PROJECT MANUAL

Volume 1 of 1

Architectural

Building & Façade Evaluation for

Bank of America

Yonkers

928 McLean Avenue,
Yonkers, NY 10704

Prepared by

Gensler

10 North Park Place
Suite 400
Morristown, New Jersey 07960
Tel 973.290.8500
Fax 973.290.8585

Issue for Permit & Pricing II
February 03, 2021

Project Number: 12.7708.198

PROJECT MANUAL

Volume 1 of 1

Architectural

Building & Façade Evaluation for

Bank of America

Yonkers

928 McLean Avenue,
Yonkers, NY 10704

_____

License No. _____

Prepared by

Gensler

10 North Park Place
Suite 400
Morristown, New Jersey 07960
Tel 973.290.8500
Fax 973.290.8585

Issue for Permit & Pricing II
February 03, 2021

Project Number: 12.7708.198

TABLE OF CONTENTS

FACILITY CONSTRUCTION SUBGROUP

END OF TABLE OF CONTENTS

Transmittal

Gensler

To		**Attention**	
Address		**Telephone No.**	
City		**State**	**Zip**
Project		**Project Number**	**File**
Subject			
Prepared By		**This is page** 1 of	**Date**

For Your	☐ **Approval And Selection**	☐ **Use**	☐ **Record**
	☐ **Review / Comment**	☐ **Distribution**	☐ **Information**
Action Required	☐ **Indicated On Item Transmitted**	☐ **Comment And Return To Gensler**	☐ **No Action Required**
	☐ **Sign And Return To This Office**	☐ **See Remarks Below**	☐ **Other**
Delivered Via	☐ **Messenger**	☐ **Two-Day Express**	☐ **Pick-Up**
	☐ **Same Day Express**	☐ **Mail**	☐ **Other:**
	☐ **Next Day Express**	☐ **Hand Carried**	

Remarks

Quantity	**Description**	**Dated**

Transmittal Copies To	**Enclosures:**	**Delivered Via**
	If enclosures are not as described, please advise Gensler immediately.	

10 North Park Place
Suite 400
Morristown NJ 07960
Tel: +1 973.290.8500
Fax: +1 973.290.8585

Transmittal continued

Gensler

To	This is page 2 of	Date
Project	**Project Number**	**File** **Error! Reference source not found.**
Transmittal Copies To	**Enclosures:** If enclosures are not as described, please advise Gensler immediately.	**Delivered Via**

10 North Park Place
Suite 400
Morristown NJ 07960
Tel: +1 973.290.8500
Fax: +1 973.290.8585

Data Transfer Agreement

Entity Requesting Data ("Transferee")	**Transferee Contact Name**
Project BoA / Yonker 928 McLean Avenue, Yonker, NY 10704	**Project Number** 12.7708.198
Client Bank of America	**Date**
	File 1DTA **This is page 1 of**

Transferee has asked Gensler to provide electronic copies of, or access to, certain drawings, specifications, or other documents, CAD data files, and/or building information models (collectively, "Data") prepared by Gensler and/or its consultants (collectively "Gensler") for the Project. Gensler agrees to provide Transferee with the requested Data, under the terms of this Data Transfer Agreement ("Agreement").

1. The transfer of the Data is not and shall not be deemed a sale. The Data are instruments of service. Gensler shall be deemed the Data's author and shall retain all proprietary rights, including any copyrights, embodied therein.

2. Transferee may transfer the Data to its contractors, subcontractors, suppliers, and consultants (collectively "Others"), provided Transferee requires the Others to be bound by this Agreement as if they were the Transferee in this Agreement. Transferee and Others may use the Data only for purposes related to the Projects.

3. Transferee acknowledges that anomalies and errors may occur when the Data is transferred electronically or used in an incompatible computer environment. Transferee solely accepts the risks associated with, and the responsibility for, any damages to hardware, software, computer systems, or networks related to the Data's transfer or use. Gensler shall have no responsibility to provide software or training to allow Transferee to use the Data.

4. Gensler shall have no duty to modify or update the Data. Gensler may retain an archival copy of the Data, which shall be conclusive proof and govern in any dispute over the Data's form or content.

5. Transferee agrees to indemnify, defend and hold Gensler, its officers, directors, shareholders, employees, agents, and consultants harmless from and against any and all claims, liabilities, suits, demands, losses, damages, costs, and expenses, including, but not limited to, reasonable attorneys' fees and all legal expenses and fees incurred through appeal, and all interest thereon, accruing to or resulting from any and all persons, firms or any other legal entities on account of any damages or losses to property or persons, including, but not limited to, injuries, death or economic losses, arising out of Transferee's or Others' use, reuse, transfer, or modification of the Data, except where a court or forum of competent jurisdiction determines that Gensler is solely liable for such damages or losses.

6. If Transferee fails to perform or observe any of the terms of this Agreement, Gensler may demand, and Transferee immediately shall return, the Data and any copies thereof.

7. To the extent the Data include building information models ("Models"), the parties agree to the following additional terms: (i) The Models are intended for the purpose of communicating design intent. While they may be helpful to illustrate conflicts or inconsistencies in the design, the Models may not detect all conflicts or inconsistencies. (ii) Any use of the Models for the purpose of generating quantity take-offs or cost estimates, or for fabrication, will be at the Transferee's sole risk. (iii) As with Gensler's other services and deliverables, the Models will be prepared using that degree of skill and care exercised by licensed professionals practicing in the same community, under the same or similar circumstances. The Models may contain, or be based upon, data or information provided by others. Gensler has relied upon such data or information as it consistent with this standard of care. (iv) Information contained in the Models will not be construed to dictate construction means or methods, which will remain the contractor's responsibility. (v) To the extent of any conflict between information contained in, or generated by, the Models and Gensler's drawings and specifications, the latter documents will prevail.

8. This Agreement shall be governed by the law of the location of Gensler's office, Morristown, New Jersey.

9. In any legal proceeding to enforce this Agreement, the prevailing party shall be entitled to recover its reasonable attorneys' fees and costs of defense.

10. Unless otherwise explicitly agreed to in writing by the parties, this Agreement shall govern any and all data transfers to Transferee by Gensler.

Gensler Authorization by _____ **Date Signed**

Transferee Authorization by _____ **Date Signed**

Request for Interpretation

Gensler

Project	BoA / Yonker	**RFI Number**	
To		**Date**	
Attention		**Project Number**	12.7708.198
From		**File**	6RFI
Issued By		**Drawing Sheet / Location**	
Subject		**Detail**	
Distribution		**Specifications Page Number**	
		This is page	1 of

Problem, Cause and Proposed Solution (attach sketches as necessary)

Effect on Schedule

Effect on Cost

Reply

Reply Needed by

Signature **Date**

10 North Park Place
Suite 400
Morristown NJ 07960
Tel: +1 973.290.8500
Fax: +1 973.290.8585

Substitution Request

Gensler

Project	BoA / Yonker	**Date**	
Project Location	928 McLean Avenue, Yonker, NY 10704	**Project Number**	12.7708.198
General Contractor		**File**	6S
Prepared by		**This is page**	1 of

We certify that the following product is equal or superior to the specified product in appearance, durability, performance, and in every other respect, and we hereby submit it for your consideration as a substitute for the specified item for the above-mentioned project:

1. Specified Item **Section**

2. Proposed Substitution

3. Reason for Substitution

4. Costs (Provide a complete breakdown of costs, including the cost amount to be DEDUCTED from the Contract Sum if the proposed substitution is accepted. Include documentation for both materials and labor.)

5. Schedule (Describe substitution's affect on construction schedule)

6. Supporting Data

- **Cutsheets: Attach complete technical data, including laboratory tests, if applicable.**
- **Installation: Include complete information on changes to Drawings and/or Specifications describing the steps that the proposed substitution will require for its proper installation.**
- **Samples: Submit with request all necessary samples and substantiating data clearly marked to prove equal quality and performance to that which is specified.**

7. List ways in which the substitution affects dimensions shown on Drawings

8. List affects of proposed substitution on other trades

9. List ways in which proposed substitution will be affected by applicable code requirements and agency approval

10. List differences between proposed substitution and specified item

11. Manufacturer's warranties of the proposed and specified items are: ☐ **Same** ☐ **Different**

Explain:

10 North Park Place
Suite 400
Morristown NJ 07960
Tel: +1 973.290.8500
Fax: +1 973.290.8585

12. List information on availability of maintenance service and source of replacement materials

13. Certification of, and Assumption of Liability for, Equivalent Performance

The undersigned certifies that the function, appearance and quality of the proposed substitution is equivalent or superior to the specified item and is in full compliance with the Contract Documents and applicable regulatory requirements.

Supplier		**Signature**	
Telephone No.		**Date**	

Signature must be by person authorized to legally bind his/her firm to the above terms. Failure to provide legally binding signature will result in retraction of approval.

General Contractor		**Signature**	
Telephone No.		**Date**	

10 North Park Place
Suite 400
Morristown NJ 07960
Tel: +1 973.290.8500
Fax: +1 973.290.8585

Bulletin Number

Gensler

Project	BoA / Yonker	**Date**	
Project Location	928 McLean Avenue, Yonker, NY 10704	**Architect's Project Number**	12.7708.198
Owner/Client	Bank of America	**File** 6BL **This is page**	1 of
To		**Attention**	
Address			
City		**State**	**Zip Code**

Delivered via:

☐ **Messenger** ☐ **Hand carried** ☐ **Facsimile**
☐ **Express** ☐ **Pick-up** ☐ **E-mail Address**
☐ **Mail** ☐ **UPS** ☐ **Website Address**

This Bulletin Conveys to Contractor (Check one of the following five choices.):

☐ **Architect's Authorization for Minor Changes**
Architect recommends modifications to the Work as described below.

☐ **Architect's Clarification / Supplemental Instructions** (Use this Bulletin form in place of *Architect's Supplemental Instructions* form.)
Contractor shall carry out the Work in accordance with the following supplemental instructions.

☐ **Architect's Confirmation of a Field Order** (Use this Bulletin form in place of a *Field Order* form.)
This confirms Architect's verbal instructions to (individual's name) _____ on (date) _____, as described below.
Note: The above three choices are each subject to the following terms: The change(s), clarification(s) and/or confirmation(s) described below is/are issued in accordance with the Contract Documents, without change in Contract Sum and/or Time.

☐ **Architect's Request for Contractor's Proposal** (Use this Bulletin form in place of an *Estimate Request* form.)
Please submit an itemized proposal for changes in the Contract Sum and/or Time for proposed modifications to the Contract Documents described herein. Submit proposal **within** _____ **days** or notify the Architect in writing of the date on which you anticipate submitting your proposal. This is not a Change Order or a Construction Change Directive or a direction to proceed with the Work described in the proposed modifications.

☐ **Other:** As described below.

Attachments

Requested by

☐ Architect ☐ Owner ☐ Contractor ☐ Other (specify): _____

Issued by Gensler by	**Date Signed**
Issued by Owner by	**Date Signed**
☐ Required; Please return signed copy to Gensler ☐ Not Required	
Accepted by Contractor by	**Date Signed**
☐ Required; Please return signed copy to Gensler ☐ Not Required	
Distribution	
Prepared by Gensler by	**Date Signed**

Instructions / Description / References / Dates

Begin text here…

10 North Park Place
Suite 400
Morristown NJ 07960
Tel: +1 973.290.8500
Fax: +1 973.290.8585

DOCUMENT 00 72 00 - GENERAL CONDITIONS

PART 1 - GENERAL

1.1 General Conditions of the Contract for Construction, AIA Document A201, 2007 Edition, hereinafter referred to as General Conditions, are hereby made a part of the Contract Documents.

1.2 The Contractor is hereby specifically directed, as a condition of the Contract, to become acquainted with the Articles contained therein, and to notify and apprise all Subcontractors and other parties to the Contract of, and bind them to, its conditions.

1.3 No contractual adjustments shall be due as a result of failure on the part of the Contractor, Subcontractors or other parties to the Contract to be fully acquainted with the General Conditions.

1.4 The General Conditions of the Contract may be amended by Supplementary Conditions.

1.5 The provisions of the General and Supplementary Conditions, when included, and Division 01 "General Requirements," apply to the Work specified in each Section of the Specifications.

1.6 Where conflicts occur concerning the Architect's duties and responsibilities between the General Conditions and the Agreement between the Owner and Architect, the Agreement shall take precedence.

1.7 If not otherwise included in the Owner-Contractor Agreement or specifically included in the bidding documents, the Contractor shall obtain the Owner’s insurance requirements prior to submitting a bid.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF DOCUMENT 00 72 00

DOCUMENT 00 73 00 - SUPPLEMENTARY CONDITIONS

AIA Document A201-2007, in its entirety, shall constitute the General Conditions of the Contract for Construction (the "General Conditions"). These Supplementary Conditions of the Contract for Construction ("Supplementary Conditions") are attached to and made a part of the Contract Documents and are intended to modify and/or supplement the General Conditions. Capitalized terms used herein but not defined herein shall have the same meanings as in the General Conditions.

ARTICLE 1 GENERAL PROVISIONS

1. Subparagraph 1.1.9 – Other Definitions: Add the following new Subparagraph 1.1.9 as follows:

1.1.9 OTHER DEFINITIONS

.1 "As required" shall mean as required by regulatory bodies, by referenced standards, by existing conditions, by generally accepted construction practice, or by the Contract Documents.

.2 "By Others" refers to work that is not part of the Contract.

.3 "By Owner" refers to work that will be performed by Owner or Owner's agents at Owner's cost.

.4 "Equal", "accepted equal", and "approved equal" shall mean as accepted, in writing, by Architect as being of equivalent quality, utility, and appearance.

.5 "Furnish" means supply only, do not install.

.6 "Install" means install only, do not furnish.

.7 "Provide" means furnish and install.

2. Subparagraph 1.2.2: Add the following new wording to the end of Subparagraph 1.2.2:

Documents prepared by entities other than Architect or its consultants may be included with documents prepared by Architect or its consultants for convenience in pricing, bidding, permit application, construction or other purposes. The inclusion of such documents not prepared by the Architect or its consultants within the Contract Documents shall not imply that Architect has reviewed, approved or is responsible for the accuracy or completeness of such documents.

3. Paragraph 1.5 – Ownership and Use of Drawings, Specifications and Other Instruments of Service: Add the following new subparagraph 1.5.3:

§1.5.3 In the event of any unauthorized use, reuse, transfer or modification of the Drawings, Specifications or other documents by Contractor, any lower tier contractor or material supplier, or other person or entity under Contractor's direct or indirect employ, Contractor agrees to indemnify, defend and hold Owner, Architect, their officers, directors, shareholders,

employees, agents, and consultants harmless from and against any and all claims, liabilities, suits, demands, losses, damages, costs and expenses, including, but not limited to, reasonable attorneys' fees and all legal expenses and fees incurred through appeal, and all interest thereon, accruing to or resulting from any and all persons, firms, or any other legal entities on account of any damages or losses to property or persons, including, but not limited to, injuries or death or economic losses arising out of such unauthorized use, reuse, transfer or modification, except where Architect is found to be solely liable as between the parties hereto as well as between any other persons, firms or other legal entities for such damages or losses by a court or forum of competent jurisdiction.

4. Subparagraph 1.6 – Transmission of Data in Digital Form: Add the following sentence at the end of Subparagraph 1.6:

   Any electronic transfer of Drawings, Specifications or other documents ("Data") by the Architect to the Contractor shall be subject to the terms of the Architect's standard Data Transfer Agreement, which shall be executed by the Contractor.

ARTICLE 3 CONTRACTOR

5. Subparagraph 3.2.1: Add the following new sentence to the end of Subparagraph 3.2.1:

   Additionally, Contractor acknowledges and agrees that the information contained in the Contract Documents is adequate and sufficient for completion of the Work.

6. Subparagraph 3.2.4: Revise the second sentence of Subparagraph 3.2.4 to read as follows:

   If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, or reasonably should have recognized any errors, inconsistencies, omissions or nonconformity and failed to do so, the Contractor shall pay such costs and damages to the Owner as would have been avoided if the Contractor had performed such obligations.

7. Subparagraph 3.2.5: Add the following new Subparagraph 3.2.5:

   §3.2.5 In the event of conflicts or discrepancies among the Contract Documents, the following order of precedence shall govern: (1) Amendments and revisions (such as change orders), with those of later date taking precedence over those of earlier date; (2) the Agreement; (3) the Supplementary Conditions; (4) the General Conditions; (5) Drawings and Specifications. Drawings shall govern Specifications for quantity and location, and Specifications shall govern Drawings for quality and performance. In case of an inconsistency between Drawings and Specifications or within either Document not clarified by addendum, the better quality or greater quantity of Work shall be provided in accordance with the Architect's interpretation.

8. Subparagraph 3.4.2: Add the following new text to the end of Subparagraph 3.4.2:

   Any requests for substitution shall be made in a timely manner and in full compliance with all Contract requirements. By making a request for substitution, Contractor: (1) represents that the Contractor has investigated the proposed substitute product and determined that it is equal to or superior in all respects to that specified; (2) represents that the Contractor will provide the same warranty for the substitution that the Contractor would for that specified; (3) certifies that the cost data presented is complete and includes all related costs under this Contract

except for the Architect's redesign costs, and waives all claims for additional costs related to the substitution which subsequently become apparent; and (4) will coordinate the installation of the accepted substitute, making such changes as may be required for the Work to be complete in all respects.

9. Subparagraph 3.7.3: Modify Subparagraph 3.7.3 as follows:

§3.7.3 If the Contractor performs Work ~~knowing it to be~~ which Contractor knows or should know is contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

10. Subparagraph 3.9.1: Add the following new text to the end of Subparagraph 3.9.1:

The superintendent shall be approved by Owner and shall not be replaced without Owner's prior approval. The superintendent shall be familiar with the job site, the Contract Documents, and all applicable rules, regulations and requirements of all authorities having jurisdiction over the Work or the site.

11. Subparagraph 3.10.1: Add the following to the end of Subparagraph 3.10.1:

Such schedule shall be a computer generated critical path method (CPM) schedule showing at a minimum: (1) the early and late start time for each major construction activity; (2) all "critical path" activities and their duration; (3) late order dates for all long lead time materials and equipment; and (4) critical Owner decision dates.

12. Subparagraph 3.10.4: Add the following new Subparagraph 3.10.4:

§3.10.4 Failure of Contractor to submit or keep current the construction schedule and submittals schedule as required by the conditions of the Work, shall be grounds for withholding of payments due Contractor by Owner, until such schedules are provided.

13. Subparagraph 3.11: Modify the first sentence of Subparagraph 3.11 as follows:

The Contractor shall maintain at the site for the Owner one copy of the Drawings, Specifications, Addenda, Change Orders and other modifications, in good order and marked currently to indicate field changes and selections made during construction, and one copy of approved Shop Drawings, Product Data, Samples and similar required submittals, as well as one copy of the approved permit set.

14. Subparagraph 3.12.6: Add the following text to the end of Subparagraph 3.12.6:

Incomplete, uncoordinated or incorrect Shop Drawings and other submittals shall be returned to Contractor who shall be held responsible for all time delays and extra costs of review or handling by Architect or Owner, because of such submittals being incomplete, uncoordinated or incorrect.

15. Subparagraph 3.12.7: Modify Subparagraph 3.12.7 as follows:

3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples or similar submittals until the respective submittal has been ~~approved~~ reviewed and returned by the Architect.

16. Subparagraph 3.12.8: Modify Subparagraph 3.12.8 as follows:

3.12.8 The Work shall be in accordance with ~~approved~~ Architect-reviewed submittals except that the Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Architect's ~~approval~~ review of Shop Drawings, Product Data, Samples or similar submittals unless the Contractor has specifically informed the Architect in writing of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples or similar submittals by the Architect's ~~approval~~ review thereof. If more than one submittal review stamp (Architect's and one or more of its consultants' stamp) appears on a submittal, the most stringent action and notations thereon shall apply. Signature on a submittal review stamp by the Architect or a consultant does not imply that it has reviewed Work not within its professional discipline or scope of services.

17. Subparagraph 3.12.10: Modify the second to last sentence of Subparagraph 3.12.10 as follows:

Pursuant to this Subparagraph 3.12.10, the Architect will review~~, approve~~ or take ~~other~~ appropriate action on submittals only for the limited purpose of checking for conformance with ~~information given and~~ the visual and aesthetic design concept expressed in the Contract Documents.

18. Subparagraph 3.18.1: Revise Subparagraph 3.18.1 as follows:

§3.18.1 To the fullest extent permitted by law the Contractor shall indemnify, defend and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, liabilities, suits, demands, damages, losses, costs and expenses, including, but not limited to reasonable attorneys' fees, and all legal expenses, and fees incurred through appeal, and all interest thereon, arising out of or resulting from the performance of the Work, provided that such claim, damage, loss or expenses is attributable to bodily injury, sickness, disease or death or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Paragraph 3.18.

19. Paragraph 3.19: Add the following new Paragraph 3.19:

§3.19 DESIGN/BUILD

§3.19.1 If Contractor provides and/or retains its subcontractors or others to provide Design/Build Work for specified portions of the Project, Contractor shall be responsible

directly to Owner for those portions of the Project, including but not limited to: (1) preparing engineering and other drawings and specifications for all components of the Design/Build portion(s) of the Work, (2) complying with Project requirements and space limitations, (3) coordinating and interfacing with other trades and consultants, and (4) obtaining approvals from authorities having jurisdiction over the Project. Contractor, its subcontractor(s) or their design professional(s) shall be the Professional(s) of Record for their portion(s) of the Design/Build Work.

§3.19.2 Architect shall have no responsibility for the design, installation or performance of Design/Build portions of the Project including but not limited to reviewing such designs and/or Work and/or certifying the payment applications for the same. Architect's services in connection with any Design/Build work shall be limited to checking such designs for general conformance to major space limitations and the visual and aesthetic design concept as expressed in the Contract Documents. Such checking by Architect of more than two proposals for the same Design/Build portion of the Project shall be compensated as Additional Services.

§3.19.3 When the Contract Documents or authorities having jurisdiction over the Project require certificates or statements of performance characteristics of materials, systems or equipment, or professional seals, calculations, or other certificates or statements regarding such Design/Build portions of the Project, Owner will require Contractor to provide them, and Owner and Architect will be entitled to rely on them to establish that the designs, materials, systems, equipment and such Work will meet the performance criteria required by the Contract Documents.

ARTICLE 4 ARCHITECT

20. Subparagraph 4.2.2: In the first sentence of this Subparagraph 4.2.2, replace the words "appropriate to the stage of the construction, or as otherwise agreed with the Owner" with the words "necessary in the judgment of Architect or as otherwise agreed by Owner and Architect in writing".

21. Subparagraph 4.2.3: Add the following text to the end of Subparagraph 4.2.3:

    Architect's duties shall not extend to the receipt, inspection and acceptance on behalf of Owner or Contractor of materials, furniture, furnishings and equipment at the time of their delivery to the premises or installation. Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of Architect in Architect's administration of the Contract for Construction, or by tests, inspections or approvals required or performed by persons other than Contractor. If Architect recommends procedures, either directly or by reference to standards or manufacturers' recommendations, Contractor shall adopt such recommendations as its own, or inform Architect if exception is taken to such procedures, and may utilize or propose alternative procedures that Contractor will warrant as fulfilling the intent of the Contract Documents.

22. Subparagraph 4.2.4: Add the following text to the end of Subparagraph 4.2.4:

    Should any direct communications become necessary, copies of the communications shall be promptly forwarded to the proper party or parties as set forth in this Subparagraph 4.2.4.

23. Subparagraph 4.2.5: Modify Subparagraph 4.2.5 as follows:

4.2.5 Based on Architect's on-site evaluations and the data comprising ~~of~~ the Contractor's Applications for Payment, the Architect will review and certify, to the best of its knowledge, information and belief, the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the ~~amounts due the~~ Contractor is entitled to payment of the amount certified and will issue Certificates for Payment in such amounts.

24. Subparagraph 4.2.7: Modify the first sentence of Subparagraph 4.2.7 as follows:

Architect will review and ~~approve or~~ take ~~other~~ appropriate action upon, the Contractor's submittals required by the Contract Documents, such as Shop Drawings, Product Data and Samples, but only for the limited purpose of checking for conformance with information given and the visual and aesthetic design concept expressed in the Contract Documents.

ARTICLE 8 TIME

25. Subparagraph 8.3.1: Starting on the fourth line of Subparagraph 8.3.1, delete the words, "pending mediation and arbitration; or by other causes which the Architect determines may justify delay" and add the following text at the end of Subparagraph 8.3.1: "A time extension shall be Contractor's sole remedy and there shall be no compensation for any such delays other than those resulting from the active interference of Architect, Owner or their employees or agents."

ARTICLE 9 PAYMENTS AND COMPLETION

26. Subparagraph 9.4.2: Add the following text to the end of Subparagraph 9.4.2:

Further, Architect shall not be obligated to issue any Certificate for Payment covering work by Design/Build contractors or subcontractors, work by Owner's separate contractors, or other work for which Architect is not providing full services.

27. Subparagraph 9.5.1.8: Add the following new Subparagraph 9.5.1.8:

.8 rejection or non-acceptance of Work by any governmental agency having jurisdiction.

28. Subparagraph 9.6.4: Add the following text to the end of Subparagraph 9.6.4:

At the Owner's sole discretion, payments may be made by check jointly payable to Contractor, its Subcontractor or supplier, and any applicable labor union trust fund.

29. Subparagraph 9.8.1: Modify this Subparagraph 9.8.1 as follows:

9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents and all required final inspections and permits have been obtained so that the Owner can occupy or utilize the Work for its intended use, subject only to completion of minor items (punch list).

30. Subparagraph 9.8.3: Add the following text to the end of Subparagraph 9.8.3:

If upon this subsequent inspection, Contractor has not yet completed the Work, and further field reviews by Architect are required, Contractor shall be responsible to Owner for any additional cost to Owner of further reviews by Architect.

31. Subparagraph 9.8.4: Add the following text to the end of Subparagraph 9.8.4:

In the absence of such certificate, the date of Substantial Completion shall be in accordance with Subparagraph 9.8.1.

32. Subparagraph 9.9.3: Add the following text to the end of Subparagraph 9.9.3:

, nor shall it start the guarantee or warranty period.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§10.3 HAZARDOUS MATERIALS

33. Subparagraph 10.3.1: Modify Subparagraph 10.3.1 as follows:

§10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials, including but not limited to asbestos or polychlorinated biphenyl (PCB)), lead-based paints or any other potentially toxic or hazardous contaminants, materials, pollutants which for the purpose of this Article 10 means solid, liquid, gaseous, or thermal irritant or contaminant, including smoke, vapor, soot, fumes, acids, alkalis, chemicals and wastes. Prior to commencement of the Work, Contractor shall require manufacturers of all materials and equipment for the Work to provide certifications, warranties or statements that such materials or equipment (1) are free of injurious amounts of hazardous materials or (2) contains specific amounts of hazardous materials, and provide recommendations regarding handling of such. Such certifications, warranties or statements shall be in writing in a form acceptable to Owner, and shall be forwarded by Contractor to Owner. If the manufacturer states that a material or equipment contains injurious amounts of hazardous materials, Owner shall be afforded adequate and timely opportunity to order that other materials be substituted without causing delay to the Project. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance~~, including but not limited to asbestos or polychlorinated biphenyl (PCB),~~ encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and report the condition to the Owner and Architect in writing.

34. Subparagraph 10.3.6: Modify Subparagraph 10.3.6 as follows:

§ 10.3.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall indemnify the Contractor for all cost and expense thereby incurred, provided the Contractor has complied fully with its obligations under Subparagraph 10.3.1.

ARTICLE 11 INSURANCE AND BONDS

35. Subparagraph 11.1.5: Add the following new Subparagraph 11.1.5:

§11.1.5 If Contractor fails to secure and maintain the required insurance, Owner shall have the right (but not the obligation) to secure same in the name and for the account of Contractor, in which event Contractor shall pay the cost thereof and shall furnish upon demand all information that may be required in connection therewith.

36. Subparagraph 11.3.1.4: Add the following text to the end of this Subparagraph 11.3.1.4:

    It shall not, however, cover Contractor's equipment, machinery or tools.

37. Subparagraph 11.3.3: Add the following text to the end of Subparagraph 11.3.3:

    , to the extent Owner's insurance covers such losses.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

38. Subparagraph 12.1.1: Modify Subparagraph 12.1.1 as follows:

    §12.1.1 If a portion of the Work is covered contrary to the Architect's request or to requirements specifically expressed in the Contract Documents, or to requirements of any public authority having jurisdiction over the Work, it must, if required in writing by the Architect or Owner, be uncovered for the Architect's or Owner's or public authority's examination and be replaced at the Contractor's expense and without change in the Contract Time.

END OF DOCUMENT 00 73 00

SECTION 01 10 00 - SUMMARY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Work under separate contracts.
4. Access to site.
5. Coordination with occupants.
6. Work restrictions.
7. Taxes.
8. Permits.
9. Project coordination.
10. Specification formats and conventions.

1.2 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to all Sections. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all.

B. Conflicts or discrepancies among the Contract Documents shall be resolved in the following order of priority:

1. Contract modifications (such as Change Orders) of later date take precedence over those of earlier date;
2. the Agreement;
3. the Supplementary Conditions;
4. The General Conditions;
5. Drawings and Specifications; Drawings govern Specifications for quantity and location. Specifications govern Drawings for quality and performance. In the event of ambiguity or conflicts, the greater quantity and the better quality shall govern.

1.3 PROJECT INFORMATION

A. Project Identification: Bank of America – Yonkers / Project #12.7708.198.

1. Project Location: 928 McLean Avenue, Yonkers, NY 10704.

B. Owner: Bank of America.

1. Owner's Representative: CB Richards Ellis; 45 East Bridge Street, Saugerties, NY 12477, Attn: Celia Basner / Tele: (347) 931-5967.

C. Architect: Gensler, 10 North Park Place, Suite 400, Morristown, NJ 07960, Tele: (973) 290-8500.

1.4 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of Project is defined by the Contract Documents and consists of the following:

1. The Work of this Contract consists of an exterior and interior renovation of an existing building. The Work shall include provision of all labor, materials, equipment and services necessary for new construction as required by the Contract Drawings, including but not limited to general construction work and all related mechanical, electrical, plumbing, security, and fire protection work.

B. Type of Contract:

1. Project will be constructed under a single prime contract.

1.5 WORK UNDER SEPARATE CONTRACTS

A. General: Cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract or other contracts. Coordinate the Work of this Contract with work performed under separate contracts.

B. Concurrent Work: Owner will award separate contract(s) for the following construction operations at Project site. Those operations will be conducted simultaneously with work under this Contract.

1.6 ACCESS TO SITE

A. General: Contractor shall have limited use of the work area and local premises for construction operations, including designated use of Project site, during construction period. Contractor's use of premises is limited only by Owner's right to perform work or to retain other contractors on portions of Project.

1. Do not disturb portions of Project site beyond areas in which the Work is indicated.
2. Driveways and Entrances: Keep driveways, parking areas, loading areas, and entrances serving premises clear and available to Owner, employees, building occupants, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.

a. Schedule deliveries to minimize use of driveways and entrances.
b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

3. Subcontractor’s use of premises must be coordinated with the Contractor and is limited only by Owner's right to perform work or to retain other contractors on portions of Project.
4. Confine operations at the site to areas permitted by law, ordinances, permits and the Contract Documents. Do not unreasonably encumber the Site with any materials or equipment.

B. Access: At all times, provide the Architect and Owner easy and safe access to the Work wherever it is in preparation and progress. Provide such access so the Architect may perform their functions.

C. Environmental Requirements: The following requirements are in addition to all applicable laws and regulations.

1. No burning will be permitted on the Site.
2. Control dust by water sprinkling, temporary enclosures, or other methods acceptable to the Owner. Comply with governing regulations.

D. Owner's Rules: Conform at all times to Owner's requirements for protection of plant, materials, equipment, and noise levels.

1.7 COORDINATION WITH OCCUPANTS

A. Owner Limited Occupancy of Completed Areas of Construction: Owner reserves the right to occupy and to place and install equipment in completed portions of the Work, prior to Substantial Completion of the Work, provided such occupancy does not interfere with completion of the Work. Such placement of equipment and limited occupancy shall not constitute acceptance of the total Work.

1. Contractor is responsible for protecting Owner’s items from damage during storage and handling, including damage from exposure to the elements.

a. If Owner’s items are damaged as a result of Contractor's operations, Contractor shall repair or replace them.

2. Owner will prepare a Certificate of Substantial Completion for each specific portion of the Work to be occupied before Owner occupancy.
3. Obtain a Certificate of Occupancy from authorities having jurisdiction before limited Owner occupancy.
4. Before limited Owner occupancy, mechanical and electrical systems shall be fully operational, and required tests and inspections shall be successfully completed. On occupancy, Owner will operate and maintain mechanical and electrical systems serving occupied portions of Work.
5. On occupancy, Owner will assume responsibility for maintenance and custodial service for occupied portions of Work.

1.8 WORK RESTRICTIONS

A. Work Restrictions, General: Comply with restrictions on construction operations.

1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.

B. On-Site Work Hours: Limit work in the existing building to normal business working hours from Monday through Friday, unless otherwise indicated.

1. Weekday Hours: As directed by Owner’s Representative.

2. Weekend Hours: As directed by Owner's Representative.
3. Early Morning Hours: As directed by Owner's Representative.
4. Hours for Utility Shutdowns: As directed by Owner's Representative.

C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:

1. Notify Owner not less than six days in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without Owner's written permission.

D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy with Owner.

1. Notify Owner not less than six days in advance of proposed disruptive operations.
2. Obtain Owner's written permission before proceeding with disruptive operations.

E. Nonsmoking Building: Smoking is not permitted within the building or within 25 feet of entrances, operable windows, or outdoor-air intakes.

1.9 TAXES

A. Contractor shall pay sales, consumer, use and similar taxes for the Work or portions thereof provided by the Contractor which are legally enacted at the time Bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

1.10 PERMITS

A. Contractor shall secure and pay for the building permit, and other permits and governmental fees, licenses and inspections necessary for the proper execution and completion of the Work which are customarily secured after execution of the Contract and which are legally required at the time the Bids are received or negotiations concluded.

B. If required by governmental authority, Owner will make application for permits and licenses using forms obtained and prepared by the Contractor and with all costs paid by the Contractor.

C. The Contractor shall comply with and give notices required by laws, ordnances, rules, regulations and lawful orders of public authorities bearing on performance of the Work. Any provisions hereof to the contrary not withstanding, Contractor shall observe and abide by and perform all of its obligations hereunder in accordance with all applicable laws, rules, and regulations of all governmental authorities having jurisdiction, including the Federal Occupational, Safety and Health Act. Contractor shall comply with all laws regarding trench excavations in excess of 5 feet in depth, including employing engineers, if needed. Such expenses shall be included in the cost of the work.

1.11 PROJECT COORDINATION

A. General: Refer to the General Conditions for requirements pertaining to coordination. The Contractor shall be the sole coordinator of the Work.

1. The Architect has exercised reasonable care in coordinating the Contract Documents between disciplines. Carefully study and compare the Contract Documents, site, Owner furnished data, and local conditions and report at once any discrepancies, errors, or omissions in the Contract Documents prior to the award of the Contract. Failure to report any discrepancies, errors, or omissions in the Contract Documents shall be a waiver to any claim by the successful bidder for expense made necessary by reason of later interpretation of the Contract Documents by the Architect.

B. Coordinate construction operations included in various Sections of these Specifications to assure efficient and orderly installation of each part of the Work. Coordinate construction operations included under different Sections that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in the sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
2. Coordinate installation of different components to assure maximum accessibility for required maintenance, service, and repair.
3. Make provisions to accommodate items scheduled for later installation.

C. Existing Conditions:

1. Conduct a thorough examination of the site, the Contract Documents, and Owner furnished data of existing conditions before proceeding with the Work. The Contractor shall formulate from its examinations its own conclusions as to the extent of the existing conditions and the complexities that may be encountered in the execution of the Work.
2. Owner Furnished Data: Portions of the Contract Documents were prepared from data received from the Owner by the Architect. Such data is available from the Owner and represents all existing conditions known to the Owner. Such data will be furnished only for the information and convenience of the Contractor, and the accuracy or completeness of this data is not guaranteed. Field verify all existing dimensions. Other conditions, of which no record exists, may be encountered during construction.

1.12 SPECIFICATION FORMATS AND CONVENTIONS

A. Specification Format: The Specifications are organized into Divisions and Sections using the 50-division format of the Construction Specifications Institute's (CSI) 2004 edition of the "MasterFormat" numbering system.

1. Division 01: Sections in Division 01 govern the execution of the Work of all Sections in the Specifications.

B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.
2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.

    a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

C. Specification Coordination with Drawings: The following types of annotations are indicated on Drawings to identify products and materials included in the work and to identify corresponding specification sections that govern products, materials, quality, performance, and execution of work:

1. By numbering system or sequence: The MasterFormat number for the corresponding specification section included in the Project Manual with a suffix to distinguish two or more products included in the same specification section.

    a. Example: 08 14 16.C.

2. By naming conventions: Generic, commonly used, terminology or description that is understood throughout the design and construction industry.

    a. Example: Flush Wood Door.

3. By combination: A numbering system or sequence combined with a conventional name.

    a. Example: 08 14 16.C Flush Wood Door.

1.13 CODES AND STANDARDS

A. All references to codes, specifications and standards referred to in the Contract Documents shall mean, and are intended to be, the edition indicated in the corresponding construction subcode that governs the work or portion of the work indicated.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 10 00

SECTION 01 25 00 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for substitutions.

B. Related Sections:

1. Section 01 60 00 "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.
2. Divisions 03 through 49 Sections for specific requirements and limitations for substitutions.

1.3 DEFINITIONS

A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

1.4 ACTION SUBMITTALS

A. Substitution Requests: Submit three copies of each request for consideration to Architect and Landlord. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Substitution Request Form: Use form provided as Section 00 60 06 "Substitution Request."
2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:

a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
b. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors, necessary to accommodate proposed substitution.

c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
e. Samples, where applicable or requested.
f. Certificates and qualification data, where applicable or requested.
g. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
i. Research reports evidencing compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction.
j. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
k. Cost information, including a proposal of change, if any, in the Contract Sum.
l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.

a. Forms of Acceptance: Change Order, Construction Change Directive, or Bulletin for minor changes in the Work.
b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.5 QUALITY ASSURANCE

A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage qualified testing agency to perform compatibility tests recommended by manufacturers.

1.6 PROCEDURES

A. Coordination: Modify or adjust affected work as necessary to integrate work of the approved substitutions.

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

A. Substitutions for Cause: Submit requests for substitution immediately upon discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
b. Substitution request is fully documented and properly submitted.
c. Requested substitution will not adversely affect Contractor's construction schedule.
d. Requested substitution has received necessary approvals of authorities having jurisdiction.
e. Requested substitution is compatible with other portions of the Work.
f. Requested substitution has been coordinated with other portions of the Work.
g. Requested substitution provides specified warranty.
h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

B. Substitutions for Convenience: Architect will consider requests for substitution if received within 30 days after commencement of the Work. Requests received after that time may be considered or rejected at discretion of Architect.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

a. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
b. Requested substitution does not require extensive revisions to the Contract Documents.
c. Requested substitution is consistent with the Contract Documents and will produce indicated results.

d. Substitution request is fully documented and properly submitted.
e. Requested substitution will not adversely affect Contractor's construction schedule.
f. Requested substitution has received necessary approvals of authorities having jurisdiction.
g. Requested substitution is compatible with other portions of the Work.
h. Requested substitution has been coordinated with other portions of the Work.
i. Requested substitution provides specified warranty.
j. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01 25 00

SECTION 01 26 00 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for handling and processing Contract modifications.

B. Related Requirements:

1. Section 01 25 00 "Substitution Procedures" for administrative procedures for handling requests for substitutions made after the Contract award.

1.3 MINOR CHANGES IN THE WORK

A. Architect will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710, "Architect's Supplemental Instructions, "Bulletin" form included as Section 00 60 07, or form acceptable to Owner.

1.4 PROPOSAL REQUESTS

A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.

1. Proposal Requests issued by Architect are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
2. Within 20 days after receipt of Proposal Request, when not otherwise specified, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.

    a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
    b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
    c. Include costs of labor and supervision directly attributable to the change.
    d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Architect.

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include costs of labor and supervision directly attributable to the change.
5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
6. Comply with requirements in Section 01 25 00 "Substitution Procedures" if the proposed change requires substitution of a specified product or system.

C. Proposal Request Form: Use AIA Document G709, Proposal Request.

1.5 CHANGE ORDER PROCEDURES

A. Upon Owner's approval of a Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on AIA Document G701, Change Order.

1.6 CONSTRUCTION CHANGE DIRECTIVES

A. Construction Change Directive: Owner may issue an Architect prepared Construction Change Directive on AIA Document G714. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.

1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01 26 00

SECTION 01 26 13 – REQUESTS FOR INTERPRETATION (RFI)

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for handling and processing Requests for Interpretation.

1.2 DEFINITIONS

A. Requests for Interpretation (RFI): Contractor initiated written instrument related to the execution of the Work that is addressed to the Architect. The RFI shall be used by the Contractor as the means to ask questions related to the Work; subject to the conditions contained within this Section.

1.3 ACTION SUBMITTALS

A. Requests for Interpretation: Include a detailed, legible description of an item needing information or interpretation and the following:

1. Project name.
2. Project number.
3. Date.
4. Name of Contractor.
5. Name of Architect.
6. RFI number, numbered sequentially.
7. RFI subject.
8. Reference to appropriate documents:

    a. Specification Section number and title and related paragraphs.
    b. Drawing number and detail references.
    c. Schedule.
    d. Bulletin number.
    e. Other Contract Documents, if any.

9. Field dimensions and conditions, as appropriate.
10. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
11. Contractor's and RFI Manager's signature.
12. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.

    a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.

B. RFI Forms: Use "Request for Interpretation" form bound in Section 00 60 00 "Forms."

1.4 INFORMATIONAL SUBMITTALS

A. RFI Log: Prepare, maintain, and submit a tabular log of RFI organized by the RFI number. Submit log weekly. Include the following:

1. Project name.
2. Name and address of Contractor.
3. Name and address of Architect.
4. RFI number including RFIs that were returned without action or withdrawn.
5. RFI description.
6. Date the RFI was submitted.
7. Date Architect's response was received.

1.5 QUALITY ASSURANCE

A. Authorship: Prior to the commencement of the RFI process, designate a full time "RFI Manager" whose duties shall include the responsibility for enforcing the Request for Interpretation provisions of this Section, to maintain an up-to-date log of all RFI, advise the Architect, in writing, of the status and disposition of all RFI at the progress meetings, and be a member of the Contractor's staff. The RFI Manager shall be experienced in administration and supervision of the type of Work indicated on the Contract Documents.

