

RUSS BUILDING
235 MONTGOMERY ST, SAN FRANCISCO



CONDITIONS FOR CONSTRUCTION
and
TENANT CONSTRUCTION STANDARDS

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Shorenstein Realty Services, L.P.

DOCUMENT 00010
TABLE OF CONTENTS
PROJECT MANUAL

INTRODUCTORY INFORMATION

Document	00001	Project Title Page
	00010	Table of Contents

CONTRACTING REQUIREMENTS

Document	00700	Conditions for Construction
	00720	Tenant's Contractor Checklist
	00730	Lien Release Forms
	00810	Certificate of Liability Insurance
		ACORD Certificate of Liability Insurance
	00815	Insurance Endorsement Form

SPECIFICATIONS

DIVISION 1 GENERAL REQUIREMENTS

01001	General Building Information
01002	Planning and Design Guidelines
01300	"Green" Building Construction Standards
01350	Hazardous Materials
01400	Quality Requirements & Quality Assurance
	<ul style="list-style-type: none"> • 05500 Metal Fabrications • 06400 Architectural Woodwork • 07210 Building Insulation • 08800 Glazing • 09300 Tile • 09650 Resilient Tile Flooring • 09680 Carpet • 09720 Vinyl Wall Covering • 09725 Wall Fabrics • 09900 Paints and Coating • 14200 Elevator Information
01500	Temporary Facilities and Controls

DIVISION 2 SITE CONSTRUCTION

Not used.

DIVISION 3 CONCRETE

Not used.

DIVISION 4 MASONRY

Not used.

DIVISION 5	METALS		
	05500	Metal Fabrications	(See Division 1, Section 1400)
DIVISION 6	WOOD AND PLASTICS		
	06400	Architectural Woodwork Radiator enclosure detail	(See Division 1, Section 1400)
DIVISION 7	THERMAL AND MOISTURE PROTECTION		
	07210	Building Insulation	(See Division 1, Section 1400)
	07819	Patching Existing Fireproofing/Re-spray & Drying if required	
	07840	Firestopping and Joint Sealers	
DIVISION 8	DOORS AND WINDOWS		
	08210	Door Assemblies and Hardware	
		<ul style="list-style-type: none">• Wood Doors• Steel Doors and Frames• Interior Aluminum Frames• Access Doors and Panels• Hardware• Door Assemblies	
	08800	Glazing	(See Division 1, Section 01400)
DIVISION 9	FINISHES		
	09260	Gypsum Board Assemblies	
	09510	Acoustical Ceilings	
	09300	Tile	(See Division 1, Section 1400)
	09650	Resilient Tile Flooring	(See Division 1, Section 1400)
	09680	Carpet	(See Division 1, Section 1400)
	09720	Vinyl Wall Covering	(See Division 1, Section 1400)
	09725	Wall Fabrics	(See Division 1, Section 1400)
	09900	Paints and Coatings	(See Division 1, Section 1400)
DIVISION 10	SPECIALTIES		
	10520	Fire Extinguishers and Cabinets	
	10810	Toilet Accessories	
DIVISION 11	EQUIPMENT		
		Not used.	
DIVISION 12	FURNISHINGS		
	12490	Perimeter Louver Blinds and Window Coverings	
	12495	Solar control Film	
DIVISION 13	SPECIAL CONSTRUCTION		
	13130	Roof Antennas and Satellite Dishes	
	13850	Life Safety System	

DIVISION 14
SYSTEMS

CONVEYING

14200 Elevator Section (See Division 1, Section 1400)

DIVISION 15 MECHANICAL

15300 Fire Protection
15400 Plumbing and Restroom Standards
15700 HVAC

DIVISION 16 ELECTRICAL

16100 Electrical

END OF DOCUMENT

CONDITIONS FOR CONSTRUCTION

S H O R E N S T E I N

**I CONDITIONS FOR CONSTRUCTION**

The following construction procedures, requirements, conditions and standards (these "Conditions for Construction") are applicable to the building referenced above (the "Building", which term shall include any garage located in, under or adjacent to such building, the parcel(s) of land on which the building and/or garage are located, and any other improvements on such land, including any plaza areas). Any contractor, subcontractor, architect, designer, or consultant ("Contractor") that performs any work or service in, upon or about the Building, and any tenant, subtenant, licensee or other occupant of the Building ("Tenant") that shall engage any Contractor to perform any such work or service (the "work" or the "project", which terms shall include, without limitation, alterations, additions, improvements, renovations, retrofits and other construction or construction related services), shall upon receipt of these Conditions for Construction be deemed to have agreed to the provisions hereof. Any breach of these Conditions for Construction shall be deemed a breach under Contractor's agreement with the Building owner ("Landlord") and/or a breach under Tenant's lease or other occupancy agreement with Landlord, as the case may be. These Conditions for Construction shall be interpreted to the maximum extent possible consistent with the terms of Tenant's lease, license, or other occupancy agreement with Landlord ("Lease", which term shall include Landlord's written Consent to Sublease, in the case of a subtenant), but in the case of any irreconcilable conflict between the Lease and these Conditions for Construction, the provisions of the Lease shall control. These Conditions for Construction shall be interpreted to the maximum extent possible consistent with the terms of Contractor's construction contract, service agreement or work order with Landlord ("Vendor Contract"), but in the case of any irreconcilable conflict between the Construction Contract and these Conditions for Construction, the provisions of these Conditions for Construction shall control. Shorenstein Realty Services, L.P. ("SRS") is Landlord's agent for purposes of these Conditions for Construction, and all rights and remedies of Landlord hereunder may be exercised by Landlord through SRS as Landlord's agent.

- A. Field verification is required for all scopes of work. Contractor to verify field conditions including, but not limited to any sound/noise and electrical/harmonic conditions throughout leased premises in regards to design/location of offices, quiet rooms, conference room, etc.
- B. Any building engineering, security, elevator, dumpster or maintenance costs related to the project shall be the joint responsibility of Contractor and

- Tenant and is to be paid at Landlord's prevailing rate for labor and materials.
- C. Tenant shall reimburse Landlord for the costs of Landlord's and Landlord's consultants' (including architects, engineers and other construction professionals), review of the project, including, without limitation, review of the plans and specifications for the project and the MEP, fire and life safety, HVAC and structural components thereof.
 - D. Tenant shall pay Landlord an alterations /operations fee as provided in Tenant's Lease.
 - E. All new, existing, and relocated equipment and devices must be easily accessible (i.e., not blocked by new or existing construction). Re-use of MEP equipment is not recommended, and should be considered in "as is" condition.
 - F. All abandoned equipment, building materials, wiring, conduits, duct work, paging speaker, framing track, and supports not being reused, shall be removed back to the source.

II PRE CONSTRUCTION

- A. Prior to the commencement of any work, Contractor shall supply three (3) sets of complete, coordinated and comprehensive, sealed and signed drawings and specifications including all relevant architectural (demolition and construction), engineering drawings (and/or structural), full MEP's including life safety, and EM/exit lighting for Landlord's approval.
- B. Landlord's approval of Tenant's drawings represents only Landlord's consent to the design intent shown in the plans. It does not constitute any agreement or representation by Landlord that the work called for in the plans complies with Lease requirements, applicable laws, building codes, ordinances, rules or other governmental regulations, nor does such approval relieve Tenant from its obligations to comply with the same. Landlord reserves the right to require corrections of the plans where errors are subsequently discovered. The following is to be included on all plans and specifications: To prevent the use of imported asbestos containing materials, Landlord requires the following domestically manufactured materials to be used and installed. These materials include, but are not limited to: gypsum drywall, drywall joint compound ("mud"), acoustic ceiling tiles, resilient floor tiles, flooring or wall glues, spray-on fireproofing, and other cementitious materials (concrete, etc).
- C. Landlord must be notified during preliminary stages in the planning of any work which may involve installation through adjacent tenant spaces and or common areas of the building, such as floor coring, piping, cables, etc. No work of this nature will be permitted unless absolutely necessary and will only be permitted with the prior written consent of Landlord. Landlord's decision to refuse such consent shall be final. Landlord may require a

security guard to be with the Contractor while in the adjacent tenant's space and the cost thereof shall be the joint and several liability of Tenant and Contractor. When and if permitted, the work shall be performed only after normal business hours or on weekends agreeable to the adjacent tenant and Landlord.

- D. All work shall be done in a neat and orderly manner. Contractor shall be responsible for replacing disturbed materials back to their original form. The work shall only be done by tradesperson experienced and skilled for the work involved. Tenant spaces must be restored to initial condition prior to 7a.m. the next working day, unless the tenant's occupancy requires an earlier business day start up.
- E. Contractor shall protect all existing finished areas from damage. The flooring, walls, ceiling, lighting, furnishings, etc. shall be protected from dust and debris. If materials are transported during the course of construction flooring shall be properly protected.
- F. Contractor shall arrange a pre-job walk-thru with Landlord. Landlord must approve all on site staging areas.
- G. Throughout the area of alterations, Contractor shall provide and ensure reasonable access to all HVAC equipment (i.e. fire dampers, control devices, valves, filters) and other items that may require inspection, service or maintenance.
- H. Prior to commencing any work, Contractor shall provide to Landlord documentation evidencing Contractor's substantial experience in this Locality/Municipality and building type, and with the type of work proposed.
- I. Prior to commencing any work, Contractor shall provide to Landlord evidence of a current valid license recognized for the municipality where the work will be performed.
- J. Prior to commencing any work, Contractor shall provide to Landlord evidence of the Contractor's ability to obtain performance and payment bonds for the project.
- K. Prior to commencing any work, Contractor shall provide to Landlord a copy of all applicable permits required by the city, county, state or federal agencies. Procurement and payment for all permits are at the Tenant's and Contractor's joint and several expense. At the completion of construction, the original permit card of all approved final inspections shall be delivered to Landlord.
- L. Prior to commencing any Work, Contractor and Tenant shall provide to Landlord insurance certificates certifying that the insurance coverages required by Landlord in connection with the Work are in force at Contractor's and/or Tenant's sole cost and expense. Tenant shall maintain insurance coverages as required by its Lease. At all times during the performance of the Work, Contractor shall maintain (and Tenant shall cause Contractor to maintain) in force, at its sole cost, from companies

reasonably acceptable to SRS, insurance in the types and limits of liability as set forth below in this Paragraph L, as the same may be amended from time to time by Landlord's notice to Contractor and Tenant. In addition, Contractor shall cause all Contractor Parties as defined in Section V (of any tier) to maintain in force, from companies reasonably acceptable to SRS, the types of insurance set forth below, with limits of liability in the greater of (i) the amounts customarily maintained by such Contractor Parties in accordance with industry standards or (ii) the amounts, if any, to be maintained by such Contractor Parties as set forth in a written notice by Landlord.

INSURANCE COVERAGE TO INCLUDE

- Commercial General Liability: including blanket contractual liability coverage sufficiently broad to cover the indemnification obligations under Section V; with limits not less than \$1,000,000 Each Occurrence; \$2,000,000 General Aggregate; \$2,000,000 Products/Completed Operations Aggregate; \$1,000,000 Personal & Advertising Injury and broad form property damage coverage. Contractor agrees to maintain this coverage for a minimum of three (3) years following the completion of its work and to name the Indemnities as additional insureds for the entire three (3) year period. Self-insured retention, including costs of defense, shall not exceed \$500,000.
- Automobile Liability Insurance, including coverage for owned, hired and non-owned vehicles, with bodily injury and property damage combined single limits of not less than \$1,000,000.
- Umbrella Liability Insurance, with limits of not less than \$10,000,000 per occurrence and aggregate. For exterior work at the Building, or work that affects the Building's structure, the minimum limits for Umbrella Liability shall be between \$10,000,000 and \$100,000,000 per Occurrence/Aggregate, which shall be specified in a written notice by Landlord.
- Workers Compensation and Employer's Liability Insurance in compliance with applicable Federal and State laws with Employer's Liability limits in the amount, if any, required by law but in no event less than \$1,000,000 Bodily Injury for Each Accident; \$1,000,000 Bodily Injury by Disease for Each Employee; and \$1,000,000 Bodily Injury Disease Aggregate.
- Pollution Liability Insurance, for Contractors that present a pollution exposure (i.e. hydraulic elevators, environmental contracts, construction projects where asbestos, lead paint, etc. is present), with limits of not less than \$5,000,000 per claim and aggregate.
- Professional Liability (Errors & Omissions) Insurance, for Contractors that provide professional services, with limits of not less than \$5,000,000 per claim and aggregate.
- Per-project Aggregate: If any coverage provided in any Commercial General Liability policy is subject to a general aggregate limit of liability, such general aggregate limit shall apply on a "per project" basis.
- Additional Insured Parties: All insurance policies other than Workers' Compensation, Employer's Liability and if required Professional Liability (Errors & Omissions) shall name Ownership Entity, SRS (Shorenstein

Realty Services, L.P. and Shorenstein Realty Services East LLC for New York City locations), Shorenstein Properties LLC, Shorenstein Company LLC ("SCLLC"), Shorenstein Management, Inc. and their respective Members, Partners, Executive Officers, Directors and Stockholders, and any other party specified by Landlord at any time and from time to time as additional insureds with respect to the Work. A copy of the actual additional insured endorsement as broad as Insurance Services Office (ISO) form CG2010 1185 must accompany the certificate.

