum board and exterior gypsum soffit board with sealant.

3.05 INSTALLATION OF TRIM AND ACCESSORIES

A. Control Joints: Place control joints consistent with lines of building spaces and as indicated.
   1. Not more than 30 feet (10 meters) apart on walls and ceilings over 50 feet (16 meters) long.

B. Corner Beads: Install at external corners, using longest practical lengths.

C. Edge Trim: Install at locations where gypsum board abuts dissimilar materials and as indicated.

D. Exterior Soffit Vents: Install according to manufacturer's written instructions and in locations shown on the drawings. Provide vent area specified.

3.06 JOINT TREATMENT

A. Glass Mat Faced Gypsum Board and Exterior Glass Mat Faced Sheathing: Use fiberglass joint tape, bedded and finished with chemical hardening type joint compound.

B. Finish gypsum board in accordance with levels defined in ASTM C840, as follows:
   1. Level 4: Walls and ceilings to receive paint finish or wall coverings, unless otherwise indicated.
   2. Level 5: Walls and ceilings to receive semi-gloss or gloss paint finish and other areas specifically indicated.

C. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.
   1. Feather coats of joint compound so that camber is maximum 1/32 inch (0.8 mm).

D. Where Level 5 finish is indicated, spray apply high build drywall surfacer over entire surface after joints have been properly treated; achieve a flat and tool mark-free finish.

E. Fill and finish joints and corners of cementitious backing board as recommended by manufacturer.

3.07 TOLERANCES

A. Maximum Variation of Finished Gypsum Board Surface from True Flatness: 1/8 inch in 10 feet (3 mm in 3 m) in any direction.

END OF SECTION

SECTION 09 30 00

TILING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Tile for floor applications.

B. Tile for wall applications.

C. Cementitious backer board as tile substrate.

D. Ceramic accessories.

E. Ceramic trim.

1.02 REFERENCE STANDARDS

A. ANSI A108/A118/A136.1 - American National Standard Specifications for the Installation of Ceramic Tile - Version; 2013.1.

B. ANSI A108.1A - American National Standard Specifications for Installation of Ceramic Tile in the Wet-Set Method, with Portland Cement Mortar; 2013.1.

C. ANSI A108.1B - American National Standard Specifications for Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set or Latex-Portland Cement Mortar; 2013.1.

D. ANSI A108.1C - Specifications for Contractors Option: Installation of Ceramic Tile in the Wet-Set Method with Portland Cement Mortar or Installation of Ceramic Tile on a Cured Portland Cement Mortar Bed with Dry-Set or Latex-Portland Cement Mortar; 2013.1.

E. ANSI A108.4 - American National Standard Specifications for Installation of Ceramic Tile with Organic Adhesives or Water Cleanable Tile-Setting Epoxy Adhesive; 2013.1.

F. ANSI A108.5 - American National Standard Specifications for Installation of Ceramic Tile with Dry-Set Portland Cement Mortar or Latex-Portland Cement Mortar; 2013.1.

G. ANSI A108.6 - American National Standard Specifications for Installation of Ceramic Tile with Chemical Resistant, Water Cleanable Tile-Setting and -Grouting Epoxy; 2013.1.

H. ANSI A108.8 - American National Standard Specifications for Installation of Ceramic Tile with Chemical Resistant Furan Resin Mortar and Grout; 2013.1.

I. ANSI A108.9 - American National Standard Specifications for Installation of Ceramic Tile with Modified Epoxy Emulsion Mortar/Grout; 2013.1.

J. ANSI A108.10 - American National Standard Specifications for Installation of Grout in Tilework; 2013.1.

K. ANSI A108.11 - American National Standard Specifications for Interior Installation of Cementitious Backer Units; 2013.1.

L. ANSI A108.12 - American National Standard Specifications for Installation of Ceramic Tile with EGP (Exterior Glue Plywood) Latex-Portland Cement Mortar; 2013.1.

M. ANSI A108.13 - American National Standard Specifications for Installation of Load Bearing, Bonded, Waterproof Membranes for Thin-Set Ceramic Tile and Dimension Stone; 2013.1.

N. ANSI A118.6 - American National Standard Specifications for Standard Cement Grouts for Tile Installation; 2013.1.

O. ANSI A137.1 - American National Standard Specifications for Ceramic Tile - Version; 2013.1.

P. TCNA (HB) - Handbook for Ceramic, Glass, and Stone Tile Installation - Version; 2013.1.

1.03 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide manufacturers' data sheets on tile, mortar, grout, and accessories. Include instructions for using grouts and adhesives.

C. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 01 60 00 - Product Requirements, for additional provisions.
   2. Extra Tile: 2 percent of each size, color, and surface finish combination.

1.04 QUALITY ASSURANCE

A. Maintain one copy of and ANSI A108/A118/A136.1 and TCNA (HB) on site.

B. Installer Qualifications: Company specializing in performing tile installation, with minimum of 5 years of documented experience.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Protect adhesives from freezing or overheating in accordance with manufacturer's instructions.

1.06 FIELD CONDITIONS

A. Do not install solvent-based products in an unventilated environment.

B. Maintain ambient and substrate temperature of 50 degrees F (10 degrees C) during installation of mortar materials.

PART 2 PRODUCTS

2.01 TILE

A. Manufacturers: All products by the same manufacturer.
   1. Crossville Studios. https://www.crossvillestudios.com/
   2. Gardens State Tile
   3. Tile Bar. https://www.tilebar.com/

B. Wall Tile : ANSI A137.1, and as follows:
   1. Size Style and Pattern refer to drawings.

2.02 TRIM AND ACCESSORIES

A. Ceramic Accessories: Glazed finish, same color and finish as adjacent field tile; same manufacturer as tile.

B. Ceramic Trim: Matching bullnose, double bullnose, cove base, and cove ceramic shapes in sizes coordinated with field tile.
   1. Applications: Use in the following locations:
      a. Open Edges: Bullnose.
      b. Inside Corners: Jointed.
      c. Floor to Wall Joints: Cove base.
   2. Manufacturer: Same as for tile.