1. RFI Manager may be the Contractor's Job Superintendent.
2. Each RFI shall originate solely from the RFI Manager. An RFI submitted to the Architect by an entity, or individual, other than the RFI Manager shall be returned to the Contractor.

1.6 ADMINISTRATIVE REQUIREMENTS

A. Processing Time: Allow five working days for Architect's response for each RFI.

1. Allow additional time if coordination with other work is required. Architect will advise Contractor when a RFI being processed must be delayed for coordination.
2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt of additional information.

B. Architect's action on RFI that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Proposal Request according to Section 01 26 00 "Contract Modification Procedures."

1. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within 10 days of receipt of the RFI response.

C. Frivolous RFI:

1. RFI shall not be used for the following:

a. Request for approval of submittals.
b. Request approval of substitutions.
c. Requests for approval of Contractor's means and methods.

d. Request for adjustment in the Contract Time or the Contract Sum.
e. Requests for interpretation of Architect's actions on submittals.
f. Requests for coordination information already indicated in the Contract Documents, or to transfer coordination responsibility from the Contractor to the Owner or Architect.
g. Incomplete RFI or inaccurately prepared RFI.

2. The Owner reserves the right to assess the Contractor for the cost (based on time and materials) of a RFI response performed by the Architect, and any of its consultants, which is deemed by the Owner and the Architect as being frivolous or unnecessary.
3. Frivolous RFI shall be removed from the RFI log.

1.7 COORDINATION

A. Coordination: Coordinate preparation and processing of RFI with performance of construction activities.

1. Submit RFI with such promptness as to cause no delays in the Work. No adjustments of Contract Time or Contract Sum will be granted because of failure to have an RFI submitted with sufficient time to allow for the orderly processing of a response by the Architect.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 CONTRACTOR'S ACTION

A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, prepare and submit an RFI in the form specified.

B. Prior to submission of the RFI, coordinate the nature of the inquiry with the requirements of other Sections or trades as related thereto and responses to previous RFI.

C. Complete each blank on the RFI form.

D. In preparing each RFI, verify the applicable dimension(s), field conditions, Drawing requirements (small through large scale details), and/or Specification Section requirements pertaining thereto.

E. Each RFI shall be reviewed, and signed by the RFI Manager prior to transmitting to the Architect.

F. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within seven days if Contractor disagrees with response.

3.2 ARCHITECT'S ACTION

A. Architect's Action: Architect will review each RFI, determine action required, and respond.

1. Frivolous RFI will be returned without action.

B. RFI which fail to conform to requirements, (for example, is incomplete or contain numerous errors) shall be returned to the Contractor without a response. No adjustments for Contract Time or Contract Sum shall be granted for an RFI failing to conform to requirements.

END OF SECTION 01 26 13

SECTION 01 29 00 – PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.

B. Related Sections include the following:

1. Section 01 26 00 "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.

1.3 DEFINITIONS

A. Site Visit: Architect's visits to the site at intervals necessary in the judgment of Architect to become generally familiar with the progress and quality of the Work completed and to determine in general if the Work completed is in accordance with the Contract Documents. Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work.

B. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.4 SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.

1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:

a. Application for Payment forms with Continuation Sheets.
b. Submittals Schedule.
c. Items required to be indicated as separate activities in Contractor's Construction Schedule.

2. Submit the Schedule of Values to Owner at earliest possible date but no later than seven days before the date scheduled for submittal of initial Applications for Payment.

3. Subschedules for Phased Work: Where the Work is separated into phases requiring separately phased payments, provide subschedules showing values correlated with each phase of payment.

B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.

1. Identification: Include the following Project identification on the Schedule of Values:

   a. Project name and location.
   b. Name of Architect.
   c. Architect's project number.
   d. Contractor's name and address.
   e. Date of submittal.

2. Arrange schedule of values consistent with format of AIA Document G703.
3. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:

   a. Related Specification Section or Division.
   b. Description of the Work.
   c. Name of subcontractor.
   d. Name of manufacturer or fabricator.
   e. Name of supplier.
   f. Change Orders (numbers) that affect value.
   g. Dollar value of the following, as a percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.

      1) Labor.
      2) Materials.
      3) Equipment.

4. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide multiple line items for principal subcontract amounts in excess of five percent of Contract Sum.

   a. Include separate line items under principal subcontracts for labor, materials, LEED documentation and other Project closeout requirements.

5. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
6. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.

   a. Differentiate between items stored on-site and items stored off-site only if permitted under the Construction Contract. Include evidence of insurance or bonded warehousing for items stored off-site when permitted.

7. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
8. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.

    a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.

9. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.5 APPLICATIONS FOR PAYMENT

A. Each Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.

1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.

B. Payment Application Times: Progress payments shall be submitted to Owner on the 1st day of the month. The period covered by each Application for Payment is one month, ending on the last day of the month.

C. Payment Application Review:

1. Submit draft (pencil) copy of the Application for Payment at least ten days prior to due date for review by Owner.
2. On the 25th day of each month, the Owner and Contractor shall meet to review the draft (pencil) copy of the Application for Payment. Questions resulting from this review shall be answered by the Contractor and clarified prior to receipt of the final copy of the Application for Payment.
3. Upon receipt of the final Application for Payment and other documentation as required by the Owner, including the updated Schedule of Values and the updated Contractor's Construction Schedule, the Owner shall review the documents received to determine if they correspond to the agreements reached during the draft (pencil) copy review. Upon completion of the Owner's review, the Owner shall revise and execute the Applications and Certificate for Payment to correspond to the agreements reached and forward the executed copies to the Contractor.
4. In taking action on the 'Contractor's Application for Payment, the Owner will rely on the accuracy and completeness of the information furnished by the Contractor and will not be deemed to represent that he has made audits of the supporting data.

D. Payment Application Forms: Use AIA Document G702 and AIA Document G703 as form for Applications for Payment.

E. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Owner will return incomplete applications without action.

1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
2. Include amounts of work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
4. Indicate separate amounts for work being carried out under Owner-requested project acceleration, if any.

F. Stored Materials and Equipment: Payments will not be made for materials and equipment stored off-site, except at the Owner's discretion and prior approval. When the Application for Payment includes amounts for materials or equipment purchased or fabricated and stored off-site, the Application for Payment shall be accompanied by a statement certifying:

1. Description of item(s) being stored.
2. Location of the bonded warehouse(s) where materials or equipment is stored.
3. Affidavit of Storage.
4. Bill of sale made to Owner stating there will be no additional cost for transportation and delivery of the stored item(s).
5. Statement certifying that item or any part thereof will not be installed in any construction other than Work under this Contract.
6. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment, for stored materials.
7. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
8. Provide summary documentation for stored materials indicating the following:

    a. Materials previously stored and included in previous Applications for Payment.
    b. Work completed for this Application utilizing previously stored materials.
    c. Additional materials stored with this Application.
    d. Total materials remaining stored, including materials with this application.

G. Transmittal: Submit 3 signed and notarized original copies of each Application for Payment to Owner by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.

1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.

H. Waivers of Mechanic's Lien: With each Application for Payment, submit notarized waivers of mechanic's lien from every entity who is lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.

1. Submit partial waivers on each item for amount requested, before deduction for retainage, on each item.
2. When an application shows completion of an item, submit final or full waivers.
3. Owner reserves the right to designate which entities involved in the Work must submit waivers.

4. Waiver Delays: Submit each Application for Payment with Contractor's waiver of mechanic's lien for construction period covered by the application.

    a. Submit final Application for Payment with or preceded by final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.

5. Waiver Forms: Submit waivers of lien on forms, executed in a manner acceptable to Owner.

I. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:

1. List of subcontractors, principal suppliers and fabricators.
2. Schedule of Values.
3. LEED submittal for project materials cost data.
4. LEED action plans.
5. Contractor's Construction Schedule (preliminary if not final).
6. Products list (preliminary if not final).
7. Schedule of unit prices.
8. Submittals Schedule (preliminary if not final).
9. List of Contractor's staff assignments.
10. List of Contractor's principal consultants.
11. Copies of building permits.
12. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
13. Initial progress report.
14. Report of preconstruction conference.
15. Certificates of insurance and insurance policies.
16. Data needed to acquire Owner's insurance.
17. Performance and payment bonds, if provided under the Construction Contract.
18. Construction Waste Management Program.

J. Application for Payment at Substantial Completion: After issuance of the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.

1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
3. Submit occupancy permits and similar approvals or certifications by governing authorities and franchised services, assuring Owner's full access and use of completed work.
4. Submit executed warranty and maintenance agreements.
5. Deliver extra materials.

K. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:

1. Evidence of completion of Project closeout requirements, including, but not limited to:

    a. Transmittal of required Project Record Documents to Owner.
    b. Evidence of completion of demonstration and training.

2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
3. Updated final statement, accounting for final changes to the Contract Sum.
4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
6. AIA Document G707, "Consent of Surety to Final Payment."
7. Evidence that claims have been settled.
8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
9. Final liquidated damages settlement statement.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01 29 00

SECTION 01 31 00 – PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:

1. General project coordination procedures.
2. Conservation.
3. Coordination Drawings.
4. Administrative and supervisory personnel.
5. Project meetings.

B. Related Sections: The following Sections contain requirements that relate to this Section:

1. Section 01 73 00 "Execution" for procedures for coordinating general installation and field-engineering services.
2. Section 01 77 00 "Closeout Procedures" for coordinating Contract closeout.

1.3 COORDINATION

A. Coordination: Coordinate construction operations included in various Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
2. Coordinate installation of different components with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
3. Make adequate provisions to accommodate items scheduled for later installation.

B. If necessary, prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.

C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of Contractor's Construction Schedule.
2. Preparation of Contractor's Submittal Schedule.
3. Preparation of the Schedule of Values.
4. Installation and removal of temporary facilities and controls.
5. Delivery and processing of submittals.
6. Progress meetings.
7. Preinstallation conferences.
8. Project closeout activities.

D. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.

1.4 SUBMITTALS

A. Coordination Drawings: Prepare Coordination Drawings if limited space availability necessitates maximum utilization of space for efficient installation of different components or if coordination is required for installation of products and materials fabricated by separate entities.

1. Indicate relationship of components shown on separate Shop Drawings.
2. Indicate required installation sequences.
3. Refer to Divisions in the Facility Services Subgroup for specific Coordination Drawing requirements for mechanical and electrical installations.

B. Staff Names: Within 15 days of starting construction operations, submit a list of principal staff assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home and office telephone numbers. Provide names, addresses, and telephone numbers of individuals assigned as standbys in the absence of individuals assigned to Project.

1. Post copies of list in Project meeting room, in temporary field office, and by each temporary telephone.

1.5 ADMINISTRATIVE AND SUPERVISORY PERSONNEL

A. General: In addition to Project superintendent, provide other administrative and supervisory personnel as required for proper performance of the Work. Refer to General Conditions for additional requirements.

1.6 PROJECT MEETINGS

A. General: Schedule and conduct meetings and conferences at Project site, unless otherwise indicated.

1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.
2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
3. Minutes: Record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within 3 days of the meeting.
4. Notification: Inform participants 3 days prior to meetings not regularly scheduled.

B. Preconstruction Conference: Schedule a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than15 days after execution of the Agreement. Hold the conference at Project site or another convenient location. Conduct the meeting to review responsibilities and personnel assignments.

1. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; manufacturers; suppliers; testing laboratory representatives; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Discuss items of significance that could affect progress, including the following:

    a. Requirements in individual Specification Sections for preconstruction responsibilities.
    b. Tentative construction schedule.
    c. Project coordination.
    d. Phasing, if any.
    e. Critical work sequencing.
    f. Designation of responsible personnel.
    g. Procedures for processing Requests for Interpretation (RFI's.)
    h. Procedures for processing Bulletins.
    i. Procedures for processing submittals.
    j. Procedures for processing substitutions.
    k. Procedures for processing field decisions, proposal requests and Change Orders.
    l. Procedures for processing Applications for Payment.
    m. Distribution of the Contract Documents.
    n. Preparation of Record Documents.
    o. Use of the premises.
    p. Responsibility for temporary facilities and controls.
    q. Parking availability.
    r. Office, work, and storage areas.
    s. Equipment deliveries and priorities.
    t. First aid.
    u. Security.
    v. Progress cleaning.
    w. Working hours.

C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.

1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect of scheduled meeting dates.
2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:

    a. Contract Documents.
    b. Options.
    c. Related Requests for Interpretation.
    d. Related Change Orders.
    e. Purchases.
    f. Deliveries.
    g. Submittals.
    h. Review of mockups.
    i. Possible conflicts.
    j. Compatibility requirements for materials.
    k. Time schedules.
    l. Weather limitations.
    m. Manufacturer's written recommendations.
    n. Warranty requirements.
    o. Acceptability of substrates.
    p. Temporary facilities and controls.
    q. Space and access limitations.
    r. Regulations of authorities having jurisdiction.
    s. Testing and inspecting requirements.
    t. Installation procedures.
    u. Coordination with other work.
    v. Required performance results.
    w. Protection of adjacent work.
    x. Protection of construction and personnel.

3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.
5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.

D. Progress Meetings: Conduct progress meetings at weekly intervals. Coordinate dates of meetings with preparation of payment requests. Schedule and administer special meetings as required.

1. Attendees: In addition to representatives of Owner, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work. Architect may attend.

2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

    a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
    b. Review present and future needs of each entity present, including the following:

        1) Interface requirements.
        2) Sequence of operations.
        3) Status of submittals.
        4) Deliveries.
        5) Off-site fabrication.
        6) Access.
        7) Site utilization.
        8) Temporary facilities and controls.
        9) Work hours.
        10) Hazards and risks.
        11) Progress cleaning.
        12) Quality and work standards.
        13) Status of Change Orders.
        14) Documentation of information for payment requests.
        15) Testing and inspection requirements.
        16) Status of Requests for Interpretation.
        17) Other business relating to the Work.

3. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present. Include a brief summary, in narrative form, of progress since the previous meeting and report.

    a. Schedule Updating: Revise Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

E. Coordination Meetings: Conduct Project coordination meetings at weekly intervals. Project coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and preinstallation conferences.

1. Attendees: Every entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work. Owner and Architect may attend.
2. Agenda: Review and correct or approve minutes of the previous coordination meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

a. Combined Contractor's Construction Schedule: Review progress since the last coordination meeting. Determine whether each contract is on time, ahead of schedule, or behind schedule, in relation to Combined Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
b. Schedule Updating: Revise Combined Contractor's Construction Schedule after each coordination meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with report of each meeting.
c. Review present and future needs of each contractor present, including the following:

1) Interface requirements.
2) Sequence of operations.
3) Status of submittals.
4) Deliveries.
5) Off-site fabrication.
6) Access.
7) Site utilization.
8) Temporary facilities and controls.
9) Work hours.
10) Hazards and risks.
11) Progress cleaning.
12) Quality and work standards.
13) Change Orders.

3. Reporting: Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01 31 00

SECTION 01 32 00 – CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:

1. Contractor's construction schedule.
2. Contractor's submittal schedule.
3. Daily construction reports.
4. Site condition reports.
5. Special reports.
6. Construction photographs.

B. Related Sections include the following:

1. Section 01 29 00 "Payment Procedures" for submitting the Schedule of Values.
2. Section 01 31 00 "Project Management and Coordination" for submitting and distributing meeting and conference minutes.

1.3 DEFINITIONS

A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.

1. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.
2. Predecessor Activity: An activity that precedes another activity in the network.
3. Successor Activity: An activity that follows another activity in the network.

B. Cost Loading: The allocation of the schedule of values for the completion of an activity as scheduled. The sum of costs for all activities must equal the total Contract Sum unless otherwise approved by Architect.

C. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.

D. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.

E. Event: The starting or ending point of an activity.

F. Float: The measure of leeway in starting and completing an activity.

1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.
2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.

G. Fragnet: A partial or fragmentary network that breaks down activities into smaller activities for greater detail.

H. Major Area: A story of construction, a separate building, or a similar significant construction element.

I. Milestone: A key or critical point in time for reference or measurement.

J. Network Diagram: A graphic diagram of a network schedule, showing activities and activity relationships.

K. Resource Loading: The allocation of manpower and equipment necessary for the completion of an activity as scheduled.

1.4 INFORMATIONAL SUBMITTALS

A. Format for Submittals: Submit required submittals in the following format:

1. Working electronic copy of schedule file, where indicated.
2. PDF electronic file.
3. Three paper copies.

B. Contractor's Construction Schedule: Submit three paper copies of initial schedule, large enough to display entire schedule for entire construction period.

1. Submit a working electronic copy of schedule, labeled to comply with requirements for submittals. Include type of schedule (initial or updated) and date on label.

C. CPM Reports: Concurrent with CPM schedule, submit three paper copies of each of the following computer-generated reports. Format for each activity in reports shall contain activity number, activity description, original duration, remaining duration, early start date, early finish date, late start date, late finish date, and total float in calendar days.

1. Activity Report: List of all activities sorted by activity number and then early start date, or actual start date if known.
2. Logic Report: List of preceding and succeeding activities for all activities, sorted in ascending order by activity number and then early start date, or actual start date if known.
3. Total Float Report: List of all activities sorted in ascending order of total float.

D. Construction Photographs: Submit two prints of each photographic view within seven days of taking photographs.

1. Format: 8-by-10-inch smooth-surface matte prints on single-weight commercial-grade photographic paper, mounted on card stock to allow a 1-inch wide left margin and punched for standard 3-ring binder.
2. Identification: On back of each print, provide an applied label or rubber-stamped impression with the following information:

a. Name of Project.
b. Name and contact information for photographer.
c. Name of Architect.
d. Name of Contractor.
e. Date photograph was taken if not date stamped by camera.
f. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.
g. Unique sequential identifier keyed to accompanying key plan.

E. Construction Schedule Updating Reports: Submit with Applications for Payment.

F. Daily Construction Reports: Submit two copies plus a PDF electronic file at monthly intervals.

G. Site Condition Reports: Submit two copies plus a PDF electronic file at time of discovery of differing conditions.

H. Construction Waste Management Report: Submit two copies plus a PDF electronic file at monthly intervals.

I. Special Reports: Submit two copies plus a PDF electronic file at time of unusual event.

1.5 QUALITY ASSURANCE

A. Scheduling Consultant Qualifications: Engage an experienced specialist or consultant to provide planning, evaluation, and reporting using CPM scheduling with capability of producing CPM reports and diagrams within 24 hours of request.

1. In-House Option: Contractor may employ skilled personnel with experience in CPM scheduling and reporting techniques.
2. Meetings: Scheduling consultant shall attend all meetings related to Project progress, alleged delays, and time impact.

B. Photographer Qualifications: An individual who has been regularly engaged as a professional photographer of construction projects for not less than three years.

1.6 COORDINATION

A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.

B. Coordinate Contractor's construction schedule with the schedule of values, list of subcontracts, submittal schedule, progress reports, payment requests, and other required schedules and reports.

1. Secure time commitments for performing critical elements of the Work from parties involved.
2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 - PRODUCTS

2.1 CONTRACTOR'S SUBMITTALS SCHEDULE

A. Preparation: 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. Include the following information:

1. Submittal category (action or informational).
2. Description of the Work covered.
3. Specification Section (number and title) to which submittal relates.
4. Subcontractor, fabricator or supplier responsible for preparing the submittal.
5. Anticipated date of Architect’s receipt of submittal.
6. Number of business days allowed for Architect’s review of submittal.
7. Scheduled date for Architect's final release or approval.
8. Provide blank columns for actual date of submittal, re-submittal, and final-review status.

B. Coordinate Submittals Schedule with the Schedule of Values and Contractor's Construction Schedule.

C. Initial Submittal: Submit within 10 days of Owner’s authorization or Notice to Proceed with construction. Include submittals required during the first 60 days of construction. List those required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.

D. Final Submittal: Submit concurrently with the first complete submittal of Contractor's Construction Schedule.

E. Revisions: Notify Architect two weeks prior to any revisions to approved Final Submittal Schedule.

2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

A. Procedures: Comply with procedures contained in AGC's "Construction Planning & Scheduling."

B. Time Frame: Extend schedule from date established for commencement of the Work or a Notice to Proceed to date of Final Completion.

1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

C. Activities: Treat each story or separate area as a separate numbered activity for each principal element of the Work. Comply with the following:

1. Procurement Activities: Include procurement process activities for long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
2. Submittal Review Time: Include review and resubmittal times indicated in Section 013300 "Submittal Procedures" in schedule. Include selection process activities for finishes and products specified by allowances or specified to be selected during the sample review process. Coordinate submittal review times in Contractor's Construction Schedule with Submittals Schedule.
3. Startup and Testing Time: Include not less than 5 days for startup and testing.
4. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.
5. Punch List and Final Completion: Include not more than 15 days for completion of punch list items and final completion.
6. Building Flush-Out: Include at least 5 days for building flush-out as indicated in Section 01 81 19 "Indoor Air Quality (IAQ) Management."
7. Demonstration and Training: Training of Owner's personnel as indicated in Division 01 Section 01 79 00 "Demonstration and Training."

D. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.

1. Phasing: Arrange list of activities on schedule by phase.
2. Work under More Than One Contract: Include a separate activity for each contract.
3. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.
4. Products Ordered in Advance: Include a separate activity for each product. Delivery dates indicated stipulate the earliest possible delivery date.
5. Owner-Furnished Products: Include a separate activity for each product. Delivery dates indicated stipulate the earliest possible delivery date.
6. Work Restrictions: Show the effect of the following items on the schedule:

    a. Coordination with existing construction.
    b. Limitations of continued occupancies.
    c. Uninterruptible services.
    d. Partial occupancy before Substantial Completion.
    e. Use of premises restrictions.
    f. Provisions for future construction.
    g. Seasonal variations.
    h. Environmental control.

7. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:

a. Subcontract awards.
b. Submittals.
c. Purchases.
d. Mockups.
e. Fabrication.
f. Sample testing.
g. Deliveries.
h. Installation.
i. Tests and inspections.
j. Adjusting.
k. Curing.
l. Building flush-out.
m. Startup and placement into final use and operation.

8. Construction Areas: Identify each major area of construction for each major portion of the Work. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities to provide for the following:

a. Structural completion or structural work.
b. Temporary enclosure and space conditioning.
c. Building envelope or permanent enclosure.
d. Completion of HVAC installation.
e. Completion of electrical installation.
f. Completion of plumbing installation.
g. Completion of fire protection installation.
h. Completion of communications installations.
i. Completion of audio-visual installations.
j. Completion of security installations.
k. Substantial Completion.

E. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the commencement of the Work or Notice to Proceed, Substantial Completion, and Final Completion.

F. Upcoming Work Summary: Prepare summary report indicating activities scheduled to occur or commence prior to submittal of next schedule update. Summarize the following issues:

1. Unresolved issues.
2. Unanswered RFI.
3. Rejected or unreturned submittals.
4. Notations on returned submittals.
5. Pending modifications affecting the Work and Contract Time.

G. Computer Software: Prepare schedules using a program that has been developed specifically to manage construction schedules.

1. Compatibility: All software shall comply with Bank of America master scheduling software requirements.

2.3 CONTRACTOR'S CONSTRUCTION SCHEDULE (CPM SCHEDULE)

A. General: Prepare network diagrams using AON (activity-on-node) format.

B. Preliminary Network Diagram: Submit diagram within 10 days of date established for commencement of the Work or a Notice to Proceed. Outline significant construction activities for the first 60 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.

C. CPM Schedule: Prepare Contractor's Construction Schedule using a time-scaled CPM network analysis diagram for the Work.

1. Develop network diagram in sufficient time to submit CPM schedule so it can be accepted for use no later than 10 days after date established for commencement of the Work or a Notice to Proceed.

    a. Failure to include any work item required for performance of this Contract shall not excuse Contractor from completing all work within applicable completion dates, regardless of approval of the schedule.

2. Conduct educational workshops to train and inform key Project personnel, including subcontractors' personnel, in proper methods of providing data and using CPM schedule information.
3. Establish procedures for monitoring and updating CPM schedule and for reporting progress. Coordinate procedures with progress meeting and payment request dates.
4. Use "one workday" as the unit of time for individual activities. Indicate nonworking days and holidays incorporated into the schedule in order to coordinate with the Contract Time.

D. CPM Schedule Preparation: Prepare a list of all activities required to complete the Work. Using the preliminary network diagram, prepare a skeleton network to identify probable critical paths.

1. Activities: Indicate the estimated time duration, sequence requirements, and relationship of each activity in relation to other activities. Include estimated time frames for the following activities:

    a. Preparation and processing of submittals.
    b. Mobilization and demobilization.
    c. Purchase of materials.
    d. Delivery.
    e. Fabrication.
    f. Utility interruptions.
    g. Installation.
    h. Work by Owner that may affect or be affected by Contractor's activities.
    i. Testing and commissioning.
    j. Punch list and final completion.

2. Critical Path Activities: Identify critical path activities, including those for interim completion dates. Scheduled start and completion dates shall be consistent with Contract milestone dates.
3. Processing: Process data to produce output data or a computer-drawn, time-scaled network. Revise data, reorganize activity sequences, and reproduce as often as necessary to produce the CPM schedule within the limitations of the Contract Time.
4. Format: Mark the critical path. Locate the critical path near center of network; locate paths with most float near the edges.

    a. Subnetworks on separate sheets are permissible for activities clearly off the critical path.

E. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using a network fragment to demonstrate the effect of the proposed change on the overall project schedule.

F. Initial Issue of Schedule: Prepare initial network diagram from a sorted activity list indicating straight "early start-total float." Identify critical activities. Prepare tabulated reports showing the following:

1. Contractor or subcontractor and the Work or activity.
2. Description of activity.
3. Principal events of activity.
4. Immediate preceding and succeeding activities.
5. Early and late start dates.
6. Early and late finish dates.
7. Activity duration in workdays.
8. Total float or slack time.
9. Average size of workforce.
10. Dollar value of activity (coordinated with the Schedule of Values).

G. Schedule Updating: Concurrent with making revisions to schedule, prepare tabulated reports showing the following:

1. Identification of activities that have changed.
2. Changes in early and late start dates.
3. Changes in early and late finish dates.
4. Changes in activity durations in workdays.
5. Changes in the critical path.
6. Changes in total float or slack time.
7. Changes in the Contract Time.

H. Value Summaries: Prepare two cumulative value lists, sorted by finish dates.

1. In first list, tabulate activity number, early finish date, dollar value, and cumulative dollar value.
2. In second list, tabulate activity number, late finish date, dollar value, and cumulative dollar value.
3. In subsequent issues of both lists, substitute actual finish dates for activities completed as of list date.

4. Prepare list for ease of comparison with payment requests; coordinate timing with progress meetings.

    a. In both value summary lists, tabulate "actual percent complete" and "cumulative value completed" with total at bottom.

2.4 REPORTS

A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:

1. List of subcontractors at Project site.
2. List of separate contractors at Project site.
3. Approximate count of personnel at Project site.
4. Equipment at Project site.
5. Material deliveries.
6. High and low temperatures and general weather conditions, including rain or snow accumulation.
7. Accidents.
8. Meetings and significant decisions.
9. Unusual events (refer to special reports).
10. Stoppages, delays, shortages, and losses.
11. Meter readings and similar recordings.
12. Tests and inspections, including name(s) of testing and inspection agency(ies).
13. Emergency procedures.
14. Orders and requests of authorities having jurisdiction.
15. Change Orders received and implemented.
16. Services connected and disconnected.
17. Equipment or system tests and startups.
18. Partial Completions and occupancies.
19. Substantial Completions authorized.

B. Site Condition Reports: Immediately on discovery of a difference between site conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Interpretation. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

2.5 SPECIAL REPORTS

A. General: Submit special reports directly to Owner within one day of an occurrence. Distribute copies of report to parties affected by the occurrence.

B. Reporting Unusual Events: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.

1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
3. As the Work progresses, indicate Actual Completion percentage for each activity.
4. Notify Owner and Architect a minimum of one week prior to issuance of updated schedule of all anticipated significant revisions to the project schedule.

B. Distribution: Distribute copies of approved schedule to Architect, Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.

1. Furnish Owner and Architect with an updated electronic version of the project schedule each month.
2. Post electronic copies of the updated project schedule on the project website.
3. Post copies in Project meeting rooms and temporary field offices.
4. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

3.2 CONSTRUCTION PHOTOGRAPHS

A. Photographer: Engage a qualified photographer to take construction photographs.

B. General: Take photographs using the maximum range of depth of field, and that are in focus, to clearly show the Work. Photographs with blurry or out-of-focus areas will not be accepted.

1. Maintain key plan with each set of construction photographs that identifies each photographic location.

C. Digital Images: Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.

1. Digital Images: Provide images in JPG format, produced by a digital camera with minimum sensor size of 8 megapixels, and at an image resolution of not less than 3200 by 2400 pixels.
2. Date and Time: Include date and time in file name for each image.
3. Field Office Images: Maintain one set of images accessible in the field office at Project site, available at all times for reference. Identify images in the same manner as those submitted to Architect.

D. Preconstruction Photographs: Before starting construction and subject to Owner approval, take four color photographs of Project site from different vantage points, as directed by Architect.

E. Periodic Construction Photographs: Subject to Owner approval, take twelve color photographs monthly, coinciding with cut-off date associated with each Application for Payment. Select interior vantage points to best show status of construction and progress since last photographs were taken.

1. Subject to Owner approval, take photographs for each submittal from the same viewpoint unless specifically directed otherwise by Architect.

F. Final Completion Construction Photographs: Subject to Owner approval, take twelve color photographs after date of Substantial Completion for submission as Project Record Documents. Architect will direct photographer for desired vantage points.

END OF SECTION 01 32 00

SECTION 01 33 00 – SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

B. Related Sections include the following:

1. Section 01 29 00 "Payment Procedures" for submitting Schedule of Values and Applications for Payment.
2. Section 01 31 00 "Project Management and Coordination" for submitting Coordination Drawings.
3. Section 01 32 00 "Construction Progress Documentation" for submitting schedules and reports, including Contractor's Construction Schedule and construction photographs.
4. Section 01 40 00 "Quality Requirements" for submitting test and inspection reports and for erecting mockups.
5. Section 01 77 00 "Closeout Procedures" for submitting warranties, operation and maintenance manuals, and closeout submittals.
6. Section 01 78 39 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.

1.3 DEFINITIONS

A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action. Action submittals are those submittals indicated in individual Specification Sections as action submittals.

B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as informational submittals.

C. File Transfer Protocol (FTP): Communications protocol that enables transfer of files to and from another computer over a network and that serves as the basis for standard Internet protocols. An FTP site is a portion of a network located outside of network firewalls within which internal and external users are able to access files.

D. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

1.4 ACTION SUBMITTALS

A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or modifications to submittals noted by the Architect and additional time for handling and reviewing submittals required by those corrections.

1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
2. Initial Submittal: Submit concurrently with start-up construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.

    a. Submit revised submittal schedule to reflect changes in current status and timing for submittals.

4. Format: Arrange the following information in a tabular format:

    a. Scheduled date for first submittal.
    b. Specification Section number and title.
    c. Submittal category: Action, informational.
    d. Name of subcontractor.
    e. Description of the Work covered.
    f. Scheduled date for Architect's final release or approval.
    g. Scheduled dates for purchasing.
    h. Scheduled dates for installation.
    i. Activity or event number.

5. Architect reserves the right to withhold 10 percent of each payment request, in addition to retainage fee if any, until the submittal schedule is received and accepted by the Architect.

1.5 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

A. Architect's Digital Data Files: At Contractor's written request, electronic copies of Drawings of the Contract Drawings will be provided by Architect for Contractor's use in preparing submittals. Architect makes no representations as to the accuracy or completeness of digital data files as they relate to the Contract Documents.

1. Architect will furnish Contractor one set of digital data drawing files of the Contract Drawings for use in preparing Shop Drawings and Project record drawings.

2. Provide an executed Data Transfer Agreement form included in Section 00 60 00 from each subcontractor and sub-subcontractor or supplier.

B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
4. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.

    a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

C. Processing Time: Promptly submit Shop Drawings, Product Data, and Samples in accordance with the accepted submittal schedule, as to cause no delay in the Work. Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. Architect will document on submittal the date of receipt.

1. Initial Review: Duration of initial submittal review shall be as agreed upon in the final submittal schedule. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination. Delaying submittals to facilitate coordination between submittals shall not constitute a delay of the Work nor shall it be the basis for an extension of time.
2. Sequential Review: Sequential review is a submittal that requires review by more than one design discipline. Where sequential review of submittals by Architect's consultants, Owner, or other parties is required, submittal schedule shall reflect sequential review.
3. Direct Transmittal to Consultant for Concurrent Review: Transmit submittals directly to Architect's consultants, provide duplicate copy of transmittal to Architect. Duration of initial submittal review shall be as agreed upon in the final submittal schedule. Submittal will be returned to Architect before being returned to Contractor. Concurrent review of submittals is limited to the following:
4. If intermediate submittal is necessary, process it in same manner as initial submittal.
5. Number of days for processing each resubmittal shall be as agreed upon in the final submittal schedule.
6. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

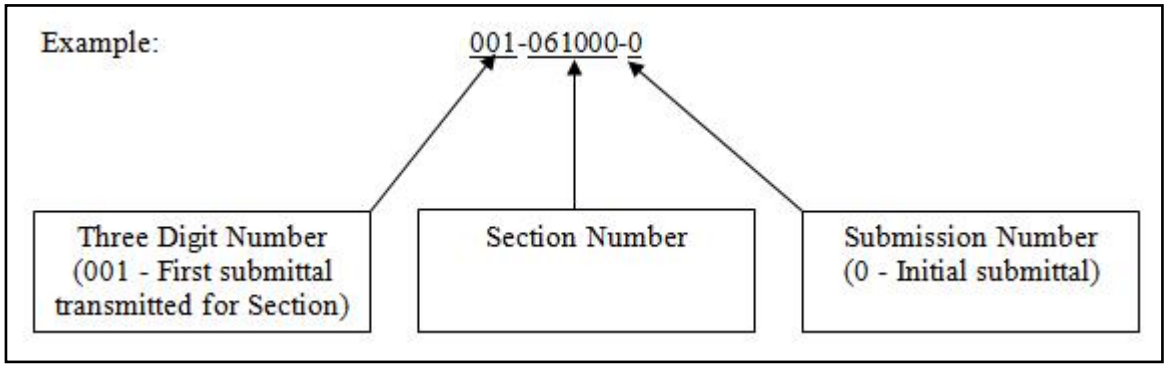
D. Identification: Place a permanent label or title block on each submittal for identification.

1. Indicate name of firm or entity that prepared each submittal on label or title block.
2. Provide a space approximately 5 inches by 6 inches on label or beside title block to record Architect's review markings.

3. Include the following information on label for processing and recording action taken:

    a. Project name.
    b. Date.
    c. Name and address of Architect.
    d. Name and address of Contractor.
    e. Name and address of subcontractor.
    f. Name and address of supplier.
    g. Name of manufacturer.
    h. Unique identifier, including revision number. Submittals shall be numbered with a three-digit number, followed by a dash, followed by the Section number, followed by another dash, and ending with a sequential submission number as indicated below. The numbering system shall be retained throughout all revisions.

        1) Three-Digit Number: Sequential number, beginning with "001", for each submittal transmitted to Architect for each Section.
        2) Section Number: Section number where submittal is specified.
        3) Submission Number: Use "0" for initial submittal, "1" for first resubmittal, "2" for second resubmittal, and so forth.



    i. Number and title of appropriate Specification Section.
    j. Drawing number and detail references, as appropriate.
    k. Location(s) where product is to be installed, as appropriate.
    l. Other necessary identification.

E. Options: Identify options requiring selection by the Architect.

F. Deviations: Highlight, encircle, or otherwise identify deviations from the Contract Documents on submittals.

G. Additional Paper Copies: Unless corrected copies are required for final submittal due to Architect's observance of noncompliance with provisions of the Contract Documents, initial submittal may serve as final submittal.

1. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Architect.

H. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will discard submittals received from sources other than Contractor.

1. On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect on previous submittals, and deviations from requirements of the Contract Documents, including minor variations and limitations. Include the same label information as the related submittal.
2. Include Contractor's certification stating that information submitted complies with requirements of the Contract Documents.
3. Include a checklist of submittals required for each section, listing previously submitted, accepted, revised, and outstanding. Each checklist is to be signed by the Contractor.

I. Transmittal Form: Use the form included in Section 00 60 00 "Forms" with each submittal.

J. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.

1. Note date and content of previous submittal.
2. Note date and content of revision in label or title block and clearly indicate extent of revision.
3. Resubmit submittals until they are marked "A" or "B" from Architect's action stamp.

K. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

L. Use for Construction: Use only final submittals with mark indicating action "A" or "B" taken by Architect in connection with construction.

M. Substitution requests are not allowed in the form of submittals. Substitution requests must be made in accordance with Section 01 25 00 "Substitution Procedures."

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

A. General: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.

1. Action Submittals: Submit three paper copies of each submittal, unless otherwise indicated. Architect will return two copies. Mark up and retain one returned copy as a Project Record Document.
2. Informational Submittals: Submit two paper copies of each submittal, unless otherwise indicated. Architect will not return copies.
3. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.

a. Provide a notarized statement on original paper copy certificates and certifications where indicated.

B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
2. Clearly mark each copy of each submittal to show which products and options are applicable.
3. Include the following information, as applicable:

a. Manufacturer's catalog cuts.
b. Manufacturer's written recommendations.
c. Manufacturer's product specifications.
d. Standard color charts.
e. Mill reports.
f. Standard product operating and maintenance manuals.
g. Compliance with recognized trade association standards.
h. Compliance with recognized testing agency standards.
i. Application of testing agency labels and seals.
j. Notation of coordination requirements.
k. Availability and delivery time information.

4. For equipment, include the following in addition to the above, as applicable:

a. Wiring diagrams showing factory-installed wiring.
b. Printed performance curves.
c. Operational range diagrams.
d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.

5. Submit Product Data before or concurrent with Samples.

C. Shop Drawings: Prepare and submit Project-specific information, drawn accurately to scale. Do not reproduce, digitally or otherwise, the Contract Documents and submit them as shop drawings. Contractor, subcontractors, suppliers and all other entities shall not use, copy or reproduce title blocks, dimensions, notes, keynotes, symbols schedules or details from Contract Drawings, digital or otherwise. Use of the Contract Drawings shall be limited to reproduction, digitally or otherwise, of the exterior wall layout, interior partition layout, grid lines, doors, and windows. Do not base Shop Drawings on standard printed data.

1. Preparation: Include the following information, as applicable:

a. Dimensions.
b. Identification of products.
c. Fabrication and installation drawings.
d. Roughing-in and setting diagrams.

e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring. Differentiate between manufacturer-installed and field-installed wiring.
f. Shopwork manufacturing instructions.
g. Templates and patterns.
h. Schedules.
i. Design calculations.
j. Compliance with specified standards.
k. Notation of coordination requirements.
l. Notation of dimensions established by field measurement.
m. Relationship and attachment to adjoining construction clearly indicated.
n. Seal and signature of professional engineer if specified.

2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 30 by 40 inches.

D. Samples: Submit physical units of materials or products.

1. Comply with requirements in Section 01 40 00 "Quality Requirements" for mockups.
2. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.

a. Number of Samples: Submit one full set of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.

3. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from the same material to be used for the Work, cured and finished in manner specified, and physically identical with the product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.

a. Number of Samples: Submit three sets of Samples. Architect will retain one Sample set; remainder will be returned. Mark up and retain one returned Sample set as a Project record sample.

1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.

4. Preparation: Mount, display, or package Samples in manner specified to facilitate review of qualities indicated. Prepare Samples to match Architect's sample where so indicated. Attach label on unexposed side that includes the following:

a. Generic description of Sample.
b. Product name or name of manufacturer.
c. Sample source.

5. Submit Samples for review of kind, color, pattern, and texture for a final check of these characteristics with other elements and for a comparison of these characteristics between final submittal and actual component as delivered and installed.

   a. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
   b. Refer to individual Specification Sections for requirements for Samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation, and similar construction characteristics.

6. Systems Submittals: Identify submittals for systems such as fire alarms, exterior walls, and curtain walls, on the transmittal and act upon the system singularly as a combined submittal. If resubmission is required, resubmit entire system submittal.
7. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.

   a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
   b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.

E. Product Schedule or List: Prepare and submit a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:

1. Type of product. Include unique identifier for each product indicated in the Contract Documents.
2. Number and name of room or space.
3. Location within room or space.
4. Manufacturer and product name, and model number if applicable.

F. Subcontract List: Prepare and submit a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Submit on the form included in Section 00 60 00 "Forms," "Subcontractors and Major Material Suppliers List."

G. Coordination Drawings: Comply with requirements specified in Section 01 32 00 "Project Management and Coordination."

H. Qualification Data: Submit written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

I. Welding Certificates: Prepare and submit written certification that welding procedures and personnel comply with requirements. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.

J. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements and, where required, where required, is authorized by manufacturer for this specific Project.

K. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements. Include evidence of manufacturing experience where required.

L. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements.

M. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements.

N. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements.

O. Preconstruction Test Reports: Prepare and submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements.

P. Compatibility Test Reports: Prepare and submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

Q. Field Test Reports: Prepare and submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements.

R. Product Test Reports: Submit written reports indicating current product produced by manufacturer complies with requirements. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

S. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:

1. Name of evaluation organization.
2. Date of evaluation.
3. Time period when report is in effect.
4. Product and manufacturers' names.

5. Description of product.
6. Test procedures and results.
7. Limitations of use.

T. Maintenance Data: Submit written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements specified in Section 01 77 00 "Closeout Procedures."

U. Manufacturer's Instructions: Submit written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer. Include the following, as applicable:

1. Preparation of substrates.
2. Required substrate tolerances.
3. Sequence of installation or erection.
4. Required installation tolerances.
5. Required adjustments.
6. Recommendations for cleaning and protection.

V. Manufacturer's Field Reports: Prepare and submit written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:

1. Name, address, and telephone number of factory-authorized service representative making report.
2. Statement on condition of substrates and their acceptability for installation of product.
3. Statement that products at Project site comply with requirements.
4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
6. Statement whether conditions, products, and installation will affect warranty.
7. Other required items indicated in individual Specification Sections.

W. Material Safety Data Sheets: If requested by Owner, submit data sheets directly to Owner. Do not submit data sheets to Architect. Architect will not review data sheets and will not return them to Contractor.