- Primary Insurance: General Liability, Automobile Liability and Umbrella policies shall provide that such insurance is primary to and non-contributory with any liability insurance carried by Landlord, SRS and the other indemnities and provide a severability of interests clause.
 - Occurrence Basis of Coverage; Exceptions: All insurance policies carried by Contractor or otherwise affording coverage with respect to Contractor's Work in the Building, shall provide coverage on an "occurrence" rather than a "claims made" basis. Professional Liability (Errors & Omissions) and Pollution Liability (if required) may be provided on a "claims-made" basis so long as coverage remains in force for three (3) years after completion of the Work.
 - Certificates of Insurance: Prior to beginning any Work, Contractor shall furnish to Landlord insurance certificates completed by a duly authorized representative of their insurer certifying that at least the minimum insurance coverages required are in effect and that Landlord will be given not less than thirty (30) days' written notice prior to any cancellation or material change.
 - Waiver of Subrogation, Etc.: Contractor shall cause each of its insurance policies to provide that the insurance company waives all rights of recovery by way of subrogation against Landlord, SRS and the other Indemnities, as defined in Section V, in connection with any matter covered by such policy. Contractor hereby waives any right of recovery against Landlord, SRS and the other Indemnities, as defined in Section V, for any Claims for personal injury or property damage arising out of, related to or in connection with the Work and for any Claims that are caused or result from risks insured against (or required to be insured against) by Contractor pursuant to the foregoing provisions.
 - Financial and Business Standing of Insurance Carrier(s): All policies of insurance affording coverage with respect to Contractor's Work in the Building shall be carried by insurers which are authorized to do business in the state where the Building is located and which are rated by AM Best not lower than A-VIII.
- M. Contractor to provide: List for Landlord's review and approval of all Contractor's and Sub-Contractor's personnel, including 24-hour emergency contact numbers for key personnel.
- N. Contractor to provide: Letters from locals to verify Union affiliation for Contractor, including its respective subcontractors (when requested by Landlord).

- O. Contractor to provide: An accurate and comprehensive schedule of all work, including phasing, if applicable, from project start through completion. Prior to commencing work, a pre-work conference is to be scheduled with representatives of Landlord and Contractor to discuss the project scope and schedule.
- P. Contractor to provide: A signed copy acknowledging receipt and acceptance of these Conditions for Construction.
- Q. Contractor shall provide and retain on the job site Material Safety Data Sheets (MSDS) for all materials being used and provide copies to Landlord. Deliveries of hazardous materials require prior written approval from Landlord.
- R. Contractor shall ensure that all utility services (electrical, HVAC, etc.) to each suite will be provided specifically for the suite. No shared services will be accepted. When splitting an existing electrical service, the contractor must restore electrical service to the adjacent suite. Separate metering must be provided
- S. All work on the base building's fire/life safety panel (final tie-ins) will be performed by Honeywell (Life Safety Vendor) and coordinated with Landlord. Only XLS 1000 System components can be utilized and plans must be approved in advance with Honeywell. Contractor and Tenant are jointly and severally liable for all costs.
- T. No work shall be performed that would alter the building's exterior appearance or common areas without Landlords approval.
- U. No changes to the perimeter window treatment will be accepted unless otherwise noted and approved by Landlord in it sole discretion.

III REQUIREMENTS DURING CONSTRUCTION

- A. No work shall commence without Landlord's prior written approval. Work performed at a time other than during normal business hours of the Building requires 48-hour prior written notice by Contractor. Security and/or engineering charges for operation of elevators outside of normal business hours of the Building shall be charged to Tenant and Contractor, jointly and severally, at Landlord's prevailing labor and material rate. The Building's normal business hours are 8:00a.m. to 5:30p.m., Monday through Friday.
- B. Work performed by Contractor shall be performed in a first-class manner. Materials and workmanship shall be equal to or better quality and grade than that used for existing improvements.
- C. Weekly progress meetings must be held. Contractor is to conduct and issue minutes for weekly progress meetings, which may be attended by Landlord's representatives.

- D. At Landlord's sole discretion, any work that does not meet Building standards may be ordered removed and redone at Contractor's and Tenant's joint and several expense.
- E. Work performed shall not interrupt or disturb building operations, or prevent tenant's quiet enjoyment of their premises. All work including but not limited to core drilling, roto-hammering, installation of tack strips or construction that may cause excessive noise shall be done before or after normal business hours of the Building unless special arrangements are made in writing with Landlord.
- F. Landlord at its sole discretion, reserves the right to refuse entrance to employees of Contractor who cannot meet and maintain the requisite standard of workmanship and/or who violate any or all of the terms enumerated herein.
- G. If Hazardous Materials are present, the related work shall be performed in accordance with recommendations of the National Institute of Occupational/Safety and Health (NIOSH), the requirements of the Occupational Safety and Health Administration (OSHA) asbestos standard, and Landlord's Hazardous Materials and Conditions Operations and Maintenance Program Manual. Unless approved by Landlord in writing, all asbestos-related work shall be done before or after the Building's normal business hours, achieving clean air prior to commencement of the Building's normal business hours.
- H. Maintain cleanliness throughout: Public areas are to be kept clean at all times. Contractor shall not clutter or block hallways, exits, service elevator lobbies or electrical closets. Contractor shall provide walk-off mats at the entrance to construction areas, as well as the entrance to all elevators. Clean up is to be maintained at a satisfactory level. Failure to do so will result in Landlord's clean up at Tenant's and Contractor's joint and several cost.
- I. Contractor shall properly protect all traffic areas within the tenant's leased premises and on all common building traffic areas, including freight areas, for the duration of the project.
- J. Contractor shall vacuum, and/or broom clean, or mop daily, occupied tenant areas and the building common areas that are affected by project construction.
- K. Contractor shall provide a separate receptacle for food and wet waste. Receptacle shall be emptied daily. No food or drink products shall be added to construction debris piles or receptacles that are not removed daily.
- L. Any opening between the common building corridor or lobby and the project site is to be temporarily enclosed by means acceptable to Landlord at Contractor's and Tenant's joint and several cost until the permanent installation is completed.

- M. Loading and unloading of material and/or debris boxes at loading dock or within property boundaries is to be coordinated and approved in writing by Landlord.
- N. Contractor shall not touch, secure or start any mechanical, electrical, plumbing, life safety, or other building automation systems without prior written approval of Landlord. Contractor shall not enter electrical, telephone/data or riser closets without written approval from Landlord and if applicable Landlord's Riser Manager. All work is to be performed in accordance with Landlord's Policies and Procedures for Communications Riser Management Services Manual. Montgomery Technologies is the only approved Building Riser management company (866-824-8362).
- O. Contractor shall not secure or open any domestic water, condenser water, chilled water, hot water heating, and domestic hot water or steam system without prior written approval of Landlord and the Building's Chief Engineer.
- P. Contractor shall submit a request in writing to the Building's management office 48 hours in advance if any system is required to be shutdown. Landlord's approval is required prior to any system shutdown. Certain shut downs i.e. electrical shut downs that affect other tenants, will require at least one week advance written notification.
- Q. Contractor shall not secure, enable or test any life safety system without prior written approval of Landlord. The Life safety system shall be operational 24 hours per day.
- R. All MEP work will be inspected by the Building's Engineer. A preliminary inspection of the HVAC work shall be scheduled through Landlord prior to the installation or re-installation of the ceiling grid.
- S. Contractor shall inform Landlord and shall take special measures to prevent false alarms when performing the following, but not limited to:
 - 1. Welding/torching.
 - 2. Soldering.
 - 3. Seaming carpets with hot iron.
 - 4. Painting with lacquers, and spray painting.
 - 5. At Landlord's sole discretion any work that will produce noxious fumes and/or compromise building air quality (i.e.: painting, wall covering installation, carpet and base installation, minor refinishing of existing millwork) shall be performed after the Building's normal business hours beginning at such time as Landlord shall direct.
 - 6. Covering of smoke detectors without Chief Engineer's permission is prohibited.
- T. At Landlord's sole discretion any work that will produce noxious fumes and/or compromise building air quality (i.e.: painting, wall covering installation, carpet and base installation, minor refinishing of existing

millwork) shall be performed after the Building's normal business hours beginning at such time as Landlord shall direct.

- U. Contractor shall ensure that fire extinguishers and all other safety measures are employed to prevent fire. Contractor may request to have smoke detectors in the area of work to be temporarily disabled. Contractor shall immediately notify Landlord when the applicable work is complete so that the fire detection systems may be brought back on line as soon as possible. Any Life Safety devices that are protected or disabled for the purpose of construction are to be returned to fully operational status at the end of every workday.
- V. In case of an accident, involving personnel or property, Contractor and Tenant shall give immediate oral (followed by written) notice thereof to Landlord. Notification shall state the location of the accident, and any actions taken.
- W. The use of any gasoline driven equipment within the Building is prohibited.
- X. Radios, CD players or similar pieces of equipment are not allowed. There will be no smoking or tobacco products, alcohol or drugs, seeds or branded shirts permitted in or about the building.
- Y. Elevators Usage: Contractor's personnel shall use only freight elevators to access project sites. Freight elevator use is restricted: Its use shall be coordinated with Landlord.
 - 1. Roof hatches in freight elevators will not be opened without:
 - (i) a hold-harmless agreement in form acceptable to Landlord, signed by each Contractor who will work in or around such elevator, and
 - (ii) the presence of the elevator maintenance company at Tenant's and Contractor's joint and several expense.
 - 2. Landlord may require Contractor to directly contract with elevator maintenance contractor for elevator related work. Contractor should arrange with elevator maintenance contractor at least 72 hours in advance.
 - 3. Use of freight elevators after normal Building Hours shall be at Tenant's and Contractor's joint and several cost. Any damage to any elevator shall be repaired at Tenant's and Contractor's joint and several cost. If operators are required for elevators other than the freight elevator and/or on premium time, the cost shall be charged to Tenant and Contractor, jointly and severally, at Landlord's prevailing labor and material rate.

- Z. Contractor is to use specified restrooms only. Use of restrooms on tenant occupied floors is not allowed. Contractor is responsible for stocking and maintaining restrooms designated for their use.
- AA. Contractor's use of tenant equipment, lunchrooms, vending machines, copiers, telephones, etc. is not allowed.
- BB. Contractor shall be required to x-ray slabs prior to coring, drilling, or installation of anchors or bolts as required by Landlord. Contractor to verify all slab conditions prior to work.
- CC. All abandoned or unused floor cores, or penetrations shall be capped and back filled with concrete.

IV. CLOSEOUT

- A. Contractor and Tenant shall ensure that the following procedures are followed:
1. All life safety devices and systems installed in the premises shall be tested, including alarms, smoke detectors, speakers, manual pull stations, water flow, trouble alarms and strobe lights. All testing is to be coordinated with Landlord and completed before or after the Building's normal business hours. The manufacturer of the Building's life safety system must certify the test results.
 2. Upon the completion of the project Contractor may be required by Landlord, as needed, to paint electrical, mechanical rooms, freight lobbies and common corridors. Floors and walls are to be patched and painted to address gauges, scratches, and graffiti etc., which may occur during the course of the project construction.
 3. Electric panel covers shall be replaced with directory schedules updated.
 4. Copies of all warranties, guarantees, operating and maintenance manuals shall be delivered to Landlord.
 5. Contractor shall instruct Landlord's Building engineers in the operation and maintenance of all equipment and systems installed.
- B. As-Built Drawings: Contractor shall provide Landlord with complete and accurate sets of as-built drawings at completion of the project. These shall include, but not be limited to:
1. Architect Floor plans at 1/8" = 1'0" scale showing all partitions, location of glass, doors, built-ins, millwork and cabinets, sinks and plumbing locations and any other generally applicable information.
 2. Electrical plans at 1/8" = 1'0" scale showing all electrical outlets, telephone outlets, panel schedules and special outlets (CRT's, dedicated circuits, etc.).
 3. Life Safety plans at 1/8" = 1'0" scale showing all Life Safety devices (smoke detectors, strobes, pull stations, wire runs, and the location of the end of line resistors for speakers and strobes).
 4. Reflected ceiling plans at 1/8" = 1'0" scale showing the HVAC system (duct runs, troffers, mixing boxes, special units, etc.) and sprinkler locations.
- C. Architectural drawings shall be CAD-generated in AUTOCAD Release, most current version, (with no third party software), shall be submitted in one (1) hard copy and two (2) on disk. MEP drawings shall be (1) hard copy redlined as built plan(s). All shall comply with reasonable standards established by

Landlord from time to time. As-builts shall include all "X-REF" drawings necessary.