2.03 ADHESIVE MATERIALS

A. Manufacturers:
   1. Bostik Inc: www.bostik-us.com.
   2. LATICRETE International, Inc; LATICRETE 254 Platinum: www.laticrete.com.
   3. Mapei Corporation: www.mapei.com.

B. Epoxy Adhesive: ANSI A118.3,, thinset bond type.

2.04 GROUTS

A. Manufacturers:
   1. ProSpec, an Oldcastle brand; ProColor Sanded Tile Grout: www.prospec.com.
   2. Bostik Inc: www.bostik-us.com.
   3. LATICRETE International, Inc; LATICRETE PERMACOLOR Grout: www.laticrete.com.

B. Standard Grout: ANSI A118.6 standard cement grout.
   1. Color(s): As selected by Architect from manufacturer's full line.

2.05 ACCESSORY MATERIALS

A. Waterproofing Membrane: Specifically designed for bonding to cementitious substrate under

thick mortar bed or thin-set tile; complying with ANSI A118.10.

1. Fabric-Reinforced, Fluid-Applied Membrane System consisting of liquid-latex rubber or elastometric polymer and continuous fabric reinforcement.
2. Products:
    a. Custom Building Products; 9240 Waterproofing and Anti-Fracture Membrane.
    b. MAPEI Corporation; Mapelastic 400.
    c. Laticrete International, Inc.; Lacticrete 9235 Waterproof Membrane.

B. Cementitious Backer Board: ANSI A118.9; High density, cementitious, glas fiber reinforced, 1/2 inch (13 mm) thick; 2 inch (50mm) wide coated glass fiber tape for joints and corners.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that sub-floor surfaces are smooth and flat within the tolerances specified for that type of work and are ready to receive tile.

B. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive tile.

C. Verify that sub-floor surfaces are dust-free and free of substances that could impair bonding of setting materials to sub-floor surfaces.

D. Verify that concrete sub-floor surfaces are ready for tile installation by testing for moisture emission rate and alkalinity; obtain instructions if test results are not within limits recommended by tile manufacturer and setting materials manufacturer.

E. Verify that required floor-mounted utilities are in correct location.

3.02 PREPARATION

A. Protect surrounding work from damage.

B. Vacuum clean surfaces and damp clean.

C. Seal substrate surface cracks with filler. Level existing substrate surfaces to acceptable flatness tolerances.

D. Install backer board in accordance with ANSI A108.11 and board manufacturer's instructions. Tape joints and corners, cover with skim coat of setting material to a feather edge.

E. Prepare substrate surfaces for adhesive installation in accordance with adhesive manufacturer's instructions.

3.03 INSTALLATION - GENERAL

A. Install tile, thresholds, and stair treads and grout in accordance with applicable requirements of ANSI A108.1A thru A108.13, manufacturer's instructions, and TCNA (HB) recommendations.

B. Lay tile to pattern indicated. Do not interrupt tile pattern through openings.

C. Cut and fit tile to penetrations through tile, leaving sealant joint space. Form corners and bases neatly. Align floor joints.

D. Place tile joints uniform in width, subject to variance in tolerance allowed in tile size. Make grout joints without voids, cracks, excess mortar or excess grout, or too little grout.

E. Form internal angles square and external angles bullnosed.

F. Install ceramic accessories rigidly in prepared openings.

G. Sound tile after setting. Replace hollow sounding units.

H. Keep expansion joints free of adhesive or grout. Apply sealant to joints.

I. Prior to grouting, allow installation to completely cure; minimum of 48 hours.

J. Grout tile joints. Use standard grout unless otherwise indicated.

K. Apply sealant to junction of tile and dissimilar materials and junction of dissimilar planes.

3.04 INSTALLATION - FLOORS - THIN-SET METHODS

A. Over interior concrete substrates, install in accordance with TCNA (HB) Method Handbook F113, dry-set or latex Portland cement bond coat, with standard grout, unless otherwise indicated.

1. Where waterproofing membrane is indicated, install in accordance with TCNA (HB) Method F122, with latex-Portland cement grout.

3.05 INSTALLATION - WALL TILE

A. Over cementitious backer units on studs, install in accordance with TCNA (HB) Method W244, using membrane at toilet rooms and exterior applications.

3.06 CLEANING

A. Clean tile and grout surfaces.

3.07 PROTECTION

A. Do not permit traffic over finished floor surface for 4 days after installation.

END OF SECTION

SECTION 09 51 00
ACOUSTICAL CEILINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Suspended metal grid ceiling system.

B. Acoustical units.

1.02 REFERENCE STANDARDS

A. ASTM C635/C635M - Standard Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings; 2013a.

B. ASTM C636/C636M - Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels; 2013.

C. ASTM E580/E580M - Standard Practice for Installation of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Subject to Earthquake Ground Motions; 2014.

1.03 ADMINISTRATIVE REQUIREMENTS

A. Sequence work to ensure acoustical ceilings are not installed until building is enclosed, sufficient heat is provided, dust generating activities have terminated, and overhead work is completed, tested, and approved.

B. Do not install acoustical units until after interior wet work is dry.

C. Installation shall meet all seismic requirements as required by code.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Indicate grid layout and related dimensioning.

