

PROJECT MANUAL
including Specifications

PROJECTION SCREEN ADDITION

FOR

SUNSET HEIGHTS 4, 6, 8

500 South 600 West
Orem, UT

Property No.: 532602818010101

July 2018



Prepared By:

RVA ARCHITECTS., INC.

32 West Center St. Suite #203
Provo, Utah 84601
(801) 374-2100

PROJECT DIRECTORY

Owner: Corporation of the Presiding Bishop
of the Church of Jesus Christ of Latter-day Saints
A Utah Corporation Sole
50 East North Temple Street
Salt Lake City, UT 84150

Facilities Manager: Orem Central FM Group
P.O. Box 1497
Orem, UT 84097
801-222-3130

Architect: RVA Architects, Inc.
32 West Center St., #203
Provo, UT 84601
801-374-2100

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INVITATION TO BID (U.S.)

1. CONTRACTORS INVITED TO BID THE PROJECT:

Dynamic Construction
LWC Construction
Oasis Builder
Painter Building Inc.
SRFCO

2. PROJECT:

Sunset Heights 4,6,8 Project Screen Addition

3. LOCATION:

500 South 600 West
Orem, UT

4. OWNER:

Corporation of the Presiding Bishop of
The Church of Jesus Christ of Latter-day Saints, a Utah corporation sole
c/o
Orem Central FM Group
PO Box 1497
Orem, UT 84097

5. CONSULTANT:

RVA Architects, Inc.
32 W. Center St. #203
Provo, UT 84601

6. DESCRIPTION OF PROJECT:

- A. Construct wall at Chapel ceiling to support new projection screen.
- B. Products or systems may be provided under a Value Managed Relationship (VMR) the Owner has negotiated with the supplier. VMR products and systems are indicated as such in the Specifications.

7. TYPE OF BID: Bids will be on a lump-sum basis. Segregated bids will not be accepted.

8. TIME OF SUBSTANTIAL COMPLETION: The time limit for substantial completion of this work will be 45 calendar days and will be as noted in the Agreement. Calendar days may be modified as necessary to accommodate lead times.

9. PRE-BID CONFERENCE: A Pre-Bid Conference will be held on **Friday, July 20, 2018 @ 2:30 pm** at the job site located at 500 South 600 West Orem, UT.

10. BID OPENING: Sealed bids will be received until **10:00 am on Friday, July 27, 2018** at the Orem Central FM Office located at 140 North 400 West Orem, UT. Bids will be opened at that time.

11. BIDDING DOCUMENTS:

A. Bidding Documents may be examined at the following plan room locations:

- 1) Mountainland Area Plan Room @ mapronline.com
- 2) McGraw Hill Dodge @ dodgeprojects.construction.com

12. BIDDER'S QUALIFICATIONS: Bidding by the Contractors will be by invitation only.

13. OWNER'S RIGHT TO REJECT BIDS: Owner reserves the right to reject any or all bids and to waive any irregularity therein.

END OF DOCUMENT

INSTRUCTIONS TO BIDDERS (U.S.)

1. DOCUMENTS:

- A. Bidding Documents include Bidding Requirements and proposed Contract Documents. Proposed Contract Documents consist of:
 - 1) Contractor Bid Proposal and Project Agreement (U.S.)
 - 2) Other documents included by reference
 - 3) Addenda.
- B. Bidding Requirements are those documents identified as such in proposed Project Manual.
- C. Addenda are written or graphic documents issued prior to execution of the Contract which modify or interpret the Bidding Documents. They become part of the Contract Documents as noted in the Contractor Bid Proposal and Project Agreement (U.S.) upon execution of the Agreement by Owner.

2. BIDDER'S REPRESENTATIONS:

- A. By submitting a bid proposal, bidder represents that
 - 1) Bidder has carefully studied and compared Bidding Documents with each other. Bidder understands the Bidding Documents and the bid is fully in accordance with the requirements of those documents,
 - 2) Bidder has thoroughly examined the site and any building located thereon, has become familiar with local conditions which might directly or indirectly affect contract work, and has correlated its personal observations with requirements of proposed Contract Documents, and
 - 3) Bid is based on materials, equipment, and systems required by Bidding Documents without exception.

3. BIDDING DOCUMENTS:

- A. Copies
 - 1) Owner will provide the Bidding Documents as set forth in the Invitation to Bid.
 - 2) Partial sets of Bidding Documents will not be issued.
- B. Interpretation or Correction of Bidding Documents
 - 1) Bidders will request interpretation or correction of any apparent errors, discrepancies, and omissions in the Bidding Documents.
 - 2) Corrections or changes to Bidding Documents will be made by written Addenda.
- C. Substitutions and Equal Products
 - 1) Equal products may be approved upon compliance with Contract Document requirements.
 - 2) Base bid only on materials, equipment, systems, suppliers or performance qualities specified in the Bidding documents.
 - 3) Where a specified product is identified as a "quality standard", products of other manufacturers that meet the performance, properties, and characteristics of the specified "quality standard" may be used without specific approval as a substitute.
- D. Addenda. Addenda will be sent to bidders and to locations where Bidding Documents are on file no later than one week prior to bid opening or by fax no later than 48 hours prior to bid opening.

4. BIDDING PROCEDURES:

- A. Form and Style of Bids
 - 1) Use Owner's Bid Form titled "Contractor Bid Proposal and Project Agreement (U.S.)".
 - 2) Bid will be complete and executed by authorized representative of Bidder.
 - 3) Do not delete from or add to the information requested on bid form.

- B. Submission of Bids
 - 1) Submit bid in sealed opaque envelope containing only bid form.
 - 2) It is bidder's sole responsibility to see that its bid is received at or before the specified time. Bids received after specified bid opening time may be returned to bidders unopened.
 - 3) No oral, facsimile transmitted, telegraphic, or telephonic bids, modifications, or cancellations will be considered.

- C. Modification or Withdrawal of Bid
 - 1) Bidder guarantees there will be no revisions or withdrawal of bid amount for 45 days after bid opening.
 - 2) Prior to bid opening, bidders may withdraw bid by written request or by reclaiming bid envelope.
 - 3) Prior to bid opening, bidder may mark and sign on the sealed envelope that bidder acknowledges any or all Addenda.

5. CONSIDERATION OF BIDS:

- A. Opening Of Bids - See Invitation to Bid.

- B. Acceptance Of Bid
 - 1) No bidder will consider itself under contract after opening and reading of bids until Owner accepts Contractor's Bid Proposal by executing same.
 - 2) Bidder's past performance, organization, subcontractor selection, equipment, and ability to perform and complete its contract in manner and within time specified, together with amount of bid, will be elements considered in award of contract.

6. FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR:

- A. Agreement form will be "Contractor Bid Proposal and Project Agreement (U.S.)" provided by Owner.

7. MISCELLANEOUS:

- A. Pre-Bid Conference. A pre-bid conference will be held Thursday, July 19, 2018 @ 2:30 pm at the job site located at 500 South 600 West Orem, UT.

- B. Examination Schedule for Existing Building and Site:
 - 1) Lynn Adams 801-222-3130

END OF DOCUMENT

CONSTRUCTION MATERIAL ASBESTOS STATEMENT (U.S.)

**PROJECTS FOR:
CORPORATION OF THE PRESIDING BISHOP OF
THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS**

Building Name: Sunset Heights 4, 6, 8

Building Plan Type: Projection Screen Addition

Building Address: 500 South 600 West
Orem, UT

Building Owner: Corporation of the Presiding Bishop of The Church of Jesus Christ of Latter-day Saints, a Utah corporation sole.

Project Number: 532602818010101

Completion Date: _____

As PROJECT CONSULTANT and principal in charge; based on my best knowledge, information, inspection, and belief; I certify that on the above referenced Project, no asbestos-containing building materials were specified in the construction documents or given approval in shop drawings or submittals.

Project Consultant and Principal in Charge (signature) Date

RVA Architects, Inc.
Company Name

As GENERAL CONTRACTOR in charge of construction; based on my best knowledge, information, inspection, and belief; I affirm that on the above-referenced Project, no asbestos-containing building materials were used in the construction.

General Contractor (signature) Date

Company Name

CONTRACTOR BID PROPOSAL AND PROJECT AGREEMENT (U.S.)

Corporation of the Presiding Bishop of The Church of Jesus Christ of Latter-day Saints, a Utah corporation sole, ("Owner") and the undersigned Contractor ("Contractor") enter into this *Contractor Bid Proposal and Project Agreement (U.S.)* ("Agreement") and agree as follows:

1. **Property/Project.**

Property/Project Number: 532602818010101
Property Address ("Project Site"): 500 South 600 West, Orem, UT
Project Type: Projection Screen Addition
Project Name ("Project"): Sunset Heights 4, 6, 8
Stake Name: Sunset Heights

2. **Scope of the Work.** Contractor will furnish all labor, materials, and equipment necessary to complete the Work in accordance with the Contract Documents. The Work is all labor, materials, equipment, construction, and services required by the Contract Documents.

3. **Contract Documents.** Contract Documents consist of:

- a. This Agreement;
- b. Supplementary Conditions for Bid Proposal and Project Agreement (U.S.);
- c. The Specifications (Division 01 and Divisions 02,06,07,09,11,26);
- d. Drawings entitled and dated Project Screen Addition for Sunset Heights 4, 6, 8 - July, 2018;
- e. Addendum No. with date(s) _____; and
- f. All written Field Changes, written Construction Change Directives and written Change Orders when prepared and signed by Owner and Contractor.

4. **Compensation.** Owner will pay Contractor for performance of Contractor's obligations under the Contract Documents the sum of _____ Dollars (\$_____). This is the Contractor's Bid Proposal Amount.

5. **Payment.**

- a. If the Contractor's Bid Proposal Amount is over \$100,000 or if otherwise requested by Owner, Contractor will submit to Owner a schedule of values which allocates the Contractor's Bid Proposal Amount to various portions of the Work. This schedule, when accepted by Owner will be used as a basis for reviewing Contractor's payment requests.
- b. Not more than once each month, Contractor will submit a payment request to Owner. Owner will pay Contractor for work completed within thirty (30) days after Owner receives:
 - 1) Contractor's payment request for work to date;
 - 2) a certification by Contractor that Contractor has paid for all labor, materials, and equipment relating to the Work covered by prior payment requests and that Contractor will pay for all labor, materials, and equipment relating to the Work covered by the current payment request; and
 - 3) releases of all mechanics' liens and claims of subcontractors, laborers, or material suppliers who supplied labor and/or materials for the Work covered by the payment request.
 - 4) updated Construction Schedule.
- c. Owner may modify or reject the payment request if, in Owner's opinion, the Work for which payment is requested is not acceptable or is less complete than represented on the payment request.

6. **Extras and Change Orders.** Owner may order changes in the Work by altering, adding to, or deducting from the Work. In the event of such a change, Contractor's compensation and/or the time of completion will be adjusted to reflect the change. Contractor will not commence work on any change until either: (a) Contractor and Owner have agreed in writing to the amount of the adjustment resulting from the change; or (b) Owner has issued a written order for the change acknowledging that there is a dispute regarding the compensation adjustment relating to the change. If Contractor proceeds with a change in the Work without complying with the preceding sentence, Contractor agrees that it will not be entitled to any additional compensation for such change.

7. **Correction of Work.** Contractor will promptly correct, at its own expense,
 - a. any portion of the Work which
 - 1) fails to conform to the requirements of the Contract Documents, or
 - 2) is rejected by the Owner as defective or because it is damaged or rendered unsuitable during installation or resulting from failure to exercise proper protection.
 - b. any defects due to faulty materials, equipment, or workmanship which appear within a period of one year from the date of Substantial Completion or within such longer period of time as may be prescribed by law or the terms of any applicable special warranty required by the Contract Documents.

8. **Time of Completion.** Contractor will complete the Work and have it ready for Owner's inspection within Forty-five (45) calendar days from Notice to Proceed issued by Owner. Time is of the essence. If Contractor is delayed at any time in the progress of the Work by any act or neglect of Owner, or by changes in the Work, or by strikes, lockouts, unusual delay in transportation, unavoidable casualties, or acts of nature beyond Contractor's control, then the time for completion will be extended by the time that completion of the Work is delayed. However, Contractor expressly waives any damages for any such delays other than those delays willfully caused by Owner.

9. **Permits, Surveys, and Taxes.** Contractor will obtain and pay for all permits and licenses, and also pay any applicable taxes. Contractor will also obtain and pay for any surveys it needs to perform the Work. Contractor will conform to all ordinances and covenants governing the Project Site and/or Work.

10. **Compliance with Laws.** Contractor will comply with all applicable laws, ordinances, rules, regulations, and orders of any public authorities relating to performance of the Work.

11. **Payment of Subcontractors and Materialmen.** Contractor will promptly pay for all labor, materials, and equipment used to perform the Work.

12. **Contractor's Insurance.** Prior to performing any work, Contractor will obtain and maintain during the term of this Agreement the following insurance:
 - a. Workers Compensation Insurance.
 - b. Employers Liability Insurance with minimum limits of the greater of \$500,000 E.L. each accident, \$500,000 E. L. disease-each employee, \$500,000 E.L. disease-policy limit or as required by the law of the state in which the Project is located.
 - c. Commercial General Liability Insurance – ISO Form CG 00 01 (12/07) or equivalent Occurrence policy which will provide primary coverage to the additional insureds (the Owner and the Architect) in the event of any Occurrence, Claim, or Suit with:
 - 1) Limits of the greater of: Contractor's actual coverage amounts or the following:
 - a) \$2,000,000 General Aggregate;
 - b) \$2,000,000 Products - Comp/Ops Aggregate;
 - c) \$1,000,000 Personal and Advertising Liability;
 - d) \$1,000,000 Each Occurrence; and
 - e) \$50,000 Fire Damage to Rented Premises (Each Occurrence)
 - 2) Endorsements attached to the General Liability policy including the following or their equivalent:
 - a) ISO Form CG-25-03 (05/09), Amendment of Limits of Insurance (Designated Project or Premises) describing the Agreement and specifying limits as shown above.
 - b) ISO Form CG 20 10 (07/04), Additional Insured – Owners, Lessees, Or Contractors (Form B), naming Owner and Architect as additional insureds.
 - d. Automobile Liability Insurance, with:
 - 1) Combined Single Limit each accident in the amount of \$500,000 or Contractor's actual coverage, whichever is greater; and
 - 2) Coverage applying to "Any Auto" or its equivalent.

Contractor will provide evidence of these insurance coverages to Owner by providing an ACORD 25 (2010/05) Form or its equivalent: (1) listing Owner as the Certificate Holder and Additional Insured on the general liability and any excess liability policies, (2) listing the insurance companies providing coverage (all companies listed must be rated in A.M. Best Company Key Rating Guide-Property-Casualty and each

company must have a rating of B+ Class VII or higher), (3) attaching the endorsements set forth above for the Certificate of Liability Insurance, and (4) bearing the name, address and telephone number of the producer and signed by an authorized representative of the producer. (The signature may be original, stamped, or electronic.) Notwithstanding the foregoing, Owner may, in writing and at its sole discretion, modify these insurance requirements.

13. **Independent Contractor Relationship.** The parties expressly agree that Contractor is not an agent or employee of Owner but is an independent contractor solely responsible for all expenses relating to Contractor's business.
14. **Comply with Intellectual Property Rights of Others.** Contractor represents and warrants that no Work (with its means, methods, goods, and services attendant thereto), provided to Owner will infringe or violate any right of any third party and that Owner may use and exploit such Work, means, methods, goods, and services without liability or obligation to any person or entity (specifically and without limitation, such Work, means, methods, goods, and services will not violate rights under any patent, copyright, trademark, or other intellectual property right or application for the same).
15. **Confidentiality / Property Rights.**
 - a. Owner will retain ownership and intellectual property rights in all plans, designs, drawings, documents, concepts, and materials provided by or on behalf of Owner to Contractor and to all work products of Contractor for or relative to Work performed under this Agreement, such products, services, and Work of Contractor constituting works made for hire. Contractor will not reuse any portions of such items provided by Owner or developed by Contractor for Owner pursuant to this Agreement, or disclose any such items to any third party without the prior written consent of Owner. Owner may withhold its consent in its' absolute discretion.
 - b. In addition, Contractor shall ensure that Contractor, Subcontractors, and the employees, agents and representatives of Contractor and its Subcontractors maintain in strict confidence, and shall use and disclose only as authorized by Owner all Confidential Information of Owner that Contractor receives in connection with the performance of this Agreement. Notwithstanding the foregoing, Contractor may use and disclose any information to the extent required by an order of any court or governmental authority, but only after it has notified Owner and Owner has had an opportunity to obtain reasonable protection for such information in connection with such disclosure. For purposes of this Agreement, "Confidential Information" means:
 - 1) The name or address of any affiliate, customer or contractor of Owner or any information concerning the transactions of any such person with Owner;
 - 2) Any information relating to contracts, agreements, business plans, budgets or other financial information of Owner to the extent such information has not been made available to the public by the Owner; and
 - 3) Any other information that is marked or noted as confidential by the Owner at the time of its disclosure.
16. **Ownership and Use of Renderings and Photographs.** Renderings representing the Work are the property of Owner. All photographs of the Work, whether taken during performance of the Work or at completion, are the property of the Owner. The Owner reserves all rights including copyrights to renderings and photographs of the Work. No renderings or photographs shall be used or distributed without written consent of the Owner.
17. **Public Statements Regarding Work or Property.** Contractor will not make any statements or provide any information to the media about the Work or Property without the prior written consent of Owner. If Contractor receives any requests for information from media, Contractor will refer such requests to Owner.
18. **No Commercial Use of Transaction or Relationship.**
 - a. Without the prior written consent of Owner, which Owner may grant or withhold in its sole discretion, neither Contractor nor Contractor's affiliates, officers, directors, agents, representatives, shareholders, members, Subcontractors, or employees shall make any private commercial use of their relationship to Owner or the Work or Property, including, without limitation:
 - 1) By referring to this Agreement, Owner, or the Work or Property verbally or in any sales, marketing or other literature, letters, client lists, press releases, brochures or other written materials except as may

- be necessary for Contractor to perform Contractor's obligations under the terms of this Agreement;
- 2) By using or allowing the use of any photographs of the Work or any part thereof, or of any service marks, trademarks or trade names or other intellectual property now or which may hereafter be associated with, owned by or licensed by Owner in connection with any service or product; or
 - 3) By contracting with or receiving money or anything of value from any person or commercial entity to facilitate such person or entity obtaining any type of commercial identification, advertising or visibility in connection with the Work or Property.

- b. Notwithstanding the foregoing, Contractor may include a reference to Owner and the services and equipment provided under this Agreement in a professional résumé or other similar listing of Contractor's references without seeking Owner's written consent in each instance; provided, that such reference to Owner, the services and equipment is included with at least several other similar references and is given no more prominence than such other references.

19. **Indemnity and Hold Harmless.**

- a. Contractor will indemnify and hold harmless Owner and Owner's representatives, employees, agents, architects, and consultants from and against any and all claims, damages, liability, demands, costs, judgments, awards, settlements, causes of action, losses and expenses (collectively "Claims" or "Claim"), including but not limited to attorney fees, consultant fees, expert fees, copy costs, and other costs and expenses, arising out of or resulting from performance of the Work, attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of real or personal property, including loss of use resulting therefrom, except to the extent that such liability arises out of the negligence of Owner, its representatives, agents, and employees. This indemnity includes, without limitation, indemnification of Owner from all losses or injury to Owner's property, except to the extent that such loss or injury arises out of the negligence of Owner, its representatives, agents, and employees. This indemnity applies, without limitation, to include Claims occurring both during performance of the Work and/or subsequent to completion of the Work. In the event that any Claim is caused in part by a party indemnified hereunder, that party will bear the cost of such Claim to the extent it was the cause thereof. In the event that a claimant asserts a Claim for recovery against any party indemnified hereunder, the party indemnified hereunder may tender the defense of such Claim to Contractor. If Contractor rejects such tender of defense and it is later determined that the negligence of the party indemnified hereunder did not cause all of the Claim, Contractor will reimburse the party indemnified hereunder for all costs and expenses incurred by that party in defending against the Claim. Contractor will not be liable hereunder to indemnify any party for damages resulting from the sole negligence of that party.
- b. In addition to the foregoing, Contractor will be liable to defend Owner in any lawsuit filed by any Subcontractor relating to the Project. Where liens have been filed against Owner's property, Contractor (and/or its bonding company which has issued bonds for the Project) will obtain lien releases and record them in the appropriate county and/or local jurisdiction and provide Owner with a title free and clear from any liens of Subcontractors. In the event that Contractor and/or its bonding company are unable to obtain a lien release, Owner in its absolute discretion may require Contractor to provide a bond around the lien or a bond to discharge the lien, at Contractor's sole expense.
- c. In addition to the foregoing, Contractor will indemnify and hold Owner harmless from any claim of any other contractor resulting from the performance, nonperformance or delay in performance of the Work by Contractor.
- d. The indemnification obligation herein will not be limited by a limitation on the amount or type of damages, compensation or benefits payable by or for Contractor or a Subcontractor under worker's compensation acts, disability benefit acts, or other employee benefit acts.

