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Approved with Conditions
Date: 07/26/17

SPECIFICATIONS

PROJECT:

Clark Insurance
TENANT FIT-UP
1945 Congress Street
Portland, ME 04102

ARCHITECT:

ARCHETYPE, P.A.
48 UNION WHARF
PORTLAND, MAINE 04101

CONSTRUCTION SET
17 JANUARY 2017

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INDEX TO SPECIFICATIONS

Specifications shall also refer to, and correspond with, Specifications issued for construction of the building shell, dated 11 October 2016. Refer to general and specific requirements of the project in both repeated and related sections.

Section:

Division 00 00 00 – Contracting Requirements

00 01 10 Index to Project Manual

Interior Designers outline specification listing products.

Division 01 00 00 – General Requirements

01 31 00 Submittals, Meetings & Record Documents
01 33 00 Submittal Procedures
01 33 10 Products and Substitutions
01 73 29 Cutting and Patching
01 77 00 Project Closeout

Division 02 00 00 – Existing Conditions

- NOT USED -

Division 03 00 00 – Concrete

- NOT USED -

Division 04 00 00 – Masonry

- NOT USED -

Division 05 00 00 – Metals

05 41 00 Lightgage Metal Framing

Division 6 - Wood & Plastics

06 20 00 Finish Carpentry

Division 07 00 00 – Thermal & Moisture Protection

07 21 16 Thermal and Acoustic Insulation

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07 92 00 Joint Sealants

Division 08 00 00 – Doors & Windows

08 11 13 Steel Doors and Frames
08 71 00 Finish Hardware (PENDING)
08 81 00 Glazing

Division 9 - Finishes

09 21 16 Gypsum Assemblies
09 29 00 Gypsum Board
09 51 23 Acoustical Ceilings
09 65 00 Resilient Flooring and Vinyl Base (PENDING)
09 68 13 Carpet Tile (PENDING)
09 90 00 Painting

Division 10 – Specialties

10 22 17 Modular Partitions (DIRTT Wall)

Division 12 – Furnishings

- NOT USED -

Division 21 00 00 – Fire Suppression

- NOT USED -

Division 22 00 00 – Plumbing

- NOT USED -

Division 23 00 00 – Heating, Ventilating and Air Conditioning

- NOT USED -

Division 26 00 00 – Electrical

- NOT USED -

END OF SECTION

Room Name	Rm. No.	Ceiling	Clng Ht	Floor	Base	Walls	Millwork	Notes
Vestibule	100	GWB	10’	T-1	T-1	PT		
Reception/Waiting	101	GWB/ACT-1	24’ + 10’	CP-1	WD	PT	Maple veneer desk + credenza with solid surface counter tops; coat rod + shelf	Lower height clg over desk
Not used	102							
Not used	103							
Meeting	104	GWB/ACT-1	14’ + 15’	CP-2	WD	PT		Drywall soffit at perimeter
Storage	105	ACT-1	9’	CP-2	VNYL	PT		
W.C.	106	ACT-2	9’	T-1	T-1	PT		
Electrical Room	107	GWB	9’	VCT	VNYL	PI		
Sprinkler Room	108	GWB	9’	VCT	VNYL	PT		
Meeting	109	ACT-1	9’	CP-2	VNYL	PT		
Meeting	110	ACT-1	9’	CP-2	VNYL	PT		
Tenant Office	111	ACT-1	9’	CP-2	VNYL	PT		
Informal Meeting	112	GWB	8’10” + 15’6”	CP-1	VNYL	PT		
Informal Meeting	113	ACT-1	9’3”	CP-1	VNYL	PT		
Informal Meeting	114	ACT-1	9’3”	CP-1	VNYL	PT		
Women	115	ACT-2	9’	T-1	T-1	PT/T-2	counter @ sinks	
Janitor	116	ACT-2	8’	VP	VNYL	PT		
Men	117	ACT-2	9’	T-1	T-1	PT/T-2	counter@ sinks	
Solo	118	ACT-1	9’	CP-2	VNYL	PT		
Huddle	119	ACT-1	9’	CP-2	VNYL	PT		
Huddle	120	ACT-1	9’	CP-2	VNYL	PT		
Solo	121	ACT-1	9’	CP-2	VNYL	PT		
Copier	122	ACT-1	9’	CP-1	VNYL	PT		
Office	123	ACT-1	9’	CP-2	VNYL	PT		
Huddle	124	ACT-1	9’	CP-2	VNYL	PT		
Office	125	ACT-1	9’	CP-2	VNYL	PT		
Informal Meeting	126	GWB/ACT-1-CL	8’10” + 8’5”	CP-1	VNYL	PT		Sound cloud
Copier	127	ACT-1	9’	CP-1	VNYL	PT		
Solo	128	ACT-1	9’	CP-2	VNYL	PT		
Solo/Lactation	129	ACT-1	9’	CP-2	VNYL	PT		
IT Server	130	ACT-1	9’	VP	VNYL	PT		
Huddle	131	ACT-1	9’	CP-2	VNYL	PT		

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Training	132	ACT-1	9’3”	CP-1	VNYL	PT		
Storage	133	ACT-1	9’3”	VP	VNYL	PT		
Breakout	134	ACT-1	9’3”	CP-2	VNYL	PT		
Collab-Café	135	ACT-1/GWB	8’5” + 9’3” + 8’5”	VP	VNYL	PT/T-2	Solid surface counters and island top, maple veneer cabinets, pantry storage and island base	Sound cloud Tile backsplash at counter
Mud Room	136	ACT-2	9’3”	T-1	T-1	PT		
Fitness Room	137	ACT-1/GWB	8’10” + 9’3”	RUB	RUB	PT		
Women’s Locker	138	ACT-2	9’	T-1	T-1	PT/T-2	Solid surface counter; natural wood cubbies	
Men’s Locker	139	ACT-2	9’	T-1	T-1	PT/T-2	Solid surface counter ; natural wood cubbies	
Workstations	140	ACT-1/GWB	8’10” + 9’3”	CP-1	VNYL	PT		
Workstations	141	ACT-1/GWB	8’10” + 9’3” +8’5”	CP-1	VNYL	PT		Sound clouds

Finish Legend/Notes

ACT-1: Acoustical Ceiling Tile – highly rated NRC – Armstrong Optima #3355, Square Tegular, 9/16” grid, white

ACT-2: Acoustical Ceiling Tile – standard NRC – Armstrong Canyon #1494, Beveled Tegular, 9/16” grid, white

CP-1: Carpet Tile, design #1 – Mohawk Iconic Earth, Statement Stone, 12”x36” and 24”x24” patterns

CP-2: Carpet Tile, design #2 - Mohawk Iconic Earth, Metalmorphic, 12”x36” and 24”x24” patterns

GWB: Gypsum Wallboard - painted

PT: Paint – up to five different colors. Eggshell on walls; semi-gloss on painted trim or doors

RUB: Rubber – Gymnasium rubber flooring provided by Workout Fitness Store: Super Roll Durable Rubber Flooring System, ¼” thick

T-1: Porcelain Tile, design #1 - Daltile Unity Colorbody Porcelain, Textured, 12”X24”

T-2: Porcelain Tile, design #2 – Daltile Annapolis Gloss Wall Tile, 6”x16”

VCT: Vinyl Composition Tile – Armstrong Standard Excelon Impreial Texture, 12” square, color to be selected

VNYL: Vinyl baseboard – Johnsonite 4” cove base, color to be selected

VP: Vinyl Plank Flooring – Milliken Freelay LVT, Powergrid, 36”X36”, color to be selected

WD: Natural Maple Wood, clear finish

Preliminary Finish Schedule Iss

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SECTION 01 31 00

SUBMITTALS, MEETINGS AND RECORD DOCUMENTS

1. GENERAL

1.1 PRE-CONSTRUCTION MEETING

A. Architect and Owner will schedule a pre-construction meeting within 15 days of issuance of Notice to Proceed, to be attended by the owner, all project managers, Contractor's field superintendent, and representatives of major sub-contractors. At this time, Contractor shall make specified pre-construction submittals including following:

1. Typed list of sub-contractors with addresses and telephone numbers.
2. Certificates of insurance.
3. Approved construction schedule. See General Conditions, Paragraph 3.10.
4. Schedule of values.
5. Start-up authorization or certificates.

B. Pre-construction meeting agenda will include following:

1. Processing application for payment.
2. Processing and distribution of submittals.
3. Maintenance of record documents.
4. Procedure for field changes, change estimates, change orders, etc.
5. Site and building security.
6. Location and maintenance of temporary storage areas, field offices, vehicular parking and access, waste disposal, etc.
7. Safety and first-aid procedures.
8. Date and time for regular monthly coordination and progress meeting (to be coordinated with monthly application for payment).

1.2 CONSTRUCTION SCHEDULE

A. Refer to General Conditions, Paragraph 3.10, for general provisions concerning construction progress schedule. Schedule shall show activities, itemized according to specification Section, and be organized in bar-chart or graph form so as to show both projected and actual progress of work.

B. Arrange schedule to indicate required sequencing of units, and to show time allowances for submittals, inspections, and similar time margins.

C. Show critical submittal dates related to each time bar, or prepare a separate coordinated listing of critical submittal dates.

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D. Show phases of work within each time bar for major elements which involve purchase lead-time, fabrication, seasonal treatment, mockups, testing, or similar phases as well as installation.

E. Submit updated schedule monthly, together with application for payment.

1.3 SCHEDULE OF VALUES

A. Refer to General Conditions, Paragraph 9.2 for general provisions concerning schedule of values.

B. For these submittals, use AIA Document G702/703, Application and Certificate for Payment.

C. Use specifications Sections as listed in Table of Contents as basis for format for listing costs.

D. Itemize separately general cost items, such as bonds and allowances.

E. Itemize change orders separately as they are approved.

1.4 MEETINGS AND REPORTING

A. Contractor shall conduct general progress and coordination meetings at least twice each month, attended by a representative of each primary entity engaged for performance of work. Record discussions and decisions, and distribute copies to those attending and others affected, including Architect/Engineer.

B. Date and time of at least one regular monthly progress and coordination meeting shall be determined at the pre-construction meeting. Timing of this monthly meeting shall be coordinated with payment requests.

1.5 APPLICATION FOR PAYMENT

A. Refer to General Conditions, Paragraph 9.3, for general provisions concerning applications for payment.

B. Use AIA Form G702/703, fully completed and executed.

C. Submit the forms in triplicate including attachment of waivers and similar documentation with one copy.

1.6 SHOP DRAWINGS, PROJECT DATA, SAMPLES

A. Refer to General Conditions, Product Data and Samples, paragraph 3.12, for general provisions covering this type of submittal.

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B. Coordinate the preparation and processing of work-related submittals with the performance of the work. Coordinate each separate submittal with other submittals and related activities that require sequential activity. Coordinate the submittal of different units of interrelated work so that one submittal will not be delayed by the necessity of reviewing a related submittal.

C. Architect/Engineer Review:

1. Allow ten working days for the Architect/Engineer's initial processing of each submittal. Allow one week for reprocessing each submittal. No extension of time will be authorized because of failure to transmit submittals to the Architect/Engineer sufficiently in advance of the work.

2. The Architect/Engineer will stamp each submittal to be returned with a uniform, self-explanatory action stamp, appropriately marked and executed to indicate the status of the submittal.

D. Mark each submittal with a permanent label for identification. Provide project name, date, name of Architect/Engineer, name of Contractor, number and title of appropriate specification section and similar definitive information. Provide a space on the label for Contractors and Architect/Engineer's review markings.

E. Package each submittal appropriately for transmittal and handling. Send each submittal from the Contractor to the Architect/Engineer and other destinations using AIA Transmittal Form G810.

F. Provide additional copies of submittals required by governing authorities that are in addition to copies specified for submittal to the Architect/Engineer.

G. Where it is necessary to provide intermediate submittals between the initial and final submittals, provide and process intermediate submittals in the same manner as for initial submittals.

H. Submit as follows:

1. Shop drawings (original drawings prepared by Contractor or sub-contractor illustrating fabrication, layout, erection details, etc.): six prints, or one reproducible transparency and one opaque print, to Architect.

2. Manufacturers' specifications, installation instructions, charts, schedules, catalogs, brochures, etc.: number of copies required by Contractor for distribution, plus one copy for Architect's retention.

3. Samples: one sample to Architect only, unless otherwise specified.

4. In submitting shop drawings and product data to Architect, use separate transmittals for material in different specification Sections, with applicable specification Section clearly numbered.

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I. Architect will review submittals within ten working days, measured from date of receipt by Architect until date of mailing. Contractor shall promptly make corrections and resubmit when so directed. Where submittal is marked "Approved as Noted" or similar, assume that all items are approved other than those to which specific exception is taken. Do not delay fabrication, assembly and delivery pending receipt of entirely "Approved" submittal.

J. Distribute approved submittals to job site and record document files, and to suppliers and sub-contractors as required. Samples not designated by Contractor for incorporation into Work shall be kept on file until job completion. Any sample not reclaimed within 30 days after job completion will be considered unclaimed, and will be disposed of as directed by Architect.

1.7 PROJECT RECORD DOCUMENTS

A. Keep on file at job site one complete set of up-to-date Contract Documents, including drawings and specifications, addenda, shop drawings and product data, testing data, change orders, field orders, and other modifications. Documents shall be neatly and securely stored in files or on racks, clearly indexed by trade activity or specification Section, and shall not be used for construction purposes.

B. Legibly mark significant field changes such as following, using colored pencils or felt-tipped pens:

1. Drawings: locations of concealed utilities, field changes of dimension and detail, changes resulting from change order or field order, and details not on original drawings.

2. Specifications: manufacturer and model number of equipment actually installed.

3. Shop drawings and manufacturers' literature: changes made after Architect's review.

C. At completion of Work, deliver completed record documents to Architect. Final payment for Project will not be made until Architect reviews and approves these documents.

1.8 SUBSTANTIAL COMPLETION

A. Refer to General Conditions, Article 9, Substantial Completion, for general provision concerning substantial Completion.

B. Following issuance by Architect/Engineer of Certificate of Substantial Completion, Contractor may submit special payment request, provided the following have been completed:

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1. Obtain permits, certificates of inspection and other approval and releases by governing authorities, required for Owner's occupancy and use of project.
2. Submit warranties and similar documentation.
3. Submit maintenance manuals and provide instruction of Owner's operational/maintenance personnel.
4. Complete final cleaning of the work.
5. Submit record documents.
6. Submit listing of work to be completed before final acceptance.

C. Following completion of the following requirements, final payment request may be submitted:

1. Complete work listed as incomplete at time of substantial completion, or otherwise assure Owner of subsequent completion of individual incomplete items.
2. Settle liens and other claims, or assure Owner of subsequent settlement.
3. Submit proof of payment on fees, taxes and similar obligations.
4. Transfer operational, access, security and similar provisions to Owner; and remove temporary facilities, tools and similar items.
5. Completion of requirements specified in "Project Closeout" section.
6. Obtain consent of surety for final payment.

END OF SECTION

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SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Section Includes:
1. Submittal procedures.
2. Product Data, Shop Drawings, and Samples.
3. Assurance/Control submittals.
   a. Certificates.
   b. Manufacturer's installation instructions.
4. Architect's action.

1.2 SUBMITTALS

A. Submit two copies of proposed Schedule of Submittals to Contracting Officer Representative within 30 days after receipt of Notice to Proceed. List all items require submittal for review and approval by Contracting Officer.

B. Submit two copies of final Schedule of Submittals to Contracting Officer Representative within 2 days after receipt of proposed Schedule of Submittals review from Contracting Officer.

C. Submit schedule on Contracting Officer approved form provided to Contractor by Contracting Officer Representative.

D. Schedule of Submittals: Include the following.
1. Indicate type of submittal; product data, shop drawing, sample, certificate, or other submittal.
2. Identify by Specification Section number, Specification paragraph number where item is specified, and description of item being submitted.
3. Indicate scheduled date for initial submittal, date for approval, and date for possible resubmittal for each submittal.

E. Coordinate Schedule of Submittals with Construction Schedule. Revise and update Schedule of Submittals when required by changes in the Construction Schedule. Provide Contracting Officer Representative with updated schedules within 2 days of date schedule is revised.

1.3 SUBMITTAL PROCEDURES

A. Transmit each submittal with Contracting Officer accepted form. Submit 3 copies of each transmittal.

B. Sequentially number transmittal form. Revise submittals with original number and a sequential alphabetic suffix.

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C. Identify Project, Lessor, Subcontractor or supplier; pertinent drawing and detail numbe specification section number, as appropriate.

D. Apply Contractor's stamp, signed or initialed certifying that review, verification of Products required, field dimensions, adjacent construction Work, and coordination of information, is in accordance with the requirements of the Work and Contract Documents.

E. Schedule submittals to comply with scheduling requirements of Construction Schedule

F. For each submittal for review, allow 10 days excluding delivery time to and from the Contractor.

G. Identify variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of the completed Work.

H. Provide space for Contractor and Architect of Record review stamps.

I. Revise and resubmit, identify all changes made since previous submission.

J. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with provisions.

K. Submittals not requested will not be recognized or processed.

1.4 PRODUCT DATA

A. Product data includes printed information such as catalog cuts, manufacturer's published instructions, standard color charts, roughing-in diagrams and templates, standard wiring diagrams, performance curves and other similar items.

A. Submit the number of copies which the Contractor requires, plus two copies which will be retained by Contracting Officer Representative and Architect of Record.

B. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information unique to this Project.

C. Indicate Product utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

1.5 SHOP DRAWINGS

A. Submit in the form of one reproducible transparency and one opaque reproduction.

B. Shop Drawings: Submit for review. After review, produce copies and distribute in accordance with the SUBMITTAL PROCEDURES article above.

C. Indicate special utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

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1.5 SAMPLES

B. Submit samples to illustrate functional and aesthetic characteristics of the Product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.

C. Submit samples of finishes in colors selected, textures, and patterns for Contracting Officer selection.

D. Include identification on each sample, with full Project information.

E. Submit the number of samples specified in individual specification sections; one of which will be retained by the Contracting Officer.

1.6 CERTIFICATES

A. When specified in individual specification sections, submit certification by manufacturer to Contracting Officer, in quantities specified for Product Data.

B. Indicate material or Product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

C. Certificates may be recent or previous test results on material or Product, but must be acceptable to Contracting Officer.

1.7 MANUFACTURER INSTALLATION INSTRUCTIONS

A. When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, adjusting, and finishing, to Contracting Officer Representative in quantities specified for Product Data.

B. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

1.8 CONTRACTING OFFICER ACTION

A. For submittals where action and return is required or requested, Contracting Officer Representative will review each submittal, mark to indicate action taken, and return promptly; generally within 10 calendar days from date of receipt.
   1. Compliance with specified characteristics is the Lessor's responsibility.
   2. Submittals for information, closeout documents, record documents and other submittals for similar purposes, no action will be taken.

B. Action Stamp: Architect of Record will stamp each submittal with a uniform, self-explanatory action stamp. The stamp will be appropriately marked, as follows, to indicate the action taken.
   1. "Accepted": Final Unrestricted Release. Where submittals are marked "Accepted", that part of the Work covered by the submittal may proceed provided it complies with requirements of the Contract Documents; final acceptance will depend upon that compliance.

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2. "Accepted as Noted": Final-But-Restricted Release. When submittals are marked "Accep Noted", that part of the Work covered by the submittal may proceed provided it complies with notations or corrections on the submittal and requirements of the Contract Documents; final acceptance will depend on that compliance.

3. "Rejected: Submit Specified Item" or "Revise and Resubmit": Returned for Resubmittal. When submittal is marked "Rejected: Submit Specified Item", "Revise and Resubmit," do not proceed with that part of the Work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise or prepare a new submittal in accordance with the notations; resubmit without delay. Repeat if necessary to obtain a different action mark.
   a. Do not permit submittals marked "Rejected: Submit Specified Item" or "Revise and Resubmit," to be used at the Project site, or elsewhere where Work is in progress.
4. "Returned - Not Required": Where a submittal is primarily for information or record purposes, special processing or other activity, the submittal will be returned, marked "Returned - Not Required".

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

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SECTION 01 33 10

PRODUCTS AND SUBSTITUTIONS

1. GENERAL

1.1 PROCEDURAL REQUIREMENTS

A. Source Limitations:

1. To the fullest extent possible, provide products of the same generic kind, from a single source, for each unit of work. Where it is not possible to do so, match separate procurements as closely as possible.

2. To the extent that the product selection process is under the Contractor's control, provide products that are compatible with previously selected products.

3. Where standard products are available that comply with specified requirements, provide those standard products that have been used successfully before in similar applications, and that are recommended by the manufacturers for the applications indicated.