- a. As-builts shall show new work as well as previous conditions that remain. Notation of any unique or special circumstances pertaining to construction shall be made.
- D. HVAC testing and balancing is to be performed by an independent contractor. Approved by Landlord upon satisfactory completion of balance and operation test, three sets of tenant HVAC drawings and three air balance reports, according to the AABC standards, shall be submitted to Landlord.
- E. At the completion of construction, Contractor shall submit to Landlord:
1. A Conditional Waiver and Release of Lien from the Contractor and each of its subcontractors, material suppliers and laborers, containing the appropriate provisions, as reasonably determined by the Landlord. (Additionally, upon final payment, based on legal documents specific to the property, an Unconditional Waiver and Release of Lien from the Contractor and each of its subcontractors, material suppliers and laborers, containing the appropriate provisions, may be required by the Landlord.)
 2. Perform a post-construction cleaning of each work area to include, but not limited to, cleaning of all windowsills, blinds, inside of perimeter windows, light diffusers, HVAC grilles, cabinets, sinks, carpet, resilient floors, perimeter induction units, and doors.
 3. Signed off permit and drawings.
 4. City Recycling Summary Report, if applicable.
 5. Certificate of Occupancy, if applicable.
 6. Completion and signoff of applicable punch lists.

V. WAIVER AND INDEMNITY

Landlord, Shorenstein Realty Services, L.P., Shorenstein Company, LLC, and Shorenstein Realty Services, L.P., Shorenstein Properties, LLC, and Shorenstein Management, Inc., the constituent shareholders, partners or other owners thereof, and all of their agents, contractors, servants, officers, directors, employees and licensees (collectively, the "Indemnities"), shall not be liable to Contractor, and Contractor hereby waives all claims against such parties for, and releases such parties from liability for, any loss, injury or other damage to person or property in, on or about the work site or the Building. Contractor shall hold the Indemnities harmless from and indemnify and defend the Indemnities against any and all claims, liabilities, damages, costs and expenses, including reasonable attorneys' fees and costs incurred in defending against the same (collectively, "Claims"), whether arising before or after completion of the work and in any manner directly or indirectly caused, occasioned by or contributed to by (a) the acts or omissions of Contractor or any agents, employees, subcontractors, licensees, material suppliers, guests or invitees of Contractor (collectively with Contractor, "Contractor Parties") in, on or about the Building, or (b) any construction or other work undertaken by or on behalf of any Contractor Party in, on or about the Building, or (c) any breach of these Conditions of Construction by any of the Contractor Parties, or (d) any accident, injury or damage, howsoever and by whomsoever caused, to any person or property, occurring in, on or about the work site. The foregoing release, waiver, and covenant to indemnify, defend and hold harmless shall apply even in the event of the fault or negligence, whether active or passive, or strict liability of any of the Indemnities to the fullest extent permitted by law, except to the extent such Claims are caused directly by the willful misconduct of the party seeking the benefit of the foregoing provisions.

VI. AMENDMENT

These Conditions for Construction may be amended or otherwise modified, or amended and restated or otherwise superseded, by Landlord upon prior written notice to Tenant. Tenant shall be responsible for delivery of any such amendments, modifications, or restatements to its Contractors, and delivery of the same by Landlord to Tenant shall constitute Landlord's delivery thereof to Tenant's Contractor.

Landlord: Russ Building Venture LLC

Building: Russ Building; 235 Montgomery Street; San Francisco

Tenant: _____

Work Site (e.g. floor): _____

Contractor: _____

Contractor's License Number: _____ License Type: _____

The undersigned acknowledges receipt of these Conditions for Construction and understands and agrees to all the provisions stated herein.

Tenant: _____
[Name of Tenant]

By: _____

Name: _____

Title: _____

Contractor: _____
[Name of Contractor]

By: _____

Name: _____

Title: _____

Architect: _____
[Name of Architect]

By: _____

Name: _____

Title: _____



Shorenstein Realty Services, LP Tenant's Contractor Checklist

BUILDING:	Russ Building (235 Montgomery St.)	FLOOR:	
TENANT:		JOB NO.:	
CONTRACTOR:		CONTACT:	
General Requirements are listed in the Lease and Conditions for Construction.			

REQUIREMENT

DOCUMENTATION

- | | | | |
|-----|---|-------|--|
| 1. | Substantial Experience | _____ | (References, etc.) |
| 2. | State License Number | _____ | (Statement) |
| 3. | Bondable <i>(Bond not needed, just proof of bond ability)</i> | _____ | (Letter of Certificate) |
| 4. | Permits | _____ | (Copies) |
| 5. | City Waste Reduction & Recycling Plan (San Francisco) | _____ | (Copy) |
| 6. | Insurance Certificates | _____ | (Acord Certificates) |
| 7. | Complete list of Subcontractors | _____ | (24-hour contact numbers) |
| 8. | Proof of Union Labor
(General and Subcontractors) | _____ | (Letters from locals. If required by Landlord) |
| 9. | Schedule | _____ | (Copy) |
| 10. | Indoor Air Quality Plan | _____ | (Copy) |
| 11. | Signed copy of Conditions for Construction | _____ | (Copy of last page, signed) |

SECTION 00730
LIEN RELEASE FORMS

PART 1 - GENERAL

1.1 SUMMARY

- A. Lien release forms are State specific. Property Manager to provide appropriate lien release forms.

END OF SECTION

SECTION 00810

CERTIFICATE OF LIABILITY INSURANCE

PART 1 - GENERAL

1.2 SUMMARY

- A. Refer to ACORD Certificate of Liability Insurance following this page.

END OF SECTION

ACCORD		CERTIFICATE OF LIABILITY INSURANCE			
PRODUCER: Marsh, Inc.		THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER OTHER THAN THOSE PROVIDED IN THE POLICY. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES DESCRIBED HEREIN.			
		COMPANIES AFFORDING COVERAGE			
		COMPANY A HARTFORD FIRE INSURANCE CO			
INSURED: VENDOR ABC (E VENDOR)		COMPANY B SMITHSON INSURANCE COVERAGE			
		COMPANY C XYZ PROVIDER			
		COMPANY D GREAT AMERICAN INSURANCE CO			
COVERAGES This certificate supersedes and replaces any previously issued certificate for the policy period noted below. 1 THIS IS TO CERTIFY THAT POLICIES OF INSURANCE DESCRIBED HEREIN HAVE BEEN ISSUED TO THE INSURED NAMED HEREIN FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THE CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, CONDITIONS					
CO LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS
A	GENERAL LIABILITY <input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS M <input checked="" type="checkbox"/> OCCUR	10UUNL19287	05/01/09	05/01/10	GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COM/OP AGG \$ 2,000,000 PERSONAL & ADJ INJURY \$ 1,000,000 EACH OCCURRENCE \$ 1,000,000 FIRE DAMAGE (Any one fire) \$ 1,000,000 GENL AGGREGATE LIMIT PER: <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PRO-JECT MED/OP (Any one person) \$ 10,000
A	AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO ALL OWNED AUTOS SCHEDULED AUTOS HIRED AUTOS NON-OWNED AUTOS	10UUNL19287	05/01/09	05/01/10	COMBINED SINGLE LIMIT \$ 1,000,000 BODILY INJURY (Per Person) \$ - BODILY INJURY (Per Accident) \$ - PROPERTY DAMAGE \$ - AUTO ONLY/SEA ACCIDENT \$ - OTHER THAN AUTO ONLY: EACH ACCIDENT \$ - AGGREGATE \$ -
	GARAGE LIABILITY <input type="checkbox"/> ANY AUTO				
B	EXCESS LIABILITY <input checked="" type="checkbox"/> UMBRELLA FORM <input type="checkbox"/> OTHER THAN UMBRELLA FORM	10RHUL19550	05/01/09	05/01/10	EACH OCCURRENCE \$ 10,000,000 AGGREGATE \$ 10,000,000 \$ -
C	WORKERS COMPENSATION AND EMPLOYER'S LIABILITY PROPRIETOR / PARTNERS / EXECUTIVE <input checked="" type="checkbox"/> INCL <input type="checkbox"/> EXCL	10WBDX1041	05/01/09	05/01/10	<input checked="" type="checkbox"/> WC STATUS <input type="checkbox"/> OTHER EL EACH ACCIDENT \$ 1,000,000 EL DISEASE-POLICY LIMIT \$ 1,000,000 EL DISEASE-EACH EMPLOYEE \$ 1,000,000
D	OTHER				EACH OCCURRENCE AGGREGATE
DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/SPECIAL ITEMS (LIMITS MAY BE SUBJECT TO DEDUCTIBLES OR RETENTIONS)					
RE: Street Address, City, State, Zip Code. Ownership of Property, ShoreNSTEIN Realty Services, L.P., ShoreNSTEIN Properties, LLC, ShoreNSTEIN Company LLC, ShoreNSTEIN Management, Inc., and their respective Members, Partners, Executive Officers, Directors and Stockholders are additional insureds on all insurance policies other than Workers' Compensation/Employer's Liability and Professional Liability (Errors & Omissions). All liability policies are primary and non-contributory to any liability insurance carried by ShoreNSTEIN Realty Services, L.P. and other indemnified parties. Waiver of Subrogation applies to all liability and Workers' Compensation policies.					
CERTIFICATE HOLDER ShoreNSTEIN Realty Services, L.P. Property Address			CANCELLATION SHOULD ANY OF THE POLICIES DESCRIBED HEREIN BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE INSURER AFFORDING COVERAGE WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED HEREIN, BUT FAILURE TO MAIL SUCH NOTICE SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE INSURER AFFORDING COVERAGE, ITS AGENTS OR REPRESENTATIVES. MARSH USA INC. BY: Alejandra Evans MM1(8/88)		
			VALID AS OF: 03/15/2007		
A COPY OF THE ADDITIONAL INSURED ENDORSEMENT AS BROAD AS ISO FORM CG 2010 1185 MUST ACCOMPANY THE COI.					

SECTION 00815

INSURANCE ENDORSEMENT FORM

NAMED INSURED: <<Your Company Name>>

Policy #: <<Current Policy Number>> COMMERCIAL GENERAL LIABILITY

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY

***ADDITIONAL INSURED—OWNERS, LESSEES OR
CONTRACTOR (FORM B)***

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART.

SCHEDULE

Name of Person or Organization: (Building Ownership Entity), Shorenstein Properties LLC, Shorenstein Company LLC, Shorenstein Realty Services, L.P. (or Shorenstein Realty Services East LLC for New York City locations), Shorenstein Management Inc., and their respective Members, Partners, Executive Officers, Directors, Stockholders, and any other party specified by Landlord at any time and from time to time as additional insured's.

Regarding all work performed by the named Insured for the Additional Insured in connection with premises located: <<Project Name>>, <<Floor>>, 235 Montgomery Street, San Francisco, CA 94104.

(If no entry appears above, information required to complete this endorsement will be shown in the Declaration as applicable to this endorsement.)

WHO IS AN INSURED (Section II) Is amended to include as an insured the person organization shown in the Schedule, but only with respect to liability arising out of "your work" for that insured by or of you.

SECTION 01001

GENERAL BUILDING INFORMATION

PART 1 - GENERAL

1.1 PROJECT DIRECTORY

A. Building Owner:

Russ Building Venture LLC
c/o Shorenstein Realty Services, L.P.
235 Montgomery Street, Suite 1125
San Francisco, CA 94104
(415) 421-7424

B. Building Manager:

Shorenstein Realty Services, L.P.
235 Montgomery Street, Suite 1125
San Francisco, CA 94104
Phone # (415) 421-7424 FAX # (415) 956-2011
Contact: Bill Whitfield, General Manager
Arthur Wolf, Chief Engineer

C. Leasing:

Shorenstein Realty Services, L.P.
235 Montgomery Street, Suite 1125
San Francisco, CA 94104
Contact: Jim Collins (415) 352-7239

D. Building Consulting Mechanical/Electrical/Plumbing:

Amit Wadhwa and Associates
870 Market Street Suite 1154
San Francisco, CA 94102-2924
Phone # (415) 788-9999 FAX # (415) 617-0076
Contact: Mr. Amit Wadhwa P.E.

E. Structural Engineers:

Patrick Buscovich & Associates
Structural Engineers, Inc.
235 Montgomery Street, Suite 1140
San Francisco, CA 94104
Phone # (415) 788-2708 FAX # (415) 788-8653

SECTION 01002**PLANNING & DESIGN GUIDELINES****PART 1 - GENERAL****1.1 MULTI-TENANT ELEVATOR LOBBIES, RESTROOMS AND PUBLIC CORRIDORS**

- A. Passenger elevator lobbies are constructed and finished according to building standards at the discretion of the Landlord.
 - 1. Modifications desired by Tenant shall be submitted for review and approval by Landlord (3 copies to be submitted for review and approval).
 - 2. Design of elevator lobby shall comply with applicable codes.
 - 3. Ceilings, vanities, fixtures, trim, lighting and mechanical services are to be constructed and inspected by agencies with jurisdiction and approved to comply with applicable code requirements at time work is done.
- B. Tenant entry doors shall conform to building standards unless otherwise approved by Landlord. (see 01002-1.4 Details- Space numbering layout.)
- C. Tenant entry doors and interior office door numbering shall comply with building window numbering system. (See Attachment).