X. Certified Surveys: Comply with requirements specified in Section 01 73 00 "Execution."

Y. Extra Stock: Comply with requirements specified in individual Sections for quantity and disposition of delivery of extra stock.

2.2 DELEGATED-DESIGN SERVICES

A. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit three paper copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.

1. Indicate that products and systems comply with performance and design criteria in the Contract Documents.

C. Delegated-Design Submittals: Comply with requirements specified in Section 01 40 00 "Quality Requirements."

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

A. Review each submittal and check for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.

B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, coordinated, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT'S ACTION

A. General: Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.

B. Action Submittals: Architect will review each properly executed submittal, make marks to indicate corrections or modifications required, and return it. Architect will reject and return submittals not complying with requirements. Architect will stamp each submittal with a stamp and will mark stamp appropriately to indicate action, as follows:

1. **A** - No Exceptions Taken. No further review of Submittal required.
2. **B** - Make Corrections as Noted. Incorporate corrections in Work; resubmittal is not required. If Contractor cannot comply with corrections as noted, revise to respond to exceptions and resubmit.
3. **C** - Revise as Noted and Resubmit. Revise as noted & resubmit for further review.
4. **D** - Resubmit Properly. Submittal not reviewed because it does not contain Contractor's signature indicating its review and approval, and/or is not in proper condition for review. Resubmit.
5. **E** - Not Reviewed. Submittal is not required by Contract Documents.
6. **F** - Received for Client's Record Only. Submittal not reviewed.

C. Informational Submittals: Architect will review each submittal and will not return it, or will reject and return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.

D. Incomplete submittals are not acceptable, will be considered nonresponsive, and will be returned without review.

1. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect.

E. Submittals not required by the Contract Documents will not be reviewed and may be discarded or returned marked "Not Reviewed."

F. Substitution items received as product data, shop drawing, or sample submittals required by individual Sections will be returned to Contractor without review. Comply with requirements in Section 01 25 00 "Substitution Procedures" for submission of substitution request.

END OF SECTION 01 33 00

SUBMITTAL REVIEW

A NO EXCEPTIONS TAKEN.
B MAKE CORRECTIONS AS NOTED. Resubmittal not required unless Contractor cannot comply with corrections noted.
C REVISE AS NOTED AND RESUBMIT.
D RESUBMIT PROPERLY. Submittal not reviewed for reasons noted.
E NOT REVIEWED. Submittal not required by Contract Documents.
F RECEIVED FOR CLIENT'S RECORD ONLY. Submittal not reviewed.

Gensler has reviewed this Submittal, but only for the purpose of checking for conformance with the design intent expressed in the Contract Documents. Gensler's action on a specific item does not indicate approval of an assembly of which the item is a component, nor of an item as delivered and installed if it does not conform to the Contract Documents.
Contractor is responsible for checking for deviations between this Submittal and differing information or conditions in the Contract Documents and field conditions; for determining or substantiating the accuracy and completeness of other details such as dimensions and quantities; for substantiating instructions for installation or performance of equipment or systems designed by Contractor; for construction means, methods, techniques, schedules, sequences, procedures, and fabrication processes; for errors and omissions in Submittals; for coordination of the Work of the trades, safety precautions and performing the Work in a safe and satisfactory manner and in conformance with the Contract Documents. If more than one submittal review stamp appears on this Submittal, the most stringent action and notations thereon apply. Signature of a submittal review stamp by Gensler or a consultant does not imply that it has reviewed work not within its professional discipline or scope of services.

By ____________________ Date ____________________
Project No. ____________________ Submittal No. ____________________

SUBMITTAL REVIEW

A NO EXCEPTIONS TAKEN.
B MAKE CORRECTIONS AS NOTED. Resubmittal not required unless Contractor cannot comply with corrections noted.
C REVISE AS NOTED AND RESUBMIT.
D RESUBMIT PROPERLY. Submittal not reviewed for reasons noted.
E NOT REVIEWED. Submittal not required by Contract Documents.
F RECEIVED FOR CLIENT'S RECORD ONLY. Submittal not reviewed.

Gensler has reviewed this Submittal, but only for the purpose of checking for conformance with the design intent expressed in the Contract Documents. Gensler's action on a specific item does not indicate approval of an assembly of which the item is a component, nor of an item as delivered and installed if it does not conform to the Contract Documents.
Contractor is responsible for checking for deviations between this Submittal and differing information or conditions in the Contract Documents and field conditions; for determining or substantiating the accuracy and completeness of other details such as dimensions and quantities; for substantiating instructions for installation or performance of equipment or systems designed by Contractor; for construction means, methods, techniques, schedules, sequences, procedures, and fabrication processes; for errors and omissions in Submittals; for coordination of the Work of the trades, safety precautions and performing the Work in a safe and satisfactory manner and in conformance with the Contract Documents. If more than one submittal review stamp appears on this Submittal, the most stringent action and notations thereon apply. Signature of a submittal review stamp by Gensler or a consultant does not imply that it has reviewed work not within its professional discipline or scope of services.

By ____________________ Date ____________________
Project No. ____________________ Submittal No. ____________________

SUBMITTAL REVIEW

A NO EXCEPTIONS TAKEN.
B MAKE CORRECTIONS AS NOTED. Resubmittal not required unless Contractor cannot comply with corrections noted.
C REVISE AS NOTED AND RESUBMIT.
D RESUBMIT PROPERLY. Submittal not reviewed for reasons noted.
E NOT REVIEWED. Submittal not required by Contract Documents.
F RECEIVED FOR CLIENT'S RECORD ONLY. Submittal not reviewed.

Gensler has reviewed this Submittal, but only for the purpose of checking for conformance with the design intent expressed in the Contract Documents. Gensler's action on a specific item does not indicate approval of an assembly of which the item is a component, nor of an item as delivered and installed if it does not conform to the Contract Documents.
Contractor is responsible for checking for deviations between this Submittal and differing information or conditions in the Contract Documents and field conditions; for determining or substantiating the accuracy and completeness of other details such as dimensions and quantities; for substantiating instructions for installation or performance of equipment or systems designed by Contractor; for construction means, methods, techniques, schedules, sequences, procedures, and fabrication processes; for errors and omissions in Submittals; for coordination of the Work of the trades, safety precautions and performing the Work in a safe and satisfactory manner and in conformance with the Contract Documents. If more than one submittal review stamp appears on this Submittal, the most stringent action and notations thereon apply. Signature of a submittal review stamp by Gensler or a consultant does not imply that it has reviewed work not within its professional discipline or scope of services.

By ____________________ Date ____________________
Project No. ____________________ Submittal No. ____________________

SUBMITTAL REVIEW

A NO EXCEPTIONS TAKEN.
B MAKE CORRECTIONS AS NOTED. Resubmittal not required unless Contractor cannot comply with corrections noted.
C REVISE AS NOTED AND RESUBMIT.
D RESUBMIT PROPERLY. Submittal not reviewed for reasons noted.
E NOT REVIEWED. Submittal not required by Contract Documents.
F RECEIVED FOR CLIENT'S RECORD ONLY. Submittal not reviewed.

Gensler has reviewed this Submittal, but only for the purpose of checking for conformance with the design intent expressed in the Contract Documents. Gensler's action on a specific item does not indicate approval of an assembly of which the item is a component, nor of an item as delivered and installed if it does not conform to the Contract Documents.
Contractor is responsible for checking for deviations between this Submittal and differing information or conditions in the Contract Documents and field conditions; for determining or substantiating the accuracy and completeness of other details such as dimensions and quantities; for substantiating instructions for installation or performance of equipment or systems designed by Contractor; for construction means, methods, techniques, schedules, sequences, procedures, and fabrication processes; for errors and omissions in Submittals; for coordination of the Work of the trades, safety precautions and performing the Work in a safe and satisfactory manner and in conformance with the Contract Documents. If more than one submittal review stamp appears on this Submittal, the most stringent action and notations thereon apply. Signature of a submittal review stamp by Gensler or a consultant does not imply that it has reviewed work not within its professional discipline or scope of services.

By ____________________ Date ____________________
Project No. ____________________ Submittal No. ____________________

SECTION 01 40 00 – QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for quality assurance and quality control.

B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1. Specific quality-control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
2. Specified tests, inspections, and related actions do not limit Contractor's quality-control procedures that facilitate compliance with the Contract Document requirements.
3. Requirements for Contractor to provide quality-control services required by Architect, Owner, Commissioning Authority or authorities having jurisdiction are not limited by provisions of this Section.

C. Related Sections:

1. Section 01 73 29 "Cutting and Patching" for repair and restoration of construction disturbed by testing and inspecting activities.
2. Section 01 78 39 "Project Record Documents" for assembling miscellaneous record submittals.
3. Divisions 03 through 33 Sections for specific test and inspection requirements.

1.3 DEFINITIONS

A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and ensure that proposed construction complies with requirements.

B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that completed construction complies with requirements. Services do not include contract enforcement activities performed by Architect.

C. Mockups: Full-size physical assemblies that are constructed on-site, unless indicated otherwise. Mockups are constructed to verify selections made under Sample submittals; to demonstrate aesthetic effects and, where indicated, qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not Samples. Unless otherwise indicated, approved mockups establish the standard by which the Work will be judged.

1. In-Place Mockups: Mockups constructed on-site in their actual final location as part of permanent construction.
2. Benchmark Samples: A type of mockup used to illustrate the application and aesthetic effect of finishes and coatings. Benchmark Samples establish the standard by which the Work will be judged.

D. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria.

E. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.

F. Source Quality-Control Testing: Tests and inspections that are performed at the source (e.g., plant, mill, factory, or shop).

G. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

H. Testing Agency: An entity independent of the Owner's and Contractor's operations, engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

I. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.

1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).

J. Experienced: When used with an entity or individual, "experienced" means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

K. Professional Engineer: Engineer currently licensed to practice in the state of New York.

1.4 CONFLICTING REQUIREMENTS

A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Architect for a decision before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.5 DELEGATED DESIGN

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.

1.6 INFORMATIONAL SUBMITTALS

A. General: Format and assemble miscellaneous record submittals to comply with requirements specified in Section 01 78 39 "Project Record Documents."

1. Distribution: Comply with the following as applicable:

a. Owner: One copy.
b. Contractor: Three copies.
c. Architect: One copy.
d. Consulting Engineer: One copy.
e. Authority having jurisdiction: One copy or as otherwise requested by the Authority.

B. Contractor's Quality-Control Plan: For quality-assurance and quality-control activities and responsibilities.

C. Qualification Data: For Contractor's quality-control personnel.

D. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility sent to authorities having jurisdiction before starting work on the following systems:

1. Seismic-force-resisting system, designated seismic system, or component listed in the designated seismic system.
2. Main wind-force-resisting system or a wind-resisting component listed in the wind-force-resisting system.

E. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

F. Delegated-Design Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit a statement, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional, indicating that the products and systems are in compliance with performance and design criteria indicated. Include list of codes, loads, and other factors used in performing these services.

G. Schedule of Tests and Inspections: Prepare in tabular form and include the following:

1. Specification Section number and title.
2. Description of test and inspection.
3. Identification of applicable standards.
4. Identification of test and inspection methods.
5. Number of tests and inspections required.
6. Time schedule or time span for tests and inspections.
7. Entity responsible for performing tests and inspections.
8. Requirements for obtaining samples.
9. Unique characteristics of each quality-control service.

H. Testing Agency and Inspection Reports: Prepare and submit certified written reports that include the following:

1. Date of issue.
2. Project title and number.
3. Name, address, and telephone number of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Ambient conditions at time of sample taking and testing and inspecting.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and reinspecting.

I. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:

1. Name, address, and telephone number of technical representative making report.
2. Statement on condition of substrates and their acceptability for installation of product.
3. Statement that products at Project site comply with requirements.
4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.

5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
6. Statement whether conditions, products, and installation will affect warranty.
7. Other required items indicated in individual Specification Sections.

J. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:

1. Name, address, and telephone number of factory-authorized service representative making report.
2. Statement that equipment complies with requirements.
3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
4. Statement whether conditions, products, and installation will affect warranty.
5. Other required items indicated in individual Specification Sections.

K. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.7 CONTRACTOR'S QUALITY-CONTROL PLAN

A. Quality-Control Plan, General: Submit quality-control plan within ten days of Notice to Proceed, and not less than five days prior to preconstruction conference. Submit in format acceptable to Owner. Identify personnel, procedures, controls, instructions, tests, records, and forms to be used to carry out Contractor's quality-assurance and quality-control responsibilities. Coordinate with Contractor's construction schedule.

B. Quality-Control Personnel Qualifications: Engage qualified full-time personnel trained and experienced in managing and executing quality-assurance and quality-control procedures similar in nature and extent to those required for Project.

1. Project quality-control manager may also serve as Project superintendent.

C. Submittal Procedure: Describe procedures for ensuring compliance with requirements through review and management of submittal process. Indicate qualifications of personnel responsible for submittal review.

D. Testing and Inspection: In quality-control plan, include a comprehensive schedule of Work requiring testing or inspection, including the following:

1. Contractor-performed tests and inspections including subcontractor-performed tests and inspections. Include required tests and inspections and Contractor-elected tests and inspections.
2. Special inspections required by authorities having jurisdiction and indicated on the "Statement of Special Inspections."
3. Owner-performed tests and inspections indicated in the Contract Documents, including tests and inspections indicated to be performed by the Commissioning Authority.

E. Continuous Inspection of Workmanship: Describe process for continuous inspection during construction to identify and correct deficiencies in workmanship in addition to testing and inspection specified. Indicate types of corrective actions to be required to bring work into compliance with standards of workmanship established by Contract requirements and approved mockups.

F. Monitoring and Documentation: Maintain testing and inspection reports including log of approved and rejected results. Include work Architect has indicated as nonconforming or defective. Indicate corrective actions taken to bring nonconforming work into compliance with requirements. Comply with requirements of authorities having jurisdiction.

1.8 QUALITY ASSURANCE

A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Fabricator Qualifications: A firm experienced and expert in producing products similar to those indicated for this Project and with a three-year record of successful in-service performance, as well as sufficient production capacity to produce required units.

C. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

D. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a three-year record of successful in-service performance.

E. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a five-year record of successful in-service performance.

F. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

G. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or products that are similar to those indicated for this Project in material, design, and extent.

H. Specialists: Certain sections of the Specifications require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.

1. Requirement for specialists shall not supersede building codes and similar regulations governing the Work, nor interfere with local trade-union jurisdictional settlements and similar conventions.

I. Testing Agency Qualifications: An NRTL, an NVLAP-accredited, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented by ASTM E 329, and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities..

1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.

J. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:

1. Contractor responsibilities include the following:

a. Provide test specimens and assemblies representative of proposed products and construction.
b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
c. Provide sizes and configurations of test assemblies and mockups to adequately demonstrate capability of products to comply with performance requirements.
d. Fabricate and install test assemblies and mockups using installers who will perform the same tasks for Project.
e. When testing is complete, remove test specimens, assemblies, and mockups; do not reuse products on Project.

2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect and Commissioning Authority when applicable, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.

K. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish specified in individual Sections, to comply with the following requirements, using materials indicated for the completed Work:

1. Build mockups in location and of size indicated or, if not indicated, as directed by Architect.
2. Notify Architect seven days in advance of dates and times when mockups will be constructed.
3. Employ supervisory personnel who will oversee mockup construction. Employ workers that will be employed during the construction at Project.
4. Demonstrate the proposed range of aesthetic effects and workmanship.
5. Obtain Architect's approval of mockups before starting work, fabrication, or construction.

    a. Allow seven days for initial review and each re-review of each mockup.

6. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
7. Demolish and remove mockups when directed, unless otherwise indicated.

L. Integrated Exterior Mockups: Construct integrated exterior mockup according to design indicated on Drawings. Coordinate installation of exterior envelope materials and products for which mockups are required in individual Specification Sections, along with supporting materials.

1. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
2. Demolish and remove mockups when directed, unless otherwise indicated.

M. Room Mockups: Construct room mockups incorporating required materials and assemblies, finished according to requirements. Provide required lighting and additional lighting where required to enable Architect to evaluate quality of the Work. Construct room mockups according to design indicated on Drawings.

1. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
2. Demolish and remove mockups when directed, unless otherwise indicated.

1.9 QUALITY CONTROL

A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.

1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of the types of testing and inspecting they are engaged to perform.
2. Payment for these services will be made from testing and inspecting allowances, as authorized by Change Orders.
3. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.

B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities required to verify that the Work complies with requirements, whether specified or not.

1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
2. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.

    a. Contractor shall not employ the same entity engaged by Owner, unless agreed to in writing by Owner.

3. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
5. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
7. Provide quality assurance and control services required due to changes in the Work proposed by or made by the Contractor.
8. Provide quality control services for Work done contrary to the Contract Documents, without prior notice, when so specified, or without proper supervision.
9. Overtime expenses and schedule delays accruing as a result of executing quality control services shall be the Contactor's responsibility and shall not be charged to the Owner.

C. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Division 01 Section "Submittal Procedures."

D. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.

E. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that revised or replaced Work that failed to comply with requirements established by the Contract Documents. Architect retains the right to require the use of a different testing agency for retesting ad reinspecting.

F. Testing Agency Responsibilities: Cooperate with Architect, Commissioning Authority and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

1. Notify Architect, Commissioning Authority when applicable, and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.

3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
5. Do not release, revoke, alter, or increase requirements of the Contract Documents or approve or accept any portion of the Work.
6. Do not perform any duties of Contractor.
7. Attend Project progress meetings as requested by Owner.

G. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work.
2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
4. Facilities for storage and field-curing of test samples.
5. Delivery of samples to testing agencies or arranging for pick-up of test samples after normal business hours.
6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
7. Security and protection for samples and for testing and inspecting equipment at Project site.

H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

I. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents as a component of Contractor's quality-control plan. Coordinate and submit schedule concurrently with Contractor's Construction Schedule as specified in Division 01 Section "Construction Progress Documentation."

1. Distribution: Distribute schedule to Owner, Architect, Commissioning Authority when applicable, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

1.10 SPECIAL TESTS AND INSPECTIONS

A. Special Tests and Inspections: Owner will engage a qualified testing agency or special inspector to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, and as follows:

1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviews the completeness and adequacy of those procedures to perform the Work.

2. Notifying Architect, Commissioning Authority when applicable, and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect and Commissioning Authority when applicable, with copy to Contractor and to authorities having jurisdiction.
4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
6. Retesting and reinspecting corrected work.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:

1. Date test or inspection was conducted.
2. Description of the Work tested or inspected.
3. Date test or inspection results were transmitted to Architect.
4. Identification of testing agency or special inspector conducting test or inspection.

B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Architect's and Commissioning Authority's, reference during normal working hours.

3.2 REPAIR AND PROTECTION

A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for Division 01 Section "Cutting and Patching."

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 01 40 00

SECTION 01 42 00 – REFERENCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 DEFINITIONS

A. General: Basic Contract definitions are included in the Conditions of the Contract.

B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.

C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "approved," "required," and "permitted" have the same meaning as "directed."

D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."

E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.

F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

G. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.

H. "Provide": Furnish and install, complete and ready for the intended use.

I. "Installer": Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations. Installers shall be experienced in the operation they are engaged to perform.

1. Using a term such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to tradespeople of the corresponding generic name.

J. "Experienced": When used with an entity, "experienced" means having successfully completed a minimum of five previous projects similar in size and scope to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

K. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

L. "As Required": As required by regulatory bodies, by referenced standards, by existing conditions, by generally accepted construction practice or by the Contract Documents. In the event of ambiguity or conflicts, the most stringent requirements shall apply.

M. "By Others" refers to work that is not a part of the Contract.

N. "N.I.C.": "Not in Contract" means the work or the item indicated is not a part of the Contract and will be provided by the Owner.

O. "Day": Unless stated otherwise, "day" means a calendar day.

1.3 INDUSTRY STANDARDS

A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Comply with editions of standards referenced in the corresponding construction subcode for the work or portion of the work indicated.

C. Conflicting Requirements: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Architect for a decision before proceeding.

1. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

D. Copies of Standards: Each entity engaged in construction on Project must be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.

1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source and make them available on request.

1.4 ABBREVIATIONS AND ACRONYMS

A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web site addresses are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

1. Where abbreviations and acronyms used in Specifications or other Contract Documents are not defined herein, they shall mean the recognized name of the entities indicated in Gale Research's "Encyclopedia of Associations" or in Columbia Books' "National Trade & Professional Associations of the U.S" available in most public libraries.

AA	Aluminum Association, Inc. (The) www.aluminum.org	(703) 358-2960
AAADM	American Association of Automatic Door Manufacturers www.aaadm.com	(216) 241-7333
AABC	Associated Air Balance Council www.aabchq.com	(202) 737-0202
AAMA	American Architectural Manufacturers Association www.aamanet.org	(847) 303-5664
AASHTO	American Association of State Highway and Transportation Officials www.transportation.org	(202) 624-5800
AATCC	American Association of Textile Chemists and Colorists www.aatcc.org	(919) 549-8141
ABAA	Air Barrier Association of America www.airbarrier.org	(866) 956-5888
ABMA	American Bearing Manufacturers Association www.abma-dc.org	(202) 367-1155
ACI	American Concrete Institute www.concrete.org	(248) 848-3700
ACPA	American Concrete Pipe Association www.concrete-pipe.org	(972) 506-7216
ADC	Air Diffusion Council www.flexibleduct.org	(847) 706-6750
AEIC	Association of Edison Illuminating Companies, Inc. (The) www.aeic.org	(205) 257-2530

AF&PA	American Forest & Paper Association www.afandpa.org	(800) 878-8878 (202) 463-2700
AGA	American Gas Association www.aga.org	(202) 824-7000
AGC	Associated General Contractors of America (The) www.agc.org	(703) 548-3118
AHA	American Hardboard Association http://domensino.com/AHA/	(847) 934-8800
AHAM	Association of Home Appliance Manufacturers www.aham.org	(202) 872-5955
AI	Asphalt Institute www.asphaltinstitute.org	(859) 288-4960
AIA	American Institute of Architects (The) www.aia.org	(800) 242-3837
AISC	American Institute of Steel Construction www.aisc.org	(800) 644-2400 (312) 670-2400
AISI	American Iron and Steel Institute www.steel.org	(202) 452-7100
AITC	American Institute of Timber Construction www.aitc-glulam.org	(303) 792-9559
ALCA	Associated Landscape Contractors of America (Now PLANET – Professional Landscare Network)	
ALSC	American Lumber Standard Committee, Incorporated www.alsc.org	(301) 972-1700
AMCA	Air Movement and Control Association International, Inc. www.amca.org	(847) 394-0150
ANLA	American Nursery & Landscape Association (Formerly: AAN - American Association of Nurserymen) www.anla.org	(202) 789-2900
ANSI	American National Standards Institute www.ansi.org	(202) 293-8020
AOSA	Association of Official Seed Analysts, Inc. www.aosaseed.com	(405) 780-7372

APA EWS	APA - The Engineered Wood Association www.apawood.org	(253) 565-6600
APA	Architectural Precast Association www.archprecast.org	(239) 454-6989
API	American Petroleum Institute www.api.org	(202) 682-8000
APWA	American Public Works Association www.apwa.net	(800) 848-2792
ARI	Air-Conditioning & Refrigeration Institute (now AHRI)	
ARMA	Asphalt Roofing Manufacturers Association www.asphaltroofing.org	(202) 207-0917
ASA	Acoustical Society of America http://asa.aip.org	(516) 576-2360
ASC	Adhesive and Sealant Council, The www.ascouncil.org	301-986-9700
ASCA	Architectural Spray Coaters Association	(609) 848-6120
ASCE	American Society of Civil Engineers www.asce.org	(800) 548-2723 (703) 295-6300
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers www.ashrae.org	(800) 527-4723 (404) 636-8400
ASME	ASME International (The American Society of Mechanical Engineers International) www.asme.org	(800) 843-2763 (973) 882-1170
ASPE	American Society of Plumbing Engineers www.aspe.org	(773) 693-2773
ASSE	American Society of Sanitary Engineering www.asse-plumbing.org	(440) 835-3040
ASTM	ASTM International (American Society for Testing and Materials International) www.astm.org	(610) 832-9500
AWCI	Association of the Wall and Ceiling Industries International www.awci.org	(703) 534-8300

AWCMA	American Window Covering Manufacturers Association (now WCMA)	
AWI	Architectural Woodwork Institute www.awinet.org	(571) 323-3636
AWPA	American Wood Protection Association (formerly American Wood-Preservers' Association) www.awpa.com	(205) 733-4077
AWS	American Welding Society www.aws.org	(800) 443-9353 (305) 443-9353
AWWA	American Water Works Association www.awwa.org	(800) 926-7337 (303) 794-7711
BHMA	Builders Hardware Manufacturers Association www.buildershardware.com	(212) 297-2122
BIA	Brick Industry Association (The) www.bia.org	(703) 620-0010
BICSI	BICSI, Inc. www.bicsi.org	(800) 242-7405 (813) 979-1991
BIFMA	BIFMA International(Business and Institutional Furniture Manufacturer'sAssociation International) www.bifma.com	(616) 285-3963
BISSI	Baking Industry Sanitation Standards Committee www.bissc.org	(866) 342-4772
CCC	Carpet Cushion Council www.carpetcushion.org	(610) 527-3880
CCFSS	Center for Cold-Formed Steel Structures www.ccfssonline.org	(573) 341-4471
CDA	Copper Development Association Inc. www.copper.org	(212) 251-7200
CEA	Consumer Electronics Association www.ce.org	(866) 858-1555 (703) 907-7600
CFFA	Chemical Fabrics & Film Association, Inc. www.chemicalfabricsandfilm.com	(216) 241-7333

CFI	International Certified Floorcovering Installers Association www.cfi-installers.org	(816) 231-4646
CGA	Compressed Gas Association www.cganet.com	(703) 788-2700
CIMA	Cellulose Insulation Manufacturers Association www.cellulose.org	(888) 881-2462 (937) 222-2462
CISCA	Ceilings & Interior Systems Construction Association www.cisca.org	(630) 584-1919
CISPI	Cast Iron Soil Pipe Institute www.cispi.org	(423) 892-0137
CLFMI	Chain Link Fence Manufacturers Institute www.chainlinkinfo.org	(301) 596-2583
CPA	Composite Panel Association www.pbmdf.com	(703) 724-1128
CPPA	Corrugated Polyethylene Pipe Association www.cppa-info.org	(800) 510-2772
CRI	Carpet & Rug Institute (The) www.carpet-rug.com	(706) 278-3176
CRRC	Cool Roof Rating Council www.coolroofs.org	(866) 465-2523
CRSI	Concrete Reinforcing Steel Institute www.crsi.org	(847) 517-1200
CSI	Construction Specifications Institute (The) www.csinet.org	(800) 689-2900 (703) 684-2900
DHI	Door and Hardware Institute www.dhi.org	(703) 222-2010
EIA	Electronic Industries Alliance www.eia.org	(703) 907-7500
EIMA	EIFS Industry Members Association www.eima.com	(800) 968-7945 (770) 968-7945
EJMA	Expansion Joint Manufacturers Association, Inc. www.eima.com	(914) 332-0400

ESD	ESD Association (Electrostatic Discharge Association) www.esda.org	(315) 339-6937
FM Approvals	FM Approvals LLC www.fmglobal.com	(781) 762-4300
FMGlobal	(formerly FMG – FMGlobal) www.fmglobal.com	(401) 275-3000
FSA	Fluid Sealing Association www.fluidsealing.com	(610) 971-4850
FSC	Forest Stewardship Council www.fsc.org	49 228 367 66 0
GA	Gypsum Association www.gypsum.org	(301) 277.8686
GANA	Glass Association of North America (formerly: FGMA - Flat Glass Marketing Association) www.glasswebsite.com	(785) 271-0208
GBCI	Green Building Certification Institute www.gbci.org	(800) 795-1746
GS	Green Seal www.greenseal.org	(202) 872-6400
GSI	Geosynthetic Institute www.geosynthetic-institute.org	(610) 522-8440
GTA	Glass Tempering Division of Glass Association of North America (see GANA)	
HI	Hydraulic Institute www.pumps.org	(973) 267-9700
HI	Hydronics Institute www.gamanet.org	(908) 464-8200
HMMA	Hollow Metal Manufacturers Association (part of NAAMM)	
HPVA	Hardwood Plywood & Veneer Association www.hpva.org	(703) 435-2900
HPW	H. P. White Laboratory, Inc. www.hpwhite.com	(410) 838-6550

ICEA	Insulated Cable Engineers Association, Inc. www.icea.net	(770) 830-0369
ICRI	International Concrete Repair Institute www.icri.org	(847) 827-0830
IEC	International Electrotechnical Commission www.iec.ch	41 22 919 02 11
IEEE	Institute of Electrical and Electronics Engineers, Inc. (The) www.ieee.org	(212) 419-7900
IESNA	Illuminating Engineering Society of North America www.iesna.org	(212) 248-5000
IEST	Institute of Environmental Sciences and Technology www.iest.org	(847) 255-1561
IGCC	Insulating Glass Certification Council www.igcc.org	(315) 646-2234
IGMA	Insulating Glass Manufacturers Alliance www.igmaonline.org	(613) 233-1510
ILI	Indiana Limestone Institute of America, Inc. www.iliai.com	(812) 275-4426
ISO	International Organization for Standardization www.iso.ch Available from ANSI www.ansi.org	41 22 749 01 11 (202) 293-8020
ISSFA	International Solid Surface Fabricators Association www.issfa.net	(877) 464-7732 (702) 567-8150
ITS	Intertek Testing Services (now ETL Semco)	
ITU	International Telecommunication Union www.itu.int/home	41 22 730 51 11
KCMA	Kitchen Cabinet Manufacturers Association www.kcma.org	(703) 264-1690
LPI	Lightning Protection Institute www.lightning.org	(800) 488-6864
MBMA	Metal Building Manufacturers Association www.mbma.com	(216) 241-7333

MFMA	Maple Flooring Manufacturers Association www.maplefloor.org	(888) 480-9138
MFMA	Metal Framing Manufacturers Association, Inc. www.metalframingmfg.org	(312) 644-6610
MGPHO	Medical Gas Professional Healthcare Organization, Inc. www.mgpho.org	(877) 238-5157 (913) 681-6548
MHIA	Material Handling Industry of America www.mhia.org	(800) 345-1815 (704) 676-1190
MIA	Marble Institute of America www.marble-institute.com	(440) 250-9222
MIA	Masonry Institute of America www.masonryinstitute.org	(213) 388-0472
MSS	Manufacturers Standardization Society of The Valve and Fittings Industry Inc. www.mss-hq.com	(703) 281-6613
NAAMM	National Association of Architectural Metal Manufacturers www.naamm.org	(630) 942-6591
NACE	NACE International (National Association of Corrosion Engineers International) www.nace.org	(800) 797-6623 (281) 228-6200
NADCA	National Air Duct Cleaners Association www.nadca.com	(202) 737-2926
NAIMA	North American Insulation Manufacturers Association www.naima.org	(703) 684-0084
NBGQA	National Building Granite Quarries Association Inc. www.nbgqa.com	(800) 557-2848
NCMA	National Concrete Masonry Association www.ncma.org	(703) 713-1900
NCPI	National Clay Pipe Institute www.ncpi.org	(262) 248-9094
NCTA	National Cable & Telecommunications Association www.ncta.com	(202) 775-2300
NEBB	National Environmental Balancing Bureau www.nebb.org	(301) 977-3698

NECA	National Electrical Contractors Association www.necanet.org	(301) 657-3110
NeLMA	Northeastern Lumber Manufacturers' Association www.nelma.org	(207) 829-6901
NEMA	National Electrical and Medical Imaging Equipment Manufacturers Association www.nema.org	(703) 841-3200
NETA	InterNational Electrical Testing Association www.netaworld.org	(888) 300-6382 (269) 488-6382
NFPA	NFPA (National Fire Protection Association) www.nfpa.org	(800) 344-3555 (617) 770-3000
NFRC	National Fenestration Rating Council www.nfrc.org	(301) 589-6372
NGA	National Glass Association www.glass.org	(866) 342-5642 (703) 442-4890
NHLA	National Hardwood Lumber Association www.natlhardwood.org	(800) 933-0318 (901) 377-1818
NLGA	National Lumber Grades Authority www.nlga.org	(604) 524-2393
NOFMA	NOFMA: The Wood Flooring Manufacturers Association) (formerly National Oak Flooring Manufacturers Association) www.nofma.org	(901) 526-5016
NOMMA	National Ornamental & Miscellaneous Metals Association www.nomma.org	(888) 516-8585
NRCA	National Roofing Contractors Association www.nrca.net	(800) 323-9545 (847) 299-9070
NRMCA	National Ready Mixed Concrete Association www.nrmca.org	(888) 846-7622 (301) 587-1400
NSSGA	National Stone, Sand and Gravel Association (NSSA) www.nssga.org	(800) 342-1415 (703) 525-8788
NTMA	National Terrazzo and Mosaic Association, Inc. (The) www.ntma.com	(800) 323-9736 (540) 751-0930
NWWDA	National Wood Window and Door Association (now WDMA)	

PCA	Portland Cement Association www.cement.org	(847) 966-6200
PCI	Precast/Prestressed Concrete Institute www.pci.org	(312) 786-0300
PDCA	Painting and Decorating Contractors of America www.pdca.com	(800) 332-7322 (314) 514-7322
PDI	Plumbing & Drainage Institute www.pdionline.org	(800) 589-8956 (978) 557-0720
PGI	PVC Geomembrane Institute http://pgi-tp.ce.uiuc.edu	(217) 333-3929
PLANET	Professional Landcare Network (Formerly: ACLA – Associated Landscape Contractors of America) www.landcarenetwork.org	(703) 736-9666
PTI	Post-Tensioning Institute www.post-tensioning.org	(602) 870-7540
RCSC	Research Council on Structural Connections www.boltcouncil.org	
RFCI	Resilient Floor Covering Institute www.rfci.com	(706) 882-3833
RIS	Redwood Inspection Service www.redwoodinspection.com	(925) 935-1499
RMA	Rubber Manufacturers Association www.rma.org	(800) 220-7620 (202) 682-4800
SAE	SAE International www.sae.org	(877) 606-7323 (724) 776-4841
SDI	Steel Deck Institute www.sdi.org	(847) 458-4647
SDI	Steel Door Institute www.steeldoor.org	(847) 458-4647
SEFA	Scientific Equipment and Furniture Association www.sefalabs.com	(877) 294-5424 (516) 294-5424
SGCC	Safety Glazing Certification Council www.sgcc.org	(315) 646-2234

SIA	Security Industry Association www.siaonline.org	(866) 817-8888 (703) 683-2075
SIGMA	Sealed Insulating Glass Manufacturers Association	(312) 644-6610
SJI	Steel Joist Institute www.steeljoist.org	(843) 626-1995
SMA	Screen Manufacturers Association www.smacentral.org	(561) 533-0991
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association www.smacna.org	(703) 803-2980
SMPTE	Society of Motion Picture and Television Engineers www.smpte.org	(914) 761-1100
SPFA	Spray Polyurethane Foam Alliance www.sprayfoam.org	(800) 523-6154
SPIB	Southern Pine Inspection Bureau www.spib.org	(850) 434-2611
SPRI	Single Ply Roofing Institute www.spri.org	(781) 647-7026
SSINA	Specialty Steel Industry of North America www.ssina.com	(800) 982-0355 (202) 342-8630
SSMA	Steel Stud Manufacturers Association (Formerly: ML/SFA - Metal Lath/Steel Framing Association) www.ssma.com	(630) 942-6592
SSPC	SSPC: The Society for Protective Coatings www.sspc.org	(877) 281-7772 (412) 281-2331
STI	Steel Tank Institute www.steeltank.com	(847) 438-8265
SWI	Steel Window Institute www.steelwindows.com	(216) 241-7333
SWRI	Sealant, Waterproofing, and Restoration Institute www.swrionline.org	(816) 472-7974
TCNA	Tile Council of North America, Inc. www.tileusa.com	(864) 646-8453

TIA/EIA	Telecommunications Industry Association/Electronic Industries Alliance www.tiaonline.org	(703) 907-7700
TMS	The Masonry Society www.masonrysociety.org	(303) 939-9700
TPI	Truss Plate Institute, Inc. www.tpinst.org	(703) 683-1010
TPI	Turfgrass Producers International www.turfgrassod.org	(800) 405-8873 (847) 649-5555
TRI	Tile Roofing Institute www.tileroofing.org	(312) 670-4177
UFAC	Upholstered Furniture Action Council www.ufac.org	(336) 885-5065
UL	Underwriters Laboratories Inc. www.ul.com	(877) 854-3577 (847) 272-8800
UNI	Uni-Bell PVC Pipe Association www.uni-bell.org	(972) 243-3902
USGBC	United States Green Building Council www.usgbc.org	(800) 795-1747
USITT	United States Institute for Theatre Technology, Inc. www.usitt.org	(800) 938-7488 (315) 463-6463
WASTEC	Waste Equipment Technology Association www.wastec.org	(800) 424-2869 (202) 244-4700
WCLIB	West Coast Lumber Inspection Bureau www.wclib.org	(800) 283-1486 (503) 639-0651
WCMA	Window Covering Manufacturers Association www.wcmanet.org	(212) 297-2122
WDMA	Window & Door Manufacturers Association www.wdma.com	(800) 223-2301 (312) 321-6802
WI	Woodwork Institute (formerly Woodwork Institute of California) www.wicnet.org	(916) 372-9943
WMMPA	Wood Moulding & Millwork Producers Association www.wmmpa.com	(800) 550-7889 (530) 661-9591

WSRCA	Western States Roofing Contractors Association www.wsrca.com	(800) 725-0333 (650) 570-5441
WWPA	Western Wood Products Association www.wwpa.org	(503) 224-3930

B. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web site addresses are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

IAPMO	International Association of Plumbing and Mechanical Officials www.iapmo.org	(909) 472-4100
ICC	International Code Council www.iccsafe.org	(888) 422-7233
ICC-ES	ICC Evaluation Service, Inc. www.icc-es.org	(800) 423-6587 (562) 699-0543

C. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web site addresses are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

CE	Army Corps of Engineers www.usace.army.mil	(202) 761-0011
CPSC	Consumer Product Safety Commission www.cpsc.gov	(800) 638-2772 (301) 504-7923
DOC	Department of Commerce www.commerce.gov	(202) 482-2000
DOD	Department of Defense http://.dodssp.daps.dla.mil	(215) 697-6257
DOE	Department of Energy www.energy.gov	(202) 586-9220
EPA	Environmental Protection Agency www.epa.gov	(202) 260-2090
FAA	Federal Aviation Administration www.faa.gov	(866) 835-5322

FCC	Federal Communications Commission www.fcc.gov	(888) 225-5322
FDA	Food and Drug Administration www.fda.gov	(888) 463-6332
GSA	General Services Administration www.gsa.gov	(202) 708-5082
HUD	Department of Housing and Urban Development www.hud.gov	(202) 708-1112
LBL	Lawrence Berkeley National Laboratory www.lbl.gov	(510) 486-4000
NCHRP	National Cooperative Highway Research Program (See TRB)	
NIST	National Institute of Standards and Technology www.nist.gov	(301) 975-6478
OSHA	Occupational Safety & Health Administration www.osha.gov	(202) 693-1999
PBS	Public Buildings Service (See GSA)	
PHS	Office of Public Health and Science www.hhs.gov/ophs	(202) 690-7694
RUS	Rural Utilities Service (See USDA)	(202) 720-9540
SD	State Department www.state.gov	(202) 647-4000
TRB	Transportation Research Board www.trb.org	(202) 334-2934
USDA	Department of Agriculture www.usda.gov	(202) 720-2791
USPS	Postal Service www.usps.com	(202) 268-2000

D. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

ADAAG	Americans with Disabilities Act (ADA) Architectural Barriers Act (ABA) Accessibility Guidelines for Buildings and Facilities Available from U.S. Access Board www.access-board.gov	(800) 872-2253 (202) 272-0080
CFR	Code of Federal Regulations Available from Government Printing Office www.gpoaccess.gov/cfr/index.html	(866) 512-1800 (202) 512-1800
DOD	Department of Defense Military Specifications and Standards Available from Department of Defense Single Stock Point http://dodssp.daps.dla.mil	(215) 697-2664
DSCC	Defense Supply Center Columbus (See FS)	
FED-STD	Federal Standard (See FS)	
FS	Federal Specification Available from Department of Defense Single Stock Point http://dodssp.daps.dla.mil	(215) 697-2664
	Available from Defense Standardization Program www.dps.dla.mil	
	Available from General Services Administration www.gsa.gov	(202) 619-8925
	Available from National Institute of Building Sciences www.wbdg.org/ccb	(202) 289-7800
FTMS	Federal Test Method Standard (See FS)	
MIL	(See MILSPEC)	
MIL-STD	(See MILSPEC)	
MILSPEC	Military Specification and Standards Available from Department of Defense Single Stock Point http://dodssp.daps.dla.mil	(215) 697-2664
UFAS	Uniform Federal Accessibility Standards Available from Access Board www.access-board.gov	(800) 872-2253 (202) 272-0080

E. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web site addresses are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 42 00

SECTION 01 50 00 – TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes requirements for temporary facilities and controls, including temporary utilities, support facilities, and security and protection facilities.

B. Related Sections include the following:

1. Section 01 33 00 "Submittal Procedures" for procedures for submitting copies of implementation and termination schedule and utility reports.
2. Section 01 73 00 "Execution" for progress cleaning requirements.
3. Section 01 74 19 "Construction Waste Management and Disposal."
4. Divisions 02 through 28 Sections for temporary heat, ventilation, and humidity requirements for products in those Sections.

1.3 USE CHARGES

A. General: Installation and removal of and use charges for temporary facilities are not chargeable to Owner or Architect and shall be included in the Contract Sum, unless otherwise indicated. Allow other entities to use temporary services and facilities without cost, including, but not limited to, the following:

1. Owner's construction forces.
2. Architect.
3. Commissioning Authority.
4. Testing agencies.
5. Personnel of authorities having jurisdiction.

B. Sewer Service: Pay sewer service use charges for sewer usage by all parties engaged in construction operations at the Project site.

1. Sewer Service from Existing System: Owner's existing sewer system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

C. Water Service: Pay water service use charges, whether metered or otherwise, for water used by all parties and entities engaged in construction operations at the Project site.

1. Water Service from Existing System: Owner's existing water system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

D. Electric Power Service: Pay electric power service use charges, whether metered or otherwise, for electricity used by all parties and entities engaged in construction operations at the Project site.

1. Electric Power Service from Existing System: Owner's existing electrical power system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

1.4 INFORMATIONAL SUBMITTALS

A. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.