1.2 PRODUCT SELECTION LIMITATIONS

A. Product Selections: Comply with the following requirements in the selection of products, materials and equipment:

1. Single Product Name: Where only a single product or manufacturer is named, provide the product, unless it is not available, is incompatible with existing work, or does not comply with specified requirements or governing regulations.

2. Two or More Products Named: Where two or more products or manufacturers are named, the selection is at the Contractor's option, provided the product selected complies with specified requirements.

3. "Or Approved Equal" Provisions": Where products or manufacturers are specified by name accompanied by the term "or approved equal", provide either the product named, or comply with the requirements for gaining approval of "substitutions" for the use of an unnamed product.

4. Compliance with Standards: Where the specifications require only compliance with an imposed standard, code or regulation, the Contractor has the option of selecting any product that complies with specified requirements provided no product names are indicated.

5. Performance Requirements: Where the specifications require compliance with indicated performance requirements, the Contractor has the option of selecting any

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product that complies with the specific performance requirements, provided no product names are indicated.

6. Visual Requirements: Where the specifications indicate that a product is to be selected from the manufacturer's standard options, without naming the manufacturer, the Architect/Engineer has the option of making the selection, after the Contractor has determined or selected the manufacturer.

B. Nameplates: Except as otherwise indicated for required labels and operating data, do not permanently attach or imprint manufacturer's or producer's nameplates or trademarks on exposed surfaces of products which will be exposed to view either in occupied spaces or on the exterior of the completed project.

1.3 SUBSTITUTIONS

A. Conditions: The Contractor's requests for substitutions will be considered when they are reasonable, timely, fully documented, and when they qualify under one or more of the following circumstances.

1. The proposed substitution is related to an "or approved equal" or similar provision in the contract documents.

2. The required product cannot be supplied in time for compliance with Contract Time requirements.

3. The required product is not acceptable to governing authorities.

4. The required product cannot be properly coordinated with other materials in the work, or cannot be warranted or insured as specified.

5. The proposed substitution will offer a substantial advantage to the Owner after deducting offsetting disadvantages including delays, additional compensation to the Architect/Engineer for redesign, evaluation and other necessary services, and similar considerations.

B. Submittals: Include the following information, as appropriate, in each request for substitution:

1. Provide complete product documentation, including product data and samples, where appropriate.

2. Provide detailed performance comparisons and evaluation, including testing laboratory reports where applicable.

3. Provide coordination information indicating the effect of the substitution on other work and the time schedule.

4. Provide cost information for the proposed change order.

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5. Provide the Contractor's general certification of the recommended substitution.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Receive, store and handle products, materials and equipment in a manner which will prevent loss, deterioration and damage.

B. Schedule deliveries so as to minimize long-term storage at the project site.

END OF SECTION

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SECTION 01 73 29

CUTTING AND PATCHING

1. GENERAL

1.1 REFERENCES

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work of this Section.

B. Divisions 2 through 31.

1.2 DESCRIPTION OF WORK

A. Definition: "Cutting and patching" includes cutting into existing construction to provide for the installation or performance of other work and subsequent fitting and patching required to restore surfaces to their original condition. This section does not apply to new work that has been installed as part of the Work.

B. Structural Work: Do not cut-and-patch structural work in a manner resulting in a reduction of load-carrying capacity or load/deflection ratio.

C. Operational/Safety Limitations: Do not cut-and-patch operational elements and safety components in a manner resulting in decreased performance, shortened useful life, or increased maintenance.

D. Visual/Quality Limitations: Do not cut-and-patch work exposed to view (exterior and interior) in a manner resulting in noticeable reduction of aesthetic qualities and similar qualities, as judged by the Architect/Engineer.

E. Limitation on Approvals: The Architect/Engineer's approval to proceed with cutting and patching does not waive right to later require removal/replacement of work found to be cut-and-patched in an unsatisfactory manner, as judged by the Architect/Engineer.

F. Materials marked to be removed and reused shall be repaired as necessary to maintain their existing condition. When repair is not sufficient, existing materials shall be disposed of and new materials installed to match existing materials.

G. Refer to other sections of these specifications for specific cutting and patching requirements and limitations applicable to individual units of work.

H. Unless otherwise specified, requirements of this Section apply to Mechanical and Electrical work. Refer to Divisions 15 and 16 for additional requirements and limitations on cutting and patching of mechanical and electrical work.

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1.3 QUALITY ASSURANCE

A. Refer to Section 01 33 10, Products and Substitutions, for general provisions covering product selection, substitutions, material storage and installation.

B. Refer to Section 01 45 00, Quality Control Services, for provisions for testing and inspections.

C. Refer to specific Specification Section covering subject in question for quality assurance requirements.

1.4 SUBMITTALS

A. Issue submittals in accordance with Section 01 33 00, Submittals.

B. Refer to specific Specification Section covering subject in question for submittal requirements.

2. PRODUCTS

2.1 GENERAL

A. Use materials for cutting and patching that are identical to existing materials. If identical materials are not available, or cannot be used, use materials that match existing adjacent surfaces to the fullest extent possible with regard to visual effect. Use materials for cutting and patching that will result in equal-or-better performance characteristics.

B. Fire-stopping:

1. Seal openings in fire-rated walls and floors to make a tight fit with penetrating items, using appropriate non-combustible filler material. to provide a rating equivalent to wall/floor assemble.

2. Acceptable filler materials include:
   a. Concrete
   b. Cementitious proprietary product: Zonolite Firestop ZF-1
   c. Blanket-type mineral-fiber or ceramic-fiber insulation (glass-fiber insulation is not acceptable)
   d. Fire-resistant sealant: Domtar Fire-Halt, Dow Corning Fire Stop, Hilti CS 240 Firestop, or Nelson CLK or CMP
   e. Fire-resistant silicone foam: Dow Corning RTV Foam Penetration Seal System, Hilti CB 120 Adhesive Filling and Sealing Foam, Tremco Fyre-Sil
   f. Flexible intumescent strip wrapped around pipe penetrations: Dow Corning Fire Stop Intumescent Wrap, Hilti CS 24720 Intumescent Wrap, Nelson RSW, Tremco TREMstop WS

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g. Intumescent fibrous material enclosed in a polyethylene envelope: Nelson PLW, Tremco TREMstop PS
h. Pliable intumescent putty: Nelson FSP Flameseal, Tremco TREMstop WBM
i. Water-based intumescent fire-protective coating for electrical cables: Nelson CTG

3. Neatly patch and seal exposed-to-view openings, using sealants, tooled mortar joints, escutcheons, or flanged collars, as appropriate.

3. EXECUTION

3.1 INSPECTION

A. Before cutting, examine surfaces to be cut and patched and conditions under which the work is to be performed. If unsafe or otherwise unsatisfactory conditions are encountered, take corrective action before proceeding with the work.

3.2 TEMPORARY SUPPORT

A. To prevent failure provide temporary support of work to be cut.

3.3 PROTECTION

A. Protect other work during cutting and patching to prevent damage. Provide protection from adverse weather conditions for that part of the project that may be exposed during cutting and patching operations. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

3.4 PERFORMANCE

A. Employ skilled workmen to perform cutting and patching work. Except as otherwise indicated or as approved by the Architect/Engineer, proceed with cutting and patching at the earliest feasible time and complete work without delay.

B. Cutting:
1. Cut the work using methods that are least likely to damage work to be retained or adjoining work. Provide dust barriers to prevent dust from entering existing building beyond immediate work area. Where possible, review proposed procedures with the original installer; comply with original installer's recommendations.

2. In general, where cutting is required, use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut through concrete and masonry using a cutting machine such as a carborundum saw or core drill to insure a neat hole. Cut holes and slots neatly to size required with minimum disturbance of adjacent work. To avoid marring existing finished surfaces, cut or drill from the exposed or finished side into concealed surfaces. Temporarily cover openings when not in use.

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3. Comply with requirements of applicable sections of Division 2 where cutting and patching requires excavating and backfilling.

4. By-pass utility services such as pipe and conduit, before cutting, where such utility services are shown or required to be removed, relocated or abandoned. Cut-off conduit and pipe in walls or partitions to be removed. After by-pass and cutting, cap, valve or plug and seal tight remaining portion of pipe and conduit to prevent entrance of moisture or other foreign matter.

C. Patching:

1. Patch with seams which are durable and as invisible as possible. Comply with specified tolerances for the work.

2. Where feasible, inspect and test patched areas to demonstrate integrity of work.

3. Restore exposed finishes of patched areas and where necessary extend finish restoration into retained adjoining work in a manner which will eliminate evidence of patching and refinishing.

4. Where removal of walls or partitions extends one finished area into another finished area, patch and repair floor and wall surfaces in the new space to provide an even surface of uniform color and appearance. If necessary to achieve uniform color and appearance, remove existing floor and wall coverings and replace with new materials.

5. Where patch occurs in a smooth painted surface, extend final paint coat over entire unbroken surface containing patch, after patched area has received prime and base coat.

6. Patch, repair or rehang existing ceilings as necessary to provide an even plane surface of uniform appearance.

3.5 MAINTENANCE OF TRAFFIC, ACCESS, AND UTILITIES

A. Maintain accessibility from street at all times to any fire hydrants within construction area. Ensure that utilities serving adjacent buildings remain in service.

END OF SECTION

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SECTION 01 77 00

PROJECT CLOSEOUT

1. GENERAL

1.1 DESCRIPTION OF REQUIREMENTS

A. Provisions of this section apply to the procedural requirements for the actual closeout of the Work, not to administrative matters such as final payment or the changeover of insurance.

B. Closeout requirements relate to both substantial and final completion of the Work; they also apply to individual portions of completed work as well as the total Work.

C. Specific requirements contained in other sections have precedence over the general requirements contained in this section.

Certifications, Final Requisition, Incomplete Work Escrow.

1.2 PROCEDURES AT SUBSTANTIAL COMPLETION

A. Prerequisites: Comply with General Conditions and complete the following before requesting Architect's/Engineer's inspection of the Work, or a designated portion of the Work, for certification of substantial completion.

1. Submit executed warranties, workmanship bonds, maintenance agreements, inspection certificates and similar required documentation for specific units of work, enabling owner's unrestricted occupancy and use.

2. Submit record documentation, maintenance manuals, tools, spare parts, keys and similar operational items.

3. Complete instruction of Owner's operating personnel, and start-up of systems.

4. Complete final cleaning, and remove temporary facilities and tools.

B. Inspection Procedures:

1. Upon receipt of Contractor's request, Architect/Engineer will either proceed with inspection or advise Contractor of prerequisites not fulfilled.

2. Following initial inspection, Architect/Engineer will either prepare certificate of substantial completion, or advise Contractor of work which must be performed prior to issuance of the certificate of substantial completion.

3. The Architect/Engineer will repeat the inspection when requested and assure that the Work has been substantially completed.

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4. Results of the completed inspection will form the initial "punch-list" for final acceptance.

1.3 PROCEDURES AT FINAL ACCEPTANCE

A. Reinspection Procedure:

1. The Architect/Engineer will reinspect the Work upon receipt of the Contractor's notice that, except for those items whose completion has been delayed due to circumstances that are acceptable to the Architect/Engineer, the Work has been completed, including punch-list items from earlier inspections.

2. Upon completion of reinspection, the Architect/Engineer will either recommend final acceptance and final payment, or will advise the Contractor of work not completed or obligations not fulfilled as required for final acceptance. If necessary, this procedure will be repeated.

1.4 RECORD DOCUMENTATION

A. Record Drawings:

1. Maintain a complete set of either blue- or black-line prints of the contract drawings and shop drawing for record mark-up purposes throughout the Contract Time.

2. Mark-up these drawings during the course of the work to show both changes and the actual installation, in sufficient detail to form a complete record for the Owner's purposes. Give particular attention to work which will be concealed and difficult to measure and record at a later date, and work which may require servicing or replacement during the life of the project.

3. Require the entities marking prints to sign and date each mark-up.

4. Bind prints into manageable sets, with durable paper covers, appropriately labeled.

B. Maintenance Manuals:

1. Provide 3-ring vinyl-covered binders containing required maintenance manuals, properly identified and indexed.

2. Include operating and maintenance instructions extended to cover emergencies, spare parts, warranties, inspection procedures, diagrams, safety, security, and similar appropriate data for each system or equipment item.

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1.5 GENERAL CLOSEOUT REQUIREMENTS

A. Operator Instructions: Require each Installer of systems requiring continued operation and maintenance by owner's operating personnel, to provide on-location instruction to Owner's personnel, sufficient to ensure safe, secure, efficient, non-failing utilization and operation of systems. Provide instructions for the following categories of work:

1. Mechanical/electrical/electronic systems (not limited to work of Divisions 23 and 26).
2. Live plant materials and lawns.
3. Roofing, flashing, joint sealers.
4. Floor finishes.

B. Final Cleaning: At the time of project close out, clean or reclean the Work to the condition expected from a normal, commercial building cleaning and maintenance program. Complete the following cleaning operations before requesting the Architect/Engineer's inspection for certification of substantial completions.

1. Remove non-permanent protection and labels.
2. Polish glass.
3. Clean exposed finishes.
4. Touch-up minor finish damage.
5. Clean or replace mechanical systems filters.
6. Remove debris.
7. Broom-clean unoccupied spaces.
8. Sanitize plumbing and food service facilities.
9. Clean light fixtures and replace burned-out lamps.
10 Sweep and wash paved areas.
11. Police yards and grounds

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SECTION 05 41 00

LIGHTGAGE METAL FRAMING

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

A. RELATED DOCUMENTS: Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification sections apply to work of this section.

B. Examine all other sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.

C. Coordinate work with that of all trades affecting or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

1.02 DESCRIPTION OF THE WORK

A. Work specified within this Section includes, but is not necessarily limited to, the following:

1. Provide and install lightgage framing for interior and exterior walls, as shown on the Drawings.

2. Provide and install lateral strap bracing, anchors and bridging as required.

3. Provide and install miscellaneous fasteners, hat channels, stiffeners, expansion joints, and accessories necessary to complete the work.

1.03 RELATED WORK SPECIFIED ELSEWHERE

A. Interior Partition Walls: Section 09 29 00 - Gypsum Wallboard Systems

1.04 QUALITY ASSURANCE

A. Materials and installation shall conform to recommendations of the following publications:

1. American Iron and Steel Institute Cold-Formed Steel Design Manual, Parts I & II "Specification for the Design of Cold-Formed Steel Structural Members".
2. AWS D1.1-90 "Structural Welding Code" - Steel.
3. AWS D1.3-89 "Structural Welding Code" - Sheet Steel.
4. ASTM C 954, "Specification for Steel Drill Screws for the Application of Gypsumboard or Metal Plaster Bases to Steel Studs from 0.033 in. to 0.112 in. Thickness."

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5. ASTM C 955, “Specification for Load-Bearing (Transverse and Axial)Steel Studs, Runners (Tracks), and Bracing or Bridging, for Screw Application of Gypsum Board and Metal Plaster Bases.
6. ASTM C 1007 “Specification for Installation of Load Bearing (Transverse and Axial) Steel Studs and Related Accessories.”
7. ASCE 7-98 "Minimum Design Loads for Building and Other Structures," (formerly ANSI A58.1).

B. Slip Track Tolerances: Where non-bearing light gage framing abuts the structure, provide a slip joint capable of accommodating the vertical movement of the structure. Slip joint gaps shall allow for 1" Live Load deflection of the supporting member

1.04 SUBMITTALS

A. The Engineer shall receive all submittals a minimum of two weeks prior to the start of fabrication. The Contractor shall have reviewed and approved all submittals prior to review by the Engineer. All review of submittals by the Contractor, Architect and Engineer shall be completed prior to fabrication and installation of any material or product.

The Engineer’s review of shop drawings will consist of a review of the design criteria and loads used for calculations and a review of the type and position of elements and connections to the Primary Structural System. Any errors in calculations, shop drawings and verification of field dimensions shall be the responsibility of the General Contractor.

B. Product Data: Submit Manufacturer's specifications and installation instructions for the following products. Include laboratory test reports and other data to show compliance with specifications.

1. Steel Studs, tracks, cold rolled channels and hat channels.
2. Anchors and anchor bolts
3. Self drilling screws

C. Shop Drawings:

1. General: Submit shop drawings showing the following:

a. Member type, gauge and spacing.
b. Sizes, gauges and fastenings for all built-up members including but not limited to roof trusses, headers and jambs.
c. Shop Coatings
d. Type, size, quantity, locations and spacing of all anchorages and self drilling screws.
e. Details of attachment to structure and adjacent work.

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f. Supplemental strapping, bracing, splices, bridging, hat channels and other accessories required for proper installation.
g. Critical installation procedures.

D. Submit (3) reproductions of each shop drawing. Submit (2) copies of design calculations.

PART 2 - PRODUCTS

2.01 FRAMING MEMBERS

A. Steel Studs:

1. Acceptable manufacturers:
   Dale/Incor
   Marino
   Dietrich
   Superior
   Ware
   Or approved equal.
2. Provide channel-shaped studs, channel-shaped joists, runners (tracks), blocking, lintels, clip angles, shoes, reinforcements, stiffeners, fasteners, and other accessories recommended by manufacturer for complete framing system.
3. Steel framing materials (all gauges) shall comply with ASTM A 653. Fabricate all components from structural quality sheet steel with the following minimum yield points:

   A. Studs and truss components, 40,000 psi
   B. Bracing, bridging and blocking, 33,000 psi

4. Manufacture of studs, runners (track), and other framing members shall comply with ASTM C 955.
5. Framing components shall be galvanized per ASTM A 525, minimum G-60 coating.

B. Screws and other attachment devices:
1. Provide a protective coating equivalent to cadmium or zinc plating and comply with ASTM A 165 type NS.
2. Self-drilling screws shall comply with the Industrial Fastener Institute Standard for steel self-drilling and tapping screws (IFI-113).
3. Penetration through jointed materials shall not be less than three (3) exposed threads.

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PART 3 - EXECUTION

3.01 INSTALLATION

A. Product Storage: Store studs, trusses, joists, track etc. on a flat plane. Material damaged (i.e. rusted, dented, bent or twisted) shall be discarded. Protect adhesives and sealants from freezing.

B. Construction Methods: Wall construction may be either piece-by-piece (stick-built), or by fabrication into panels either on or off site.

C. Material Fit up: All framing components shall be cut squarely or at an angle to fit squarely against abutting members. Members shall be held firmly in position until properly fastened. Prefabricated panels, if used, shall be square and braced against racking.

D. Attachment: Components shall be joined by self-drilling screws, so that connection meets or exceeds required design loads. Wire tying of framing components will not be permitted. Field welding will be permitted only where shown on the drawings or approved by the engineer.

E. Anchorage to Structure: Securely anchor studs and track to floor construction and overhead structure. Provide slip joints where non-bearing vertical studs meet floor or roof structural steel, or as indicated on the drawings.

F. Welding: Shop and field welds shall conform to applicable AWS and AISI standards, and may be fillet, plug, butt or seam type. Touch-up damage to galvanizing caused by welding with zinc-rich paint.

G. Openings: Frame openings larger than 2 ft. square with double studs. Provide suitable reinforcements (double studs, headers, jack studs, cripples, bracing, etc.) at control joint intersections, corners, and other special conditions.

H. Tolerances: Finished installation shall be level and plumb within a tolerance of 1/8 inch 10 feet horizontally and vertically. Maximum deviation from plan or section dimension shall not exceed 1/8 inch. Spacing of studs shall not be more than 1/8 inch from design spacing, providing that cumulative error does not exceed requirements of finishing materials.

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SECTION 06 20 00

FINISH CARPENTRY

1. GENERAL

1.1 GENERAL PROVISIONS: Drawings and general provisions of Contract, including General Conditions and Division 1 specifications, apply to work in this section.

1.2 DESCRIPTION OF WORK:

A. The extent of work shall be as shown on Drawings and called for in these Specifications. Performance shall meet the requirements of these Specifications. The work covered by this section of Specifications consists of the following:

1. All finished carpentry work and millwork as required by Drawings and as specified under this section.
2. Installation of metal and other items furnished by other trades, if specifically noted in these Specifications.

2. PRODUCTS:

2.1 BOARD LUMBER shall comply with the American Lumber Standards Simplified Practice Recommendation No. 16. Grade of board lumber shall be suitable for its intended use. Finish lumber is to be painted and shall be dressed free of tool marks and other objectionable defects. All exposed lumber to be architectural quality grade: Custom.