C. Product Data: Provide data on suspension system components.

D. Samples: Submit two samples 12 x 12 inch (304.8 x 304.8 mm) in size illustrating material and finish of acoustical units.

E. Samples: Submit two samples each, 12 inches (304.8 mm) long, of suspension system main runner.

F. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 01 60 00 - Product Requirements, for additional provisions.

1.05 QUALITY ASSURANCE

A. Suspension System Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

B. Acoustical Unit Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

1.06 FIELD CONDITIONS

A. Maintain uniform temperature of minimum 60 degrees F (16 degrees C), and maximum humidity of 40 percent prior to, during, and after acoustical unit installation.

PART 2 PRODUCTS

2.01 ACOUSTICAL UNITS

A. Manufacturers:
   1. Basis of Design: USG; Sheetrock Lay-In Ceiling Panel ClimaPanel,Vinyl: www.usg.com
      a. Size: 24 inches x 48 inches
      b. Thickness: 1/2 inches
      c. Surface Color: White
      d. Edge: Square
   2. Armstrong World Industries, Inc: www.armstrong.com.

3. CertainTeed Corporation: www.certainteed.com.

2.02 SUSPENSION SYSTEM(S)

A. Suspension Systems - General: Complying with ASTM C635/C635M; die cut and interlocking components, with stabilizer bars, clips, splices, perimeter moldings, and hold down clips as required.

B. Exposed Steel Suspension System Type USG Donn DX/DXL: Formed steel, commercial quality cold rolled; intermediate-duty.
   1. Profile: Tee; 15/16 inch (24 mm) wide face.
   2. Construction: Double web.
   3. Finish: White painted.

C. Manuracturers:
   1. Same as for acoustical units.

2.03 ACCESSORIES

A. Support Channels and Hangers: Galvanized steel; size and type to suit application, seismic requirements, and ceiling system flatness requirement specified.

B. Perimeter Moldings: Same material and finish as grid.
   1. At Exposed Grid: Provide L-shaped molding for mounting at same elevation as face of grid.

C. Gypsum Board: Fire rated type; 5/8 inch (15 mm) thick, ends and edges square, paper faced.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that layout of hangers will not interfere with other work.

3.02 INSTALLATION - SUSPENSION SYSTEM

A. Install suspension system in accordance with ASTM C636/C636M, ASTM E580/E580M, and manufacturer's instructions and as supplemented in this section.

B. Rigidly secure system, including integral mechanical and electrical components, for maximum deflection of 1:360.

C. Lay out system to a balanced grid design with edge units no less than 50 percent of acoustical unit size.

D. Install after major above-ceiling work is complete. Coordinate the location of hangers with other work.

E. Hang suspension system independent of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.

F. Where ducts or other equipment prevent the regular spacing of hangers, reinforce the nearest affected hangers and related carrying channels to span the extra distance.

G. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability.

H. Support fixture loads using supplementary hangers located within 6 inches (150 mm) of each corner, or support components independently.

I. Do not eccentrically load system or induce rotation of runners.

J. Perimeter Molding: Install at intersection of ceiling and vertical surfaces and at junctions with other interruptions.
   1. Use longest practical lengths.
   2. Overlap and rivet corners.

K. Form expansion joints as detailed. Form to accommodate plus or minus 1 inch (25 mm) movement. Maintain visual closure.

L. Install light fixture boxes constructed of gypsum board above light fixtures in accordance with fire rated assembly requirements and light fixture ventilation requirements.

3.03 INSTALLATION - ACOUSTICAL UNITS

A. Install acoustical units in accordance with manufacturer's instructions.

B. Fit acoustical units in place, free from damaged edges or other defects detrimental to appearance and function.

C. Fit border trim neatly against abutting surfaces.

D. Install units after above-ceiling work is complete.

E. Install acoustical units level, in uniform plane, and free from twist, warp, and dents.

F. Cutting Acoustical Units:
   1. Cut to fit irregular grid and perimeter edge trim.
   2. Make field cut edges of same profile as factory edges.

G. Where round obstructions occur, provide preformed closures to match perimeter molding.

H. Lay acoustical insulation for a distance of 48 inches (1200 mm) either side of acoustical partitions as indicated.

I. Install hold-down clips on each panel to retain panels tight to grid system; comply with fire rating requirements.

3.04 TOLERANCES

A. Maximum Variation from Flat and Level Surface: 1/8 inch in 10 feet (3 mm in 3 m).

B. Maximum Variation from Plumb of Grid Members Caused by Eccentric Loads: 2 degrees.

END OF SECTION

SECTION 09 77 33
GLASS FIBER REINFORCED PLASTIC PANELS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Glass fiber reinforced plastic panels.

B. Surface Preparation

1.02 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on wall covering and adhesive.

C. Shop Drawings: Indicate wall elevations with seaming layout.

D. Samples: Submit two samples 12x12 inch (304.8 by 304.8 mm) in size illustrating color and finish and texture of panels.

E. Manufacturer's Installation Instructions: Indicate special procedures.

F. Maintenance Data: Submit data on cleaning, touch up, and repair of covered surfaces.

1.03 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section with minimum three years of documented experience.

B. Conform to building code requirements for interior finish for smoke and flame spread requirements as tested in accordance with:
   1. ASTM E 84 (Method of test for surface burning characteristics of building Materials)
      a. Wall Required Rating - Class A.
      b. Include the following if products are used in areas subject to stringent wash down requirements.