B. Dust- and HVAC-Control Plan: Submit coordination drawing and narrative that indicates the dust- and HVAC-control measures proposed for use, proposed locations, and proposed time frame for their operation. Identify further options if proposed measures are later determined to be inadequate. Include the following:

1. Locations of dust-control partitions at each phase of work.
2. HVAC system isolation schematic drawing.
3. Location of proposed air-filtration system discharge.
4. Waste handling procedures.
5. Other dust-control measures.

C. Temporary Utility Reports: Submit reports of tests, inspections, meter readings, and similar procedures performed on temporary utilities.

D. Implementation and Termination Schedule: Within 15 days of date established for submittal of Contractor's Construction Schedule, submit a schedule indicating implementation and termination of each temporary utility.

1.5 QUALITY ASSURANCE

A. Standards: Comply with ANSI A10.6, NECA's "Temporary Electrical Facilities," and NFPA 241.

1. Trade Jurisdictions: Assigned responsibilities for installation and operation of temporary utilities are not intended to interfere with trade regulations and union jurisdictions.
2. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

1.6 PROJECT CONDITIONS

A. Temporary Utilities: At earliest feasible time, when acceptable to Owner, change over from use of temporary service to use of permanent service.

1. Temporary Use of Permanent Facilities: Installer of each permanent service shall assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

B. Conditions of Use: The following conditions apply to use of temporary services and facilities by all parties engaged in the Work:

1. Keep temporary services and facilities clean and neat.
2. Relocate temporary services and facilities as required by progress of the Work.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Provide materials suitable for use intended.

B. Gypsum Board: Minimum 1/2 inch thick by 48 inches wide by maximum available lengths; regular-type panels with tapered edges. Comply with ASTM C 36 or ASTM C 1396.

C. Paint: Comply with requirements in Division 09 Section "Painting."

D. Polyethylene Sheet: Reinforced, fire-resistive sheet, 10 mil minimum thickness, with flame-spread rating of 15 or less per ASTM E 84 and passing NFPA 701 Test Method 2.

E. Tarpaulins: Fire-resistive labeled with flame-spread rating of 15 or less.

F. Dust-Control Adhesive-Surface Walk-off Mats: Provide mats minimum 36 by 60 inches.

G. Water: Potable.

2.2 EQUIPMENT

A. Fire Extinguishers: Hand carried, portable, UL rated. Provide class and extinguishing agent as indicated or a combination of extinguishers of NFPA-recommended classes for exposures.

1. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.

B. Self-Contained Toilet Units: Single-occupant units of chemical, aerated recirculation or combustion type; vented; fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material.

C. Drinking-Water Fixtures: Containerized, tap-dispenser, bottled-water drinking-water units, including paper cup supply.

D. Electrical Outlets: Properly configured, NEMA-polarized outlets to prevent insertion of 110- to 120-V plugs into higher-voltage outlets; equipped with ground-fault circuit interrupters, reset button, and pilot light.

E. Power Distribution System Circuits: Where permitted and overhead and exposed for surveillance, wiring circuits, not exceeding 125-V ac, 20-A rating, and lighting circuits may be nonmetallic sheathed cable.

F. HVAC Equipment: Permanent HVAC system may be used subject to coordination and approval by the Owner. Permanent systems that are used for temporary facilities including ductwork shall be cleaned at Project Closeout; replace all filters.

1. Heating Units: Listed and labeled for type of fuel being consumed, by a qualified testing agency acceptable to authorities having jurisdiction, and marked for intended location and application.

a. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.

2. Permanent HVAC System: If Owner authorizes use of permanent HVAC system for temporary use during construction, provide filter with MERV of 8 at each return air grille in system and remove at end of construction.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.

B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

A. General: Engage appropriate local utility company to install temporary service or connect to existing service. Where utility company provides only part of the service, provide the remainder with matching, compatible materials and equipment. Comply with utility company recommendations.

1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
2. Provide adequate capacity at each stage of construction. Before temporary utility is available, provide trucked-in services.

B. Sewers and Drainage: If sewers are available, provide temporary connections to remove effluent that can be discharged lawfully. If sewers are not available or cannot be used, provide drainage ditches, dry wells, stabilization ponds, and similar facilities. If neither sewers nor drainage facilities can be lawfully used for discharge of effluent, provide containers to remove and dispose of effluent off-site in a lawful manner.

1. Filter out excessive soil, construction debris, chemicals, oils, and similar contaminants that might clog sewers or pollute waterways before discharge.
2. Connect temporary sewers to permanent systems as directed by authorities having jurisdiction.
3. Maintain temporary sewers and drainage facilities in a clean, sanitary condition. After heavy use, restore normal conditions promptly.

C. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction until permanent water service is in use. Sterilize temporary water piping before use.

D. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking-water for use of construction personnel. Comply with regulations and health codes for type, number, location, operation, and maintenance of fixtures and facilities.

1. Disposable Supplies: Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Maintain adequate supply. Provide covered waste containers for disposal of used material.
2. Toilet Facilities for New Construction Projects: Install self-contained toilet units. Shield toilets to ensure privacy. Provide separate facilities for male and female personnel.
3. Drinking-Water Facilities: Provide bottled-water, drinking-water units.

E. Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment from that specified that will not have a harmful effect on completed installations or elements being installed.

F. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.

G. Electric Power Service: Provide weatherproof, grounded electric power service and distribution system of sufficient size, capacity, and power characteristics during construction period. Include meters, transformers, overload-protected disconnecting means, automatic ground-fault interrupters, and main distribution switchgear.

1. Install electric power service underground, unless overhead service must be used.
2. Install power distribution wiring overhead and rise vertically where least exposed to damage.

H. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.

1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.
2. Install lighting for Project identification sign.

I. Telephone Service: Provide temporary telephone service throughout construction period. Long distance calls shall be paid for by the party making the call. A pay phone is not acceptable.

1. Provide superintendent with cellular telephone. A cellular phone is not acceptable as the only phone on the Project.
2. Post numbers for emergency services, the Owner, the Architect, and other parties critical to the work over all project telephones.

J. Internet Service: Provide computer with high-speed, broadband connection (examples: Business Class DSL, Multiple T1, Metro Ethernet), including router, equipped with hardware firewall; providing minimum 1Mbps upload and 1 Mbps download speeds for superintendent's use in sending and receiving e-mail.

K. Electronic Communication Service: Provide a desktop computer in the primary field office adequate for use by Architect and Owner to access Project electronic documents and maintain electronic communications. Equip computer with not less than the following:

1. Processor: Intel Pentium D or Intel CoreDuo, 3.0 GHz processing speed.
2. Memory: 4 gigabyte.
3. Disk Storage: 300 gigabyte hard-disk drive and combination DVD-RW/CD-RW drive.
4. Display: 22 inch LCD monitor with 256-Mb dedicated video RAM.
5. Full-size keyboard and mouse.
6. Network Connectivity: 10/100 BaseT Ethernet.
7. Operating System: Microsoft Windows XP Professional or Microsoft Windows Vista Business.
8. Productivity Software:

    a. Microsoft Office Professional, XP or higher, including Word, Excel, and Outlook.
    b. Adobe Reader 7.0 or higher.
    c. WinZip 7.0 or higher.

9. Printer: "All-in-one" unit equipped with printer server, combining color printing, photocopying, scanning, and faxing, or separate units for each of these three functions.
10. Internet Service: Broadband modem, router and ISP, equipped with hardware firewall, providing minimum 384 Kbps upload and 1 Mbps download speeds at each computer.
11. Internet Security: Integrated software, providing software firewall, virus, spyware, phishing, and spam protection in a combined application.
12. Backup: External hard drive, minimum 40 gigabyte, with automated backup software providing daily backups.

3.3 SUPPORT FACILITIES INSTALLATION

A. General: Comply with the following:

1. Provide construction for temporary offices, shops, and sheds located within construction area or within 30 feet of building lines that is noncombustible according to ASTM E 136. Comply with NFPA 241.
2. Maintain support facilities until Architect schedules Substantial Completion inspection. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.
3. Janitorial Services: Provide janitorial services on a daily basis for temporary offices, first-aid stations, toilets, wash facilities, lunchrooms, and similar areas.

B. Vehicular Parking: Construction personnel shall park off-site. The Owner's existing parking facilities are not available.

C. Project Identification and Temporary Signs: Provide Project identification and other signs as indicated. Install signs where indicated to inform public and persons seeking entrance to Project. Do not permit installation of unauthorized signs.

1. Project identification sign: Engage commercial signage company to produce project identification signage that is durable and suitable for exterior (weather) exposure. Include the following information:

    a. Project identification.
    b. Owner identification.
    c. Architect’s identification.
    d. Consulting engineers’ identifications.
    e. Contractor’s identification.

2. Provide temporary, directional signs for construction personnel and visitors.
3. Maintain and touchup signs so they are legible at all times.

D. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Containerize and clearly label hazardous, dangerous, or unsanitary waste materials separately from other waste. Comply with requirements of authorities having jurisdiction. Comply with requirements specified in Section 01 74 19 "Construction Waste Management and Disposal."

1. If required by authorities having jurisdiction, provide separate containers, clearly labeled, for each type of waste material to be deposited.
2. Develop a construction waste management plan for Work performed on Project. Indicate types of waste materials Project will produce and estimate quantities of each type. Provide detailed information for on-site waste storage and separation of recyclable materials. Provide information on destination of each type of waste material and means to be used to dispose of all waste materials.

E. Lifts and Hoists: Provide facilities for hoisting materials and personnel. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.

B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects

1. Comply with work restrictions specified in Division 01 Section "Summary."
2. Avoid using tools and equipment that produce harmful noise.

C. Temporary Egress: Maintain temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.

D. Temporary Partitions: Provide and maintain floor-to-ceiling dustproof partitions to limit dust and dirt migration and to separate occupied areas from fumes and noise.

1. Construct dustproof partitions with gypsum wallboard with joints taped on occupied side, and fire-retardant plywood on construction operations side of stud framing.
2. Insulate partitions to control noise transmission to occupied areas.
3. Seal joints and perimeter. Equip partitions with gasketed dustproof doors and security locks where openings are required.
4. Protect air-handling equipment.

E. Temporary Fire Protection: Until fire-protection needs are supplied by permanent facilities, install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire-prevention program.

1. Prohibit smoking in construction area.
2. Provide fire extinguishers, installed on walls on mounting brackets, visible and accessible from space being served, with sign mounted above.

    a. Field Offices: Class A stored-pressure water-type extinguishers.
    b. Other Locations: Class ABC dry-chemical extinguishers or a combination of extinguishers of NFPA-recommended classes for exposures.
    c. Locate fire extinguishers where convenient and effective for their intended purpose; provide not less than one extinguisher on each floor at or near each usable stairwell.

3. Store combustible materials in containers in fire-safe locations.
4. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire-protection facilities, stairways, and other access routes for firefighting.

5. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition.
6. Permanent Fire Protection: At earliest feasible date in each area of Project, complete installation of permanent fire-protection facility, including connected services, and place into operation and use. Instruct key personnel on use of facilities. Protect fire protection system from damage due to construction activities and environmental conditions.
7. Develop and supervise an overall fire-prevention and first-aid fire-protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.

F. Security: Provide and maintain provisions for closing and locking the site to prevent unauthorized entrance, vandalism, theft, and similar violations of security.

G. Moisture-Protection: Avoid trapping water in finished Work. Document visible signs of mold that may appear during construction. Prior to the full operation of permanent HVAC systems, maintain as follows:

1. Control moisture and humidity inside building by maintaining effective dry-in conditions.
2. Comply with manufacturers' written instructions for temperature, relative humidity, and exposure to water limits.

3.5 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage caused by freezing temperatures and similar elements.

1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
2. Prevent water-filled piping from freezing. Maintain markers for underground lines. Protect from damage during excavation operations.

C. Operate Project-identification-sign lighting daily from dusk until 12:00 midnight.

D. Temporary Facility Changeover: Except for using permanent fire protection as soon as available, do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.

E. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are the property of Contractor. Owner reserves right to take possession of Project identification signs.

2. Remove temporary paving not intended for or acceptable for integration into permanent paving. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.
3. At Substantial Completion, repair, clean and renovate permanent facilities used during construction period. Comply with final cleaning requirements in Division 01 Section "Closeout Procedures."

END OF SECTION 01 50 00

SECTION 01 60 00 – PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for the following:

1. Product selection.
2. Product delivery, storage, and handling.
3. Product warranties.
4. Comparable products.

B. Related Sections:

1. Section 01 25 00 "Substitution Procedures" for requests for substitutions.
2. Section 01 77 00 "Closeout Procedures" for submitting warranties for contract closeout.
3. Divisions 03 through 49 Sections for specific requirements for warranties on products and installations specified to be warranted.

1.3 DEFINITIONS

A. Products: Items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation, shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.
2. New Products: Items that have not previously been incorporated into another project or facility, except that products consisting of recycled-content materials are allowed, unless explicitly stated otherwise. Products salvaged or recycled from other projects are not considered new products.
3. Comparable Product: Product that is demonstrated and approved through submittal process, or where indicated as a product substitution, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

B. Basis-of-Design Product Specification: Where a specific manufacturer's product is named and accompanied by the words "basis of design," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other named manufacturers.

C. Manufacturer's Warranty: Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.

D. Special Warranty: Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Owner.

E. Low VOC Content Levels: Comply with requirements specified in Section 018113 – Sustainable Design Requirements. Except as otherwise indicated in Section 018113 or where more restricted in Divisions 03 through 28 Specifications Sections for limits of VOC contents in products and materials, the following shall constitute the maximum levels of volatile organic compounds.

1.	Form Release Agents	350 g/L VOC content
2.	Plastic Laminate Adhesive	20 g/L VOC content
3.	Casework and Millwork Adhesives	20 g/L VOC content
4.	Transparent Wood Finish Systems	350 g/L VOC content
5.	Cast Resin Countertop silicone Sealant	20 g/L VOC content
6.	Garage Deck Sealer	600 g/L VOC content
7.	Water based Joint Sealants	50 g/L VOC content
8.	Non-water based Joint Sealants	350 g/L VOC content
9.	Portland Cement Plaster	20 g/L VOC content
10.	Gypsum Drywall Joint Compound	20 g/L VOC content
11.	Terrazzo Sealer	250 g/L VOC content
12.	Acoustic Panel Ceiling Finish	50 g/L VOC content
13.	Resilient Tile Flooring Adhesive	100 g/L VOC content
14.	Vinyl Flooring Adhesives	100 g/L VOC content
15.	Carpet Adhesive	50 g/L VOC content
16.	Carpet Seam Sealer	50 g/L VOC content
17.	Water-based Paint & Polychromatic finish coatings	150 g/L VOC content
18.	Solvent -based Paint	380 g/L VOC content
19.	High Performance Water-Based Acrylic coatings	250 g/L VOC content
20.	Pigmented Acrylic Sealers	250 g/L VOC content
21.	Catalyzed Epoxy coatings	250 g/L VOC content
22.	High Performance Silicone	250 g/L VOC content
23.	Casework Sealant	50 g/L VOC content
24.	Liquid membrane-forming curing & sealing compound	350 g/L VOC content

1.4 ACTION SUBMITTALS

A. Product List: Submit a list, in tabular from, showing specified products. Include generic names of products required. Include manufacturer's name, installer's name and proprietary product names for each product.

1. Coordinate product list with Contractor's Construction Schedule and the Submittals Schedule.
2. Form: Tabulate information for each product under the following column headings:

    a. Generic name used in the Contract Documents.
    b. Proprietary name, model number, and similar designations.

c. Manufacturer's name and address.
d. Supplier's name and address.
e. Installer's name and address.
f. Projected delivery date or time span of delivery period.
g. Identification of items that require early submittal approval for scheduled delivery date.

3. Completed List: Within 30 days after Owner's Authorization to proceed with construction, submit 3 copies of completed product list. Include a written explanation for omissions of data and for variations from Contract requirements.
4. Architect's Action: Architect will respond in writing to Contractor within 15 days of receipt of completed product list. Architect's response will include a list of unacceptable product selections and a brief explanation of reasons for this action. Architect's response, or lack of response, does not constitute a waiver of requirement that products comply with the Contract Documents.

B. Comparable Product Requests: Submit request for consideration of each comparable product. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.
2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Architect will notify Contractor of approval or rejection of proposed comparable product request within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.

a. Form of Approval: As specified in Section 01 33 00 "Submittal Procedures."
b. Use product specified if Architect does not issue a decision on use of a comparable product request within time allocated.

C. Basis-of-Design Product Specification Submittal: Comply with requirements in Section 01 33 00 "Submittal Procedures." Show compliance with requirements.

1.5 QUALITY ASSURANCE

A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.

1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.

2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
5. Store products to allow for inspection and measurement of quantity or counting of units.
6. Store materials in a manner that will not endanger Project structure.
7. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
8. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
9. Protect stored products from damage and liquids from freezing.
10. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.7 PRODUCT WARRANTIES

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
2. Specified Form: Forms are included with the Specifications. Prepare a written document using appropriate form properly executed.
3. Refer to Divisions 03 through 49 Sections for specific content requirements and particular requirements for submitting special warranties.

C. Submittal Time: Comply with requirements Section 01 77 00 "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged, and unless otherwise indicated, that are new at time of installation.

1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
2. Standard Products: Unless custom products or nonstandard options are specified, provide products of both quality and type that have been used successfully in similar situations on equal quality projects.
3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," Architect will make selection.
5. Where products are accompanied by the term "match sample," sample to be matched is Architect's.
6. Descriptive, performance, and reference standard requirements in the Specifications establish "salient characteristics" of products.

B. Product Selection Procedures: Procedures for product selection include the following:

1. Product: Where Specification paragraphs or subparagraphs titled "Product" name a single product and manufacturer, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
2. Manufacturer/Source: Where Specification paragraphs or subparagraphs titled "Manufacturer" or "Source" name single manufacturers or sources, provide a product by the manufacturer or from the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
3. Products: Where Specification paragraphs or subparagraphs titled "Products" introduce a list of names of both products and manufacturers, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered, unless otherwise indicated.
4. Manufacturers: Where Specification paragraphs or subparagraphs titled "Manufacturers" introduce a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered, unless otherwise indicated.
5. Available Products: Where Specification paragraphs or subparagraphs titled "Available Products" introduce a list of names of both products and manufacturers, provide one of the products listed or an unnamed product that complies with requirements. Comply with provisions in "Comparable Products" Article for consideration of an unnamed product.
6. Available Manufacturers: Where Specification paragraphs or subparagraphs titled "Available Manufacturers" introduce a list of manufacturers' names, provide a product by one of the manufacturers listed or another manufacturer that complies with requirements. Comply with provisions in "Comparable Products" Article for consideration of an unnamed manufacturer's product.
7. Product Options: Where Specification paragraphs titled "Product Options" indicate that size, profiles, and dimensional requirements on Drawings are based on a specific product or system, provide either the specific product or system indicated or a comparable product or system by another manufacturer. Comply with"" requirements in Section 01 25 00 "Substitution Procedures" for proposal of product.

8. Basis-of-Design Products: Where Specification paragraphs or subparagraphs titled "Basis-of-Design Product" are included and also introduce or refer to a list of manufacturers' names, provide either the specified product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with provisions in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.
9. Visual Matching Specification: Where Specifications require matching an established Sample, provide a product (and manufacturer) that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches satisfactorily.

    a. If no product available within specified category matches satisfactorily and complies with other specified requirements, comply with requirements in Section 01 25 00 "Substitution Procedures" for proposal of product.

10. Visual Selection Specification:

    a. Standard Range: Where Specifications include the phrase "as selected by Architect from manufacturer's standard range" or similar phrase, Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that does not include premium items.
    b. Full Range: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or similar phrase, Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 COMPARABLE PRODUCTS

A. Conditions for Consideration: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with these requirements:

1. Evidence that the proposed product does not require extensive revisions to the Contract Documents that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
3. Evidence that proposed product provides specified warranty.
4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
5. Samples, if requested.

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01 60 00

SECTION 01 73 00 – EXECUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes general procedural requirements governing execution of the Work including, but not limited to, the following:

1. Construction layout.
2. Field engineering and surveying.
3. General installation of the Work.
4. Coordination of Owner-installed products.
5. Progress cleaning.
6. Starting and adjusting.
7. Protection of installed construction.
8. Repair of the Work.

B. Related Sections include the following:

1. Section 01 31 00 "Project Management and Coordination" for procedures for coordinating field engineering with other construction activities.

1.3 INFORMATIONAL SUBMITTALS

A. Qualification Data: For land surveyor.

B. Certificates: Submit certificate signed by land surveyor certifying that location and elevation of improvements comply with requirements.

C. Certified Surveys: Submit two copies signed by land surveyor.

D. Final Property Survey: Submit 10 copies showing the Work performed and record survey data.

1.4 QUALITY ASSURANCE

A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.

B. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Comply with requirements specified in other Sections.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Existing Conditions: The existence and location of underground utilities, site improvements, and other construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, site improvements, mechanical and electrical systems, existing construction and other services affecting the Work.

1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, water-service piping, underground electrical services, and other utilities.
2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.

C. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:

1. Description of the Work.
2. List of detrimental conditions, including substrates.
3. List of unacceptable installation tolerances.
4. Recommended corrections.

D. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Existing Utility Information: Furnish information to Owner for issue to local utility that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

B. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify Owner not less than 72 hours in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without Owner's written permission.

C. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

D. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

E. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for interpretation to Architect according to Section 01 26 13 "Request for Interpretation." Include a detailed description of problem encountered, together with recommendations for necessary modifications that may be required.

3.3 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey, existing benchmarks, control and reference points. If discrepancies are discovered, notify Architect promptly.

B. General: Engage a land surveyor to lay out the Work using accepted surveying practices.

1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
2. Establish limits on use of Project site.
3. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
4. Inform installers of lines and levels to which they must comply.
5. Check the location, level and plumb, of every major element as the Work progresses.
6. Notify Architect when deviations from required lines and levels exceed allowable tolerances.
7. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.

C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim and invert elevations.

D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, architectural elements, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.

E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect.

3.4 FIELD ENGINEERING

A. Identification: Owner will identify existing benchmarks, control points, and property corners.

B. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.

1. Do not change or relocate existing benchmarks or control points without prior written approval of Architect. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Architect before proceeding.
2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.

C. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.

1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.

D. Certified Survey: On completion of foundation walls, major site improvements, and other work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and sitework.

E. Final Property Survey: Engage a land surveyor to prepare a final property survey showing significant features (real property) for Project. Include on the survey a certification, signed by land surveyor, that principal metes, bounds, lines, and levels of Project are accurately positioned as shown on the survey.

1. Show boundary lines, monuments, streets, site improvements and utilities, existing improvements and significant vegetation, adjoining properties, acreage, grade contours, and the distance and bearing from a site corner to a legal point.
2. Recording: At Substantial Completion, have the final property survey recorded by or with authorities having jurisdiction as the official "property survey."

3.5 INSTALLATION

A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

1. Make vertical work plumb and make horizontal work level.
2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.
4. Maintain minimum headroom clearances indicated.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.

F. Tools and Equipment: Do not use tools or equipment that produces harmful noise levels.

G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions

1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
2. Allow for building movement, including thermal expansion and contraction.
3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

J. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

K. Protect adjacent property and adjoining work, including sealant bond surfaces, from spillage or blow-over of coatings, paints, sprayed fire-resistive material, and other spray-applied products. Cover adjoining and nearby surfaces, including live plants and grass, if there is possibility of spray-applied products being deposited on surfaces.

3.6 OWNER-INSTALLED PRODUCTS

A. Site Access: Provide access to Project site for Owner's construction forces.

B. Coordination: Coordinate construction and operations of the Work with work performed by Owner's construction forces.

1. Construction Schedule: Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner if changes to schedule are required due to differences in actual construction progress.
2. Preinstallation Conferences: Include Owner's construction forces at preinstallation conferences covering portions of the Work that are to receive Owner's work. Attend preinstallation conferences conducted by Owner's construction forces if portions of the Work depend on Owner's construction.

3.7 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.

1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 degrees F.
3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.

1. Remove liquid spills promptly.
2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted. Comply with Section 01 74 19 "Construction Waste Management and Disposal" and Section 01 50 00 "Temporary Facilities and Controls."

H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.8 STARTING AND ADJUSTING

A. Coordinate startup and adjusting of equipment and operating components with requirements in Section 01 91 13 "General Commissioning Requirements."

B. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.

C. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.

D. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

E. Manufacturer's Field Service: If a factory-authorized service representative is required to inspect field-assembled components and equipment installation, comply with qualification requirements in Section 01 40 00 "Quality Requirements" and additional requirements specified in Division 3 thru Division 49 Specification Sections.

3.9 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

B. Comply with manufacturer's written instructions for temperature and relative humidity.

3.10 REPAIR OF THE WORK

A. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.

1. Where damaged or worn items cannot be repaired or restored, provide replacements.
2. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.
3. Restore damaged construction and permanent facilities used during construction to specified condition.
4. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
5. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that already show evidence of repair or restoration.

    a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.

6. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
7. Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

END OF SECTION 01 73 00

SECTION 01 73 29 - CUTTING AND PATCHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes procedural requirements for cutting and patching.

B. Related Sections include the following:

1. Divisions 3 through 28 Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.
2. Requirements in this Section apply to mechanical and electrical installations. Refer to Divisions 21 through 28 for other requirements and limitations applicable to cutting and patching mechanical and electrical installations.

1.3 DEFINITIONS

A. Cutting: Removal of in-place or existing construction necessary to permit installation or performance of other Work.

B. Patching: Fitting and repair work required to restore construction to original conditions after installation of other Work.

1.4 QUALITY ASSURANCE

A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection. Shore, brace, and support structural elements during cutting and patching.

B. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Operational elements include, but are not limited to, the following:

1. Primary operational systems and equipment.
2. Primary air and water distribution systems and equipment.
3. Air or smoke barriers.
4. Fire-protection systems.
5. Control systems.
6. Communication systems.
7. Conveying systems.
8. Electrical wiring systems.

C. Miscellaneous Elements: Do not cut and patch the following elements or related components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety.

1. Water, moisture, or vapor barriers.
2. Membranes and flashings.
3. Exterior wall elements.
4. Sprayed-fire-resistive material.
5. Equipment supports.
6. Piping, ductwork, vessels, and equipment.
7. Noise- and vibration-control elements and systems.

D. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

E. Existing Warranties: Do not cut and patch in-place or existing construction by methods or in any manner that may void existing warranties.

PART 2 - PRODUCTS

2.1 PATCHING MATERIALS

A. New Materials: Comply with requirements specified in Division 3 through 28 Sections of these Specifications.

1. For projects requiring compliance with sustainable design and construction practices and procedures, use products for patching that comply with requirements in Division 01 Section, "Sustainable Design Requirements."

B. In-Place or Existing Materials: Use materials identical to in-place or existing materials. For exposed surfaces, use materials that visually match in-place or existing adjacent surfaces to the fullest extent possible and that are approved by Architect.

1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place or existing materials.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.

1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Temporary Support: Provide temporary support of Work to be cut.

B. Protection: Protect in-place or existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

D. Existing Services: Where existing services are required to be removed, relocated, or abandoned, bypass such services before cutting to avoid interruption of services to occupied areas.

1. All temporary bypass utilities must be reviewed and approved, in writing, by Owner prior to placing in service.

3.3 PERFORMANCE

A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.

1. Cut in-place or existing construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

B. Cutting: Cut existing construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.

1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
4. Excavating and Backfilling: Comply with requirements in applicable Division 31 Sections where required by cutting and patching operations.
5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
6. Proceed with patching after construction operations requiring cutting are complete.

C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections of these Specifications.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.
3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place or existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.

    a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.

4. Ceilings: Patch, repair, or rehang in-place or existing ceilings as necessary to provide an even-plane surface of uniform appearance.
5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.

D. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

END OF SECTION 01 73 29

SECTION 01 74 19 – CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes requirements for waste reduction and for the recycling of non-hazardous, recyclable, construction and demolition debris.

1. Reduce waste by minimizing factors that contribute to waste.
2. Use reasonable and legal means to divert construction and demolition debris from landfills and incinerators by facilitating their recycling or reuse through a Contractor developed, and Owner reviewed, construction waste management program.

1.2 DEFINITIONS

A. Waste Reduction: Construction practices that achieve the most efficient use of resources and materials; uses water efficiently; avoids practices such as over-packaging, improper storage, ordering errors, poor planning, breakage, mishandling and contamination.

B. Construction and Demolition Debris: Solid wastes arising from demolition or removal, excess or unusable construction materials, packing materials for construction products, and other materials generated on site during the construction process but not incorporated into the Work.

C. Recyclable Materials: Construction and demolition debris that can be recovered and processed into new products or materials. Recyclable materials include, but are not limited to, the following:

1. Metals: Ferrous (iron, steel, stainless steel, galvanized steel) and non-ferrous (copper, brass, bronze, aluminum) types and containers made from metals such as pails, buckets and beverage cans.
2. Asphaltic concrete paving.
3. Concrete.
4. Gypsum wallboard.
5. Paper products such as generated from field office activities and clean corrugated packaging cardboard.
6. Wood products, including untreated dimensional lumber, plywood, oriented strand board, hardboard, particleboard and crates and pallets made from wood products.
7. Brick and stone masonry.
8. Carpet and padding.
9. Plastics and containers made from plastics such as pails, buckets, and beverage bottles.
10. Copper wiring.
11. Glass: Glass beverage containers, window and mirror glass.
12. Clean and uncontaminated, excavated soils not intended for other on-site use.

D. Non-Recyclable Materials: Construction and demolition debris not capable of being reused or reprocessed, exclusive of the recyclable materials listed above.

E. Hazardous Materials: Construction and demolition debris that are regulated for disposal by local, city, county, state, or Federal authorities.

1.3 SUBMITTALS

A. Construction Waste Management Program: Submit the proposed waste management program appended to the bid. The program shall include the following:

1. Identification of Contractor's staff responsible for enforcing construction waste management.
2. Actions that will be taken to reduce solid waste generation.
3. Description of the specific methods to be used in recycling/reuse of the various construction and demolition debris generated, including the areas and equipment, to be used for processing, sorting, and temporary storage of debris.
4. Characterization, including estimated types and quantities of the construction and demolition debris to be generated. Include percentages of recyclable and non-recyclable debris.
5. List of specific construction and demolition debris materials that will be salvaged for resale, salvaged and reused, or recycled.
6. Name(s) of landfill and incinerator to be used and the estimated costs for use, for construction and demolition debris that is unable to be recycled or reused.
7. Identification of local and regional reuse programs, including non-profit organizations such as schools, local housing agencies, and organizations that accept used and excess construction materials such as materials exchange networks and Habitat for Humanity.
8. Identification of local recycling facilities that will accept construction and demolition debris.
9. Identification of construction and demolition debris that cannot be recycled/reused with an explanation or justification.
10. Anticipated net cost savings determined by subtracting Contractor program management costs and the cost of disposal from the revenue generated by sale of the construction and demolition debris and avoided landfill and incineration costs.

B. Waste Management Reports: With each Application for Payment submit a Waste Management Report in a form acceptable to the Architect and Owner. Attach manifests, weight tickets, receipts and invoices. Organize and maintain records to document the following:

1. Quantity of debris generated, for each material recycled, reused or salvaged.
2. Quantity of debris diverted through sale, reuse, or recycling, in tons or cubic yards.
3. Quantity of debris disposed by landfill or incineration.
4. Name and location of each firm accepting the debris, including:

    a. Types of debris accepted.
    b. Net weights of each type.
    c. Date of acceptance.

5. Transportation cost for removal of debris from job site.
6. Amount of money paid or received for the recycled, reused or salvaged materials.

7. Net total cost or savings of recycling, reusing or salvaging materials.

C. Project Closeout: Upon project completion submit the Waste Management Records to the Owner.

1. Submit evidence that non-hazardous construction and demolition has been recycled and salvaged. Calculations can be done by weight or volume, but must be consistent throughout.

1.4 QUALITY ASSURANCE

A. Construction Waste Management: Prior to bid, prepare a program that minimizes waste and diverts construction and demolition debris from landfills and incinerators by facilitating their reuse or recycling. Name the waste material processors who will accept the construction and demolition debris, the condition of the construction and demolition debris required by the waste material processors, the method proposed to provide the construction and demolition debris in suitable condition and in a quantity acceptable to the disposal sites and waste material processors whom will receive them, and the impact on the project schedule. The Contractor shall be responsible for implementation of any special programs involving rebates or similar incentives related to the recycling of waste. Revenues or other savings obtained from sale, reuse, and recycling operations shall accrue to the Contractor.

B. Disposal Sites and Waste Material Processors: Use only facilities with valid legal permits for disposal, recycling and waste processing issued by the jurisdictions in which they are located.

C. Pre-Construction Waste Management Meeting: Prior to beginning site preparation, schedule and conduct a meeting to review the waste management program. The meeting shall include the Contractor, the Architect, the Owner and any of the Contractor's subcontractors or suppliers whose work will interface with the program. The agenda shall include a discussion of procedures, schedules and specific requirements for construction and demolition debris, sale, reuse, recycling, and disposal. Make any revisions to the program that are agreed to as a part of the meeting and submit the revised program and the meeting minutes to the Architect and Owner for their records.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 WASTE MANAGEMENT PLAN IMPLEMENTATION

A. Distribution: The Contractor shall distribute copies of the Waste Management Plan to the Job Site Foreman, each Subcontractor, the Owner and the Architect.

B. General: For the duration of the project implement and maintain construction waste management. During the prosecution of the Work encourage the practice of efficient waste reduction when sizing, cutting, and installing products and materials.

C. Transportation: Arrange for the regular collection, transport from the site, and delivery of the construction wastes and debris to the designated recyclers, and waste material processors and disposal sites.

D. Separation Facilities: The Contractor shall provide on-site instruction of appropriate separation, handling separation, handling, and recycling, salvage, reuse and return methods to be used by all parties at the appropriate stages of the Project. Provide and designate an on-site area for the separation of construction and demolition debris for reuse and recycling. Locate the area in order that non-recyclable debris will not contaminate materials to be reused or recycled. Provide containers and bins in the designated area to facilitate separation, storage and handling which are clearly and appropriately marked. Cut all items to lengths and sizes to fit within the containers or bins provided. Where there is sufficient quantity of a specific recyclable debris item (for example; salvaged metal doors and frames or duct work), make arrangements for items to be bundled, banded or tied, and stack in a designated location for a special pick-up. Maintain the separation facilities in an orderly condition to prevent contamination of materials placed therein and to maximize reuse and recyclability of debris. Separate construction and demolition debris at the project site by one of the following methods:

1. Source Separated Method: Construction and demolition debris, that is reusable and recyclable, are separated from non-recyclable debris and sorted into appropriately marked separated containers or bins and then transported to the designated recycling facility for further processing. Non-recyclable debris is transported to a landfill or incinerator.
2. Co-Mingled Method: All construction and demolition debris is placed into containers or bins and then transported to a recycling facility where recyclable and salvageable materials are removed, sorted, and processed and the remaining waste is transported to a landfill or incinerator.

END OF SECTION 01 74 19

SECTION 01 77 00 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:

1. Substantial Completion procedures.
2. Final completion procedures.
3. Warranties.
4. Final cleaning.

B. Related Requirements:

1. Section 017300 "Execution" for progress cleaning of Project site.
2. Section 017839 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.

1.3 ACTION SUBMITTALS

A. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.

B. Certified List of Incomplete Items: Final submittal at Final Completion.

1.4 CLOSEOUT SUBMITTALS

A. Certificates of Release: From authorities having jurisdiction.

B. Certificate of Insurance: For continuing coverage.

C. Field Report: For pest control inspection.

1.5 SUBSTANTIAL COMPLETION PROCEDURES

A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.

B. Submittals Prior to Substantial Completion: Complete the following a minimum of ten days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
2. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record information.
3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
4. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Owner. Label with manufacturer's name and model number where applicable.
5. Submit test/adjust/balance records.
6. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
7. Submit pest-control final inspection report.

C. Procedures Prior to Substantial Completion: Complete the following a minimum of ten days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Advise Owner of pending insurance changeover requirements.
2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
3. Complete startup and testing of systems and equipment.
4. Perform preventive maintenance on equipment used prior to Substantial Completion.
5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.
6. Advise Owner of changeover in heat and other utilities.
7. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
8. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
9. Complete final cleaning requirements, including touchup painting.
10. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
11. Complete repair and restoration operations.

D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of ten days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for final completion.

E. Certificate Form: AIA Document G704, Certificate of Substantial Completion.

1.6 FINAL COMPLETION PROCEDURES

A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:

1. Submit a final Application for Payment according to Section 012900 "Payment Procedures."
2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.

B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of ten days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.7 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.
2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
3. Include the following information at the top of each page:

    a. Project name.
    b. Date.
    c. Name of Architect.
    d. Name of Contractor.
    e. Page number.

4. Submit list of incomplete items in one of the following electronic formats:

    a. MS Excel electronic file. Architect will return annotated file.

5. Additional copies: In addition to submission of electronic files, submit three paper copies.

1.8 SUBMITTAL OF PROJECT WARRANTIES

A. Time of Submittal: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated, or when delay in submittal of warranties might limit Owner's rights under warranty.

B. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.

1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.

C. Provide additional copies of each warranty to include in operation and maintenance manuals.

D. Provide an additional copy of warranty manual to property landlord.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

1. Use cleaning products that comply with applicable State VOC restrictions.

PART 3 - EXECUTION

3.1 FINAL CLEANING

A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:

a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
d. Remove tools, construction equipment, machinery, and surplus material from Project site.
e. Remove snow and ice to provide safe access to building.
f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
h. Sweep concrete floors broom clean in unoccupied spaces.
i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.
j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Polish mirrors and glass, taking care not to scratch surfaces.
k. Remove labels that are not permanent.
l. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
m. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
n. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
o. Clean ducts, blowers, and coils if units were operated without filters during construction or that display contamination with particulate matter on inspection.
p. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.
q. Leave Project clean and ready for occupancy.

END OF SECTION 01 77 00

SECTION 01 78 39 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for project record documents, including the following:

1. Record Drawings.
2. Record Specifications.
3. Record Product Data.
4. Miscellaneous record submittals.

B. Related Requirements:

1. Section 017300 "Execution" for final property survey.
2. Section 017700 "Closeout Procedures" for general closeout procedures.

1.3 CLOSEOUT SUBMITTALS

A. Record Drawings: Submit one set of marked-up record prints.

B. Record Specifications: Submit one paper copy of Project's Specifications, including addenda and contract modifications.

C. Record Product Data: Submit one paper copy of each submittal.

1. Where record Product Data are required as part of operation and maintenance manuals, submit duplicate marked-up Product Data as a component of manual.

D. Miscellaneous Record Submittals: See other Specification Sections for miscellaneous record-keeping requirements and submittals in connection with various construction activities. Submit one paper copy of each submittal.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.

1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.

    a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
    b. Accurately record information in an acceptable drawing technique.
    c. Record data as soon as possible after obtaining it.
    d. Record and check the markup before enclosing concealed installations.
    e. Cross-reference record prints to corresponding archive photographic documentation, if any.

2. Content: Types of items requiring marking include, but are not limited to, the following:

    a. Dimensional changes to Drawings.
    b. Revisions to details shown on Drawings.
    c. Depths of foundations below first floor.
    d. Locations and depths of underground utilities.
    e. Revisions to routing of piping and conduits.
    f. Revisions to electrical circuitry.
    g. Actual equipment locations.
    h. Duct size and routing.
    i. Locations of concealed internal utilities.
    j. Changes made by Change Order or Construction Change Directive.
    k. Changes made following Architect's written orders.
    l. Details not on the original Contract Drawings.
    m. Field records for variable and concealed conditions.
    n. Record information on the Work that is shown only schematically.

3. Mark the Contract Drawings and Shop Drawings completely and accurately and cross reference Shop Drawings to Contract Drawings. Use personnel proficient at recording graphic information in production of marked-up record prints.
4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
5. Mark important additional information that was either shown schematically or omitted from original Drawings.
6. Note alternate numbers, Change Order numbers, Construction Change Directive numbers, and similar identification, where applicable.

B. Newly Prepared Record Drawings: Prepare new Drawings instead of preparing record Drawings where Architect determines that neither the original Contract Drawings nor Shop Drawings are suitable to show actual installation.

1. New Drawings may be required when a Change Order is issued as a result of accepting an alternate, substitution, or other modification.
2. Consult Architect for proper scale and scope of detailing and notations required to record the actual physical installation and its relation to other construction. Integrate newly prepared record Drawings into record Drawing sets; comply with procedures for formatting, organizing, copying, binding, and submitting.

C. Format: Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.

1. Record Prints: Organize record prints and newly prepared record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
2. Identification: As follows:

    a. Project name.
    b. Date.
    c. Designation "PROJECT RECORD DRAWINGS."
    d. Name of Architect.
    e. Name of Contractor.

2.2 RECORD SPECIFICATIONS

A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
4. For each principal product, indicate whether record Product Data has been submitted in operation and maintenance manuals instead of submitted as record Product Data.
5. Note related Change Orders, record Product Data, and record Drawings where applicable.

B. Format: Maintain format of original Project Manual organized sequentially by Specification Section number and title.

2.3 RECORD PRODUCT DATA

A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
3. Note related Change Orders, record Specifications, and record Drawings where applicable.

B. Format: Include record Product Data directory organized sequentially by Specification Section number and title.

2.4 MISCELLANEOUS RECORD SUBMITTALS

A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference. Miscellaneous record submittals include, but are not limited to, the following:

1. Certificates.
2. Reports.
3. Inspection data.
4. Test results.
5. Design data.
6. Engineering analysis.
7. Informational submittals.

B. Format: Include miscellaneous record submittals directory organized sequentially by Specification Section number and title.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until end of Project.

B. Maintenance of Record Documents and Samples: Store record documents and Samples in the field office apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Architect's reference during normal working hours.

END OF SECTION 01 78 39

SECTION 02 41 19 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Demolition and removal of selected portions of a building or structure.
2. Demolition and removal of selected site elements.
3. Repair procedures for selective demolition operations.
4. Salvage of existing items to be reused or recycled.

1.3 DEFINITIONS

A. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.

B. Remove and Salvage: Detach items from existing construction and deliver them to Owner ready for reuse.

C. Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.

D. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

E. Dismantle: To remove by disassembling or detaching an item from a surface, using gentle methods and equipment to prevent damage to the item and surfaces; disposing of items unless indicated to be salvaged or reinstalled.

1.4 MATERIALS OWNERSHIP

A. Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, demolished materials shall become Contractor's property and shall be removed from Project site.