1.2 TENANT RECEPTION AREAS AND SIGNAGE

- A. Plans and specifications indicating finishes, graphics, artwork, lighting and furnishings to be used in tenant reception area, if visible from building common public area, shall be submitted to Landlord for review and approval.
- B. Tenants on multi-tenant floors shall use building standard entry identification graphics system provided by Landlord unless otherwise approved by Landlord.
 - 1. Multi-floor tenants shall contact Landlord regarding correct spelling of company's name for entry signage before Substantial Completion of buildout.
 - 2. Temporary signage will be provided in event that permanent signage is unavailable at move-in date
 - 3. Tenants will be required to give final approval and sign-off on graphics text before Landlord will be able to order entry signage.
- C. Landlord will supply, install, and maintain a building standard tenant directory on multi-tenant floors.
- D. Identification signage and emergency evacuation signage on floors occupied by full-floor tenant are Tenant's responsibility and shall comply with code requirements. Signage to be submitted for Landlord review and approval, after approval by the fire department.

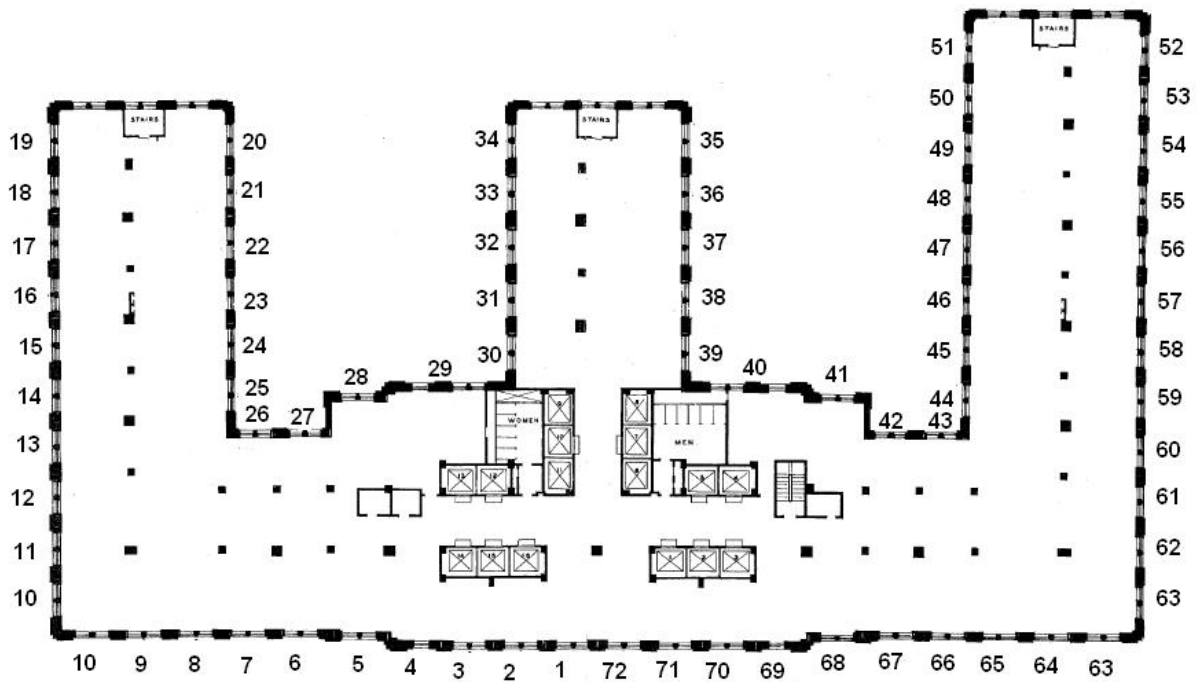
1.3 TENANT DESIGN AND ENGINEERING

- A. Tenant's Design and Engineering proposed improvements are to be submitted to Landlord for review and approval prior to starting any work.
- B. Office planners shall coordinate the placement of partitions, light fixtures and other interior systems in relation to the base building MEP systems.
 - 1. Three (3) sets of plans and specifications shall be submitted to Landlord for review and approval.
 - 2. Adequate clearance for light fixtures, MEP fixtures, etc., shall be maintained below mechanical ducts.
 - 3. Access panels shall be provided where required to service all above-ceiling mechanical and electrical, but not limited to equipment, valves and connection points, as indicated by Landlord.
 - 4. All above ceiling equipment shall be installed to allow adequate access for service and maintenance.
 - 5. To prevent the use of imported asbestos containing materials, Landlord requires the following domestically manufactured materials to be used and installed. These materials include, but are not limited to: gypsum drywall, drywall joint compound ("mud"), acoustic ceiling tiles, resilient floor tiles, flooring or wall glues, spray-on fireproofing, and other cementitious materials (concrete, etc.).
- C. Where slab-to-slab partitions are specified, transfer ducts shall be installed to reduce interference with functioning of above-ceiling return-air plenum.
- D. Tenant's keying and proximity card access systems shall be approved by Landlord and coordinated with Landlord keying schedule
 - 1. Tenant's electrical locks to be mortise electrified lock/latchset Sargent Series 82, finish US10B.
 - 2. Non-electrical locks Sargent/Series 11 for entry doors and Sargent/Series 10 for interior doors.
- E. Electronic security and access control systems that are used in the path of egress for life safety emergencies shall be designed fail-safe and shall comply with applicable codes and shall be integrated with Building Life Safety. Alternative communication devices shall be submitted to Landlord for review and approval.
- F. Modifications to base building HVAC or electrical systems shall be submitted for Landlord's review and approval. Special use areas within Tenant's premises, such as kitchens or computer rooms may require supplemental cooling and venting that shall be installed and maintained at Tenant's sole expense. There will be an additional fee for connecting to building systems. Supplemental units shall have metering device and shall be metered 24/7.

- G. Tenants shall maintain clear access to any base building mechanical or electrical closet within Tenant's premises.
- H. Improvements visible from common and public areas are to be identified in submittal and require Landlords review and approval.
- I. Base Building Alterations: Plans and specifications for cut-outs in floor slab necessary for stairs, private elevators, or chases are to be identified and structural calculations are to be submitted to Landlord for review and approval.
- J. Excess Floor Loading: Excess and unusual floor loading requirements, such as for high-density filing systems, library shelving, moveable partitions, storage areas, equipment rooms, generators, stairways, etc., are to be identified and structural calculations are to be submitted to Landlord for review and approval.
- K. At Shorenstein's sole discretion, any work that does not meet Building Standards and was not properly submitted for approval may be ordered removed and redone at contractor's cost.
- L. Alterations that effect building fire life safety systems and smoke control shall be pre-approved by Fire Department and Landlord.
- M. Data Centers: Data Centers within Tenant's premises shall be metered such that energy usage data can be collected: 1) at a point downstream from any and all uninterruptible power supplies (UPS), and 2) for all IT equipment, and IT equipment only, in the data center. Metering system shall meet the U.S. Environmental Protection Agency ENERGY STAR Portfolio Manager requirements for Data Center benchmarking. Metering system shall conform to Landlord's Design Criteria as specified in this document under Electrical Section 1.3.B.13. Data Center shall be defined as any demised space of more than 500 square feet that is dedicated to high-density computing functions (e.g., server racks) and may, but not necessarily, include a raised floor, dedicated supplemental cooling system, and one or more UPS.
- N. Data Centers: Data Centers within Tenant's premises shall be metered such that energy usage data can be collected: 1) at a point downstream from any and all uninterruptible power supplies (UPS), and 2) for all IT equipment, and IT equipment only, in the data center. Metering system shall meet the U.S. Environmental Protection Agency ENERGY STAR Portfolio Manager requirements for Data Center benchmarking. Metering system shall conform to Landlord's Design Criteria as specified in this document under Electrical Section 1.3.B.13. Data Center shall be defined as any demised space of more than 500 square feet that is dedicated to high-density computing functions (e.g., server racks) and may, but not necessarily, include a raised floor, dedicated supplemental cooling system, and one or more UPS.

END OF SECTION

1.4 Details - Space Numbering Layout



SECTION 01300 “GREEN” BUILDING CONSTRUCTION STANDARDS

1.1 SUMMARY

- A. This section includes requirements for environmental “green” building construction standards. Adopting “green” building standards in tenant improvement projects helps to reduce the negative environmental impact of resource usage typically associated with commercial construction projects. Additionally, “green” building standards helps to minimize the comfort and health effects created during the construction process and commonly occurring following the installation of new building products. This section includes both mandatory requirements and voluntary guidelines as delineated below.
- B. Where the requirements refer to Leadership in Energy and Environmental Design for Commercial Interiors (LEED-CI), the U.S. Green Building Council (USGBC) LEED-CI Rating System is the reference document. It will be the responsibility of the Project Architect and Contractor to implement the most current requirement of the LEED-CI program.

1.2 MANDATORY GREEN BUILDING STANDARDS

A. Water and Electricity

The General Contractor will implement their construction project specific energy efficiency plan including, without limitation, water conservation, turning off lights and turning off or adjusting heating, ventilating and air conditioning systems that are in use during the project.

B. Waste Management

1. At least 70% of non-hazardous demolition and construction waste, by volume, will be recycled for all projects and the contractor will be responsible for procuring and maintaining appropriate documentation.
2. Upon completion of the project, submit any recycling reports which may be required by the local jurisdiction in which the project is located.

C. Indoor Air Quality (IAQ)

1. The comfort and health of building occupants shall not be compromised while construction is in progress.
2. During construction, meet or exceed the recommended design approaches of the Sheet Metal and Air Conditioning National Contractors Association (SMACNA) “IAQ Guideline for Occupied Buildings Under Construction,” 2007 (2nd edition), Chapter 3, as it may be amended, supplemented or replaced from time to time.
3. IAQ minimum requirements include the following requirements:
 - a. Isolate work areas to prevent contamination of clean or occupied areas.
 - b. Clean the construction area daily.
 - c. Seal air registers during construction.
 - d. Shut down the return side of HVAC systems if possible.
 - e. If air handlers must be used during construction, filtration media with a minimum MERV 8 rating must be used at each return air grill, as determined by ASHRAE 52.2-1999.
 - f. Replace filtration media on HVAC units prior to occupancy with MERV 13 filtration media.

4. Contractor shall notify the building's engineer at least two full business days prior to commencement of extremely dusty work (sheet rock cutting, sanding, extensive sweeping, etc.) so arrangements can be made for additional filtering capacity on the affected HVAC equipment. Failure to make such notification will result in Contractor absorbing the costs to return the equipment to its proper condition. Contractor will not proceed with work until filter installation has been completed. Failure to wait for notification of filter installation prior to commencing work will result in Contractor absorbing the costs to return the equipment to its proper condition. All recessed lights must be covered during high dust construction due to plenum return air systems.

D. Sustainable Purchasing

Sustainable purchasing practices helps to reduce the environmental and air quality impacts of materials used in projects. This section lists the mandatory minimum sustainable purchasing practices when selecting base building materials.

1. Wood Products

- a. The Forest Stewardship Council (FSC) has developed a set of principles and criteria for forest management. FSC certified forests harvest wood products in an environmentally responsible way that meets the principles of the Council.
- b. Specify doors, cabinetry, and other new wood based products that are Forest Stewardship Council (FSC) certified.

2. Low - or no - VOC Emitting Materials

The use of low- or no VOC-emitting materials will reduce the quantity of indoor air contaminants that are odorous and potentially irritating to building occupants. Paints, stains, finishes, sealants, janitorial supplies, adhesives, furniture and fabrics must meet or exceed the VOC and chemical components of Green Seal's Standards, Bay Area Resources Board Reg. 8, Rule 51, LEED for Commercial Interiors credits 4.1 and 4.2, South Coast Air Quality Management District regulations or other comparable standards (including, without limitation, LEED for Commercial Interiors) as adopted from time to time by Landlord.

3. Carpet

- a. Carpet must meet the requirements on the Carpet and Rug Institute (CRI) Green Label Plus Carpet Testing Program. Carpet cushion must meet the requirements of the CRI Green Label Testing Program.

4. Non-carpet Flooring

- a. Non-carpet flooring must be FloorScore Certified.

5. Composite panels and agrifiber products

- a. Composite panels and agrifiber products must not contain added urea-formaldehyde resins. Laminate adhesives used to fabricate on-site and shop-applied assemblies containing these laminate adhesives must contain no added urea-formaldehyde resins.

E. Mechanical, Electrical and Plumbing Requirements

All building specific information including model numbers, etc. are located in the following sections 15400, 15700 and 16100

1. Lighting Motion Sensors - Occupancy Sensors with manual override are mandatory for all construction. Sensors to be located in all regularly-occupied spaces and daylight responsive controls in all other spaces within 15 feet of windows and under skylights. Sensor standards are:

- a. Watt Stopper Ceiling Sensor, one or two-way, or equivalent.
- b. Watt Stopper Dual Relay PIR wall switch: dual switch buttons, automatic/manual on, 120/277 volt dual rating, or equivalent.
- c. Exit Lights Lighting source is to be Light Emitting Diodes (LED). Follow building standards for model and style of LED Exit signs.