20. **Resolution of Disputes.** In the event there is any dispute arising under the Contract Documents which cannot be resolved by agreement between the parties, either party may submit the dispute with all documentation upon which it relies to Director of Architecture, Engineering, and Construction, 50 East North Temple, Salt Lake City, Utah 84150, who will convene a dispute resolution conference within thirty (30) days. The dispute resolution conference will constitute settlement negotiations and any settlement proposal made pursuant to the conference will not be admissible as evidence of liability. In the event that the parties do not resolve their dispute pursuant to the dispute resolution conference, either party may commence legal action to resolve the dispute. Any such action must be commenced within six (6) months from the first day of the dispute resolution conference or be time barred. Submission of the dispute to the Director as outlined above

is a condition precedent to the right to commence legal action to resolve any dispute. In the event that either party commences legal action to adjudicate any dispute without first submitting the dispute to the Director, the other party will be entitled to obtain an order dismissing the litigation without prejudice and awarding such other party any costs and attorneys fees incurred by that party in obtaining the dismissal, including without limitation copy costs, and expert and consultant fees and expenses.

21. **Termination of Agreement by Contractor.** In the event Owner materially breaches any term of the Contract Documents, Contractor will promptly give Written Notice of the breach to Owner. If Owner fails to cure the breach within ten (10) days of the Written Notice, Contractor may terminate this Agreement by giving Written Notice to Owner and recover from Owner the percentage of the Contract Sum represented by the Work completed on the Project site as of the date of termination together with any out of pocket loss Contractor has sustained with respect to materials and equipment as a result of the termination prior to completion of the Work, less any offsets. Contractor will not be entitled to unearned profits or any other compensation or damages as a result of the termination and hereby waives any claim therefor. Contractor will provide to Owner all warranty, as built, inspection, and other close out documents as well as materials that Contractor has in its possession or control at the time of termination. Without limitation, Contractor's indemnities and obligations as well as all warranties relative to Work provided through the date of termination survive a termination hereunder.
22. **Termination of Agreement by Owner for Cause.** Should Contractor make a general assignment for the benefit of its creditors, fail to apply enough properly skilled workmen or specified materials to properly prosecute the Work in accordance with Contractor's schedule, or otherwise materially breach any provision of the Contract Documents, then Owner may, without any prejudice to any other right or remedy, give Contractor Written Notice thereof. If Contractor fails to cure its default within ten (10) days, Owner may terminate this Agreement by giving Written Notice to Contractor, take possession of the premises and all materials, tools, and appliances thereon, and finish the Work by whatever method Owner deems expedient. In such case, Contractor will not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Sum exceeds the expense of finishing the Work, including compensation for additional administrative, architectural, consultant, and legal services (including without limitation attorneys fees, expert fees, copy costs, and other expenses), such excess will be paid to Contractor, less any offsets and recoupment. If such expense exceeds the unpaid balance, Contractor will pay the difference to Owner. Contractor will provide to Owner all warranty, as built, inspection, and other close out documents as well as materials that Contractor has in its possession or control at the time of termination. Without limitation, Contractor's indemnities and obligations as well as all warranties relative to Work provided through the date of termination survive a termination hereunder.
23. **Termination of Agreement by Owner for Convenience.** Notwithstanding any other provision contained in the Contract Documents, Owner may, without cause and in its absolute discretion, terminate this Agreement at any time. In the event of such termination, Contractor will be entitled to recover from Owner the percentage of the Contract Sum equal to the percentage of the Work which Owner and/or its architect determines has been completed on the Project site as of the date of termination together with any out of pocket loss Contractor has sustained with respect to materials and equipment as a result of the termination prior to completion of the Work, less any offsets and recoupment. Contractor will not be entitled to unearned profits or any other compensation as a result of the termination and hereby waives any claim therefor. Contractor will provide to Owner all warranty, as built, inspection, and other close out documents as well as materials that Contractor has in its possession or control at the time of termination. Owner may, in Owner's sole discretion, take legal assignment of subcontracts and other contractual rights of Contractor. Without limitation, Contractor's indemnities and obligations as well as all warranties relative to Work provided through the date of termination survive a termination hereunder.
24. **Assignment of Contract.** The parties hereto will not assign any rights or obligations under this Agreement without the prior written consent of the other party.
25. **Integration Clause.** The Contract Documents reflect the full agreement of the parties with respect to the Project and the Work and supersede all prior discussions, agreements, and representations regarding the subject matter of the Contract Documents. The Contract Documents may be amended only in a written document signed by both parties hereto.

26. **Applicable Law.** The parties acknowledge that the Contract Documents have substantial connections to the State of Utah. The Contract Documents will be deemed to have been made, executed, and delivered in Salt Lake City, Utah. To the maximum extent permitted by law, (i) the Contract Documents and all matters related to their creation and performance will be governed by and enforced in accordance with the laws of the State of Utah, excluding conflicts of law rules, and (ii) all disputes arising from or related to the Contract Documents will be decided only in a state or federal court located in Salt Lake City, Utah and not in any other court or state. Toward that end, the parties hereby consent to the jurisdiction of the state and federal courts located in Salt Lake City, Utah and waive any other venue to which they might be entitled by virtue of domicile, habitual residence, place of business, or otherwise.
27. **Enforcement.** In the event either party commences legal action to enforce or rescind any term of the Contract Documents, the prevailing party will be entitled to recover its attorneys fees and costs, including without limitation all copy costs and expert and consultant fees and expenses, incurred in that action and on all appeals, from the other party.
28. **Bid Proposal/Agreement.** Contractor's submission to Owner of this agreement signed by Contractor will constitute Contractor's offer and bid proposal to perform the Work described in this agreement according to the terms thereof. Owner's signing of this agreement and delivery to Contractor of a signed copy will constitute acceptance of Contractor's offer and will convert this document to a binding agreement.
29. **Effective Date.** The effective date of this Agreement is the date indicated by the Owner's signature.

OWNER:

Corporation of the Presiding Bishop of
The Church of Jesus Christ of Latter-day Saints,
a Utah corporation sole.

Signature:

Print Name: Lynn Adams

Title: Facilities Manager

Address:
Orem Central FM Group
PO Box 1497
Orem, UT 84097

Telephone No: 801-222-3130

Facsimile No:

Email: adamsle@ldschurch.org

Effective Date:

Reviewed By:

CONTRACTOR:

(company)

Signature:

Print Name:

Title:

Address:

Telephone No:

Facsimile No:

Email:

Fed. I.D. or SSN:

License No:

Date Signed:

SUPPLEMENTARY CONDITIONS

FOR CONTRACTOR BID PROPOSAL AND PROJECT AGREEMENT (U.S.)

ITEM 1 - GENERAL

1. Conditions of the Contract apply to each Division of the Specifications.
2. Provisions contained in Division 01 apply to all Divisions of the Specifications.

ITEM 2 - LIQUIDATED DAMAGES PAYABLE TO OWNER

This section may be included as a separate additional paragraph to the Bid Proposal and Project Agreement, at Owner's discretion:

Delay in Completion of the Work. For each day after the expiration of the designated Time of Completion that Contractor has not completed the Work, Contractor will pay Owner the amount of Zero dollars (\$0.00) per day as liquidated damages for Owner's loss of use and the added administrative expense to Owner to administer the Project during the period of delay. In addition, Contractor will reimburse Owner for any additional Architect's fees, attorneys' fees, expert fees, consultant fees, copy costs, and other expenses incurred by Owner as a result of the delay. Owner may deduct any liquidated damages or reimbursable expenses from any money due or to become due to Contractor. If the amount of liquidated damages and reimbursable expenses exceeds any amounts due to Contractor, Contractor will pay the difference to Owner within ten (10) days after receipt of a written request from Owner for payment.

ITEM 3 - STATE SPECIFIC SUPPLEMENTARY CONDITIONS

Utah

UTAH STATE SALES TAX:

Add the following to the Bid Proposal and Project Agreement:

1. Contractors should be exempt on purchases of material installed or converted into real property to be used by the Owner. The Contractor will furnish each vendor with a completed Exemption Certificate Form TC-721. The certificate will be prepared by the Contractor for each vendor in order to obtain the exemption.
2. The Owner's tax exempt number is 11871701-002-STC.

UTAH NOTICE OF INTENT TO OBTAIN FINAL COMPLETION:

Add the following to the Bid Proposal and Project Agreement:

- A. Contractor shall file with the State Construction Registry, on its own behalf and/or on behalf of Owner, a notice of intent to obtain final completion at least 45 days before the day on which the Owner or Contractor files or could file a notice of completion under Utah Code Ann. Section 38-1a-506 if:
 1. The completion of performance time under the original contract for construction work is greater than 120 days;
 2. The total original construction contract price exceeds \$500,000; and
 3. The original contractor or owner has not obtained a payment bond in accordance with Utah Code Ann. Section 14-2-1.

UTAH NOTICE OF COMPLETION:

Add the following to the Bid Proposal and Project Agreement:

- A. Within five (5) calendar days of final completion of the Project and in compliance with Section 38-1a-507 Utah Code Annotated, Contractor shall file with the State Construction Registry, and copy to Owner, a notice of completion which shall include, without limitation, the following:
 1. The name, address, telephone number, and email address of the person filing the notice of completion;
 2. The name of the county in which the Project and/or Project site is located;
 3. The date on which final completion is alleged to have occurred;
 4. The method used to determine final completion; and
 5. One of the following:
 - a. The tax parcel identification number of each parcel included in the Project and/or Project site;
 - b. The entry number of a preliminary notice on the same project that includes the tax parcel identification number of each parcel included in the Project and/or Project site; or
 - c. The entry number of the building permit issued for the Project.
- B. Notwithstanding any other provision of the Contract Documents to the contrary, Contractor and Owner agree that any breach or failure to comply with this Section by the Contractor will constitute a breach of contract and the Contractor will be liable for any direct, indirect, or consequential damages to the Owner flowing from this breach.

UTAH STATE PROGRESS PAYMENTS AND FINAL PAYMENT:

Replace paragraph 5 of the Bid Proposal and Project Agreement with the following:

5. Payment

- a. If the Contractor's Bid Proposal Amount is over \$100,000.00, Contractor will submit to Owner a schedule of values which allocates the Contractor's Bid Proposal Amount to various portions of the Work. This schedule, when accepted by Owner, will be used as a basis for reviewing Contractor's payment requests.
- b. Progress Payments: Not more than once each month, Contractor will submit a payment request to Owner. Owner will pay Contractor progress payments for work completed within fifteen (15) days after Owner receives:
 1. Contractor's progress payment request for work to date;
 2. A certification by Contractor that Contractor has paid for all labor, materials, and equipment relating to the Work covered by prior payment requests and that Contractor will pay for all labor, materials, and equipment relating to the Work covered by the current payment request; and
 3. Conditional Waiver and Release Upon Progress Payment documents submitted by Contractor (in content complying with Utah Code § 38-1a-802) executed by each of the subcontractors performing work and/or providing materials covered by the Contractor's progress payment request.
- c. Final Payment: Owner will make full and final payment of the Contract Sum due within thirty (30) days of the completion of all of the following requirements:
 1. Contractor has submitted its final payment request;
 2. Contractor has submitted a certification that Contractor has paid for all labor, materials, and equipment relating to the Work covered by prior payment requests and that Contractor will pay for all labor, materials, and equipment relating to the Work covered by the final payment request; and
 3. Contractor has submitted Waiver and Release Upon Final Payment documents (in content complying with Utah Code § 38-1a-802) executed by each of the subcontractors performing work and/or providing materials covered by the Contractor's final payment request.

Acceptance of final payment by Contractor or any Subcontractor will constitute a waiver of claims by the payee except for those claims previously made to Owner in writing and identified by Contractor in its affidavit as still pending.

If the aggregate of previous payments made by Owner exceeds the amount due Contractor,

Contractor will reimburse the difference to Owner.

- d. Owner may modify or reject any payment request if, in Owner's opinion, the Work for which payment is requested is not acceptable or is less complete than represented on the payment request.
- e. Upon receipt of any payment from Owner, Contractor will pay to each Subcontractor the amount paid to Contractor on account of such Subcontractor's portion of the Work.
- f. Contractor will maintain a copy of each payment request at the Project site for review by the Subcontractors.
- g. No payment made, either in whole or in part, by Owner will be construed to be an acceptance of defective or improper materials or workmanship.

END OF DOCUMENT

DIVISION 01**SECTION 01 0000****GENERAL REQUIREMENTS: R&I PROJECT****01 1000 SUMMARY****01 1200 MULTIPLE CONTRACT SUMMARY****01 1400 WORK RESTRICTIONS****01 3000 ADMINISTRATIVE REQUIREMENTS****01 3100 PROJECT MANAGEMENT AND COORDINATION****01 3300 SUBMITTAL PROCEDURES****01 4000 QUALITY REQUIREMENTS****01 4301 QUALITY ASSURANCE – QUALIFICATIONS****01 5000 TEMPORARY FACILITIES AND CONTROLS****01 6100 COMMON PRODUCT REQUIREMENTS****01 6200 PRODUCT OPTIONS****01 6400 OWNER-FURNISHED PRODUCTS****01 6600 DELIVERY, STORAGE, AND HANDLING REQUIREMENTS****01 7000 EXECUTION REQUIREMENTS****01 7400 CLEANING AND WASTE MANAGEMENT****01 7700 CLOSEOUT PROCEDURES****01 7800 CLOSEOUT SUBMITTALS****SECTION 01 1000 SUMMARY****A. Work Covered By Contract Documents:**

1. Provisions contained in Division 01 apply to all other sections and divisions of Specifications. All instructions contained in Specifications are directed to Contractor. Unless specifically provided otherwise, all obligations set forth in Specifications are obligations of Contractor.
2. Comply with applicable laws and regulations.

B. Work By Owner:

1. Owner may furnish and install some portions of the Work with its own forces. Complete the Work necessary to accommodate the Work to be performed by Owner before scheduled date for performance of such Work.
2. Owner may provide furnishings and/or equipment for Project. Contractor will receive, store, and protect such items on site until the date Owner accepts Project.

SECTION 01 1200 MULTIPLE CONTRACT SUMMARY**A. Separate Contracts:**

1. Contracts may be issued by Owner for performance of certain construction operations at Project site.
2. Contractor will afford other contractors reasonable opportunity to place and store their materials and equipment on site and to perform their work and will properly connect and coordinate its work with theirs where applicable:

SECTION 01 1400 WORK RESTRICTIONS**A. Project Conditions:**

1. During construction period, Contractor will have use of premises for construction operations. Contractor will ensure that Contractor, its employees, subcontractors, and employees comply with following requirements:
 - a. Confine operations to areas within Contract limits shown on Drawings. Do not disturb portions of site beyond Contract limits.
 - b. Do not allow alcoholic beverages, illegal drugs, or persons under their influence on Project Site.
 - c. Do not allow use of tobacco in any form on Project Site.
 - d. Do not allow pornographic or other indecent materials on site.
 - e. Do not allow work on Project Site on Sundays except for emergency work.

- f. Refrain from using profanity or being discourteous or uncivil to others on Project Site or while performing The Work.
 - g. Wear shirts with sleeves, wear shoes, and refrain from wearing immodest, offensive, or obnoxious clothing, while on Project Site.
 - h. Do not allow playing of obnoxious and loud music on Project Site. Do not allow playing of any music within existing facilities.
 - i. Do not build fires on Project Site.
 - j. Do not allow weapons on Project Site, except those carried by law enforcement officers and/or other uniformed security personnel who have been retained by Owner or Contractor to provide security services.
2. Existing Facilities:
- a. Owner will occupy existing building. Reasonably accommodate use of existing facilities by Owner.

SECTION 01 3000 ADMINISTRATIVE REQUIREMENTS

A. Administrative Requirements:

1. Coordination:
 - a. Coordinate construction activities to ensure efficient and orderly installation of each part of the Work.
 - b. Coordinate construction operations that are dependent upon each other for proper installation, connection, and operation.
 - c. Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.

SECTION 01 3100 PROJECT MANAGEMENT AND COORDINATION

A. Multiple Contract Coordination:

1. Contractor shall be responsible for coordination of Temporary Facilities and Controls, Construction Waste Management and Disposal services, and Final Cleaning for entire Project unless directed otherwise by Owner's Representative for those who perform work on Project from Notice to Proceed to date of Substantial Completion.

B. Project Meetings And Conferences:

1. Attend preconstruction conference and organizational meeting scheduled by Architect or Owner Representative at Project site or other convenient location.
2. Be prepared to discuss items of significance that could affect progress, including such topics as:
 - a. Construction schedule, equipment deliveries, general inspection of tests, preparation of record documents and O&M manuals, project cleanup, security, shop drawings, samples, use of premises, work restrictions, and working hours.
2. Pre-Installation Conferences.
 - a. Attend pre-installation conferences specified in Contract Document.

SECTION 01 3300 SUBMITTAL PROCEDURES

A. Submittal Procedure:

1. Coordination: Coordination preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently before performance of related construction activities to avoid delay.
2. Process Time: Allow sufficient review time so installation will not be delayed by time required to process submittals.
3. Identification: Place permanent label or title block on each submittal for identification. Include name of entity that prepared each submittal on label or title block.
4. Transmittal: Package each submittal appropriately for transmittal and handling.

B. Action Submittals:

1. Product Data: Submit product data, as required by individual Sections of Specifications.
2. Shop Drawings: Submit shop drawings for review and designate (stamp) approval of shop drawings.
3. Samples: Samples used for comparison with actual component to be installed. Samples when accepted will be used for quality comparisons throughout course of construction.

- C. Informational Submittals:
1. Informational submittals are design data, test reports, certificates, manufacturer's instructions, manufacturer's field reports, and other documentary data affirming quality of products and installations.
 - a. Return copies or PDF files marked with action taken and with corrections or modifications required.
- D. Closeout Submittals:
1. Submittals that occur during project closeout.

SECTION 01 4000 QUALITY REQUIREMENTS

- A. Administrative Requirements:
1. Conflicting Requirements:
 - a. If compliance with two or more standards is specified and standards establish different or conflicting requirements for minimum quantities or quality levels, comply with most stringent requirement.
 2. Minimum Quantity or Quality Levels:
 - a. Quantity or quality level shown or specified shall be the minimum provided or performed. Actual installation may comply exactly with minimum quantity or quality specified, or it may exceed minimum within reasonable limits.
 3. Submit to Owner permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, and similar documents, correspondence, and records establishing compliance with standards and regulations bearing upon performance of the Work.
- B. Quality Assurance:
1. Testing and inspecting services are used to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with Contract Document requirements.
 2. Quality Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to verify compliance and guard against defects and deficiencies and substantiate that proposed construction will comply with requirements. Owner or Owner's designated representative(s) will perform quality assurance to verify compliance with Contract Documents.
 3. Notify Owner immediately if asbestos-containing materials or other hazardous materials are encountered while performing the Work.
- C. Quality Control:
1. Quality Control Services:
 - a. Quality Control will be sole responsibility of Contractor.
 - 1) Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements performed by Contractor.
 - a) They do not include inspections, tests or related actions performed by Architect or Owner Representative, governing authorities or independent agencies hired by Owner or Architect.
 - b) Quality assurance performed by Owner will be used to validate Quality Control performed by Contractor.
 - 2) Where services are indicated as Contractor's responsibility, engage qualified Testing Agency to perform these quality control services:
 - a) Contractor will not employ same testing entity engaged by Owner, without Owner's written approval.
- D. Repair And Protection:
1. On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
 2. Protect construction exposed by or for Quality Assurance and Quality Control activities.
 3. Repair and protection are Contractor's responsibility, regardless of assignment of responsibility for Quality Assurance and Quality Control Services.