1.5 PREINSTALLATION MEETINGS

A. Predemolition Conference: Conduct conference at Project site to comply with requirements in Section 01 31 00"Project Management and Coordination." Review methods and procedures related to selective demolition including, but not limited to, the following:

1. Inspect and discuss condition of construction to be selectively demolished.
2. Review structural load limitations of existing structure.
3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
4. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
5. Review areas where existing construction is to remain and requires protection.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For demolition firm.

1. Include lists of completed projects with project names and addresses, names and addresses of Architects and Owners, and other information specified.

B. Proposed Protection Measures: Submit report, including Drawings, that indicates the measures proposed for protecting individuals and property, for environmental protection, for dust control and, for noise control. Indicate proposed locations and construction of barriers. Identify options if proposed measures are later determined to be inadequate.

C. Schedule of Selective Demolition Activities: Indicate the following:

1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's building manager's on-site operations are uninterrupted.
2. Interruption of utility services and duration of interruption.
3. Coordination for shutoff, capping, and continuation of utility services.
4. Use of elevator and stairs.
5. Locations of temporary partitions and means of egress, including for other tenants affected by selective demolition operations.
6. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.
7. Means of protection for items to remain and items in path of waste removal from building.

D. Inventory: After selective demolition is complete, submit a list of items that have been removed and salvaged and deliver to Owner prior to start of demolition.

E. Predemolition Photographs or Video: Show existing conditions of adjoining construction and site improvements, including finish surfaces that might be misconstrued as damage caused by selective demolition operations. Submit before Work begins.

F. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

G. Warranties: Documentation indicated that existing warranties are still in effect after completion of selective demolition.

1.7 CLOSEOUT SUBMITTALS

A. Inventory: Submit a list of items that have been removed and salvaged.

B. Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

1. Comply with submittal requirements in Section 01 74 19 "Construction Waste Management and Disposal."

1.8 QUALITY ASSURANCE

A. Demolition Firm Qualifications: An experienced firm that has specialized in demolition work similar in material and extent to that indicated for this Project.

B. Professional Engineer Qualifications: Comply with Section 01 40 00 "Quality Requirements."

C. Refrigerant Recovery Technician Qualifications: Certified by an EPA-approved certification program.

D. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

E. Standards: Comply with ANSI A10.6 and NFPA 241.

1.9 FIELD CONDITIONS

A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted. Provide not less than 72 hours' notice to Owner of activities that will affect Owner's operations.

1. Comply with requirements specified in Section 01 10 00 "Summary."

B. Owner assumes no responsibility for condition of areas to be selectively demolished.

1. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.

1. Hazardous materials will be removed by Owner before start of the Work.
2. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.

E. Storage or sale of removed items or materials on-site will not be permitted.

F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

1. Maintain fire-protection facilities in service during selective demolition operations.

1.10 WARRANTY

A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties.

1. If possible, retain original Installer or fabricator to patch the exposed Work listed below that is damaged during selective demolition. If it is impossible to engage original Installer or fabricator, engage another recognized experienced and specialized firm.

a. Stonework.
b. Ornamental metal.
c. Matched-veneer woodwork.
d. Preformed metal panels.
e. Firestopping.
f. Ornamental plaster.
g. Wall covering.
h. HVAC enclosures, cabinets, or covers.

B. Notify warrantor on completion of selective demolition, and obtain documentation verifying that existing system has been inspected and warranty remains in effect. Submit documentation at Project closeout.

1.11 COORDINATION

A. Arrange selective demolition schedule so as not to interfere with Owner's operations.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ANSI/ASSE A10.6 and NFPA 241.

C. Sustainable Design Requirements for Building Reuse:

1. Maintain existing nonshell, nonstructural components (walls, flooring, and ceilings) not indicated to be demolished; do not demolish such existing construction beyond indicated limits.

2.2 REPAIR MATERIALS

A. Use repair materials identical to existing materials.

1. If identical materials are unavailable or cannot be used for exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
2. Use materials whose installed performance equals or surpasses that of existing materials.

B. Comply with material and installation requirements specified in individual Specification Sections.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and capped.

B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.

C. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.

D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.

E. Engage a professional engineer to survey condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective demolition operations.

F. Survey of Existing Conditions: Record existing conditions by use of measured drawings and preconstruction photographs.

1. Comply with requirements specified in Section 01 32 33 "Photographic Documentation."
2. Before selective demolition or removal of existing building elements that will be reproduced or duplicated in final Work, make permanent record of measurements, materials, and construction details required to make exact reproduction.

G. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems: Maintain services indicated to remain and protect them against damage during selective demolition operations.

1. Comply with requirements for existing services/systems interruptions specified in Section 01 10 00 "Summary."

B. Existing Services/Systems to be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.

1. Building Manager will arrange to shut off indicated services/systems when requested by Contractor. Provide minimum 48 hours' notice when requesting shut-off.
2. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
3. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated to be removed.

    a. Piping to be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
    b. Piping to be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material.
    c. Equipment to be Removed: Disconnect and cap services and remove equipment.
    d. Equipment to be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
    e. Equipment to be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.
    f. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
    g. Ducts to be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material.
    h. Fire Suppression System Partial or Complete Removal: Arrange for bypass of area to be removed so that overall building fire suppression system remains in operation. If continuous operation is not possible, coordinate with local Fire

authorities; maintain firewatch during removal operations and until system can be restored to working order. Maintain fire extinguishers on the site.

C. Mercury-Containing Devices: Mercury-containing devices include thermostats, silent switches, mechanical switches and relays or contacts. Dispose of these devices with an appropriate recycler.

D. Nickel-Cadmium and Lead-Acid Batteries: Exit signs, emergency lighting units, alarm systems, smoke detectors and carbon-monoxide detectors may contain nickel-cadmium or lead-acid. Arrange with an appropriate recycler for disposal.

E. Refrigerant: Remove refrigerant from mechanical equipment to be selectively demolished according to 40 CFR 82 and regulations of authorities having jurisdiction.

F. Utility Requirements: Refer to Divisions 22 and 26 Sections for shutting off, disconnecting, removing, and sealing or capping utilities. Do not start selective demolition work until utility disconnecting and sealing have been completed and verified in writing.

3.3 POLLUTION CONTROLS

A. Dust Control: Use water mist, temporary enclosures, and other suitable methods to limit spread of dust and dirt. Comply with governing environmental-protection regulations.

1. Do not use water when it may damage existing construction or create hazardous or objectionable conditions, such as ice, flooding, and pollution.
2. Wet mop floors to eliminate trackable dirt and wipe down walls and doors of demolition enclosure. Vacuum carpeted areas.

B. Disposal: Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

1. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.

3.4 SELECTIVE DEMOLITION, GENERAL

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.

3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.
5. Maintain adequate ventilation when using cutting torches.
6. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
7. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
8. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
9. Dispose of demolished items and materials promptly. Comply with requirements in Section 01 74 19 "Construction Waste Management and Disposal."
10. Return elements of construction and surfaces that are to remain to condition existing before selective demolition operations began.

B. Existing Facilities: Comply with building manager's requirements for using and protecting elevators, stairs, walkways, loading docks, building entries, and other building facilities during selective demolition operations.

C. Reuse of Building Elements: Project has been designed to result in end-of-Project rates for reuse of building elements as follows. Do not demolish building elements beyond what is indicated on Drawings without Architect's approval.

D. Removed and Salvaged Items: Comply with the following:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers.
3. Store items in a secure area until delivery to Owner.
4. Transport items to Owner's storage area designated by Owner.
5. Protect items from damage during transport and storage.

E. Removed and Reinstalled Items: Comply with the following:

1. Clean and repair items to functional condition adequate for intended reuse. Paint equipment to match new equipment.
2. Pack or crate items after cleaning and repairing. Identify contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

F. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition [**and cleaned**] and reinstalled in their original locations after selective demolition operations are complete.

3.5 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

A. Concrete: Demolish in small sections. Cut concrete to a depth of at least 3/4 inch (19 mm) at junctures with construction to remain, using power-driven saw. Dislodge concrete from reinforcement at perimeter of areas being demolished, cut reinforcement, and then remove remainder of concrete indicated for selective demolition. Neatly trim openings to dimensions indicated.

B. Concrete: Demolish in sections. Cut concrete full depth at junctures with construction to remain and at regular intervals, using power-driven saw, then remove concrete between saw cuts.

C. Masonry: Demolish in small sections. Cut masonry at junctures with construction to remain, using power-driven saw, then remove masonry between saw cuts.

D. Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished, then break up and remove.

E. Resilient Floor Coverings: Remove floor coverings and adhesive according to recommendations in RFCI-WP and its Addendum.

1. Remove residual adhesive and prepare substrate for new floor coverings by one of the methods recommended by RFCI.

F. Air-Conditioning Equipment: Remove equipment without releasing refrigerants.

3.6 PATCHING AND REPAIRS

A. General: Promptly repair damage to adjacent construction caused by selective demolition operations.

B. Patching: Comply with Section 01 73 29 "Cutting and Patching."

C. Repairs: Where repairs to existing surfaces are required, patch to produce surfaces suitable for new materials.

1. Completely fill holes and depressions in existing masonry walls that are to remain with an approved masonry patching material applied according to manufacturer's written recommendations.

D. Finishes: Restore exposed finishes of patched areas and extend restoration into adjoining construction in a manner that eliminates evidence of patching and refinishing.

E. Floors and Walls: Where walls or partitions that are demolished extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish color, texture, and appearance. Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.

1. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections of these Specifications.
2. Where patching occurs in a painted surface, apply primer and intermediate paint coats over patch and apply final paint coat over entire unbroken surface containing patch. Provide additional coats until patch blends with adjacent surfaces.
3. Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.

F. Ceilings: Patch, repair, or rehang existing ceilings as necessary to provide an even-plane surface of uniform appearance.

3.7 DISPOSAL OF DEMOLISHED MATERIALS

A. General: Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.

1. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
4. Comply with requirements specified in Section 01 74 19 "Construction Waste Management and Disposal."

B. Burning: Do not burn demolished materials.

3.8 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 02 41 19
024119/2-11/drh

SECTION 040120 - MASONRY RESTORATION

PART 1 GENERAL

1.1 GENERAL INSTRUCTIONS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes: Provide all masonry restoration work including but not limited to following:

1. Masonry pointing – brick.
2. Exterior unit masonry replacement/repair – brick.
3. Stucco replacement.
4. Steel lintel/relieving angle replacement/repair – including related work such as elastomeric and metal flashings, sealants, weeps, etc.
5. Expansion joint/control joint installation and repair.
6. Sealant Joint Installation.
7. Exterior paint systems for masonry opening steel lintels.
8. Masonry cleaning.

1.3 REFERENCES

A. Abbreviations and Acronyms:

1. LEED: Leadership in Energy and Environmental Design;
2. MSDS: Material Safety Data Sheets.
3. VOC: Volatile Organic Compound.

B. Reference Standards:

1. ASTM (American Society for Testing and Materials) Standards referenced in the Specification – reference is to current versions of the Standards indicated.
2. Brick Industry Association (BIA) Standards.
3. SMACNA "Architectural Sheet Metal Manual"
4. GANA "Sealant Manual".
5. NAAMM "Metal Finishes Manual".
6. “Industry Standards and Practices” Indiana Limestone Institute of America (ILI)
7. ACI 530/ASCE 6 “Specifications for Masonry Structures”
8. AWS D1.1 “Structural Welding Code”.

9. SSPC - The Society for Protective Coatings - Surface Preparation Standards and Specifications.

1.4 SUBMITTALS

A. Product Data: Submit Manufacturer's printed literature indicating product information correlated to specified requirements. Submit manufacturer's specifications, with certified copies of laboratory test reports and other data as may be required to show compliance with the Contract Documents. Furnish data sheets for the following product categories:

1. Masonry reinforcement, anchors and helical masonry ties.

2. Sealants, gaskets, fillers and foam materials.

3. Flashings and flashing accessories.

4. Paint systems.

5. Mortar and grout mix formulations.

6. Masonry Accessories, including weep structures.

7. All proposed cleaning products. Submit description for protecting surrounding areas, capturing waste water, landscaping, building occupants, pedestrians, vehicles, and non-masonry surfaces during the cleaning work from contact with masonry cleaners, stain removers, residues, rinse water, fumes, wastes, and cleaning effluents.

8. All proposed masonry patching products.

9. Stucco system with all accessories and coating.

B. Shop Drawings:

1. Submit cutting and setting drawings for all replacement stone work, indicating all dimensions and profiles of the units and all bonding and anchorage details.

C. Samples: Prior to incorporating material into the work, the Contractor shall submit to the Architect for review, samples of the following items. Unless specifically noted otherwise, submissions shall include three (3) sets or samples of each item.

1. Furnish not less than three (3) individual brick as samples, showing extreme variations in color and texture.

2. Furnish not less than three samples of lead coping joint tees.

3. Furnish cured specimens of mortars for color review.

4. Furnish not less than three (3) samples of granite as selected by Owner.

D. Test and Evaluation Reports: Submit test reports for the following items:

1. Perform a mortar analysis on the existing mortar, one per exposure for a total of four, to determine the composition of the mortar and provide appropriate replication mix, which visually matches the existing mortar, and is compatible with the original masonry.

E. Furnish a list of all subcontractors who will be furnishing components and/or services as part of this proposal.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: So that there will be undivided responsibility, award the masonry restoration work to a single firm specializing in this type work, with a minimum of 5 years continuous operations and experience, and which has successfully completed comparable sized projects.

B. Work of this Section shall conform to all the requirements of the New York State Building Code and all applicable regulations of governmental authorities having jurisdiction, including safety, health, noise and anti-pollution regulations. Where more severe requirements than those contained in the Building Code are given in this Specification, the requirements of this Specification shall govern.

C. Single Source Responsibility of Masonry Units and Mortar Materials: Obtain exposed masonry units of uniform texture and color, or a uniform blend within the ranges for these characteristics, from one manufacturer for each different product required. Obtain mortar ingredients of uniform quality, including color for exposed masonry, form one manufacturer for each cementitious component and from one source and producer for each aggregate.

D. Mock-Ups: Visual mock-ups, where specified by the Architect, will be required to demonstrate compliance with the Contract Documents. The mock-ups will faithfully represent the visual character of the various proposed masonry constructions and must use the proposed actual construction materials. Clean mock-ups with materials and techniques intended for use on the final work. Obtain the Architect's acceptance of visual qualities of each sample panel before proceeding with the final work. Review of the visual mock-ups will be for conformance with the design intent, generally, the intent being to match existing construction. Construct mock-up samples in-situ at location designated by Architect for acceptance. Once accepted, sample remains part of finished work and used as a quality reference standard for balance of Project. Materials to be mocked-up shall include:

1. Replacement brick, minimum 3' x 3' area.
2. Mortar joints, both in new masonry, as well as at repointing of mortar joints.
3. Stain testing of sealants against all new stone materials.
4. Masonry Cleaning mock-ups: Perform a minimum of two (2) 5' x 5' mock-ups for each type of cleaner specified in addition to a plain water wash.

1.6 DELIVERY, STORAGE AND HANDLING

A. Deliver all materials to the project site in manufacturer's original, sealed containers and in undamaged condition. Do not deliver materials to the site which have exceeded the shelf life limitations set forth by the manufacturer.

B. Stone shall be carefully packed for transportation and all precautions shall be taken against damage to the material in transit – where necessary the material shall be crated. It shall be delivered dry and without staining, chipping or damage.

C. Store all masonry materials off the ground to prevent contamination by mud, dust, excessive moisture absorption or materials likely to cause staining or other defects. Keep mortar and mortar materials in dry condition.

D. Cover materials when necessary to protect from the elements.

E. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.

F. Protect all metal and masonry accessories from corrosion and contamination.

G. For all factory packaged products, comply with the manufacture's printed instructions for protection and storage.

1.7 JOB CONDITIONS

A. Staining:

1. Prevent grout, mortar or soil from staining the face of masonry:

2. Remove immediately grout, mortar and soil that come in contact with the face of the masonry.

3. Protect all sills, ledges, projections and existing construction from droppings of mortar. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes from mortar.

4. Protect base of walls from rain-splashed mud and mortar splatter by means of coverings spread on ground and over wall surfaces.

1.8 ENVIRONMENTAL CONDITIONS

A. Protection:

1. If ice or snow has formed on masonry bed, remove by carefully applying heat until top surface is dry to the touch.

2. Remove all masonry deemed frozen or damaged.

B. Weather Conditions:

1. Do not erect masonry when the temperature is below 40° F unless provisions for heating and drying the materials and protection of the completed work comply with the recommendations in the Brick Industry Associations "Technical Notes 1 – All-Weather Construction" for brick masonry construction.

2. Do not install restoration mortar repairs in temperatures below 40° F, when the substrate is colder than 40° F, or when the temperature is expected to fall below 40° F for 48 hours after installation of the repair mortars. Do not use or prepare mortar when ambient air temperature is above 90° F.

3. Do not apply sealants when temperatures are below freezing, or when the temperature is expected to fall below freezing for 48 hours after installation of the sealants.

4. Do not apply Concrete Repair Mortars if it is raining or snowing, or if such conditions appear to be imminent. Minimum application temperature shall be 45° F and rising.

5. Do not clean masonry surfaces when temperatures are below freezing or will be overnight, to avoid harm to masonry. Clean masonry surfaces only when air and masonry surface temperatures are 40°F and above. Allow adequate time for masonry to thaw if freezing conditions exist before application.

C. Protection requirements for completed masonry and masonry not being worked on:

1. Mean daily air temperature 40º F. (4o C.) to 32º F. (0º C.): Protect masonry from rain or snow for 24 hr. by covering with weather-resistive membrane.

2. Mean daily air temperature 32º F. (0º C.) to 25º F. (-4º C.): Completely cover masonry with weather-resistive membrane for 24 hr.

3. Mean daily air temperature 25º F. (-4º C.) to 20º F. (-7º C.): Completely cover masonry with insulating blankets or equal protection for 24 hr.

4. Mean daily air temperature 20º F. (-7º C.) and below: Maintain masonry temperature above 32º F. (0º C.) for 24 hr. by: Enclosure and supplementary heat or other approved measures.

1.9 WARRANTY

A. Manufacturer Warranty: Except as otherwise noted below, warrant work of this Section for period of 5 years against defects and/or deficiencies in accordance with General Conditions of the Contract. Promptly correct any defects or deficiencies which become apparent within warranty period, to satisfaction of Consultant and at no expense to Owner. The warranty period shall begin at the time of "Substantial Completion". In addition provide the following extended warranties:

1. Sealant: 20 year labor and material warranty against any failure of the sealant.

PART 2 PRODUCTS

2.1 BRICK

A. All brick incorporated in the new work represented here shall be new Type FBX, Grade SW brick; salvaged brick shall not be used.

B. All new brick shall match the existing cleaned brick in all respects, including color, size, hardness and properties of absorption.

C. Do not exceed variations in color and texture of samples accepted by the Architect.

D. Provide brick free from cracks, stick marks, kiln dust, blow outs and other deleterious defects.

E. Provide solid units where shown or where cored units would expose cores in finish Work.

F. Provide units with face and one end finished unless otherwise shown.

2.2 GRANITE

A. Material Standard: Comply with ASTM C615/C615M.

B. Description: Uniform, fine-grained, matching Architect's samples for cut color, finish and other stone characteristics relating to aesthetic effects.

C. Cut stone from one block or contiguous, matched blocks in which natural marking occur.

D. Thickness: As indicated on Drawings.

2.3 MORTAR MATERIALS

A. Mortar mix to match results of mortar analysis (see Section 1.4.D).

B. General use mortar to be used at the discretion of the Architect if mortar mix described in 2.3.A are not deemed acceptable.

1. Cementitious Materials :
   (1) Portland Cement: ASTM C 150 [UBC Standard No. 26-1], Type I.
   (2) Hydrated Lime: ASTM C 207 [UBC Standard No. 24-18], Type S.
2. Sand: ASTM C 144.
3. Admixtures:
   (1) No air-entraining admixtures or material containing air-entraining admixtures.
   (2) No antifreeze compounds shall be added to mortar.
   (3) No admixtures containing chlorides shall be added to mortar.
4. Water: Clean and potable.
5. Mortar Pigment:
   (1) ASTM C 979: Pigment shall not exceed 10% of the weight of Portland cement.
   (2) Carbon black shall not exceed 2% of the weight of Portland cement.
6. For joints less than ¼" use aggregate graded with 100% passing the No. 16 sieve. In areas requiring white mortar, use natural white sand or ground white stone.

2.4 GROUT MATERIALS

A. Cementitious Materials:
   1. Portland Cement: ASTM C 150 [UBC Standard No. 26-1], Type I.
   2. Hydrated Lime: ASTM C 207 [UBC Standard No. 24-18], Type S.

B. Aggregates:
   1. Fine aggregate: ASTM C404.
   2. Coarse aggregate: ASTM C404.

C. Water: Clean and potable.

2.5 MORTAR AND GROUT MIXES

A. The total chloride (CL) ion content in the entire mortar or grout mix shall not exceed 0.10% of the weight of concrete. Mortar and grout with excess chlorides will be subject to removal.

B. Mortar for Unit Masonry:
   1. ASTM C 270 [UBC Standard No. 24-20] or BIA M1: Type "N". Pointing mortar shall be mixed in the following proportions:
      a. Portland Cement: 1 part
      b. Hydrated Lime: 1 part
      c. Sand: 6 parts

C. Grout:

1. Fine grout: ASTM C 476 [UBC Standard No. 24-29]
2. Coarse grout: ASTM C 476 [UBC Standard No. 24-29]

D. Measurement and Mixing:

1. Comply with ASTM C270 for measuring and mixing of mortar materials and for retempering of mixed mortar. Measure and mix mortar to provide the following properties:
2. Compressive Strength: Minimum 28-day strength Type N- 750 psi.
3. Water Retention: 75%, minimum
4. Air Content: 12%, maximum
5. Comply with ASTM C476 for measuring and mixing of grout materials.
    a. Slump: 8-11inches.
    b. Compressive Strength: 2500 psi
6. Use accurate measuring devices to mix materials by volume. The use of shovels for measurement is prohibited.
7. Mix colored mortars separately to prevent contamination from other mortars.
8. Mix only sufficient mortar as required at a given time. Retemper stiffened mortar as required, except discard mortar not utilized within 2 hours of initial mixing.

2.6 ANCHORS, TIES AND MASONRY REINFORCEMENT

A. Corrosion-resistant metal meeting or exceeding applicable standard:

1. Stainless steel:
    a. Sheet - ASTM A 167, Type 304;
    b. Wire - ASTM A 580, Type 304.
    c. Welded steel wire fabric: ASTM A 185.

B. Types:

1. Stainless steel corrugated veneer ties:
    a. Minimum gage: 16, ASTM A167 – AISI Type 304 stainless steel.
    b. Minimum width: 7/8 in. (22 mm).
    c. Length: 7 in. (152 mm)
    d. Shape: Corrugated sheet (Hohmann & Barnard or equal).
2. Wire Ladder-Mesh/Truss-type reinforcing:
    a. Stainless Steel Wire: ASTM A 580 – AISI Type 304.

b. Gauge: 9 Gauge minimum side and cross rods.

c. Shape: Ladder type reinforcing with welded cross bars, sized to fit the wall being reinforced. (Hohmann & Barnard #220, #225 Ladder-Mesh, or equal).

3. Helical Anchors:

a. Stainless Steel, helical remedial wall ties; Helifix "DryFix" anchor, or equal. 8mm tie, austenitic stainless steel grade 316.

4. Dowels and Rods:

a. Stainless steel: ASTM A955/A955M-04ae1 Standard Specification for Deformed and Plain STAINLESS STEEL Bars for Concrete Reinforcement – Grade 40.

5. Fasteners:

a. Mechanical Fasteners: One-piece heavy-duty anchor with hex head, designed for installation in masonry construction. (Powers Fastener "Wedge-Bolt Anchor", Hilti "Kwik-Con II+; or equal). Sized for application. Installed per manufacturer's detailed instructions.

b. Adhesive Anchors: Hilti "HIT HY 150", or equal. Sized for application. Installed per manufacturer's detailed instructions.

6. Termination Bars: Formed type 304 stainless steel bars, 1 1/4" wide X 1/8" thick. Pre-punched holes at 12" o.c.

7. Stone Anchors:

a. Provide anchoring systems that comply with ACI 530.1/ASCE 6/TMS 602.

b. Stainless Steel conforming to: Plate and Bent Bar: ASTM A 666 AISI Type 304; Sheet: ASTM A 167 AISI Type 304; Wire Ties and Anchors: ASTM A 580 AISI Type 304.

c. Provide anchor shapes appropriate to the application.

d. Acceptable Manufacturer: Heckmann Building Products, 1501 N. 31st Avenue, Melrose Park, IL 60160-2911, or equal.

2.7 FLASHING

A. Elastomeric Flashing:

1. Cold applied, self-adhering elastomeric flashing: Rubberized Asphalt sheet bonded to a high-density, cross-laminated polyethylene film; minimum thickness 40 mil. (Perm-A-Barrier Wall Flashing by Grace Construction Products or equal).

2. Primer compatible with wall flashing: (Perm-A-Barrier WB Primer by Grace Construction Products or equal).

3. Sealant compatible with wall flashing: (Bituthene Mastic by Grace Construction Products or equal).

4. Bituminous tape: self-adhesive rubberized asphalt sheet bonded to a cross-laminated, high-density polyethylene film. Membrane shall be interleaved with disposable silicone-coated release paper until installed.

B. Metal Flashings:

1. Copper – Minimum 16 gauge; ASTM B370-03 “Standard Specification for Copper Sheet and Strip for Building Construction”.

2. Stainless Steel – Minimum 16 gauge; ASTM A167 “Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet and Strip”, Type 304.

2.8 MASONRY ACCESSORIES

A. Vent/Weep Openings: Polypropylene, rectangular weep structure with honeycomb design; 3/8” wide, cut to size for application. (Hohmann & Barnard #QV-Quadro-Vent; or equal).

B. Drainage Mat: Heavy-duty, High density polyethylene geonet drainage core bonded to a layer of non-woven filter fabric. J-Drain 300 by JDR Enterprises, Inc.; 292 South Main Street, Alpharetta, Georgia, or approved equal.

2.9 SEALANT FOR STONE-TO-STONE & MASONRY-TO-ADJACENT MATERIAL JOINTS

A. One-part, Low-modulus, Polyurethane Sealant: meeting ASTM C920, Type S, Grade NS. Color to match existing sealants or as selected by the Architect.

1. “Sonolastic NP-1”, Sonneborn, 889 Valley Park Drive; Shakopee, MN

2. “Dymonic”, Tremco 3735 Green Rd., Beachwood, Ohio

3. Approved equal.

B. Primer: Use primers as recommended by the sealant manufacturer.

2.10 JOINT FILLERS

A. Backer Rod: Closed–cell polyethylene foam meeting the requirements of ASTM C1330-02, Type C.

B. Compressible Filler: Closed-cell neoprene sponge, ASTM D 1056.

2.11 PAINT SYSTEMS FOR EXISTING EXPOSED STEEL LINTELS

A. The prime, intermediate and finish coats may be sprayed or brush/rolled on and shall be shop applied, then touched up in the field after erection and inspection.

B. All existing exposed steel shall be prepared and painted as follows:

1. Surface preparation: SSPC-SP3 power tool cleaning.

2. Prime coat: 530 Omnithane at 2-3 mils DFT or 135 Chembuild (Tnemec Co. Inc.) at 4-6 mils DFT or approved equal.

3. Intermediate coat: 27 FC Typoxy or V69f Epoxoline II (Tnemec Co. Inc.) at 4-6 mils DFT or approved equal.

4. Finish coat: 73 Endura-shield (Tnemec Co. Inc.) at 2-3 mils DFT or approved equal.

C. The color of the finish coat to be approved by the Architect.

2.12 MASONRY AND STONE CLEANING

A. General: Liquid detergents and water, and solutions of non-acidic chemical cleaning agents and additives, that will remove the dirt, grime, carbon, surface residues, stains, graffiti, and other foreign material from the masonry surfaces, but will not damage the masonry.

B. Do not use cleaning agent other than water on brick or stone, except with concurrence of Architect.

1. Apply water with a low-pressure sprayer, 300 to 500 psi using a 25º to 50º fan-shaped spray tip.

C. Do not use abrasive blasting aggregate cleaning method, or low pressure micro-abrasive powder process or any other cleaning method unless written permission is given by the Architect.

D. Non-ionic, neutral pH type Detergents: Igepal CA- 630 by GAF, Tergitol by Union Carbide, Triton by Rohm & Haas or equal.

E. Acceptable cleaner for cleaning new brick: “Enviro Klean Safety Klean” by Prosoco or approved equal.

Note: Protect people, vehicles, property, plants and all adjacent wall and roof surfaces from product, splash, rinse, residue, wind drift and fumes.

F. Acceptable cleaners for cleaning existing brick are as follows:

1. CSP Light Duty Cleaner by Cathedral Stone Products, Inc., a gel based cleaner, for the removal of light staining, dirt, and grime on limestone and brick.

2. CSP Bio-Cleaner by Cathedral Stone Products, Inc., for biological growth and environmental pollutants on all masonry and stone surfaces.

3. CSP Light Duty Rust Remover by Cathedral Stone Products, Inc., a gel based cleaner, for the removal of rust staining and efflorescence on limestone and brick.

4. Prosoco Enviro Klean® Klean ‘N Release is a fragrance free, all-purpose cleaner and degreaser for use on limestone and brick.

5. Prosoco EK restoration cleaner (near neutral cleaner) for carbon deposits and other atmospheric staining and brick.

6. Prosoco Enviro Klean Reklaim System (two-component liquid cleaner and liquid activator neutralized with a solution of Sure Klean® Limestone & Masonry Afterwash diluted 1:1 with clean water) cleaner for biological and atmospheric staining on limestone and masonry.

2.13 STUCCO

A. Air/Moisture Barrier, Portland Cement Stucco, Stucco Primers, and Stucco Finishes as manufactured by Sto Corp., 3800 Camp Creek Parkway, Building 1400, Suite 120, Atlanta, GA 30331.

B. StoGuard-- fluid applied air/moisture barrier for sheathing, concrete, and concrete masonry substrates consisting of multiple compatible components:

1. Sto Gold Fill -- ready mixed acrylic based flexible joint treatment for rough opening protection, joint treatment of wall sheathing, CMU crack repair, and detail component for shiplap connections with flashing, weep screed, and similar ship lap details.

2. Sto EmeraldCoat -- ready mixed flexible waterproof coating for wall sheathing, concrete and CMU wall surfaces.

3. Sto AirSeal™ - ready mixed medium-high build coating applied by brush, roller or spray for rough opening protection of frame walls and joint treatment of sheathing when used with StoGuard Fabric. Also used as a detail component with StoGuard Fabric to splice over back flange of starter track, flashing, and similar shingle lap details.

4. StoGuard Mesh-- nominal 4.2 oz/yd2 (142 g/m2), self-adhesive, flexible, symmetrical, interlaced glass fiber mesh, with alkaline resistant coating for compatibility with Sto materials, used with Sto Gold Fill to reinforce rough openings, inside and outside corners, sheathing joints, and detail component for shiplap connections with flashing, weep screed, and similar ship lap details.

5. StoGuard Fabric – nonwoven cloth reinforcement used with Sto EmeraldCoat for rough opening protection, joint treatment of wall sheathing, and detail component for shiplap connections with flashing, weep screed, and similar shingle lap details.

6. StoGuard RediCorner – a preformed fabric piece used in the corners of rough openings in tandem with StoGuard Fabric for quicker installation.

7. StoGuard Tape – self adhering rubberized asphalt tape for rough opening protection in wood or metal frame construction.

8. StoGuard Primer – primer for use with StoGuard Tape.

9. StoGuard Transition Membrane – flexible air barrier membrane for continuity at static transitions: sheathing to foundation, dissimilar materials (CMU to frame wall), wall to balcony floor slab or ceiling, flashing shingle lap transitions. Also used for dynamic joints: floor line deflection joints, masonry control joints, and through wall joints in masonry or frame construction.

10. Sto RapidGuard™ - one component STPE rapid drying gun-applied treatment for sheathing joints, rough openings, seams, cracks, penetrations and other static transitions in above grade wall construction such as: shingle lap over flashing, wall to balcony floor slab or ceiling, and through wall penetrations – pipes, electrical boxes, and scupper penetrations.

11. StoGuard RapidSeal – one component quick drying waterproof air barrier material for rough opening protection, sheathing joints (with StoGuard Mesh), CMU crack repair, and for sealing fish mouths, wrinkles, seams, gaps, holes, or other voids in StoGuard air barrier materials.

12. StoGuard RapidFill – one component rapid drying gun-applied joint treatment for sheathing. Also used at static transition joints or seams in construction and to seal fish mouths, wrinkles, seams, gaps, holes, or other voids in StoGuard air barrier materials. Also used as a detail component for shiplap connections to flashing, weep screed, and similar ship lap details.

C. Water-Resistive Barrier: Minimum No. 15 asphalt saturated felt complying with ASTM D 226, Type 1.

D. Lath: Minimum 2.5 lb./yd^2 (1.4 kg/m^2) self-furred galvanized steel diamond mesh metal lath in compliance with ASTM C 847.

E. Mechanical Fasteners: Concrete or Masonry – minimum # 8 wafer head fully threaded corrosion resistant screws for masonry with minimum 1 inch (25 mm) penetration into substrate.

F. Accessories:

1. Weep screed, casing bead, corner bead, corner lath, expansion and control joint accessories. All accessories shall meet the requirements of ASTM C 1063, zinc in compliance with ASTM B 69.

G. Water: clean and potable.

H. Sand: in compliance with ASTM C 897 or ASTM C 144, for use with one coat and ASTM C 926 stucco concentrates.

I. Stucco: 102 StoPowerwall Stucco Pre-Blended: fiber reinforced one coat portland cement stucco pre-blended with graded sand, and in compliance with ICC AC 11. See ICC ESR 2323.

J. Primer: StoPrime Hot – acrylic based primer/sealer for freshly placed (minimum 4 day old) and high pH stucco surfaces; or StoPrime Sand – acrylic based tinted, sanded primer for fully cured (minimum 28 day old or pH less than 10) stucco surfaces; or StoPrime -- acrylic based tinted primer for fully cured (minimum 28 day old or pH less than 10) stucco surfaces; as required.

K. Finish: Stolit X – acrylic based textured wall finish with graded marble aggregate. Color by Architect.

PART 3 EXECUTION

3.1 FIELD QUALITY CONTROL

A. Pre-Installation Meeting: Prior to the start of the Work, and at the direction of the Architect, meet at the project site to review methods and sequence of masonry construction, special details and conditions, standards of workmanship, testing, quality control requirements, job organization and other pertinent topics related to the Work. The meeting shall include the Masonry Contractor's Superintendent, foreman and two masons (minimum) and any subcontractors whose work requires coordination with this Work.

B. Examine the existing conditions at the site, adjoining construction and the conditions under which the Work is to be performed. Do not proceed with the Work until unsatisfactory conditions have been corrected.

3.2 TOOLING AND REPOINTING

A. Tooling: Tooling of joints should match surrounding existing masonry. It is preferable for all joints to be tooled concave. Tool exposed joints when "thumb-print" hard with a round jointer, slightly larger than width of joint or as required to match existing.

B. Repointing:

1. Use mortar materials listed in Section 2, Type N.

2. Remove existing mortar to a uniform minimum depth to two times the mortar joint width or to sound mortar (3/4" min.), taking care to not damage adjacent masonry units.

3. Clean all joints of dust and debris prior to repointing. Saturate joints with clean water.

4. Fill solidly with pointing mortar – color to match existing surrounding mortar.

5. Pointing mortar shall be prehydrated. Prehydrate the mortar by the following method. Mix dry ingredients together. Then add only enough water to make a damp, stiff mix which will retain its form when pressed in a ball. After 1 to 2 hours, add sufficient water to bring it to the proper consistency.

6. Layer the repointing mortar in a minimum of two layers (passes). Allow each pass to be thoroughly compressed into the joint.

7. The final pass should be tooled to compact the surface when it has reached initial set - tool joints to a concave shape or to match surrounding adjacent masonry.

3.3 UNIT MASONRY INSTALLATION

A. General:

1. Comply with the applicable provisions and recommendation of the related documents as specified above in "Standards".

2. Lay out masonry in advance for accurate spacing of surface bond patterns with uniform joint widths and for accurate location of movement joints, returns and offsets. Avoid the use of less-than-half-size units at corners, jambs and, where possible, at other locations. Pattern Bond: Lay exposed masonry in bond to match existing masonry being repaired.

3. Joining of Work: Where fresh masonry joins existing masonry, clean and lightly wet exposed surface of set masonry.

4. Lay masonry plumb, true to line with level and accurately spaced courses; corners plumb and true; each course breaking joint with the course below, except as may be otherwise indicated or required to match the surrounding masonry bond.

5. No cracked, chipped, broken, defaced or open celled units will be permitted on exposed masonry.

6. Use motor driven diamond saw designed to cut masonry units with clean, sharp corners. Cut units as required to provide bond and to fit adjoining work neatly. Use full units without cutting wherever possible.

B. Anchors and Ties: Provide loose anchors and ties where shown and where required to supplement other reinforcement specified. Install masonry reinforcing and anchors as indicated on the Drawings. Follow anchor manufacturer's instructions for attaching anchors.

1. Space loose anchors and ties a maximum of 16 in. o.c., staggered horizontally and vertically.

2. Set anchors with vertical legs within the core of the masonry wythe and fill core solid with mortar or grout.

3. Provide wire mesh ties, hardware cloth, or expanded lath below core space to retain mortar or grout at embedded anchors.

4. Provide loose anchors at columns, beams and other structural elements as shown and as required to support imposed loads. Install anchors to structural elements to prevent rattle and lateral displacement in any direction.

C. Preparation:

1. Wetting Brick:

2. Wet brick with absorption rates in excess of 30 g./30 sq. in./min. (30 g./194 cm^2/min.) determined by ASTM C 67, so that rate of absorption when laid does not exceed this amount.

3. Recommended procedure to insure that brick are nearly saturated, surface dry when laid is to place a hose on the pile of brick until the water runs from the pile. This should be done one day before brick are to be used. In extremely warm weather, place hose on pile several hours before brick are to be used.

4. Cleaning Reinforcement: Before being placed, remove loose ice and other coatings from reinforcement.

D. Laying:

1. Lay with completely filled mortar joints.

2. Do not furrow bed joints.

3. Butter ends of brick with sufficient mortar to fill head joints.

4. Rock closures into place with head joints thrown against two adjacent brick in place.

5. Keep cavity in cavity walls clean by:

6. Placing wood strips with attached wire pulls on metal ties.

7. Before placing next row of metal ties, remove and clean wood strips.

3.4 STEEL LINTEL/RELIEVING ANGLE REPAIR

A. General: Coat steel angles per Paragraph Painting.

B. Flashing:

1. Clean surface of masonry smooth and free from projections which might puncture flashing material. Parge rough existing masonry surfaces with Type “N” mortar to provide smooth surface for adhering flashing. Clean surfaces of loose dust or dirt using a clean dry cloth or brush.

2. Install fabricated flashing pan with end dams by setting on bituminous tape on lintel/relieving angle.

3. Prime surfaces as recommended by the flashing manufacturer. Allow primer to dry as required by the manufacturer.

4. Apply flashing; following manufacturer’s detailed installation instructions, sealing laps and joints in flashing with compatible sealant.

5. Install termination bar at top edge of flashing.

C. Sealant Recesses: Leave joints around outside perimeters of exterior doors, window frames and other wall openings: Joint depth to be 1/2 width of the joint.

3.5 EXPANSION, CONTROL AND SEALANT JOINT INSTALLATION

A. Preparation: Clean surfaces to receive sealant per manufacturer's detailed instructions. Prime surfaces as required by the manufacturer.

B. Testing: Test representative samples of joints as outlined in ASTM C1521-02a. Perform a minimum of one test for each different sealant and substrate condition.

C. Backer rod: Compress backer rod into joint with a blunt probe or plain-faced roller to force the rod to the appropriate depth. Backer rod to be approximately 1/8" wider than joint to allow for compression.

D. Compressible filler: Place compressed neoprene sponge into joint to appropriate depth. If sponge with tear strip is used, remove tear strip prior to applying sealant.

E. Depth of the sealant shall be 1/2 the width of joint.

F. Apply sealant to joint using professional caulking gun. Dry tool joint immediately.

G. Immediately remove all excess sealant and smears with solvent acceptable to the manufacturer.

3.6 PAINTING

A. Prepare surface to be coated per the manufacturer's substrate and surface preparation requirements.

B. Exposed existing steel shall be power-tool cleaned to SSPC-SP3.

C. Mix and thin coating products per the manufacturer's detailed instructions.

D. Apply coatings as described in the manufacture's printed instructions and under the applications conditions required by the specific coating.

E. Allow coatings to cure prior to recoating or top-coating.

3.7 MASONRY CLEANING

A. Clean initially with stiff brushes and water, utilizing the "Bucket and Brush Method" set forth in the Brick Industry Association Technical Note "No.20, Cleaning Brick Masonry". When cleaning agent is required, comply with all requirements set forth in Technical Note No.20. Protect all surfaces not intended to be cleaned. Use of cleaning agent must be specifically approved by the Architect.

B. Stone shall be washed with clean water and fiber brushes only. Cleaning agents will only be permitted with the specific approval of the Architect.

C. When cleaning agent is approved for use, subsequent to approval of mock-ups specified in Section 1,:

1. Test Panel: Apply cleaning agent to sample wall area of 20 sq. ft. in location acceptable to the Architect/Engineer. Apply each masonry cleaner to test panels to determine dilution rates, dwell times, number of applications, compatibility, effectiveness, application procedures, effects of pressure rinsing, and desired results. Apply masonry cleaners to test panels in

accordance with manufacturer's written instructions. Allow 48 hours or until test panels are thoroughly dry before evaluating final appearance and results. Do not proceed with full cleaning operations until sample area is approved by Architect/Engineer.

2. Apply all specified sealants and caulking and allow to cure before cleaning process begins.

3. Thoroughly wet surface of masonry on which no green efflorescence appears.

4. Apply masonry cleaners to substrates in accordance with manufacturer's written instructions, environmental regulations, and application procedures determined from test panel results approved by the Architect. Consult manufacturer's written instructions for information on application equipment to be used and precautions to be taken with the specified products.

5. Scrub with acceptable cleaning agent. Immediately rinse with clear water. Do small sections at a time. Work from top to bottom.

6. Protect all windows, glass, metal lintels and other corrodible parts from cleaning products.

7. Clean site of all unused cleaning products, residues, rinse water, wastes, and cleaning effluents in accordance with environmental regulations.