2. Heating, ventilating, air conditioning and refrigeration equipment

Heating, ventilating, air conditioning and refrigeration equipment shall not contain CFC or Halon.

3. Magnetic Lighting Ballasts

Magnetic lighting ballasts are not allowed.

4. Lamps and ballasts

All new lighting must be LED. See Chief Engineer

5. Aerators - faucets

Install low flow aerators on all faucets. The water efficiency of all interior fixtures shall be at least 20 percent more efficient than the baseline set by the Energy Policy Act of 1992. Low flow aerators restrict/limit the flow of water. Minimum requirements are as follows:

- a. Install 0.5 gallons per minute ("gpm") aerators on all restroom sinks.
- b. Install 2.2 gallons gpm aerators on all kitchen sinks.
- c. Install 2.5 gpm (or less) restrictors on all shower heads.
- d. Where available, Contractor shall install products certified by the U.S. Environmental Protection Agency's Water Sense program, it being understood that flow requirements stated above shall still be required of the Water Sense-certified products.

6. Low flow fixtures

- a. Fixture Flow requirements. See Chief Engineer for current requirements.

- b. Where available, Contractor shall install products certified by the U.S. Environmental Protection Agency's Water Sense program, it being understood that flow requirements stated above shall still be required of the Water Sense-certified products.

7. Variable Air Volume (VAV) boxes

When installing new VAV boxes, use Direct Digital Control (DDC). DDC boxes should be installed as "stand alone" units in buildings that do not currently have a DDC backbone to connect to. If the job is in a property where more than 75% of the VAV boxes are pneumatic, this requirement may be waived with Building Management approval.

F. Equipment and Appliances

- 1. Contractor shall install products certified by the U.S. Environmental Protection Agency's ENERGY STAR program for electric powered equipment:
 - a. Audiovisual equipment
 - b. Kitchen, Break Room and Food service equipment

END OF SECTION

SECTION 01350

HAZARDOUS MATERIALS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Hazardous materials special procedures.

1. The Contractor shall comply with Title 8 of the California (Cal-OSHA) and Title 29 of the Code of Federal Regulations (OSHA) for all safety and labor requirements. The Contractor shall comply with Title 22 of the California Code of Regulations (CAL-EPA) and Title 40 of the Code of Federal Regulations (EPA). The Contractor shall also have a current copy of the ShoreNSTEIN's California Hazardous Materials and Conditions Operations and Maintenance Program Manual and comply with additional requirements of ShoreNSTEIN's Manual.

- a. Obtain copy from Landlord.

END OF SECTION

SECTION 01400

QUALITY REQUIREMENTS AND QUALITY ASSURANCE

PART 1 - GENERAL QUALITY REQUIREMENTS

1.1 SUMMARY

- A. This section describes general quality control requirements.
 - 1. Quality control. general
 - 2. Manufacturers' field services.
 - 3. Mock-ups.
 - 4. Testing laboratory services.
- B. Related Requirements:
 - 1. Refer to applicable codes and Specifications sections for test requirements.

1.2 QUALITY CONTROL, GENERAL

- A. Maintain quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.

1.3 MANUFACTURER'S FIELD SERVICES

- A. When specified in respective Specification sections, require manufacturer or supplier to have qualified personnel provide on-site observations and recommendations.
 - 1. Observe field conditions, including conditions of surfaces and installation.
 - 2. Observe quality of workmanship.
 - 3. Provide recommendations to assure acceptable installation and workmanship.
 - 4. Where required, start, test, and adjust equipment as applicable.
- B. Representative shall submit written report to Landlord, Tenant and Architect listing observations and recommendations.

1.4 MOCK-UPS

- A. Erect field samples and field mock-ups at locations on site as approved in advance and in accordance with requirements where included in Specifications section.
 - 1. Test mock-ups requiring special equipment may be erected at location having access to necessary equipment; coordinate with Landlord, Tenant and Architect.
- B. Field samples and mock-ups not approved and not capable of being acceptably revised shall be removed from site.
- C. Approved field samples and mock-ups may be used as part of Project.

1.5 TESTING LABORATORY SERVICES

- A. An independent testing laboratory shall perform inspections, tests, and other services required by applicable codes and various Specification sections.
 - 1. Landlord, Tenant, or Architect may also require independent testing of items where doubt exists that product or system does not conform to Contract Documents.
 - 2. Contractor shall employ and pay for testing laboratory unless Landlord or Tenant has agreed to pay.
 - a. Testing laboratory shall be approved by Landlord prior to beginning testing.
- B. Services shall be performed in accordance with requirements of governing authorities and with specified standards.
- C. Reports shall be submitted to Landlord in duplicate giving observations and results of tests, indicating compliance or non-compliance with specified standards and with Contract Documents.
 - 1. Where required, testing laboratory will submit copy of test results directly to enforcing agency.
- D. Contractor shall cooperate with testing laboratory personnel; furnish tools, samples of materials, design mix, equipment, storage and assistance as requested.
 - 1. Notify Landlord, Tenant, Architect, and testing laboratory sufficiently in advance of expected time for operations requiring testing services.

PART 2 – QUALITY ASSURANCE**DIVISION 5****SECTION 05500 – METAL FABRICATIONS**

2.1 REFERENCES – American Welding Society (AWS): D1.1, Structural Welding Code.

2.2 MATERIALS

- A. Steel Shapes, Plates and Bars: ASTM A36.
- B. Structural Steel Sheet: Hot rolled, ASTM A570; or cold rolled, ASTM A611, Class 1; of grade required for design loading.
- C. Steel Pipe: ASTM A53, Type S seamless, grade as selected by fabricator and as required for design loading; minimum standard weight, STD or Schedule 40.
- D. Steel Tubing: Cold formed ASTM A500; or hot rolled, ASTM A501; minimum Grade B; seamless where exposed.
- E. Castings: Gray iron, ASTM A48, Class 30; malleable iron, ASTM A47.

- F. Concrete Inserts: Threaded or wedge type; galvanized ferrous castings, either malleable iron ASTM A47, or cast steel ASTM A27. Provide bolts, washers and shims as required, hot-dip galvanized, ASTM A153.
- G. Grout: Non-shrink meeting ASTM C1107, non-metallic, pre-mixed, factory-packaged, non-staining, non-corrosive; type specifically recommended by manufacturer as applicable to job condition.
- H. Fasteners and Rough Hardware: Type required for specific usage; provide zinc-coated fasteners for exterior use or where built into exterior walls.
- I. Welding Materials: AWS D1.1, type required for materials being welded.
- J. Paint: Provide primers as recommended by paint manufacturers for substrates and paints specified in Section 09900 – Paints and Coatings.

2.3 FABRICATION.

- A. Handrails: When tested according to ASTM E935, handrails to be capable of withstanding following:
 - 1. Concentrated loads of 200 foot-pounds per code applied at any point in any direction.
 - 2. Uniform loads of 50 foot-pounds per code per linear foot applied in any direction.
 - 3. Uniform and concentrated loads are not to be assumed to act concurrently.
- B. Guardrails: Design, fabricate, and install top rails at guardrail locations that, when tested according to ASTM E935, are capable of withstanding following:
 - 1. Concentrated loads of 300 foot-pounds per code applied at any point in any direction.
 - 2. Uniform loads of 100 foot-pounds per code per linear foot applied in any direction.
 - 3. Uniform and concentrated loads are not to be assumed to act concurrently.
 - 4. Erection: Perform field welding in accordance with AWS D1.1.

DIVISION 6

SECTION 06400 – ARCHITECTURAL WOODWORK

2.1 CERTIFICATION

- A. Certification: Provide WIC Certified Compliance Label on shop drawings.
- B. General: Before delivery to jobsite, provide WIC Certified Compliance Certificate indicating grade of millwork products to be furnished and certify WIC requirements for specified grades shall be met.

C. Casework:

1. Each unit to bear Woodwork Institute of California (WIC) Certified Compliance Label.
2. Forest Stewardship Council (FSC) certified.
3. No added urea-formaldehyde resins.

D. Plastic Laminate Countertop:

1. Each unit to bear WIC Certified Compliance Label.
2. No added urea-formaldehyde resins.

E. Installation: Provide WIC Certified Compliance Certificate for Installation.**2.2 QUALITY ASSURANCE****A. Fabricator Qualifications: Member of WIC with minimum five years successful experience fabricating architectural woodwork similar to that required for project.****B. Standards: Perform architectural woodwork in accordance with recommendations WIC Manual of Millwork.**

1. Installation Certification Program: Install work in this section as specified in the WIC Manual of Millwork, and provide WIC Certified Compliance Certificate for installation at completion of Project installation.
2. Contractor Option: Perform architectural woodwork in accordance with Architectural Woodwork Institute (AWI) "Quality Standards, Guide Specifications and Certification Program."
 - a. Millwork Cabinetry is to be AWI 400, Premium Grade.
 - b. Other Millwork shall be AWI 1700 Premium Grade.
 - c. Standing and Running Trim are to be AWI 300 Premium Grade.
 - d. Frames are to be AWI 900 Premium Grade.
 - e. Paint Grade Shelving is to be AWI 600 Custom Grade.

C. Field Measurements: Take field measurements prior to preparation of shop drawings and fabrication where possible; do not delay job progress, allow for trimming and fitting.**D. Wood Blocking: Fire retardant treated, conforming to AWPA C20 for lumber and AWPA C22 for plywood, and meeting UL FR-5 rating.****2.3 FINISHES****A. Transparent Finished Woodwork: Shop finish architectural woodwork.**

1. Transparent Finish: WIC/Premium Grade clear finish producing a dull rubbed effect, as approved by Architect.
 2. AWI Finish: "Wood veneer" and "stained wood veneer" items to receive transparent finish equal to AWI Finish System No. 2, Transparent Catalyzed Lacquer, sheen and color to match Architect's sample as approved by Landlord and to match approved submittals.
- B. Opaque Finished Casework: Shop finish.
1. Opaque Finish: WIC/Premium Grade opaque "lacquer" finish producing a semi gloss effect, as approved by Architect.
 2. AWI Finish: "Paint grade" items to receive shop painted finish equal to AWI Finish System No. 10, Conversion Varnish, color to match Architect's sample as approved by Landlord and to match approved submittals.

DIVISION 7**SECTION 07210****2.1 BUILDING INSULATION****A. MATERIALS**

1. Thermal Batt Insulation: Preformed slag mineral or glass fiber with thermosetting resin binders conforming to ASTM C665.
2. Thickness/R-Value: Fill space to receive insulation; minimum R-13 at walls, R-19 at horizontal surfaces, unless otherwise approved by Landlord.
3. Flame Spread/Smoke Density Rating: Maximum 25/450, ASTM E84.

DIVISION 8**SECTION 08800 - GLAZING****2.1 SUMMARY**

- A. Glazing is required to be fully tempered and certified by SGCC or another recognized certification agency acceptable to authorities having jurisdiction and is to comply with requirements of CPSC 16 CFR, Part 1201.

2.2 REFERENCES

- A. Glass Association of North America (GANA): Glazing Manual and Sealant Manual.

2.3 SYSTEM DESCRIPTION

- A. Safety Glass Standard: CPSC 16 CFR 1201, ANSI Z97.1, and Uniform Building Code Chapter 24 and Standard 24-2.

- B. Fire Rated Glass: Provide glass identical to glass tested per ASTM E163, labeled and listed by UL or other testing and inspection agency acceptable to applicable authorities.

2.4 MATERIALS

- A. Tempered Glass: Select glazing quality, clear float glass, fully tempered, meeting ASTM C1048, Kind FT; minimum thickness 1/4"; safety glass.
- B. Fire Rated Wired Glass: Glazing quality, wired glass, polished both surfaces; square steel mesh, conforming with ASTM C1036; minimum thickness 1/4"; UL listed fire rated glass.
- C. Clear Fire Rated Glass: Glazing quality, clear fire rated glass, polished both surfaces; nominal thickness 1/4"; UL listed clear fire rated glass.
- D. Laminated Glass: ASTM C1172, Kind LA, two sheets of clear float glass laminated with a film of polyvinyl buteral; safety glass; laminated layers shall be free of air pockets and foreign substances.
- E. Frameless Mirrors: Mirror quality q1 or q2, clear float glass; 1/4" thick; full silver coating, copper coating and organic coating; arrised edges; factory treated and sealed after cutting and finishing.
- F. Glazing Sealant: ASTM C920, Type S, Grade NS, elastomeric one-component silicone glazing sealants as recommended by sealant manufacturer for application involved.

2.5 INSTALLATION

- A. Comply with GANA Glazing Manual and Sealant Manual and glazing manufacturer instructions.
 - 1. Comply with NFPA 80 for glass in fire rated openings.
- B. Frameless Mirror Attachment: Attach mirrors in accordance with mirror manufacturer's recommendations and to provide ventilation to coating; set or trim felt to face of mirror.

DIVISION 9

SECTION 09300 - TILE

2.1 REFERENCES

- A. ANSI A108.5: Installation of Tile with Latex-Portland Cement Mortar.
- B. ANSI A108.10: Installation of Grout in Tilework.
- C. ANSI A108.11: Interior Installation of Cementitious Backer Units.
- D. Tile Council of America (TCA): Handbook for Ceramic Tile Installation.