2.2 **BASEBOARD**: *Natural 6" high fir wood base in Reception. Vinyl base where there is carpet and Marmoleum. Tile base to match flooring in Bathrooms and Locker Rooms.*

2.3 NAILS: 6d for 1/2" finish stock and 4d finish for thinner wood. Use 8d generally for nailing 3/4" wood trim to framing.

2.4 SCREWS, BOLTS & OTHER FASTENERS: as shown on Drawings with penetration into framing or blocking adequate to support loads shown. Where not shown, consult Architect.

2.10 **Kitchen**: *Built-in cabinets, maple wood exterior; plastic laminate counter, two sinks to meet ADA requirements; space will accommodate two 48" wide x 24" deep fridges, up to four microwaves, toaster oven, two coffee makers and one dishwasher. There is a set of three pantry-style, floor-to-ceiling cabinets to the right of the long counter in the café.* ***No upper cabinets****. Bottom cabinets will be drawers except under sinks. Island will be a combination of storage and trash/recycling receptacles.*

3. EXECUTION:

3.1 ALL ITEMS OF MILLWORK shall be carefully erected, leveled and plumbed with tight-fitting joints and square corners, carefully cut and secured. Exposed nails shall be set adequately for putty. Moulds and faces shall be free from hammer or other tool marks, clean-cut and true pattern. All work shall be thoroughly cleaned and sanded to receive the finish. Sharp corners of small members

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of finished woodwork shall be slightly rounded. All trim baseboards, etc. fastened to walls shall b secured to wall framing members and nails set. Care shall be taken to avoid splitting ends of trim boards.

3.2 INTERIOR TRIM: Install trim with finishing nails and glue where required to assure permanent, tight joints, according to Drawing details.

END OF SECTION

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SECTION 07 21 16
THERMAL AND ACOUSTIC INSULATION

1 GENERAL

1.1 GENERAL PROVISIONS: Drawings and general provisions of Contract, including General Conditions and Division 1 specifications, apply to work in this section.

1.2 DESCRIPTION OF WORK: The extent of work shall be as shown on Drawings and called for in these Specifications. Performance shall meet the requirements of the Specifications. The work covered by this section of Specifications consists of the following:

1. Installation of rigid insulation on inside foundation wall and sill sealer, where shown on Drawings.
2. Installation of rigid insulation, fiberglass batts, and blown insulation and sound insulation in exterior walls, interior walls, ceilings and floors where shown on Drawings.
3. Vapor barriers to be installed as shown.

2 PRODUCTS

~~2.1 SPRAY APPLIED INSULATION: Closed cell spray foam by Corbond or equal. *Refer to Spec Section 07 21 19.*~~

~~2.2 BATT INSULATION TYPE: Fiberglass by Owens-Corning- Fiberglass, or approved equal, 6" or 4" to suit wall thickness.~~

~~2.3 BLOWN INSULATION TYPE: Cellulose Blowing Insulation by National Fiber or equal. *Refer to Spec Section 07 21 26.*~~

2.4 INTERIOR WALL SOUND INSULATION: Owens Corning Fiberglas Unfaced Sound Attenuation Blanket, 3" thickness.

~~2.5 AIR INFILTRATION BARRIER: *Refer to Spec Section 07 27 00.*~~

~~2.6 RIGID BOARD INSULATION (on exterior walls): sizes as shown on Drawings. Styrofoam square edge insulation by Dow Chemical, or approved equal.~~

3 EXECUTION

~~3.1 RIGID INSULATION on foundation walls must extend to top of footing.~~

3.2 FIBERGLASS INSULATION

A. Sound attenuation batts shall be installed in all interior walls on this project.

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SECTION 07 92 00
JOINT SEALANTS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Exterior polyurethane sealants.
2. Exterior and interior polyurethane traffic sealants.
3. Interior polyurethane sealants.
4. Interior latex sealants.
5. Interior sanitary silicone sealants.
6. Exterior and interior water immersed polyurethane sealants.
7. Metal lap joint sealants.
8. Threshold and sheet metal bedding sealants.
9. Joint accessories.

B. Related Sections:
1. Section 08 80 00 – Glazing: Glazing sealants and protective glazing systems.

1.2 REFERENCES

A. ASTM International Inc.
1. ASTM C 510 - Standard Test Method for Staining and Color Change of Single- or Multicomponent Joint Sealants.
2. ASTM C 719 - Standard Test Method for Adhesion and Cohesion of Elastomeric Joint Sealants Under Cyclic Movement (Hockman Cycle).
3. ASTM C 794 - Standard Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants.
4. ASTM C834 - Standard Specification for Latex Sealants.
5. ASTM C 920 - Standard Specification for Elastomeric Joint Sealants.
8. ASTM C 1193 - Standard Guide for Use of Joint Sealants.
9. ASTM C 1248 - Standard Test Method for Staining of Porous Substrate by Joint Sealants.
10. ASTM C 1311 - Standard Specification for Solvent Release Sealants.
11. ASTM D 2203 - Standard Test Method for Staining from Sealants.

1.3 SUBMITTALS

A. Shop Drawings:
1. Submit details to show installation and interface between sealants and adjacent work.

B. Product Data:
1. Materials list of items proposed to be provided under this Section;

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2. Manufacturer's specifications and other data needed to prove compliance wit the specified requirements;

C. Samples:
1. Submit color charts for each sealant type for initial selection.
2. Submit standard cured color samples for each sealant type illustrating selected colors.

D. Manufacturer's Installation Instructions:
1. Submit manufacturer’s published installation procedures.
2. Include instructions for completing sealant intersections when different materials are joined.
3. Include instructions for removing existing sealants and preparing joints for new sealant.

E. Manufacturer's Certificate:
1. Certify products are suitable for intended use and products meet or exceed specified requirements.
2. Certify applicator is approved by manufacturer.

F. Qualifications Data:
1. Submit applicator's qualifications, including reference projects of similar scope and complexity, with current phone numbers and contact names of architects and owners for verification.

G. Manufacturer's Field Reports:
1. Indicate time present at project site.
2. Include observations, indicate compliance with manufacturer's installation instructions, and supplemental instructions provided to installers.

1.4 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data:
1. Submit recommended inspection intervals.
2. Submit instructions for repairing and replacing failed sealant joints.

1.5 QUALITY ASSURANCE

A. Perform work in accordance with the following:
1. Building Joints: ASTM C 1193.

B. Field Pre-Construction Testing:
1. Test each elastomeric sealant and joint substrate in accordance with the following, before beginning work of this section:
a. Install sealants in field samples using joint preparation methods determined by laboratory pre-construction testing.
b. Remove existing sealant, clean joint, and install new sealant using manufacturer's recommended joint preparation methods.

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c. Install field-test joints in location as approved by Architect.
d. Test Method: Manufacturer's standard field adhesion test to verify joint preparation and primer required to obtain optimum adhesion of sealants to joint substrate.
e. When test indicates sealant adhesion failure, modify joint preparation, primer, or both and retest until joint passes sealant adhesion test.

1.6 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum ten years documented experience.

B. Applicator Qualifications:
1. Company specializing in performing work of this section with minimum three years documented experience, minimum three successfully completed projects of similar scope and complexity, and approved by manufacturer.
2. Designate one individual as project foreman who shall be on site at all times during installation.

1.7 MOCKUP

A. Install sealants in mockups specified in other sections including sealant and joint accessories to illustrate installation quality and color.

B. Incorporate accepted mockup as part of Work.
1. Repair seal joint mockups used for field adhesion testing.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Accept materials on site in manufacturers unopened original packaging. Inspect for damage.

B. Store primers and sealants in cool dry location with ambient temperature range of 60 to 80 degrees F.

1.9 ENVIRONMENTAL REQUIREMENTS

A. Do not install primers or sealants when atmospheric temperatures or joint surface temperatures are less than 40 degrees F.

1.10 SCHEDULING

A. Schedule work so waterproofing, water repellents and preservative finishes are installed after sealants, unless sealant manufacturer approves otherwise in writing.

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

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1.11 WARRANTY

A. Submit signed copies of the following warranties against adhesive and cohesive failure of sealant and against infiltration of water and air through sealed joint for period of 3 years from date of completion.
   1. Manufacturer's standard warranty covering sealant materials.
   2. Applicator's standard warranty covering workmanship.

PART 2 PRODUCTS

2.1 Caulking for joints at all junctions as necessary to obtain complete watertight construction.

2.2 MANUFACTURERS

A. Tremco Sealant/Weatherproofing Division of RPM International, Inc.

B. Or equal

2.3 URETHANE SEALANTS

A. Multi-Component Urethane: two component, chemical curing, nonstaining, nonbleeding, color as selected.
   1. Dymeric 240
   2. Dymeric 240FC
   3. Or equal

B. Single Component Urethane: single component, moisture curing, nonstaining, non-bleeding, color as selected.
   1. Dymonic FC
   2. Or equal

2.4 SILICONE SEALANTS

A. Multi-Component Silicone: ASTM C920, Type M, Grade NS, Class 50; Uses NT, M, G, A and O: multi-component, neutral curing, nonstaining, nonbleeding, color as selected
   1. Spectrem 4-TS.
   2. Or equal

B. Single Component Silicone: ASTM C920, Type S, Grade NS, ; Uses NT, M, G, A and O: single component, nonstaining, nonbleeding, color as selected.
   1. Spectrem 1.
   2. Spectrem 2.
   3. Spectrem 3.
   4. Or equal

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C. Single Component Silicone: ASTM C920, Type S, Grade NS, Class 25; Uses NT, G, A and O: single component, nonstaining, nonbleeding, color as selected.
   1. Proglaze.
   2. Tremsil 200.

2.5 OTHER SEALANTS

A. Latex Sealant: ASTM C 834; single component, solvent curing, nonstaining, nonbleeding, nonsagging; color as selected.
   1. Tremflex 834.

B. Synthetic Rubber Sealant:
   1. Acoustical Sealant.

C. Butyl Sealant: ASTM C 1311, butyl or polyisobutylene, single component, nondrying, non-skinning, non-curing.
   1. Butyl Sealant.

2.6 ACCESSORIES

A. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.

B. Primer: Non-staining type, recommended by sealant manufacturer to suit application.

C. Joint Backing: Round foam rod compatible with sealant; oversized 25 to 50 percent larger than joint width; recommended by sealant manufacturer to suit application

D. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

E. Masking tape: Non-staining, non-absorbent tape product compatible with joint sealants and adjacent joint surfaces.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify substrate surfaces and joint openings are ready to receive work.
   1. Verify joint surfaces are clean and dry.
   2. Ensure concrete surfaces are fully cured.

B. Report unsatisfactory conditions in writing to the Architect;

C. Do not proceed until unsatisfactory conditions are corrected.

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3.2 PREPARATION

A. Prepare joints in accordance with ASTM C 1193 and manufacturer's instructions.

B. Clean joint surfaces to remove dirt, dust, oils, wax, paints, and other contamination capable of affecting primer and sealant bond.
   1. Clean concrete joint surfaces to remove curing agents and form release agents.

C. Protect elements surrounding the Work of this section from damage or disfiguration. Apply masking tape to adjacent surfaces when required to prevent damage to finishes from sealant installation.

3.3 EXISTING WORK

A. Mechanically remove existing sealant.

B. Clean joint surfaces of residual sealant and other contaminates capable of affecting sealant bond to joint surface.

C. Allow joint surfaces to dry before installing new sealants.

3.4 SEALANT INSTALLATION

A. INTERIOR CAULKING shall be applied to seal all penetrations through top plates of interior walls, (due to electrical or plumbing), and at tubs, showers, counter tops, bottom of party walls GWB, full perimeter of all exterior walls, and other as shown on Drawings.

B. ALL POTENTIAL INFILTRATION cracks & joints to be caulked. Caulking shall be done only by workmen who are thoroughly experienced in this work. Exterior caulking shall be applied around windows, doors, vents, utilities, and any other infiltration "crack".

C. IN GENERAL see Drawings for any additional applications. Joints and spaces to be caulked shall be dry and free from dust. Finished caulking "bead" shall be neat and smooth, free of gaps and sags and run continuously. Complete all caulking work and allow to stand for the manufacturer's recommended time period before painting. Prime if required before finish coat of paint is applied.

D. Install primer and sealants in accordance with ASTM C 1193 and manufacturer's instructions.

E. Caulking shall apply to sealing of joints less than 3/4 inches in width. Any joint in excess of this width shall be filled with a low-expansion closed cell foam insulation or as directed by Architect.

F. Install joint backing to maintain the following joint ratios:
   1. Joints up to 1/2 inch Wide: 1:1 width to depth ratio.

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2. Joints Greater than 1/2 inch Wide: 2:1 width to depth ratio; maximum 1/2 in joint depth.

G. Install bond breaker where joint backing is not used.

H. Apply primer where required for sealant adhesion.

I. Install sealants immediately after joint preparation.

J. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.

K. Tool exposed joint surface concave.

L. Building Envelope:

1. Gaskets or sill seals under mud sills along foundation walls.
2. Seal first floor band joists to the adjoining mud sills and plywood decking using adhesive or caulk. Use construction adhesive or caulking between multiple sill plates.
3. Seal any band joists between upper floors to the adjoining top plate and plywood decking.
4. Use construction adhesive or caulking between multiple tops plates.
5. Seal bottom plates of exterior walls to the sub-floor with construction adhesive or caulking.
6. Window frames and doorjambs must be sealed to their rough openings using low expansion foam, backer rod or caulk but NOT fiberglass.
7. All penetrations through building must be carefully sealed. Typical Penetrations include chimney, duct and plumbing chases and penetrations of pipes and wires through the top plates of top story walls. It is particularly important to seal all possible air paths to the attic.
8. Electrical boxes on exterior walls and ceilings should either be air-sealed or placed in airtight enclosures (i.e. Lesco Boxes). Electrical boxes in unit demising walls shall be caulked to the gyp surface to provide full compartmentalization eliminating air leakage between units.
9. SPECIAL NOTE: THIS BUILDING WILL BE "BLOWER DOOR TESTED" TO VERIFY THE EFFECTIVENESS OF THE AIR SEALING PROCEDURES. ALL COST BEYOND THE INITIAL TEST ASSOCIATED WITH THE RE-TESTING AND RE-SEALING, SHOULD THE FIRST TEST FAIL TO MEET MAINEHOUSINGS STANDARDS, SHALL BE BORNE BY THE CONTRACTOR. IT IS THEREFORE INCUMBENT UPON THE CONTRACTOR TO HAVE IN PLACE AN AIR-SEALING PROGRAM, AS DEFINED IN THE DRAWINGS AND SPECIFICATIONS AND MAINEHOUSING'S STANDARDS, AT THE OUTSET OF FRAMING AND CONTINUOUSLY MONITORED DURING FINISHING OF THE SHELL.

3.5 MANUFACTURER'S FIELD SERVICES

A. Require sealant manufacturer to be present at project site to:
1. Observe sealant mockup installation and to issue reports of observations.

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2. Conduct field pre-construction testing.

3.6 CLEANING

A. Remove masking tape.

B. Clean adjacent surfaces soiled by sealant installation.

3.7 SCHEDULE – SEALANT JOINTS

A. Exterior Sealant Joint [Type A]:
1. Applications:
a. Control and expansion joints in cast-in-place concrete.
b. Joints between architectural precast concrete units.
c. Control and expansion joints in unit masonry.
d. Control and expansion joints in stone masonry.
e. Butt joints between metal panels.
f. Joints between different materials listed above.
g. Perimeter joints between materials listed above and frames of doors, windows, storefronts, louvers and similar openings.
h. Control and expansion joints in soffits and overhead surfaces.
i. Other exterior joints in vertical surfaces and non-traffic horizontal surfaces for which no other sealant is specified.
j. Or equal
2. Multi-Component Urethane Sealants:
a. Dymeric 240/240FC.
b. Vulkem 227.
c. Or equal
3. Single Component Urethane Sealants:
a. Dymonic FC.
b. Dymonic.
c. Vulkem 116.
d. Or equal
4. Multi-Component Silicone Sealants:
a. Spectrem 4-TS. D.O.E
5. Single Component Silicone Sealants:
a. Spectrem 1.
b. Spectrem 2.
c. Spectrem 3.
d. Or equal

B. Interior Sealant Joint [Type C]:
1. Applications:
a. Control and expansion joints on exposed interior surfaces of exterior walls.
b. Perimeter joints on exposed interior surfaces of exterior openings.

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c. Perimeter joints between interior wall surfaces and frames of interior doors, windows, storefronts, louvers, elevator entrances and similar openings.
d. Other interior joints in vertical surfaces and non-traffic horizontal surfaces subject to movement for which no other sealant is specified.

2. Multi Component Urethane Sealants:
   a. Dymeric 240/240FC.
   b. Vulkem 227.
   c. Or equal
3. Single Component Urethane Sealants:
   a. Dymonic FC.
   b. Dymonic.
   c. Vulkem 116.
   d. Or equal
4. Single Component Silicone Sealants:
   a. Spectrem 1.
   b. Spectrem 2.
   c. Spectrem 3.
   d. Or equal
5. Other Sealants:
   a. Tremflex 834.
   b. Or equal

C. Interior Sanitary Sealant Joint [Type G]:
1. Applications:
   a. Joints in toilet room and bathroom counter tops.
   b. Joints between plumbing fixtures and adjacent materials.
   c. Other interior joints in wet areas where needed to limit mold and mildew growth.
2. Single Component Silicone Sealants:
   a. Tremsil 200.
   b. Or equal

D. Concealed Metal Lap Sealant Joint [Type J]:
1. Applications:
   a. Concealed lap and hook joints in sheet metal flashing and trim.
2. Single Component Non-Curing Sealants:
   a. Tremco Butyl Sealant.
   b. Or equal

E. Concealed Bedding Sealant Joint [Type K]:
1. Applications:
   a. Bedding joints under metal thresholds and saddles.
   b. Bedding joints between sheet metal flashing and other materials.
2. Single Component Urethane Sealants:
   a. Dymonic FC.
   b. Dymonic.

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c. Vulkem 116.
d. Or equal

3. Single Component Silicone Sealants:
   a. Proglaze.
   b. Spectrem 2.
   c. Spectrem 3.
   d. Or equal
4. Single Component Non-Curing Sealants:
   a. Tremco Butyl Sealant.
   b. Tremco Acoustical Sealant.
   Or equal

END OF SECTION

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STEEL DOORS AND FRAMES

SECTION 08 11 13

PART 1 – GENERAL

1.01 GENERAL PROVISIONS:

A. The CONDITIONS OF THE CONTRACT and all Sections of Division 1 are hereby made a part of this section.

1.02 DESCRIPTION OF WORK:

A. Work Included: Provide labor, materials, and equipment necessary to complete the work of this section. Extent of steel doors and frames required is indicated on drawings and in schedules.

1. Furnish and Install:
   a. Steel frames for hollow metal doors
   b. Steel frames for wood doors
   c. Steel sidelite, borrowed lite, and transom frames
   d. Hollow metal doors
2. Install Only: Finish hardware for hollow metal doors as specified in Section 08 71 00 Finish Hardware.

B. Related work specified elsewhere:

1. SECTION 08 14 16: WOOD DOORS
2. SECTION 08 71 00: FINISH HARDWARE
3. SECTION 09 90 00: PAINTING

1.03 QUALITY ASSURANCE; SUBMITTALS:

A. General: Comply with requirements of SECTION 01 31 00 - SUBMITTALS, MEETINGS & RECORD DOCUMENTS and SECTION 01 45 00 - QUALITY CONTROL SERVICES.

B. Manufacturer: Provide steel doors and frames complying with these specifications from one of the following:

1. CECO
2. Curries
3. Steelcraft

C. Supplier: A recognized hollow metal supplier, with in-house fabrication facilities, who has been furnishing doors and frames in the project's vicinity for a period of not less than five years.

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D. Product Data: Submit four copies of manufacturers technical product data for each item. Include whatever information may be necessary to show compliance with requirements, and include instructions for installation and maintenance.

E. Door Schedule: Submit final door schedule in manufacturer's standard format and as outlined below. Coordinate doors, frames and related work to ensure proper size, thickness, hand, function, and fasteners.

1. **NOTE: Contractor shall make all submittals for finish hardware, doors, frames and related items simultaneously, only after proper review and coordination by own staff beforehand.**

2. Final Door Schedule Content: Based on doors and frames in drawings, organize door schedule to indicate complete designations of every item required for each door or opening. Include the following information:

   a. Type, style, hand, size and construction of each item.

   b. Anchors and fastenings to related work.

   c. Corner construction of welded and/or knocked down frames.

   d. Location of door and frame cross-referenced to indications on drawings both on floor plans and in hardware schedule.

   e. Explanation of all abbreviations, symbols, codes, etc. contained in schedule.

   f. Mounting locations for hardware.

   g. Door construction and materials.

   h. Gage and finish of all materials.