SECTION 01 4301 QUALITY ASSURANCE - QUALIFICATIONS

- A. Qualifications: Qualifications in this Section establish minimum qualification levels required; individual Specification Sections specify additional requirements:
1. Fabricator / Supplier / Installer Qualifications:
 - a. Firm experienced in producing products similar to those indicated for this Project and with record of successful in-service performance, as well as sufficient production capacity to produce required units:
 - 1) Where heading '*VMR (Value Managed Relationship) Suppliers / Installers*' is used to identify list of specified suppliers or installers, Owner has established relationships that extend beyond requirements of this Project. No other suppliers / installers will be acceptable. Follow specified procedures to preserve relationships between Owner and specified suppliers / installers and advantages that accrue to Owner from those relationships.
 - 2) Where heading '*Acceptable or Approved Suppliers / Installers / Fabricators*' is used to identify list of specified suppliers / installers / fabricators, use only one of listed suppliers / installers / fabricators. No others will be acceptable.
 1. Factory-Authorized Service Representative Qualifications:
 - a. 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.
 2. 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 record of successful in-service performance.
 3. Manufacturer Qualifications:
 - a. Firm experienced in manufacturing products or systems similar to those indicated for this Project and with record of successful in-service performance, as well as sufficient production capacity to produce required units.
 4. Manufacturer's Field Services Qualifications:
 - a. Experienced authorized representative of manufacturer to inspect field-assembled components and equipment installation, including service connections.
 5. 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 kind indicated:
 - 1) Engineering services are defined as those performed for installations of system, assembly, or products that are similar to those indicated for this Project in material, design, and extent.
 6. Specialists:
 - a. Certain sections of Specifications require that specific construction activities will be performed by entities who are recognized experts in those operations:
 - 1) Specialists will satisfy qualification requirements indicated and will be engaged for activities indicated.
 - 2) Requirement for special will not supersede building codes and regulations governing the Work.

SECTION 01 5000 TEMPORARY FACILITIES AND CONTROLS

- A. Administrative Requirements:
1. Contractor is responsible for security of materials, tools, and equipment. Do not permit others to use building keys provided by Owner. Safeguard building and contents while the Work is being performed and secure building when the Work is finished for day.
 2. Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and reduce possibility that air, waterways, and subsoil might be contaminated or polluted, or that other undesirable effects might result:
 - a. Avoid use of tools and equipment that produce harmful noise.
 - b. Restrict use of noisemaking tools and equipment to hours that will minimize complaints from persons or firms near site.
 - c. Protect the Work, materials, apparatus, and fixtures from injury due to weather, theft, and vandalism.
 3. Existing restroom facilities may be used by Contractor. Clean restrooms and portions of existing building used in accessing restrooms daily. If existing facilities are not usable, provide and maintain temporary sanitary toilet.

B. Temporary Barriers And Enclosures:

1. Erect adequate barricades, warning signs, and lights necessary to protect persons from injury or harm.
2. Provide temporary enclosures at exterior building openings for security and protection from weather, theft, and vandalism. Erect and maintain dust-proof partitions and enclosures as required to prevent spread of dust and fumes to occupied portions of building.
3. Proprietary Camera Services: In its absolute discretion, and with or without notice to Contractor, Owner may provide from time to time, but is not obligated to provide, one or more cameras on or about Project site and/or signage or notices of the same:
 - a. If provided by Owner, such camera(s) and/or signage and notices are solely for Owner's benefit and convenience and shall not be for benefit of Contractor, Subcontractor(s) or for any third person.
 - b. Owner shall have no liability, obligation, or responsibility to Contractor, Subcontractors, or any third person relative to such camera(s), signage, or notices, or absence of camera(s), signage, or notices, including without limitation, installation, maintenance, operation, repair, testing, functionality, capacity, recording, monitoring, posting, etc., of the same (hereafter 'Proprietary Camera Services').
 - c. Contractor, with Owner's prior consent (which shall not be unreasonably withheld), may relocate such camera(s), signage, or notices as necessary to not unreasonably, materially and physically interfere with work at Project Site.
 - d. Contractor's obligations under Contract Documents, including but not limited to, Contractor's obligation for security of Project Site, are not modified by Owner's opportunity to provide, actually providing, or not providing Proprietary Camera Services and/or signage or notices regarding the same.
 - e. This Specification Section does not preclude Contractor from providing its own camera(s), signage, or notices pursuant to terms and conditions of this Agreement. Neither does this Section reduce, expand or modify any other right or obligation of Owner pursuant to terms of this Agreement.

C. Utilities:

1. Electrical Power: Owner will provide electric power for construction activities within limits available at existing facility.
2. Fire Protection: Exercise caution to avoid fire damage: Do not build fires on site.
3. Heating, Cooling, And Ventilation:
 - a. Permanent mechanical system may be operated upon following conditions:
 - 1) Do not interfere with normal set-back temperature patterns except as approved by Project Manager.
 - 2) Do not operate system when the Work causing airborne dust is occurring or when dust caused by such Work is present without first installing temporary filtering system.
4. Lighting: Existing lighting system may be used by Contractor.
5. Water Service: Contractor will use existing water supply for construction purposes to extent of existing facilities.

SECTION 01 6100 COMMON PRODUCT REQUIREMENTS**A. Administrative Requirements:**

1. Provide products that comply with Contract Documents, are undamaged, and, unless otherwise indicated, are new and unused at time of installation. Provide products complete with accessories, trim, finish, safety guards, and other devices and details needed for complete installation and for intended use and effect.

SECTION 01 6200 PRODUCT OPTIONS**A. Product selection is governed by Contract Documents and governing regulations, not by previous Project experience. Procedures governing product selection include:**

1. Substitutions And Equal Products:
 - a. Generally speaking, substitutions for specified products and systems, as defined in Uniform Commercial Code, are not acceptable. However, equal products may be approved upon compliance with Contract Document requirements.
 - b. Approved Products / Manufacturers / Suppliers / Installers:
 - 1) Category One:
 - (a) Owner has established 'Value Managed Relationships' that extend beyond requirements of this Project. No substitutions or equal products will be allowed on this Project.
 - (b) Follow specified procedures to preserve relationships between Owner and specified manufacturers / suppliers and advantages that accrue to Owner from those relationships.

- 2) Category Two:
 - (a) Owner has established National Contracts that contain provisions extending beyond requirements of this Project. No substitutions or equal products will be allowed on this Project.
 - (b) Follow specified procedures to preserve relationships between Owner and specified manufacturers / suppliers and advantages that accrue to Owner from those relationships.
- 3) Category Three:
 - (a) Specified products are provided to Church Projects under a National Account Program. Use these products to preserve advantages that accrue to Owner from those programs. No substitutions or equal products will be allowed on this Project.
- 4) Category Four:
 - (a) Provide only specified products available from manufacturers listed. No substitutions, private-labeled, or equal products, or mixing of manufacturers' products is allowed on this Project.
 - (b) In Sections where lists recapitulating Manufacturers previously mentioned in Section are included under heading '*Manufacturers*' or '*Approved Manufacturers*', this is intended as convenience to Contractor as listing of contact information only. It is not intended that all manufacturers in list may provide products where specific products and manufacturers are listed elsewhere in Section.
- c. Acceptable Products / Manufacturers / Suppliers / Installers:
 - 1) Type One: Use specified products / manufacturers unless approval to use other products / manufacturers has been obtained from Architect or Owner Representative by Addendum.
 - 2) Type Two: Use specified products / manufacturers unless approval to use other products and manufacturers has been obtained from Architect or Owner Representative in writing before installing or applying unlisted or private-labeled products.
 - 3) Use 'Equal Product Approval Request Form' to request approval of equal products, manufacturers, or suppliers before bidding or before installation, as noted in individual Sections.
- d. Quality / Performance Standard Products / Manufacturers:
 - 1) Class One: Use specified product / manufacturer or equal product from specified manufacturers only.
 - 2) Class Two: Use specified product / manufacturer or equal product from any manufacturer.
 - 3) Products / manufacturers used will conform to Contract Document requirements.

SECTION 01 6400 OWNER-FURNISHED PRODUCTS

A. Administrative Requirements:

1. Install items furnished by Owner or receive and store in safe condition items purchased directly by Owner according to requirements of Contract Documents.

SECTION 01 6600 DELIVERY, STORAGE, AND HANDLING REQUIREMENTS

A. Administrative Requirements:

1. Deliver, store, and handle products according to manufacturer's recommendations, using means and methods that will prevent damage, deterioration, and loss, including theft.

B. Delivery, Storage, and Handling:

1. Delivery and Acceptable Requirements:
 - a. Deliver, store, and handle products according to manufacturer's recommendations, using means and methods that will prevent damage, deterioration, and loss, including theft.
 - b. 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.
 - c. Deliver products to site in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 - d. Inspect products upon delivery to ensure compliance with Contract Documents, and to ensure that products are undamaged and properly protected.
2. Storage and Handling Requirements:
 - a. Store products at site in manner that will simplify inspection and measurement of quantity or counting of units.

- b. Store heavy materials away from Project structure so supporting construction will not be endangered.
- c. Store products subject to damage by elements above ground, under cover in weather tight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer's instructions.

SECTION 01 7000 EXECUTION REQUIREMENTS

A. Administrative Requirements:

1. Require installer of each major component to inspect both substrate and conditions under which the Work is to be done:
 - a. Notify Owner in writing of unsatisfactory conditions.
 - b. Do not proceed until unsatisfactory conditions have been corrected.

B. Common Installation Provisions:

1. Provide attachment and connection devices and methods necessary for securing the Work:
 - a. Secure the Work true to line and level.
 - b. Allow for expansion and building movement.
2. Recheck measurements and dimensions before starting each installation.
3. Design, furnish, and install all shoring, bracing, and sheathing as required for safety and for proper execution of the Work and, unless otherwise required, remove same when the Work is completed.
4. Where mounting heights are not shown, install individual components at standard mounting heights recognized within industry or local codes for that application. Refer questionable mounting height decisions to Owner for final decision.

C. Protection:

1. Cover and protect furniture, equipment, and fixtures from soiling and damage when demolition Work is performed in rooms and areas from which such items have not been removed.

D. Completion Inspection:

1. Upon 100 percent completion of Project, Contractor will request Substantial Completion Inspection.
2. Owner will conduct Substantial Completion Inspection in presence of Contractor and furnish list of items to be corrected.
3. Contractor will notify Owner in writing when items have been corrected.

SECTION 01 7400 CLEANING AND WASTE MANAGEMENT

A. Disposal Of Waste:

1. Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in landfill or incinerator acceptable to authorities having jurisdiction:
 - a. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
 - b. Remove and transport debris in manner that will prevent spillage on adjacent surfaces and areas.
2. Burning: Do not burn waste materials.
3. Disposal: Transport waste materials off Owner's property and legally dispose of them.

B. Progress Cleaning:

1. Keep premises broom-clean during progress of the Work.
2. During handling and installation, protect construction in progress and adjoining materials in place. Apply protective covering where required to ensure protection from soiling, damage, or deterioration until Substantial Completion.
3. Clean and maintain completed construction as frequently as necessary throughout construction period.
4. Remove waste materials and rubbish caused by employees, subcontractors, and contractors under separate contract with Owner and dispose of legally.

C. Final Cleaning:

1. Clean each surface or unit to condition expected in normal, commercial-building cleaning and maintenance program. Comply with manufacturer's instructions. Remove all rubbish from under and about building and leave building clean and habitable.
2. In addition to general cleaning noted above, perform cleaning for all trades at completion of the Work in areas where construction activities have occurred.
3. If Contractor fails to clean up, Owner may do so and charge cost to Contractor.

SECTION 01 7700 CLOSEOUT PROCEDURES**A. General:**

1. Closeout process consists of three specific project closeout inspections. Contractor shall plan sufficient time in construction schedule to allow for required inspections before expiration of Contract Time.
2. Contractor shall conduct his own inspections of The Work and shall not request closeout inspections until The Work of the contract is reasonably complete and correction of obvious defects or omissions are complete or imminent.
3. Date of Substantial Completion shall not occur until completion of construction work, unless agreed to by Architect / Owner's Representative and included on Certificate of Substantial Completion.

B. Preliminary Closeout Review:

1. When Architect, Owner and Contractor agree that project is ready for closeout, Pre-Substantial Inspection shall be scheduled.
2. Architect, Owner and Contractor review completion of punch list items. When Owner and Architect confirm that Contractor has achieved Substantial Completion of The Work, Owner, Architect and Contractor will execute Certificate of Substantial Completion that contains:
 - a. Punch list of items requiring completion and correction will be created.
 - b. Time frame for completion of punch list items will be established, and date for Substantial Completion Inspection shall be set.

C. Substantial Completion Inspection:

1. When Architect, Owner and Contractor agree that project is ready for Substantial Completion, an inspection is held. Punch list created at Pre-Substantial Inspection is to be substantially complete.
2. Prior to this inspection, Contractor shall discontinue or change over and remove temporary facilities from the site, along with construction tools, mock-ups and similar elements.
3. Architect, Owner and Contractor review completion of punch list items. When Owner and Architect confirm that Contractor has achieved Substantial Completion of The Work, Owner, Architect and Contractor will execute Certificate of Substantial Completion that contains:
 - a. Date of Substantial Completion.
 - b. Punch List Work not yet completed, including seasonal and long lead items.
 - c. Amount to be withheld for completion of Punch List Work.
 - d. Time period for completion of Punch List Work.
 - e. Amount of liquidated damages set forth in Supplementary Conditions to be assessed if Contractor fails to complete Punch List Work within time set forth in Certificate.
4. Contractor shall present Closeout Submittals to Architect and place tools, spare parts, extra stock, and similar items required by Contract Documents in locations as directed by Facilities Manager.

D. Final Acceptance Meeting:

1. When punch list items except for any seasonal items or long lead items which will not prohibit occupancy are completed, Final Acceptance Meeting is held.
2. Owner, Architect and Contractor execute Owner's Project Closeout - Final Acceptance form, and verify:
 - a. All seasonal and long lead items not prohibiting occupancy, if any, are identified, with committed to completion date and amount to be withheld until completion.
 - b. Owner's maintenance personnel have been instructed on all system operation and maintenance as required by the Contract Documents.
 - c. Final cleaning requirements have been completed.
3. If applicable, once any seasonal and long lead items are completed, Closeout Inspection is held where Owner and Architect verify that The Work has been satisfactorily completed, and Owner, Architect and Contractor execute Closeout portion of the Project Closeout - Final Acceptance form.
4. When Owner and Architect confirm that The Work is satisfactorily completed, Architect will authorize final payment.

SECTION 01 7800 CLOSEOUT SUBMITTALS

- A. Administrative Requirements:
1. Project Record Documents:
 - a. Do not use record documents for construction purposes:
 - 1) Protect from deterioration and loss in secure, fire-resistive location.
 - 2) Provide access to record documents for reference during normal Working hours.
 - b. Maintain clean, undamaged set of Drawings. Mark set to show actual installation where installation varies from the Work as originally shown. Give particular attention to concealed elements that would be difficult to measure and record at later date:
 - 1) Mark record sets with red erasable pencil. Use other colors to distinguish between variations in separate categories of the Work.
 - 2) Mark new information that is important to Owner, but was not shown on Contract Drawings.
 - 3) Note related Change Order numbers where applicable.
 2. As Built Record Drawings:
 - a. Provide two full-size sets of prints and PDF file of As Built Record Drawings to Facilities Management Office, printed from the updated AutoCAD drawing files or updated Revit model files, as specified by Owner, that have been modified to show actual dimensions and location of equipment, material, utility lines, and other work as actually constructed, based upon information provided by Contractor. Architect will submit updated As Built Record Drawings in PDF (ISO32000 format) to Owner. In addition, Architect will submit to Owner updated AutoCAD as built record drawing files with associated plot style tables or the Revit as built record model files, as specified by Owner.
- B. Operations And Maintenance Manual:
1. General:
 - a. Include closeout submittal documentation as required by Contract Documentation. Include only closeout submittals as defined in individual specification section.
 - b. Submittal Format: Digital copies unless otherwise noted, required for each individual specification section that include 'Closeout Submittals'.
 2. Project Manual:
 - c. Copy of complete Project Manual including Addenda, Modifications as defined in General Conditions, and other interpretations issued during construction:
 - (1) Mark these documents to show variations in actual Work performed in comparison with text of specifications and Modifications.
 - (2) Show substitutions, selection of options, and similar information, particularly on elements that are concealed or cannot otherwise be readily discerned later by direct observation.
 3. Maintenance Contracts: (digital format only).
 4. Operations and Maintenance Data (digital format only):
 - a. Operations and maintenance submittals includes cleaning instructions, maintenance instructions, operations instructions, equipment list, and parts lists.
 5. Warranty Documentation: Digital format of final, executed warranties.
 6. Record Documentation:
 - a. Documentation includes Certifications, color and pattern selections, Design Date, Geotechnical Evaluation Reports (soils reports), Manufacture Reports, Literature or cut sheets, Shop Drawings, Source Quality Control, Special Procedures, and Testing and Inspection Reports.
- C. Warranties:
1. When written guarantees beyond one (1) year after substantial completion are required by Contract Documents, secure such guarantees and warranties properly addressed and signed in favor of Owner. Include these documents in Operations & Maintenance Manual(s) specified above.
 2. Delivery of guarantees and warranties will not relieve Contractor from obligations assumed under other provisions of Contract Documents.

END OF SECTION

SECTION 02 4119**SELECTIVE STRUCTURE DEMOLITION****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
1. Demolition and removal of selected portions of building or structure.

1.2 REFERENCES

- A. Reference Standards:
1. National Fire Protection Association / American National Standards Institute:
 - a. NFPA 241, 'Standard for Safeguarding Construction, Alteration, and Demolition Operations', 2013 Edition.
 2. American Society of Safety Engineers:
 - a. ASSE A10.6-2006, 'Safety Requirements for Demolition Operations'.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
1. Storage or sale of removed items or materials will not be permitted on-site.
- B. Pre-Installation Conference:
1. Before beginning Selective Demolition work, in addition to requirements of Section 01 3100, meet on site to confirm work to be demolished, items to be salvaged or reused, and coordination with Owner.

1.4 QUALITY ASSURANCE

- A. Regulatory Agency Sustainability Approvals:
1. Comply with governing EPA notification regulations before beginning selective demolition.
 2. Comply with hauling and disposal regulations of authorities having jurisdiction.
 3. Standards: Comply with ANSI A10.6 and NFPA 241.

1.5 FIELD CONDITIONS

- A. Existing Conditions:
1. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

PART 2 - PRODUCTS: Not Used**PART 3 - EXECUTION****3.1 EXAMINATION**

- A. Verification Of Conditions:

1. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
 - a. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- B. Evaluation And Assessment:
 1. Hazardous Materials:
 - a. It is not expected that hazardous materials will be encountered in the Work. Identified hazardous materials will be removed by Owner before start of the Work.
 - b. If materials suspected of containing hazardous materials are encountered, do not disturb and immediately notify Architect.
 2. Inventory and record condition of items to be removed and reinstalled and items to be removed and salvaged.
 3. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure nature and extent of conflict. Promptly submit written report to Architect.
 4. 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.
 5. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

3.2 PREPARATION

- A. Temporary Facilities:
 1. Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
 2. Maintain fire-protection facilities in service during selective demolition operations.
- B. Temporary Shoring:
 1. Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.
 2. Strengthen or add new supports when required during progress of selective demolition.
- C. Utility Services:
 1. Existing Services/Systems: Maintain services/systems indicated to remain and protect them against damage during selective demolition operations.
 2. Service/System Requirements: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.
 - a. Arrange to shut off indicated utilities with utility companies.
 - b. If services/systems are required to be removed, relocated, or abandoned, before proceeding with selective demolition, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.

3.3 SELECTIVE DEMOLITION

- A. General:
 1. Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
 2. Demolish and remove existing construction only to extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
 - a. 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.

- b. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 - c. 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.
 - d. Maintain adequate ventilation when using cutting torches.
 - e. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
 - f. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent floor impact or dust generation.
 - g. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 - h. Dispose of demolished items and materials promptly.
- B. Removed and Salvaged Items:
1. Relics, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, antiques, and other items of interest or value to Owner that may be encountered during selective demolition remain Owner's property. Carefully remove and salvage each item or object in a manner to prevent damage and deliver promptly to Owner.
 - a. Clean salvaged items as directed by Owner.
 - b. Pack or crate items after cleaning. Identify contents of containers.
 - c. Store items in a secure area until delivery to Owner.
 - d. Transport items to Owner's storage area designated by Owner.
 - e. Protect items from damage during transport and storage.
- C. Removed and Reinstalled Items:
1. Clean and repair items to functional condition adequate for intended reuse. Paint equipment to match new equipment.
 2. Protect items from damage during storage.
 3. 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.
- D. Existing Items to Remain:
1. Protect construction indicated to remain against damage and soiling during selective demolition.
 2. 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.