C. Sanitary Standards: System components and finishes to comply with:
   1. United States Department of Agriculture (USDA) requirements for food preparation facilities, incidental contact.
   2. Food and Drug Administration (FDA) 1999 Food Code 6-101.11.
   3. Canadian Food Inspection Agency (CFIA) requirements.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Store panels flat, indoors, on a clean, dry surface. Remove packaging and allow panels to acclimate to room temperature for 48 hours prior to installation.

B. Deliver materials factory packaged on strong pallets.

1.05 FIELD CONDITIONS

A. Environmental Limitations: Building are to be fully enclosed prior to installation with sufficient heat (70°) and ventilation consistent with good working conditions for finish work

B. During installation and for not less than 48 hours before, maintain an ambient temperature and relative humidity within limits required by type of adhesive used and recommendation of adhesive manufacturer.
   1. Provide ventilation to disperse fumes during application of adhesive as recommended by the adhesive manufacturer.

1.06 WARRANTY

A. Furnish one year guarantee against defects in material and workmanship.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Glass Fiber Reinforced Plastic Panels:
   1. Marlite; : www.marlite.com.
   2. Standard FRP

2.02 PANEL SYSTEMS

A. Fiberglass reinforced thermosetting polyester resin panel sheets complying with ASTM D 5319.
   1. Coating: Multi layer print, primer and finish coats.
   2. Dimensions:
      a. Thickness - 0.090 inch nominal
      b. Width - 4'-0” nominal
      c. Length - 10'-0” nominal at Kitchen, 8'-0" at Bar
   3. Tolerance:
      a. Length and Width: +/-1/8 inch
      b. Square - Not to exceed 1/8 inch for 8 foot panels or 5/32 inch for 10 foot panels

B. Properties: Resistant to rot, corrosion, staining, denting, peeling, and splintering.
   1. Flexural Strength - 1.0 x 104 psi per ASTM D 790. (7.0 kilogram-force/square millimeter)
   2. Flexural Modulus - 3.1 x 105 psi per ASTM D 790. (217.9 kilogram-force/square millimeter)
   3. Tensile Strength - 7.0 x 103 psi per ASTM D 638. (4.9 kilogram-force/square millimeter)
   4. Tensile Modulus - 1.6 x 105 psi per ASTM D 638. (112.5 kilogram-force/square millimeter)
   5. Water Absorption - 0.72% per ASTM D 570.
   6. Barcol Hardness (scratch resistance) of 35 55 as per ASTM D 2583.
   7. Izod Impact Strength of 72 ft. lbs./in ASTM D 256

C. Back Surface: Smooth. Imperfections which do not affect functional properties are not cause for rejection.

D. Front Finish:
   1. Color: 100 White in Kitchen and Black at Bar locations.
      a. Surface : Pebbled
      b. Fire Rating: Class A Fire Rating.
      c. Size: 4' x 10' x .120” at Kitchen and 4' x 8' x .120" at Bar

2.03 MOLDINGS

A. PVC: Extruded PVC Trim Profiles for .090 inch thick panels.
   1. M 350 Inside Corner
   2. M 360 Outside Corner
   3. M 365 Division
   4. M 370 Edge
   5. Color: to match panel color: white/black

B. Outside Corner Guard:
   1. M 961 PVC
      a. 199 White

2.04 ACCESSORIES

A. Fasteners: Non-staining nylon drive rivets.
   1. Match panel colors.
   2. Length to suit project conditions.

B. Adhesive: Either of the following construction adhesives complying with ASTM C 557.
   1. Marlite C-551 FRP Adhesive - Water- resistant, non-flammable adhesive
   2. Marlite C-375 Construction adhesive flexible, water-resistant, solvent based adhesive

formulated for fast, easy application.

C. Sealant:
   1. Marlite Brand MS-250 Clear Silicone Sealant

PART 3 EXECUTION

3.01 PREPARATION

A. Examine backup surfaces to determine that corners are plumb and straight, surfaces are smooth, uniform, clean and free from foreign matter, nails countersunk, joints and cracks filled flush and smooth with the adjoining surface.
   1. Verify that stud spacing does not exceed 24 inch (61cm) on-center.

B. Repair defects prior to installation.
   1. Level wall surfaces to panel manufacturer's requirements. Remove protrusions and fill

3.02 INSTALLATION

A. Comply with manufacturer's recommended procedures and installation sequence.

B. Cut sheets to meet supports allowing 1/8” inch (3 mm) clearance for every 8 foot (2.43m) of panel.
   1. Cut and drill with carbide tipped saw blades or drill bits, or cut with shears.
   2. Pre-drill fastener holes 1/8 inch (3.175mm) oversize with high speed drill bit.
      a. Space at 8 inches (20.32cm) maximum on center at perimeter, approximately 1 inch from panel edge.
      b. Space at in field in rows 16 inches (40.64cm) on center, with fasteners spaced at 12 inches (30.48 cm) maximum on center.

C. Apply panels to board substrate, above base, vertically oriented with seams plumb and pattern aligned with adjoining panels.
   1. Install panels with manufacturer's recommended gap for panel field and corner joints.
      a. Adhesive trowel and application method to conform to adhesive manufacturer's recommendations.
      b. Drive fasteners for snug fit. Do not over-tighten.

D. Apply panel moldings to all panel edges using silicone sealant providing for required clearances.
   1. All moldings must provide for a minimum 1/8 inch (3.18mm) of panel expansion at joints and edges, to insure proper installation.
   2. Apply sealant to all moldings, channels and joints between the system and different

3.03 CLEANING

A. Remove excess sealant from panels and moldings. Wipe panel down using a damp cloth and mild soap solution or cleaner.

B. Refer to manufacturer's specific cleaning recommendations Do not use abrasive cleaners.

END OF SECTION

SECTION 09 90 00
PAINTING AND COATING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Surface preparation.