8. Remove and dispose of all materials used to protect surrounding areas and non-masonry surfaces, following completion of the work of this section.

9. Repair, restore, or replace to the satisfaction of the Architect, all materials, landscaping, and wall surfaces damaged by exposure to the cleaning process.

3.8 STUCCO INSTALLATION

A. Install in strict accordance with manufacturer’s printed instructions.

B. Concrete and Concrete Masonry (CMU) Surface Preparation:

1. Remove surface contamination such as oil, grease, dust, dirt, algae, mildew, salts, paint or coatings. Correct weak surface conditions such as laitance. Use chemical cleaners such as TSP (trisodium phosphate) detergent to remove oil and grease and rinse with potable water. Use chemical cleaners to remove efflorescence or other surface contamination in accordance with manufacturer’s written instructions. Use mechanical methods such as water blasting, sandblasting, and wire brushing to remove weak surface conditions.

2. Repair cracks up to 1/8 inch (3 mm) wide by raking with a sharp tool to remove loose, friable material and blow clean with oil-free compressed air. Apply joint treatment material over crack, embed reinforcement (where applicable), and smooth joint treatment material with a trowel, drywall or putty knife to cover the reinforcement.

3. Remove projecting fins, ridges, and mortar by mechanical means.

4. Fill honeycombs, aggregate pockets, holes and other voids with Sto patching material.

5. Where the surface is excessively “rough” or out of plane, skim coat the wall surface with Sto base coat material to provide a smooth, level surface.

C. Rough Opening Protection: Sto EmeraldCoat or Sto AirSeal with StoGuard Fabric: apply coating liberally by spray or roller to corners of openings, immediately place StoGuard RediCorners in the wet coating, and apply additional coating over the RediCorners to completely embed them. After all corners have been completed apply coating liberally to the entire rough opening,

immediately place StoGuard Fabric in the wet coating, smooth any wrinkles with a brush or roller, and apply additional coating over the fabric to completely embed it. Overlap all seams minimum 2 inches (51 mm). Once completed top coat with additional coating as needed to completely seal the surface. Allow to dry and inspect for pinholes or voids. If pinholes or voids are present, seal with additional coating or Sto RapidGuard.

D. Install water barrier in compliance with the applicable building code requirements for building paper.

E. Stucco Installation: Apply the stucco in discrete panels without interruption to avoid cold joints and differences in appearance. Abut wet stucco to set stucco at natural or architectural breaks in the wall such as expansion joints, pilasters, terminations, or changes in plane. Hot or dry conditions accelerate drying and moisture loss from stucco which can diminish strength and resistance to cracking. Under these conditions adjustments in the application, scheduling and curing of stucco to prevent rapid loss of moisture are necessary to achieve a satisfactory stucco installation. Cold temperatures retard drying and strength gain and adjustments may have to be made in the application, scheduling and curing of stucco to prevent damage from frost and other trades. Do not install stucco during extremely hot, dry and/or windy conditions. Do not install stucco during freezing conditions or on frozen substrates. Do not install stucco onto grounds of accessories. Completely embed lath and flanges of accessories and completely cover fastener attachments with stucco. Moist cure stucco minimum 48 hours for optimum strength gain and resistance to cracking. Allow final stucco application to completely dry (28 days) before applying primer or finish (except in the case of StoPrime Hot which can be applied 48 hours after completing moist cure of stucco). The finished installation must be true, plumb and square. Should stucco get into control or expansion joints, remove the stucco from within the joint before the stucco sets.

F. Casing Bead and Two Piece Expansion Joint Installation: Install casing beads at stucco terminations – doors, windows and other through wall penetrations. Install two piece expansion joints (or back-to-back casing beads) at building expansion joints, thru-wall joints in concrete or CMU, where the stucco is to be installed over dissimilar construction or substrates, at changes in building height, at floor lines, columns, and cantilevered areas. Install full accessory pieces where possible and avoid small pieces. Seal adjoining pieces by embedding ends in sealant. Abut horizontal into vertical joint accessories (except where horizontal movement joints exist that prevent continuous vertical runs of accessories). Attach at no more than 7 inches (178 mm) into solid substrate/framing with appropriate fasteners.

G. Lath Installation: Diamond Mesh Metal Lath – conform to ASTM C 1063

1. General – install metal lath with the long dimension at right angles to structural framing (horizontally on solid substrates). Terminate lath at expansion joints. Do not install continuously at joints.

2. Seams/Overlaps--overlap side seams minimum 1/2 inch (13 mm) and end seams minimum 1 inch (25 mm). Stagger end seams. Overlap casing beads and expansion joints minimum 1 inch (25 mm) over narrow wing accessories, minimum 2 inches (51 mm) over expanded flange accessories. Do not install lath continuously beneath expansion joints.

3. Attachment--fasten securely into solid substrates or through sheathing into structural framing at 7 inches (178 mm) on center maximum vertically and 16 inches (406 mm) on center horizontally*. Wire tie at no more than 9 inches (225 mm) on center at: side laps, accessory overlaps, and where end laps occur between supports.

H. One Piece Expansion Joint Installation: Install one piece expansion joints at through wall penetrations, for example, above and below doors and windows. Install one piece expansion joints at every 144 ft2 (13 m2). Wire tie one piece expansion joints to lath at no more than 7 inches (178 mm) on center. Seal adjoining pieces by embedding ends in sealant. Make certain lath is DISCONTINUOUS at or beneath joints.

I. Inside and Outside Corners: Install corner lath at inside corners and corner bead at outside corners over lath. Attach through lath into solid substrate or framing at no more than 7 inches (178 mm) on center with appropriate fasteners.

J. Stucco Installation

1. Scratch Coat: apply stucco with sufficient pressure to key into and embed the metal lath. Apply sufficient material, 3/8 or ½ inch (9 or 12 mm), to cover the metal lath and to permit scoring the surface. Score the stucco upon completion of each panel in preparation for a second coat. Score horizontally.

2. Brown Coat: as soon as the first coat is firm enough to receive the second coat without damage, apply the second coat. Alternatively, moist cure the first coat up to 48 hours and dampen the scratched surface with water immediately before applying the second coat. Apply the second coat with sufficient pressure to ensure intimate contact with the first coat and as needed to bring the stucco to a uniform thickness that matches the grounds of the accessories. Use a rod or straight edge to bring the surface to a true, even plane. Fill depressions in plane with stucco. Final thickness of stucco shall be uniform throughout the wall area and shall be either 3/4 inch or 7/8 inch (19 or 22 mm), and shall not exceed 7/8 inch (22 mm).

3. After the stucco has become slightly firm float the surface lightly with a darby or wood float to densify the surface and to provide a smooth, even surface. The proper time to float is when the wood float no longer sticks to the surface of the stucco.

4. Moist cure after the stucco has set by lightly fogging for at least 48 hours. Fog as frequently as required during the 48 hour period to prevent loss of moisture from the stucco. Avoid eroding the stucco surface with excess moisture. If relative humidity exceeds 75% the frequency of moist curing can be diminished.

K. Crack Defense: Apply base coat over the moist cured stucco (and foam build-outs if not already reinforced with mesh) with appropriate spray equipment or a stainless steel trowel to a uniform thickness of approximately ⅛ inch (3 mm). Work horizontally or vertically in strips of 40 inches (1016mm), and immediately embed the mesh into the wet base coat by troweling from the center to the edge of the mesh. Overlap mesh not less than 2-½ inches (64 mm) at mesh seams and at overlaps of detail mesh. Feather seams and edges. Avoid wrinkles in the mesh. The mesh must be fully embedded so that no mesh color shows through the base coat when it is dry. Re-skim with additional base coat if mesh color is visible. Do not install base coat or mesh over joints or accessories in the stucco wall assembly.

L. Primer Installation:

1. StoPrime Hot – Moist cure stucco for a minimum of 48 hours. Allow stucco to dry an additional 48 hours, then apply primer evenly with brush, roller or proper spray equipment over the clean, dry stucco and foam build-outs, and allow to dry. Final age of primed stucco application must be minimum 7 days before application of finish.

2. StoPrime Sand – Moist cure stucco for a minimum of 48 hours. Wait until stucco is 28 days old or the pH level of the surface is below 10 before applying primer. Final age of primed stucco application must be minimum 28 days before application of finish or pH must be below 10.

3. StoPrime – Moist cure stucco for a minimum of 48 hours. Wait until stucco is 28 days old or the pH level of the surface is below 10 before applying primer. Final age of primed stucco application must be minimum 28 days before application of finish or pH must be below 10.

M. Finish Installation: Apply finish to minimum 28 day old stucco or primed stucco and foam build-outs, or apply when pH of stucco surface is less than 10. If StoPrime Hot is used as the primer the primed stucco/foam build-out surfaces need only be minimum 7 days old. Apply finish by spraying or troweling with a stainless steel trowel, depending on the finish specified.

3.9 PROTECTION

A. Protect new work from damage or staining due to construction operations.

B. Protect masonry work with waterproof coverings at any time when it is liable to damage from storms or freezing.

C. On completion of construction, remove all temporary protection.

3.10 CLEAN-UP

A. Upon Completion of the Work, remove all tools, equipment and other unnecessary materials from the site. Remove and legally dispose of all debris, rubbish and other materials resulting from the construction operations.

B. Return adjacent area to the clean condition which existed prior to start of the Work.

END OF SECTION

SECTION 06 10 00 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Framing with dimension lumber.
2. Wood blocking and nailers.
3. Plywood backing panels.

1.2 DEFINITIONS

A. Lumber grading agencies, and the abbreviations used to reference them, include the following:

1. NeLMA: Northeastern Lumber Manufacturers' Association.
2. NLGA: National Lumber Grades Authority.
3. SPIB: The Southern Pine Inspection Bureau.
4. WCLIB: West Coast Lumber Inspection Bureau.
5. WWPA: Western Wood Products Association.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.
2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Include physical properties of treated materials based on testing by a qualified independent testing agency.
3. For fire-retardant treatments, include physical properties of treated lumber both before and after exposure to elevated temperatures, based on testing by a qualified independent testing agency according to ASTM D 5664.
4. Include copies of warranties from chemical treatment manufacturers for each type of treatment.
5. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.
6. Include copies of warranties from chemical treatment manufacturers for each type of treatment.

1.4 INFORMATIONAL SUBMITTALS

A. Evaluation Reports: For the following, from ICC-ES:

1. Wood-preservative-treated wood.
2. Fire-retardant-treated wood.
3. Power-driven fasteners.
4. Powder-actuated fasteners.
5. Expansion anchors.

1.5 QUALITY ASSURANCE

A. Testing Agency Qualifications: For testing agency providing classification marking for fire-retardant treated material, an inspection agency acceptable to authorities having jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Stack lumber flat with spacers beneath and between each bundle to provide air circulation. Protect lumber from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.

1. Factory mark each piece of lumber with grade stamp of grading agency.
2. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.
3. Provide dressed lumber, S4S, unless otherwise indicated.

B. Maximum Moisture Content of Lumber: 19 percent maximum moisture content at time of dressing for 2-inches nominal thickness or less, unless otherwise indicated.

2.2 WOOD-PRESERVATIVE-TREATED LUMBER

A. Preservative Treatment by Pressure Process: AWPA U1; Use Category UC2 for interior construction not in contact with the ground, Use Category UC3b for exterior construction not in contact with the ground, and Use Category UC4a for items in contact with the ground.

1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.

B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or that does not comply with requirements for untreated material.

C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.

D. Application: Treat items indicated on Drawings, and the following:

1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
2. Wood framing members that are less than 18 inches above the ground in crawlspaces or unexcavated areas.
3. Wood floor plates that are installed over concrete slabs-on-grade.

2.3 FIRE-RETARDANT-TREATED MATERIALS

A. General: Where fire-retardant-treated materials are indicated, use materials complying with requirements in this article, that are acceptable to authorities having jurisdiction, and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.

B. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Products with a flame spread index of 25 or less when tested according to ASTM E 84, and with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet beyond the centerline of the burners at any time during the test.

1. Use treatment that does not promote corrosion of metal fasteners.
2. Exterior Type: Treated materials shall comply with requirements specified above for fire-retardant-treated lumber and plywood by pressure process after being subjected to accelerated weathering according to ASTM D 2898. Use for exterior locations and where indicated.
3. Interior Type A: Treated materials shall have a moisture content of 28 percent or less when tested according to ASTM D 3201 at 92 percent relative humidity. Use where exterior type is not indicated.
4. Design Value Adjustment Factors: Treated lumber shall be tested according ASTM D 5664 and design value adjustment factors shall be calculated according to ASTM D 6841.

C. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Kiln-dry plywood after treatment to a maximum moisture content of 15 percent.

D. Identify fire-retardant-treated wood with appropriate classification marking of qualified testing agency.

E. Application: Treat items indicated on Drawings, and the following:

1. Concealed blocking.
2. Roof construction.
3. Plywood backing panels.

2.4 DIMENSION LUMBER FRAMING

A. Non-Load-Bearing Interior Partitions: Construction or No. 2 grade.

1. Application: All interior partitions.
2. Species:

a. Hem-fir (north); NLGA.
b. Spruce-pine-fir; NLGA.
c. Spruce-pine-fir (south); NeLMA, WCLIB, or WWPA.
d. Northern species; NLGA.
e. Eastern softwoods; NeLMA.

2.5 MISCELLANEOUS LUMBER

A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:

1. Blocking.
2. Nailers.
3. Rooftop equipment bases and support curbs.
4. Cants.

B. For items of dimension lumber size, provide Construction or No. 2 grade lumber and any of the following species:

1. Mixed southern pine; SPIB.
2. Western woods; WCLIB or WWPA.
3. Northern species; NLGA.
4. Eastern softwoods; NeLMA.

C. For concealed boards, provide lumber with 19 percent maximum moisture content and the following species and grades:

1. Mixed southern pine; No. 2 grade; SPIB.
2. Eastern softwoods; No. 2 Common grade; NeLMA.
3. Northern species; No. 2 Common grade; NLGA.
4. Western woods; Construction or No. 2 Common grade; WCLIB or WWPA.

D. For blocking not used for attachment of other construction, Utility, Stud, or No. 3 grade lumber of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment and purpose.

E. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.

F. For furring strips for installing plywood or hardboard paneling, select boards with no knots capable of producing bent-over nails and damage to paneling.

2.6 PLYWOOD BACKING PANELS

A. Equipment Backing Panels: DOC PS 1, Exposure 1, C-D Plugged, fire-retardant treated, in thickness indicated or, if not indicated, not less than 1/2-inch nominal thickness.

2.7 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.

1. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.

B. Nails, Brads, and Staples: ASTM F 1667.

C. Power-Driven Fasteners: NES NER-272.

D. Wood Screws: ASME B18.6.1.

E. Lag Bolts: ASME B18.2.1.

F. Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers.

G. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to six times the load imposed when installed in unit masonry assemblies and equal to four times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency.

1. Material: Stainless steel with bolts and nuts complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2.

2.8 MISCELLANEOUS MATERIALS

A. Flexible Flashing: Composite, self-adhesive, flashing product consisting of a pliable, butyl rubber or rubberized-asphalt compound, bonded to a high-density polyethylene film, aluminum foil, or spunbonded polyolefin to produce an overall thickness of not less than 0.025 inch.

B. Adhesives for Gluing Furring to Concrete or Masonry: Formulation complying with ASTM D 3498 that is approved for use indicated by adhesive manufacturer.

1. Adhesives shall have a VOC content of 70 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

C. Water-Repellent Preservative: NWWDA-tested and -accepted formulation containing 3-iodo-2-propynyl butyl carbamate, combined with an insecticide containing chloropyrifos as its active ingredient.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.

B. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring, nailers, blocking, and similar supports to comply with requirements for attaching other construction.

C. Install plywood backing panels by fastening to studs; coordinate locations with utilities requiring backing panels. Install fire-retardant treated plywood backing panels with classification marking of testing agency exposed to view.

D. Install metal framing anchors to comply with manufacturer's written instructions. Install fasteners through each fastener hole.

E. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.

1. Provide metal clips for fastening gypsum board or lath at corners and intersections where framing or blocking does not provide a surface for fastening edges of panels. Space clips not more than 16 inches o.c.

F. Provide fire blocking in furred spaces, stud spaces, and other concealed cavities as indicated and as follows:

1. Fire block furred spaces of walls, at each floor level, at ceiling, and at not more than 96 inches o.c. with solid wood blocking or noncombustible materials accurately fitted to close furred spaces.
2. Fire block concealed spaces of wood-framed walls and partitions at each floor level, at ceiling line of top story, and at not more than 96 inches o.c. Where fire blocking is not inherent in framing system used, provide closely fitted solid wood blocks of same width as framing members and 2-inch nominal thickness.
3. Fire block concealed spaces between floor sleepers with same material as sleepers to limit concealed spaces to not more than 100 sq. ft. and to solidly fill space below partitions.
4. Fire block concealed spaces behind combustible cornices and exterior trim at not more than 20 feet o.c.

G. Sort and select lumber so that natural characteristics will not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.

H. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

1. NES NER-272 for power-driven fasteners.
2. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.

I. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.

1. Use inorganic boron for items that are continuously protected from liquid water.
2. Use copper naphthenate for items not continuously protected from liquid water.

J. Use steel common nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood. Drive nails snug but do not countersink nail heads unless otherwise indicated.

3.2 WOOD BLOCKING, AND NAILER INSTALLATION

A. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.

B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces unless otherwise indicated.

C. Where wood-preservative-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking.

3.3 WOOD FURRING INSTALLATION

A. Install level and plumb with closure strips at edges and openings. Shim with wood as required for tolerance of finish work.

B. Furring to Receive Plywood or Hardboard Paneling: Install 1-by-3-inch nominal- size furring horizontally and vertically at 24 inches o.c.

C. Furring to Receive Gypsum Board: Install 1-by-2-inch nominal- size furring vertically at 16 inches o.c.

3.4 WALL AND PARTITION FRAMING INSTALLATION

A. General: Provide single bottom plate and double top plates using members of 2-inch nominal thickness whose widths equal that of studs, except single top plate may be used for non-load-bearing partitions. Fasten plates to supporting construction unless otherwise indicated.

1. For interior partitions and walls, provide 2-by-4-inch nominal- size wood studs spaced 16 inches o.c. unless otherwise indicated.
2. Provide continuous horizontal blocking at midheight of partitions more than 96 inches high, using members of 2-inch nominal thickness and of same width as wall or partitions.

B. Construct corners and intersections with three or more studs, except that two studs may be used for interior non-load-bearing partitions.

C. Frame openings with multiple studs and headers. Provide nailed header members of thickness equal to width of studs. Support headers on jamb studs.

1. For non-load-bearing partitions, provide double-jamb studs and headers not less than 4-inch nominal depth for openings 48 inches and less in width, 6-inch nominal depth for openings 48 to 72 inches in width, 8-inch nominal depth for openings 72 to 120 inches in width, and not less than 10-inch nominal depth for openings 10 to 12 feet in width.

3.5 PANEL PRODUCT INSTALLATION

A. General: Comply with applicable recommendations contained in APA Form No. E30K, "APA Design/Construction Guide: Residential & Commercial," and local utility requirements, if any, for plywood backing panels utilized as indicated.

B. Fastening Methods: Fasten panels as indicated below:

1. Plywood Backing Panels: Secure to wall using proper fastening devices for substrates encountered spaced 12 inches on center maximum at perimeter 1/2 inch from corners and three rows of 3 fasteners each in the backerboard field. Countersink fasteners flush with plywood surface. Butt adjacent panels without lapping.

3.6 PROTECTION

A. Protect rough carpentry from weather. If, despite protection, rough carpentry becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION 06 10 00

SECTION 075600 – COLD FLUID-APPLIED ROOFING

PART 1 – GENERAL

1.1 GENERAL INSTRUCTIONS

A. Read and conform to:

1. The General Conditions of the Contract and Project Document.
2. Comply with Division 1 requirements and documents referred to herein.

1.2 SUMMARY

A. Work Included: The work of this Section includes, but is not limited to the following: Provide new roofing system in accordance with the Contract Documents.

B. Limitations of Drawings and Specifications: The Drawings do not illustrate all of the conditions and details necessary to make the final roofing assembly complete. It shall be the responsibility of the Roofing Contractor to examine all existing conditions and to coordinate with all other trades who have work within, on or contiguous to the roof(s) so as to produce complete, watertight roof assemblies. All materials, labor and detailing necessary to complete the work shall be the responsibility of the Contractor whether or not such items are explicitly described in this Specification.

C. Summary of Work: The general scope of work described here involves the construction of the Main Roof. In addition to specific requirements of the Owner and/or Construction Manager that may be noted elsewhere, work of this section shall include the following items and all components necessary to make those items complete:

1. Removal of all surface contamination (including adhesives, etc.), existing roofing membrane and flashings, insulation, adhesives, debris or other material that would compromise the installation of the new roofing system, and conditioning of the slab surface as required to receive the proposed new roofing assembly.

2. Provide a complete roofing assembly including the following components and accessories:

- Temporary roof/vapor barrier – 2 ply (1st ply nailed, 2nd ply adhered)
- Roof insulation (rigid and tapered) to achieve an R30 insulative value set in adhesive
- ½" thick Cement Cover Board set in adhesive
- Self-adhered Modified Bitumen sheet used as first ply of finished roofing system
- Fabric reinforced, cold, fluid applied resinous roof and flashing membrane system as 2nd ply of finished roofing system
- Sealants associated with roofing materials
- Sheet metal counter-flashings and other associated sheet metal work

3. Patching of any damaged roof wood deck sheathing with new materials to match existing.

4. Coordination with other trade contractors who have components of their work installed on or throughout the new roofs.

5. Shop drawings, manufacturer's data, certifications of compliance, samples of selected materials and warranties pertaining to the new roof construction.

6. Comprehensive flood testing of all new roof construction.

7. Field measurements of existing conditions.

8. Participation in coordination meetings throughout the progress of the work.

9. Warranties.

10. Inspections by the roofing manufacturer's representative.

11. Come-Back Work: Not all items (penetrations) requiring flashing will be installed at the time the waterproofing is initially applied. Prior to installation of the overburden, the roofing contractor will be required to thoroughly examine all "new" penetrations and properly flash all such penetrations as required to maintain watertight construction.

1.3 QUALITY ASSURANCE

A. Manufacturer Qualifications: Obtain primary products, including each type of roofing material and flashing material from a single manufacturer. Provide secondary products as recommended by manufacturer of primary products for use with roofing system specified. Primary roofing materials shall be manufactured under a quality management system that is monitored regularly by a third party auditor under the ISO 9001:2000 audit process. A certificate of analysis for reporting/confirming the tested values of the actual material being supplied for the project will be required prior to project close-out.

B. Agency Approvals: The proposed roof system shall conform to the following requirements. No other testing agency approvals will be accepted.

1. Underwriters Laboratories Class A acceptance of the proposed roofing system (including mopping asphalt or cold adhesive) without additional requirements for gravel or coatings.

2. All roofing assemblies shall be FM Approved, Class 1 (non-combustible), Class A rated and designed for a wind speed of 105 mph (3-second gust), and Surface Roughness Exposure C, and importance factor of 1.15. The minimum uplift resistance ratings shall be Class 1-90.

3. Approval from the City of Yonkers.

C. Installer Qualifications: Engage an experienced Installer (“Roofer”) to perform inverted roofing work who has specialized in the installation of roofing systems similar to that required for this project and who is acceptable to the manufacturer of the roofing system.

D. Installer Certification: Obtain written certification from the manufacturer of the roofing system certifying that Installer is approved by manufacturer for installation of specified roofing system. Submit copy of certification prior to award of roofing work.

E. Scope of Work: The work to be performed under this specification shall include but is not limited to the following: Attend necessary job meetings and furnish competent and full time supervision, experienced roof mechanics, all materials, tools, and equipment necessary to complete, in an acceptable manner, the roof installation in accordance with this specification. Comply with the latest written application instructions of the manufacturer of the primary roofing products. In addition, application practice shall comply with requirements and recommendations contained in the latest edition of the Handbook of Accepted Roofing Knowledge (HARK) as published by the National Roofing Contractor's Association, amended to include the acceptance of a phased roof system installation.

F. Installer’s Field Supervision: Require Installer to maintain a full-time supervisor/foreman who is on jobsite during times that roofing work is in progress and who is experienced in installation of roofing systems similar to type and scope required for this Project.

G. Project Acceptance: Submit a completed manufacturer's application for roof guarantee form along with shop drawings of the roofs showing all dimensions, penetrations, and details. The form shall contain all the technical information applicable to the project including deck types, roof slopes, base sheet and/or insulation assemblies proposed for installation. The form shall also contain accurate and complete information requested including proper names, addresses, zip codes and telephone numbers. The project must receive approval by the membrane manufacturer, through this process, prior to shipment of materials to the project site.

1.4 STANDARDS

A. Except as modified by governing codes and by the Contract Documents, comply with the applicable provisions and recommendations of the following:

1. NRCA “Roofing and Waterproofing Manual” and “Handbook of Accepted Roofing Practices”.

B. Where the language in any of the documents referred to herein is in the form of a recommendation or suggestion, such recommendations or suggestions shall be deemed to be mandatory under this Contract.

1.5 SUBMITTALS

A. Shop Drawings: Submit shop drawings for the following:

1. Penetrations, curbs, drains, and projections.

2. Flashing details, all sheet metal components, including inside and outside corner reinforcements and terminations.

3. Crack and joint treatments, including expansion joints.

4. Interface with contiguous materials.

5. Base flashings, and membrane terminations.

6. Layout of tapered insulation, including slopes.

7. Crickets, saddles, and tapered edge strips, including slopes.

B. Submittals of Equals: Submittals for roofing systems to be considered as equals to the specified system shall be made no less than 10 days prior to bid date. Submittals of equals prior to bid shall include:

1. Two 8-inch x 10-inch samples of the roofing membrane and flashing sheets.

2. Latest edition of the system manufacturer's specifications and installation instructions.

3. Descriptive list of the materials proposed for use.

4. Complete list of material physical and mechanical properties for each sheet including: weights and thicknesses, low temperature flexibility, breaking load, ultimate elongation, dimensional stability, compound stability, and resistance to thermal shock (foil faced products).

5. Sample copy of the specified guarantee.

C. Manufacturer’s Data: Submit manufacturer’s printed literature, specifications and installation instructions for modified bituminous roofing underlayment and vapor barrier, PMMA roofing and flashing membranes, flashing systems, insulation, wood roof sheathing, accessories and other data as may be required to show compliance with the Contract Documents.

D. Contractor’s Review Certification: Before commencing work, submit written statement signed by the Roofing Contractor, stating that the Contract Documents for the roof system have been reviewed with a qualified representative of the manufacturer of the primary roofing materials, and that he is in agreement that the selected materials for roofing system are proper, compatible and adequate for the application shown, and that the conditions and details are not in conflict with the roofing manufacturer’s warranty specified herein. Indicate by transmittal from that copy of statement has been sent to the manufacturer.

E. Substrate Acceptability Certification: Submit a certified signed statement from an authorized representative of the roofing membrane manufacturer and countersigned by

the applicator, attesting that all areas to receive modified bituminous roofing have been inspected and found satisfactory for the reception of this Work; and are not in conflict with the warranty requirements. Application will be construed as acceptance of surfaces.

F. Statement of Application Certification: Upon completion of the roofing work, submit a statement, signed by the Roofing Contractor, stating that the roofing, flashing, roof insulation and other materials comply with these Specifications, and that the installation methods complied with the manufacturer's printed instructions and were proper and adequate for the condition of installation and use.

G. Warranty: Submit the warranty described in Article 1.7 of this Section.

H. Test Report: Submit report(s) confirming the satisfactory performance of the roof flood test described in Article 3.9 C.2.

I. Inspection/Maintenance Procedures: Manufacturer's printed recommendations for proper maintenance of the specified roof system including inspection frequencies, penetration addition policies, temporary repairs, and leak call procedures.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store roofing materials in a dry, well-ventilated, weathertight location to ensure no significant moisture pickup. Maintain storage at a temperature complying with the roofing system manufacturer's written instructions. Handle and store roofing materials and place equipment in a manner to avoid significant or permanent damage to deck or structural supporting members.

B. Do not leave unused sheet materials on the roof overnight or when roofing work is not in progress unless protected from weather and moisture and unless maintained at a temperature complying with the manufacturer's recommendations.

C. Deliver and store liquid materials in their original undamaged and unopened containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Store closed containers in a cool, dry area away from heat, direct sunlight, oxidizing agents, strong acids, and strong alkalis. Do not store resins at temperatures below 32°F (0°C) or above 85°F (29°C). Keep away from open fire, flame or any ignition source. Store in a well ventilated area. Resin products may autopolymerize at temperatures greater than 140°F.

D. Protect roofing insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.

E. Handling: Handle all materials in such a manner as to preclude damage and contamination with moisture or foreign matter. Keep away from open fire, flame, or any ignition source. Vapors may form explosive mixtures with air. Avoid skin and eye contact with this material. Avoid breathing fumes when above the Threshold Limit Value (TLV). Do not eat, drink, or smoke in the application area.

F. Any materials that are found to be damaged or stored in any manner other than stated above will be automatically rejected, removed and replaced at the Contractor's expense.

1.7 PROJECT CONDITIONS

A. Weather Limitations: Proceed with roofing work only when existing and forecasted weather conditions permit roofing to be installed according to manufacturer's written instructions and warranty requirements.

B. Temporary Roofing: When adverse job conditions or weather conditions prevent permanent roofing and associated work from being installed or completed in accordance with the requirements noted in these Specifications, proceed with installation of temporary roofing. Remove and dispose of temporary roofing prior to proceeding with permanent roofing work.

C. Safety: Familiarize every member of the application crew with all fire and safety regulations recommended by OSHA, NIOSH, NRCA and other industry or local governmental groups. Workers shall wear a long sleeve shirt with long pants and work boots. Workers shall use only butyl rubber or nitrile gloves when mixing or applying PMMA products. Safety glasses with side shields are required for eye protection. Use local exhaust ventilation to maintain worker exposure below the published Threshold Limit Value (TLV). If the airborne concentration poses a health hazard, becomes irritating or exceeds recommended limits, use a NIOSH approved respirator in accordance with OSHA Respirator Protection requirements published under 29 CFR 1910.134. The specific type of respirator will depend on the airborne concentration. A filtering face piece or dust mask is not acceptable for use with this product if TLV filtering levels have been exceeded.

D. Environmental Requirements

1. Precipitation: Do not apply roofing materials during precipitation or in the event there is a probability of precipitation during application. Take adequate precautions to ensure that materials, applied roofing, and building interiors are protected from possible moisture damage or contamination.

2. Temperature Restrictions – self-adhesive sheets: The minimum required substrate temperature at point of application is 40°F (4°C). Maintain a minimum roof membrane material temperature above 50°F (10°C). In low temperature conditions, materials should be kept warm prior to application. Suspend application in situations where the self-adhered base ply cannot be kept at temperatures allowing for proper adhesion.

3. Temperature Restrictions – Preparation Paste: Do not apply preparation paste if there is a threat of inclement weather. Apply the preparation paste while air temperature is between 32°F (0°C) and 95°F (35°C), and while the substrate temperature is between 32°F (0°C) and 122°F (50°C). Do not apply resin materials when ambient or substrate temperatures exceed that indicted above.

4. Temperature Restrictions – Primer Resins: Do not apply primer resin if there is a threat of inclement weather. Apply the primer resin while air temperature is between 32°F (0°C) and 104°F (40°C), and while the substrate temperature is between 32°F (0°C) and 122°F (50°C). Do not apply resin materials when ambient or substrate temperatures exceed that indicted above.

5. Temperature Restrictions – Summer Grade Roofing Resins: Do not apply roofing resins if there is a threat of inclement weather. Apply membrane resin while air temperature is between 59°F (15°C) and 104°F (40°C), providing the substrate temperature is between 50°F (10°C) and 122°F (50°C). Do not apply materials when ambient or substrate temperatures exceed that indicted above.

6. Temperature Restrictions – Winter Grade Roofing Resins: Do not apply roofing resins if there is a threat of inclement weather. Apply membrane resin while air temperature is between 23°F (-5°C) and 68°F (20°C), providing the substrate temperature is between 23°F (-5°C) and 77°F (25°C). Do not apply materials when ambient or substrate temperatures exceed that indicted above.

E. Protection Requirements:

1. MEMBRANE PROTECTION: Provide protection against staining and mechanical damage for newly applied roofing and adjacent surfaces throughout this project.

2. LIMITED ACCESS: Prevent access by the public to materials, tools and equipment during the course of the project.

3. DEBRIS REMOVAL: Remove all debris daily from the project site and take to a legal dumping area authorized to receive such materials.

4. SITE CONDITION: Complete, to the owner's satisfaction, all job site clean-up including building interior, exterior and landscaping where affected by the construction.

1.8 WARRANTY

A. General Warranty: The warranties specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.

B. Standard Roofing Manufacturer’s Warranty: Submit a written warranty, without monetary limitation, signed by roofing system manufacturer agreeing to promptly repair leaks in the roof membrane and flashings and to replace any damaged insulation resulting from defects in materials or workmanship for the following warranty period:

1. Warranty Period: 20 years

Upon successful completion of the project, and after all post installation procedures have been completed, furnish the Owner with the roof system manufacturer's 20 year

labor and materials roof system guarantee. The roof system guarantee shall include both the roofing and flashing membranes. All repair or replacement costs covered under the guarantee shall be borne by the roofing membrane manufacturer. The guarantee shall be a term type, without deductibles or limitations on coverage amount, and be issued at no additional cost to the Owner. Specific items covered under the roof system guarantee include:

a. The actual resistance to heat flow through the roof insulation will be at least 80% of the design thermal resistance, provided that the roofing membrane is free of leaks;

b. The roof insulation will remain in a re-roofable condition should the roof membrane require replacement.

c. The roof insulation will remain in place even if the roof membrane sustains wind damage covered by the guarantee.

d. This guarantee shall also be transferable to the subsequent Owner at no additional cost.

PART 2 – PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Siplast, Inc.

2.2 MATERIALS

A. Modified Bitumen Base Ply Sheet: A non-porous fiberglass base sheet consisting of a lightweight random fibrous glass mat impregnated and coated with a specially formulated, high quality, oxidized asphalt, and a polyolefin film backing mechanically fastened to the roof deck. (Siplast Parabase FS or approved equal).

B. Modified Bitumen Temporary / Vapor Barrier Sheet: A high performance, heavy duty, modified bitumen base ply consisting of a fiberglass scrim/fiberglass mat composite impregnated and coated with high quality styrene-butadiene-styrene (SBS) modified bitumen set in adhesive. (Siplast Paradiene 20 EG or approved equal).

C. Modified Bitumen Base Ply for Reinforced PMMA Membrane/Flashing System: A high performance, self-adhesive, SBS-modified bitumen base ply specifically designed for use in Parapro Roof Membrane Systems, consisting of a lightweight random fibrous glass mat impregnated and coated with high quality styrene-butadiene-styrene (SBS) modified bitumen. The top surface is factory coated with a proprietary Syntan acrylic coating. The back surface is coated with a self-adhesive bitumen layer specifically formulated for

optimum adhesion in low-slope membrane applications, and is lined with a high strength polyolefin release film. (Siplast Pro Base SA or approved equal).

D. Roofing Membrane Assembly: Reinforced PMMA Membrane/Flashing System Components (Siplast Roof Systems, ParaPro roof system" or approved equal).

1. Catalyst: A reactive agent used to induce curing of polymethylmethacrylate (PMMA) resins Pro Catalyst by Siplast; Irving, TX.

2. Resin for Field Membrane Construction: A multi-component, flexible, polymethylmethacrylate (PMMA) based resin for use in combination with fleece fabric to form a monolithic, reinforced roofing membrane Parapro Roof Resin by Siplast; Irving, TX.

3. Fleece for Membrane and Flashing Reinforcement: A non-woven, 110 g/m², needle-punched polyester fabric reinforcement as supplied by the membrane system manufacturer Pro Fleece by Siplast; Irving, TX.

4. Resin for Flashing Applications: A multi-component, flexible, polymethylmethacrylate (PMMA) based resin combined with a thixotropic agent for use in combination with fleece fabric to form a monolithic, reinforced flashing membrane Parapro Flashing Resin by Siplast; Irving, TX.

5. Color Finish Resin: white.

E. Primers:

1. PMMA Primer for Concrete/Masonry/Wood/Plywood Substrates: A two component, PMMA based primer for use over concrete, concrete repair materials, masonry substrates and wood/plywood substrates Pro Primer W by Siplast.

2. PMMA Primer for Asphaltic Substrates: A two component, fast-curing, PMMA based primer for use over asphaltic materials Pro Primer R by Siplast.

F. Auxiliary Materials: Furnish auxiliary materials recommended by roofing system manufacturer for intended use and compatible with the cold-applied fluid roofing.

1. Cleaner/Solvent: A clear solvent used to prepare metal and plastic surfaces prior to application of the catalyzed resin flashing membranes and to reactivate transition areas of in-place catalyzed resin flashing membranes at tie-ins and between staged coats of resin (Pro Prep by Siplast).

2. Asphalt Primer: An asphalt, solvent blend conforming to ASTM D 41 Type I or II requirements and meeting local VOC requirements (Siplast PA-1125 Asphalt Primer or PA-917 Asphalt Primer, or approved equal).

3. Base Top Ply Adhesive: A single-component blend of proprietary polymers and modifiers, and asphalt engineered to cure completely in a variety of ambient conditions. (Siplast SFT Adhesive, or approved equal).

4. Base Sheet Bottom Ply Fasteners: A 12 gauge, spiral or annular threaded shank, zinc coated, steel roofing fastener having a minimum 1 inch head.

    a. Square Cap by W.H. Maze Co.; Peru, IL (815) 223 8290
    b. Simplex Cap Nail by Simplex Nails, Inc., Americus, GA

5. Resinous Paste Filler: Provide filler material as required to prepare substrate, as indicated in the details (Siplast "Pro Paste Resin" or approved equal).

6. Elastomeric Sealant: A moisture-curing, non-slump elastomeric sealant designed for roofing applications. The sealant shall be approved by the roof membrane manufacturer for use in conjunction with the roof membrane materials PS-304 Elastomeric Sealant by Siplast.

7. Tape: A white, flexible, coated cotton cloth tape designed for treatment of insulation panel joints and deck/wall transitions Pro Tape by Siplast.

8. Caulkings/Sealants: A single component, high performance, elastomeric sealant conforming to ASTM D 232, ASTM C 920, or ASTM C 920. Acceptable types are as follows: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

    a. Tremseal by TREMCO; Cleveland, OH (216) 292-5000

    b. Sonolastic NP 1 by Sonneborn Building Products; Minneapolis, MN (612) 922-7090

9. Sheet Metal Components: Provide sheet metal materials and accessories as required by the roofing membrane manufacturer to make the roofing assembly complete. Materials shall be:

    a. Stainless Steel: ASTM A666, Type 304, dead soft fully annealed except where harder temper required for forming or performance; 0.015 in. thick (28 gage) unless otherwise shown below; finish No. 2D.

    b. Fasteners: Screws, rivets and nails shall be of same material as sheet metal or of compatible material. Match finish of exposed heads with material being fastened.

    c. Metal Accessories: Provide sheet metal clips, straps, anchoring devices, and similar accessory units as required for installation of work, matching or compatible with material being installed, noncorrosive, size and gage required for performance.

    d. Solder: ASTM B32; for use with stainless steel or copper, provide 60 – 40 tin/lead solder, with acid-chloride type flux, except use rosin flux over tinned surfaces.

e. Dielectric Separator: Cold applied type, non-sagging, resistant to severe corrosion conditions; applied in two coats for an overall minimum dry film thickness of 25 mils. One of the following:

i. "Carbomastic 90" (Carboline Co.)
ii. "Bitumastic 50" (Kop-Coat, Inc.)
iii. "Jennite J-16" (Maintenance, Inc.)

10. Miscellaneous Accessories: Provide miscellaneous accessories recommended by roofing system manufacturer for intended use.

11. Polyisocyanurate Board Insulation: Rigid insulation panel comprised of a closed cell polyisocyanurate foam core bonded on each side to fiber-reinforced organic felt facer complying with ASTM C1289, Type II, Class 1, Grade 3 (25 PSI); At areas where tapered insulation is indicated, provide first layer insulation board without the high density fiber board. Provide one of the following:

1. "Energy 3 Plus" (Johns Manville).

2. "ACFoam Composite / FB" (Atlas Roofing Corporation).

3. "Energy Guard Composite" (GAF Materials Corporation).

4. Paratherm & Paratherm CG (Siplast, Inc.).

12. Tapered Polyisocyanurate Board Insulation: Tapered panels and standard fill panels composed of a closed cell, rigid polyisocyanurate foam core material, integrally laminated between glass fiber reinforced organic facers, in full compliance with ASTM C 1289, Type II, Class 1, Grade 3 (25 psi). Provide preformed, tapered insulation boards, preformed saddles, crickets, tapered edge strips, drain sumps and other insulation shapes where indicated on the drawings for sloping to drain. Provide one of the following:

1. "Energy 3 Plus Composite" and "Tapered Energy 3 Plus Composite" (Johns Manville).

2. "ACFoam Composite / FB" and "Tapered ACFoam Composite / FB" (Atlas Roofing Corporation).

3. "EnergyGuard™ Composite Board" and "EnergyGuard™ Tapered PolyIso Foam Roof Insulation with cover broad (specified elsewhere)" (GAF Materials Corporation).

4. Tapered Paratherm & Paratherm CG (Siplast, Inc.)

G. Insulation and Coverboard Adhesive: A single component, moisture cured, polyurethane foam adhesive, dispensed from a portable, pre-pressurized container used to adhere insulation panels to the substrate as well to other insulation panels. Available

Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. "Insta-Stick Professional Roofing Adhesive" by Flexible Products, Inc.; Joliet, Illinois (800) 741-6822.

2. Siplast "Para-Stik".

3. OMG OlyBond 500 Adhesive Fastener provided in a ribbon application a maximum 6 inches on center applied in a serpentine pattern with continuous ¾" to 1" (19 to 25 mm) wide beads.

H. Cement Roof Cover Board: USG Securock Cement Roof Board as manufactured by United States Gypsum Company or approved equal.

1. Conform to ASTM C1325, "Standard for Non-Asbestos Fiber-Mat Reinforced Cementitious Backer Units."
2. UL Type Designation "DCB".
3. ASTM D 3273: Mold Resistance: Score of 10 as rated according to ASTM D 3273.
4. ASTM E96: 5.84.
5. ASTM E84 Surface-Burning Characteristics:
6. Flame Spread: 0.
7. Smoke Developed: 0.
8. ASTM E661 Flute Span-ability: 12".
9. ASTM C518 R value: 0.49.
10. Compressive Strength: 1800 psi.
11. Thickness: 1/2".
12. Length: 8'-0".
13. Widths: 48".
14. Weight: 3.0 lb./ft^2.
15. Bending Radius: 6'-0".
16. Long Edges: Square.