3. Shop Drawings: Submit separate detail drawings, referenced to door schedule, showing size, hand, construction, fasteners, anchors and all other details pertinent to the fabrication of doors and frames for this project.

1.04 APPROVAL OF SUBSTITUTIONS:

A. Manufacturers and model numbers specified herein are to establish a standard of quality. If products other than those specifically identified herein are to be considered for this Project, they must be submitted for approval of the Architect not less than ten (10) calendar days prior to receipt of General Bids.

B. Requests for approval of substitutions shall be in writing, accompanied by catalog cuts, technical information and physical samples.

C. Approval of substitutions shall only be valid when issued by Architect to all bidders in the form of Addendum.

1.05 REFERENCES:

A. ANSI A115 Series: Standards for Steel Doors And Frames.

B. NFPA 80, NFPA 101.

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C. Other applicable building and life safety codes.

D. Door and Hardware Institute: "Recommended Locations for Builder's Hardware.

E. ANSI A117.1: American National Standard Providing Accessibility and Usability for Physically Handicapped People.

F. Other applicable industry standards.

1.06 PRODUCT PACKAGING AND HANDLING:

A. Tag each item or package separately, with identification related to final door schedule.

B. All doors shall be packaged in full cartons and securely banded.

C. Doors and frames shall be received by the contractor at the jobsite and handled in a manner so as not to be damaged. They shall be stored upright in a protected area on wood runners or skids and shall be covered with vented tarpaulins or plastic.

1.07 WARRANTY: Doors and frames specified for this Project shall be guaranteed against defects in material and workmanship for a period of one (1) year from date of Substantial Completion of Project.

PART 2 - PRODUCTS

2.01 MATERIALS:

A. Doors shall be manufactured from commercial quality cold-rolled steel sheets. Exterior doors shall be A60 hot-dipped galvanized.

B. Frames shall be manufactured from commercial quality cold-rolled steel sheets. Exterior frames shall be *WELDED* A60 hot-dipped galvanized.

C. Steel shall conform to ASTM standards A366 or A620 and A568 (uncoated), ASTM A526 or A642 and A525 (galvanized).

D. All doors and frames shall be chemically treated for paint adhesion and prime painted to meet performance requirements of ANSI A224.1.

E. U Factor of 1.5 or less.

2.02 DOOR FABRICATION:

A. Interior doors shall be 1-3/4” thick, manufactured from two 18 gage steel sheets. A one piece resin-impregnated honeycomb core with sanded edges shall be securely bonded to both face sheets. Doors shall have mechanically interlocked vertical edges, flush face sheets, and hairline seam edges. The top and bottom of the door shall be closed flush by 16 gage steel channels (where concealed door bottoms are specified, bottom channel shall be reversed to allow insertion of door bottom into door web). At contractor option, in lieu of honeycomb cores, doors may be provided with a rigid polystyrene foam core, continuously bonded to the face sheets, and completely filling the door.

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B. Exterior doors shall be 1-3/4" thick, manufactured from two 16 gage galvanized steel shee The interior of the doors shall be completely filled with a foamed-inplace polyurethane core, chemically bonded to all interior surfaces. Doors shall have mechanically interlocked vertical edges, flush face sheets, and hairline seam edges. The top and bottom of the door shall be closed flush by 16 gage steel channels (where concealed door bottoms are specified, bottom channel shall be reversed to allow insertion of door bottom into door web).

C. All doors shall be handed type with factory preparation for all concealed or mortised Finish Hardware scheduled. Door closer reinforcements shall be provided for all doors whether scheduled to received closer or not. Reinforce doors for all surface applied hardware.

D. Non-handed doors, and/or filler plates for cutouts not required for scheduled hardware preparation shall NOT be acceptable.

2.03 FRAME FABRICATION:

A. General: Frames shall be knocked down and field assembled or welded type at contractor option. **All exterior frames shall be welded.**

B. Standard knockdown or welded frames shall be manufactured form 16 gage steel sheets with 2" face and 5/8" integral stop. Jamb depth to be determined by wall thickness in accordance with the drawings. Supply appropriate anchors for wall construction.

C. Drywall frames shall be manufactured form 16 gage steel sheets with 2" face and 5/8" integral stop and double back bend to grip the partition firmly without marring the wall surface. Jamb depth to be determined by wall thickness in accordance with the drawings. Provide adjustable plumb anchors to insure square and plumb installation. Supply standard floor anchors for bottom of each jamb.

D. Prepare frames for all concealed or mortised hardware and reinforce for all surface applied hardware.

E. Provide plaster guards for all hardware cutouts.

F. Prepare frames to receive pneumatic type silencers: two for each pair frame, three for each single frame.

G. Exterior frames shall be 16 ga welded, galvanized with thermally broken jambs.

2.04 FIRE RATED ASSEMBLIES

A. All labeled fire doors and frames shall be of a type tested in accordance with ANSI/UL-10b, ASTM E-152, NFPA-252, or UL-305, and shall provide the degree of fire protection, heat transmission, panic-loading capabilities, and/or smoke control as indicated on the label and required by the drawings.

B. Labeled doors and frames shall bear the label of Underwriters Laboratories, Warnock Hersey, or Factory Mutual and shall meet all requirements of the labeling agencies current procedures and policies.

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PART 3 - EXECUTION

3.01 INSTALLATION

A. Doors and frames shall be assembled, installed, and erected plumb and in true alignment and in conformance with manufacturer's recommendations and final approved shop drawings. Preparation for surface applied hardware shall be performed on the jobsite. Frames shall be rigid and securely anchored in place. Doors shall be installed in a manner to achieve functional operation and appearance.

B. Install hardware in compliance with 08 71 00 FINISH HARDWARE.

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SECTION 08 12 16
ALUMINUM FRAMES

PART 1 – GENERAL

1.1 Related Documents

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

1.2 Summary

A. Section Includes: Kawneer Architectural Aluminum Storefront Systems, including perimeter trims, stools, accessories, shims and anchors, and perimeter sealing of storefront units.

1. Types of Kawneer Aluminum Storefront Systems include:
   a. InFrame™ Interior Framing System - 2" x 6" (50.8 x 152.4) nominal dimension; Non-Thermal; Center Glazed, Screw Spline, Punched Opening Fabrication.

B. Related Sections:

1. 07 27 00 Water Resistive & Air Barrier Assemblies
2. 07 92 00 Joint Sealants
3. 08 41 13 Aluminum-Framed Entrances and Storefronts
4. 08 51 13 Aluminum Windows
5. 08 80 00 Glazing

1.3 Definitions

A. Definitions: For fenestration industry standard terminology and definitions refer to American Architectural Manufacturers Association (AAMA) – AAMA Glossary (AAMA AG)

1.4 Performance Requirements

A. Storefront System Performance Requirements: Interior framing system.

1.5 Submittals

A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, hardware, finishes, and installation instructions for each type of aluminum frames indicated.
B. Shop Drawings: Include plans, elevations, sections, details, hardware, and attachments to other work, operational clearances and installation details.
C. Samples for Initial Selection: For units with factory-applied color finishes including samples of hardware and accessories involving color selection.
D. Samples for Verification: For aluminum frames and components required.

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E. Fabrication Sample: Of each vertical-to-horizontal intersection of aluminum frames, made from 12" (304.8 mm) lengths of full-size components and showing details of the following:
   1. Joinery, including concealed welds.
   2. Anchorage.
   3. Expansion provisions.
   4. Glazing.
   5. Flashing and drainage.
F. Other Action Submittals:
   1. Entrance Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of entrance door hardware, as well as procedures and diagrams. Coordinate final entrance door hardware schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of entrance door hardware.

1.6 Quality Assurance

A. Installer Qualifications: An installer which has had successful experience with installation of the same or similar units required for the project and other projects of similar size and scope.
B. Manufacturer Qualifications: A manufacturer capable of providing aluminum frames that meet or exceed performance requirements indicated and of documenting this performance by inclusion of test reports, and calculations.
C. Source Limitations: Obtain aluminum frames through one source from a single manufacturer.
D. Product Options: Drawings indicate size, profiles, and dimensional requirements of aluminum frames and are based on the specific system indicated. Refer to Division 01 Section “Product Requirements”. Do not modify size and dimensional requirements.
   1. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.
E. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
   1. Build mockup for type(s) of storefront elevation(s) indicated, in location(s) shown on Drawings.
F. Pre-installation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section “Project Management and Coordination”.

1.7 Project Conditions

A. Field Measurements: Verify actual dimensions of aluminum frame openings by field measurements before fabrication and indicate field measurements on Shop Drawings.

1.8 Warranty

A. Manufacturer’s Warranty: Submit, for Owner’s acceptance, manufacturer’s standard warranty.
B. Warranty Period: Two (2) years from Date of Substantial Completion of the project provided however that the Limited Warranty shall begin in no event later than six months from date of shipment by manufacturer.

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PART 2 - PRODUCTS

2.1 Manufacturers

A. Basis-of-design Product:
   1. Kawneer Company Inc.
   2. InFrame™ Interior Framing System (Non-Thermal)
   3. System Dimensions: 2" x 6" (50.8 x 152.4) nominal dimension
   4. Glass: Center Plane

B. Substitutions: Refer to Substitutions Section for procedures and submission requirements.

2.2 Materials

A. Aluminum Extrusions: Alloy and temper recommended by aluminum storefront manufacturer for strength, corrosion resistance, and application of required finish and not less than 0.070" (1.8 mm) wall thickness at any location for the main frame and complying with ASTM B 221: 6063-T6 alloy and temper.
B. Fasteners: Aluminum, nonmagnetic stainless steel or other materials to be non-corrosive and compatible with aluminum framing members, trim hardware, anchors, and other components.
C. Anchors, Clips, and Accessories: Aluminum, nonmagnetic stainless steel, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions or other suitable zinc coating; provide sufficient strength to withstand design pressure indicated.
D. Reinforcing Members: Aluminum, nonmagnetic stainless steel, or nickel/chrome-plated steel complying with ASTM B 456 for Type SC 3 severe service conditions, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions or other suitable zinc coating; provide sufficient strength to withstand design pressure indicated.
E. Sealant: For sealants required within fabricated storefront system, provide permanently elastic, non-shrinking, and non-migrating type recommended by sealant manufacturer for joint size and movement.
F. Tolerances: Reference to tolerances for wall thickness and other cross-sectional dimensions of storefront members are nominal and in compliance with AA Aluminum Standards and Data.

2.3 Storefront Framing System

A. Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with nonstaining, nonferrous shims for aligning system components.
B. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials. Where exposed shall be stainless steel.
C. Perimeter Anchors: When steel anchors are used, provide insulation between steel material and aluminum material to prevent galvanic action
D. Packing, Shipping, Handling and Unloading: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
E. Storage and Protection: Store materials protected from exposure to harmful weather conditions. Handle storefront material and components to avoid damage. Protect storefront material against damage from elements, construction activities, and other hazards before, during and after storefront installation.

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2.4 Glazing Systems

A. Glazing: As specified in Division 08 Section “Glazing”.
B. Glazing Gaskets: Manufacturer's standard compression types; replaceable, extruded EPDM rubber.
C. Spacers and Setting Blocks: Manufacturer's standard elastomeric type.
D. Bond-Breaker Tape: Manufacturer's standard TFE-fluorocarbon or polyethylene material to which sealants will not develop adhesion.
E. Glazing Sealants: For structural-sealant-glazed systems, as recommended by manufacturer for joint type, and as follows:
   1. Weatherseal Sealant: ASTM C 920 for Type S, Grade NS, Class 25, Uses NT, G, A, and O; single-component neutral-curing formulation that is compatible with structural sealant and other system components with which it comes in contact; recommended by structural-sealant, weatherseal-sealant, and aluminum-framed-system manufacturers for this use.

2.5 Entrance Door Systems

A. Entrance Doors: As specified in Division 084113 Section “Aluminum-Framed Entrances and Storefronts”.

2.6 Accessory Materials

A. Joint Sealants: For installation at perimeter of aluminum-framed systems, as specified in Division 07 Section “Joint Sealants”.
B. Bituminous Paint: Cold-applied, asphalt-mastic paint complying with SSPC-Paint 12 requirements except containing no asbestos; formulated for 30 mil (0.762 mm) thickness per coat.

2.7 Fabrication

A. Extrude aluminum shapes before finishing.
B. Framing Members, General: Fabricate components that, when assembled, have the following characteristics:
   1. Profiles that are sharp, straight, and free of defects or deformations.
   2. Accurately fit joints; make joints flush, hairline and weatherproof.
   3. Physical and thermal isolation of glazing from framing members.
   4. Accommodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge clearances.
   5. Provisions for field replacement of glazing.
   6. Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.
C. Mechanically Glazed Framing Members: Fabricate for flush glazing without projecting stops.
D. Storefront Framing: Fabricate components for assembly using manufacturer’s standard installation instructions.
   1. After fabrication, clearly mark components to identify their locations in Project according to Shop Drawings.

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2.8 Aluminum Finishes

A. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes:
B. Factory Finishing
   1. Kawneer Permanodic™ AA-M10C22A41, AAMA 611, Architectural Class I Clear Anodic Coating (Color #14 Clear)

PART 3 - EXECUTION

3.1 Examination

A. Examine openings, substrates, structural support, anchorage, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work. Verify rough opening dimensions, levelness of sill plate and operational clearances. Examine wall flashings, vapor retarders, water and weather barriers, and other built-in components to ensure a coordinated, weather tight aluminum frame installation.
   1. Masonry Surfaces: Visibly dry and free of excess mortar, sand, and other construction debris.
   2. Wood Frame Walls: Dry, clean, sound, well nailed, free of voids, and without offsets at joints. Ensure that nail heads are driven flush with surfaces in opening and within 3 inches (76 mm) of opening.
   3. Metal Surfaces: Dry; clean; free of grease, oil, dirt, rust, corrosion, and welding slag; without sharp edges or offsets at joints.
   4. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 Installation

A. Comply with Drawings, Shop Drawings, and manufacturer's written instructions for installing aluminum framed storefront system, accessories, and other components.
B. Install aluminum framed storefront system level, plumb, square, true to line, without distortion or impeding thermal movement, anchored securely in place to structural support, and in proper relation to wall flashing and other adjacent construction.
C. Separate aluminum and other corrodible surfaces from sources of corrosion or electrolytic action at points of contact with other materials.

3.3 Field Quality Control

A. Manufacturer's Field Services: Upon Owner’s written request, provide periodic site visit by manufacturer’s field service representative.

3.4 Adjusting, Cleaning, and Protection

A. Clean aluminum surfaces immediately after installing aluminum framed storefronts. Avoid damaging protective coatings and finishes. Remove excess sealants, glazing materials, dirt, and other substances.

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B. Clean glass immediately after installation. Comply with glass manufacturer's written recommendations for final cleaning and maintenance. Remove nonpermanent labels, and clean surfaces.

C. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.

END OF SECTION

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SECTION 08211

WOOD DOORS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

1.01 SUMMARY

A. This Section includes the following:
1. Solid-core doors with wood-veneer faces.
2. Interior stile and rail doors.
3. Factory finishing wood doors.
4. Factory fitting wood doors to frames and factory machining for hardware.

B. Related Sections include the following:

1. Division 8 Section "Glazing" for glass view panels in wood doors.

1.02 SUBMITTALS

A. General: Submit in accordance with Section 01300.
1. Submittals for Sections 08110, 08211, and 08710 shall be made concurrently.

B. Product Data: For each type of door. Include details of core and edge construction and trim for openings. Include factory-finishing specifications. Submit door manufacturer's storage, handling, finish, installation, and maintenance instructions.

C. Shop Drawings: Indicate location, size, and hand of each door, elevation of each kind of door; face veneer, construction details not covered in Product Data; location and extent of hardware blocking; and other pertinent data.
1. Indicate dimensions and locations of mortises and holes for hardware.
2. Indicate dimensions and locations of cutouts.
3. Indicate requirements for veneer matching.
4. Indicate doors to be factory finished and finish requirements.
5. Indicate fire ratings for fire doors.

D. Door Schedule: Submit schedule of doors using same reference numbers for details and openings as those on Contract Drawings.
1. Indicate coordination of glazing frames and stops with glass and glazing requirements.

E. Samples: Submit the following:
1. Factory finishes applied to actual door face materials, approximately 8 by 10 inches, for each material and finish. For each wood species and transparent finish, provide set of three samples showing typical range of color and grain to be expected in the finished work.
2. Corner sections of doors, approximately 8 by 10 inches, with door faces and edgings representing typical range of color and grain for each species of veneer and solid lumber required. Finish sample with same materials proposed for factory-finished doors.
3. Frames for light openings, 6 inches long, for each material, type, and finish required.

1.03 QUALITY ASSURANCE

A. Source Limitations: Obtain flush wood doors and interior stile and rail doors through

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one source from a single manufacturer.

B. Quality Standard: Comply with NWWDA I.S. 1-A, "Architectural Wood Flush Doors" or AWI's "Architectural Woodwork Quality Standards Illustrated."

C. Fire-Rated Wood Doors: Doors complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to NFPA 252.
   1. Test Pressure: Test at atmospheric pressure.
   2. Acceptable Fire-Rating Label: Underwriters' Laboratories, Inc. (U.L.) or Warnock Hersey.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Protect wood doors during transit, storage, and handling to prevent damage, soiling and deterioration. Comply with requirements of referenced standard, manufacturer's instructions, and recommendations of NWWDA I.S. I, Appendix, "How to Store, Handle, Finish, Install and Maintain Wood Doors."
   1. Package doors at factory prior to shipping.
   2. Protect doors from extremes of heat and cold. Relative humidity shall not be less than 30 percent nor more than 60 percent.
   3. Compare pre-finished doors to approved finish sample upon delivery. Notify Architect if sample does not match.

B. Mark each door on top and bottom rail with opening number used on Shop Drawings.

1.05 PROJECT CONDITIONS

A. Environmental Limitations: Do not deliver or install doors until building is enclosed, wet work is complete, and HVAC system is operating and will maintain temperature and relative humidity at occupancy levels during the remainder of the construction period.

1.06 WARRANTY

A. General: Special warranty specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and will be in addition to and run concurrent with other warranties made by Contractor under requirements of the Contract Documents.

B. Special Warranty: Manufacturer's standard form, signed by manufacturer, Installer, and Contractor, in which manufacturer agrees to repair or replace doors that are defective in materials or workmanship, have warped (bow, cup, or twist), show telegraphing of core construction in face veneers, and which do not conform to tolerance limitations of specified quality standards.
   1. Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors.
   2. Warranty shall be in effect during the following period of time from date of Substantial Completion:
      a. Solid-Core Interior Doors: Life of installation.
      b. Interior Stile and Rail Doors: Life of installation.

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PART 2-PRODUCTS

2.01 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Wood Doors:
   a. Algoma Hardwoods Inc.
   b. Marshfield Door Systems, (Weyerhaeuser).
   c. VT Industries Inc.

2.02 DOOR CONSTRUCTION, GENERAL

A. Doors for Transparent Finish:
1. Grade: Premium, with Grade A faces.
2. Species and Cut: Select rotary cut maple.
3. Match between Veneer Leaves: Book match.
4. Assembly of Veneer Leaves on Door Faces: Running match.
5. Match: Provide door faces of compatible color and grain for doors hung in same opening or separated only by mullions.
6. Stiles: Same species as faces or a compatible species.

2.03 SOLID-CORE DOORS

A. Particleboard Cores: Comply with the following requirements:
1. Particleboard: ANSI A208.1, Grade LD-2.
2. Blocking: Provide wood blocking in particleboard-core doors as needed to eliminate through-bolting hardware.
3. Provide stile and rail doors with structural composite lumber cores.

B. Interior Veneer-Faced Doors:
1. Core: Particleboard for flush doors; structural composite lumber core for stile and rail doors.
2. Construction: Five plies, hot pressed, with stiles and rails bonded to core, then entire unit abrasive planed before veneering.
   a. No substitution.

C. Fire-Rated Doors:
1. Construction: Construction and core specified above for type of face indicated or manufacturer's standard mineral-core construction as needed to provide fire rating indicated.
2. Blocking: For mineral-core doors, provide composite blocking with improved screw-holding capability approved for use in doors of fire ratings indicated as needed to eliminate through-bolting hardware.
3. Edge Construction: At hinge stiles, provide manufacturer's standard laminated-edge construction with improved screw-holding capability and split resistance and with outer stile matching face veneer.
4. Pairs: Provide fire-rated pairs with fire-retardant stiles matching face veneer that are labeled and listed for kinds of applications indicated without formed-steel edges and astragals.