3.4 CLEANING

- A. General:
1. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations.
 2. Return adjacent areas to condition existing before selective demolition operations began.
- B. Waste Management:
1. Disposal of Demolished Materials:
 - a. Remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill. Do not burn demolished materials.
 - 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.

END OF SECTION

SECTION 06 1011**WOOD FASTENINGS****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
1. Quality of wood fastening methods and materials used for Rough Carpentry unless specified otherwise.
- B. Related Requirements:
1. Furnishing and installing of other fasteners are specified in individual Sections where installed.

1.2 REFERENCES

- A. Reference Standards;
1. ASTM International:
 - a. ASTM A153/A153M-16a, 'Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware'.
 - b. ASTM F1667-17, 'Standard Specification for Driven Fasteners: Nails, Spikes, and Staples'.

PART 2 - PRODUCTS**2.1 MANUFACTURED UNITS**

- A. Description:
1. Nail Terminology:
 - a. When following nail terms are used in relation to this Project, following lengths and diameters will be understood. Refer to nails of other dimensions by actual length and diameter, not by one of listed terms:

Nail Term	Length	Diameter	Length	Diameter
8d Box	2-1/2 inches	0.113 inch	63.5 mm	2.827 mm
8d Common	2-1/2 inches	0.131 inch	63.5 mm	3.389 mm
10d Box	3 inches	0.128 inch	76.2 mm	3.251 mm
10d Common	3 inches	0.148 inch	76.2 mm	3.759 mm
16d Box	3-1/2 inches	0.135 inch	88.9 mm	3.411 mm
16d Sinker	3-1/4 inches	0.148 inch	82.6 mm	3.759 mm
16d Common	3-1/2 inches	0.162 inch	88.9 mm	4.115 mm

- B. Materials:
1. Fasteners:
 - a. Nails:
 - 1) Meet requirements of ASTM F1667.
 - 2) Unless noted otherwise, nails listed on Drawings or in Specifications shall be common nail diameter, except 16d nails, which shall be box diameter.
 - b. Wood Screws:
 - 1) SDS Screws:
 - a) Category Four Approved Products. See Section 01 6200 for definitions of categories.
 - (1) SDS Screws by Simpson Strong Tie Co, Dublin, CA www.strongtie.com.
 - 2) All Other: Standard type and make for job requirements.

- c. Powder-Actuated Fasteners:
 - 1) Type One Quality Standard: Hilti X-DNI 62P8.
 - 2) Manufacturers:
 - a) Hilti, Tulsa, OK www.us.hilti.com.
 - b) Redhead Division of ITW, Wood Dale, IL www.itw-redhead.com and Markham, ON www.itwconstruction.ca.
 - c) Equals as approved by Architect through shop drawing submittal before installation. See Section 01 6200.
- 2. Adhesives:
 - a. Construction Mastics:
 - 1) Meet requirements of 'APA-The Engineered Wood Association' Specification AFG-01 or ASTM D3498.
 - 2) Use phenol-resorcinol type for use on pressure treated wood products.
- 3. Framing Anchors:
 - a. Framing anchors and associated fasteners in contact with preservative hot dipped zinc-coated galvanized steel or stainless steel. Do not use stainless steel items with galvanized items.
 - b. Type Two Acceptable Products:
 - 1) KC Metals Inc, San Jose, CA www.kcmetals.com.
 - 2) Simpson Strong Tie Co, Dublin, CA www.strongtie.com.
 - 3) United Steel Products Co Inc (USP), Montgomery, MN www.uspconnectors.com.
 - 4) Equals as approved by Architect through shop drawing submittal before installation. See Section 01 6200.

PART 3 - EXECUTION

3.1 ERECTION

- A. Secure one Manufacturer approved fastener in each hole of framing anchor that bears on framing member unless approved otherwise in writing by Architect.

END OF SECTION

SECTION 06 1100**WOOD FRAMING****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
 - 1. Furnish and install wood framing and blocking as described in Contract Documents.
- B. Related Requirements:
 - 1. Sections under 06 4000 Heading: 'Architectural Woodwork' for wall blocking requirements.

1.2 REFERENCES

- A. Association Publications:
 - 1. American Lumber Standard Committee (ALSC) (Maintains NIST standard):
 - a. Voluntary Product Standard:
 - 1) PS 20-15, 'American Softwood Lumber Standard'.
 - 2. National Institute of Standards and Technology (NIST), U. S. Department of Commerce:
 - a. Voluntary Product Standard DOC PS 20-15, 'American Softwood Lumber Standard'.

1.3 DELIVERY, STORAGE, AND HANDLING

- A. Delivery And Acceptance Requirements:
 - 1. Protect lumber and keep under cover in transit and at job site.
 - 2. Do not deliver material unduly long before it is required.
- B. Storage And Handling Requirements:
 - 1. Store lumber on level racks and keep free of ground to avoid warping.
 - 2. Stack to insure proper ventilation and drainage.

PART 2 - PRODUCTS**2.1 MATERIALS**

- A. Dimension Lumber:
 - 1. Design Criteria:
 - a. Meet requirements of PS 20 and National Grading Rules for softwood dimension lumber.
 - b. Bear grade stamp of WWPA, SPIB, or other association recognized by American Lumber Standards Committee identifying species of lumber by grade mark or by Certificate of Inspection.
 - c. Lumber **2 inches (50 mm)** or less in nominal thickness shall not exceed 19 percent in moisture content at time of fabrication and installation and be stamped 'S-DRY', 'K-D', or 'MC15'.
- B. Lumber Ledgers:
 - 1. Design Criteria:
 - a. No. 2 Douglas Fir-Larch, or Southern Pine.
- C. See Contract Drawings for additional requirements.

2.2 ACCESSORIES

- A. Blocking:
 1. Sound lumber without splits, warps, wane, loose knots, or knots larger than **1/2 inch (13 mm)**.
- B. Furring Strips:
 1. Utility or better.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Interface With Other Work:
 1. Coordinate with other Sections for location of blocking required for installation of equipment and building specialties. Do not allow installation of gypsum board until required blocking is in place.
 2. Where manufactured items are to be installed in framing, provide rough openings of dimensions within tolerances required by manufacturers of such items. Confirm dimensions where not shown on Contract Drawings.
- B. Tolerances:
 1. Walls:
 - a. **1/4 inch (6 mm)** in **20 feet (6 meters)**, non-cumulative in length of wall.
 - b. **1/8 inch (3 mm)** in **10 feet (3 meters)** with **1/4 inch (6 mm)** maximum in height of wall.
 - c. Distances between parallel walls shall be **1/4 inch (6 mm)** maximum along length and height of wall.
- C. Walls:
 1. Openings: Single, bearing stud supporting header and one adjacent (king) stud continuous between top and bottom plates, unless shown otherwise.
 2. Corners And Partition Intersections: Triple studs.
 3. Top Plates In Bearing Partitions: Doubled or tripled and lapped. Stagger joints at least **48 inches (1 200 mm)**.
 4. Nailing:
 - a. Stud to plate (coordinate with Contract Drawings):

2 by 4 inch nominal	38 by 89 mm	End nail, two 16d OR toe nail, four 8d
2 by 6 inch nominal	38 by 140 mm	End nail, three 16d OR toe nail, four 8d
2 by 8 inch nominal	38 by 184 mm	End nail, four 16d OR toe nail, six 8d
2 by 10 inch nominal	38 by 235 mm	End nail, five 16d OR toe nail, six 8d
1-3/4 by 5-1/2 inch LVL	44 by 140 mm LVL	End nail, three 16d OR toe nail, four 8d
1-3/4 by 7-1/4 inch LVL	44 by 184 mm LVL	End nail, four 16d OR toe nail, six 8d
1-3/4 by 9-1/4 inch LVL	44 by 235 mm LVL	End nail, five 16d OR toe nail, six 8d
1-3/4 by 11-1/4 inch LVL	44 by 286 mm LVL	End nail, six 16d OR toe nail eight 8d

- b. Top plates: Spiked together, 16d, **16 inches (400 mm)** on center.
 - c. Top plates: Laps, lap members **48 inches (1200 mm)** minimum and nail with 16d nails **4 inches (100 mm)** on center
 - d. Top plates: Intersections, three 16d.
 - e. Backing And Blocking: Three 8d, each end.
 - f. Corner studs and angles: 16d, **16 inches (400 mm)** on center.
- D. Accessory / Equipment Mounting And Gypsum Board Back Blocking (nailers) for Wood Framing:
 1. Furnish and install blocking in wood framing required for hardware, specialties, equipment, accessories, and mechanical and electrical items, etc.

E. Furring Strips:

1. On Wood: Nail or screw as required to secure firmly.

a. Ceiling:

1) Attach furring strips to the underside of structural elements with #8 wood screws, of length to penetrate wood framing 1 inch (25 mm) minimum.

END OF SECTION

SECTION 06 1636**WOOD PANEL PRODUCT SHEATHING****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
 - 1. Furnish and install wood panel product sheathing required for walls as described in Contract Documents.
- B. Related Requirements:
 - 1. Section 06 1100: 'Wood Framing'.

1.2 REFERENCES

- A. Association Publications:
 - 1. National Institute of Standards and Technology (NIST), U. S. Department of Commerce:
 - a. Voluntary Product Standard DOC PS 1-09. 'Structural Plywood'.
 - b. Voluntary Product Standard DOC PS 2-04. 'Performance Standard for Wood-Based Structural-Use Panels'.
 - 2. The Engineered Wood Association (APA), Tacoma, WA www.apawood.org.
 - a. Performance Rated Panels, 'Product Guide' (for products bearing the APA trademark) December 2011.
 - b. Voluntary Product Standard:
 - 1) PS 1-09. 'Structural Plywood'.
 - 2) PS 2-04. 'Performance Standard for Wood-Based Structural-Use Panels'.
 - c. PRP-108 'Performance Standards and Policies for Structural-Use Panels'.
 - 3. TECO, Cottage Grove, WI www.tecotested.com.
 - a. TECO PRP-133: ('Fire Rated Assemblies – OSB substitution for plywood in UL fire-rated assemblies that specify plywood).

1.3 DELIVERY, STORAGE, AND HANDLING

- A. Delivery And Acceptance Requirements:
 - 1. Do not deliver material unduly long before it is required.
 - 2. Protect sheathing and keep under cover in transit and at job site.
- B. Storage And Handling Requirements:
 - 1. Store sheathing on level racks and keep free of ground.
 - 2. Stack to insure proper ventilation and drainage.

PART 2 - PRODUCTS**2.1 MATERIALS**

- A. Performance:
 - 1. Design Criteria:
 - a. Meet requirements of PS 1, PS 2, or PRP-133 (TECO). Except where plywood is specifically indicated on Contract Drawings, oriented strand board (OSB) is acceptable.

B. Sheathing:

1. Sheathing:

- a. Sheathing shall bear grade stamp from American Plywood Association (APA) or equal grading organization.
- b. Sheathing shall not exceed 18 percent moisture content when fabricated or more than 19 percent when installed in Project.
- c. Sheathing **23/32 inch (18.3 mm)** thick and thicker used for single-layer subflooring shall be tongue and groove.
- d. Sheathing used for same purpose shall be of same thickness. In all cases, thickness specified is minimum required regardless of span rating.
- e. Minimum span ratings for given thicknesses shall be as follows:

Thickness	Span Rating
3/8 inch	24 / 0
7/16 inch nominal	24 / 16
15/32 inch actual	32 / 16
1/2 inch nominal	32 / 16
19/32 inch actual	40 / 20
5/8 inch nominal	40 / 20
23/32 inch actual	48 / 24
3/4 inch nominal	48 / 24

2.2 ACCESSORIES

A. Nails:

1. As indicated on Contract Drawings.

PART 3 - EXECUTION**3.1 INSTALLATION**

A. General:

1. Top of nail heads shall be flush with sheathing surface.
2. Use of edge clips to provide spacing between sheathing panels is acceptable.

B. Wall Sheathing:

1. Spacing:
 - a. Provide **1/8 inch (3 mm)** space between sheets at end and edge joints.
2. Edge Bearing And Blocking:
 - a. Panel edges shall bear on framing members and butt along their center lines.
 - b. Back block panel edges, which do not bear on framing members, with **2 inch nominal (45 mm)** framing.
3. Nail Spacing:
 - a. As indicated on Contract Drawings.
 - b. Place nails not less than **3/8 inch (9.5 mm)** in from edge.
4. Thickness:
 - a. As indicated on Contract Drawings.
5. Do not install any piece of wall sheathing with shortest dimension of less than **12 inches (300 mm)**.

END OF SECTION

SECTION 06 2001**COMMON FINISH CARPENTRY REQUIREMENTS****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
 - 1. Furnish and install sealants required for items installed under this Section, as described in Contract Documents.
- B. Products Installed But Not Furnished Under This Section:
 - 1. Architectural Woodwork.
 - 2. Miscellaneous Wood Trim.
 - 3. Selected Equipment.
 - 4. Wood Trim at ceilings.
- C. Related Requirements:
 - 1. Section 06 1100: 'Wood Framing' for furring and blocking.
 - 2. Section 06 2210: 'Miscellaneous Wood Trim'.
 - a. Wood Trim.
 - 3. Sections under 06 4000 Heading: Furnishing of Architectural Woodwork.
 - a. Section 06 4001: 'Common Architectural Woodwork Requirements':
 - 1) Quality of wood materials to be used in Finish Carpentry.
 - b. Section 06 4512: 'Architectural Woodwork Wood Trim'.
 - 4. Section 07 9213: 'Elastomeric Joint Sealants' for quality of sealants and installation requirements.
 - 5. Sections in Division 11: Furnishing of Equipment.

1.2 REFERENCES

- A. Association Publications:
 - 1. Architectural Woodwork Institute / Architectural Woodwork Manufacturers Association of Canada / Woodwork Institute, 46179 Westlake Drive, Suite 120, Potomac Falls, VA www.awinet.org.
 - a. Architectural Woodwork Standards (AWS), 2nd Edition, 2014.
- B. Definitions:
 - 1. Grade: Unless otherwise noted, this term means Grade rules for Economy, Custom, and/or Premium Grade:
 - a. Economy Grade: The lowest acceptable grade in both material and workmanship requirements, and is for work where price outweighs quality considerations.
 - b. Custom Grade: Typically specified for and adequately covers most high-quality architectural woodwork, providing a well-defined degree of control over a project's quality of materials, workmanship, or installation.
 - c. Premium Grade: The highest Grade available in both material and workmanship where the highest level of quality, materials, workmanship, and installation is required.

PART 2 - PRODUCTS**2.1 MATERIALS**

- A. Manufacturers:
 - 1. Manufacturer Contact List:

- a. Blum Inc, Stanley, NC www.blum.com.
- b. Bommer Industries, Landrum, SC www.bommer.com.
- c. CompX National, Mauldin, SC www.nclnet.com.
- d. Dow Chemical, Midland, MI www.dow.com.
- e. Flynn & Enslow, San Francisco, CA www.flynnenslow.com.
- f. Grass America Inc, Kernersville, NC www.grassusa.com.
- g. Hafele America Co., Archdale, NC hafele.com.
- h. Owens Corning, Toledo, OH www.owens-corning.com.
- i. Salice America Inc, Charlotte, NC www.saliceamerica.com.
- j. Stanley, New Britain, CT www.stanleyhardware.com or Oakville, ON (800) 441-1759.
- k. TWP Inc., Berkley, CA www.twpinc.com.

B. Glue: Waterproof and of best quality.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verification Of Conditions:
1. Verify walls, ceilings, and openings are plumb, straight, in-line, and square before installing Architectural Woodwork.
 2. Report conditions that are not in compliance to Architect before starting installation.

3.2 PREPARATION

- A. Surface Preparation:
1. Install Architectural Woodwork after wall and ceiling painting is completed in areas where Architectural Woodwork is to be installed.
- B. Items Installed But Not Furnished Under This Section: Install in accordance with requirements specified in Section furnishing item.

3.3 INSTALLATION

- A. Special Techniques:
1. AWS Custom Grade is minimum acceptable standard, except where explicitly specified otherwise, for installation of architectural woodwork.
- B. General Architectural Woodwork Installation:
1. Fabricate work in accordance with measurements taken on Project site.
 2. Scribe, miter, and join accurately and neatly to conform to details.
 3. Exposed surfaces shall be machine sanded, ready for finishing.
 4. Allow for free movement of panels.
 5. Countersink nails. Countersink screws and plug those exposed to view.
 6. Attach custom casework as specified in Sections under 06 4000 Heading: 'Furnishing of Architectural Woodwork' to wall blocking with #10 x **3 inch (76 mm)** minimum Cabinet Screws. Attach wall cabinets with screws equally spaced horizontally not to exceed **12 inches (305 mm)** O.C. with **3 inch (76 mm)** maximum spacing at cabinet edges.

END OF SECTION

SECTION 06 2210**MISCELLANEOUS WOOD TRIM****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
1. Furnish and install wood trim not specified elsewhere as described in Contract Documents.
 2. Section 06 4512: 'Architectural Woodwork Wood Trim'.

1.2 REFERENCES

- A. Association Publications:
1. Architectural Woodwork Institute / Architectural Woodwork Manufacturers Association of Canada / Woodwork Institute, 46179 Westlake Drive, Suite 120, Potomac Falls, VA www.awinet.org.
 - a. Architectural Woodwork Standards (AWS), 2nd Edition, 2014.
- B. Definitions:
1. Grade: Unless otherwise noted, this term means Grade rules for Economy, Custom, and/or Premium Grade:
 - a. Custom Grade: Typically specified for and adequately covers most high-quality architectural woodwork, providing a well-defined degree of control over a project's quality of materials, workmanship, or installation.
 2. Plain-Sawn: A hardwood figure developed by sawing a log lengthwise at a tangent to the annual growth rings. It appears as U-shaped or straight markings in the board's face.

PART 2 - PRODUCTS**2.1 MATERIALS**

- A. Design Criteria:
1. General:
 - a. Meet requirements of Section 06 4001 for general standards for materials and fabrication of Architectural Woodwork.
 2. Opaque Finished Hardwood: Hardwood allowed by AWS Custom Grade.
 3. Opaque Finished Softwood: Solid stock Pine, C or better, S4S.

PART 3 - EXECUTION: Not Used**END OF SECTION**

SECTION 06 4001**COMMON ARCHITECTURAL WOODWORK REQUIREMENTS****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
 - 1. General standards for materials and fabrication of Architectural Woodwork.
- B. Related Requirements:
 - 1. Section 06 1100: 'Wood Framing' for furring and blocking.
 - 2. Section 06 2001: 'Common Finish Carpentry Requirements' for Installation.
 - 3. Section 06 2210: 'Miscellaneous Wood Trim'.
 - 4. Section 06 4512: 'Architectural Woodwork Wood Trim'.

1.2 REFERENCES

- A. Association Publications:
 - 1. Architectural Woodwork Institute / Architectural Woodwork Manufacturers Association of Canada / Woodwork Institute, 46179 Westlake Drive, Suite 120, Potomac Falls, VA www.awinet.org.
 - a. Architectural Woodwork Standards (AWS), 2nd Edition, 2014.
- B. Definitions:
 - 1. Grade: Unless otherwise noted, this term means Grade rules for Economy, Custom, and/or Premium Grade:
 - a. Custom Grade: Typically specified for and adequately covers most high-quality architectural woodwork, providing a well-defined degree of control over a project's quality of materials, workmanship, or installation.

1.3 QUALITY ASSURANCE

- A. Qualifications: Requirements of Section 01 4301 applies, but not limited to following:
 - 1. Fabricator:
 - a. Fabricator Firm specializing in performing work of this section.
 - 1) Firm experience in supplying products indicated for this Project.
 - 2) Firm with sufficient production capacity to produce required units.
 - 3) Firm will comply with specifications and Contract Documents for this Project.
 - 4) Minimum five (5) years experience in Woodwork installations.
 - 5) Minimum five (5) satisfactorily completed installations in past three (3) years of projects similar in size, scope, and installation procedures required for this project before bidding.
 - b. Upon request by Architect or Owner, submit documentation.