2.2 MATERIALS

- A. Floor Tile: Provide non-slip units with minimum wet and dry value of 0.60 coefficient of friction when tested in accordance with ASTM C1028.
- B. Latex Thin Set: Thinset bond coat, consisting of latex-cementitious mortar conforming to ANSI A118.4.
- C. Latex-Cement Grout: ANSI A118.7, latex-cementitious type, uniform in color, resistant to shrinkage.
- D. Cementitious Backer Units: ANSI A118.9 aggregated Portland cement with woven glass-fiber mesh on both faces; approximately 1/2" thick; UL fire rated as required to maintain integrity of fire rated assemblies.

2.3 MIXES

- A. Mix and proportion cementitious materials for site-made leveling coats, setting beds and grout as recommended by the TCA Handbook for Ceramic Tile Installation. Cementitious Backer Units: Install units in accordance with ANSI A108.11, manufacturer's recommendations, and as required for fire ratings.
- B. Mix and proportion pre-mixed setting beds and grout materials in accordance with manufacturer's recommendations.

2.4 INSTALLATION

- A. Install tile in accordance with referenced ANSI Standards and TCA recommendations for type of substrate and setting method.
 - 1. Latex-Cement Thin Set Floors over Waterproof Membrane: TCA F122.
 - 2. Latex-Cement Thin Set Wall Tile over Cementitious Backer Units: TCA W244.
 - 3. Granite Highlight Band Latex-Cement Thin Set Floors over Concrete: TCA F113.
- B. Locate expansion joints, control joints, contraction joints, and isolation joints where recommended by TCA Handbook and as approved by Architect.
- C. Install membranes for restroom, shower rooms, kitchens and anywhere floor drains are installed.

SECTION 09650 - RESILIENT TILE FLOORING

2.1 SYSTEM DESCRIPTION

- A. Flammability: Provide materials tested under ASTM E648, Flooring Radiant Panel Test, with results of 0.45 watts/sq.cm. or higher.
- B. Slip Resistance: Provide materials tested under ASTM D2047, James Slip Test with minimum 0.6 rating for floors.

2.2 PROJECT CONDITIONS

- A. Ensure floor surfaces are smooth and flat with maximum variation that meets industry standards and local codes.

2.3 MATERIALS

- A. Resilient Tile: 12" by 12" by 1/8" thick; vinyl composition tile conforming to ASTM F1066, Composition 1.
 - 1. FloorScore Certified.
 - 2. Color and Pattern: As selected by Landlord or Architect from manufacturer's full range of available colors.
- B. Resilient Base: 1/8" x 4" x 48" Rubber Wall Base Type III Commercial. Provide covered base at hard floor surfaces.
 - 1. FloorScore Certified.
 - 2. Color: As selected by Architect from manufacturer's full range of available colors.
- C. Edge Strips – "1" homogeneous vinyl or rubber, tapered or bullnose edge.
 - 1. Provide longest lengths possible. Pieces less than 24" long shall not be permitted.
 - 2. Color as selected by Architect from manufacturer's full range of standard colors.
- D. Adhesives and Sealants:
 - 1. VOC limits less than SCAQMD Rule #1168

2.4 PREPARATION

- A. Conform with manufacturer's recommendations for preparation and with ASTM F710.

SECTION 09680 - CARPET

- 2.1 Flammability: Provide carpet and underlay having passed following tests.
 - A. DOC-FF-1-70: Pass.
 - B. NFPA 258 (Smoke Density): 450 or less.
 - C. ASTM E648 (Flooring Radiant Panel Test): 0.45 or higher.
- 2.2 Certificate of Compliance: Provide manufacturer's certificate of compliance stating each material delivered conforms to Specifications.
- 2.3 MATERIALS
 - A. Carpet & Rug Institute (CRI) Green Label Plus.
 - B. Tenant Carpet: As directed by Architect and approved by Landlord.
 - 1. Construction: Level Loop
 - 2. Yarn System: Dupont Type 6.6 Continuous Filament Nylon
 - 3. Secondary Backing: Wear Performance
 - 4. Yarn Weight: 26 oz minimum

C. Pad:

1. Product: Reliance "Diamond bond II" or accepted equal
2. Density (lbs. Per cu foot); 7.0
3. Thickness: 3/8" (approximate)
4. Tear Strength (A.S.T.M. 2262): 28 lbs.
5. Insulation "R" Factor (A.S.T.M. C518-76): 2.12

D. Base: 1/8" x 4" x 48" Rubber Wall Base Type III Commercial Colors.

E. Adhesives and Sealants:

1. VOC limits less than SCAQMD Rule #1168

F. Seaming diagrams shall be provided with product submittals.

NOTE: (Buildings with Trench Systems only.) Provide carpet tile matching Building Standard Carpet at trench headers adjacent to building core, as directed by Architect and approved by Landlord.

2.4 PREPARATION

- A. Ensure floors are level, with maximum surface variation that meets industry standards and all local codes.

2.5 INSTALLATION

- A. Install carpet in accordance with manufacturer recommendations and installation instructions.
 1. Maintain pile lay and weave in same direction shown.

SECTION 09720 - VINYL WALL COVERING

2.1 REFERENCES

- A. Federal Specification CCC-W-408: Wall Covering, Vinyl Coated.

2.2 MATERIALS

- A. Vinyl Wall Covering: Conform with CCC-W-408 Type II, medium duty quality; Class 2 mildew resistant, with cloth backing; paper backing is not acceptable.
 1. Maximum Flame Spread/Smoke Developed: ASTM E84, 25/50.

SECTION 09725 - WALL FABRICS

2.1 MATERIALS

- A. Maximum Flame Spread/Smoke Developed (ASTM E84): 25/450.

SECTION 09900 - PAINTS AND COATINGS

2.1 SUBMITTALS

- A. Certificates: Furnish certificates from each manufacturer stating materials are top quality lines and suitable for intended use on this Project.

2.2 MATERIALS

- A. Paints: Provide paints comparable to following unless otherwise directed by Architect and approved by Landlord.

1. Gypsum Board:

- a. Green Seal Standard GS-11 certified.
- b. First Coat: Vinyl Latex Primer Sealer.
- c. Finish Coats: Latex Eggshell Enamel to cover.

2. Metal:

- a. Green Seal Standard GS-03 Certified.
- b. Primer: Rust Inhibitive Paint.
- c. Finish Coats: Latex Semigloss Enamel to cover.

3. Wood, Opaque Paint:

- a. Meets the requirements of Bay Area Air Quality Management District/Building LEED Standards
- b. First Coat: Vinyl Latex Enamel Underbody.
- c. Finish Coats: Latex Semigloss Enamel to cover.

4. Wood, Stained Finish:

- a. Meets the requirements of Bay Area Air Quality Management District/Building LEED Standards
- b. First Coat: Stain to match existing.
- c. Finish Coats: AWI System No. TR-2 transparent catalyzed lacquer or equivalent per AWI 1500, premium grade.

NOTE: Refer to Division 6, Section 6400 – Architectural Woodwork, 2.3 Finishes, for Transparent Finished Woodwork and Opaque Finished Casework.

5. Sheens: Comply with ASTM D523, reflectance of paint.
 6. Elevator doors shall be specifically approved by landlord.
- B. Volatile Organic Compound (VOC) Emissions: Select materials that generate least amount of pollution; consider pollution and volatile organic compound (VOC) emissions generated during manufacturing, transport, installation, use, and disposal.
1. Avoid materials that contain ozone depleting chemicals and that emit potentially harmful volatile organic compound (VOC) emissions.

2. Avoid materials that can leach harmful chemicals into ground water; do not allow potentially harmful chemicals to enter sewers nor storm drains.
3. Select materials that can be reused or recycled and materials with significant percentage of recycled content; set specific recycled content percentages for individual materials; avoid materials difficult to recycle.

2.2 PREPARATION

- A. Measure adhesion of existing paints using ASTM D3359 tape test; remove existing coatings not achieving minimum ratings of 9 to 10.

DIVISION 14

SECTION 14200 – ELEVATOR INFORMATION

Contact Landlord for specific elevator information. (415) 421-7424

END OF SECTION

SECTION 01500**TEMPORARY FACILITIES AND CONTROLS****PART 1 - GENERAL****1.1 SUMMARY**

- A. This section describes temporary construction facilities and temporary controls, all of the following to be coordinated and approved by Landlord.
1. Electricity and lighting
 2. Heat and ventilation
 3. Water and sanitary facilities
 4. Construction aids
 5. Temporary enclosures
 6. Barriers
 7. Cleaning during construction
 8. Project identification
 9. Field offices, telephone service, and storage
 10. Removal
 11. Project Access
 12. Emergency Response
- B. Provide temporary construction facilities and temporary controls as required to conform to applicable authorities and as required to complete Project in accordance with Contract Documents.
1. Authorities: Contact governing authorities to establish extent of temporary facilities and temporary controls required by authorities.
 2. Contact Landlord to establish extent of temporary facilities and temporary controls required by Landlord.

1.2 ELECTRICITY AND LIGHTING

- A. Provide electrical service required for construction operations, with branch wiring and distribution boxes located to allow service and lighting by means of construction-type power cords.
1. Connection to existing electrical service is permitted and to be coordinated with Landlord. Use of power or outlets outside of project area prohibited unless otherwise approved.
- B. Provide lighting for construction operations.
1. Permanent lighting may be used during construction; maintain lighting and make routine repairs.

1.3 HEAT AND VENTILATION

- A. Provide heat and ventilation as required to maintain specified conditions for construction operation, to protect materials and finishes from damage due to temperature and humidity.
 - 1. All returns and exhaust air shall be protected with filtration prior to start of work. Location, install and method of filtration to be reviewed and approved with Chief Engineer.
- B. Coordinate use of existing facilities with Landlord.
 - 1. Supplement with temporary units as required to maintain specified conditions for construction operations, and to protect materials and finishes from damage due to temperature or humidity.

1.4 WATER AND SANITARY FACILITIES

- A. Provide water service required for construction operations; extend branch piping with outlets located so water is available by use of hoses.
 - 1. Connection to existing facilities is permitted but must be coordinated with Chief Engineer.
- B. Provide and maintain required sanitary facilities and enclosures.
 - 1. Designated existing facilities may be used during construction operations, as approved by Landlord; maintain in sanitary condition. Failure to maintain assigned facilities in acceptable condition will result in the revoking of such privileges and the use of portable facilities at the loading dock.
 - 2. Additional required sanitary cleaning may be charged back during project if facilities are not maintained.

1.5 CONSTRUCTION AIDS

- A. Noise, Dust Pollution Control, First Aid and Safety: Provide materials and equipment necessary to comply with local requirements for noise, dust pollution control, First Aid and Safety.
- B. Fire Protection: Maintain on-site fire protection facilities as required by applicable authorities and insurance requirements.
- C. Use of Existing Facilities:
 - 1. Existing stairs shall not be used.
 - 2. Designated freight elevator may be used, coordinate use with Landlord; provide protective coverings for finish surfaces of elevator cars and entrances.
- D. Protection Requirements:
 - 1. Protect all corridors, freight elevators, and lobby doors to project site.

2. Protect all glazing, mullions, window coverings, and doors in project site.

1.6 TEMPORARY ENCLOSURES

- A. Provide temporary partitions as required to separate work areas from occupied areas, to prevent penetration of dust and moisture into occupied areas, and to prevent damage to existing areas and equipment.
 1. Construction: Framing and sheet materials with closed joints and sealed edges at intersections with existing surfaces; Flame Spread Rating of 25 in accordance with ASTM E84 unless otherwise approved by Landlord.
 2. Paint surfaces exposed to view in occupied areas, in accordance with Landlord's Corporate Sign Standards.

1.7 BARRIERS

- A. Provide barriers as required to prevent public entry to construction areas and to protect adjacent properties from damage from construction operations.
- B. Provide barricades as required by Landlord's Corporate Sign Standards.

1.8 CLEANING DURING CONSTRUCTION

- A. Control accumulation of waste materials and rubbish; recycle or dispose of off-site.
- B. Clean interior areas prior to start of finish work, maintain areas free of dust and other contaminants during finishing operations.
- C. Provide separate containers for food waste. Food waste to be removed daily.

1.9 PROJECT IDENTIFICATION

- A. Signs: Subject to approval of Landlord; not typically permitted.

1.10 FIELD OFFICES, TELEPHONE SERVICE, AND STORAGE

- A. Office: Maintain field office within Project space, with lighting, electrical outlets, data outlets, heating, and ventilating equipment, and equipped with furniture.
 1. Telephone Service: Maintain telephone service to field office.
- B. Storage for Tools, Materials, and Equipment: Limit on-site storage to Project area; provide weather-tight storage, with heat and ventilation for products requiring controlled conditions.
 1. Maintain adequate space for organized storage and access.
 2. Provide lighting for inspection of stored materials.

1.11 REMOVAL

- A. Remove temporary materials, equipment, services, and construction prior to Substantial Completion Inspection.