2.04 LIGHT FRAMES

A. Wood Frames for Light Openings in Doors: Flush, solid wood or veneer wrapped, of same species as door facing, mitered corners.

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2.05 FABRICATION

A. Factory fit doors to suit frame-opening sizes indicated, with the following uniform clearances and bevels, unless otherwise indicated:
   1. Comply with clearance requirements of referenced quality standard for fitting. Comply with requirements in NFPA 80 for fire-rated doors.

B. Factory machine doors for hardware that is not surface applied. Locate hardware to comply with DH1-WDHS-3. Comply with final hardware schedules, door frame Shop Drawings, DHI Al 15-W series standards, and hardware templates.
   1. Coordinate measurements of hardware mortises in metal frames to verify dimensions and alignment before factory machining.

C. Openings: Cut and trim openings through doors to comply with applicable requirements of referenced standards for kind(s) of door(s) required.
   1. Light Openings: Trim openings with moldings of material and profile indicated.

2.06 FACTORY FINISHING

A. General: Comply with AWI's "Architectural Woodwork Quality Standards Illustrated," Section 1500 for factory finishing.

B. Finish doors at factory.

C. Finish:
   1. Grade: Custom.
   2. Finish: AWI System, TR-6 catalyzed polyurethane.
   3. Staining: None
   4. Sheen: Satin.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine doors and installed door frames, with Installer present, before hanging doors.
   1. Verify that frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with level heads and plumb jambs.
   2. Reject doors with defects.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. Hardware: For installation, see Division 8 Section "Door Hardware."
   1. Hinges shall be shimmed with metal shims at each door to provide equal clearance at each jamb.
   2. Locks, exit devices, door closers and other hardware shall be installed in accordance with the manufacturer's instructions. Pilot holes of recommended size, for wood screws required to fasten the hardware, shall be drilled by the installing Contractor before screws are fastened to the wood doors.

B. Manufacturer's Written Instructions: Install doors to comply with manufacturer's written instructions, referenced quality standard, and as indicated.
   1. Install fire-rated doors in corresponding fire-rated frames according to NFPA 80.

C. Factory-Fitted Doors: Align in frames for uniform clearance at each edge.

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D. Factory-Finished Doors: Restore finish before installation if fitting or machining is required at Project site.

3.03 ADJUSTING

A. Operation: Rehang or replace doors that do not swing or operate freely.

B. Finished Doors: Replace doors that are damaged or do not comply with requirements. Doors may be repaired or refinished if work complies with requirements and shows no evidence of repair or refinishing.

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SECTION 08 81 00

GLAZING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Clear tempered glass.

1.2 REFERENCES

A. American National Standards Institute (ANSI):
   1. ANSI Z97.1 - Safety Performance Specifications and Methods of Test for Safety Glazing Material Used in Buildings.

B. American Society for Testing and Materials (ASTM):
   1. ASTM C920 - Standard Specification for Elastomeric Joint Sealants.
   2. ASTM C1036 - Standard Specification for Flat Glass.
   2. ASTM C1048 - Standard Specification for Heat-Treated Flat Glass-Kind HS, Kind FT Coated and Uncoated Glass.
   3. ASTM D2000 - Standard Classification System for Rubber Products in Automotive Applications.

C. Consumer Product Safety Standards for Architectural Glazing. CPSC 16 CFR, Part 1201.

D. Flat Glass Marketing Association (FGMA):
   1. FGMA - Glazing Manual and Glazing Sealing Systems Manual.

1.3 SUBMITTALS

A. Procedures for submittals.
   1. Product Data:
      a. Glass: Structural, physical and environmental characteristics, size limitations, special handling or installation requirements.
      b. Glazing compound: Provide chemical, functional, and environmental characteristics, limitations, special application requirements.
   2. Samples:
      a Glazing: Submit one sample 12 x 12 inches (300 x 300 mm) in size of each type of glazing, illustrating tinting, and finish of glazing materials. Label each sample indicating kind, quality and manufacturer.
   3. Assurance/Control Submittals:
      a. Certificates: Manufacturer's certificate that Products meet or exceed specified requirements.
      b. Qualification Documentation: Submit documentation of experience indicating compliance with specified qualification requirements.

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1.4 QUALITY ASSURANCE

A. Identification: Each unit of tempered glass shall be permanently identified by the manufacturer. The identification shall be etched or ceramic fired on the glass and be visible when the unit is glazed.

B. Perform Work in accordance with FGMA Glazing Manual.

C. Installer Qualifications: Company specializing in performing the Work of this Section with minimum 5 years documented experience.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Transport, handle, store, and protect Products.

1.6 PROJECT CONDITIONS OR SITE CONDITIONS

A. Environmental Requirements:
   1. Do not install glazing when ambient temperature is less than 40 degrees F.
   2. Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

1.7 WARRANTY

A. Procedures for closeout submittals.

B. Special Warranty:
   1. Include coverage for cracking, breakage, and replacement of same.
      a. Warranty Period: 1 year.
   2. Include coverage for sealed glass units from seal failure, interpane dusting or misting, and replacement of same.
      a. Warranty Period: 10 years.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Subject to compliance with project requirements, manufacturer's offering Products which may be incorporated in the Work include the following:
   1. Falconer Glass Industries.
   2. Libbey-Owens-Ford Company, Toledo, OH (800) 526-6557.
   3. PPG Industries, Pittsburgh, PA (412) 434-2858.
   4. Viracon, Owatonna, MN (800) 533-2080.

B. Product options and substitutions. Substitutions: Permitted.

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2.2 GLASS MATERIALS

A. Glass Type 1 - Clear Tempered Insulated Glass Units, Low E: Double pane units of clear tempered glass.
   1. Glass Thickness, Inner: ¼ inch.
   2. Glass Thickness, Outer: ¼ inch.
   3. Unit Thickness: 1 inch thick units.

B. Glass Type 2 - Clear Tempered Glass Units. Single pane units with clear tempered glass.
   1. Glass Thickness, Inner: ¼ inch.

2.3 GLAZING COMPOUNDS

A. Polysulphide Sealant: Two component, chemical curing, non-sagging type; cured Shore A hardness of 15-25.

B. Silicone Sealant: Single component, chemical curing; capable of water immersion without loss of properties; non-bleeding, non-staining; cured Shore A hardness of 15-25.
   1. Color: Clear.

C. Acrylic terpolymer compounded especially for glazing; non-hardening, non-staining, and non-bleeding.

2.4 GLAZING ACCESSORIES

A. Setting Blocks: Resilient blocks of 70 to 90 Shore A durometer hardness; compatible with glazing sealant.

B. Spacers: Resilient blocks of 40 to 50 Shore A durometer hardness; self-adhesive on one side; compatible with glazing sealant.

C. Filler Rods: Closed cell or jacketed foam rods of polyethylene, butyl, neoprene, polyurethane, or vinyl; compatible with glazing sealant.

D. Joint Cleaners, Primers, and Sealers: As recommended by glazing sealant manufacturer.

E. Gaskets: ASTM D2000, SBC 415 to 3BC 620; extruded or molded neoprene or EPDM, black.

F. Mastic: Non-solvent type adhesive as recommended by mirrored glass manufacturer.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verification of Conditions: Verify that field measurements, surfaces, substrates and conditions are as required, and ready to receive Work.

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1. Verify that openings for glazing are correctly sized and within tolerance.
2. Verify that surfaces of glazing channels or recesses are clean, free of obstructions that may impede moisture movement, weeps are clear, and ready to receive glazing.

B. Report in writing to Architect prevailing conditions that will adversely affect satisfactory execution of the Work of this Section. Do not proceed with Work until unsatisfactory conditions have been corrected.

C. By beginning Work, Contractor accepts conditions and assumes responsibility for correcting unsuitable conditions encountered at no additional cost to the Owner.

3.2 PREPARATION

A. Clean contact surfaces with solvent and wipe dry.

B. Seal porous glazing channels or recesses with substrate compatible primer or sealer.

C. Prime surfaces scheduled to receive sealant.

3.3 GLAZING

A. Install glazing from interior only. No exterior glazing permitted. No glazing removal permitted from exterior.

B. Locate setting blocks at quarter points of sill; set in sealant if heel or toe bead is required.

C. Install spacers inside and out except where preshimmed tape or glazing gaskets are to be used.

D. Set each piece in a series to other pieces in pattern draw, bow, or other visually perceptible characteristics.

E. Provide glazing sealants and gaskets as required for particular glazing application. Coordinate with other Sections for material compatibility.

F. Gaskets:
1. Provide adequate anchorage, particularly for driven-in wedge gaskets.
2. Miter and weld ends of channel gaskets at corners to provide continuous gaskets.
3. Seal face gaskets at corners with sealant to close opening and prevent withdrawal of gaskets from corners.

G. Do not leave voids in glazing channels except as specifically indicated or recommended by glass manufacturer. Force sealant into channel to eliminate voids. Tool exposed surfaces to slight wash away from joint. Trim and clean promptly.

H. Do not allow sealant to close weeps of aluminum framing.

I. Provide filler rod where sealants are used in the following locations:
1. Head and jamb channels.

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2. Colored glass over 75 united inches in size.
3. Clear glass over 125 united inches in size.

3.4 CONSTRUCTION

A. Interface with Other Work: Coordinate glazing with installation of entrances and storefronts specified in Division 08.

3.5 FIELD QUALITY CONTROL

A. Inspect preparation and installation of glass.

3.6 CLEANING

A. Remove glazing materials from finish surfaces.

B. Remove labels after Work is complete.

C. Clean glass and adjacent surfaces.

3.8 PROTECTION

A. After installation, mark pane with an 'X' by using removable plastic tape or paste.

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SECTION 09 21 16

GYPSUM BOARD ASSEMBLIES ON METAL FRAMING

PART 1 - GENERAL

1.1 SUMMARY

A. Description of Work: Work of this section includes, but is not limited to, the following:
1. Gypsum board and accessories
2. Metal studs and furring
3. ~~Metal shaftwall systems~~
4. Metal suspension systems
5. Sound-rated construction and accessories
6. Gypsum board finishing
7. Trim and accessories

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Section 05 41 00 Lightgage Metal Framing.
B. Section 06 10 00 Rough Carpentry.
C. Section 07 21 16 Thermal and Acoustic Insulation.
D. Section 07 84 13 Firestopping.
E. Section 09 90 00 Painting

1.3 SUBMITTALS

A. Product Data: Submit manufacturer's specifications and installation instructions with project conditions and materials clearly identified or detailed for each required system.

1.4 SYSTEM REQUIREMENTS

A. Performance Requirements: Fabricate and install systems as indicated but not less than that required to comply with ASTM C754 under the following conditions:
1. Gypsum board partitions:
   a. Standard systems: Maximum deflection of l/240 of partition height.
2. Cavity shaftwall systems: Withstand minimum positive and negative pressure of 5 psf.
3. Interior suspended ceilings and soffits: Maximum deflection of l/360 of distance between supports.
4. Nonstructural components that are permanently attached to structures and their support attachments, shall be designed and constructed to resist the effects of earthquake motions in accordance to local jurisdiction.

B. Fire Resistance Ratings: Where fire resistance classifications are indicated, provide materials and application procedures identical to those listed by UL or tested according to ASTM E119 for type of construction shown.

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C. Acoustical Ratings: Where sound ratings are indicated, provide materials and application procedures identical to those tested by manufacturer to achieve Sound Transmission Class (STC) scheduled or indicated in accordance with ASTM E90.

1.5 QUALITY ASSURANCE

A. Reference Standards:
1. Applicable requirements of ASTM C754 for installation of steel framing.
2. Install gypsum board in accordance with applicable requirements and recommendations of Gypsum Association GA 216, "Recommended Specifications for the Application and Finishing of Gypsum Board" except for more stringent requirements of manufacturer.
3. Apply acoustical sealant in accordance with applicable requirements of ASTM C919.

1.6 DELIVERY, STORAGE AND HANDLING

A. Delivery:
1. Deliver material to site promptly without undue exposure to weather.
2. Deliver in manufacturer's unopened containers or bundles, fully identified with name, brand, type and grade.

B. Storage:
1. Store above ground in dry, ventilated space.
2. Protect materials from soiling, rusting and damage.

1.7 PROJECT CONDITIONS

A. Environmental Requirements:
1. Do not install gypsum board when ambient temperature is below 40°F.
2. For adhesive attachment of gypsum board, and for finishing of gypsum board, maintain ambient temperature above 55°F from one week prior to attachment or joint treatment, and until joint treatment is complete and dry.

PART 2 - PRODUCTS

2.1 PRODUCTS AND MANUFACTURERS

A. Gypsum Board and Accessories: Listed products establish standard of quality and are manufactured by United States Gypsum Company (USG), Chicago, IL. Or approved equal.

B. Steel Framing and Furring: Company acceptable to installer**.**

C. Grid Suspension Assemblies: Listed products establish standard of quality and are manufactured by United States Gypsum Company (USG), Chicago, IL. Or approved equal.

2.2 BOARD MATERIALS

A. Gypsum Board:
1. ASTM C1396 (Section 5), regular type except where Type X fire-resistant type is indicated or required to meet UL assembly types.

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2. Edges: Tapered.
3. Acceptable products:
   a. Typical partitions and ceilings: Equivalent to SHEETROCK® brand SW, FIRECODE® or FIRECODE® "C" Core gypsum panels by USG.
   b. OR Equivalent to SHEETROCK® brand Regular, FIRECODE® or FIRECODE® "C" Core gypsum panels by USG.
   c. Acceptable product for fire-rated walls: Equivalent to ULTRACODE® Core, 3/4 inch thick, by USG.
   d. Use gypsum board and joint compound with little or no VOCs and formaldehyde emissions. Gypsum board shall have a minimum of 5% Post- consumer and 20% Post-industrial (nation-wide average for company) as defined by FTC (Federal Trade Commission) by USG.

B. Moisture & Mold Resistant
1. ASTM C1396 (Section 5), regular type except where Type X fire-resistant type is indicated or required to meet UL assembly types.
2. Edges: Tapered.
3. Thickness: 5/8 inch.
4. Acceptable products: Sheetrock® brand Mold Tough™ Firecode (Type X), Firecode® C Core or ULTRACODE® Core gypsum panels by USG.

~~C. Shaftwall:~~
~~1. Liner boards:~~
~~a. ASTM C442, Type SLX.~~
~~b. Edges: Beveled.~~
~~c. Thickness: 1 inch.~~
~~d. Acceptable product: Equivalent to SHEETROCK® gypsum liner panels by USG.~~
~~2. Face boards:~~
~~a. ASTM C1396 (Section 5), Type X.~~
~~b. Thickness: 1/2 inch, unless otherwise indicated.~~
~~c. Acceptable product: Equivalent to SHEETROCK® FIRECODE® C Core and FIRECODE® Core gypsum panels by USG.~~

2.3 METAL FRAMING AND FURRING MATERIALS

A. Metal Studs and Runners:
1. ASTM C645, "C" shaped, gauge:
   a. Provide gauge as indicated for studs; runner gauge as recommended by stud manufacturer.
   b. Provide runner gauge as recommended by stud manufacturer.
2. Depth of sections: As indicated.
3. Corrosion protection: G40 hot-dipped galvanized coating per ASTM A525.

~~B. Shaft Wall Supports:~~
~~1. Conform to ASTM A446, Grade A, with G40 hot-dipped galvanized coating per ASTM A525.~~
~~2. Studs:~~
~~a. Shape: "CH", or as standard with manufacturer.~~
~~b. Gauge: As required to fulfill performance criteria, minimum 25 gauge. Provide 20 gauge for jamb and lintel components.~~

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~~c. Size: As indicated.~~
~~d. J runners: 24 gauge, size as required for coordination with studs.~~
~~e. Jamb struts: 20 gauge with 3 inch back leg for use at elevator frames.~~

C. Metal Furring Channels:
1. Hat-shaped:
   a. ASTM C645, 7/8 inch high, 25 gauge, with G40 hot-dipped galvanized coating per ASTM A525.
   b. Provide 20 gauge at furring to receive tile backer board.
   c. Acceptable products: DWC-25 for ½" and 5/8" gypsum board and DWC-20 by USG.
2. Z-shaped: ASTM C645, depths as indicated, 24 gauge minimum, with G40 hot-dipped galvanized coating per ASTM A525.
3. Resilient: Manufacturer's standard type designed to reduce sound transmission; 1/2 inch deep, 25 gauge steel with G40 hot-dipped galvanized coating per ASTM A525.

2.4 CEILING AND SOFFIT SUPPORT MATERIALS

A. Hanger Anchorage Devices: Screws, clips, bolts or other devices compatible with indicated structural anchorage for ceiling hangers and whose suitability has been proven through standard construction practices or by certified test data.

B. Hangers:
1. Steel wire or rods, sizes to comply with requirements of ASTM C754 for ceiling or soffit area and loads to be supported.
2. Wire: ASTM A 641, soft, Class 1 galvanized.
3. Rods and flats:
   1. Mild steel components.
   2. Finish: Galvanized or painted with rust-inhibitive paint for interior work; galvanized for exterior work.

C. Framing System:
1. Main runners:
   1. Cold-rolled, "C" shaped steel channels, 16 gauge minimum.
   2. Finish:Galvanized or painted with rust-inhibitive paint for other interior work.
2. Cross furring: Hat-shaped steel furring channels, ASTM C645, 7/8 inch high, 25 gauge, galvanized.
3. Furring anchorages: 16 gauge galvanized wire ties, manufacturer's standard wire-type clips, bolts, nails or screws recommended by furring manufacturer and complying with ASTM C754.
4. Provide compression posts and other accessories as required to comply with seismic requirements.

D. Proprietary Framing System:
1. Framing system for gypsum board panels consisting of cold-rolled steel members conforming to ASTM C635, with exposed surfaces finished in manufacturer’s standard enamel paint finish.
2. Fire rating: 1 hour rating in accordance with UL assembly indicated.
3. Components: Main tees, furring cross channels, furring cross tees, and cross tees.

4. Accessories:
   a. U-shaped channel molding.
   b. Galvanized carbon steel (12 ga.) hanger wire.
5. Acceptable product: Equivalent to Drywall Suspension System by USG.

2.5 ACCESSORIES

A. Metal Trim for Gypsum Board:
   1. Conform to profile and dimensions indicated.
   2. Material for interior work: Galvanized steel, 26 gauge minimum.
   3. Corner beads: Equivalent to Dur-A-Bead No. 103by USG.
   4. Casing beads (edge beads): Equivalent to 200A by USG.
   5. J-Beads.

B. Adhesives and Joint Treatment Materials:
   1. Conform to requirements of ASTM C475.
   2. Joint compounds:
      a. Drying-type (ready-mixed): Equivalent to SHEETROCK® brand taping joint compound and topping joint compound, or SHEETROCK® all purpose joint compound [or ready-mixed lightweight all purpose joint compound by USG.

C. Gypsum Board Screws: Self-drilling, self-tapping steel screws.
   1. For steel framing less than 0.03 inch thick: Comply with ASTM C1002.
   2. For steel framing from 0.033 inch thick to 0.112 inch thick: Comply with ASTM C954.
   3. Provide Type S or Type S-12 screws.

D. Backer Board Accessories: Provide accessories and corrosion-resistant-coated steel screws as recommended by backer board manufacturer and required for complete installation.

E. Acoustical Sealant: Equivalent to to SHEETROCK® acoustical sealant by USG.

F. Miscellaneous Accessories: Provide as required for complete installations.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and adjoining construction and conditions under which work is to be installed. Do not proceed with work until unsatisfactory conditions are corrected.

3.2 GENERAL INSTALLATION REQUIREMENTS

A. Install in accordance with reference standards and manufacturer's instructions [and as required to comply with seismic requirements].

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B. Tolerances:
   1. Do not exceed 1/8 inch in 8'-0" variation from plumb or level in exposed lines of surface, except at joints between gypsum board units.
   2. Do not exceed 1/16 inch variation between planes of abutting edges or ends.
   3. Shim as required to comply with specified tolerances.

C. Install framing to comply with ASTM C754 and with ASTM C840 requirements that apply to framing installation.

D. Install supplementary framing, blocking and bracing at terminations in gypsum board assemblies to support fixtures, equipment, heavy trim, grab bars, toilet accessories, furnishings or similar construction.

3.3 METAL SUPPORT INSTALLATION

A. Metal Runners:
   1. Align and secure runner tracks accurately to partition layout at both floor and ceiling.
   2. Provide fasteners appropriate to substrate construction as recommended by manufacturer.