I. Pipe and conduit supports:

1. Base Material – Polycarbonate
2. Size: The deck base is 9" by 15.25", has a maximum bar length of 16".
3. Max Pipe Clearance: adjustable in height from a low of 2.5" to a high of 7.5" in elevation above the roof membrane.
4. Max Load Weight: Maximum load weight may not exceed 125 lbs. per pipe stand.
5. Spacing: not to exceed 10 foot.
6. Manufacturers: Miro Industries Inc. Model 16-Base Strut-7 P; PHP Systems SS8-C Pipe Support System; Erico Caddy® Pyramid 50; or approved equal.

J. Equipment rails/curbs: Constructed of 18 gage galvanized steel, unitized construction with integral base plate, continuous welded corner seams, pressure treated wood nailer,

counterflashing with screws. Internally reinforced with 1" overhang for base flashing installation. Style ES2 by Pate; Style TEMS-3 Thybar by Thycurb; Style ER-2A by Roof Products & Systems, Inc.; or equal.

PART 3 – EXECUTION

3.1 PRE-INSTALLATION MEETING:

A. Prior to the start of the Work, and at the Contractor's direction, meet at the Project site to review methods and sequence of installation, special details and conditions, standard of workmanship, testing and quality control requirements, job organization and other pertinent topics related to the Work. The meeting shall include the Architect, the Contractor, Contractor's Project superintendent, the membrane roofing applicator, the membrane roofing manufacturer's representative, the sheet metal fabricator, inspection and testing services (if any) and any other subcontractors whose work requires coordination with this work.

3.2 CONDITION OF SURFACES:

A. Examine the substrates, adjoining construction and the conditions under which the Work is to be installed. All surfaces must be dry, smooth, free of depressions, voids, protrusions, clean and free of unapproved curing compounds, form release agents, and other surface contaminants. Do not proceed with the Work until unsatisfactory conditions have been corrected. Provide written certification of the substrate per Article 1.4.E.

B. Verify that roof openings and penetrations are in place and set and braced and that roof drains are properly clamped into position.

C. Verify that curbs are securely anchored to roof deck at roof penetrations and terminations.

3.3 PREPARATION

A. Clean substrate of debris and deleterious materials which would impair the Work. General: Ensure that substrates are free from gross irregularities, loose, unsound or foreign material such as dirt, ice, snow, water, grease, oil, bituminous products, release agents, laitance, paint, loose particles/friable matter, rust or any other material that would be detrimental to adhesion of the catalyzed primer and/or resin to the substrate. Some surfaces may require scarifying, sandblasting, or grinding to achieve a suitable substrate. Wipe surfaces with a clean cloth saturated with the specified preparation liquid to remove grease, oils or dust that may affect adhesion and to cured PMMA surfaces to receive a subsequent coat of resin.

B. Static Crack and Cold Joint Preparation: Fill cracks and joints prior to membrane/flashing application using the specified preparation paste. Membrane and flashing application must commence immediately following catalyzation of the preparation paste.

C. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.

D. Preparation of Newly Placed Concrete Substrates: Newly placed concrete shall be cured a minimum of 28 days in accordance with ACI-308, with a minimum hardness of 3,500 psi (24 N/mm^2). Clean and/or grind the surface to provide a sound substrate free from laitance with an open concrete surface. Repair spalls and voids on vertical or horizontal surfaces using the specified primer and preparation paste. A moisture content/adhesion test shall be performed by the membrane manufacturer prior to membrane application.

E. Preparation of Existing Concrete/Masonry Substrates to Receive Resin Materials: Existing concrete substrates shall have a minimum compressive strength of 3,500 psi (24 N/mm^2). Following evaluation for moisture content and confirmation that the moisture content is at an acceptable level, shot blast or scarify/shot-blast concrete or masonry surfaces to provide a sound substrate free from laitance and residue from bitumen, coal tar, primer, coatings, adhesives, sealer or any material that may inhibit adhesion of the specified primer. Generate a concrete surface profile of CSP-2 to CSP-4 as defined by the ICRI. Grinding may be used as a preparation method for localized areas that cannot be reached by a shot blasting equipment provided that a surface can be prepared to a CSP-2 to CSP 4. Repair spalls and voids on vertical or horizontal surfaces using the specified primer and preparation paste.

F. Preparation of Nailable Substrates: Base Sheet Securement: Lay the specified base sheet over the entire area to be roofed, lapping sides 3 inches and ends 6 inches. Using the specified fasteners:

Field: fasten each sheet 9” through the side laps, 2 rows in the field with fastener spacing in each row on 12” o.c. (approximately 120 fasteners per square);

Perimeter: 6” through the side laps on the perimeter, 3 rows in the field with fastener spacing in each row on 10” o.c. (approximately 204 fasteners per square);

Corner: 6” through the side laps, 4 rows in the field with fastener spacing in each row on 7” o.c. (approximately 312 fasteners per square);

1. The fastener must completely penetrate plywood decks and extend a minimum 1/2" beyond the underside of the plywood. Using a screw gun recommended for roofing fasteners, drive the fastener until a slight depression is seen around the plate.

2. Do not overdrive the fastener and fracture the surface skin or facer of the panel. The fastener must be tight enough so that the plate does not turn.

3.4 INSTALLATION, GENERAL

A. Complete the Work to assure that no water leakage occurs into the system.

B. At the start of the installation, and periodically as work progresses, provide the services of the manufacturer's technical representative at the job site as often as deemed necessary by the manufacturer to advise on all phases of this Work.

C. Provide treatment at joints in substrate, cracks and penetrations as required and with such materials and designs as recommended by the manufacturer of the roofing system.

D. Prepare metal substrates. Use products and methods recommended by the roofing materials manufacturer.

3.5 SUBSTRATE PREPARATION:

A. 2nd Base Ply Application: Set sheet in adhesive in strict accordance wih manufacturer's written instructions.

B. Insulation Application:

1. Rigid Insulation Securement to Prepared Substrates: Install insulation panels with end joints offset; edges of the panels shall be in moderate contact without forcing applied in strict accordance with the insulation manufacturer's requirements and the following instructions. Where insulation is installed in two or more layers, stagger joints between layers. Maintain a maximum panel size of 4 feet by 4 feet for insulation applied in adhesive.

2. Crickets: Construct crickets of tapered insulation panels in a layout as indicated on the approved roof shop drawing.

3. Tapered Edge at Transitions: Field-cut, shape and install tapered edge strip at transitions of 1/4 inch or greater between substrate components to provide a smooth transition and proper support for the subsequent insulation layer or membrane/flashing system components.

C. "Self-Adhered" Ply Sheet Application: Unroll the base ply, and set the roll into place utilizing minimum 3 inch side and end laps. Fold one end of the roll back onto itself by 24 inches. Peel the release film off of the back of the 24 inch end section of the sheet and lay into place, pressing the 24 inch end section of the sheet firmly into place over the substrate. Pull the release film free from the underside of the remainder of the sheet while pressing the material into place with a follow tool as the film is being removed, leaving the end laps unadhered. Prior to adhering the end laps, cut a dog ear angle at each end lap on overlapping selvage edges. Torch apply end laps, ensuring that the adhesive stripes on the underside of the overlapping sheet and the top surface of the underlying sheet flow into a layer of continuously bonded or fused modified bitumen. Using a clean trowel, apply top pressure to top seal T-laps immediately following sheet application. Stagger end laps a minimum of 3 feet. Laps of the base ply must not be left exposed overnight. The base ply application must be immediately followed by the application of the finish ply. A phased application between the base and finish is not approved. In cases where rapid onset of inclement weather occurs, all exposed lap edges should be heat sealed with a torch and trowel, or heat welded.

3.6 ROOF MEMBRANE INSTALLATION

A. Application: Apply roofing in accordance with roofing system manufacturer's instructions and the following requirements. Application of roofing membrane components shall immediately follow application of base sheet and/or insulation as a continuous operation.

B. Aesthetic Considerations: An aesthetically pleasing overall appearance of the finished roof application is a standard requirement for this project. Make necessary preparations, utilize recommended application techniques, apply the specified materials (i.e. resins, etc.), and exercise care in ensuring that the finished application is acceptable to the Owner.

C. Preparation/Mixing/Catalyzing Resin Products: Pour the desired quantity of resin into a clean container and using a spiral mixer or mixing paddle, stir the liquid for the time period specified by the resin manufacturer. Calculate the amount of catalyst powder needed using the manufacturer's guidelines and add the pre-measured catalyst to the primer. Mix again for the time period specified by the resin manufacturer, ensuring that the product is free from swirls and bubbles. It is imperative that air is not entrained into the product during the mixing process. To avoid aeration, do not use a spiral mixer unless the spiral section of the mixer can be fully contained in the liquid during the mixing process. Mix only enough product to ensure that it can be applied before expiration of resin pot life.

D. Primer Application: Apply primer resin using a roller or brush at the minimum rate of 3.7 kg/sq (0.4 kg/m²) over poured reinforced concrete substrates. Apply primer resin using a roller or brush at the minimum rate of 7.4 kg/sq (0.8 kg/m²) over DensDeck, DensDeck Prime, and granule surfaced membrane substrates. Increase application rates over other absorbent substrates. Do not let resin pool or pond. Make allowances for saturation of roller covers and application equipment.

E. Paste Application: Allow the primer to set and apply preparation paste using a trowel.

F. Field Membrane Application:

1. Using the specified cleaner/solvent, wipe flashing membrane surfaces to be lapped with field membrane. Allow the surface to dry for a minimum 20 minutes before continuing work.

2. Apply an even, generous base coat of field membrane resin using a roller at the rate of 19 kg/sq (2.0 kg/m²) to prepared surfaces. Work the fleece into the wet, catalyzed resin using a roller to fully embed the fleece in the resin and remove trapped air. Lap fleece layers a minimum of 2 inch (5 cm) and apply an additional coat of catalyzed resin between layers of overlapping fleece. Again using a roller, apply an even top coat of catalyzed resin at the rate of 12 kg/sq (1.3 kg/m²) immediately following embedment of the fleece, ensuring full saturation of the fleece. Make allowances for saturation of roller covers and application equipment. Allow 2 hours cure time prior to exposing the membrane to foot traffic.

G. Flashing Membrane Assembly Application:

1. Using masking tape, mask the perimeter of the area to receive the flashing system. Apply resin primer to substrates requiring additional preparation and allow primer to set.

2. Pre-cut fleece to ensure a proper fit at transitions and corners prior to membrane application.

3. Apply an even, generous base coat of flashing resin using a roller at the rate of 19 kg/sq (2.0 kg/m²) to prepared surfaces requiring flashing coverage. Work the fleece into the wet, catalyzed resin using a brush or roller to fully embed the fleece in the resin and remove trapped air. Lap fleece layers a minimum of 2 inch (5 cm) and apply an additional coat of catalyzed resin between layers of overlapping fleece. Again using a roller, apply an even top coat of catalyzed resin at the rate of 12 kg/sq (1.3 kg/m²) immediately following embedment of the fleece, ensuring full saturation of the fleece. Ensure that the flashing resin is applied to extend a 0.25 inch (6 mm) beyond the fleece. Remove the tape before the catalyzed resin sets. Make allowances for saturation of roller covers and application equipment.

4. Should work be interrupted for more than 12 hours or the surface of the catalyzed resin becomes dirty or contaminated by the elements, wipe the surface to be lapped with new flashing resin using the specified cleaner/solvent. Allow the surface to dry for a minimum 20 minutes and a maximum 60 minutes before continuing work.

H. Water Cut-Off: At end of day's work, or when precipitation is imminent, construct a water cut-off at all open edges. Cut-offs can be built using asphalt or plastic cement and roofing felts, constructed to withstand protracted periods of service. Cut-offs must be completely removed prior to the resumption of roofing.

3.7 ROOF SYSTEM INTERFACE WITH RELATED COMPONENTS:

The following is a list of verbal descriptions for correct installation of components integrated into the roof membrane assembly. In all cases, unless otherwise approved, incorporate flanged components into the system between the application of the base ply and the finish ply.

A. All sheet metal work: Install as indicated in the details and in accordance with the requirements of SMACNA and NRCA.

B. Sealant: Caulk all exposed finish ply edges at gravel stops, waste stacks, pitch pans, vent stacks, etc., with a smooth continuous bead of approved sealant.

3.8 CLEANING:

A. Remove equipment after the completion of the roof insulation system application.

3.9 FIELD QUALITY CONTROL AND INSPECTIONS:

A. Site Conditions: Leave all areas around job site free of debris, roofing materials, equipment and related items after completion of job.

B. Notification of Completion: Notify the manufacturer by means of manufacturer's printed Notification of Completion form of job completion in order to schedule a final inspection date.

C. Testing of New Roofing System:

1. Field Seams: Provide inspection and testing of the field seams to assure manufacturer's quality requirements are maintaining throughout the installation period.

2. Water Test: Immediately after installation of roofing system complete with expansion joints, dam the area designated by the Architect and subject system to a flood test of 2 in. minimum of water for not less than 48 hours. Such water testing may be conducted on an area by area basis as the Work permits but in no case shall less than 100% of the roof membrane be tested. After the water has been removed, repair leaks and protect the accepted segment.

D. An inspection agency may be engaged by the Owner to inspect work specified herein. The presence of the Inspection Agency is for the Owner's own purposes and any information or assistance furnished by his Inspection Agency shall not relieve the Contractor of the responsibility for the work.

E. Contractor's Responsibility:

1. Provide the Owner's Inspection Agency with safe access to the Work.

2. Notify the Owner's Inspection Agency whenever work is to be done, in sufficient time to arrange inspection.

3. Discontinue any practice immediately when notified which, in the Owner's Inspection Agency's opinion, is not in accordance with the Specifications or will act to the detriment of the system. The Inspection Agency will notify the Architect, the Construction Manager, the Contractor and the manufacturer immediately of all violations. Any work affected by the practice will be subject to complete replacement.

4. Give written notice to the Owner's Inspection Agency stating that the installation has been completed in accordance with the Contract Documents and requesting that a final inspection be conducted.

F. Final Inspection:

1. Post-Installation Meeting: Hold a meeting at the completion of the project, attended by all parties that were present at the pre-job conference. A punch list of items

required for completion shall be compiled by the Contractor and the manufacturer's representative. Complete, sign, and mail the punch list form to the manufacturer's headquarters.

2. Drain Verification: At final inspection of all work, verify that all drains, scuppers, etc., are functioning properly. Ensure that roof drains have adequate strainers.

G. Issuance of the Warrantee: Complete all post installation procedures and meet the manufacturer's final endorsement for issuance of the specified guarantee.

END OF SECTION 07 56 00

SECTION 07 92 00 - JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Silicone joint sealants.
2. Latex joint sealants.
3. Preformed joint sealants.

1.2 ACTION SUBMITTALS

A. Product Data: For each joint-sealant product indicated.

B. Samples for Verification: For each kind and color of joint sealant required, provide Samples with joint sealants in 1/2-inch- wide joints formed between two 6-inch- long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.

C. Joint-Sealant Schedule: Include the following information:

1. Joint-sealant application, joint location, and designation.
2. Joint-sealant manufacturer and product name.
3. Joint-sealant formulation.
4. Joint-sealant color.

1.3 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified Installer.

B. Product Certificates: For each kind of joint sealant and accessory, from manufacturer.

C. Sealant, Waterproofing, and Restoration Institute (SWRI) Validation Certificate: For each sealant specified to be validated by SWRI's Sealant Validation Program.

D. Warranties: Sample of special warranties.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.

B. Source Limitations: Obtain each kind of joint sealant from single source from single manufacturer.

1.5 PROJECT CONDITIONS

A. Do not proceed with installation of joint sealants under the following conditions:

1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F.
2. When joint substrates are wet.
3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.6 WARRANTY

A. Special Installer's Warranty: Manufacturer's standard form in which Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Two years from date of Substantial Completion.

B. Special Manufacturer's Warranty: Manufacturer's standard form in which joint-sealant manufacturer agrees to furnish joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Five years from date of Substantial Completion.

C. Special warranties specified in this article exclude deterioration or failure of joint sealants from the following:

1. Movement of the structure caused by structural settlement or errors attributable to design or construction resulting in stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression.
2. Disintegration of joint substrates from natural causes exceeding design specifications.
3. Mechanical damage caused by individuals, tools, or other outside agents.
4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.

B. VOC Content of Interior Sealants: Sealants and sealant primers used inside the weatherproofing system shall comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):

1. Architectural Sealants: 250 g/L.

2. Sealant Primers for Nonporous Substrates: 250 g/L.
3. Sealant Primers for Porous Substrates: 775 g/L.

C. Liquid-Applied Joint Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied joint sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.

D. Stain-Test-Response Characteristics: Where sealants are specified to be nonstaining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.

E. Colors of Exposed Joint Sealants: Match Architect's samples.

2.2 SILICONE JOINT SEALANTS

A. Mildew-Resistant, Single-Component, Nonsag, Neutral-Curing Silicone Joint Sealant: ASTM C 920, Type S, Grade NS, Class 25, for Use NT.

1. Products: Subject to compliance with requirements, provide one of the following products or proposed substitution complying with Division 01 Section “Substitution Procedures:”

a. Dow Corning; 786 Mildew Resistant Silicone Sealant.
b. GE Advanced Materials - Silicones; Sanitary SCS 1700.
c. Tremco, an RPM Co.; Tremsil 200 Sanitary.

2.3 LATEX JOINT SEALANTS

A. Latex Joint Sealant: Acrylic latex or siliconized acrylic latex, ASTM C 834, Type OP, Grade NF.

1. Products: Subject to compliance with requirements, provide one of the following products or proposed substitution complying with Division 01 Section “Substitution Procedures:”

a. BASF Building Systems; Sonolac.
b. Pecora Corporation; AC-20+.
c. Tremco Incorporated; Tremflex 834.

2.4 PREFORMED JOINT SEALANTS

A. Preformed Silicone Joint Sealants: Manufacturer's standard sealant consisting of precured low-modulus silicone extrusion, in sizes to fit joint widths indicated, combined with a neutral-curing silicone sealant for bonding extrusions to substrates.

1. Products: Subject to compliance with requirements, provide one of the following products or proposed substitution complying with Division 01 Section “Substitution Procedures:”

a. Dow Corning Corporation; 123 Silicone Seal.
b. GE Advanced Materials - Silicones; UltraSpan US1100.

c. Pecora Corporation; Sil-Span.

B. Preformed Foam Joint Sealant: Manufacturer's standard preformed, precompressed, open-cell foam sealant manufactured from urethane foam with minimum density of 10 lb/cu. ft. and impregnated with a nondrying, water-repellent agent. Factory produce in precompressed sizes in roll or stick form to fit joint widths indicated; coated on one side with a pressure-sensitive adhesive and covered with protective wrapping.

1. Products: Subject to compliance with requirements, provide one of the following products or proposed substitution complying with Division 01 Section "Substitution Procedures:"

a. Dayton Superior Specialty Chemicals; Polytite Standard.
b. EMSEAL Joint Systems, Ltd.; Emseal 25V.
c. Willseal USA, LLC; Willseal 600.

2.5 JOINT SEALANT BACKING

A. General: Provide sealant backings of material that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

B. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), Type B (bicellular material with a surface skin) or any of the preceding types, as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

1. Products: Subject to compliance with requirements, provide one of the following products or proposed substitution complying with Division 01 Section "Substitution Procedures:"

a. Type C: (Closed-cell material with a surface skin.)

1) HBR Closed Cell Backer Rod; Nomaco, Inc.
2) Sonneborn Closed-Cell Backer-Rod; BASF.

b. Type B: (Bicellular material with a surface skin.)

1) SOFROD; Nomaco, Inc.
2) Sonneborn Sonolastic Soft Backer-Rod; BASF.

C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint. Provide self-adhesive tape where applicable.

2.6 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.

C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:

    a. Concrete.
    b. Masonry.
    c. Unglazed surfaces of ceramic tile.

3. Remove laitance and form-release agents from concrete.
4. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:

    a. Metal.
    b. Glass.

B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.

B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

C. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of sealant backings.
2. Do not stretch, twist, puncture, or tear sealant backings.
3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.

D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:

1. Place sealants so they directly contact and fully wet joint substrates.
2. Completely fill recesses in each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

1. Remove excess sealant from surfaces adjacent to joints.
2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
3. Provide concave joint profile per Figure 8A in ASTM C 1193, unless otherwise indicated.

G. Installation of Preformed Silicone-Sealant System: Comply with the following requirements:

1. Apply masking tape to each side of joint, outside of area to be covered by sealant system.
2. Apply silicone sealant to each side of joint to produce a bead of size complying with preformed silicone-sealant system manufacturer's written instructions and covering a bonding area of not less than 3/8 inch. Hold edge of sealant bead 1/4 inch inside masking tape.

3. Within 10 minutes of sealant application, press silicone extrusion into sealant to wet extrusion and substrate. Use a roller to apply consistent pressure and ensure uniform contact between sealant and both extrusion and substrate.
4. Complete installation of sealant system in horizontal joints before installing in vertical joints. Lap vertical joints over horizontal joints. At ends of joints, cut silicone extrusion with a razor knife.

H. Installation of Preformed Foam Sealants: Install each length of sealant immediately after removing protective wrapping. Do not pull or stretch material. Produce seal continuity at ends, turns, and intersections of joints. For applications at low ambient temperatures, apply heat to sealant in compliance with sealant manufacturer's written instructions.

3.4 CLEANING

A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.5 PROTECTION

A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

3.6 JOINT-SEALANT SCHEDULE

A. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Locations:

a. Control and expansion joints on exposed interior surfaces of exterior walls.
b. Perimeter joints of exterior openings where indicated.
c. Vertical joints on exposed surfaces of walls and partitions.
d. Perimeter joints between interior wall surfaces and frames of interior doors windows and elevator entrances.
e. Other joints as indicated.

2. Joint Sealant: Latex.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

B. Joint-Sealant Application: Mildew-resistant interior joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Sealant Location:

a. Joints between plumbing fixtures and adjoining walls, floors, counters, vanities, and at janitor closet mop receptor to wall transition
b. Tile control and expansion joints where indicated.
c. Other joints as indicated.

2. Joint Sealant: Mildew resistant, single component, nonsag, neutral curing, Silicone.
3. Joint Sealant Color: As selected by Architect from manufacturer's full range of colors.

END OF SECTION 07 92 00

SECTION 08 52 00 - WOOD WINDOWS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes vinyl-clad wood windows.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, glazing and fabrication methods, dimensions of individual components and profiles, hardware, and finishes for wood windows.

B. Shop Drawings: For wood windows.

1. Include plans, elevations, sections, hardware, accessories, insect screens, operational clearances, and details of installation, including anchor, flashing, and sealant installation.

C. Samples: For each exposed product and for each color specified, 2 by 4 inches in size.

D. Product Schedule: For wood windows. Use same designations indicated on Drawings.

1.3 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Product Test Reports: For each type of wood window, for tests performed by a qualified testing agency.

C. Sample Warranties: For manufacturer's warranties.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: An installer acceptable to wood window manufacturer for installation of units required for this Project.

1.5 WARRANTY

A. Manufacturer's Warranty: Manufacturer agrees to repair or replace wood windows that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

    a. Failure to meet performance requirements.
    b. Structural failures including excessive deflection, water leakage, and air infiltration.
    c. Faulty operation of movable sash and hardware.
    d. Deterioration of materials and finishes beyond normal weathering.
    e. Failure of insulating glass.

2. Warranty Period:

    a. Window: 20 years from date of Substantial Completion.
    b. Glazing Units: 20 years from date of Substantial Completion.
    c. Vinyl Cladding: Lifetime warranty.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations: Obtain wood windows from single source from single manufacturer.

2.2 WINDOW PERFORMANCE REQUIREMENTS

A. Product Standard: Comply with AAMA/WDMA/CSA 101/I.S.2/A440 for definitions and minimum standards of performance, materials, components, accessories, and fabrication unless more stringent requirements are indicated.

1. Window Certification: WDMA certified with label attached to each window.

B. Performance Class and Grade: AAMA/WDMA/CSA 101/I.S.2/A440 as follows:

1. Minimum Performance Class: CW.
2. Minimum Performance Grade: 30.

C. Thermal Transmittance: NFRC 100 maximum whole-window U-factor of 0.30 Btu/sq. ft. x h x deg F.

D. Solar Heat-Gain Coefficient (SHGC): NFRC 200 maximum whole-window SHGC of 0.38.

2.3 WOOD WINDOWS

A. Vinyl-Clad Wood Windows:

1. Product: Subject to compliance with requirements, provide wood windows product indicated on drawings as manufactured by Andersen Windows; Andersen Corporation.

B. Operating Types: Provide the following operating types in locations indicated on Drawings:

1. Double hung.

C. Frames and Sashes: Fine-grained wood lumber complying with AAMA/WDMA/CSA 101/I.S.2/A440; kiln dried to a moisture content of not more than 12 percent at time of fabrication; free of visible finger joints, blue stain, knots, pitch pockets, and surface checks larger than 1/32 inch deep by 2 inches wide; water-repellent preservative treated.

1. Exterior Finish: Vinyl-clad wood.

a. Color: As selected by Architect from manufacturer's full range.

2. Interior Finish: Manufacturer's standard color-coated finish.

a. Color: As selected by Architect from manufacturer's full range.

D. Glass: Clear annealed glass, ASTM C 1036, Type 1, Class 1, q3.

1. Kind: Fully tempered.

E. Insulating-Glass Units: ASTM E 2190.

1. Glass: ASTM C 1036, Type 1, Class 1, q3.

a. Tint: Clear.
b. Kind: Fully tempered.

2. Lites: Two.
3. Filling: Fill space between glass lites with air.
4. Low-E Coating: Sputtered on second surface.

F. Glazing System: Manufacturer's standard factory-glazing system that produces weathertight seal.

G. Hardware, General: Provide manufacturer's standard hardware fabricated from aluminum, stainless steel, carbon steel complying with AAMA 907, or other corrosion-resistant material compatible with adjacent materials; designed to smoothly operate, tightly close, and securely lock windows, and sized to accommodate sash weight and dimensions.

1. Exposed Hardware Color and Finish: As selected by Architect from manufacturer's full range.

H. Hung Window Hardware:

1. Counterbalancing Mechanism: Complying with AAMA 902, concealed, of size and capacity to hold sash stationary at any open position.
2. Locks and Latches: Allow unobstructed movement of the sash across adjacent sash in direction indicated and operated from the inside only.
3. Tilt Hardware: Releasing tilt latch allows sash to pivot about horizontal axis to facilitate cleaning exterior surfaces from the interior.

I. Weather Stripping: Provide full-perimeter weather stripping for each operable sash unless otherwise indicated.

J. Fasteners: Noncorrosive and compatible with window members, trim, hardware, anchors, and other components.

1. Exposed Fasteners: Do not use exposed fasteners to greatest extent possible. For application of hardware, use fasteners that match finish hardware being fastened.

2.4 INSECT SCREENS

A. General: Fabricate insect screens to integrate with window frame. Provide screen for each operable exterior sash. Screen wickets are not permitted.

1. Type and Location: Full, outside for double-hung sashes.

B. Aluminum Frames: Manufacturer's standard aluminum alloy complying with SMA 1004 or SMA 1201. Fabricate frames with mitered or coped joints or corner extrusions, concealed fasteners, and removable PVC spline/anchor concealing edge of frame.

1. Tubular Framing Sections and Cross Braces: Roll formed from aluminum sheet.
2. Finish for Exterior Screens: Baked-on organic coating in color selected by Architect from manufacturer's full range.

C. Glass-Fiber Mesh Fabric: 18-by-14 or 18-by-16 mesh of PVC-coated, glass-fiber threads; woven and fused to form a fabric mesh resistant to corrosion, shrinkage, stretch, impact damage, and weather deterioration. Comply with ASTM D 3656/D 3656M.

1. Mesh Color: Manufacturer's standard.

2.5 FABRICATION

A. Fabricate wood windows in sizes indicated. Include a complete system for installing and anchoring windows.

B. Glaze wood windows in the factory.

C. Weather strip each operable sash to provide weathertight installation.

D. Complete fabrication, assembly, finishing, hardware application, and other work in the factory to greatest extent possible. Disassemble components only as necessary for shipment and installation. Allow for scribing, trimming, and fitting at Project site.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine openings, substrates, structural support, anchorage, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Verify rough opening dimensions, levelness of sill plate, and operational clearances.

C. Examine wall flashings, vapor retarders, water and weather barriers, and other built-in components to ensure weathertight window installation.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Comply with manufacturer's written instructions for installing windows, hardware, accessories, and other components. For installation procedures and requirements not addressed in manufacturer's written instructions, comply with installation requirements in ASTM E 2112.

B. Install windows level, plumb, square, true to line, without distortion, anchored securely in place to structural support, and in proper relation to wall flashing and other adjacent construction to produce weathertight construction.

3.3 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.

1. Testing and inspecting agency will interpret tests and state in each report whether tested work complies with or deviates from requirements.

B. Testing Services: Testing and inspecting of installed windows shall take place as follows:

1. Testing Methodology: Testing of windows for air infiltration and water resistance shall be performed according to AAMA 502.
2. Air-Infiltration Testing:

    a. Test Pressure: That required to determine compliance with AAMA/WDMA/CSA 101/I.S.2/A440 performance class indicated.
    b. Allowable Air-Leakage Rate: 1.5 times the applicable AAMA/WDMA/CSA 101/I.S.2/A440 rate for product type and performance class rounded down to one decimal place.

3. Water-Resistance Testing:

   a. Test Pressure: Two-thirds times test pressure required to determine compliance with AAMA/WDMA/CSA 101/I.S.2/A440 performance grade indicated.
   b. Allowable Water Infiltration: No water penetration.

4. Testing Extent: Three windows of each type as selected by Architect and a qualified independent testing and inspecting agency. Windows shall be tested after perimeter sealants have cured.
5. Test Reports: Prepared according to AAMA 502.

C. Windows will be considered defective if they do not pass tests and inspections.

D. Prepare test and inspection reports.

3.4 ADJUSTING, CLEANING, AND PROTECTION

A. Adjust operating sashes and hardware for a tight fit at contact points and weather stripping for smooth operation and weathertight closure.

B. Clean exposed surfaces immediately after installing windows. Remove excess sealants, glazing materials, dirt, and other substances.

1. Keep protective films and coverings in place until final cleaning.

C. Remove and replace sashes if glass has been broken, chipped, cracked, abraded, or damaged during construction period.

D. Protect window surfaces from contact with contaminating substances resulting from construction operations. If contaminating substances do contact window surfaces, remove contaminants immediately according to manufacturer's written instructions.

END OF SECTION 08 52 00

SECTION 09 29 00 - GYPSUM BOARD

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Interior gypsum board.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For the following products:

1. Trim Accessories: Full-size Sample in 12-inch- long length for each trim accessory indicated.

1.3 DELIVERY, STORAGE AND HANDLING

A. Store materials inside under cover and keep them dry and protected against weather, condensation, direct sunlight, construction traffic, and other potential causes of damage. Stack panels flat and supported on risers on a flat platform to prevent sagging.

1.4 FIELD CONDITIONS

A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written recommendations, whichever are more stringent.

B. Do not install paper-faced gypsum panels until installation areas are enclosed and conditioned.

C. Do not install panels that are wet, those that are moisture damaged, and those that are mold damaged.

1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency.

B. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.

C. Sustainability: All gypsum board assemblies installed in the building interior must meet the testing and product requirements of the California Department of Health Services Standard Practice for the Testing of Volatile Organic Emissions from the Various Sources Using Small-Scale Environmental Chambers, including 2004 addenda.

2.2 GYPSUM BOARD, GENERAL

A. Size: Provide maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

2.3 INTERIOR GYPSUM BOARD

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. American Gypsum.
2. CertainTeed Corporation.
3. Georgia-Pacific Gypsum LLC.
4. National Gypsum Company.
5. USG Corporation.

B. Gypsum Wallboard: ASTM C 1396/C 1396M.

1. Thickness: 5/8 inch.
2. Long Edges: Tapered.

C. Gypsum Board, Type X: ASTM C 1396/C 1396M.

1. Thickness: 5/8 inch.
2. Long Edges: Tapered.

D. Gypsum Ceiling Board: ASTM C 1396/C 1396M.

1. Thickness: 1/2 inch.
2. Long Edges: Tapered.

2.4 TRIM ACCESSORIES

A. Interior Trim: ASTM C 1047.

1. Material: Galvanized or aluminum-coated steel sheet or rolled zinc.
2. Shapes:

a. Cornerbead.
b. Bullnose bead.
c. L-Bead: L-shaped; exposed long flange receives joint compound.

d. U-Bead: J-shaped; exposed short flange does not receive joint compound.
e. Expansion (control) joint.
f. Curved-Edge Cornerbead: With notched or flexible flanges.
g. F-Reveal Molding: F-shaped; exposed flange receives joint compound.

1) Basis-of-Design Product: Subject to compliance to the requirements, provide “Model #DRMF-50-125” non-vented, F-shaped, reveal molding as manufactured by Fry Reglet Corporation or proposed substitution complying with Division 01 Section “Substitution Procedures.”

a) Size: 1/2-inch Depth by 1/8-inch Width.

B. Aluminum Trim: Extruded accessories of profiles and dimensions indicated.

1. Aluminum: Alloy and temper with not less than the strength and durability properties of ASTM B 221, Alloy 6063-T5.
2. Finish: Corrosion-resistant primer compatible with joint compound and finish materials specified.

2.5 JOINT TREATMENT MATERIALS

A. General: Comply with ASTM C 475/C 475M.

B. Joint Tape:

1. Interior Gypsum Board: Paper.

C. Joint Compound for Interior Gypsum Board: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.

1. Prefilling: At open joints and damaged surface areas, use setting-type taping compound.
2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use setting-type taping compound.
3. Fill Coat: For second coat, use setting-type, sandable topping compound.
4. Finish Coat: For third coat, use drying-type, all-purpose compound.
5. Skim Coat: For final coat of Level 5 finish, use drying-type, all-purpose compound.

2.6 AUXILIARY MATERIALS

A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.

B. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.

1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch thick.

C. Sound Attenuation Blankets: ASTM C 665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.

1. Fire-Resistance-Rated Assemblies: Comply with mineral-fiber requirements of assembly.

D. Acoustical Joint Sealant: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834. Product effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.

1. Products: Subject to compliance with requirements, provide one of the following products or proposed substitution complying with Division 01 Section "Substitution Procedures:"

a. Accumetric LLC; BOSS 824 Acoustical Sound Sealant.
b. Pecora Corporation; AIS-919.
c. USG Corporation; SHEETROCK Acoustical Sealant.

2. Acoustical joint sealant shall have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and substrates including welded hollow-metal frames and framing, with Installer present, for compliance with requirements and other conditions affecting performance.

B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 APPLYING AND FINISHING PANELS, GENERAL

A. Comply with ASTM C 840.

B. Install ceiling panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.

C. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.

D. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.

E. Form control and expansion joints with space between edges of adjoining gypsum panels.

F. Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.

1. Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. in area.
2. Fit gypsum panels around ducts, pipes, and conduits.
3. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow 1/4- to 3/8-inch- wide joints to install sealant.

G. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments, except floors. Provide 1/4- to 1/2-inch- wide spaces at these locations and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.

H. Attachment to Steel Framing: Attach panels so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.

I. STC-Rated Assemblies: Seal construction at perimeters, behind control joints, and at openings and penetrations with a continuous bead of acoustical sealant. Install acoustical sealant at both faces of partitions at perimeters and through penetrations. Comply with ASTM C 919 and with manufacturer's written recommendations for locating edge trim and closing off sound-flanking paths around or through assemblies, including sealing partitions above acoustical ceilings.

J. Install sound attenuation blankets before installing gypsum panels unless blankets are readily installed after panels have been installed on one side.

3.3 APPLYING INTERIOR GYPSUM BOARD

A. Install interior gypsum board in the following locations:

1. Wallboard Type: Vertical surfaces unless otherwise indicated.
2. Type X: Where required for fire-resistance-rated assembly.
3. Ceiling Type: Ceiling surfaces.
4. Moisture- and Mold-Resistant Type: As indicated on Drawings.

B. Single-Layer Application:

1. On ceilings, apply gypsum panels before wall/partition board application to greatest extent possible and at right angles to framing unless otherwise indicated.
2. On partitions/walls, apply gypsum panels vertically (parallel to framing) unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.

    a. Stagger abutting end joints not less than one framing member in alternate courses of panels.
    b. At stairwells and other high walls, install panels horizontally unless otherwise indicated or required by fire-resistance-rated assembly.

3. On Z-furring members, apply gypsum panels vertically (parallel to framing) with no end joints. Locate edge joints over furring members.

4. Fastening Methods: Apply gypsum panels to supports with steel drill screws.

C. Multilayer Application:

1. On ceilings, apply gypsum board indicated for base layers before applying base layers on walls/partitions; apply face layers in same sequence. Apply base layers at right angles to framing members and offset face-layer joints one framing member, 16 inches minimum, from parallel base-layer joints, unless otherwise indicated or required by fire-resistance-rated assembly.
2. On partitions/walls, apply gypsum board indicated for base layers and face layers vertically (parallel to framing) with joints of base layers located over stud or furring member and face-layer joints offset at least one stud or furring member with base-layer joints, unless otherwise indicated or required by fire-resistance-rated assembly. Stagger joints on opposite sides of partitions.
3. On Z-furring members, apply base layer vertically (parallel to framing) and face layer either vertically (parallel to framing) or horizontally (perpendicular to framing) with vertical joints offset at least one furring member. Locate edge joints of base layer over furring members.
4. Fastening Methods: Fasten base layers and face layers separately to supports with screws.

3.4 INSTALLING TRIM ACCESSORIES

A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.

B. Control Joints: Install control joints at locations indicated on Drawings.

C. Interior Trim: Install in the following locations:

1. Cornerbead: Use at outside corners.
2. Bullnose Bead: Use where indicated.
3. L-Bead: Use where indicated.
4. U-Bead: Use at exposed panel edges.
5. Curved-Edge Cornerbead: Use at curved openings.
6. F-Reveal Molding: Use where indicated.

D. Aluminum Trim: Install in locations indicated on Drawings.

3.5 FINISHING GYPSUM BOARD

A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.

B. Prefill open joints and damaged surface areas.

C. Apply joint tape over gypsum board joints, except for trim products specifically indicated as not intended to receive tape.

D. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C 840 and GA-214:

1. Level 1: Ceiling plenum areas, concealed areas, and where indicated.
2. Level 2: Panels that are substrate for tile and where indicated on Drawings.
3. Level 4: At panel surfaces that will be exposed to view unless otherwise indicated.

    a. Primer and its application to surfaces are specified in Division 09 Section "Interior Painting."

3.6 PROTECTION

A. Protect adjacent surfaces from drywall compound and promptly remove from floors and other non-drywall surfaces. Repair surfaces stained, marred, or otherwise damaged during drywall application.

B. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.

C. Remove and replace panels that are wet, moisture damaged, and mold damaged.

1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 09 29 00

SECTION 09 30 13 - CERAMIC TILING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Porcelain tile.
2. Thresholds.
3. Tile backing panels.
4. Waterproof membranes.

1.2 DEFINITIONS

A. General: Definitions in the ANSI A108 series of tile installation standards and in ANSI A137.1 apply to Work of this Section unless otherwise specified.

B. Face Size: Actual tile size, excluding spacer lugs.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: Show locations of each type of tile and tile pattern. Show widths, details, and locations of expansion, contraction, control, and isolation joints in tile substrates and finished tile surfaces.

C. Samples for Initial Selection: For tile, grout, and accessories involving color selection.

D. Samples for Verification:

1. Full-size units of each type and composition of tile and for each color and finish required.
2. Assembled samples mounted on a rigid panel, with grouted joints, for each type and composition of tile and for each color and finish required. Make samples at least 12 inches square, but not fewer than four tiles. Use grout of type and in color or colors approved for completed Work.
3. Full-size units of each type of trim and accessory.
4. Stone thresholds in 6-inch lengths.
5. Metal edge strips in 6-inch lengths.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Master Grade Certificates: For each shipment, type, and composition of tile, signed by tile manufacturer and Installer.

C. Product Certificates: For each type of product.

D. Product Test Reports: For tile-setting and -grouting products and certified porcelain tile.

1.5 QUALITY ASSURANCE

A. Installer Qualifications:

1. Installer is a Five-Star member of the National Tile Contractors Association or a Trowel of Excellence member of the Tile Contractors' Association of America.
2. Installer's supervisor for Project holds the International Masonry Institute's Foreman Certification.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Comply with requirements in ANSI A137.1 for labeling tile packages.

B. Store tile and cementitious materials on elevated platforms, under cover, and in a dry location.

C. Store aggregates where grading and other required characteristics can be maintained and contamination can be avoided.

D. Store liquid materials in unopened containers and protected from freezing.

1.7 FIELD CONDITIONS

A. Environmental Limitations: Do not install tile until construction in spaces is complete and ambient temperature and humidity conditions are maintained at the levels indicated in referenced standards and manufacturer's written instructions.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations for Tile: Obtain tile of each type from single source or producer.

1. Obtain tile of each type and color or finish from same production run and of consistent quality in appearance and physical properties for each contiguous area.

B. Source Limitations for Setting and Grouting Materials: Obtain ingredients of a uniform quality for each mortar, adhesive, and grout component from single manufacturer and each aggregate from single source or producer.

1. Obtain setting and grouting materials, except for unmodified Portland cement and aggregate, from single manufacturer.
2. Obtain waterproof membrane, except for sheet products, from manufacturer of setting and grouting materials.

C. Source Limitations for Other Products: Obtain each of the following products specified in this Section from a single manufacturer:

1. Stone thresholds.
2. Waterproof membrane.
3. Cementitious backer units.

2.2 PRODUCTS, GENERAL

A. ANSI Ceramic Tile Standard: Provide tile that complies with ANSI A137.1 for types, compositions, and other characteristics indicated.

1. Provide tile complying with Standard grade requirements.

B. ANSI Standards for Tile Installation Materials: Provide materials complying with ANSI A108.02, ANSI standards referenced in other Part 2 articles, ANSI standards referenced by TCNA installation methods specified in tile installation schedules, and other requirements specified.

C. Factory Blending: For tile exhibiting color variations within ranges, blend tile in factory and package so tile units taken from one package show same range in colors as those taken from other packages and match approved Samples.