1.4 DELIVERY, HANDLING, AND STORAGE

- A. Delivery And Acceptance Requirements:
 - 1. Assemble architectural woodwork at Architectural Woodwork Fabricator's plant and deliver ready for erection insofar as possible.
 - 2. Protect architectural woodwork from moisture and damage while in transit to job site.
 - 3. Report damaged materials received within two (2) days from delivery at project site.

B. Storage And Handling Requirements:

1. Unload and store in place where it will be protected from moisture and damage and convenient to use.

PART 2 - PRODUCTS**2.1 FABRICATORS**

A. Approved Fabricators. See Section 01 4301:

1. Meet Quality Assurance Fabricator Qualifications as specified in Part 1 of this specification.

2.2 ASSEMBLIES

A. Design Criteria:

1. General:
 - a. AWS Custom Grade is minimum acceptable standard, except where explicitly specified otherwise, for materials, construction, and installation of architectural woodwork.
2. Materials:
 - a. Lumber:
 - 1) Grade:
 - a) No defects in boards smaller than 600 sq in (3 871 sq cm).
 - b) One defect per additional 150 sq inches (968 sq cm) in larger boards.
 - c) Select pieces for uniformity of grain and color on exposed faces and edges.
 - d) No mineral grains accepted.
 - 2) Allowable Defects:
 - a) Tight knots not exceeding 1/8 inch (3 mm) in diameter. No loose knots permitted.
 - b) Patches (dutchmen) not apparent after finishing when viewed beyond 18 inches (450 mm).
 - c) Checks or splits not exceeding 1/32 inch by 3 inches (1 mm by 75 mm) and not visible after finishing when viewed beyond 18 inches (450 mm).
 - d) Stains, pitch pockets, streaks, worm holes, and other defects not mentioned are not permitted.
 - e) Normal grain variations, such as cats eye, bird's eye, burl, curl, and cross grain are not considered defects.
 - 3) Use maximum lengths possible, but not required to exceed 10 feet (3 meters) without joints. No joints shall occur closer than 72 inches (1 800 mm) in straight runs exceeding 18 feet (3 600 mm). Runs between 18 feet (3 600 mm) and 10 feet (3 meters) may have no more than one joint. No joints shall occur within 72 inches (1 800 mm) of outside corners nor within 18 inches (450 mm) of inside corners.
 - 4) Moisture content shall be six (6) percent maximum at fabrication. No opening of joints due to shrinkage is acceptable.

B. Fabrication:

1. Follow Architectural Woodwork Standards (AWS) for fabrication of Architectural Woodwork.
2. Tolerances:
 - a. No planer marks (KCPI) allowed. Sand wood members and surfaces with 100 grit or finer.
 - b. Maximum Gap: None allowed.
 - c. Flushness Variation: 0.015 inch (0.4 mm) maximum.
 - d. Sanding Cross Scratches: 1/4 inch (6 mm) maximum.
 - e. Plug screw holes. Screw locations not to be visible beyond 18 inches (450 mm).
3. Fabricate work in accordance with measurements taken on job site.
4. 'Ease' sharp corners and edges of exposed members to promote finishing and protect users from splinters. Radius of 'easing' shall be uniform throughout Project and between 1/32 and 1/16 of an inch (0.8 and 1.6 of a millimeter).
5. Fabricate so veneer grain is vertical.

6. Joints:
 - a. Use lumber pieces with similar grain pattern when joining end to end.
 - b. Compatibility of grain and color from lumber to panel products is required.
7. Remove or repair damaged surface of or defects in exposed finished surfaces of architectural woodwork to match adjacent similar undamaged surface.

PART 3 - EXECUTION: Not Used

END OF SECTION

SECTION 06 4512**ARCHITECTURAL WOODWORK WOOD TRIM****PART 1 - GENERAL****1.1 SUMMARY**

- A. Products Furnished But Not Installed Under This Section:
 - 1. Wood trim at ceiling.
- B. Related Requirements:
 - 1. Section 06 1100: 'Wood Framing' for wall blocking required for Wood Trim.
 - 2. Section 06 2001: 'Common Finish Carpentry Requirements':
 - a. Installation of Wood Trim.
 - 3. Section 06 2210: Remaining Wood Trim.
 - 4. Section 06 4001: 'Common Architectural Woodwork Requirements':
 - a. General standards for materials and fabrication of Architectural Woodwork.

1.2 REFERENCES

- A. Association Publications:
 - 1. Architectural Woodwork Institute / Architectural Woodwork Manufacturers Association of Canada / Woodwork Institute, 46179 Westlake Drive, Suite 120, Potomac Falls, VA www.awinet.org.
 - a. Architectural Woodwork Standards (AWS), 2nd Edition, 2014.
- B. Definitions:
 - 1. Grade: Unless otherwise noted, this term means Grade rules for Economy, Custom, and/or Premium Grade.
 - a. Custom Grade: Typically specified for and adequately covers most high-quality architectural woodwork, providing a well-defined degree of control over a project's quality of materials, workmanship, or installation.
 - 2. Plain-Sawn: A hardwood figure developed by sawing a log lengthwise at a tangent to the annual growth rings. It appears as U-shaped or straight markings in the board's face.
 - 3. Running Trim: Generally combined in the term "standing and running trim" and refers to random, longer length trims delivered to the jobsite (e.g., baseboard, chair rail, crown molding).

PART 2 - PRODUCTS**2.1 MATERIALS**

- A. Performance / Design Criteria: Conform to requirements of Section 06 4001 'Common Architectural Woodwork Requirements'.
 - 1. Glue: Waterproof and of best quality.
- B. Architectural Woodwork Wood Trim:
 - 1. Interior Wood For Opaque, Painted Finish:
 - a. Applies to ceiling trim only.
 - b. Solid wood shall be any species allowed by AWS Custom grade.

PART 3 - EXECUTION Not Used**END OF SECTION**

SECTION 07 9213**ELASTOMERIC JOINT SEALANTS****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
 - 1. Furnish and install sealants not specified to be furnished and installed under other Sections.
 - 2. Quality of sealants to be used on Project not specified elsewhere, including material and installation requirements.
- B. Related Requirements:
 - 1. Furnishing and installing of sealants is specified in Sections specifying work to receive new sealants.

1.2 REFERENCES

- A. Definitions:
 - 1. Sealant Types and Classifications:
 - a. ASTM Specifications:
 - 1) Type:
 - a) Type S: Single-component sealant.
 - b) Type M: Multi-component sealant.
 - 2) Grade:
 - a) Grade P: Pourable or self-leveling sealant used for horizontal traffic joints.
 - b) Grade NS: Non-sag or gunnable sealant used for vertical and non-traffic joints.
 - 3) Classes: Represent movement capability in percent of joint width.
 - a) Class 100/50: Sealant that, when tested for adhesion or cohesion under cyclic movement shall withstand of at least 100 percent increase and decrease of at least 50 percent of joint width as measured at time of application.
 - b) Class 50: Sealant that, when tested for adhesion or cohesion under cyclic movement shall withstand increase and decrease of at least 50 percent of joint width as measured at time of application.
 - c) Class 25: Sealant that, when tested for adhesion or cohesion under cyclic movement shall withstand increase and decrease of at least 25 percent of joint width as measured at time of application.
 - d) Class 12: Sealant that, when tested for adhesion and cohesion under cyclic movement shall withstand increase and decrease of at least 12 percent of joint width as measured at time of application.
 - 4) Use:
 - a) T (Traffic): Sealant designed for use in joints in pedestrian and vehicular traffic areas such as walkways, plazas, decks and parking garages.
 - b) NT (Non-Traffic): Sealant designed for use in joints in non-traffic areas.
 - c) I (Immersion): Sealant that meets bond requirements when tested by immersion (Immersion rated sealant applications require primer).
 - d) M (Mortar): Sealant that meets bond requirements when tested on mortar specimens.
 - e) G (Glass): Sealant that meets bond requirements when tested on glass specimens.
 - f) A (Aluminum): Sealant that meets bond requirements when tested on aluminum specimens.
 - g) O (Other): Sealant that meets bond requirements when tested on substrates other than standard substrates, being glass, aluminum, mortar.

2. Silicone: Any member of family of polymeric products whose molecular backbone is made up of alternating silicon and oxygen atoms and which has pendant hydrocarbon groups attached to silicon atoms. Used primarily as a sealant. Offers excellent resistance to water and large variations in temperature (minus 100 deg F to + 600 deg F) (minus 73.3 deg C to + 316 deg C).

B. Reference Standards:

1. ASTM International:
 - a. ASTM C920-14a, 'Standard Specification for Elastomeric Joint Sealants'.
 - b. ASTM C1193-16, 'Standard Guide for Use of Joint Sealants'.
 - c. ASTM C1330-02(2013), 'Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid Applied Sealants'.

1.3 ADMINISTRATIVE REQUIREMENTS

A. Scheduling:

1. Ensure sealants are cured before covering with other materials.

1.4 QUALITY ASSURANCE

A. Qualifications:

1. Manufacturer: Company specializing in manufacturing products specified in this section with minimum ten (10) years documented experience.
2. Applicator Qualifications:
 - a. Company specializing in performing work of this section.
 - b. Provide if requested, reference of projects with minimum three (3) years documented experience, minimum three (3) successfully completed projects of similar scope and complexity, and approved by manufacturer.
 - c. Designate one (1) individual as project foreman who shall be on site at all times during installation.

B. Preconstruction Testing:

1. Pre-construction testing is not required when sealant manufacturer can furnish data acceptable to Architect based on previous testing for materials matching those of the Work.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Delivery and Acceptance Requirements:

1. Deliver and keep in original containers until ready for use.
2. Inspect for damage or deteriorated materials.

B. Storage and Handling Requirements:

1. Handle, store, and apply materials in compliance with applicable regulations and material safety data sheets (MSDS).
2. Handle to prevent inclusion of foreign matter, damage by water, or breakage.
3. Store in a cool dry location, but never under 40 deg F (4 deg C) or subjected to sustained temperatures exceeding 90 deg F (32 deg C) or as per Manufacturer's written recommendations.
4. Do not use sealants that have exceeded shelf life of product.

1.6 FIELD CONDITIONS

A. Ambient Conditions:

1. Do not install sealant during inclement weather or when such conditions are expected. Allow wet surfaces to dry.
2. Follow Manufacturer's temperature recommendations for installing sealants.

1.7 WARRANTY

A. Manufacturer Warranty:

1. Signed warranties against adhesive and cohesive failure of sealant and against infiltration of water and air through sealed joint for period of three (3) years from date of Substantial Completion.
 - a. Manufacturer's standard warranty covering sealant materials.
 - b. Applicator's standard warranty covering workmanship.

PART 2 - PRODUCTS

2.1 SYSTEMS

A. Manufacturers:

1. Manufacturer Contact List:
 - a. Dow Corning Corp., Midland, MI www.dowcorning.com.
 - b. Franklin International, Inc. Columbus, OH www.titebond.com.
 - c. GE Sealants & Adhesives (see Momentive Performance Materials Inc.).
 - d. Laticrete International Inc., Bethany, CT www.laticrete.com.
 - e. Momentive Performance Materials Inc. (formally GE Sealants & Adhesives), Huntersville, NC www.ge.com/silicones.
 - f. Sherwin-Williams, Cleveland, OH www.sherwin-williams.com.
 - g. Sika Corporation, Lyndhurst, NJ www.sikaconstruction.com or Sika Canada Inc, Pointe Claire, QC www.sika.ca.
 - h. Tremco, Beachwood, OH www.tremcosealants.com or Tremco Ltd, Toronto, ON (800) 363-3213.

B. Materials:

1. Design Criteria:
 - a. Compliance: Meet or exceed requirements of these standards:
 - 1) ASTM C920: Elastomeric joint sealant performance standard.
 - 2) ASTM D5893/D5893M: Silicone Joint Sealant for Concrete Pavements.
 - b. Comply with Manufacturer's ambient condition requirements.
 - c. Sealants must meet Manufacturer's shelf-life requirements.
 - d. Sealants must adhere to and be compatible with specified substrates.
 - e. Sealants shall be stable when exposed to UV, joint movements, and environment prevailing at project location.
 - f. Primers (Concrete, stone, masonry, and other nonporous surfaces typically do not require a primer. Aluminum and other nonporous surfaces except glass require use of a primer. Installer Option to use Adhesion Test to determine if primer is required or use primer called out in related sections):
 - 1) Adhesion Test:
 - a) Apply silicone sealant to small area and perform adhesion test to determine if primer is required to achieve adequate adhesion. If necessary, apply primer at rate and in accordance with Manufacturer's instructions. See 'Field Quality Control' in Part 3 of this specification for Adhesive Test.
 - 2) If Primer required, shall not stain and shall be compatible with substrates.
 - 3) Allow primer to dry before applying sealant.
2. General Interior Sealants:
 - a. General:
 - 1) Miscellaneous gaps between substrates.
 - b. Design Criteria:
 - 1) Meet ASTM C920, Type S, Grade NS, NT, and Class 25 test requirements.
 - 2) 100 percent silicone sealant.
 - c. Non-Paintable Sealant (Installer Option A):
 - 1) Category Four Approved Product. See Section 01 6200 for definitions of Categories:
 - a) Dow Corning: Tub, Tile, And Ceramic Silicone Sealant.

- b) Laticrete: Latacil Silicone Sealant.
 - c) Momentive Performance Materials (formerly, GE Sealants & Adhesives): GE SCS2800 SilGlaze II Silicone Sealant.
 - d) Sherwin Williams: White Lightning Silicone Ultra Low Odor Window and Door Sealant.
 - e) Tremco: Tremsil 200 Silicone Sealant.
 - f) Franklin International: Titebond 2601 (White) 2611 (Clear) 100% Silicone Sealant.
- d. Paintable Sealant (Installer Option B):
- 1) Category Four Approved Product. See Section 01 6200 for definitions of Categories:
 - a) Momentive Performance Materials (formerly, GE Sealants & Adhesives): GE SCS7000 Paintable Silicone Sealant.
3. Sealants For Interior Joints:
- a. Description:
 - 1) One-part acetoxycure silicone sealant with fungicides to resist mold and mildew.
 - b. Design Criteria:
 - 1) Meet ASTM C920, Type S, Grade NS, NT, and Class 25 test requirements.
 - 2) 100 percent silicone sealant.
 - c. Color: As selected by Architect from Manufacturer's standard colors.
 - d. Category Four Approved Products. See Section 01 6200 for definitions of Categories:
 - 1) Dow Corning: Tub, Tile, And Ceramic Silicone Sealant.
 - 2) Laticrete: Latacil Tile and Stone Silicone Sealant.
 - 3) Momentive Performance Materials (formerly, GE Sealants & Adhesives): GE SCS1700 Sanitary Silicone Sealant.
 - 4) Tremco: Tremsil 200 Silicone Sealant.

2.2 ACCESSORIES

- A. Bond Breaker Tape:
 - 1. Pressure sensitive tape as by Sealant Manufacturer to suit application.
 - 2. Provide tape to prevent adhesion to joint fillers or joint surfaces at back of joint and allow sealant movement.
- B. Joint Backing:
 - 1. Comply with ASTM C1330.
 - 2. Flexible closed cell, non-gassing polyurethane or polyolefin rod or bond breaker tape as recommended by Sealant Manufacturer for joints being sealed.
 - 3. Oversized 25 to 50 percent larger than joint width.
- C. Joint Cleaner:
 - 1. Non-corrosive and non-staining type as recommended by Sealant Manufacturer, compatible with joint forming materials.
- D. Masking Tape:
 - 1. Non-staining, non-absorbent tape product compatible with joint sealants and adjacent joint surfaces.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verification Of Conditions:
 - 1. Examine substrate surfaces and joint openings are ready to receive Work.
 - a. Verify each sealant is compatible for use with joint substrates.
 - b. Verify joint surfaces are clean and dry.
 - c. Ensure concrete surfaces are fully cured.
 - 2. Sealants provided shall meet Manufacturer's shelf-life requirements.

3. Notify Architect of unsuitable conditions in writing.
 - a. Do not proceed until unsatisfactory conditions are corrected.
4. Commencement of Work by installer is considered acceptance of substrate.

3.2 PREPARATION

A. Surface Preparation:

1. Surfaces shall be clean, dry, free of dust, oil, grease, dew, frost or incompatible sealers, paints or coatings that may interfere with adhesion. Prepare substrates in accordance with Manufacturer's instructions:
 - a. Porous surfaces: Clean by mechanical methods to expose sound surface free of contamination and laitance followed by blasting with oil-free compressed air.
 - b. Nonporous surfaces: Use two-cloth solvent wipe in accordance with ASTM C1193. Allow solvent to evaporate prior to sealant application.
 - c. Primers:
 - 1) Primers enhance adhesion ability.
 - 2) Use of primers is not a substitution for poor joint preparation.
 - 3) Primers should be used always in horizontal application where there is ponding water.
2. Field test joints in inconspicuous location.
 - a. Verify joint preparation and primer required to obtain optimum adhesion of sealants to joint substrate.
 - b. When test indicates sealant adhesion failure, modify joint preparation primer, or both and retest until joint passes sealant adhesion test.
3. Masking: Apply masking tape as required to protect adjacent surfaces and to ensure straight bead line and facilitate cleaning.

B. Joints:

1. Prepare joints in accordance with ASTM C1193.
 - a. Clean joint surfaces of contaminants capable of affecting sealant bond to joint surface using Manufacturer's recommended instructions for joint preparation methods.
 - b. Remove dirt, dust, oils, wax, paints, and contamination capable of affecting primer and sealant bond.

C. Protection:

1. Protect elements surrounding the Work of this section from damage or disfiguration.

3.3 APPLICATION

A. General:

1. Apply silicone sealant in accordance with Manufacturer's instructions.
2. Do not use damaged or deteriorated materials.
3. Install primer and sealants in accordance with ASTM C1193 and Manufacturer's instructions.
4. Apply primer where required for sealant adhesion.
5. Install sealants immediately after joint preparation.
6. Do not use silicone sealant as per the following:
 - a. Apply caulking/sealant at temperatures below 40 deg F (4 deg C).
 - b. Brass and copper surfaces.
 - c. Materials bleeding oils, plasticizers, and solvents.
 - d. Structural glazing and adhesive.

B. Joint Backing:

1. Install joint backing to maintain sealant joint ratios recommended by Manufacturer.
2. Install without gaps, twisting, stretching, or puncturing backing material. Use gage to ensure uniform depth to achieve correct profile, coverage, and performance.
3. Rod for open joints shall be at least 1-1/2 times width of open joint and of thickness to give solid backing. Backing shall fill up joint so depth of sealant bite is no more than 3/8 inch (9.5 mm) deep.

- C. Bond Breaker:
 - 1. Install bond breaker where joint backing is not used or where backing is not feasible.
 - a. Apply bond-breaker tape in shallow joints as recommended by Sealant Manufacturer.
- D. Sealant:
 - 1. Apply sealant with hand-caulking gun with nozzle of proper size to fit joints. Use sufficient pressure to insure full contact to both sides of joint to full depth of joint. Apply sealants in vertical joints from bottom to top.
 - 2. Fill joint opening to full and proper configuration.
 - 3. Apply in continuous operation.
 - 4. Tool joints immediately after application of sealant if required to achieve full bedding to substrate or to achieve smooth sealant surface. Tool joints in opposite direction from application direction, i.e., in vertical joints, from the top down. Do not 'wet tool' sealants.
 - 5. Depth of sealant bite shall be **1/4 inch (6 mm)** minimum and **1/2 inch (12.7 mm)** maximum, but never more than one half or less than one fourth joint width.
- E. Caulk gaps between painted or coated substrates and unfinished or pre-finished substrates. Caulk gaps larger than **3/16 inch (5 mm)** between painted or coated substrates.

3.4 TOLERANCES

- A. Provide joint tolerances in accordance with Manufacturer's printed instructions.

3.5 FIELD QUALITY CONTROL

- A. Adhesion Test (Installer Option to use adhesion test to determine if primer is required).
 - 1. Perform adhesion tests in accordance with Manufacturer's instructions and ASTM C1193, Method A, Field-Applied Sealant joint Hand-Pull Tab:
 - a. Perform five (5) tests for first **1,000 linear feet (300 meters)** of applied silicone sealant and one (1) test for each **1,000 linear feet (300 meters)** seal thereafter or perform one (1) test per floor per building elevation minimum.
 - b. For sealants applied between dissimilar materials, test both sides of joints.
 - 2. Sealants failing adhesion test shall be removed, substrates cleaned, sealants re-installed, and re-testing performed.
 - 3. Maintain test log and submit report to Architect indicating tests, locations, dates, results, and remedial actions.