B. Field application of paints, stains, varnishes, and other coatings.

C. Scope: Finish all interior and exterior surfaces exposed to view, unless fully factory-finished

D. Do Not Paint or Finish the Following Items:
   1. Items fully factory-finished unless specifically so indicated; materials and products having factory-applied primers are not considered factory finished.
   2. Items indicated to receive other finishes.
   3. Items indicated to remain unfinished.
   4. Fire rating labels, equipment serial number and capacity labels, and operating parts of equipment.
   5. Stainless steel, anodized aluminum, bronze, terne, and lead items.
   6. Marble, granite, slate, and other natural stones.
   7. Floors, unless specifically so indicated.
   8. Ceramic and other tiles.
   9. Glass.
   10. Acoustical materials, unless specifically so indicated.
   11. Concealed pipes, ducts, and conduits.

1.02 REFERENCE STANDARDS

A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; current edition.

B. ASTM D4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials; 2007.

1.03 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on all finishing products, including VOC content.

C. Certification: By manufacturer that all paints and coatings comply with VOC limits specified.

D. Maintenance Materials: Furnish the following for Luis Guzman's use in maintenance of project.
   1. See Section 01 60 00 - Product Requirements, for additional provisions.
   2. Extra Paint and Coatings: 1 gallon (4 L) of each color; store where directed.
   3. Label each container with color in addition to the manufacturer's label.

1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum three years documented experience.

B. MPI Standards:
   1. Products: Complying with MPI standards indicated and listed in "MPI Approved Products List."
   2. Preparation and Workmanship: Comply with requirements in "MPI Architectural Painting Specification Manual" for products and paint systems indicated.
   3. Applicator Qualifications: Company specializing in performing the type of work specified with minimum five years experience.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Provide all paint and coating products used in any individual system from the same manufacturer; no exceptions.

B. Provide all paint and coating products from the same manufacturer to the greatest extent possible.

C. Paints:
   1. Sherwin-Williams Company: www.sherwin-williams.com.

D. Transparent Finishes:
   1. Sherwin-Williams Company: www.sherwin-williams.com.

E. Stains:
   1. Wood Pride.

F. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 PAINTS AND COATINGS - GENERAL

A. Paints and Coatings: Ready mixed, unless intended to be a field-catalyzed coating.
   1. Provide paints and coatings of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
   2. For opaque finishes, tint each coat including primer coat and intermediate coats, one-half shade lighter than succeeding coat, with final finish coat as base color.
   3. Supply each coating material in quantity required to complete entire project's work from a single production run.
   4. Do not reduce, thin, or dilute coatings or add materials to coatings unless such procedure is specifically described in manufacturer's product instructions.

B. Primers: Where the manufacturer offers options on primers for a particular substrate, use primer categorized as "best" by the manufacturer.

C. Volatile Organic Compound (VOC) Content:
   1. Provide coatings that comply with the most stringent requirements specified in the following:
      a. 40 CFR 59, Subpart D--National Volatile Organic Compound Emission Standards for Architectural Coatings.
   2. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.

D. Colors: As indicated on drawings.

2.03 PAINT SYSTEMS - EXTERIOR

A. Paint WE-TR-V - Wood, Transparent, Varnish, No Stain:
   1. One coat Stain.
   2. One coat sealer.

B. Paint CE-OP-3L - Masonry/Concrete, Opaque, Latex, 3 Coat:
   1. One coat of block filler.
   2. Semi-gloss: Two coats of latex enamel.
   3. Flat: Two coats of latex enamel.

C. Paint ME-OP-3A - Ferrous Metals, Unprimed, Alkyd, 3 Coat:
   1. One coat of alkyd primer.
   2. Semi-gloss: Two coats of alkyd enamel.

2.04 PAINT SYSTEMS - INTERIOR

A. Paint WI-TR-VS - Wood, Transparent, Varnish, Stain:
   1. Filler coat (for open grained wood only).
   2. One coat of stain.
   3. One coat sealer .

B. Paint MI-OP-3A - Ferrous Metals, Unprimed, Alkyd, 3 Coat:
   1. One coat of alkyd primer.

2. Semi-gloss: Two coats of alkyd enamel.

C. Paint GI-OP-3L - Gypsum Board/Plaster, Latex, 3 Coat:
1. One coat of alkyd primer sealer.
2. Eggshell: Two coats of latex enamel.

2.05 ACCESSORY MATERIALS

A. Accessory Materials: Provide all primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials required to achieve the finishes specified whether specifically indicated or not; commercial quality.

B. Patching Material: Latex filler.

C. Fastener Head Cover Material: Latex filler.

PART 3 EXECUTION

3.01 EXAMINATION

A. Do not begin application of coatings until substrates have been properly prepared.

B. Verify that surfaces are ready to receive work as instructed by the product manufacturer.

C. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.

D. Test shop-applied primer for compatibility with subsequent cover materials.

E. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
1. Gypsum Wallboard: 12 percent.
2. Masonry, Concrete, and Concrete Unit Masonry: 12 percent.
3. Interior Wood: 15 percent, measured in accordance with ASTM D4442.
4. Exterior Wood: 15 percent, measured in accordance with ASTM D4442.

3.02 PREPARATION

A. Clean surfaces thoroughly and correct defects prior to coating application.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

C. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces or finishing.