- B. Clean and repair damage caused by installation or use of temporary facilities.
- C. Restore existing facilities used during construction to specified or original condition.

1.12 PROJECT ACCESS

- A. All access and deliveries to project site shall be through the loading dock and freight elevators. Passenger elevators shall not be used.
- B. Access or deliveries requiring special access through common areas and main lobby, shall be by Landlord approval only.

1.13 EMERGENCY RESPONSE

PREP information TBD

END OF SECTION

8/12/2011 SECTION 6400

ARCHITECTURAL WOODWORK

1.1 CERTIFICATION

- C. Certification: Provide WIC Certified Compliance Label on shop drawings.
- D. General: Before delivery to jobsite, provide WIC Certified Compliance Certificate indicating grade of millwork products to be furnished and certify WIC requirements for specified grades shall be met.
- E. Casework:
 - 4. Each unit to bear Woodwork Institute of California (WIC) Certified Compliance Label.
 - 5. Forest Stewardship Council (FSC) certified.
 - 6. No added urea-formaldehyde resins.
- F. Plastic Laminate Countertop:
 - 1. Each unit to bear WIC Certified Compliance Label.
 - 2. No added urea-formaldehyde resins.
- G. Installation: Provide WIC Certified Compliance Certificate for Installation.

1.2 QUALITY ASSURANCE

- A. Fabricator Qualifications: Member of WIC with minimum five years successful experience fabricating architectural woodwork similar to that required for project.
- B. Standards: Perform architectural woodwork in accordance with recommendations WIC Manual of Millwork.
 - 1. Installation Certification Program: Install work in this section as specified in the WIC Manual of Millwork, and provide WIC Certified Compliance Certificate for installation at completion of Project installation.
 - 2. Contractor Option: Perform architectural woodwork in accordance with Architectural Woodwork Institute (AWI) "Quality Standards, Guide Specifications and Certification Program."
 - a. Millwork Cabinetry is to be AWI 400, Premium Grade.
 - b. Other Millwork shall be AWI 1700 Premium Grade.
 - c. Standing and Running Trim are to be AWI 300 Premium Grade.
 - d. Frames are to be AWI 900 Premium Grade.
 - e. Paint Grade Shelving is to be AWI 600 Custom Grade.

- H. Field Measurements: Take field measurements prior to preparation of shop drawings and fabrication where possible; do not delay job progress, allow for trimming and fitting.
- I. Wood Blocking: Fire retardant treated, conforming to AWPA C20 for lumber and AWPA C22 for plywood, and meeting UL FR-5 rating.

1.3 FABRICATION

- A. Radiator Covers: Match existing; three sided paint grade ¾" thick plywood with top panel suspended over side panels by 1" on all sides.
 - 1. See 6400-1.5 spec detail.
 - 2. Enclosure is to have stainless unpainted screws that facilitate easy removal of top.
 - 3. Enclosure should be screwed to wall and not brad nailed.

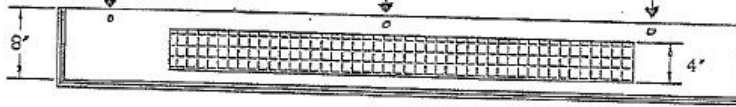
1.4 FINISHES

- B. Transparent Finished Woodwork: Shop finish architectural woodwork.
 - 1. Transparent Finish: WIC/Premium Grade clear finish producing a dull rubbed effect, as approved by Architect.
 - 2. AWI Finish: "Wood veneer" and "stained wood veneer" items to receive transparent finish equal to AWI Finish System No. 2, Transparent Catalyzed Lacquer, sheen and color to match Architect's sample as approved by Landlord and to match approved submittals.
- C. Opaque Finished Casework: Shop finish.
 - 1. Opaque Finish: WIC/Premium Grade opaque "lacquer" finish producing a semi gloss effect, as approved by Architect.
 - 2. AWI Finish: "Paint grade" items to receive shop painted finish equal to AWI Finish System No. 10, Conversion Varnish, color to match Architect's sample as approved by Landlord and to match approved submitted.

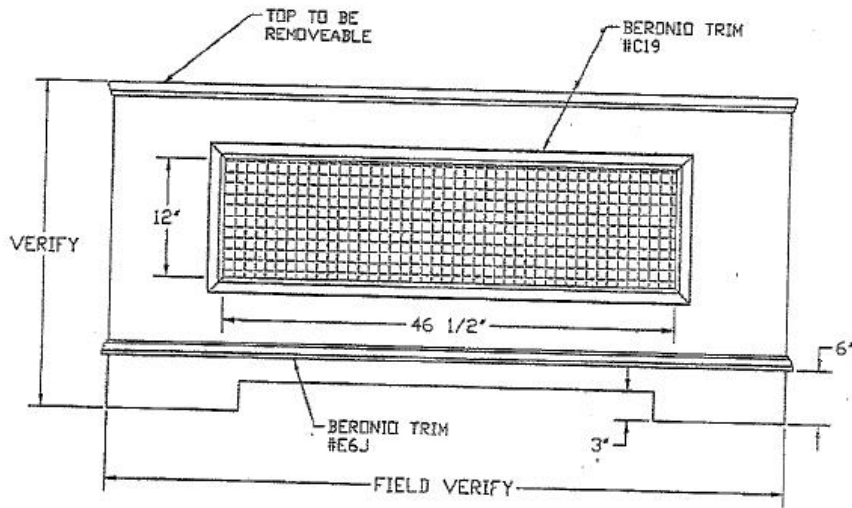
6400-1.5 Detailed Radiator Enclosure Drawing.

Save a Copy

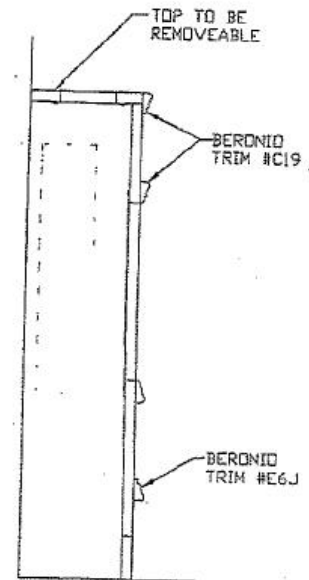
RADIATOR FASTENING SCREWS FOR REMOVAL OF ENTIRE RADIATOR COVER



PLAN VIEW



ELEVATION



SECTION

SECTION 07819**PATCHING EXISTING FIREPROOFING**

- 1 **GENERAL:** Comply with all of the Contract Documents.
Coordinate with Landlord to provide appropriate third party consulting and testing for fireproofing scopes of work.
- 2 **SCOPE OF WORK:** Refer to “Division Scope of Work” in architectural plans or similar.
- 3 **QUALITY ASSURANCE**
 - A. Fireproofing work shall be performed by a firm certified acceptable to the sprayed fireproofing material manufacturer.
 - B. Products, execution and fireproofing thickness shall conform to the applicable code requirements for the fire-resistance ratings called for.
- 4 **REFERENCES**
 - A. ASTM Standards
 1. E84 – Standard Test Method for Surface Burning Characteristics of Building Materials.
 2. E119 – Standard Methods of Fire Test of Building Construction and Materials.
 3. E605 – Standard Test Methods for Thickness and Density of Sprayed Fire-Resistive Material Applied to Structure Members.
 4. E736 – Standard Test Method for Cohesion/Adhesion of Sprayed Fire-Resistive Material Applied to Structural Members.
 5. E759 – Standards Test Method for Effect of Deflection on Sprayed Fire-Resistive Material Applied to Structural Members.
 6. E760 – Standard Test Method for Effect of Impact on Bonding of Sprayed Fire-Resistive Material Applied to Structural Members.
 7. E761 – Standard Test Method for Compressive Strength of Sprayed Fire-Resistive Material Applied to Structural Members.
 8. E859 – Standard Test Method for Air Erosion of Sprayed Fire-Resistive Materials Applied to Structural Members.
 9. E937 – Standard Test Method for Corrosion of Steel by Sprayed Fire-Resistive Material Applied to Structural Members.
 - B. Test Methods for abrasion and impact resistance developed by the City of San Francisco Bureau of Building Inspection.
 - C. Underwriter’s Laboratories, Inc. (UL) Fire Resistance Directory (Latest Edition).

- D. Uniform Building Code Standard No. 43-8: Thickness and Density Determination for Spray-Applied Fireproofing.
- E. AWCI Publication: Inspection Procedure for Field Applied Sprayed Fire Protection Materials.

5 SUBMITTALS

- A. Manufacturers' Data: Submit manufacturer's instructions for proper application of sprayed fireproofing. The contractor will research the W.R. Grace website to find the most up to date version of the specification <http://www.na.graceconstruction.com/>. The Contractor shall comply with all manufactures recommendations and procedures.
- B. Test Data: Laboratory test results for fireproofing shall be submitted for the following performance criteria specified, upon request:
 - 1. Bond Strength per ASTM E736.
 - 2. Compressible Strength per ASTM E761.
 - 3. Deflection per ASTM E759.
 - 4. Bond Impact per ASTM E760.
 - 5. Air Erosion per ASTM E859.
 - 6. Corrosion Resistance per ASTM E937.
 - 7. Abrasion Resistance per City of San Francisco, Bureau of Building Inspection Test Method. Again why SF specific, we need to have a document that is usable in all parts of country
 - 8. Impact Penetration per City of San Francisco, Bureau of Building Inspection Test Method.

6 DELIVERY, STORAGE AND HANDLING

- A. Material shall be delivered in original unopened packages, fully identified as to manufacturer, brand or other identifying data, and bearing the proper Underwriters' Laboratories, Inc. labels for fire hazard and fire-resistance classification.
- B. Material shall be stored (above ground), under cover and in a dry location until ready for use. All bags that have been exposed to water before use shall be found unsuitable for use and discarded. Stock of material is to be rotated and used prior to its expiration date.

7 PROJECT/SITE CONDITIONS

- A. An air and substrate temperature above 40 degrees F (4.4 C) must be maintained for 24 hours before, during and for 24 hours after application of the sprayed fireproofing. If necessary for job progress, General Contractor shall provide enclosures with heat to maintain temperatures.
- B. General Contractor shall provide ventilation to allow for proper drying of the fireproofing during and subsequent to its application. In poorly ventilated areas lacking natural ventilation, forced air circulation will be required. Further detail is in section 11.

8 MATERIALS

- A. The sprayed fireproofing material shall be cementitious fireproofing, as manufactured by the Construction Products Division of W.R. Grace & Co., or its processing distributors, formulated without asbestos or approved equal as determined by Architect.
- B. Materials shall be "WR Grace Retro Guard" factory-blended cementitious fireproofing with blue color added from the manufacture or in the field, applied to provide compliance with all drawings, specifications and the following performance test criteria.
 - 1. Dry Density: The field density shall be measured, in accordance with ASTM STANDARD E605. Minimum average density shall be 15 pcf, and minimum individual density shall be 14 pcf, unless otherwise required by the authority having jurisdiction.
 - 2. Deflection: Material shall not crack or delaminate from the surface to which it is applied when tested in accordance with ASTM E759.
 - 3. Bond Impact: Material subject to impact tests in accordance with ASTM E760 shall not crack or delaminate from the surface to which it is applied.
 - 4. Bond Strength: Fireproofing, when tested in accordance with ASTM E736, shall have minimum bond strength of 200 psf.
 - 5. Air Erosion: Maximum allowable weight loss of the fireproofing material shall be 0.005 gm/ft² when tested in accordance with ASTM E859.
 - 6. Compressive Strength: The fireproofing shall not deform more than 10 percent when subjected to compressive forces of 1200 psf when tested in accordance with ASTM E761.
 - 7. Corrosion Resistance: Steel with applied fireproofing shall be tested in accordance with ASTM E937 without evidence of corrosion of the steel.
 - 8. Abrasion Resistance: No more than 15 cm³ shall be abraded or removed from the fireproofing substrate when tested in accordance with test methods developed by the City of San Francisco, Bureau of Building Inspection, and required by the U.S. Navy (NAVFAC).
 - 9. Impact Penetration: The fireproofing material shall not show a loss of more than 6 cm³ when subjected to impact penetration tests in accordance with the test

methods developed by the City of San Francisco, Bureau of Building Inspection, and required by the U.S. Navy (NAVFAC).

10. Surface Burning Characteristics: Material shall exhibit the following surface burning characteristics when tested in accordance with ASTM E84:

Flame Spread	-0
Smoke Development	-0

- C. The sprayed fireproofing material shall have been tested and reported by Underwriter's Laboratories, Inc. in accordance with the procedures of ASTM E119.
- D. Mixing water shall be clean, fresh and suitable for domestic consumption and free from such amounts of mineral or organic substances as would affect the set of the fireproofing material.