3.6 CLEANING

- A. Remove masking tape and excess sealant.
- B. Clean adjacent materials, which have been soiled, immediately (before setting) as recommended by Manufacturer.
- C. Waste Management: Dispose of products in accordance with manufacturer's recommendation.

END OF SECTION

SECTION 09 2900**GYPSUM BOARD****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
 - 1. Furnish and install gypsum board as described in Contract Documents.
- B. Related Requirements:
 - 1. Section 09 9413: 'Interior Textured Finishing'.

1.2 REFERENCES

- A. Definitions:
 - 1. Accessories: Metal or plastic beads, trim, or moulding used to protect or conceal corners, edges, or abutments of the gypsum board construction.
 - 2. Drywall Primer: Paint material specifically formulated to fill the pores and equalize the suction difference between gypsum board surface paper and the compound used on finished joints, angles, fastener heads, and accessories and over skim coatings.
 - 3. Skim Coat: Either a thin coat of joint compound trowel applied, or a material manufactured especially for this purpose and applied in accordance with manufacturer's recommendations, over the entire surface.
 - 4. Texturing: Regular or irregular patterns typically produced by applying a mixture of joint compound and water, or proprietary texture materials including latex base texture paint, to a gypsum board surface previously coated with drywall primer.
- B. Reference Standards:
 - 1. ASTM International:
 - a. ASTM C11-16, 'Standard Terminology Relating to Gypsum and Related Building Materials and Systems'.
 - b. ASTM C475/C475M-15, 'Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board'.
 - c. ASTM C840-17, 'Standard Specification for Application and Finishing of Gypsum Board'.
 - d. ASTM C1002-16, 'Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs'.
 - e. ASTM C1047-14a, 'Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base'.
 - f. ASTM C1396/C1396M-14a, 'Standard Specification for Gypsum Board'.
 - g. ASTM E84-16, 'Standard Test Method for Surface Burning Characteristics of Building Materials'.
 - h. ASTM E119-16a, 'Standard Test Method for Fire Tests of Building Construction and Materials'.
 - 2. Gypsum Association:
 - a. GA-214-15, 'Recommended Levels of Gypsum Board Finish'.
 - b. GA-216-16: 'Application and Finishing of Gypsum Panel Products'.
 - c. GA-600-15, 'Fire Reference Design Manual'.
 - d. GA-801-07, 'Handling and Storage of Gypsum Panel Products: A Guide for Distributors, Retailers, and Contractors'.
 - 3. International Building Code (IBC) (2015 or latest approved version):
 - a. Chapter 25, 'Gypsum Board And Plaster'.

4. Underwriters Laboratories, Inc.
 - a. UL 263: 'Test Method for Fire Tests of Building Construction and Materials' (14th Edition).
 - b. UL 723: 'Test for Surface Burning Characteristics of Building Materials; (10th Edition).

1.3 DELIVERY, STORAGE, AND HANDLING

- A. General:
 1. Following recommendations of GA-801 Guide for Handling and Storage of Gypsum Panel Products unless local, state or federal laws or agency rules differing from the recommendations shall take precedence.
- B. Delivery And Acceptance Requirements:
 1. Deliver materials in original packages, containers, or bundles bearing brand name, applicable standard designation, and Manufacturer's name.
- C. Storage And Handling Requirements:
 1. Store material under roof and keep dry and protected against damage from weather, condensation, direct sunlight, construction traffic, and other causes. Stack gypsum board flat to prevent sagging.

1.4 FIELD CONDITIONS

- A. Ambient Conditions:
 1. Comply with ASTM C840 or GA-216 requirements, whichever are more stringent:
 - a. Do not install interior products until installation areas are enclosed and conditioned.
 - 1) Temperature shall be 50 deg F (10 deg C) and 95 deg F (35 deg C) maximum day and night during entire joint operation and until execution of Certificate of Substantial Completion.
 - 2) Provide ventilation to eliminate excessive moisture.
 - 3) Avoid hot air drafts that will cause too rapid drying.
 - b. Do not install panels that are wet, those that are moisture damaged, and those that are mold damaged.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Manufacturers:
 1. Manufacturer Contact List:
 - a. American Gypsum, Dallas, TX www.americangypsum.com.
 - b. CertainTeed Gypsum, Inc; Tampa, FL www.certainteed.com.
 - c. Georgia Pacific, Atlanta, GA www.gp.com.
 - d. National Gypsum, Charlotte, NC www.nationalgypsum.com.
 - e. Pabco Gypsum, Newark, CA www.pabcogypsum.com.
 - f. United States Gypsum Co, Chicago, IL www.usg.com.
- B. Materials:
 1. Interior Gypsum Board:
 - a. General:
 - 1) Size:
 - a) Provide maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.
 - 2) Class Two Quality Standard:
 - a) Core: Fire-resistant rated gypsum core.

- b) Complies with Type X requirements of ASTM C1396/C1396M (Section 5).
- c) Surface paper: Face paper suitable for painting.
- d) Long edges: Tapered edge.
- e) Overall thickness: **5/8 inch (15.9 mm)**.

2.2 ACCESSORIES

A. Manufacturers:

1. Manufacturer Contact List:
 - a. Kinetics Noise Control, Dublin, OH www.kineticsnoise.com.
 - b. Magnum Products, Lenaxa, KS www.levelcoat.com.
 - c. National Gypsum, Charlotte, NC www.nationalgypsum.com.
 - d. Soundproofing Co, San Marcos, CA www.soundproofing.org.
 - e. United States Gypsum Co, Chicago, IL www.usg.com.
 - f. Westpac Materials Inc, Orange, CA www.westpacmaterials.com.
 - g. Wm. Zinsser & Co, Somerset, NJ www.zinsser.com.
2. Gypsum Board Mounting Accessories:
 - a. Corner And Edge Trim:
 - 1) Metal, paper-faced metal, paper-faced plastic, or solid vinyl meeting requirements of ASTM C1047. Surfaces to receive bedding cement treated for maximum bonding.
 - b. Control Joint:
 - 1) Bent zinc sheet with V-shaped slot, perforated flanges, covered with plastic tape meeting requirements of ASTM C1047.
3. Joint Compound:
 - a. Best grade or type recommended by Board Manufacturer and meeting requirements of ASTM C475/C475M.
 - 1) Use Taping Compound for first coat to embed tape and accessories.
 - 2) Use Taping Compound or All-Purpose Compound for subsequent coats except final coat.
 - 3) Use Finishing Compound for final coat and for skim coat.
4. Joint Reinforcing:
 - a. Paper reinforcing tape acceptable to Gypsum Board Manufacturer.
5. Fasteners:
 - a. Bugle head screws meeting requirements of ASTM C1002:
 - 1) Gypsum Board:
 - a) Type W: For fastening gypsum board to wood members, of length to penetrate wood framing **5/8 inch (15.9 mm)** minimum.

B. Primer / Surfacers On Surfaces To Receive Texturing:

1. Type Two Acceptable Products:
 - a. Sheetrock First Coat by USG.
 - b. Prep Coat by Westpac Materials.
 - c. Level Coat by Magnum Products.
 - d. Equal as approved by Architect before bidding. See Section 01 6200.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verification Of Conditions:

1. Examine substrate and verify framing is suitable for installation of gypsum board.
2. Examine gypsum board before installation. Reject panels that are wet, moisture damaged, and mold damaged.
3. Notify Architect of unsuitable conditions in writing.
 - a. Do not install board over unsuitable conditions.

4. Commencement of Work by installer is considered acceptance of substrate.

3.2 INSTALLATION

- A. Interface With Other Work:
 1. Coordinate with Division 06 for location of backblocking for edges and ends of gypsum board and for blocking required for installation of equipment and building specialties.
 2. Do not install gypsum board until required blocking is in place.
- B. General: Install and finish as recommended in ASTM C840 or GA-216 unless specified otherwise in this Section.
- C. Interior Gypsum Board:
 1. General:
 - a. Install so trim and reinforcing tape are fully backed by gypsum board. No hollow spaces between pieces of gypsum board over **1/8 inch (3 mm)** wide before taping are acceptable.
 - b. Rout out backside of gypsum board to accommodate items that extend beyond face of framing, but do not penetrate face of gypsum board, such as metal door frame mounting brackets, etc.
 - c. On walls over **108 inches (2 700 mm)** high, apply board perpendicular to support
 - d. Butt edges in moderate contact. Do not force in place. Shim to level.
 - e. Leave facings true with joint, finishing flush. Vertical work shall be plumb and ceiling surfaces level.
 - f. Scribe work closely:
 - 1) Keep joints as far from openings as possible.
 - 2) If joints occur near an opening, apply board so vertical joints are centered over openings.
 - 3) No vertical joints shall occur within **8 inches (200 mm)** of external corners or openings.
 - g. Install board tight against support with joints even and true. Tighten loose screws.
 - h. Caulk perimeter joints in sound insulated rooms with specified acoustical sealant.
 2. Ceilings:
 - a. Apply ceilings first using minimum of two (2) men.
 - b. Use board of length to give minimum number of joints.
 - c. Apply board perpendicular to support.
 - d. Chapel:
 - 1) Single Layer Application:
 - a) Stagger end joints:
 - (1) End and edge joints of board applied on ceilings shall occur over framing members or be back blocked with **2x4 (38 mm by 89 mm)** blocking.
 - (2) Edge joints of board vertically applied on walls shall occur over framing members.
 - (3) **2x4 (38 mm by 89 mm)** blocking is required at wall to ceiling transitions and at top of ceiling vault transitions.
 3. Fastening:
 - a. Apply from center of board towards ends and edges.
 - b. Apply screws **3/8 inch (9.5 mm)** minimum from ends and edges, **one inch (25 mm)** maximum from edges, and **1/2 inch (13 mm)** maximum from ends.
 - c. Spacing:
 - 1) Ends: Screws not over **7 inches (175 mm)** on center at edges where blocking or framing occurs.
 - 2) Wood Framed Walls And Ceilings: Screws **7 inches (175 mm)** on center in panel field.
 - d. Set screw heads **1/32 inch (0.8 mm)** below plane of board, but do not break face paper. If face is accidentally broken, apply additional screw **2 inches (50 mm)** away.
 - e. Screws on adjacent ends or edges shall be opposite each other.
 - f. Drive screws with shank perpendicular to face of board.

4. Trim:
 - a. Corner Beads:
 - 1) Attach corner beads to outside corners.
 - a) Attach metal corner bead with staples spaced **4 inches (100 mm)** on center maximum and flat taped over edges of corner bead. Also, apply screw through edge of corner bead where wood trim will overlay corner bead.
 - b) Set paper-faced trim in solid bed of taping compound.
 - b. Edge Trim: Apply where gypsum board abuts dissimilar material.
5. Finishing:
 - a. General:
 - 1) Tape and finish joints and corners throughout building as specified below to correspond with final finish material to be applied to gypsum board. When sanding, do not raise nap of gypsum board face paper or paper-faced trim.
 - 2) First Coat:
 - a) Apply tape over center of joint in complete, uniform bed of specified taping compound and wipe with a joint knife leaving a thin coating of joint compound. If metal corner bead is used, apply reinforcing tape over flange of metal corner bead and trim so half of tape width is on flange and half is on gypsum board.
 - b) Completely fill gouges, dents, and fastener dimples.
 - c) Allow to dry and sand lightly if necessary to eliminate high spots or excessive compound.
 - 3) Second Coat:
 - a) Apply coat of specified joint compound over embedded tape extending **3-1/2 inches (88 mm)** on both sides of joint center. Use finishing compound only if applied coat is intended as final coat.
 - b) Re-coat gouges, dents, and fastener dimples.
 - c) Allow to dry and sand lightly to eliminate high spots or excessive compound.
 - 4) Third Coat: Apply same as second coat except extend application **6 inches (150 mm)** on both sides of joint center. Allow to dry and sand with fine sandpaper or wipe with damp sponge.
 - 5) Fourth Coat: Apply same as second coat except extend application **9 inches (425 mm)** on both sides of joint center. Allow to dry and sand with fine sandpaper or wipe with damp sponge.
 - a. Finishing Levels: Finish panels to levels indicated below and according to ASTM C840, GA-214 and GA-216:
 - 1) Gypsum Board Surfaces to Receive: Painted Texturing - Section 09 9413: 'Interior Textured Finishing':
 - a) GA-214 Level 4: 'All and interior angles shall have tape embedded in joint compound and two separate coats of joint compound applied over all flat joints and one separate coat of joint compound applied over interior angles. Fastener heads and accessories shall be covered with three separate coats of joint compound. All joint compound shall be smooth and free of tool marks and ridges. Coat prepared surface with specified primer'.

3.3 FIELD QUALITY CONTROL

A. Non-Conforming Work:

1. Remove and replace panels that are wet, moisture damaged, and mold damaged.
 - a. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
 - b. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

3.4 CLEANING

- #### A. Remove from site debris resulting from work of this Section including taping compound spills.

END OF SECTION

SECTION 09 9001

COMMON PAINTING AND COATING REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Includes But Not Limited To:
 - 1. Common procedures and requirements for field-applied painting and coating.
- B. Related Requirements:
 - 1. Section 07 9213: 'Elastomeric Joint Sealants' for quality of Elastomeric Joint Sealants.
 - 2. Sections under 09 9000 heading 'Paints and Coatings'.

1.2 REFERENCES

- A. Definitions:
 - 1. Damage Caused By Others: Damage caused by individuals other than those under direct control of Painting Applicator (MPI(a), PDCA P1.92).
 - 2. Gloss Levels:
 - a. Specified paint gloss level shall be defined as sheen rating of applied paint, in accordance with following terms and values, unless specified otherwise for a specific paint system.

Gloss Level '1'	Traditional matte finish - flat	0 to 5 units at 60 degrees to 10 units maximum at 85 degrees.
Gloss Level '2'	High side sheen flat - 'velvet-like' finish	10 units maximum at 60 degrees and 10 to 35 units at 85 degrees.
Gloss Level '3'	Traditional 'eggshell-like' finish	10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees.
Gloss Level '4'	'Satin-like' finish	20 to 35 units at 60 degrees and 35 units minimum at 85 degrees.
Gloss Level '5'	Traditional semi-gloss	35 to 70 units at 60 degrees.
Gloss Level '6'	Traditional gloss	70 to 85 units at 60 degrees.
Gloss Level "7"	High gloss	More than 85 units at 60 degrees.

- 3. Properly Painted Surface:
 - a. Surface that is uniform in appearance, color, and sheen and free of foreign material, lumps, skins, runs, sags, holidays, misses, strike-through, and insufficient coverage. Surface free of drips, spatters, spills, and overspray caused by Paint Applicator. Compliance will be determined when viewed without magnification at a distance of 5 feet (1.50 m) minimum under normal lighting conditions and from normal viewing position (MPI(a), PDCA P1.92).
- 4. Latent Damage: Damage or conditions beyond control of Painting Applicator caused by conditions not apparent at time of initial painting or coating work.

- B. Reference Standards:
 - 1. The latest edition of the following reference standard shall govern all painting work:
 - a. MPI(a), 'Architectural Painting Specification Manual' by Master Painters Institute (MPI), as issued by local MPI Accredited Quality Assurance Association having jurisdiction.
 - b. MPI(r), 'Maintenance Repainting Manual' by Master Painters Institute (MPI), as issued by local MPI Accredited Quality Assurance Association having jurisdiction.

1.3 QUALITY ASSURANCE

- A. Regulatory Agency Sustainability Approval:
 - 1. Conform to work place safety regulations and requirements of those authorities having jurisdiction for storage, mixing, application and disposal of all paint and related hazardous materials.
 - 2. Paint and painting materials shall be free of lead and mercury, and have VOC levels acceptable to local jurisdiction.
 - 3. Master Painters Institute (MPI) Standards:
 - a. Products: Comply with MPI standards indicated and listed in 'MPI Approved Products List'.
 - b. Preparation and Workmanship: Comply with requirements in 'MPI Architectural Painting Specification Manual' for products and coatings indicated.
- B. Qualifications:
 - 1. Applicator: Requirements of Section 01 4301 applies, but not limited to following:
 - a. Minimum five (5) years' experience in painting installations.
 - b. Minimum five (5) satisfactorily completed projects of comparable quality, similar size, and complexity in past three (3) years before bidding.
 - c. Maintain qualified crew of painters throughout duration of the Work.
 - d. Upon request, submit documentation.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Delivery And Acceptance Requirements:
 - 1. Deliver specified products in sealed, original containers with Manufacturer's original labels intact on each container.
 - 2. Deliver amount of materials necessary to meet Project requirements in single shipment.
- B. Storage And Handling Requirements:
 - 1. Store materials in single place.
 - 2. Keep storage area clean and rectify any damage to area at completion of work of this Section.
 - 3. Maintain storage area at 55 deg F (13 deg C) minimum.

1.5 FIELD CONDITIONS

- A. Ambient Conditions:
 - 1. Perform painting operations at temperature and humidity conditions recommended by Manufacturer for each operation and for each product for both interior and exterior work.
 - 2. Apply painting systems at lighting level of 540 Lux (50 foot candles) minimum on surfaces to be painted.
 - a. Inspection of painting work shall take place under same lighting conditions as application.
 - b. If painting and coating work is applied under temporary lighting, deficiencies discovered upon installation of permanent lighting will be considered latent damage as defined in MPI Manual, PDCA P1-92.

PART 2 - PRODUCTS

2.1 SYSTEMS

- A. Performance:
 - 1. Design Criteria:
 - a. Provide materials for use within each coating system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
 - b. All materials, preparation and workmanship shall conform to requirements of 'Architectural Painting Specification Manual' by Master Painters Institute (MPI).

- c. All paint manufacturers and products used shall be as listed under Approved Product List section of MPI Painting Manual.
 - d. Provide Premium Grade systems (2 top coats) as defined in MPI Architectural Painting Specification Manual, except as otherwise indicated.
 - e. Where specified paint system does not have Premium Grade, provide Budget Grade.
 - f. Provide products of same manufacturer for each coat in coating system.
 - g. Color Levels:
 - 1) Color Level II:
 - a) Number and placement of interior and exterior paint colors and gloss levels shall be as defined by Color Level II from MPI Manual, PDCA P3-93 as modified in following paragraph.
 - b) No more than one paint color or gloss level will be selected for same substrate within designated interior rooms or exterior areas.
- B. Materials:
1. Materials used for any painting system shall be from single manufacturer unless approved otherwise in writing by painting system manufacturers and by Architect. Include manufacturer approvals in Product Data submittal.
 2. Linseed oil, shellac, turpentine, and other painting materials shall be pure, be compatible with other coating materials, bear identifying labels on containers, and be of highest quality of an approved manufacturer listed in MPI manuals. Tinting color shall be best grade of type recommended by Manufacturer of paint or stain used on Project.

PART 3 - EXECUTION

3.1 APPLICATORS

- A. Approved Applicators:
1. Meet Quality Assurance Applicator Qualifications as specified in Part 1 of this specification.

3.2 EXAMINATION

- A. Verification Of Conditions:
1. Directing applicator to begin painting and coating work will indicate that substrates to receive painting and coating materials have been previously inspected as part of work of other Sections and are complete and ready for application of painting and coating systems as specified in those Sections.
- B. Pre-Installation Testing:
1. Before beginning work of this Section, examine, and test surfaces to be painted or coated for adhesion of painting and coating systems.
 2. Report in writing to Architect of conditions that will adversely affect adhesion of painting and coating work.
 3. Do not apply painting and coating systems until party responsible for adverse condition has corrected adverse condition.
- C. Evaluation And Assessment:
1. Report defects in substrates that become apparent after application of primer or first finish coat to Architect in writing and do not proceed with further work on defective substrate until such defects are corrected by party responsible for defect.

3.3 PREPARATION

- A. Protection Of In-Place Conditions:
1. Protect other finish work and adjacent materials during painting. Do not splatter, drip, or paint surfaces not intended to be painted. These items will not be spelled out in detail but pay special attention to the following:
 - a. Do not paint finish copper, bronze, chromium plate, nickel, stainless steel, anodized aluminum, or monel metal except as explicitly specified.
 - b. Keep cones of ceiling speakers completely free of paint. In all cases where painting of metal speaker grilles is required, paint without grilles mounted to speakers and without grilles on ceiling.
 - c. On existing work where ceiling is to be painted, speakers and grilles are already installed, and ceiling color is not being changed, mask off metal grilles installed on ceiling speakers. If ceiling color is being changed, remove metal grilles and paint, and mask off ceiling speakers.
- B. Surface Preparation:
1. Prepare surfaces in accordance with MPI requirements and requirements of Manufacturer for each painting system specified, unless instructed differently in Contract Documents. Bring conflicts to attention of Architect in writing.
 2. Fill minor holes and cracks in wood surfaces to receive paint or stain.
 3. Surfaces to be painted shall be clean and free of loose dirt. Clean and dust surfaces before painting or finishing.
 4. Do no exterior painting while surface is damp, unless recommended by Manufacturer, nor during rainy or frosty weather. Interior surfaces shall be dry before painting. Moisture content of materials to be painted shall be within tolerances acceptable to Paint Manufacturer.
 5. Sand woodwork smooth in direction of grain leaving no sanding marks. Clean surfaces before proceeding with stain or first coat application.