D. Seal surfaces that might cause bleed through or staining of topcoat.

E. Remove mildew from impervious surfaces by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.

F. Gypsum Board Surfaces to be Painted: Fill minor defects with filler compound. Spot prime defects after repair.

G. Interior Wood Surfaces to Receive Transparent Finish: Wipe off dust and grit prior to sealing, seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after sealer has dried; sand lightly between coats. Prime concealed surfaces with gloss varnish reduced 25 percent with thinner.

H. Exterior Wood Surfaces to Receive Opaque Finish: Remove dust, grit, and foreign matter. Seal knots, pitch streaks, and sappy sections. Fill nail holes with tinted exterior calking compound after prime coat has been applied. Back prime concealed surfaces before installation.

I. Glue-Laminated Beams: Prior to finishing, wash surfaces with solvent, remove grease and dirt.

J. Wood Doors to be Field-Finished: Seal wood door top and bottom edge surfaces with clear sealer.

K. Metal Doors to be Painted: Prime metal door top and bottom edge surfaces.

3.03 APPLICATION

A. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.

B. Apply products in accordance with manufacturer's instructions.

C. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.

D. Apply each coat to uniform appearance.

E. Sand wood and metal surfaces lightly between coats to achieve required finish.

F. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.

G. Wood to Receive Transparent Finishes: Tint fillers to match wood. Work fillers into the grain before set. Wipe excess from surface.

H. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.04 FIELD QUALITY CONTROL

A. See Section 01 40 00 - Quality Requirements, for general requirements for field inspection.

3.05 CLEANING

A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

3.06 PROTECTION

A. Protect finished coatings until completion of project.

B. Touch-up damaged coatings after Substantial Completion.

3.07 SCHEDULE - REFER TO FINISH SCHEDULE AND DRAWINGS.

END OF SECTION

SECTION 10 28 00

TOILET, BATH, AND LAUNDRY ACCESSORIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Accessories for toilet rooms and showers.

B. Grab bars.

1.02 REFERENCE STANDARDS

A. ASTM A269/A269M - Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service; 2014e1.

B. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2010.

C. ASTM B456 - Standard Specification for Electrodeposited Coatings of Copper Plus Nickel Plus Chromium and Nickel Plus Chromium; 2011e1.

D. ASTM C1036 - Standard Specification for Flat Glass; 2011e1.

E. ASTM C1503 - Standard Specification for Silvered Flat Glass Mirror; 2008 (Reapproved 2013).

1.03 ADMINISTRATIVE REQUIREMENTS

A. Coordinate the work with the placement of internal wall reinforcement, concealed ceiling supports, and reinforcement of toilet partitions to receive anchor attachments.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on accessories describing size, finish, details of function, attachment methods.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Toilet Accessories:
   1. Bobrick Washroom Equipment, Inc.:www.boborick.com (Basis of Design)
   2. Substitutions: Section 01 60 00 - Product Requirements.

2.02 MATERIALS

A. Accessories - General: Shop assembled, free of dents and scratches and packaged complete with anchors and fittings, steel anchor plates, adapters, and anchor components for installation.

B. Keys: Provide 5 keys for each accessory to Owner; master key all lockable accessories.

C. Stainless Steel Sheet: ASTM A666, Type 304.

D. Stainless Steel Tubing: ASTM A269/A269M, Type 304 or 316.

E. Mirror Glass: Float glass, ASTM C1036 Type I, Class 1, Quality Q2, with silvering, protective and physical characteristics complying with ASTM C1503.

F. Fasteners, Screws, and Bolts: Hot dip galvanized, tamper-proof, security type.

G. Expansion Shields: Fiber, lead, or rubber as recommended by accessory manufacturer for component and substrate.

2.03 FINISHES

A. Stainless Steel: No. 4 satin brushed finish, unless otherwise noted.

B. Chrome/Nickel Plating: ASTM B456, SC 2, satin finish, unless otherwise noted.

2.04 TOILET ROOM ACCESSORIES

A. Toilet Paper Dispenser: Double roll, surface mounted bracket type, chrome-plated zinc alloy brackets, spindleless type for tension spring delivery designed to prevent theft of tissue roll.
   1. Product: Basis of Design B-7686 manufactured by Bobrick Washroom Equipment, Inc..

B. Combination Towel Dispenser/Waste Receptacle: Recessed flush with wall, stainless steel; seamless wall flanges, continuous piano hinges, tumbler locks on upper and lower doors.
   1. Towel dispenser capacity: 400 C-fold.
   2. Waste receptacle capacity: 4 gallons (15 liters).
   3. Basis of Design: B-3944 manufactured by Bobrick Washroom Equipment, Inc.

C. Soap Dispenser: Liquid soap dispenser, wall-mounted, surface, with stainless steel cover and horizontal stainless steel tank and working parts; push type soap valve, check valve, and window gage refill indicator, tumbler lock.
   1. Minimum Capacity: 48 ounces (1.5 liters).
   2. Basis of Design: B-2112 manufactured by Bobrick Washroom Equipment, Inc.

D. Mirrors: Stainless steel framed, 6 mm thick float glass mirror.
   1. Size: 24" x 36".
   2. Frame: 1/2 inch (12 mm) angle shapes, with mitered and welded and ground corners, and tamperproof hanging system; No.4 finish.
   3. Basis of Design Product: B-165 manufactured by Bobrick Washroom Equipment, Inc.

E. Mirrors: Stainless steel framed, 6 mm thick float glass mirror.
   1. Size: 24" x 60".
   2. Frame: 1/2 inch (12 mm) angle shapes, with mitered and welded and ground corners, and tamperproof hanging system; No.4 finish.
   3. Basis of Design Product: B-165 manufactured by Bobrick Washroom Equipment, Inc.