B. Metal Studs:
   1. Position metal studs vertically in the runners, spaced as indicated.
   2. Place studs so that flanges face in same direction.
   3. Cut studs 1/2 inch short of full height to provide perimeter relief.
   4. Align and plumb partition framing accurately.
   5. Where partitions abut ceiling or deck construction or vertical structural elements, provide slip or cushion type joint between partition and structure as recommended by stud manufacturer to prevent transfer of structural loads or movements to partitions, and to provide lateral support.
   6. Provide horizontal bracing where necessary for lateral support.
   7. Chase walls:
      a. Position steel studs on opposite sides of chase directly across from each other.
      b. Cut cross-bracing from gypsum board 12 inches high by chase wall width.

C. Ceiling and Soffit Support Systems:
   1. Secure hangers or rods to structural support by connecting directly to structure where possible; otherwise connect to inserts, clips or other anchorage devices or fasteners indicated.
   2. Space main runners, hangers and furring according to requirements of ASTM C754, except as otherwise indicated.
   3. Where spacing of structural members, or width of ducts or other equipment, prevents regular spacing of hangers, provide supplemental hangers and suspension members and reinforce nearest affected hangers to span extra distance.
   4. Install compression posts, splay wires and other accessories as required to comply with seismic requirements.
   5. Extend runners to within 6 inches of walls.
   6. Wire-tie or clip furring members to main runners and to other structural supports indicated. In fire resistance rated assemblies, wire-tie furring members; do not clip.
   7. Do not permit furring or runners to contact masonry or concrete walls.
   8. Provide 1 inch clearance between furring or runners and abutting walls and partitions.

3.4 FINISHING

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A. Provide levels of gypsum board finish for locations as follows, in accordance with Gypsum Association GA 214, "Recommended Specification: Levels of Gypsum Board Finish".
   1. Level 1: Ceiling plenum areas and concealed areas, except provide higher level of finish as required to comply with fire resistance ratings and acoustical ratings.
   2. Level 2: Gypsum board substrate at tile [stone], except remove tool marks and ridges.
   3. Level 3: Gypsum board surfaces, where textured finishes or heavy vinyl wall papering will be used [High-build Primer required as specified in Division 09 or USG First Coat primer].
   4. Level 4: Gypsum board surfaces, except where another finish level is indicated High-build Primer required as specified in Division 09 or USG First Coat primer.

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SECTION 09 29 00

GYPSUM BOARD

1. GENERAL

1.1 REFERENCES:

A. Drawings and general provisions of Contract, including General Conditions and Division 1 specifications, apply to work in this section.

B. NOTE: Selection of Finish colors and patterns in overall color scheme to be made by Architect. Contractor to notify Architect prior to commencing Gypsum Board work, to allow adequate time for color selections, Owner's approval and material ordering lead time.

1.2 DESCRIPTION OF WORK: The extent of work shall be as shown on Drawings and called for in these Specifications. Performance shall meet the requirements of these Specifications. The work covered by this section of Specifications consists of the following:

A. Drywall installation as required by Drawings and noted in these Specifications.
B. Taping and finishing all walls and ceilings, except where other kind of finish is specified.

2. PRODUCTS

2.1 Acceptable Manufactures

- American Gypsum
- Atlantic Group Limited
- Celotix Corporation
- Continental Gypsum Company
- James Hardie Gypsum
- Lafarge Gypsum
- United States Gypsum Company

2.2 NOTE: GWB types are shown as U.S.G. brand names “Sheetrock”, “Firecode”, “Firecode C”, “M.R. Board” and “Shaftwall”. Substitutions must have equal U.L. and STC ratings. See Drawings for Specific assembly.

2.3 EXTERIOR & INTERIOR WALLS & CEILINGS: See rated & non rated assemblies and wall types on the drawings.

2.4 NOTE: Type M.R. in bathrooms, walls and ceiling. See Drawings for double layer of gyp board to cover fiberglass tub flange.

2.5 RESILIENT CHANNEL: USG-RC-1

2.6 USG Drywall Suspension System.

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2.7 Corner Bead

3. EXECUTION

3.1 THE DRYWALL CONTRACTOR shall inspect all areas affected by his work to ascertain that all work is complete and has been accepted. Defective installations shall be corrected before finished surfaces are painted or sprayed with acoustical material.

3.2 DRYWALL INSTALLATION. Install drywall as shown on plans, noted in the UL Specifications, and as set forth in U.S.G. Handbook. Installation of non-UL rated drywall assemblies on steel studs shall comply with the following minimum requirements:

A. Spacing for attachment members shall not exceed 24" o.c. for walls and 16" o.c. for ceilings. All drywall shall be screwed with approved drywall screws made specifically for the purpose and of length adequate for wall types. On walls, screws shall not be placed more than 16" apart for 16" o.c. framing or 12" apart for 24" o.c. framing. Screw all edges 12" o.c. maximum. See Structural Drawings S3.2 and S3.3 for shear walls sheathing attachment.

B. The drywall contractor may use a few drywall nails to temporarily secure a sheet of drywall before securing with drywall screws. In this event, the drywall nails must be countersunk prior to taping. Corner beads shall be used on all corners and casing beads used whenever Gypsum Board abuts dissimilar material. Caulking to also be applied at these junctions. At all party and unit/corridor walls, Gypsum Board to be set in caulking (for sound).

C. Drywall shall be laid vertically or horizontally. No tapered joints at floor base. See Structural Drawings for shear walls.

D. Gypsum Sheathing Application
Apply 24” wide sheathing horizontally with tongue edge up. Install supplementary bracing as required by applicable code. Fasten sheathing with nails spaced 8” o.c. along each stud.
Apply 48” wide sheathing vertically with bottom edge bearing on foundation or subfloor. Install supplementary bracing (and adhesive) as required by applicable code. Fasten sheathing to studs and plates with nails 8” o.c.

E. Joint System
Prefill Application

a. Mix SHEETROCK Brand Setting-Type (DURABOND) or Lightweight Setting-Type (EASY SAND) Joint Compound according to directions on bag. Do not over mix, or use extremely cold water or cold joint compound.

b. Prefill all “V” grooves formed by abutting tapered eased edges of SHEETROCK Brand Gypsum Panels, SW Edge, with SHEETROCK Brand Setting-Type (DURABOND) or Lightweight Setting-Type (EASY SAND) Joint Compound using a flexible 5” or 6” joint finishing knife or Ames Pre-Fill Tool. Fill “V” joint flush and wipe off excess compound beyond the “V” groove, leaving a clear depression to receive tape. Allow prefill to harden prior to the next application (tape or embedding coat).
SHEETROCK Brand Joint Tape

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c Mix joint compound in strict accordance with manufacturer's recommendations.

d Apply joint compound in a thin uniform layer to all joints and angles to be reinforced. Immediately apply SHEETROCK Brand Joint Tape centered over joint and seated into compound. Sufficient compound—approx. 1/64" to 1/32"— must remain under the tape to provide proper bond. Follow immediately with a thin skim coat to embed tape, but not to function as a second coat. Fold and embed tape properly in all interior angles to provide a true angle. The tape or embedding coat must be thoroughly dry prior to application of second coat. (Exception: DURABOND Setting-Type and EASY SAND Lightweight Setting-Type Joint Compounds need only have hardened prior to application of next coat.)

e Apply second coat of joint compound over embedding coat, filling panel taper flush with surface; cover tape and feather out at least 2" beyond first coat. On joints with no taper, cover the tape and feather out at least 4" on either side of tape. Allow second coat to dry thoroughly prior to application of finish coat. (Exception: DURABOND Setting-Type and EASY SAND Lightweight Setting-Type Joint Compounds need only have hardened prior to second coat application.)

f Spread finish coat evenly over and extend at least 2" beyond second coat on all joints and feather to a smooth uniform finish. Do not allow finished joint to protrude beyond plane of the surface. Where necessary, sand lightly between coats and following the final application of compound to provide a smooth surface ready for decoration. When sanding, take care not to roughen face paper.

SHEETROCK Brand Fiberglass Drywall Tape

a. Mix joint compound in strict accordance with manufacturer's recommendations.

b. Center and apply SHEETROCK Brand Fiberglass Drywall Tape directly over joint, pressing tape firmly so that it adheres evenly to surface. To eliminate wrinkles and ensure maximum bond, press entire length of taper with drywall knife.
Avoid overlapping tape at intersections. Cut tape with drywall knife.

c. Cover with a layer of SHEETROCK Brand Setting-Type (DURABOND) or Lightweight Setting-Type (EASY SAND) Joint Compound, forcing compound through the tape with a drywall knife/trowel to completely fill and level the joint. Failure to completely fill the joint may result in cracking. Let dry and sand lightly as required.

d. Apply second coat of SHEETROCK Brand Setting-Type (DURABOND) or Lightweight Setting-Type (EASY SAND) Joint Compound or SHEETROCK Brand Drying-Type Joint Compound (powder or ready mixed), feathering approximately 2" beyond first coat. Let dry and sand lightly as required.

Finishing Fasteners

a. Apply a setting-type, all-purpose, or lightweight all-purpose compound to fastener depressions as the first coat. Follow with a minimum of two additional coats of topping or all-purpose compound, leaving all depressions level with the surface. (Exception: Setting-type and lightweight all-purpose joint compounds need only one additional coat.)

F. SHEETROCK Brand Paper Faced Drywall Metal Bead and Trim

Application and Finishing

a. Apply compound to both sides of corner, extending 2" on each side for outer corners, 1-1/2" for inside corners. Cut bead to desired length; align tightly to ceiling and press firmly with fingers along length of corner to set. Do not bend bead. Run taping knife over corner at a 45° angle with even pressure. Remove excess compound using knife

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to eliminate air bubbles under paper. Allow to dry.

b. For outer corners, apply another coat of compound to both sides, feathering out 5”-6”on each side. Let dry; sand lightly as necessary. For inner corners, apply fill coat to one side, feathering out 1”. Let dry. Apply fill coat to other side using same procedure. Let dry. Sand lightly where necessary.

c. For outer corner, apply finishing coat, feathering 8” from nose of bead. Draw knife along one side of bead with one edge resting on nose of bead and other on surface of wallboard. Repeat for other side. Let dry. Sand and prime. For inner corners, apply finishing coat to one side, feathering 1” past previous coat. Let dry. Apply finishing coat to other side. Let dry. Sand and prime.

G. Other Bead and Trim

Installation

a. Reinforce all vertical and horizontal exterior corners with corner bead fastened with nails or 9/16” galvanized staples 9” o.c. on both flanges along entire length of bead.

b. Where partition or ceiling terminates against masonry or other dissimilar material, apply metal trim over gypsum panel edge and fasten with nails or galvanized staples 9” o.c.

Finishing

a. Apply first coat to all bead and trim and properly feather out from ground to plane of surface. Compound must thoroughly dry prior to application of second coat (exception: SHEETROCK Brand Setting-Type [DURABOND] and Lightweight Setting-Type [EASY SAND] Joint Compounds need only have hardened prior to application of next coat.)

b. Apply second coat in same manner as first coat, extending compound slightly beyond face of panel. Compound must be thoroughly dry prior to application of finish coat (exception: Setting-Type joint compounds need only have hardened prior to application of next coat.)

c. Apply finish coat to all bead and trim, extending compound slightly beyond the second coat and properly feathering from ground to plane or surface (exception: Only two coats of SHEETROCK Brand Setting-Type [DURABOND] or Lightweight Setting-Type [EASY SAND] Joint Compound or SHEETROCK Brand Lightweight All Purpose Joint Compound Ready Mixed [PLUS 3] are needed.) When dry, sand finish as necessary to provide a flat smooth surface ready for decoration. When sanding, take care not to roughen face paper.

Note1: Gypsum board to be installed behind all tubs and shower units which results in double gypsum board on some bathroom walls. See bathroom drawing sheet.

Note 2: Fire rated gypsum board ceiling in concealed spaces. IE: Under acoustic tile ceiling in corridors tape to be set in compound and several coats of compound applied over tape, no exposed tape will be accepted.

H. Ceiling suspension system:

1. Space hangers not over 48 in. o.c. in direction of main runner channels, and within 6 in. of ends of main runner runs and of boundary walls, structural steel, partitions, and similar interruptions of ceiling continuity. Install additional hangers at ends of each suspension member and at ceiling equipment not separately suspended, 6 in. from vertical surfaces. Do not splay wires more than 5 in. in a 4 ft. vertical drop. Wrap wire a minimum of three times horizontally, turning ends upward.

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2. Attach hangers directly to ceiling structure, or to supplementary framing members supplied and installed under this section. Hangers may not be suspended from mechanical or electrical equipment such as ductwork, conduit or piping.
3. Install 1-1/2 in. main runner channels spaced not over 48 in. o.c. within 6 in. of wall. Position channels for proper ceiling height, level and secure, with hanger wire saddle-tied along channel. Provide 1 in. clearance between runners and abutting walls and partitions. At channel splices, interlock flanges, overlap ends 12 in., and secure each end with double-strand 18 ga. tie wire.
4. Erect ¾ in. metal furring channels at right angles to main runner channels or main support members. Space furring not over 16 in. o.c., and within 6 in. of wall. Provide 1 in. clearance between furring ends and abutting walls and partitions. Secure furring to carrying channels with clips or saddle-tie to supports with double strand 18 ga. tie wire. At splices, next furring channels at least 8 double-strand 18 ga. tie wire.
5. At openings interrupting main or furring channels, install additional cross-reinforcing as required, to restore lateral stability of ceiling framing system.
6. Finished installations shall be level to within ¼ in. in 10 ft.

3.3 ON SURFACES TO BE PAINTED: tape and cement all joints and screw locations with three coats of compound, then sand to smooth finish, acceptable to paint.

3.4 DURING WORK PROGRESS, remove all excess materials and debris resulting from operations, which may disrupt the work of other trades and after completion leave the premises broom clean.

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SECTION 09 51 23

ACOUSTICAL PANEL CEILINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

Drawings and general conditions of Contract, including General and Supplementary Conditions and Divisions-1 Specification sections apply to work of this section.

1.2 SUMMARY

A. Section Includes:
   1. Acoustical ceiling panels.
   2. Exposed grid suspension system.
   3. Wire hangers, fasteners, main runners, cross tees, and wall angle moldings.

B. Related Sections:
   1. Section 09 29 00 - Gypsum Board
   2. Division 21 00 00 – Fire Suppression
   3. Division 22 00 00 – Plumbing
   4. Division 23 00 00 – HVAC
   5. Division 26 00 00 - Electrical

1.3 REFERENCES

A. American Society for Testing and Materials (ASTM):
   1. ASTM A 1008 Standard Specification for Steel, Sheet, Cold Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability.
   2. ASTM A 641 Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire.
   3. ASTM A 653 Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process.
   4. ASTM C 423 Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.
   5. ASTM C 635 Standard Specification for Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings.
   6. ASTM C 636 Recommended Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels.
   7. ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials.
   8. ASTM E 1414 Standard Test Method for Airborne Sound Attenuation Between Rooms Sharing a Common Ceiling Plenum.

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9. ASTM E 1111 Standard Test Method for Measuring the Interzone Attenuation of Ceilings Systems.
10. ASTM E 1264 Classification for Acoustical Ceiling Products.
11. ASTM E 1477 Standard Test Method for Luminous Reflectance Factor of Acoustical Materials by Use of Integrating-Sphere Reflectometers.
12. ASTM D 3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.
13. ASTM E 119 Standard Test Methods for Fire Tests of Building Construction and Material.

B. ASHRAE Standard 62.1-2004, "Ventilation for Acceptable Indoor Air Quality"
C. International Code Council-Evaluation Services - AC 156 Acceptance Criteria for Seismic Qualification Testing of Non-structural Components
D. International Code Council-Evaluation Services - Evaluation Report, ESR-1308, Fire- and Nonfire-Resistance-Rated Suspended Ceiling Framing Systems
E. ASCE 7 Standard - American Society of Civil Engineers, Minimum Design Loads for Buildings and Other Structures
F. CISCA Seismic Zones 3 & 4 - Ceilings and Interior Systems Construction Association Guidelines for Seismic Restraint for Direct Hung Suspended Ceiling Assemblies

1.4 SYSTEM DESCRIPTION

- Seismic Loads: Design and size components to withstand seismic loads in accordance with the International Building Code, Section 1621 for Category D,E, and F.

1.5 SUBMITTALS

A. Product Data: Submit manufacturer's technical data for each type of acoustical ceiling unit and suspension system required.
B. Samples: Minimum 6 inch x 6 inch samples of specified acoustical panel; 8 inch long samples of exposed wall molding and suspension system, including main runner and 4 foot cross tees.
C. Shop Drawings: Layout and details of acoustical ceilings. Show locations of items which are to be coordinated with, or supported by the ceilings.
D. Certifications: Manufacturer's certifications that products comply with specified requirements, including laboratory reports showing compliance with specified tests and standards. For acoustical performance, each carton of material must carry an approved independent laboratory classification of NRC, CAC, and AC.
E. If the material supplied by the acoustical subcontractor does not have an Underwriter's Laboratory classification of acoustical performance on every carton, subcontractor shall be required to send material from every production run appearing on the job to an independent or NVLAP approved laboratory for testing, at the architect's or owner's discretion. All products not conforming to manufacturer's current published values must be removed, disposed of and replaced with complying product at the expense of the Contractor performing the work.

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1.6 QUALITY ASSURANCE

A. Single-Source Responsibility: Provide acoustical panel units and grid components by a single manufacturer.
B. Fire Performance Characteristics: Identify acoustical ceiling components with appropriate markings of applicable testing and inspecting organization.
    1. Surface Burning Characteristics: As follows, tested per ASTM E 84 and complying with ASTM E 1264 for Class A products.
        a. Flame Spread: 25 or less
        b. Smoke Developed: 50 or less
C. Seismic Performance: Provide acoustical ceiling system that has been evaluated by an independent party and found to be compliant with the 2009 International Building Code, Seismic Category D, E, and F.
    1. Tested per International Code Council - Evaluation Services - AC 156 Acceptance Criteria for Seismic Qualification Testing of Non-structural Components as evidenced by International Code Council Evaluation Report, ESR-1308.
D. Handle acoustical ceiling units carefully to avoid chipping edges or damaged units in any way.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver acoustical ceiling units to project site in original, unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination, and other causes.
B. Before installing acoustical ceiling units, permit them to reach room temperature and a stabilized moisture content.
C. Handle acoustical ceiling units carefully to avoid chipping edges or damaged units in any way.

1.8 PROJECT CONDITIONS

A. Space Enclosure:

All ceiling products and suspension systems must be installed and maintained in accordance with Armstrong written installation instructions for that product in effect at the time of installation and best industry practice. Prior to installation, the ceiling product must be kept clean and dry, in an environment that is between 32oF (0o C) and 120oF (49o C) and not subject to Abnormal Conditions.
Abnormal conditions include exposure to chemical fumes, vibrations, moisture from conditions such as building leaks or condensation, excessive humidity, or excessive dirt or dust buildup.

1.9 WARRANTY

A. Acoustical Panel: Submit a written warranty executed by the manufacturer, agreeing to repair or replace acoustical panels that fail within the warranty period. Failures include, but are not limited to:

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1. Acoustical Panels: Sagging and warping as a result of defects in materials or factory workmanship.
2. Grid System: Rusting and manufacturer's defects
3. Acoustical Panels with BioBlock Plus or designated as inherently resistive to the growth of micro-organisms installed with Armstrong suspension systems: Visible sag and will resist the growth of mold/mildew and gram positive and gram negative odor and stain causing bacteria.

B. The Warranty shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and will be in addition to and run concurrent with other warranties made by the Contractor under the requirements of the Contract Documents.

1.10 MAINTENANCE

A. Extra Materials: Deliver extra materials to Owner. Furnish extra materials described below that match products installed. Packaged with protective covering for storage and identified with appropriate labels.
   1. Acoustical Ceiling Units: Furnish quality of full-size units equal to 5.0 percent of amount installed.
   2. Exposed Suspension System Components: Furnish quantity of each exposed suspension component equal to 2.0 percent of amount installed.

Part 2-PRODUCTS

2.1 MANUFACTURERS

A. Ceiling Panels:

1. Armstrong World Industries, Inc.

2.2.0 ACOUSTICAL CEILING UNITS

A. *Armstrong Optima Open Plan, 2' x 2', 9/16" tegular acoustical tile throughout – product #3355.*

2.3.0 SUSPENSION SYSTEMS

A. Components: Main beams and cross tees In accordance with the International Building Code, Section 1621 for Category D, E and F as described in ESR-1308.
   1. Structural Classification: ASTM C 635, Heavy Duty.