3.4 APPLICATION

- A. Interface With Other Work:
1. Coordinate with other trades for materials and systems that require painting before installation.
 2. Schedule painting and coating work to begin when work upon which painting and coating work is dependent has been completed. Schedule installation of pre-finished and non-painted items, which are to be installed on painted surfaces, after application of final finishes.
- B. Paint or finish complete all surfaces to be painted or coated as described in Contract Documents, including but not limited to following items.
1. Finish wood trims that are specified to be installed under Section 06 2001 and that are not called out to be factory-or shop-finished.
- C. Apply sealant in gaps **3/16 inch (5 mm)** and smaller between two substrates that are both to be painted or coated. Sealants in other gaps furnished and installed under Section 07 9213.
- D. In multiple coat paint work, tint each succeeding coat with slightly lighter color, but approximating shade of final coat, so it is possible to check application of specified number of coats. Tint final coat to required color.
- E. Spread materials smoothly and evenly. Apply coats to not less than wet and dry film thicknesses and at spreading rates for specified products as recommended by Manufacturer.
- F. Touch up suction spots after application of first finish coat.
- G. Paint shall be thoroughly dry and surfaces clean before applying succeeding coats.
- H. Use fine sandpaper between coats as necessary to produce even, smooth surfaces.

- I. Make edges of paint adjoining other materials or colors clean, sharp, and without overlapping.
- J. Finished work shall be a 'Properly Painted Surface' as defined in this Section.

3.5 FIELD QUALITY CONTROL

- A. Non-Conforming Work:
 - 1. Correct deficiencies in workmanship as required to leave surfaces in conformance with 'Properly Painted Surface,' as defined in this Section.
 - 2. Correction of 'Latent Damage' and 'Damage Caused By Others,' as defined in this Section, is not included in work of this Section.

3.6 CLEANING

- A. General:
 - 1. As work proceeds and upon completion of work of any painting Section, remove paint spots from floors, walls, glass, or other surfaces and leave work clean, orderly, and in acceptable condition.
- B. Waste Management:
 - 1. Remove rags and waste used in painting operations from building each night. Take every precaution to avoid danger of fire.
 - 2. Paint, stain and wood preservative finishes and related materials (thinners, solvents, caulking, empty paint cans, cleaning rags, etc.) shall be disposed of subject to regulations of applicable authorities having jurisdiction.
 - 3. Remove debris caused by work of paint Sections from premises and properly dispose.
 - 4. Retain cleaning water and filter out and properly dispose of sediments.

END OF SECTION

ATTACHMENTS

PART 4 - PAINT COLOR SCHEDULE

- A. Related Requirements:
 - 1. Section 09 9123 'Interior Painted Gypsum Board-Plaster'.
 - 2. Section 09 9125 'Interior Wood Paint'.

- B. Colors:
 - 1. Interior:
 - a. Interior Gypsum Board, Plaster (See Section 09 9123):
 - 1) Class One Color Quality Standard. See Section 01 6200:
 - a) Match Existing.

 - b. Interior Painted Wood (See Section 09 9125):
 - 1) Class One Color Quality Standard. See Section 01 6200:
 - a) Match Existing.

SECTION 09 9123**INTERIOR PAINTED GYPSUM BOARD, PLASTER****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
 - 1. Preparing, priming, and finish painting new and existing interior gypsum board and plaster surfaces as described in Contract Documents.
- B. Related Requirements:
 - 1. Section 09 9001: 'Common Painting And Coating Requirements':
 - a. 'Attachment: Paint Color Schedule' for O&M / R&I Projects.
 - 2. Section 09 9413: 'Interior Textured Finishing' for textured finishes.

PART 2 - PRODUCTS**2.1 SYSTEM**

- A. Manufacturers:
 - 1. Category Four Approved Manufacturers and Products. See Section 01 6200 for definitions of Categories.
 - a. Products listed in edition of MPI Approved Product List current at time of bidding and later are approved, providing they meet VOC requirements in force where Project is located.
- B. Description:
 - 1. Rooms:
 - a. New Surfaces: Use MPI(a) INT 9.2B Latex Finish system.
 - b. Previously Finished Work: Use MPI(r) RIN 9.2B Latex Finish system.
- C. Performance:
 - 1. Design Criteria:
 - a. New Surfaces: MPI Premium Grade finish requirements.
 - b. Sound Existing Surfaces: MPI Custom Grade requirements.
 - c. Gloss / Sheen Required:
 - 1) Chapel Ceiling: Gloss Level 1 or 2.
 - 2) Remaining Painted Surfaces: Gloss Level 5.
- D. Materials:
 - 1. Primers:
 - a. MPI Product 50, 'Primer Sealer, Latex, Interior'.
 - 2. Finish Coats:
 - a. Chapel Ceiling:
 - 1) MPI Product 53, 'Latex, Interior, Flat (MPI Gloss Level 1)'.
 - b. Remaining Painted Surfaces:
 - 1) MPI Product 141, 'Latex, Interior, High Performance Architectural, Semi-Gloss (MPI Gloss Level 5)'.

PART 3 - EXECUTION**3.1 APPLICATION**

- A. General: See appropriate paragraphs of Section 09 9001.
- B. New Surfaces:
 - 1. Primer: Apply primer to be covered with other paint coats with roller only, or with spray gun and back-rolled.
- C. Existing Painted Surfaces:
 - 1. Remove deteriorated existing paint down to sound substrate by scraping or sanding. Feather edges of existing paint by sanding to be smooth with adjacent surfaces.
 - 2. Clean surface with mild soap and water, or with tri-sodium phosphate (TSP). Wash surfaces that have been defaced with marking pens, crayons, lipstick, etc, with solvent recommended by Paint Manufacturer. Spot prime such surfaces.
 - 3. Spackle and tape cracks. Sand to smooth finish and spot prime.
 - 4. Sand or chemically etch existing painted surface as required to prepare surface to accept new paint.
 - 5. Re-clean surface.
 - 6. Apply primer coat.
 - 7. Apply finish coats.

END OF SECTION

SECTION 09 9125**INTERIOR PAINTED WOOD****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
 - 1. Preparing and painting new and existing woodwork not requiring transparent finish, as described in Contract Documents.
- B. Related Requirements:
 - 1. Section 09 9001: 'Common Painting And Coating Requirements':
 - a. 'Attachment: Paint Color Schedule' for O&M / R&I Projects.

PART 2 - PRODUCTS**2.1 SYSTEM**

- A. Manufacturers:
 - 1. Category Four Approved Products and Manufacturers. See Section 01 6200 for definitions of Categories:
 - a. Products listed in edition of MPI Approved Product List current at time of bidding and later are approved, providing they meet VOC requirements in force where Project is located.
- B. Description:
 - 1. Systems:
 - a. Rooms:
 - 1) New Surfaces: Use MPI(a) INT 6.3T or U Latex Finish system.
 - 2) Previously Finished Surfaces: MPI(r) Rin 6.3U Latex Finish system.
- C. Performance:
 - 1. Design Criteria:
 - a. New Surfaces: MPI Premium Grade finish requirements.
 - b. Sound Existing Surfaces: MPI Custom Grade finish requirements.
 - c. Gloss / Sheen Level Required: Gloss Level 5.
- D. Materials:
 - 1. Woodwork:
 - a. Primer Coat: MPI Product 39, 'Primer, Latex, for Interior Wood' or MPI Product 45, 'Primer Sealer, Alkyd, Interior'.
 - b. Finish Coats: MPI Product 153, 'Light Industrial Coating, Interior, Water Based, Semi-Gloss (MPI Gloss Level 5)'.

PART 3 - EXECUTION**3.1 APPLICATION**

- A. General: See appropriate paragraphs of Section 09 9001.
- B. Interface With Other Work:
 - 1. Properly clean and paint surfaces before installation of light fixtures.

C. New Surfaces:

1. Spot prime nail holes, cracks, and blemishes before and after puttying.
2. Apply stain blocker or other product recommended by Paint Manufacturer to knots before applying primer coat.

D. Existing Painted Surfaces:

1. Remove deteriorated existing paint down to sound substrate by scraping and sanding. Feather edges of existing paint by sanding to be smooth with adjacent surfaces. Spot prime bare wood areas on woodwork.
2. Wash surfaces that have been defaced with marking pens, crayons, lipstick, etc, with solvent recommended by Paint Manufacturer. Spot prime such surfaces.
3. Apply finish coats.

END OF SECTION

SECTION 09 9413**INTERIOR TEXTURED FINISHING****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
 - 1. Furnish and apply texturing on walls and ceilings as described in Contract Documents.
- B. Related Requirements:
 - 1. Section 09 2900: 'Gypsum Board' for priming.
 - 2. Section 09 9001: 'Common Painting And Coating Requirements'.
 - 3. Section 09 9123: 'Interior Painted Gypsum Board, Plaster' for finish painting.

1.2 REFERENCES

- A. Definitions:
 - 1. Drywall Texture: Compound rolled, sprayed, or troweled onto sheetrock after taping and floating of joints is complete. Uses same material as joint compound, but thinned down with water and applied to wall surface:
 - a. Light Orange Peel: Sprayed texture leaves light splatter on walls. Resembles peel of orange. If done with fine spray, can be one of the lightest, least noticeable of the texture styles.

PART 2 - PRODUCTS**2.1 SYSTEM**

- A. Manufacturers:
 - 1. Manufacturer Contact List:
 - a. National Gypsum, Charlotte, NC www.nationalgypsum.com.
 - b. U S Gypsum Co, Chicago, IL www.usg.com.
- B. Materials:
 - 1. Class Two Quality Standards: See Section 01 6200.
 - a. ProForm Perfect Spray EM/HF by National Gypsum.
 - b. Sheetrock Wall & Ceiling Texture by U S Gypsum.

PART 3 - EXECUTION**3.1 APPLICATION**

- A. Location:
 - 1. Walls:
 - a. Light Orange Peel Texture to match existing:
 - 2. Ceilings:
 - a. Light Orange Peel Texture to match existing:
 - 1) Chapel.

B. Finishing:

1. Light Orange Peel Texture:

- a. After gypsum board is taped and sanded, apply texture. Closely match existing.
 - 1) After wall has been textured, apply priming and finish paint as specified in Section 09 9123.

END OF SECTION

SECTION 11 5213**PROJECTION SCREENS****PART 1 - GENERAL****1.1 SUMMARY**

- A. Products Installed But Not Furnished Under This Section:
 - 1. Coordination, sequencing, and adjusting of Owner-Furnished projection screens and brackets as described in the Contract Documents.
- B. Related Requirements:
 - 1. Section 01 6400: 'Owner-Furnished Products', Owner will furnish projection screens and brackets. PART 2 PRODUCTS of this Section establishes quality of materials for information of Contractor, Architect, and Owner's representatives.
 - 2. Section 06 1100: 'Wood Framing' for blocking in wood stud framed walls for projection screens brackets.
 - 3. Section 06 2001: 'Common Finish Carpentry Requirements' for installation of Owner-Furnished projection screens and brackets.
 - 4. Division 26: Electrical connections and setting of limit switches for Motorized Project Screen(s).

1.2 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate the efforts of the various trades affected by the Work of this Section.
 - 2. Coordinate completions of solid blocking in framed walls.
- B. Sequencing:
 - 1. Install projections screens after following has been completed:
 - a. Solid blocking installed in framed walls for projection screen brackets.
 - b. Adjacent walls and ceilings are finished and painted.
 - c. Motorized Projection Screen:
 - 1) Electrical connections and setting of limit switches has been completed.

1.3 SUBMITTALS

- A. Action Submittals:
 - 1. Product Data:
 - a. Manufacturer's literature or cut sheet.
- B. Informational Submittals:
 - 1. Manufacturer Instructions:
 - a. Written installation instructions.
- C. Closeout Submittals:
 - 1. Include following in Operations And Maintenance Manual specified in Section 01 7800:
 - a. Operations and Maintenance Data:
 - 1) Manufacturer's operating instructions.
 - b. Record Documentation:
 - 1) Manufacturers Documentation:
 - a) Manufacturer's literature or cut-sheet.

1.4 WARRANTY

A. Manufacturer Warranty:

1. Manufacturer's standard warranty against defects in material and workmanship.

PART 2 - PRODUCTS

2.1 OWNER-FURNISHED PRODUCTS

A. Manufacturer:

1. Category Two National Contract Manufacturers. See Section 01 6200 for definition of Categories:
 - a. Draper Inc, Spiceland, IN www.draperinc.com.

B. Materials:

1. Wall-Mounted Motorized Projection Screen:
 - a. Exposed, wall-mounted, electrically operated screen unit.
 - b. Heavy-duty 2.5 amp ball bearing unit with 'stop in any position' and up and down factory pre-set limit switches.
 - c. Chapel:
 - 1) One (1) 192 inches (4.88 m) high by 192 inches (4.88 m) wide:
 - a) Flame retardant screen.
 - b) Matte white.
 - c) 7 foot (2.15 m) drop and reverse roll.
 - d) Screen operates instantly at touch of button and stops automatically in 'up' and 'down' positions.
 - 2) Category Two Approved Products. See Section 01 6200 for definitions of Categories:
 - a) Targa Electric Project Screen by Draper.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verification Of Conditions:

1. Verify solid blocking has been installed in framed walls for projection screen brackets.
2. Verify adjacent walls and ceilings are finished and painted.
3. Verify electrical work is complete for motorized projection screen(s).
4. Notify Architect in writing of inadequate conditions.

3.2 INSTALLATION

A. Interface With Other Work:

1. Coordinate with Section 06 1100: 'Wood Framing' for blocking location in wood stud framed walls for projection screen brackets.

- #### B. Follow Manufacturer's written installation instructions at locations as indicated on Contract Documents.

3.3 ADJUSTING

A. Wall-Mounted Motorized Projection Screen:

1. Set limit switches so bottom of screen stops as follows:
 - a. Rostrum: 3 feet (0.90 m) above finish floor of Rostrum.

END OF SECTION

SECTION 26 0501**COMMON ELECTRICAL REQUIREMENTS****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
1. General electrical system requirements and procedures.
 2. Make electrical connections to equipment provided under other Sections.

1.2 REFERENCES

- A. Reference Standards:
1. National Fire Protection Association / American National Standards Institute:
 - a. NFPA 70, National Electric Code (NEC).
 2. National Electrical Manufacturing Association Standards (NEMA):
 - a. NEMA 250, 'Enclosure for Electrical Equipment (1000 Volts Maximum)'.

1.3 SUBMITTALS

- A. Action Submittals:
1. Product Data:
 - a. Provide following information for each item of equipment:
 - 1) Catalog Sheets.
 - 2) Assembly details or dimension drawings.
 - 3) Installation instructions.
 - 4) Manufacturer's name and catalog number.
 - 5) Name of local supplier.
 - b. Furnish such information for following equipment:
 - 1) Section 26 5100: 'Interior Lighting Fixtures'.
 - c. Do not purchase equipment before approval of product data.
- B. Informational Submittals:
1. Qualification Statement:
 - a. Electrical Subcontractor:
 - 1) Provide Qualification documentation if requested by Architect or Owner.
 - b. Installer:
 - 1) Provide Qualification documentation if requested by Architect or Owner.
- C. Closeout Submittals:
1. Include following in Operations And Maintenance Manual specified in Section 01 7800:
 - a. Operations and Maintenance Data:
 - 1) Provide operating and maintenance instructions for each item of equipment submitted under Product Data.
 - b. Record Documentation:
 - 1) Manufacturers documentation:
 - a) Manufacturer's literature.

1.4 QUALITY ASSURANCE

- A. Regulatory Agency Sustainability Approvals:
 - 1. NEC and local ordinances and regulations shall govern unless more stringent requirements are specified.
 - 2. Material and equipment provided shall meet standards of NEMA or UL and bear their label wherever standards have been established and label service is available.
- B. Qualifications: Requirements of Section 01 4301 applies, but not limited to following:
 - 1. Electrical Subcontractor:
 - a. Company specializing in performing work of this section.
 - 1) Minimum five (5) years experience in electrical installations.
 - 2) Minimum five (5) satisfactorily completed installations in past three (3) years of projects similar in size, scope, and complexity required for this project before bidding.
 - b. Upon request, submit documentation.
 - 2. Installer:
 - a. Licensed for area of Project.
 - b. Designate one (1) individual as project foremen who shall be on site at all times during installation and experienced with installation procedures required for this project.
 - c. Upon request, submit documentation.

PART 2 - PRODUCTS: Not Used

PART 3 - EXECUTION

3.1 INSTALLERS

- A. Acceptable Installers:
 - 1. Meet Quality Assurance Installer Qualifications as specified in Part 1 of this specification.

3.2 EXAMINATION

- A. Verification Of Conditions:
 - 1. Confirm dimensions, ratings, and specifications of equipment to be installed and coordinate these with site dimensions and with other Sections.
- B. Evaluation And Assessment:
 - 1. All relocations, reconnections, and removals are not necessarily indicated on Drawings. Include such work without additional cost to Owner.

3.3 PREPARATION

- A. Where affected by demolition or new construction, relocate, extend, or repair raceways, conductors, outlets, and apparatus to allow continued use of electrical system. Use methods and materials as specified for new construction.
- B. Perform drilling, cutting, block-offs, and demolition work required for removal of necessary portions of electrical system. Do not cut joists, beams, girders, trusses, or columns without prior written permission from Architect.
- C. Remove concealed wiring abandoned due to demolition or new construction. Remove circuits, conduits, and conductors that are not to be re-used back to next active fixture, device, or junction box.

- D. Patch, repair, and finish surfaces affected by electrical demolition work, unless work is specifically specified to be performed under other Sections of the specifications.

3.4 INSTALLATION

- A. General:
 - 1. Locations of electrical equipment shown on Drawings are approximate only. Field verify actual locations for proper installation.
 - 2. Coordinate electrical equipment locations and conduit runs with those providing equipment to be served before installation or rough in.
 - a. Notify Architect of conflicts before beginning work.
 - b. Coordinate locations of power and lighting outlets in mechanical rooms and other areas with mechanical equipment, piping, ductwork, cabinets, etc, so they will be readily accessible and functional.
 - 3. Work related to other trades which is required under this Division, such as cutting and patching, shall be performed according to standards specified in applicable Sections.

3.5 FIELD QUALITY CONTROL

- A. Field Tests:
 - 1. Test systems and demonstrate equipment as working and operating properly. Notify Architect before test. Rectify defects at no additional cost to Owner.
 - 2. Measure current for each phase of each motor under actual final load operation, i.e. after air balance is completed for fan units, etc. Record this information along with full-load nameplate current rating and size of thermal overload unit installed for each motor.

3.6 CLEANING

- A. Remove obsolete raceways, conductors, apparatus, and lighting fixtures promptly from site and dispose of legally.

END OF SECTION

SECTION 26 0519**LINE-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
 - 1. Quality of conductors used on Project except as excluded below.
- B. Related Requirements:
 - 1. Section 26 0501: 'Common Electrical Requirements'.

1.2 REFERENCES

- A. Definitions:
 - 1. Line Voltage: Over 70 Volts.
- B. Reference Standards:
 - 1. National Fire Protection Association:
 - a. NFPA (Fire) 70, 'National Electric Code (NEC)' (2014 Edition or most recent edition adopted by AHJ including all applicable amendments and supplements).
 - 1) Article 334, "Nonmetallic-Sheathed Cable, Types NM, NMC And NMS'.