F. Grab Bars: Stainless steel, 1-1/4 inches (32 mm) outside diameter, minimum 0.05 inch (1.3 mm) wall thickness, nonslip grasping surface finish, concealed flange mounting; 1-1/2 inches (38 mm) clearance between wall and inside of grab bar.
   1. Length and configuration: As indicated on drawings.
   2. Basis of Design: B-6806 manufactured by Bobrick Washroom Equipment, Inc.

G. Sanitary Napkin Disposal Unit: Stainless steel, surface-mounted, self-closing door, locking bottom panel with full-length stainless steel piano-type hinge, removable receptacle.
   1. Basis of Design: B-270 manufactured by Bobrick Washroom Equipment, Inc.

H. Diaper Changing Station: Wall-mounted folding diaper changing station for use in commercial toilet facilities, meeting or exceeding ASTM F2285.
   1. Style: Horizontal.
   2. Mounting: Surface.
   3. Color: Gray.
   4. Manufacturers:
      a. American Specialties, Inc: www.americanspecialties.com.
      b. Bradley Corporation: www.bradleycorp.com.
      c. Koala Kare Products: www.koalabear.com.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify exact location of accessories for installation.

C. Verify that field measurements are as indicated on drawings.

3.02 PREPARATION

A. Deliver inserts and rough-in frames to site for timely installation.

B. Provide templates and rough-in measurements as required.

3.03 INSTALLATION

A. Install accessories in accordance with manufacturers' instructions in locations indicated on the drawings.

B. Install plumb and level, securely and rigidly anchored to substrate.

C. Mounting Heights: As required by accessibility regulations, unless otherwise indicated.

3.04 SCHEDULE

A. Refer to Toilet Accessory Schedule on the drawings.

END OF SECTION

SECTION 10 44 00
FIRE PROTECTION SPECIALTIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Fire extinguishers.

B. Fire extinguisher cabinets.

C. Accessories.

1.02 REFERENCE STANDARDS

A. NFPA 10 - Standard for Portable Fire Extinguishers; 2013.

B. UL (FPED) - Fire Protection Equipment Directory; Underwriters Laboratories Inc.; current edition.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Fire Extinguishers:
   1. Ansul, a Tyco Business: www.ansul.com.
   2. Pyro-Chem, a Tyco Business: www.pyrochem.com.
   3. Substitutions: See Section 01 60 00 - Product Requirements.

B. Fire Extinguisher Cabinets and Accessories:
   1. Ansul, a Tyco Business: www.ansul.com.
   2. Larsen's Manufacturing Co: www.larsensmfg.com.
   3. Pyro-Chem, a Tyco Business: www.pyrochem.com.
   4. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 FIRE EXTINGUISHERS

A. Fire Extinguishers - General: Comply with product requirements of NFPA 10 and applicable codes, whichever is more stringent.
   1. Provide extinguishers labeled by UL for the purpose specified and indicated.

B. Dry Chemical Type Fire Extinguishers: Carbon steel tank, with pressure gage.
   1. Class: B:C.
   2. Size: 10 pound (4.54 kg).
   3. Finish: Baked polyester powder coat, red color.

2.03 FIRE EXTINGUISHER CABINETS

A. Metal: Formed primed steel sheet; 0.036 inch (0.9 mm) thick base metal.

B. Cabinet Configuration: Recessed type.

C. Door: 0.036 inch (0.9 mm) thick, reinforced for flatness and rigidity; latch. Hinge doors for 180 degree opening with two butt hinge. Provide nylon catch.

D. Door Glazing: Glass, clear, 1/8 inch (3 mm) thick float. Set in resilient channel gasket glazing.

E. Cabinet Mounting Hardware: Appropriate to cabinet. Pre-drill for anchors.

F. Weld, fill, and grind components smooth.

G. Finish of Cabinet Exterior Trim and Door: Primed for field paint finish.

H. Finish of Cabinet Interior: White enamel.

2.04 ACCESSORIES

A. Extinguisher Brackets: Formed steel, chrome-plated.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify rough openings for cabinet are correctly sized and located.

3.02 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Secure rigidly in place.

C. Place extinguishers and accessories in cabinets.

END OF SECTION

SECTION 10 56 17
WALL MOUNTED STANDARDS AND SHELVING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Shelf standards, brackets, and accessories.

B. Shelves.

1.02 REFERENCE STANDARDS

A. NEMA LD 3 - High-Pressure Decorative Laminates; 2005.

1.03 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years of documented experience.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Store products under cover and elevated above grade.

B. Store products in manufacturer's unopened packaging until ready for installation.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Shelf Standards and Brackets:
   1. Knape & Vogt Manufacturing Company : www.knapeandvogt.com.

B. Shelves:

C. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 MATERIALS

A. Heavy Duty Shelf Standards: Double-slotted channel standards for brackets adjustable in 1 inch (25 mm) increments along entire length of standard, drilled and countersunk for screws.
   1. Acceptable Product: K&V 85.
   2. Load Capacity: Recommended by manufacturer for loading of 300 to 680 pounds (135 to 310 kg) per pair of standards.
   3. Material: Steel.
   4. Lengths: As indicated on drawings.
   5. Finish: Electroplated, chrome-look.
   6. Brackets: Double tab type, locking into slots; size to suit shelves; same finish as standards.
   7. Bracket Quantity: Provide one bracket for each 12 inches (305 mm) of standard length.

B. Shelf Standard Accessories:
   1. Where shelves are indicated to be fastened to brackets provide brackets with flanges for screwing into end of shelf, steel shelf rests, or flanged brackets; fasten with screws.