D. Mounting: For factory-mounted tile, provide back- or edge-mounted tile assemblies as standard with manufacturer unless otherwise indicated.

1. Where tile is indicated for installation in wet areas, do not use back- or edge-mounted tile assemblies unless tile manufacturer specifies in writing that this type of mounting is suitable for installation indicated and has a record of successful in-service performance.

2.3 TILE PRODUCTS

A. Porcelain Tile Type: Unglazed.

1. Product: As selected by Architect.
2. Certification: Tile certified by the Porcelain Tile Certification Agency.
3. Face Size: 11-13/16 by 11-13/16 inches.
4. Thickness: 3/8 inch.
5. Face: Plain with square or cushion edges.
6. Dynamic Coefficient of Friction: Not less than 0.42.
7. Tile Color, Glaze, and Pattern: As selected by Architect from manufacturer's full range.
8. Grout Color: As selected by Architect from manufacturer's full range.
9. Trim Units: Coordinated with sizes and coursing of adjoining flat tile where applicable and matching characteristics of adjoining flat tile. Provide shapes as follows, selected from manufacturer's standard shapes:

2.4 THRESHOLDS

A. General: Fabricate to sizes and profiles indicated or required to provide transition between adjacent floor finishes.

1. Bevel edges at 1:2 slope, with lower edge of bevel aligned with or up to 1/16 inch above adjacent floor surface. Finish bevel to match top surface of threshold. Limit height of threshold to 1/2 inch or less above adjacent floor surface.

B. Marble Thresholds: ASTM C503/C503M, with a minimum abrasion resistance of 10 12 according to ASTM C1353 or ASTM C241/C241M and with honed finish.

1. Description:

a. Uniform, fine- to medium-grained white stone with gray veining.

2.5 TILE BACKING PANELS

A. Cementitious Backer Units: ANSI A118.9 or ASTM C1325, Type A, in maximum lengths available to minimize end-to-end butt joints.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Custom Building Products.
b. Georgia-Pacific Gypsum LLC.
c. USG Corporation.

2. Thickness: 1/4 inch.

2.6 WATERPROOF MEMBRANES

A. General: Manufacturer's standard product that complies with ANSI A118.10 and is recommended by the manufacturer for the application indicated. Include reinforcement and accessories recommended by manufacturer.

B. Waterproof Membrane, Fluid-Applied: Liquid-latex rubber or elastomeric polymer.

1. Product: Subject to compliance with requirements, provide "Mapelastic AquaDefense" waterproofing as manufactured by MAPEI Corporation or comparable product offered by one of the following:

a. Bostik, Inc.
b. Custom Building Products.
c. Laticrete International, Inc.

2.7 SETTING MATERIALS

A. Modified Dry-Set Mortar (Thinset): ANSI A118.4.

1. Product: Subject to compliance with requirements, provide "Ultraflex 2" thinset mortar manufactured by MAPEI Corporation or comparable product offered by one of the following:

a. Bostik, Inc.
b. Custom Building Products.
c. Laticrete International, Inc.

2. Provide prepackaged, dry-mortar mix containing dry, redispersible, vinyl acetate or acrylic additive to which only water must be added at Project site.
3. For wall applications, provide mortar that complies with requirements for nonsagging mortar in addition to the other requirements in ANSI A118.4.

2.8 GROUT MATERIALS

A. High-Performance Tile Grout: ANSI A118.7.

1. Product: Subject to compliance with requirements, provide "Ultracolor Plus FA" grout mortar as manufactured by MAPEI Corporation or comparable product offered by one of the following:

a. Bostik, Inc.
b. Custom Building Products.
c. Laticrete International, Inc.

2.9 MISCELLANEOUS MATERIALS

A. Metal Edge Strips: Angle or L-shaped, height to match tile and setting-bed thickness, metallic or combination of metal and PVC or neoprene base, designed specifically for flooring applications; stainless steel, ASTM A276/A276M or ASTM A666, 300 Series exposed-edge material.

1. Manufacturers: Subject to compliance with requirements, provide products by the following:

a. Schluter Systems L.P.

B. Tile Cleaner: A neutral cleaner capable of removing soil and residue without harming tile and grout surfaces, specifically approved for materials and installations indicated by tile and grout manufacturers.

2.10 MIXING MORTARS AND GROUT

A. Mix mortars and grouts to comply with referenced standards and mortar and grout manufacturers' written instructions.

B. Add materials, water, and additives in accurate proportions.

C. Obtain and use type of mixing equipment, mixer speeds, mixing containers, mixing time, and other procedures to produce mortars and grouts of uniform quality with optimum performance characteristics for installations indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions where tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

1. Verify that substrates for setting tile are firm; dry; clean; free of coatings that are incompatible with tile-setting materials, including curing compounds and other substances that contain soap, wax, oil, or silicone; and comply with flatness tolerances required by ANSI A108.01 for installations indicated.
2. Verify that concrete substrates for tile floors installed with thinset mortar comply with surface finish requirements in ANSI A108.01 for installations indicated.

a. Verify that surfaces that received a steel trowel finish have been mechanically scarified.
b. Verify that protrusions, bumps, and ridges have been removed by sanding or grinding.

3. Verify that installation of grounds, anchors, recessed frames, electrical and mechanical units of work, and similar items located in or behind tile has been completed.
4. Verify that joints and cracks in tile substrates are coordinated with tile joint locations; if not coordinated, adjust joint locations in consultation with Architect.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Fill cracks, holes, and depressions in concrete substrates for tile floors installed with thinset mortar with trowelable leveling and patching compound specifically recommended by tile-setting material manufacturer.

B. Where indicated, prepare substrates to receive waterproof membrane by applying a reinforced mortar bed that complies with ANSI A108.1A and is sloped 1/4 inch per foot toward drains.

C. Blending: For tile exhibiting color variations, verify that tile has been factory blended and packaged so tile units taken from one package show same range of colors as those taken from other packages and match approved Samples. If not factory blended, either return to manufacturer or blend tiles at Project site before installing.

3.3 INSTALLATION OF CERAMIC TILE

A. Comply with TCNA's "Handbook for Ceramic, Glass, and Stone Tile Installation" for TCNA installation methods specified in tile installation schedules. Comply with parts of the ANSI A108 series "Specifications for Installation of Ceramic Tile" that are referenced in TCNA installation methods, specified in tile installation schedules, and apply to types of setting and grouting materials used.

1. For the following installations, follow procedures in the ANSI A108 series of tile installation standards for providing 95 percent mortar coverage:

    a. Tile floors in wet areas.
    b. Tile floors consisting of tiles 8 by 8 inches or larger.
    c. Tile floors consisting of rib-backed tiles.

B. Extend tile work into recesses and under or behind equipment and fixtures to form complete covering without interruptions unless otherwise indicated. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.

C. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap tile.

D. Provide manufacturer's standard trim shapes where necessary to eliminate exposed tile edges.

E. Where accent tile differs in thickness from field tile, vary setting-bed thickness so that tiles are flush.

F. Jointing Pattern: Lay tile in grid pattern unless otherwise indicated. Lay out tile work and center tile fields in both directions in each space or on each wall area. Lay out tile work to minimize the use of pieces that are less than half of a tile. Provide uniform joint widths unless otherwise indicated.

1. Where adjoining tiles on floor, base, walls, or trim are specified or indicated to be same size, align joints.
2. Where tiles are specified or indicated to be whole integer multiples of adjoining tiles on floor, base, walls, or trim, align joints unless otherwise indicated.

G. Joint Widths: Unless otherwise indicated, install tile with the following joint widths:

1. Porcelain Tile: 3/16 inch.

H. Lay out tile wainscots to dimensions indicated or to next full tile beyond dimensions indicated.

I. Expansion Joints: Provide expansion joints and other sealant-filled joints, including control, contraction, and isolation joints, where indicated. Form joints during installation of setting materials, mortar beds, and tile. Do not saw-cut joints after installing tiles.

1. Where joints occur in concrete substrates, locate joints in tile surfaces directly above them.

J. Stone Thresholds: Install stone thresholds in same type of setting bed as adjacent floor unless otherwise indicated.

1. At locations where mortar bed (thickset) would otherwise be exposed above adjacent floor finishes, set thresholds in modified dry-set mortar (thinset).
2. Do not extend waterproof membrane under thresholds set in modified dry-set mortar. Fill joints between such thresholds and adjoining tile set on waterproof membrane with elastomeric sealant.

K. Metal Edge Strips: Install where exposed edge of tile flooring meets carpet, wood, or other flooring that finishes flush with or below top of tile and no threshold is indicated.

3.4 INSTALLATION OF TILE BACKING PANELS

A. Install panels and treat joints according to ANSI A108.11 and manufacturer's written instructions for type of application indicated.

3.5 INSTALLATION OF WATERPROOF MEMBRANES

A. Install waterproof membrane to comply with ANSI A108.13 and manufacturer's written instructions to produce waterproof membrane of uniform thickness that is bonded securely to substrate.

B. Allow waterproof membrane to cure and verify by testing that it is watertight before installing tile or setting materials over it.

3.6 ADJUSTING AND CLEANING

A. Remove and replace tile that is damaged or that does not match adjoining tile. Provide new matching units, installed as specified and in a manner to eliminate evidence of replacement.

B. Cleaning: On completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.

1. Remove grout residue from tile as soon as possible.
2. Clean grout smears and haze from tile according to tile and grout manufacturer's written instructions but no sooner than 10 days after installation. Use only cleaners recommended by tile and grout manufacturers and only after determining that cleaners are safe to use by testing on samples of tile and other surfaces to be cleaned. Protect metal surfaces and plumbing fixtures from effects of cleaning. Flush surfaces with clean water before and after cleaning.

3.7 PROTECTION

A. Protect installed tile work with kraft paper or other heavy covering during construction period to prevent staining, damage, and wear. If recommended by tile manufacturer, apply coat of neutral protective cleaner to completed tile walls and floors.

B. Prohibit foot and wheel traffic from tiled floors for at least seven days after grouting is completed.

C. Before final inspection, remove protective coverings and rinse neutral protective cleaner from tile surfaces.

3.8 INTERIOR CERAMIC TILE INSTALLATION SCHEDULE

A. Interior Floor Installations, Wood Subfloor:

1. TCNA F144: Thinset mortar on waterproof membrane over cementitious backer units or fiber-cement backer board.

a. Ceramic Tile Type: As directed by Architect.
b. Thinset Mortar: Modified dry-set mortar.
c. Grout: High-performance unsanded grout.

END OF SECTION 09 30 13

SECTION 09 65 13 - RESILIENT BASE AND ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Resilient base.
2. Resilient stair accessories.
3. Resilient molding accessories.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For each exposed product and for each color and texture specified, not less than 12 inches long.

1.3 DELIVERY, STORAGE, AND HANDLING

A. Store resilient products and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 50 deg F or more than 90 deg F.

1.4 FIELD CONDITIONS

A. Maintain ambient temperatures within range recommended by manufacturer, but not less than 70 deg F or more than 95 deg F, in spaces to receive resilient products during the following time periods:

1. 48 hours before installation.
2. During installation.
3. 48 hours after installation.

B. After installation and until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer, but not less than 55 deg F or more than 95 deg F.

C. Install resilient products after other finishing operations, including painting, have been completed.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. FloorScore Compliance: Resilient base shall comply with requirements of FloorScore certification.

2.2 RUBBER WALL BASE

A. Rubber Wall Base: ASTM F 1861, Type TS (rubber, vulcanized thermoset), Group I (solid, homogeneous).

1. Product: Subject to compliance with requirements, provide “Baseworks Thermoset Rubber Wall Base” as manufactured by Tarkett.

a. Color: Match Architect’s sample.

2. Style and Location:

a. Cove base (with top-set toe) at locations where indicated on Drawings.
b. Straight base at locations where indicated on Drawings.

3. Minimum Thickness: 0.125 inch.
4. Height: 4 inches.
5. Lengths: Coils in manufacturer's standard length.
6. Outside Corners: Job formed.
7. Inside Corners: Job formed.
8. Surface: Smooth.

2.3 VINYL STAIR ACCESSORIES

A. Fire-Test-Response Characteristics: As determined by testing identical products according to ASTM E 648 or NFPA 253 by a qualified testing agency.

1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm.

B. Product: Subject to compliance with requirements, provide product indicated on drawings as manufactured by Tarkett.

1. Colors and Patterns: Match Architect's sample.

C. Stair Treads: ASTM F 2169, Type TV (vinyl, thermoplastic).

1. Class: 2 (pattern; embossed, grooved, or ribbed).
2. Nosing Style: Square, adjustable to cover angles between 60 and 90 degrees.
3. Nosing Height: 2 inches.
4. Thickness: 1/4 inch and tapered to back edge.
5. Size: Lengths and depths to fit each stair tread in one piece.

D. Separate Risers: Smooth, flat; in height that fully covers substrate; produced by same manufacturer as treads and recommended by manufacturer for installation with treads.

1. Style: Coved toe, 7 inches high by length matching treads.
2. Thickness: Manufacturer's standard.

E. Locations: Provide vinyl stair accessories in areas indicated.

2.4 MOLDING ACCESSORY

A. Transition Moldings: For 1/4-inch transitions to 1/8-inch.

1. Product: Subject to compliance to the requirements, provide “CTA-20-H” transition as manufactured by Tarkett.

a. Color: Match Architect’s sample.

2. Style and Location:

a. Transition Molding: At CPT to VCT transitions.

B. Reducer Moldings (TS-8): For 1/8-inch reducer.

1. Product: Subject to compliance to the requirements, provide “SSR-XX-B” reducer as manufactured by Tarkett.

a. Color: Match Architect’s sample.

2. Style and Location:

a. Reduce Molding: At CPT over Tile transitions.

2.5 INSTALLATION MATERIALS

A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by resilient-product manufacturer for applications indicated.

B. Adhesives: Water-resistant type recommended by resilient-product manufacturer for resilient products and substrate conditions indicated.

1. Adhesives shall have a VOC content of 50 g/L or less.

C. Stair-Tread Nose Filler: Two-part epoxy compound recommended by resilient stair-tread manufacturer to fill nosing substrates that do not conform to tread contours.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

1. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of resilient products.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

1. Installation of resilient products indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.

B. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.

C. Do not install resilient products until they are the same temperature as the space where they are to be installed.

1. At least 48 hours in advance of installation, move resilient products and installation materials into spaces where they will be installed.

D. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient products.

3.3 RESILIENT BASE INSTALLATION

A. Comply with manufacturer's written instructions for installing resilient base.

B. Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.

C. Install resilient base in lengths as long as practical without gaps at seams and with tops of adjacent pieces aligned.

D. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.

E. Do not stretch resilient base during installation.

F. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient base with manufacturer's recommended adhesive filler material.

G. Job-Formed Corners:

1. Outside Corners: Use straight pieces of maximum lengths possible and form with returns not less than 3 inches in length.

a. Form without producing discoloration (whitening) at bends.

2. Inside Corners: Use straight pieces of maximum lengths possible and form with returns not less than 3 inches in length.

a. Miter corners to minimize open joints.

3.4 RESILIENT ACCESSORY INSTALLATION

A. Comply with manufacturer's written instructions for installing resilient accessories.

B. Resilient Stair Accessories:

1. Use stair-tread-nose filler to fill nosing substrates that do not conform to tread contours.
2. Tightly adhere to substrates throughout length of each piece.
3. For treads installed as separate, equal-length units, install to produce a flush joint between units.

C. Resilient Molding Accessories: Butt to adjacent materials and tightly adhere to substrates throughout length of each piece. Install reducer strips at edges of floor covering that would otherwise be exposed.

3.5 CLEANING AND PROTECTION

A. Comply with manufacturer's written instructions for cleaning and protecting resilient products.

B. Perform the following operations immediately after completing resilient-product installation:

1. Remove adhesive and other blemishes from exposed surfaces.

C. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.

D. Cover resilient products subject to wear and foot traffic until Substantial Completion.

END OF SECTION 09 65 13

SECTION 09 68 16 - SHEET CARPETING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes broadloom carpet.

1.2 STANDARDS

A. Except as modified by governing codes and by the Contract Documents, comply with the applicable provisions and recommendations of the following:

1. The Carpet and Rug Institute "The Carpet Specifiers' Handbook."
2. The Carpet and Rug Institute "CRI Carpet Installation Standard 2011."
3. The Carpet and Rug Institute "Green Label Plus" Standards.

1.3 PRE-INSTALLATION MEETINGS

A. Pre-Installation Conference: Conduct conference at Project site.

1. Review methods and procedures related to carpet installation including, but not limited to, the following:

a. Review delivery, storage, and handling procedures.
b. Review ambient conditions and ventilation procedures.
c. Review subfloor preparation procedures.

1.4 ACTION SUBMITTALS

A. Product Data: Submit product data, specifications, installation instructions for materials specified herein and other data as may be required to show compliance with the Contract Documents. Include installation recommendations for each type of substrate required.

B. Shop Drawings: Submit shop drawings showing the following:

1. Columns, doorways, enclosing walls or partitions, built-in cabinets, and locations where cutouts are required in carpet.
2. Dye lots, pattern types, repeats, locations, pile direction, and starting points per floor.
3. Seam locations, types, and methods.
4. Type of subfloor.
5. Type of installation.
6. Type, color, and location of insets and borders.
7. Type, color, and location of edge, transition, and other accessory strips.
8. Show details of cutouts.

9. Include on shop drawings dimensions which verify field conditions.
10. Transition, and other accessory strips.
11. Transition details to other flooring materials.
12. Type of cushion.

C. Samples: Submit samples showing full range of color, texture, and pattern variations expected. Prepare samples from same material to be used for the Work. Label each Sample with manufacturer's name, material description, color, pattern, and designation indicated on Drawings and in Schedules. Submit the following:

1. Carpet: 24 inch square Samples of each carpet required.
2. Exposed Edge Stripping and Accessory: 12 inch long Samples.
3. Carpet Cushion: 6 inch square Sample.
4. Mitered Carpet Border Seam: 12 inch square Sample. Show carpet pattern alignment.

D. Product Schedule: For carpet and carpet cushion. Use same designations indicated on Drawings.

E. Sustainable Product Certification: Provide ANSI/NSF 140 certification for carpet products.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Field Test Reports: Provide signed field test reports for tests indicated below. Indicate results and test locations. Include manufacturer's recommendations.

1. Anhydrous calcium chloride test results.
2. Relative humidity probe test results.
3. Alkalinity test results.

C. Warranties: Submit special warranties specified in this Section.

1.6 CLOSEOUT SUBMITTALS

A. Maintenance Data: Submit copies of instructions for care, cleaning, maintenance and repair of carpeting.

1. Each carpet manufacturer shall meet with the authorized Building Services personnel in the presence of the Owner, to review the characteristics of his product and to recommend appropriate maintenance procedures, prior to occupancy of the finished spaces.

1.7 QUALITY ASSURANCE

A. Installer Qualifications: Engage a carpet installer, who has completed a minimum of three projects over the last 10 years which were similar in material, design and extent to that indicated for the Project - as determined by the Architect - and which have resulted in construction with a record of successful in service performance.

1. In the case where the Installer is actually a Dealer, it is understood that the terms Installer, Dealer, Carpeting Contractor and Contractor shall be one and the same for purposes of this Contract. He shall assume responsibility for all of the work, including acquisition of the materials from the manufacturers specified.

B. Mill Inspection: The carpeting may be inspected to determine compliance with the Contract Documents with respect to manufacture, materials, pattern and colors. Inspection may be made at the mill by a representative of the Architect and/or Owner at any time during the process of manufacture.

C. Fire-Test-Response Ratings: Where indicated, provide carpet and carpet cushion identical to those of assemblies tested for fire response per NFPA 253 by a qualified testing agency.

D. Sample Installations: Before installing carpet, install sample installations for each type of carpet required to demonstrate aesthetic effects and qualities of materials and execution. Install sample installations to comply with the following, using materials indicated for the completed Work:

1. Size and Location: Provide 250 square foot sample installations in locations as directed by Architect. Subdivide the sample installation with one continuous seam of the type specified.
2. Demonstrate the proposed range of aesthetic effects and workmanship.
3. Obtain Architect's approval of sample installations before starting work.
4. Maintain sample installations during construction in an undisturbed condition as a standard for judging the completed Work.
5. Approved sample installations may become part of the completed Work if undamaged at time of Substantial Completion.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Comply with CRI 2011.

1.9 FIELD CONDITIONS

A. Environmental Limitations: Do not install carpet or carpet cushion until wet work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

B. Do not install carpet over concrete slabs until slabs have cured, are sufficiently dry to bond with adhesive, and concrete slabs have pH range recommended by carpet manufacturer.

1.10 WARRANTY

A. Special Carpet Manufacturer's Warranty: Written warranty, signed by carpet manufacturer agreeing to replace carpet that does not comply with requirements or that fails within specified warranty period. Warranty does not include deterioration or failure of carpet due to unusual traffic, failure of substrate, vandalism, or abuse. Failures include, but are not limited to, more than 10 percent loss of face fiber, wear, static buildup in excess of 3.0 kV when tested under the Standard Shuffle Test at 70 deg F and 20 percent RH, edge raveling, tuft bind loss, shrinkage, zippering (wet or dry), excess static discharge, and delamination. Warrantees shall be full term, not pro-rated for the specified warranty period.

1. Warranty Period: 10 years from date of Substantial Completion.

B. Special Carpet Cushion Warranty: Written warranty, signed by carpet cushion manufacturer agreeing to replace carpet cushion that does not comply with requirements or that fails within 10 years from date of Substantial Completion. Warranty does not include deterioration or failure of carpet cushion from unusual traffic, failure of substrate, vandalism, or abuse. Failure includes, but is not limited to, permanent indentation or compression.

C. Installation Warranty: Submit copies of written warranty signed by the carpet installer and Contractor, warranting the carpet installation, for a period of 2 years, that the carpeting will not tear, crack, separate, deteriorate or pull loose from substrate, or experience seam failure, ripples, scallops, pilling or puckering.

PART 2 - PRODUCTS

2.1 CARPET

A. Carpet and cushion shall comply with testing and product requirements of CRI's "Green Label Plus" testing program.

B. Carpet Types: Provide manufacturer's commercial grade broadloom carpet for 100% glue-down installation.

1. Products: Refer to drawings for product and finish selections.

2.2 CARPET CUSHION

A. Product as recommended in writing by the carpet manufacturer for the application indicated and which will not void the specified warranties.

2.3 INSTALLATION ACCESSORIES

A. Trowelable Leveling and Patching Compounds: Portland cement based formulation provided by or recommended by the following. Do not use gypsum based compounds.

1. Carpet manufacturer.
2. Carpet cushion manufacturer.

B. Carpet Adhesives: Water-resistant, mildew resistant, and nonstaining, high solids, low VOC emitting formulations that are specifically recommended by the carpet manufacturer, as verified through compatibility and adhesion testing for the intended substrate and application, and that comply with flammability requirements for installed carpet:

1. Provide adhesives with VOC content not more than 50 g/L when calculated according to 40 CFR 59, Subpart D (EPA method 24).
2. Adhesives shall have a VOC content of 50 g/L or less.

C. Plastic Coated Fabric Tape (Stretch-In and Double Stick Broadloom Cushion Installations): Woven fabric impregnated with plastic and coated with adhesive having high-tack adhesion forming a secure bond for application to cushion top seams to resist peaking. Provide water-resistant plastic-coated tape which will unwind without adhesive transfer.

D. Seaming Tape: Hot melt adhesive tape, 6 inches wide, recommended by the carpet mill as suitable for backing specified.

E. Seaming Cement: Water-resistant and flame-resistant carpet adhesive for sealing raw edges, seaming, reinforcing seams and patching. Provide fast drying, easy spreading carpet seaming adhesive having excellent aging characteristics recommended by the carpet manufacturer.

F. Metal Edge Strips: Extruded aluminum with mill finish of width shown, of height required to protect exposed edge of carpet, and of maximum lengths to minimize running joints.

G. Floor Sealer: Type as recommended and manufactured by the carpet manufacturer for the applications indicated.

1. Provide floor sealer with VOC content not more than 200 g/L when calculated according to 40 CFR 59, Subpart D (EPA method 24).

PART 3 - EXECUTION

3.1 PRE-INSTALLATION MEETING

A. Prior to the installation, and at the Contractor's direction, meet at the Project site to review the material selections, substrate preparations, installation procedures, coordination with other trades, special details and conditions, standard of workmanship, and other pertinent topics related to the Work. The meeting shall include the Owner, Architect, the Contractor, the installer, material manufacturer's representatives, and representatives of other trades or subcontractors affected by the installation.

3.2 PREPARATION

A. General: Comply with CRI 2011, Section 7.3 "Site Conditions; Floor Preparation," and with carpet manufacturer's written installation instructions for preparing substrates.

B. Coordinate the installation of carpet so as not to delay the occupancy of the site or interfere with the completion of construction.

C. Examine the substrates, adjoining construction and the conditions under which the Work is to be installed. Verify recommended limits for moisture content and alkalinity of concrete substrates with carpet manufacturer.

1. Moisture Content: Verify moisture content using a standard calcium chloride crystal test or a 1 square yard clear plastic test. Perform testing at a frequency of not less than once every 1,000 square feet.
2. Alkalinity Test: Verify alkalinity of concrete substrates by drilling a 3/8 inch diameter hole approximately 1/4 inch deep, remove all residue; fill with distilled water, allow water to stand 3 minutes and test with a calibrated electronic meter or pH paper. Perform testing at a frequency of not less than once every 1,000 square feet
3. Alternative test procedures for moisture content and alkalinity may be acceptable subject to the carpet manufacturer's review and written acceptance.

D. Concrete Subfloors: Verify that concrete slabs comply with the following:

1. Provide one of the following:

a. Remove coatings, including curing compounds, existing floor covering adhesive residues, and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, without using solvents. Use mechanical methods recommended in writing by the carpet manufacturer.
b. In lieu of mechanical substrate preparation methods the Contractor may utilize floor sealer materials and methods of the types and methods as recommended, in writing, by the carpet manufacturer. Apply sealer in number of coats, and at the spread rate, as required by the carpet manufacturer.

2. Slab substrates are dry and free of curing compounds, sealers, hardeners, and other materials that may interfere with adhesive bond. Determine adhesion and dryness characteristics by performing bond and moisture tests recommended by the carpet manufacturer.
3. Use leveling and patching compounds recommended by flooring manufacturer for filling cracks, holes and depressions in the substrate. Surface shall be smooth, level and at proper elevation. Remove ridges, roughness and protrusions from concrete surfaces by grinding.

E. Broom and vacuum clean substrates to be covered immediately before installing carpet.

F. Carpet installation shall not commence until painting and finishing work are complete and ceiling and overhead work is tested, approved, and completed.

G. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 INSTALLATION

A. 100 Percent Direct Glue Down of Broadloom Carpet: Comply with the manufacturer's instructions, CRI 2011, Section 13 "Direct Glue-Down Installation," and as required to match the accepted sample installations.

1. Carpet Layout, Cutting and Edge Trim Seaming: Prior to applying adhesives, place seams at locations indicated on accepted shop drawings. All carpet rolls shall be installed in the exact roll number sequence as listed on the carpet rolls. Maintain direction of pattern, texture and lay of pile. Side to end seaming shall not be allowed. All edges of all rolls of carpet shall be finish trimmed prior to laying to assure a perfect seam condition and carpet match. All trimmed edges shall then be treated with latex seaming adhesive to assure that loose and cut yarns are not left to ravel or pull out.

    a. Cut and fit carpet to butt tightly to vertical surfaces, permanent fixtures, and built-in furniture including cabinets, pipes, outlets, edgings, thresholds, and nosings. Bind or seal cut edges as recommended by carpet manufacturer.
    b. Extend carpet into closets and offsets, and under movable equipment of the rooms and spaces shown or scheduled to receive carpet, including recessed covers within those spaces.
    c. Provide cutouts as required for removable access covers in substrates except do not cutout for floor closer cover plates. Bind edges neatly and secure to substrate. Cut only 3 sides wherever it is feasible to provide carpet flap in lieu of fully removable cutout.
    d. At doorways, center seams under door in closed position; do not place seams perpendicular to door frame in direction of traffic through doorway.
    e. Cut openings in carpet for electrical outlets, piping and other penetrations. Maintain close tolerances so that edges of carpet will be covered by plates and escutcheons.
    f. Seams shall be located away from areas subject to pivoting traffic.

2. Apply adhesive in accordance with adhesive manufacturer's directions.
3. Adhere carpet with a full spread of adhesive. Ensure uniform bond over the entire area.

    a. Butt carpet tightly together to form seams without gaps or entrapped pile yarns and aligned with adjoining rolls of carpet. Seams shall be pressed by hand and/or suitable tool to produce the best possible even top pile width-to-width. Adjacent widths of carpet must be installed to finish at exactly the same elevation.
    b. Roll carpet uniformly, removing air pockets and bubbles.
    c. If the pile of the carpet has been compressed while laying in storage, so that there appears to be a difference in color in adjacent widths of material, the Contractor shall neutralize the pile with a steam machine and obtain a uniform pile direction throughout by brushing the carpet while it is still damp, at no additional cost to the Owner.

4. Edge Strip Installation: Install edge strip at every location where edge of carpet is exposed to traffic, unless otherwise indicated. Unless otherwise directed by Architect install in single lengths and secure in accordance with manufacturer's directions.
5. Traffic over adhesive installations shall be restricted until adhesive has properly cured in accordance with the adhesive manufacturer's recommendations.

3.4 CLEANING AND PROTECTION

A. Cleaning: As the carpeting is installed, remove and dispose of all trimmings, excess pieces of carpeting and laying materials from each area as it is completed. Vacuum carpeting with a commercial vacuum, having a cylindrical brush or beater bar and high suction. Remove adhesives, stains, and soil spots in accordance with the carpet manufacturer's recommendations.

B. Protection: Protect carpeting against damage of every kind as damaged carpeting shall be rejected. Use non-staining cover material for protection. Tape joints of protective covering.

1. Plastic and polyethylene sheet protective coverings shall not be permitted over glue down installations.
2. Remove and replace rejected carpeting with new carpeting. At the completion of the work and when directed by the Architect, remove covering, vacuum clean carpeting and remove soiling and stains (if any) to the satisfaction of the Architect.

END OF SECTION 09 68 16

SECTION 09 91 23 - INTERIOR PAINTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Surface preparation and field painting of exposed interior items and surfaces.
2. Surface preparation, priming, and finish coats specified in this Section are in addition to shop priming and surface treatment specified in other Sections.

B. Paint exposed surfaces, except where these Specifications indicate that the surface or material is not to be painted. If an item or a surface is not specifically mentioned, paint the item or surface the same as similar adjacent materials or surfaces. If a color of finish is not indicated, Architect will select from standard colors and finishes available.

1.2 DEFINITIONS

A. Gloss ranges used in this Section include the following:

1. Flat, or Matte: Not more than 5 units at 60 degrees and 10 units at 85 degrees.
2. Eggshell: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees.
3. Semigloss: 35 to 70 units at 60 degrees.

B. Interior Surfaces: Interior surfaces to be painted are defined as those surfaces which are indicated in areas exposed to conditions which are controlled by building heating and cooling systems.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product. Include preparation requirements and application instructions.

B. Samples for Verification: For each type of paint system and in each color and gloss of topcoat.

1. Submit Samples on rigid backing, 8 inches square.
2. Step coats on Samples to show each coat required for system.
3. Label each coat of each Sample.
4. Label each Sample for location and application area.

C. Product List: For each product indicated, include the following:

1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.
2. VOC content.

1.4 QUALITY ASSURANCE

A. Applicator Qualifications: Engage an experienced applicator who has completed painting system applications similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance.

B. Mockups: Apply mockups of each paint system indicated and each color and finish selected to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Architect will select one surface to represent surfaces and conditions for application of each paint system specified in Part 3.

a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft.
b. Other Items: Architect will designate items or areas required.

2. Final approval of color selections will be based on mockups.

a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.

3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to Project site in manufacturer's original, unopened packages and containers bearing manufacturer's name and label and other identifying information.

B. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.

1. Maintain containers in clean condition, free of foreign materials and residue.
2. Remove rags and waste from storage areas daily.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Subject to compliance with requirements, provide products specified in this section by Benjamin Moore & Co. (Benjamin Moore). Substitutions will not be accepted.

1. Manufacturers' shortened names shown within parentheses shall be used in identifying available products in Part 2 of this section.

2.2 PAINT MATERIALS, GENERAL

A. Material Compatibility: Provide primers, and finish-coat materials that are compatible with one another and with the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.

1. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

B. Material Quality: Provide manufacturer's best-quality paint material of the various coating types specified that are factory formulated and recommended by manufacturer for application indicated. Paint-material containers not displaying manufacturer's product identification will not be acceptable.

1. Proprietary Names: Use of manufacturer's proprietary product names to designate colors or materials is not intended to imply that products named are required to be used to the exclusion of equivalent products of other manufacturers. Furnish manufacturer's material data and certificates of performance for proposed substitutions.

C. VOC Content: Products shall comply with VOC limits of authorities having jurisdiction.

D. Colors: Provide custom colors of the finished paint systems to match the Architect’s samples.

2.3 INTERIOR PRIMERS

A. Interior Gypsum Board Primer: Factory-formulated latex-based primer for interior application.

B. Interior Ferrous-Metal Primer: Factory-formulated quick-drying rust-inhibitive alkyd-based metal primer.

C. Interior Zinc-Coated Metal Primer: Factory-formulated galvanized metal primer.

2.4 INTERIOR FINISH COATS

A. Interior Flat Latex-Emulsion Size: Factory-formulated flat latex-based interior paint.

1. Benjamin Moore; Ultra-Spec 500 Interior Flat Finish No. N536: Applied at a dry film thickness of not less than 1.8 mils.

B. Interior Eggshell Acrylic Enamel: Factory-formulated eggshell acrylic-latex interior enamel.

1. Benjamin Moore; Ultra-Spec 500 Interior Eggshell Finish No. N538: Applied at a dry film thickness of not less than 1.8 mils.

C. Interior Semigloss Acrylic Enamel: Factory-formulated semigloss acrylic-latex enamel for interior application.

1. Benjamin Moore; Ultra-Spec 500 Interior Semi-Gloss Finish No. N539: Applied at a dry film thickness of not less than 1.8 mils.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

1. Comply with the Painting and Decorating Contractors of America for procedures specified in PDCA P4 - Responsibility for Inspection and Acceptance of Surfaces Prior to Painting and Decorating."

B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:

1. Concrete: 12 percent.
2. Masonry (Clay and CMU): 12 percent.
3. Wood: 15 percent.
4. Gypsum Board: 12 percent.

C. Gypsum Board Substrates: Verify that finishing compound is sanded smooth.

D. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

E. Proceed with coating application only after unsatisfactory conditions have been corrected.

1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Remove hardware and hardware accessories, covers, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.

1. After completing painting operations in each space or area, reinstall items removed using workers skilled in the trades involved.

B. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.

1. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.
2. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.

C. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.

D. Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces or mortar joints exceed that permitted in manufacturer's written instructions.

E. Ferrous Metals Substrates: Clean ungalvanized ferrous-metal surfaces that have not been shop coated; remove oil, grease, dirt, and other foreign substances in accordance with SSPC SP 1 “Solvent Cleaning”. After solvent cleaning prepare any bare metal surfaces by removing all stratified rust (rust scale), all loose mill scale, all loose or non-adherent rust and detrimental welding deposits by methods specified in SSPC SP-3 "Power Tool Cleaning".

1. Touch up bare areas, heads of bolts, welded surfaces which are unpainted, and shop-applied prime coats that have been damaged. Wire-brush, clean with solvents recommended by paint manufacturer, and touch up with same primer as the shop coat.
2. Surfaces requiring touch up painting shall be cleaned and primed as soon as practicable after erection and before excessive rusting or other damage occurs to such surfaces from weather or other exposure.

F. Steel Substrates: Remove rust, loose mill scale, and shop primer, if any. Clean using methods recommended in writing by paint manufacturer but not less than the following:

1. SSPC-SP 3, "Power Tool Cleaning."

G. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.

H. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal fabricated from coil stock by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.

I. Wood Substrates:

1. Scrape and clean knots, and apply coat of knot sealer before applying primer.
2. Sand surfaces that will be exposed to view, and dust off.
3. Prime edges, ends, faces, undersides, and backsides of wood.
4. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.

J. Gypsum Wallboard: Repair all surfaces in gypsum wallboard with wallboard joint finishing compound or spackling compound, filled out flush and sanded smooth. Clean all surfaces and taped joints of dust, dirt and other contaminants and be sure they are thoroughly dry before applying paint.

K. Material Preparation: Mix and prepare paint materials according to manufacturer's written instructions.

1. Maintain containers used in mixing and applying paint in a clean condition, free of foreign materials and residue.

2. Stir material before application to produce a mixture of uniform density. Stir as required during application. Do not stir surface film into material. If necessary, remove surface film and strain material before using.
3. Use only thinners approved by paint manufacturer and only within recommended limits.

3.3 APPLICATION

A. Application, General:

1. Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators according to manufacturer's written instructions.

    a. Brushes: Use brushes best suited for type of material applied. Use brush of appropriate size for surface or item being painted.
    b. Rollers: Use rollers of carpet, velvet-back, or high-pile sheep's wool as recommended by manufacturer for material and texture required.
    c. Spray Equipment: Use airless spray equipment with orifice size as recommended by manufacturer for material and texture required.

2. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.

    a. The number of coats and film thickness required are the same regardless of application method. Do not apply succeeding coats until previous coat has cured as recommended by manufacturer. If sanding is required to produce a smooth, even surface according to manufacturer's written instructions, sand between applications.
    b. Allow sufficient time between successive coats to permit proper drying. Do not recoat surfaces until paint has dried to where it feels firm, and does not deform or feel sticky under moderate thumb pressure, and until application of another coat of paint does not cause undercoat to lift or lose adhesion.

3. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate to achieve dry film thickness indicated. Provide total dry film thickness of the entire system as recommended by manufacturer.
4. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not complying with requirements.

B. Apply paint according to manufacturer's written instructions. Use applicators and techniques best suited for substrate and type of material being applied.

1. The term "exposed surfaces" includes areas visible when permanent or built-in fixtures, grilles, convector covers, and similar components are in place. Extend coatings in these areas, as required, to maintain system integrity and provide desired protection.
2. Provide finish coats that are compatible with primers used.
3. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.

4. Paint back sides of access panels and removable or hinged covers to match exposed surfaces.
5. Access panels, electrical panels, air diffusing outlets, supply and exhaust grilles, louvers, exposed conduit, primed hardware items, primed outlet covers, primed wall and ceiling plates and other items in painted areas shall be painted to match the areas in which they occur unless otherwise directed by the Architect.
6. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
7. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.
8. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.
9. Paint colors, surface treatments, and finishes are indicated in the paint schedules.
10. Sand lightly between each succeeding enamel or varnish coat.

C. Prime Coats: Before applying finish coats, apply a prime coat, as recommended by manufacturer, to material that is required to be painted or finished and that has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no burn-through or other defects due to insufficient sealing.

D. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.

E. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

1. Ensure that edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.

F. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

1. Pigmented (Opaque) Finishes: Completely cover surfaces as necessary to provide a smooth, opaque surface of uniform finish, color, appearance, and coverage.

    a. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.

2. Stipple Enamel Finish: Roll and redistribute paint to an even and fine texture.

    a. Leave no evidence of rolling, such as laps, irregularity in texture, skid marks, or other surface imperfections.

G. Painting Fire Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:

1. Paint the following work where exposed in equipment rooms:

a. Equipment, including panelboards and switch gear.
b. Uninsulated metal piping.
c. Uninsulated plastic piping.
d. Pipe hangers and supports.
e. Metal conduit.
f. Plastic conduit.
g. Tanks that do not have factory-applied final finishes.
h. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.

2. Paint the following work where exposed in occupied spaces:

a. Equipment, including panelboards.
b. Uninsulated metal piping.
c. Uninsulated plastic piping.
d. Pipe hangers and supports.
e. Metal conduit.
f. Plastic conduit.
g. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
h. Other items as directed by Architect.

3. Paint portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets that are visible from occupied spaces.

a. Color: Flat, black paint.

3.4 FIELD QUALITY CONTROL

A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.

1. Contractor shall touch up and restore painted surfaces damaged by testing.
2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written recommendations.

3.5 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

D. Provide "Wet Paint" signs to protect newly painted finishes. After completing painting operations, remove temporary protective wrappings provided by others to protect their work.

1. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces. Comply with procedures specified in PDCA P1.

3.6 INTERIOR PAINT SCHEDULE

A. Gypsum Board: Provide the following finish systems over interior gypsum board surfaces:

1. Low-Luster Acrylic-Enamel Finish (Typical System): Two finish coats over a primer.

a. Primer: Interior gypsum board primer.
b. Finish Coats: Interior low-luster acrylic enamel.

2. Semigloss Acrylic-Enamel Finish (Provide only where scheduled): Two finish coats over a primer.

a. Primer: Interior gypsum board primer.
b. Finish Coats: Interior semigloss acrylic enamel.

B. Primed Wood Doors: Provide the following paint finish system over primed wood door surfaces:

1. Semigloss Acrylic-Enamel Finish: Two finish coats.

a. Finish Coats: Interior semigloss acrylic enamel.

C. Ferrous Metal: Provide the following finish systems over ferrous metal:

1. Semigloss Acrylic-Enamel Finish: Two finish coats over a primer.

a. Primer: Interior ferrous-metal primer.
b. Finish Coats: Interior semigloss acrylic enamel.

D. Zinc-Coated Metal: Provide the following finish systems over interior zinc-coated metal surfaces:

1. Semigloss Acrylic-Enamel Finish: Two finish coats over a primer.

a. Primer: Interior zinc-coated metal primer.
b. Finish Coats: Interior semigloss acrylic enamel.

E. All-Service Jacket over Insulation: Provide the following finish system on cotton or canvas insulation covering:

1. Flat Acrylic Finish: Two finish coats. Add fungicidal agent to render fabric mildew proof.
2. Finish Coats: Interior flat latex-emulsion size.

3.7 COLOR SCHEDULE

A. Reference to a particular manufacturer's number or color name is used only as a convenience for the Architect in order to establish the Project color requirements. These references are not intended to describe the required generic paint systems. For generic paint systems requirements, refer to the "Finish Schedule" located on Drawings for interior painting as applicable to the respective conditions of use.

B. The selection of paint colors are indicated on the drawings by manufacturer and color type.

1. Furnish the same lots, batches, etc. within the same contiguous areas of the building (i.e. corridors on the same floors, common rooms which adjoin each other, etc.).

END OF SECTION 09 91 23