PART 2 - PRODUCTS**2.1 SYSTEMS**

- A. Line Voltage Conductors:
 - 1. Copper with AWG sizes as shown:
 - a. Minimum size shall be No. 12 except where specified otherwise.
 - b. Conductor size No. 8 and larger shall be stranded.
 - 2. Insulation:
 - a. Standard Conductor Size No. 10 And Smaller: 600V type THWN or XHHW (75 deg F (24 deg C)).
 - b. Standard Conductor Size No. 8 And Larger: 600V Type THW, THWN, or XHHW (75 deg F (24 deg C)).
 - c. Higher temperature insulation as required by NFPA 70 or local codes.
 - 3. Colors:
 - a. 208Y / 120 V System:
 - 1) Black: Phase A.
 - 2) Red: Phase B.
 - 3) Blue: Phase C.
 - 4) Green: Ground.
 - 5) White: Neutral.
 - b. 480Y / 277 Volt System:
 - 1) Brown: Phase A.
 - 2) Orange: Phase B.
 - 3) Yellow: Phase C.
 - 4) Gray: Neutral.
 - 5) Green: Ground.
 - c. Conductors size No. 10 and smaller shall be colored full length. Tagging or other methods for coding of conductors size No. 10 and smaller not allowed.

- d. For feeder conductors larger than No. 10 at pull boxes, gutters, and panels, use painted or taped band or color tag color-coded as specified above.
- B. Line Voltage Cables:
1. Metal Clad Cable (MC) may be used as restricted below:
 - a. Copper conductors.
 - b. Sizes #12 through #8.
 - c. Use only in indoor dry locations where:
 - 1) Not subject to damage.
 - 2) Not in contact with earth.
 - 3) Not in concrete.
- C. Standard Connectors:
1. Conductors No. 8 And Smaller: Steel spring wire connectors.
 2. Conductors Larger Than No. 8: Pressure type terminal lugs.
 3. Connections Outside Building: Watertight steel spring wire connections with waterproof, non-hardening sealant.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General:
1. Conductors and cables shall be continuous from outlet to outlet.
 2. Do not use direct burial cable.
- B. Line Voltage Conductors:
1. Install conductors in raceway where indicated on Contract Drawings. Run conductors of different voltage systems in separate conduits.
 2. Route circuits at own discretion, however, circuiting shall be as shown in Panel Schedules. Group circuit homeruns to panels as shown on Contract Drawings.
 3. Neutrals:
 - a. On three-phase, 4-wire systems, do not use common neutral for more than three circuits.
 - b. On single-phase, 3-wire systems, do not use common neutral for more than two circuits.
 - c. Run separate neutrals for each circuit where specifically noted on Contract Drawings.
 - d. Where common neutral is run for two or three home run circuits, connect phase conductors to breakers in panel which are attached to separate phase legs:
 - 1) Provide breaker tie so that all circuits that share common neutral are simultaneously disconnected.
 - 2) Neutral conductors shall be of same size as phase conductors unless specifically noted otherwise.
 4. Pulling Conductors:
 - a. Do not pull conductors into conduit until raceway system is complete and cabinets and outlet boxes are free of foreign matter and moisture.
 - b. Do not use heavy mechanical means for pulling conductors.
 - c. Use only listed wire pulling lubricants.
- C. Line Voltage Cables:
1. Route circuits at own discretion, however, circuiting and numbering shall be as shown in Panel Schedules.
 2. Support cables using approved staples, cable ties, straps, hangers, or similar fittings, spaced as required.
 3. Where installing in framing, do not bore holes in joists or beams outside center 1/3 of member depth or within 24 inches (600 mm) of bearing points. Do not bore holes in vertical framing members outside center 1/3 of member width. Holes shall be one inch diameter maximum.

4. Conceal cables within ceilings and walls of finished areas. Cables may be exposed in unfinished areas but not run on floors of mechanical equipment spaces or in such a way that they obstruct access to, operation of, or servicing of equipment.
5. Install exposed cables parallel to or at right angles to building structure lines.
6. Keep cables 6 inches (150 mm) minimum from hot water pipes.
7. Do not support cables from mechanical ducts or duct supports without Architect's written approval.
8. Prohibited procedures:
 - a. Boring holes for installation of cables in vertical truss members.
 - b. Notching of structural members for installation of cables.

END OF SECTION

SECTION 26 0533**RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
 - 1. Quality of material and installation procedures for raceway, boxes, and fittings used on Project but furnished under other Divisions.
 - 2. Furnish and install raceway, conduit, and boxes used on Project not specified to be installed under other Divisions.
- B. Related Requirements:
 - 1. Section 26 0501: 'Common Electrical Requirements' for general electrical requirements'.

1.2 REFERENCES

- A. Reference Standards:
 - 1. National Fire Protection Association:
 - a. NFPA (Fire) 70, 'National Electric Code (NEC)' (2014 Edition or most recent edition adopted by AHJ including all applicable amendments and supplements).

PART 2 - PRODUCTS**2.1 SYSTEM**

- A. Manufacturers:
 - 1. Manufacturer Contact List:
 - a. Cooper B-Line, Highland, IL www.b-line.com.
 - b. Hubbell Incorporated, Milford, CT www.hubbell-wiring.com or Hubbell Canada Inc, Pickering, ON (905) 839-4332.
 - c. Square D, Palatine, IL www.squared.com.
 - d. Thomas & Betts, Memphis, TN www.tnb.com or Thomas & Betts Ltd, Iberville, PQ (450) 347-5318.
 - e. Walker Systems Inc, Williamstown, WV (800) 240-2601 or Walker Systems Inc / Wiremold Canada Inc, Fergus, ON (519) 843-4332.
 - f. Wiremold Co, West Hartford, CT www.wiremold.com.
- B. Materials:
 - 1. Raceway And Conduit:
 - a. Sizes:
 - 1) **1/2 inch (13 mm)** for interior use, unless indicated otherwise.
 - b. Types: Usage of each type is restricted as specified below by product.
 - 1) Galvanized rigid steel or galvanized intermediate metal conduit (IMC) is allowed for use in all areas. Where in contact with earth or concrete, wrap buried galvanized rigid steel and galvanized IMC conduit and fittings completely with vinyl tape.
 - 2) Galvanized Electrical Metallic Tubing (EMT) and Flexible Steel Conduit:
 - a) Allowed for use only in indoor dry locations where it is:
 - (1) Not subject to damage.
 - (2) Not in contact with earth.
 - (3) Not in concrete.

- b) For metal conduit systems, flexible steel conduit is required for final connections to indoor mechanical equipment.
 - 3) Schedule 40 Polyvinyl Chloride (PVC) Conduit:
 - a) Allowed for use only underground or below concrete with galvanized rigid steel or IMC elbows and risers.
 - 4) Listed, Liquid-Tight Flexible Metal Conduit:
 - a) Use in outdoor final connections to mechanical equipment, length not to exceed **36 inches (900 mm)**.
 - 5) Pre-wired **3/8 Inch (9.5 mm)** Flexible Fixture Whips: Allowed only for connection to recessed lighting fixtures, lengths not to exceed **72 inches (1 800 mm)**.
- c. Prohibited Raceway Materials:
 - 1) Aluminum conduit.
 - 2) Armored cable type AC (BX) cable.
- 2. Raceway And Conduit Fittings:
 - a. Rigid Steel Conduit And IMC: Threaded and designed for conduit use.
 - b. EMT:
 - 1) Compression type.
 - 2) Steel set screw housing type.
 - c. PVC Conduit:
 - 1) PVC type. Use PVC adapters at all boxes.
 - 2) PVC components, (conduit, fittings, cement) shall be from same Manufacturer.
 - d. Flexible Steel Conduit: Screw-in type.
 - e. Liquid-tight Flexible Metal Conduit: Sealtite type.
 - f. Expansion fittings shall be equal to OZ Type AX sized to raceway and including bonding jumper.
 - g. Prohibited Fitting Materials:
 - 1) Crimp-on, tap-on, indenter type fittings.
 - 2) Cast set-screw fittings for EMT.
 - 3) Spray (aerosol) PVC cement.
- 3. Outlet Boxes:
 - a. Galvanized steel of proper size and shape are acceptable for all systems. Where metal boxes are used, provide following:
 - 1) Provide metal supports and other accessories for installation of each box.
 - 2) Equip ceiling and bracket fixture boxes with fixture studs where required.
 - 3) Equip outlets in plastered, paneled, and furred finishes with plaster rings and extensions to bring box flush with finish surface.
 - b. Non-metallic boxes may be used only for control voltage wiring systems.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verification Of Conditions:
 - 1. Confirm dimensions, ratings, and specifications of materials to be installed and coordinate these with site dimensions and with other Sections.

3.2 INSTALLATION

- A. Interface With Other Work:
 - 1. Before rough-in, verify locations of boxes with work of other trades to insure that they are properly located for purpose intended.
 - 2. Install pull wires in raceways installed under this Section where conductors or cables are to be installed under other Divisions.

- B. Conduit And Raceway:
1. Conceal raceways within ceilings, walls, and floors, except as approved by Architect, conduit may be exposed on walls or ceilings. Install exposed raceway runs parallel to or at right angles to building structure lines.
 2. Seal all raceways penetrating fire rated walls, ceilings and barriers.
 3. Keep raceway runs **6 inches (150 mm)** minimum from hot water pipes.
 4. Make no more than four quarter bends, 360 degrees total, in any conduit run between outlet and outlet, fitting and fitting, or outlet and fitting.
 - a. Make bends and offsets so conduit is not injured and internal diameter of conduit is not effectively reduced.
 - b. Radius of curve shall be at least minimum indicated by NFPA 70.
 5. Cut conduit smooth and square with run and ream to remove rough edges. Cap raceway ends during construction. Clean or replace raceway in which water or foreign matter have accumulated.
 6. Bend PVC conduit by hot box bender and, for PVC **2 inches (50 mm)** in diameter and larger, expanding plugs. Apply PVC adhesive only by brush.
 7. Installation In Framing:
 - a. Do not bore holes in joists or beams outside center 1/3 of member depth or within **24 inches (600 mm)** of bearing points. Do not bore holes in vertical framing members outside center 1/3 of member width.
 - b. Holes shall be **one inch (25 mm)** diameter maximum.
 8. Conduit And Raceway Support:
 - a. Securely support raceway with approved straps, clamps, or hangers, spaced as required.
 - b. Do not support from mechanical ducts or duct supports without Architect's written approval. Securely mount raceway supports, boxes, and cabinets in an approved manner by:
 - 1) Expansion shields in concrete or solid masonry.
 - 2) Toggle bolts on hollow masonry units.
 - 3) Wood screws on wood.
 - 4) Metal screws on metal.
 9. Prohibited Procedures:
 - a. Use of wooden plugs inserted in concrete or masonry units for mounting raceway, supports, boxes, cabinets, or other equipment.
 - b. Installation of raceway that has been crushed or deformed.
 - c. Use of torches for bending PVC.
 - d. Spray applied PVC cement.
 - e. Boring holes in truss members.
 - f. Notching of structural members.
 - g. Supporting raceway from ceiling system support wires.
 - h. Nail drive straps or tie wire for supporting raceway.
- C. Boxes:
1. Boxes shall be accessible and installed with approved cover.
 2. Do not locate device boxes that are on opposite sides of framed walls in the same stud space. In other wall construction, do not install boxes back to back.
 3. Locate boxes so pipes, ducts, or other items do not obstruct outlets.
 4. Install outlets flush with finished surface and level and plumb.
 5. Support switch boxes larger than two-gang with side brackets and steel bar hangers in framed walls.
 6. At time of substantial completion, install blank plates on uncovered outlet boxes that are for future use.
 7. Location:
 - a. Properly center boxes located in walls with respect to doors, panels, furring, trim and consistent with architectural details. Where two or more outlets occur, space them uniformly and in straight lines with each other, if possible.

END OF SECTION

SECTION 26 0613

ELECTRICAL EQUIPMENT MOUNTING HEIGHT SCHEDULE

PART 1 - GENERAL: Not Used

PART 2 - PRODUCTS: Not Used

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Unless otherwise indicated, mount center of outlets or boxes at following heights above finish floor. Refer special conditions to Architect before rough-in and locate outlet under his direction.
- B. Mounting Heights:
 - 1. Electrical:
 - a. Wall Switches: 42 inches (1 065 mm).

END OF SECTION

SECTION 26 2726**WIRING DEVICES****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
 - 1. Furnish and install wiring devices complete with plates as described in Contract Documents.
- B. Related Requirements:
 - 1. Section 26 0501: 'Common Electrical Requirements'.

PART 2 - PRODUCTS**2.1 COMPONENTS**

- A. Manufacturers:
 - 1. Manufacturer Contact List:
 - a. Cooper Wiring Devices, Peachtree City, GA www.cooperwiringdevices.com.
 - b. General Electric Industrial Systems, Charlotte, NC www.geindustrial.com.
 - c. Hubbell Building Automation, Austin, TX www.hubbell-automation.com.
 - d. Hubbell Inc, Milford, CT www.hubbell-wiring.com or Hubbell Canada Inc, Pickering, ON (800) 263-4622 or (905) 839-4332.
 - e. Hunt Control Systems Inc, Fort Collins, CO www.huntdimming.com.
 - f. Intermatic Inc, Spring Grove, IL www.intermatic.com.
 - g. IR-TEC America, Inc., Brea, CA www.irtec.com/en-ira/.
 - h. Leviton Manufacturing Co, Little Neck, NY www.leviton.com or Leviton Manufacturing of Canada Ltd, Pointe-Claire, QB (800) 461-2002 or (514) 954-1840.
 - i. Legrand, West Hartford, CT www.legrand.us.com or Vaughan, ON www.legrand.ca.com.
 - j. Lutron Electronics Co Inc, Coopersburg, PA www.lutron.com.
 - k. Ortronics, New London, CT www.ortronics.com.
 - l. Paragon Electric Co Inc, Carol Stream, IL www.icca.invensys.com/paragon or Paragon Electric, Mississauga, ON (800) 951-5526 or (905) 890-5956.
 - m. Pass & Seymour, Syracuse, NY www.passandseymour.com or Pass & Seymour Canada Inc, Concord, ON (905) 738-9195.
 - n. Philips Lighting Co, Somerset, NJ www.lighting.philips.com/nam or Philips Lighting Canada, Scarborough, ON (416) 292-3000.
 - o. Red Dot div of Thomas & Betts, Memphis, TN www.tnbcom.
 - p. Schneider Electric North America, Palatine, IL www.schneider-electric.com (847) 397-2600.
 - q. Sensorswitch, Wallingford, CT www.sensorswitch.com.
 - r. Siemon Company, Watertown, CT www.siemon.com.
 - s. Square D Co, Palatine, IL www.squared.com.
 - t. Suttle, Hector, MN www.suttleonline.com.
 - u. Tork Inc, Mount Vernon, NY www.tork.com.
 - v. Watt Stopper Inc, Santa Clara, CA www.wattstopper.com.
 - 2. Product Options:
 - a. Faces shall be nylon where available.
 - b. Devices of single type shall be from same Manufacturer.
 - c. Devices are listed as white. Use white devices on light colored walls, brown on dark colored walls, and black on black walls.

- B. Switches:
 - 1. Wall-Mounted Motorized Projection Screen:
 - a. As approved by projection screen manufacturer.
- C. Plates:
 - 1. Standard Cover Plates:
 - a. Occupied Areas:
 - 1) Nylon or high impact resistant thermoplastic.
 - 2) Color shall match wiring device.
 - b. All Other: Steel.
 - c. Ganged switches shall have gang plates.
 - d. Category Four Approved Manufacturers. See Section 01 6200 for definitions of Categories:
 - 1) Cooper.
 - 2) Hubbell.
 - 3) Leviton.
 - 4) Pass & Seymour.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install devices flush with walls, straight, and solid to box.

END OF SECTION

SECTION 26 5100**INTERIOR LIGHTING****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
 - 1. Furnish and install lighting system as described in Contract Documents, complete with lamps.
- B. Related Requirements:
 - 1. Section 26 0501: 'Common Electrical Requirements'.

1.2 REFERENCES

- A. Reference Standards:
 - 1. American National Standards Institute (ANSI):
 - a. ANSI C78.377-2015, 'American National Standard for Electric Lamps: Specification for the Chromaticity of Solid State Lighting Products'.
 - 2. Federal Communications Commission (FCC):
 - a. Code of Federal Regulations (CFR):
 - 1) FCC 47 CFR Part 18, 'Industrial, Scientific, and Medical Equipment'.
 - 3. Institute of Electrical and Electronics Engineers (IEEE):
 - a. IEEE C62.41.1-2002, 'Guide on the Surge Environment in Low-Voltage (1000 V and Less) AC Power Circuits'.

PART 2 - PRODUCTS**2.1 ASSEMBLIES**

- A. Manufacturers:
 - 1. Manufacturer Contact List:
 - a. Advance Transformer Co, Rosemont, IL www.advancetransformer.com.
 - b. Cooper Wiring Devices by Eaton, Peachtree City, GA www.cooperindustries.com.
 - c. General Electric Lighting, Hendersonville, NC or General Electric Lighting Canada Inc, Mississauga, ON www.gelighting.com/na.
 - d. Howard Lighting Products, Laurel, MS www.howard-ind.com.
 - e. Novitas Inc, Peachtree City, GA www.novitas.com.
 - f. Osram Sylvania, Danvers, MA www.sylvania.com or Osram Sylvania Ltd, Mississauga, ON (905) 673-6171.
 - g. Philips Lighting Co, Somerset, NJ www.lighting.philips.com/nam or Philips Lighting Canada, Scarborough, ON (416) 292-3000.
 - h. Universal Lighting Technologies, Nashville, TN www.universalballast.com.
 - i. Venture Lighting International, Solon, OH www.venturelighting.com.
 - j. Watt Stopper Inc, Santa Clara, CA www.wattstopper.com.
 - k. Westinghouse Lighting Corp, Philadelphia, PA www.westinghouselightbulbs.com.
 - 2. Product Options: When several lighting fixtures are specified by name for one use on Drawings, select any one of those specified. Do not mix fixtures from different manufacturers specified for one use.
- B. Materials
 - 1. Lighting Fixtures:
 - a. Type One Acceptable Products:

- 1) See Fixture Schedule on Drawings for acceptable manufacturers and models.
 - 2) Equals as approved by Architect before bidding. See Section 01 6200.
2. Fluorescent Ballasts:
- a. Energy saving electronic for T8 lamps:
 - 1) Program rapid start type.
 - 2) Parallel circuit type.
 - 3) Minimum power factor of 95 percent.
 - 4) Maximum total harmonic distortion of 10 percent.
 - 5) Operation of lamps in compliance with Lamp Manufacturer's recommendations.
 - 6) Minimum starting temperature 0 deg F (minus 17.8 deg C) for T8 lamps.
 - 7) Class A sound rating.
 - 8) Transient protection in accordance with IEEE / ANSI C62.41.1, Category A.
 - 9) Comply with FCC 47 CFR Part 18.
 - 10) Ballast factor of 0.78.
 - 11) Maximum crest factor of 1.7.
 - 12) Five year full replacement warranty including labor allowance for replacement.
 - 13) Input voltage to match system voltage.
 - 14) Category Four Approved Products and Manufacturers. See Section 01 6200 for definitions of Categories:
 - a) IOP2PSP32LWSC by Advance.
 - b) GE32-MVPS-L by General Electric.
 - c) QHE-UNV-PSX-SC by Osram / Sylvania.
3. Lamps:
- a. T8 Fluorescent Lamps:
 - 1) Minimum initial output of 3100 Lumens.
 - 2) Rated life of 40,000 hrs at 3 hrs per start for lamps operated on instant start ballasts.
 - 3) Minimum CRI 85.
 - 4) Meet Federal TCLP criteria.
 - 5) Category Four approved Manufacturers. See Section 01 6200 for definitions of Categories:
 - a) General Electric.
 - b) Howard.
 - c) North American Philips.
 - d) Osram / Sylvania.
 - 6) Correlated Color Temperature: 3000k.
 - b. Other Lamps:
 - 1) Category Four Approved Manufacturers. See Section 01 6200 for definitions of Categories:
 - a) General Electric.
 - b) North American Philips.
 - c) Osram / Sylvania.
 - d) Westinghouse.
- C. Factory Assembly:
1. Fixtures shall be fully assembled complete with necessary wiring, sockets, lamps, reflectors, ballasts, auxiliaries, plaster frames, recessing boxes, hangers, supports, lenses, diffusers, and other accessories essential for complete working installation.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Interface With Other Work:
1. Coordinate locations of light fixtures with equipment locations to provide proper room illumination without obstruction.

- B. Securely mount fixtures. Support fixtures weighing **50 lbs (23 kg)** or more from building framing or structural members.

3.2 ADJUSTMENT

- A. Repair scratches or nicks on exposed surfaces of fixtures to match original undamaged conditions.

END OF SECTION