C. Laminate Faced Shelves: Particleboard or medium density fiberboard covered with high pressure decorative laminate on both sides.
   1. Edge Finish: Matching Laminate on three sides. Front Edge to be 1 1/2" deep to cover bracket..
   2. Substrate Thickness: 3/4 inch (19 mm), nominal.
   3. Length: As indicated on drawings.
   4. Laminate: NEMA LD 3 Type HGL.
   5. Laminate Color and Pattern: As shown on drawings.

D. Fasteners: Screws as recommended by manufacturer for intended application or as otherwise required by project conditions.

PART 3 EXECUTION

3.01 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.

3.02 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.

3.03 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Mount standards to solid backing capable of supporting intended loads.

C. Install brackets, shelving, and accessories.

3.04 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

SECTION 11 40 00
FOODSERVICE EQUIPMENT

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Food service equipment.

B. Connections to utilities.

1.02 SCOPE OF WORK

A. Furnish labor, materials, services, equipment and appliances required for food service equipment installation work indicated on the drawings and specified herein.

1.03 WORK INCLUDED, BUT NOT INCLUSIVE

A. Installation of Owner provided food service equipment.

B. Miscellaneous materials required for installation.

1.04 RELATED WORK SPECIFIED ELSEWHERE

A. Mechanical services and final connections to equipment.

B. Electrical services and final connections to equipment.

1.05 REFERENCE STANDARDS

A. Underwriters Laboratories (UL)

B. National Electric Manufacturers Association (NEMA)

C. American Gas Association (AGA)

D. American Society of Mechanical Engineers (ASME)

E. National Fire Protection Association (NFPA)

F. American Society of Testing Materials (ASTM)

1.06 QUALITY ASSURANCE

A. Installer; companies specializing in installation of commercial food services equipment with minimum three years of experience.

1.07 REGULATORY REQUIREMENTS

A. Conform to applicable code for installation and utility requirements.

1.08 INSTALLATION INSTRUCTIONS

A. Owner will provide equipment manufacturer's installation instructions for Contractor's use.

1.09 OPERATION AND MAINTENANCE DATA

A. Owner will provide equipment manufacturer's operation and maintenance data for Contractor's use.

1.10 COORDINATION

A. Coordinate size of access and route to place of installation.

PART 2 PRODUCTS

2.01 EQUIPMENT

A. Owner Provided (By Owner)
   1. Equipment scheduled on the drawings.
   2. Food Service Consultant:
      a. Contact: Reed Newell; reed.newell@trimarkusa.com
      b. Company: TriMark
      c. Address: 2801 S. Valey Parkway, Suite 200, Lewisville, TX 75067
      d. Phone: (512) 923-9709

3. Stainless steel trim strips, supports and connections, attachment devices, and accessories.
4. Kitchen Hoods - Includes all equipment and labor for a complete installation of the hood and ducts, and Ansul System U.N.O. (Electrical hookup by GC)

B. Contractor Provided:
1. Sleeves, inserts, and other incidental items necessary to complete work.
2. Conduit; Rigid zinc coated steel and fittings conforming to electrical division.
3. Sealant; Clear silicone
4. Insulation; "Armaflex" foamed plastic minimum 1/2 inch thickness
5. Solder; use silver solder, silver content not less than 50 percent, for steel to copper connection. Use Sil Fos for copper to copper. Do not use soft solder.
6. Hangers and Supports; conform to plumbing division, types as required and approved.
7. Kitchen Hood - Electrical hookup of Owner furnished equipment only.

C. Installation Accessories: Provide all rough-in hardware, supports and connections, attachment devices, closure trim, and accessories required for complete installation.

PART 3 EXECUTION

3.01 DELIVERY, HANDLING AND STORAGE

A. Delivery:
1. Owner's Food Service Supplier will receive the equipment at their shop and deliver to the site.

B. Handling:
1. Owner's Food Service Equipment Supplier will uncrate, assemble, and place equipment within the space.

C. Storage:
1. Store equipment clear of floor in manner to prevent warping, twisting, or sagging.

3.02 INSPECTION

A. Prior to placement of equipment by Owner's vender, verify ventilation outlets, service connections, and supports are correct and in required location. Verify all walls are finished, ceiling grid/panels and related items (lights, grills, etc) installed, and floor tile installed and cleaned. Beginning of installation means acceptance of existing conditions.

3.03 PREPARATION

A. Broom sweep building clean. Study drawings and report to owner any compressor and condensing unit located without adequate ventilation, so as to affect operational efficiency of such units, and include with report recommendations for corrective procedures. Install no work until adequate ventilation is arranged.

4.01 INSTALLATION

A. Install items indicated in 2.01 to be contractor provided in accordance with manufacturer's instructions.

B. Insulate to prevent electrolysis between dissimilar metals.

C. Equipment:
1. General:
a. Owner's vendor will set equipment in place and position per kitchen equipment plan; ready for utility hook up by General Contractor. After utility hookups are made, level and secure dish tables to slope towards dishwasher. Completely close and seal gaps, joints and seams between fixtures/equipment and walls, ceilings and floors with stainless steel trim strips and/or clear silicone sealant. Do not use sealant in joints or seams over 3/16 inches wide.

4.02 ADJUSTING

A. Adjust equipment and apparatus to ensure proper working order and conditions.

B. Remove and replace equipment creating excessive noise or vibration.

4.03 CLEANING

A. Remove masking or protective covering from stainless steel and other finished surfaces.

B. Wash and clean equipment.

C. Polish glass, plastic, hardware, accessories, fixtures, and fittings.

END OF SECTION

DP3
ARCHITECTS

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