B. Attachment Devices: In accordance with the International Building Code, Section 1621 for Category D, E, and F.

C. Wire for Hangers and Ties: In accordance with the International Building Code, Section 1621.

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D. Wall Moldings: In accordance with the International Building Code, Section 1621 for Category D, E. and F or method as described in ESR-1308.
E. Accessories:
    1. BERC2 - 2 inch Beam End Retaining Clip, 0.034 inch thick, hot-dipped galvanized cold-rolled steel per ASTM A568 - used to join main beam or cross tee to wall molding.
    2. SJCG - Seismic Joint Clip, 5 inches x 1-1/2 inch, hot-dipped galvanized cold-rolled steel per ASTM A568. The two piece unit is designed to accommodate a seismic separation joint. The clip is compatible with 15/16 inch and 9/16 inch grid systems including Prelude, Suprafine, and Silhouette The SJCG is not suitable for use with Vector panel installations.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Do not proceed with installation until all wet work such as concrete, terrazzo, plastering and painting has been completed and thoroughly dried out, unless expressly permitted by manufacturer's printed recommendations. (Exception: HumiGuard Max Ceilings)

3.2 PREPARATION

A. Measure each ceiling area and establish layout of acoustical units to balance border widths at opposite edges of each ceiling. Avoid use of less than half width units at borders, and comply with reflected ceiling plans. Coordinate panel layout with mechanical and electrical fixtures.
B. Coordination: Furnish layouts for preset inserts, clips, and other ceiling anchors whose installation is specified in other sections.
    1. Furnish concrete inserts and similar devices to other trades for installation well in advance of time needed for coordination of other work.

3.3 INSTALLATION (Category D,E,F)

A. Install suspension system and panels in accordance with the International Building Code, Section 1621, except as noted in Section 4.4.3.1 of ESR-1308, and with the authorities having jurisdiction.
B. ESR-1308, Section 4.4.3.1, Alternate Seismic Design Category D,E and F Installation:

    Under this installation, the runners must be rated heavy-duty and have a minimum simple span uniform load of 16.35 pounds per lineal foot (238 N/m); maximum ceiling weight permitted is 1.80 pounds per square foot (8.78 kg/m2).

    1. The BERC-2 clip is used to secure the main runners and cross runners on two adjacent walls to the structure and the two opposite walls to the perimeter trim, as detailed below. A nominal 7/8-inch (22 mm) wall molding is used in lieu of the 2-inch (51 mm) perimeter supporting closure angle required by Section 9.6.2.6.2.2 (b) of ASCE-7 for Seismic Design Categories D, E and F. Except for the

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use of the BERC-2 clip and the 7/8-inch (22 mm) wall molding and elimination of spreader bars, installation of the ceiling system must be as prescribed by the applicable code.

2. The BERC-2 clip is attached to the wall molding by sliding the locking lances over the hem of the vertical leg of the wall molding. Clips installed on the walls where the runners are fixed are attached to the runner by a sheet metal screw through the horizontal slot in the clip into the web of the runner.

   Alternate #2: If acceptable to architect, fixed attachment may be accomplished by pop-riveting the runner to the wall molding.

3. Clips installed on the walls where the runners are not fixed to the runner allow the terminal runner end to move 3/4 inch (19.1 mm) in both directions. BERC-2 clips installed in this manner are an acceptable means of preventing runners from spreading in lieu of spacer bars required in CISCA 3-4, which is referenced in ASCE 7, Section 9.6.2.6.2.2, which is referenced in IBC Section 1621.

C. The SJCG Seismic Separation Joint Clip is to be installed per the manufacturer's instructions, CS-3815.

D. The presence of a hanger wire within 3 inches of an expansion relief joint as called for in ASTM C636 shall be required in addition to the requirements of the International Building Code, Section 1621.2.5 and with the authorities having jurisdiction.
   1. Only applies when using Prelude XL Fire Guard 15/16"; Prelude Plus XL Fire Guard 15/16"; and Suprafine XL Fire Guard 9/16" Exposed Tee Systems.

E. For reveal edge panels: Cut and reveal or rabbet edges of ceiling panels at border areas and vertical surfaces.

F. Install acoustical panels in coordination with suspended system, with edges resting on flanges of main runner and cross tees. Cut and fit panels neatly against abutting surfaces. Support edges by wall moldings.

3. FIELD QUALITY CONTROL

- Suspended ceiling shall be subject to the special inspection requirements in Section 01 45 00 Quality Control Services - Code-Required Special Inspections and Procedures.

3.5 ADJUSTING AND CLEANING

A. Replace damaged and broken panels.

B. Clean exposed surfaces of acoustical ceilings, including trim, edge moldings, and suspension members. Comply with manufacturer's instructions for cleaning and touch up of minor finish damage. Remove and replace work that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

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SECTION 09 90 00

PAINTING AND WALL COVERING

1. GENERAL

1.1 DESCRIPTION OF WORK

A. The extent of work shall be as shown on Drawings and called for in these Specifications. Performance shall meet the requirements of these Specifications. The work covered by this section of Specifications consists of the following:

1. Painting or staining all interior as called for in the Finish Schedule on Drawings or in these Specifications.

2. Painting interior walls, door trim, window trim, etc. A minimum of five (5) different colors will be used.

NOTE: All colors to be selected by Architect/Interior Designer.

2. PRODUCTS

2.1 General

A. Acceptable manufacturers, unless specific manufacturer is noted: California Products Corporation, Benjamin Moors, Pratt & Lambert, Sherwin-Williams, Tnemec.

B. All products used shall be manufacturer's top quality product for each type of finish specified.

2.2 MATERIALS

A. Where primer is called for, use primer recommended by manufacturer for particular combination of substrate and finish coat. Where painting over shop-applied primers, verify that finish paint proposed for field application is compatible with shop primers actually used.

B. All Gypsum Walls and Ceilings to be painted: Primer - Benjamin Moore Vinyl Latex Primer Sealer.

C. Finish-Walls - Benjamin Moore Moorcraft Latex Eggshell

D. Interior Rails & Metal Frames: Touch up Shop Primer. Finish - Two coats Alkyd semi-gloss finish.

E. Note: All Field cut edges to be painted. Metal Door & Window frames latex satin finish.

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3. EXECUTION

3.1 JOB CONDITIONS

A. Store materials in sealed containers. Provide a fire extinguisher in storage room. Remove flammable rags and waste from building at end of day.

B. Do not perform exterior work in rain or when precipitation is forecast imminently; or in hot, dry, or windy weather which would cause finish to cure too rapidly, or be marred by windstorm dust; or at temperatures below 40 degrees F.

C. Maintain temperature at interior locations between 50 and 75 degrees F, maximum 80 percent relative humidity, while paint is being applied. Provide adequate ventilation, by mechanical means if necessary, for drying of paint and prevention of condensation and mildew. Do not apply finish in areas in which dust is being generated.

D. Protect finished surfaces and equipment not being painted with masking tape, canvas dropcloths, polyethylene sheets, etc. Items such as lighting switch covers, fixture canopies, and door handles shall be temporarily removed, carefully stored, and replaced after painting, or carefully covered during painting operations.

3.2 PREPARATION

A. Preparation of newly-installed materials to receive finish painting is specified under those Sections installing materials. This includes, but is not necessarily limited to: touch-up of damaged shop coats; taping, sealing and sanding of drywall; patching masonry; sanding finish wood; and cleaning off grease, oil, dirt, mildew, factory-applied protective coatings, and other foreign materials.

B. At wood surfaces to be painted, scrape and clean small, dry, seasoned knots, and apply a thin coat of white shellac or other recommended knot sealer, before application of priming coat. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood-filler. Sandpaper smooth when dried.

C. Before beginning work under this Section, verify that preparation of substrates under other Sections has been done as specified. Thoroughly remove water, dirt, and dust with clean cloths, brooms, or brushes. Allow masonry mortar joints to cure as long as possible before beginning paint application, 7 days minimum, 28 days preferably.

3.3 APPLICATION

A. Apply all materials in accordance with the manufacturer's recommendations.

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B. Apply materials with suitable brushes, rollers, and spraying equipment. Keep application equipment clean, dry, and free from contaminants. Thoroughly stir materials before applying, and periodically during application.

C. Rate and method of application and drying time between coats shall be strictly in accordance with manufacturer's recommendations.

D. Prepare field test panels in accordance with paragraph 1.4-B.3 of this Section for each type and color of finish specified. Request review of first completed room, color scheme, special items, etc., which shall serve as project standard after approval.

E. Touch-up shop applied primers before field painting.

F. Do not apply first coat until surface is dry to touch. Moisture content of surface shall be within limitations recommended by paint manufacturer.

G. Leave all parts of moldings and ornaments clean and true to detail, without excessive paint in corners and depressions. Make edges of paint adjoining other materials or colors clean and sharp with no overlapping. Paint surfaces visible through grilles one coat flat black.

H. Finish coats shall be smooth, free of brush marks, streaks, laps or pile-up of paint, and skipped or missed areas. Refinish whole wall if unacceptable finish is extensive or of such a nature that it cannot be repaired by normal touch-up.

I. After completion of painting work, remove spilled or spattered paint. Touch-up and repair finishes damaged in any way by work under this Section. Protect finished surfaces.

3.4 Interior

A. Interior Painting: Paint shall be applied in the following number of coats, primer and finish. Tint all primers to match finish color.

1. One (1) fully applied finish coat of even coverage. NOTE: Contractor to adequately cover M.R. (Blueboard) or other colored drywall by primer or finish coat as necessary to eliminate any visible "bleed through".

2. Drywall: All interior gyp board walls and ceilings to receive paint: one (1) coat latex base primer-sealer, two (2) finish coat’s latex eggshell.

B. Interior Glass & Door Frames - one (1) coat primer and two (2) coats finish, semigloss.

C. All hardwood to receive three (3) coats urethane.

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SECTION 10 22 17
MODULAR PARTITIONS

Part 1 General

1.1 SUMMARY

.1 Section includes:

.1 Modular partitions framing;
.2 Face tiles;
.3 Glass and glazing;
.4 Doors and door hardware;
.5 Accessories.
.6 Finishes.

.2 Related Sections:

.1 Base Building Documents:

.1 Division 06 Architectural Woodwork.
.2 Division 08 Doors and Door Hardware.
.3 Division 09 Finishes.

1.2 REFERENCES

.1 American Architectural Manufacturers Association (AAMA):

.1 AAMA 61198 Voluntary Standards for Anodized Architectural Aluminum.

.2 American Society of Civil Engineers (ASCE):

.1 ASCE-7 Minimum Design Loads for Buildings and Other Structures.

.3 ASTM International:

.1 ASTM E72 Method for Conducting Strength Tests of Panels for Building Construction.
.2 ASTM E84 Test Method for Surface Burning Characteristics of Building Materials.
.3 ASTM E90 Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.
.4 ASTM E413 Classification for Rating Sound Insulation.

.4 CAN/ULC-S102 Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.

1.3 PERFORMANCE REQUIREMENTS

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.1 Structural Performance: Modular partitions shall be capable of withstanding the effe of gravity loads, dead loads, and the following loads and stresses within limits and under conditions indicated:

.1 Transverse Load: Lateral deflection of the overall span when tested under a uniformly distributed load of 5 psf (0.24 kN/m2) in accordance with ASTM E72 where L = modular partition wall height:

.1 Solid Walls: not more than L/120;
.2 Glass Walls: not more than L/175 or 3/4 inch (19 mm) which ever is more stringent.

.2 Mechanical Strength: Capable of withstanding static loads in accordance with ANSI/BIFMA X5.6.
.3 Seismic Performance: Provide modular partitions capable of withstanding effects of seismic motions determined according to the currently adopted building codes.

.2 Acoustical Performance: Where STC ratings are indicated, provide partitions with STC rating determined by testing an identical system to ASTM E90 and classified in accordance with ASTM E413.

.1 Sound Transmission Coefficient (STC) range shall be determined in accordance with Sound Transmission Test by Two-Room Method and reported in accordance with ASTM E90 and ASTM E413 for frequency data. Tested assembly shall have been assembled in the same manner the modular partitions to be installed on the project.
.2 Test results vary based on glass or solid wall configuration, and implementation of perimeter enhancements at base building connections.

.1 Solid wall results range up to 50 STC performance.
.2 Glass wall performance is limited by the glass specified. Coordinate requriements with the modular partition manufacturer.

.3 Fire Resistance:

.1 Surface-Burning Characteristics: Tested in accordance with ASTM E84 by a qualified independent testing agency.
.2 National Building Code of Canada, CAN/ULC-S102 Surface Burning Characteristics of Building Materials and Assemblies.

1.4 SUBMITTALS

.1 Product Data:

.1 Provide manufacturers standard product information for each type of product indicated.

.2 Shop Drawings:

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.1 Where required by the local building authority, provide structural analysis dat and calculations for installed products to demonstrate compliance with design loads, signed and sealed by licensed professional engineer registered in the jurisdiction of the project.

.2 Provide manufacturer's architectural plans, elevations, sections, connection and attachment details, finish schedule, reflected ceiling plans, doors and hardware schedule, electrical and mechanical requirements, schedules, and locations.

.3 Provide manufacturer with product data, fabrication drawings, schematics and similar information for data, security, or communications to be embedded within or supported by modular partitions.

.4 Include field measurements of existing construction, future construction, finished width and height of partitions and associated components.

.1 Manufacturer's authorized representative shall undertake field measurements to show relevant adjacencies in Shop Drawings. Site conditions, base building construction, and required clearances are to be reviewed and approved by the Architect, including exiting, life safety, location of building service devices, and other affected trades through Shop Drawings to identify and prevent potential conflicts.

.2 Where field measurements are not possible, hold-to and control dimensions must be coordinated and agreed upon by all parties through the Shop Drawing process before manufacturing begins.

.3 Coordination Drawings:

.1 Provide shop drawings for coordination between trades upon request.

.2 Provide architectural plans locating modular partitions within the base building, including finishes and construction of surfaces the modular partition system will interface with or connect to.

.3 Provide reflected ceiling plans, drawn to scale, to show penetrations and ceiling mounted items to be coordinated with modular partitions and associated system components.

.4 Structural: coordinate structural connections to base building and generate engineering calculations where required by the local building authority.

.5 Electrical: Coordinate electrical components with final circuited electrical engineering documents.

.4 Samples: Provide manufactures standard size samples for verification of support system and each type, color, and texture of exposed finish, full thickness and the following minimum sizes:

.1 Extrusion Components.

.2 Tile Finishes.

.3 Linear Trim and Base.

.4 Door Face Finishes.

.5 Glazing.

.5 Provide product data sheets for all types of Hardware and Accessories.

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.6 Product Test Reports, Solid Partitions: Based on evaluation of comprehensive tests performed by a independent qualified testing agency:

.1 Evaluation/Certification Reports:

.1 ICC ESR (Evaluation Service Report), ESR1947 (reissued 2007): Provide evidence of compliance with structural performance requirements and relevant building codes.
.2 Intertek Certification demonstrating compliance with UL 1286 Office Furnishings.
.3 UL QQXX - Sections and Units for electrical components.
.4 OSHPD Preapproval of Manufacturers Certification.
.5 IRR-1012 - Intertek (Warnock-Hersey) Solid Wall Code Evaluation Report / Listing.

.7 Maintenance Data: Provide maintenance data for incorporation into operation and maintenance manuals.

1.5 QUALITY ASSURANCE

.1 Qualifications:

.1 Manufacturer Qualifications: Manufacturer shall specialize in designing and manufacturing modular partitions of the quality and complexity required for this project with a minimum of 10 years documented successful experience. Manufacturer shall have production facilities capable of meeting contract requirements for single-source responsibilities and warranty.
.2 Installer Qualifications: Certified by the manufacturer.

.2 Certifications:

.1 Sound Transmission Characteristics: Testing to be performed by a qualified independent testing agency in accordance with performance requirements above.

.3 Pre-Installation Conference:

.1 Meet at the project site minimum 1 week prior to Shop Drawing approval and prior to beginning installation. Meeting shall include authorized representatives of the Owner, Architect, base building contractor and all trades whose work will interface with installed systems.

1.6 DELIVERY, STORAGE AND HANDLING

.1 Do not deliver or install modular partitions until spaces are enclosed and weather-tight, wet work is complete and dry, work above ceilings is complete, and HVAC system is operational and able to maintain ambient temperature and humidity conditions at occupancy levels for the remainder of the construction period.

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.2 Ship system components in manufacturers standard packaging. Maintain air circulatio during shipment. Do not allow packaging to get wet or develop condensation.

.3 Deliver materials to project site or offsite warehouse as directed by the Contractor or Owner as applicable, and in accordance with the manufacturers instructions in original unopened and undamaged packages. Packages shall be labeled with manufacturers name, brand names, size, finishes, and placement locations.

.4 Store in a clean, dry, secure space to protect from damage during construction activities. Minimize or eliminate storage period by coordinating with construction schedule.

.5 Handle in accordance with the manufacturers instructions.

1.7 PROJECT CONDITIONS

.1 Environmental Limitations: Do not deliver or install system and components until building is enclosed and finishing operations are complete, including adjacent ceiling and floor covering installation and painting.

.2 Temperature and humidity shall be maintained to final occupancy standards. Installation areas shall be climate controlled between 60 and 90 degrees F (15.5 and 32.2 C) with Relative Humidity maintained between 25 and 55 percent.

1.8 WARRANTY

.1 Provide manufacturers standard, limited, transferable warranty executed in the name of the Owner. Guarantee the site assembled modular structure, panel system and components are free from defects in material and workmanship.

.1 Warranty Period, Modular Partition System: 10 year limited warranty.

Part 2 Products

2.1 MANUFACTURERS

.1 DIRTT Environmental Solutions;

.1 Website: www.dirtt.net

.2 Substitutions: Not permitted without demonstrating compliance with aesthetic effects shown in the drawings, performance requirements and lead times specified above.

2.2 SYSTEM DESCRIPTION

.1 Factory assembled, site installed, moveable, demountable, reusable interior solid and glazed partitions, including structure, face mounted finished tiles, modular and non-modular metal framing and doors to accept a variety of millwork, finishes, building services components, technology, and accessories.

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.2 System is floor-supported, floor-to-ceiling site constructed in configurations shown or the Shop Drawings. Top channels hold modular partitions in place and accommodate height adjustments to suit floor-to-ceiling dimensional variations and similar site specific requirements.

.1 Where modular partitions are not clipped to ceilings or other overhead construction, additional structural review and system engineering will be required by the manufacturer.

.3 Panel Attachment: Unitized aluminum frame assembly to support face mounted tiles in orientation and module increments as shown on the Drawings.

.4 Partially Unitized Solid Wall system shall be comprised of modular components which can be disassembled, relocated / field cut and substantially reused.

.5 Face tiled finishes applied to lightweight frame system, may be monolithic or segmented with the ability to span off-module, or across multiple frames in segments or monoliths, vertically and horizontally.

.6 Manufacturer shall provide integrated strategy for accommodating accessory channels and reveals integrated into the structural frame allowing universal horizontal alignment to support millwork, furniture, storage and accessories without defacing or damaging face tile or structural frame.

.1 Materials manufactured by others shall not exceed the modular partition manufacturers limitations or tested performance.

.7 Manufacturer shall provide accommodation / provision for the embedding of technology in the wall cavity: structural framing shall allow for universal non standard AV display, sound, and various support equipment to be mounted in the cavity of the wall with all required structural brackets, wire management, access and ventilation equipment to prevent overheating.

.8 Manufacturer shall provide ability for independent configuration / finish. Each side of wall must have the capability for variable aesthetic and function to suit different requirements. This will allow for the one side of the wall to have a totally independent function than the other to meet each organizations requirement.

.9 Manufacturer shall accommodate and provide provisions for additional embedded elements (ie sofas, exam tables, chaises, charting stations, and millwork) in the wall cavity as documented.

.1 Embedded elements and accessories to be provided by others may require additional engineering for structural framing and supports within modular partitions. Submit documentation of all items to be mounted to or embedded in modular partitions for manufacturer review and approval.

.2 Do not proceed with procurement or fabrication without modular partition manufacturer's review and approval.

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.10 Electrical and Communications Access: 1 inch (25 mm) to 3 inches (75 mm) clear wall cavity for accessible from either side of partition by removable face tiles.

.11 Provide back boxes, supports, and conduit as required to accommodate data, security and communications indicated on shop drawings. Modular partition manufacturer to provide continuous 1 inch (25 mm) open cavity vertically and horizontally between all frames.

.12 Modular partition manufacture shall allow for adaptability and retrofitting of hardware for future division of partitions, tiles, or supports to the greatest extent practical.

2.3 MODULAR PARTITIONS FRAMING

.1 Framing for Solid and Face Tiled Partitions:

.1 Material: Aluminum extrusions, 6063T6 aluminum alloy, thickness engineered to meet performance requirements specified above.
.2 Vertical Support Spacing: 6 inch (150 mm) minimum to 48 inch (1219 mm) maximum.
.3 Ceiling Track: Continuous, with intermittent breaks for pass through of building services or structural components.
.4 Floor Track: Modular with wall frames inclusive of carpet grippers or floor tape (non-seismic) or continuous with floor anchor attachment (seismic) stopped at doorways and pass-throughs.
.5 Bracing: as required to meet structural performance.
.6 Fasteners: Zinc Plated Steel Type F Screws unless otherwise indicated on engineered shop drawings.

.2 Framing for Glazed Partitions:

.1 Same as solid panel framing with customized spacing as shown on the Drawings. Maximum spacing 60 inches (1524 mm).

.3 Frame Bases:

.1 Provide frame bases with provisions for 1-1/2 inch (38.1 mm) height adjustment to accommodate floor slab variances.
.2 Provide a leveling mechanism for making fine adjustment in height over adjustment range of the product.

2.4 FACE MOUNTED FINISHED TILES

.1 Panel Construction:

.1 Standard Solid Tile Material: Medium Density Fiber Core (MDF).

.1 Provide with the following premium options. Coordinate with manufacturer as required, all options may not be able to be combined.

.1 No Added Formaldehyde (NAF).

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.2 Forest Stewardship Council (FSC) Certification.
.3 Flame Retardant Type (MDF) where required.

.2 Thickness:

.1 Solid Tiles: 1/2 inch (13 mm).
.2 Glass Tiles: 1/4 inch (6 mm) with aluminum mounting rails to maintain alignment with adjacent finishes.

.3 Widths: As shown on shop drawings.
.4 Height: As shown on shop drawings.
.5 Finishes: As specified below and as shown on the Drawings.

.2 Reveals:

.1 Classic: 0.35 inch (9 mm);
.2 Enzo: 0.15 inch (4 mm).

2.5 GLASS AND GLAZING

.1 Laminated Glass: To ASTM C1172, Kind LA fabricated from two nominal 10 mm pieces of Type 1, Class 1, Quality q3, flat annealed transparent glass conforming to ASTM C1036.
.3 Specialty Glass:

.1 Specialty glass materials must be approved by manufacturer prior to procurement or fabrication.

2.6 DOORS AND DOOR HARDWARE

.1 General:

.1 Coordinate security system components to be provided by others with Modular partitions manufacturer through the Shop Drawing process.
.2 Provide uneven leaf doors as documented on Shop Drawings.

.2 Glazed Aluminum Doors: Manufacturer's standard stiles and rail door, **sliding** operation, glazed aluminum doors.

.3 Door Thickness: 1-15/32 inches (43 mm) thick.
.4 Stile Width: **6** inches
.5 Top Rail Height: **6** inches
.2 Bottom Rail Height: **7-7/8 inches** AFF.

.3 Adjustability: Provide door skirt to accommodate varying floor levels.
.4 Door Height: As noted on shop drawings. Maximum height 10 feet (3 meters).
.5 Glazing: **Laminated** glass, **6** mm thick,.
.6 Hardware Reinforcement: Factory milled by modular partition manufacturer to suit glass and hardware supplied by others as shown on show drawings.

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2.7 DOOR FRAMES

.1 Pivot Door Frames: Manufacturer's standard aluminum frame **[single door] [double door],** reversible, factory milled to receive hardware, for 1-15/32 inches (43 mm) +/- 1/16inch (1.5mm) doors.

.1 Door Module Size: **[_____.] [As scheduled.]**

.1 Finished door width is equal to module width less 2 inches (51 mm).

.2 Configuration: Header, jambs and pivot hardware. Single door frame width not to exceed 44 inch (1118 mm) wide module.

.3 Hardware Preparation and Reinforcement: Milled, reinforce, drill and tap frames at factory to receive specified hardware in accordance with the contract hardware schedule and templates.

.4 Frame Height: Jambs shipped over length (height) by 2 inches (51 mm), for field cutting to suit opening height for proper alignment with adjacent frames.

.5 Electrical Requirements:

.1 Security System Components: Coordinated hardware requirements and prep work for security system components (supplied by others including but not limited to: electronic strikes, Magnetic locks, electrified locksets, hinges, request to exit buttons, motion sensor rex, door position contacts).

.6 Factory notched and drilled jambs for ceiling track and manufacturer's standard header attachment.

.7 Extrusion Profile: **Curvilinear** profile to match any adjacent unitized glass frames.

.8 Seals: Manufacturer's standard.

.2 Butt Hinge Frames: Manufacturer's standard aluminum frame [single door] [double door], factory milled to receive hardware, for 43 mm (111/16 inch) [+/ 1.5mm (1/16 inch)] doors. Door frames capable of reconfiguration without part replacement or damage to wall components.

.1 Door Module Size: **[_____.] [As scheduled.]**

.1 Finished door width is equal to module width less 3 inches (76 mm).

.2 Configuration: Header, jambs and pivot hardware. Single door frame width not to exceed 51 inch (1219 mm) wide module.

.3 Hardware Reinforcement: milled, reinforce, drill and tap frames at factory to receive specified hardware in accordance with the contract hardware schedule and templates.

.4 Frame Height: Jambs over length 50 mm (2 inches), for field cutting to suit opening height for proper alignment with adjacent frames.

.5 Frame Preparation: Factory milled frame with hinge locations and sizes as determined and set by manufacturer; including factory installed steel backer

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plates for four (4) hinges (2 pair):

.1 Hinges: 4-1/2 x 4 Stanley BB1409 fastened with 10-24 flat head machine screws.
.2 For C.O.M. Doors Conform to modular partition manufacturer's standard size, hole pattern and fastener type for hinges, levers or pulls to be supplied by others.

.6 Electrical Requirements:

.1 Security System Components: Coordinated hardware requirements and prep work for security system components (supplied by others including but not limited to: electronic strikes, Magnetic locks, electrified locksets, hinges, request to exit buttons, motion sensor rex, door position contacts).

.7 Factory notched and drilled jambs for ceiling track and manufacturer's standard header attachment.
.8 Extrusion Profile: **Curvilinear** profile to match any adjacent unitized glass frames.
.9 Seals: Manufacturer's standard.

.3 Sliding Door Frames: Manufacturer's standard aluminum frame **[single door] [double door]**, single continuous track mounted to demountable wall system and capable of reconfiguration without part replacement or damage to wall components.

.1 Door Module Size: **[_____.] [As scheduled.]**

.1 Finished door width is equal to module width plus 1/4 inch (6 mm).

.2 Configuration: Header, jambs and pivot hardware. Single door frame width not to exceed 1524 mm (60 inch) wide module for Aluminum Doors and 1219mm (48inch) for Wood Doors.
.3 Self supporting header and track, jambs, sliding door, and trackless at floor between jambs.
.4 Frame Height: Jambs shipped over length by 50 mm (2 inches) in height, for field cutting to suit opening height for proper alignment with adjacent frames.
.5 Factory notched and drilled jambs for ceiling track and manufacturer's standard header attachment.
.6 Extrusion Profile: **Curvilinear** profile to match any adjacent unitized glass frames.
.7 Frame and Track Construction:

.1 Continuous extruded frame supported or drywall header section with concealed track mechanism.
.2 Guide and alignment hardware for stabilization of door bottom.
.3 Door secured in closed position on strike side of door.
.4 Anti rack / lift hardware included in track assembly.

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.8 Operation:

.1 Soft lose mechanism for door weights of 165 pounds (75 kg) or less.
.2 Pneumatic slow down mechanism for door weight of 165 to 200 pounds (75 to 90 kg).

.9 Seals: continuous acoustical seals on strike and guide side. Manufacturer's standard.

.10 Operation and configuration ADA compliant in both clear opening as determined by design professional of record.

.4 Hardware: Manufacturer's standard **[top and bottom pivot] [butt hinge] [sliding door]** hardware, with **[lever] [passage sets] [locksets] [_____]** and **[_____]** pulls.

.5 Hardware: As specified in Division 08 "Door Hardware".

2.8 ACCESSORIES

.1 Connections and Supports: Manufacturer's standard connections and supports that connect and release from floor and ceiling without damage using carpet grippers and ceiling track clips, with exception of the following conditions: bulkhead (drywall ceiling), seismic conditions, electrical or service feeds, physical connections to base building (where required).

.2 Panel Joint Closure: Manufacturer's standard, capable of closing up to a 25 mm (1 inch) gap between demountable partitions and base building elements.

.3 Trim: Continuous and modular, factory finished, snap on type; field cuttable for variations in floor and ceiling levels.

.1 Base Trim Profiles: Recessed; removable to access leveling mechanisms.
.2 Ceiling Trim Profile: Recessed; adjustable to accommodate up to a 12 mm (1/2 inch) gap between demountable partitions and base building elements.
.3 Wall Trim Profile: Recessed; adjustable to accommodate up to a 12 mm (1/2 inch) up to 25 mm (1 inch) gap between demountable partitions and base building elements.
.4 Tile to Tile Profile: As detailed.
.5 Colours: As selected by Architect from manufacturer's full range.

.4 Brackets:

.1 Manufacturer's brackets, supports and accessories for complete installation of system's furniture components, architectural millwork, audio visual equipment, and paper accessories.
.2 Provide bracket design to enable other system furniture to mount to modular partitions, on or off module.

.5 Infection Prevention Measures:

.1 Infection Prevention Measures: Provide extrusions and co-extrusions to fill voids between tiles, at ceiling connections, and at base building connections as required. (both horizontal and vertical gaskets). Coordinate final locations of

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gaskets with manufacturer through the shop drawing process prior to procurement of fabrication.

2.9 FABRICATION

.1 Modular Tiles:

.1 Unless otherwise inducated on shop drawings, factory assembled frames with 1inch (25 mm) insulation, base track and levellers; face mounted tiles installed to frames on site.

.2 Components:

.1 Fabricate components for installation with concealed fastening devices and pressurefit members that will not damage ceiling or floor coverings. Exceptions: Drywall ceiling, seismic applications and doors against base building require screw holes in base building for proper fastening.

.2 Fabricate for installation with manufacturer's standard seals at floor and other locations where partition assemblies abut fixed construction and for installation of sound attenuation insulation in partition cavities.

2.10 FINISHES

.1 Protect finishes on exposed surfaces from damage during shipping.

.2 Appearance of Finished Work:

.1 Finishes shall match approved samples.

.2 Variations in natural finishes such as stone and wood shall be reviewed and accepted in accordance with industry standards.

.3 Frame Finishes:

.1 Clear Anodized Aluminum: AAMA 611, AAM12C22A31, Class I. *(REFER TO INTERIOR DESIGNER FOR FINISHES).*

.4 Door Finishes:

.1 **[Clear anodized aluminum; AAMA 611, AAM12C22A31, Class I] [_____]**.

.2 Door Finish: As selected from manufacturer's full range.

Part 3 Execution

3.1 EXAMINATION

.1 Verify field or hold-to control dimensions before fabrication of modular partitions. Coordinate fabrication schedule with construction schedule and progress to avoid delay in the work.

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.2 Examine all adjoining work including work by others. Do not proceed with fabrication installation until unsatisfactory conditions are corrected.

3.2 PREPARATION

.3 Locations to receive modular partitions shall be inspected for compliance with manufacturer's requirements.

.4 Site floor conditions must be surveyed to determine the nature of floor level and determine where special conditions exist beyond manufacturer's standard leveling capabilities of 1-1/2 inch in 4'-0" (38.1 mm in 1219 mm).

.5 Field conditions and pre-existing installations by others which may adversely affect installation or exceed the manufacturers limitations shall be corrected before installing modular partitions.

3.3 INSTALLATION (TYPICAL PROCESS)

.1 Installation of modular partitions system shall be completed by a manufacturer certified installer.

.2 Install system level, plumb, and aligned.

.3 All building services shall be installed and connected to the base building systems by licensed subtrades. All building services shall be inspected by authorized trade representatives and Authority Having Jurisdiction in the presence of a manufacturer representative. Coordinate with all affected parties as required.

.4 Installation sequence as determined by the certified installer and coordinated with the General Contractor based on project conditions.

3.4 CLEANING

.1 Upon completion of installation, modular partition components and finishes shall be cleaned in accordance with the finish manufacturer's instructions. Alkaline or abrasive agents shall not be used. Avoid scratching or marring finishes.

3.5 PROTECTION

.1 Protect from damage through the duration of construction activities.

3.6 DEMONSTRATION | TRAINING

.1 Refer to Division 01 "Demonstration and Training".

.2 Manufacturer's Distribution Partner will be responsible to provide general product training to the Owner or their outsourced operations team at time of installation as well as conduct a comprehensive training session(s) to convey the methodology, and assembly of the modular partitions to sustain general operational maintenance by the Owner's personnel with clearance over the facilities lifetime.

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.1 Reconfiguration and modifications shall comply with manufacturer's warranty requirements. Extensive or unusual changes will require additional Shop Drawings and manufactured components.

END OF SECTION

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SECTION 12240

CHAIN AND CLUTCH MANUALLY OPERATED WINDOW SHADES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Manually operated, roll-up fabric interior window shades including mounting and operating hardware.

1.2 RELATED SECTIONS

A. Section 06 10 00 - Rough Carpentry.

B. Section 07 90 00 - Joint Protection.

C. Section 09 21 16 - Gypsum Board Shaft Wall Assemblies.

D. Section 09 51 23 - Acoustical Tile Ceilings.

1.3 REFERENCES

A. NFPA 701-99 - Fire Tests for Flame-Resistant Textiles and Films.

B. GREENGUARD Environmental Institute Children & Schools.

C. US Green Building Council.

1.4 SUBMITTALS

A. Submit under provisions of Section 01 33 26 - Source Quality Control Reporting:

B. Product Data: Manufacturer's data sheets on each product specified, including:
   1. Preparation instructions and recommendations.
   2. Installation and maintenance instructions.
   3. Styles, material descriptions, dimensions of individual components, profiles, features, finishes and operating instructions.
   4. Storage and handling requirements and recommendations.
   5. Mounting details and installation methods.

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C. Shop Drawings: Plans, elevations, sections, product details, installation details, operational clearances and relationship to adjacent work.

D. Window Treatment Schedule: For all roller shades. Use same room designations as indicated on the Drawings, field verified window dimensions, quantities, type of shade, controls, fabric, and color, and include opening sizes and key to typical mounting details.

E. Selection Samples: For each finish product specified, two complete sets of shade cloth options and aluminum finish color samples representing manufacturer's full range of available colors and patterns.

F. Verification Samples: For each finish product specified, two complete sets of shade components, unassembled, demonstrating compliance with specified requirements. Shade fabric sample and aluminum finish sample as selected, representing actual product, color, and patterns. Mark face of material to indicate interior faces.

G. Maintenance Data: Methods for maintaining roller shades, precautions regarding cleaning materials and methods, instructions for operating hardware and controls.

H. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Obtain roller shades through one source from a single manufacturer with a minimum of twenty years experience in manufacturing products comparable to those specified in this section.

B. NFPA Flame-Test: Passes NFPA 701. Materials tested shall be identical to products proposed for use.

C. Mock-Up: Provide a mock-up of one of each type roller shade assembly specified for evaluation of mounting, appearance and accessories.
   1. Locate mock-up in window(s) designated by Architect.
   2. Do not proceed with remaining work until mock-up is accepted by Architect.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Do not deliver window shades until building is enclosed and construction within spaces where shades will be installed is substantially complete.

B. Deliver products in manufacturer's original, unopened, undamaged containers with labels intact.

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C. Label containers and shades according to Window Shade Schedule.

D. Store products in manufacturer's unopened packaging until ready for installation.

1.7 SEQUENCING

A. Ensure that locating templates and other information required for installation of products of this section are furnished to affected trades in time to prevent interruption of construction progress.

B. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

1.8 PROJECT CONDITIONS

A. Install roller shades after finish work and ambient temperature, humidity and ventilation conditions are maintained at levels recommended for project upon completion.

1.9 WARRANTY

A. Hardware and Shade Fabric: Draper's standard twenty-five year limited warranty.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Draper, Inc., which is located at: 411 S. Pearl P. O. Box 425 ; Spiceland, IN 47385-0425; Toll Free Tel: 800-238-7999; Tel: 765-987-7999; Email: request info; Web: www.draperinc.com

B. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00.

2.2 MANUALLY OPERATED WINDOW SHADES

A. Manually Operated Window Shades with Independent Control: Manually operated, vertical roll-up, fabric window shade with components necessary for complete installation; Manual FlexShade as manufactured by Draper, Inc.
   1. Operation: Bead chain and clutch operating mechanism allowing shade to stop when chain is released. Designed never to need adjustment or lubrication. Provide limit stops to prevent shade from being raised or lowered too far.
      a. Clutch mechanism: Fabricated from high carbon steel and molded fiberglass reinforced polyester or injected molded nylon. White or Black color as selected by Architect.

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b. Bead chain loop: Stainless steel bead chain hanging at side of window.
c. Idler Assembly: Provide roller idler assembly of molded nylon with adjustable or spring-loaded length idler pin to facilitate easy installation, and removal of shade for service.
d. Bead Chain Hold Down: P-Clip (standard).

2. Mounting:
   a. Mounting brackets.
3. Roller Tube: Fabricated from extruded aluminum, galvanized steel, or enameled steel. Diameter, wall thickness, and material selected by manufacturer to accommodate shade type and size. Fabric connected to the roller tube with LSE (low surface energy) double sided adhesive specifically developed to attach coated textiles to metal. Adhesive attachment to eliminate horizontal impressions in fabric.
4. Brackets: Plated stamped steel. Provide size compatible with roller size.
   a. Mounted to jamb.
5. Shade slat: Slat encased in heat seamed hem.
6. Headbox Ceiling/Wall style: Aluminum fabrication with removable closure, endcaps, and back and top cover piece:
   a. Finish: TBD
7. Headbox, Pocket style: Aluminum fabrication with removable closure, endcaps, and U-shaped pocket:
   a. Finish: TBD

2.3 FABRIC

A. Light-Filtering Fabrics Provide shades at all windows- % openness TBD by architect
   1. SheerWeave Series SW 2500 by Phifer: VOC Emissions: GREENGUARD Children & Schools -certified as a low emitting fabric. Manufacturer to supply GREENGUARD Children & Schools certificate. 500 denier fiberglass, vinyl coated and woven into a 2 x 2 basket weave. Fire rating: NFPA 701. Bacteria and Fungal Resistance: ÅSTM G 21 and ASTM G 22. Series SW2500, 1 percent open, .024 inches thick.
   2. SheerWeave Series SW2410 by Phifer: VOC Emissions: GREENGUARD Children & Schools -certified as a low emitting fabric. Manufacturer to supply GREENGUARD Children & Schools certificate. 500 denier fiberglass, vinyl coated and woven into a 2 x 2 basket weave. Fire rating: NFPA 701. Bacteria and Fungal Resistance: ASTM G 21 and ASTM G 22. Series SW2410, 3 percent open, .019 inches thick.
   3. SheerWeave Series SW2360 by Phifer: VOC Emissions: GREENGUARD Children & Schools -certified as a low emitting fabric. Manufacturer to

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supply GREENGUARD Children & Schools certificate. 500 denier fiberglass, vinyl coated and woven into a 2 x 2 basket weave. Fire rating: NFPA 701. Bacteria and Fungal Resistance: ASTM G 21 and ASTM G 22. Series SW2360, 10 percent open, .017 inches thick.

4. SheerWeave Series SW2390 by Phifer: VOC Emissions: GREENGUARD Children & Schools -certified as a low emitting fabric. Manufacturer to supply GREENGUARD Children & Schools certificate. 500 denier fiberglass, vinyl coated and woven into a 2 x 2 basket weave. Fire rating: NFPA 701. Bacteria and Fungal Resistance: ASTM G 21 and ASTM G 22. Series SW2390, 5 percent open, .017 inches thick.

B. Room Darkening Fabrics- For use in Conference room 2AM01, 3DM02

1. SheerWeave Series SW7100 by Phifer: PVC-coated Fiberglass laminated with a 2-ply PVC film. Fire rating: NFPA 701.023 inches thick, 19.8 oz/sq yd, opaque.

C. Color and pattern: As selected by Architect from manufacturer's standard range.

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Coordinate requirements for blocking and structural supports to ensure adequate means for installation of window shades.

3.3 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install roller shades level, plumb, square, and true. Allow proper clearances for window operation hardware.

3.4 TESTING AND DEMONSTRATION

A. Demonstrate operation of shades to Owner's designated representatives.

3.5 PROTECTION

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A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

3.6 SCHEDULES

A. Refer to Drawings for shade types and locations.

END OF SECTION