9 WORKMANSHIP

- A. All surfaces to receive sprayed fireproofing shall be free of oil, grease, paints/primers, loose mill scale, dirt or other foreign substances which may impair proper adhesion of the fireproofing to the substrate. Where necessary, cleaning of surfaces to receive fireproofing shall be the responsibility of the Structural Steel Erector, or General Contractor, as outlined in the structural steel or steel deck section.
- B. Confirm compatibility of surfaces to receive sprayed fireproofing material:
1. The project architect shall determine whether the painted/primed steel substrates have been tested in accordance with ASTM E119, with specified sprayed fireproofing material, to provide the required fire-resistance rating.
 2. Painted or primed steel surfaces may require a fire-proofing bond test to determine if the paint formulation will impair proper adhesion. Determination of the compatibility of paint or primer with the sprayed fire-proofing shall be the responsibility of the paint or primer manufacturer.
 3. Rolling compounds or lubricants are commonly used in the manufacture of steel decking. The compounds may impair proper adhesion of fireproofing to the substrate. Steel deck specification section shall call for the deck manufacturer to supply decking free of amounts of these compounds or oils which would significantly impair the adherence of the fireproofing.
- C. Prior to application of fireproofing, clips, hangers, support sleeves and other attachments required to penetrate the fireproofing shall be in place.
- D. Ducts, piping, equipment or other suspended matter which would interfere with application of fireproofing materials shall not be positioned until fireproofing work is complete.
- E. Prior to application of the fireproofing to the underside of steel decking, concrete work above shall be complete.
- F. On roof decks without a concrete cover, complete all roofing applications and roof mounted equipment installation prior to application of the fireproofing to the underside of

roof decking and supporting beams and joists. Prohibit all roof traffic upon commencement of the fireproofing and until the fireproofing material is dry.

- G. Provide masking, drop cloths or other satisfactory coverings so as to prevent over-spray of sprayed fireproofing. If asbestos is present, the masking and plastic used during the asbestos removal shall not be used for re-spray activities and shall be removed prior to any re-spray activities.
- H. Application of sprayed fireproofing shall not begin until the design consultant, General Contractor and the Fireproofing Applicator has inspected the surfaces to receive fireproofing to determine if surfaces are acceptable to receive the fireproofing material.
- I. Equipment and application procedure shall conform to the material manufacturer's application instructions.
- J. All patching and repairing of sprayed fireproofing, due to damage by other trades, shall be performed under this section and paid for by the trade(s) responsible for the damage.

10 QUALITY CONTROL

- A. Architect may select, and will pay an independent testing laboratory to sample and verify the thickness and density of the fireproofing in accordance with provisions of ASTM E605. "Standard Test Methods for Thickness and Density of Sprayed Fire-Resistive Materials Applied to Structural Members", the "Inspection Procedure for Field Applied Sprayed Fire Protection Materials" as published by the AWCI, or Uniform Building Code Standard No. 43-8 entitled "Thickness and Density Determination for Spray-Applied Fireproofing."
- B. The results of the above tests shall be made available to all parties at the completion of floor.

II Mechanical Drying of Fireproofing

- A. Mechanical Drying of the fire proofing shall be designed and engineered with the following minimal standards taking into account site conditions.
- B. When connecting the mechanical drying equipment to the building power the following must be followed:

Temporary equipment connections, to building electric distribution.

480-volt connections.

All temporary equipment connections to the building electrical distribution will be made via the use of a properly sized, UL approved, fault rated, circuit breaker device. An approved electrical contractor, under the supervision of the building engineers, will make all connections.

A branch circuit load analysis will be performed to verify that the temporary equipment load requirements, will not overload existing load distribution equipment, prior to any connections being made.

120/208-volt connections.

All temporary equipment connections to the building electrical distribution will be made via the use of a properly sized, UL approved, fault rated, ground fault interrupting circuit breaker device. An approved electrical contractor, under the supervision of the building engineers, will make all connections.

A branch circuit load analysis will be performed to verify that the temporary equipment load requirements, will not overload existing load distribution equipment, prior to any connections being made.

- C. Within 24 hours of starting the application of the re-spray fireproofing mechanical drying shall start.
- D. When 50 % of the re-spray application is completed when the construction involves more than 10,000 square feet the contractor shall partition off with plastic (fire resistant) the completed 50% of the total area and provide mechanical drying at 50% of the total engineered design.
- E. When 75% of the re-spray application is completed 100% of the mechanical drying machines shall be placed in service.
- F. The fire resistant plastic partition shall remain until there is 100% completion of re-spray application. The 100% complete re-spray does not include the minor application activities associated with spot re-spray after the assessments for thicknesses.
- G. All mechanical drying shall be of desiccant dehumidification and deliver at least less than 30% Relative humidity air at greater than 85 degrees Fahrenheit.
- H. Within 72 hours of 100% completion of re-spray application the relative humidity in the construction area shall average below 60% relative humidity measured in all zones.
- I. The contractor "shall place fans on all of the columns", so if there are 40 columns throughout the space the contractor will place 40 fans during the mechanical drying process and additional fans shall be placed to create air flow in one direction.
- J. The contractor shall remove all water condensation from all of the windows to keep windows free from condensation using wet dry vacuums. The condensation removal shall be done at a minimum of at least daily or more depending on the site conditions.
- K. The contractor shall monitor the relative humidity and temperature to calculate the dew point to ensure that the mechanical drying system is able to remove moisture from the construction space and prevent condensation on surfaces.
- L. The contractor shall take measurements of the moisture concentrations of the fireproofing using a moisture meter calibrated for concrete and plaster. The readings shall be taken in all areas that represent the different thicknesses of application less than 2 inches and greater than 2 inches. The fireproofing shall be considered dry when the all of the representative samples are below 15% moisture concentration.
- M. The contractor shall submit records of the measurements after the completion of the work and request approval from the owner or owner representative that the mechanical drying is complete. The owner shall provide the contractor with a letter of acceptance of the drying and concur that the mechanical drying system can be removed.

12 CLEANING

- A. After the completion of fireproofing work, application equipment shall be removed, and other surfaces not to be sprayed shall be cleaned of any applied fireproofing material. Overspray

13 FIRE-RESISTIVE RATING

- A. Fire resistive rating shall be:
- 2 hours for Slab
 - 3 hours for Girders
 - 4 hours for Columns

14 GUARANTEES

- A. Guarantee all items of work furnished and installed under this Section for (1) one year, in addition to manufacturer's standard warranties. All guarantees to be from the date, when **Final Certificate of Occupancy** is issued from Department of Buildings.

END OF SECTION

SECTION 07840**FIRESTOPPING & JOINT SEALERS****PART 1 - GENERAL**

1.1 SYSTEM DESCRIPTION

- A. Design Requirements: Provide materials tested in accordance with following standards, unless otherwise specified.
 - 1. American Society for Testing and Materials (ASTM) Publications:
 - a. ASTM E84, Surface Burning Characteristics of Building Materials.
 - b. ASTM E119, Fire Tests of Building Construction and Materials.
 - c. ASTM E814, Fire Tests of Through-Penetration Fire Stops.
- B. Firestop all new penetrations and joints within work area.
- C. Firestop all existing penetrations and joints within area of work.

1.2 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with local City and State Building Codes, Uniform Building Code Chapter 7 requirements for firestopping, including both F Ratings and T Ratings as applicable.

PART 2 - PRODUCTS

2.1 MATERIALS - FIRESTOPPING

- A. Penetration Test: Furnish materials passing ASTM E814 for penetration fire stopping indicating maintenance of time-rated adjacent assemblies.
 - 1. Additional Tests: Where required by applicable authorities, provide materials passing ASTM E119 time-temperature fire conditions for fire ratings for assemblies.
 - 2. Flame Spread: ASTM E84 flame spread rating of 25 or less.
 - 3. Smoke Developed: ASTM E84 smoke developed rating of 450 or less.
- B. Firestopping: Maintain fire rating of assembly in which firestopping is installed, such as floor, partition, or wall, in accordance with ASTM E119 tests.

2.2 MATERIALS – JOINT SEALERS

- A. Elastomeric Sealants:
 - 1. Mildew-Resistant Silicone Rubber Sealant: ASTM C920, Type S, Grade NS, Class 25, compounded with fungicide, specifically for mildew resistance and recommended for interior joints in wet areas.

B. Non-Elastomeric Sealants:

1. Acrylic-Emulsion Sealant: ASTM C834 acrylic or latex-rubber-modified acrylic sealant, permanently flexible, nonstaining and nonbleeding; recommended for general interior exposure.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Prepare joint surfaces in accordance with ASTM C1193 and as recommended by joint sealer manufacturer.

3.2 INSTALLATION

- A. Comply with manufacturer's printed instructions and ASTM C1193, except where more stringent requirements are shown or specified.

END OF SECTION

SECTION 08210**DOOR ASSEMBLIES AND HARDWARE****WOOD DOORS****PART 1 - GENERAL**

1.1 References

- A. Existing doors being reused are to be refinished as necessary
- B. National Wood Window and Door Association (NWWDA): I.S.1 Series Industry Standard for Wood Flush Doors.
- C. Quality Marking: Provide quality marking on each door certifying compliance with applicable requirements of NWWDA I.S. 1, or provide certification of compliance.

2.1 MATERIALS

- A Solid Core Flush Wood Doors: WIC/Premium Grade, Type A, 1-3/4" thick solid wood framed glued block or particleboard core five ply construction.
 - 1. Forest Stewardship Council (FSC) certified.
 - 2. NWWDA I.S.1: In addition to WIC, conform to requirements of NWWDA I.S.1; where conflicts occur, comply with most restrictive requirement.
 - 3. Transparent Finished Door Face Veneers: WIC/Premium Grade Rift Cut, premium grade walnut veneers for stained finish; minimum 1/30" (0.033" thick) before sanding; match building standard doors.
 - 4. Opaque Painted Face Veneers: WIC/Premium Grade walnut veneers for opaque painted finish; minimum 1/30" (0.333" thick) before sanding; match building standard doors.
 - 5. Edges: Stile edges to match face veneer, minimum 1-1/8" thick after trim.
 - 6. Core: Bond stiles and rails to core and sand prior to assembly of face veneers.
 - 7. Bond Type: Type II Bond, interior.
 - 8. Size: Doors shall be field verified.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install fire rated wood doors in accordance with requirements for specified fire label and requirements of NFPA 80.
 - 1. Field cutting of fire rated doors shall not be acceptable.

STEEL DOORS AND FRAMES

PART 1 - GENERAL

1.1 REFERENCES

- A. Steel Door Institute (SDI): SDI-100 - Recommended Specifications - Standard Steel Doors and Frames.
- B. National Association of Architectural Metal Manufacture. (NAAMM): Hollow Metal Manual.
- C. Underwriters Laboratories: Standards as applicable to fire rated doors and frames.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Frames: Conform to SDI-100 and NAAMM Hollow Metal Manual.
- B. Fire Rated Units: In addition to SDI and NAAMM, construct in accordance with requirements for fire rating, UBC Standard 7-2, and NFPA 80.

2.2 FABRICATION

- A. Conform to requirements of SDI or NAAMM.
- B. Provide jamb anchors per SDI-100 and NAAMM; weld floor jamb anchors in place.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install doors and frames in accordance with SDI-100 and SDI-105 or NAAMM "Hollow Metal Manual" and with manufacturer's recommendations and installation instructions.

INTERIOR ALUMINUM FRAMES

PART 1 - GENERAL

1.1 REFERENCES

- A. International Conference of Building Officials (ICBO): Research Recommendations for Fire Rated Aluminum Frames and UBC Standard 7-2.
- B. Underwriters Laboratories Inc. (UL): Building Materials Directory.
 - 1. Materials tested, labeled and inspected by Warnock Hersey International are acceptable upon approval of authorities.

- C. National Association of Architectural Metal Manufacturer (NAAMM): Metal Finishes Manual.

PART 2 - MATERIALS

- A. Composed of at least 75% recycled aluminum, or as available.
- B. Manufactured regionally within a radius of 500 miles, if available.
- C. Type: Knock-down (field assembled) door frames; extruded aluminum, ASTM B221, 6063-T5 alloy, profile as directed by Architect.
- D. Fire Rated Frames: Provide fire rated frames as approved by California State Fire Marshal and ICBO.

PART 3 - EXECUTION**3.1 INSTALLATION**

- A. Install aluminum frames in accordance with recommendations of manufacturer.
- B. Comply with NFPA 80 for fire rated frame installation.

ACCESS DOORS AND PANELS**PART 1 - GENERAL****1.1 SUMMARY**

- A. Provide access doors set in finished surfaces.
 - 1. Provide access doors and panels as required for access to controls and valves behind finished surfaces including any equipment requiring maintenance, such as heat pumps, VAV boxes, fan coils, exhaust fans, etc.
 - 2. Coordinate with various trades for controls and valves that may be concealed.
 - 3. Provide steel access doors and panels in gypsum board walls and drop-in fiber reinforced gypsum access panels at hard ceiling surfaces as required to service new and existing plumbing, mechanical, and electrical equipment at locations indicated by Landlord.
 - 4. Concealed access panels (doors) shall be used at all public corridors and lobbies.

1.2 SYSTEM DESCRIPTION

- A. Fire-Resistance Ratings: Where required provide access door assembly from manufacturer listed in Underwriter's Laboratories, Inc. "Classified Building Materials Index" for rating shown.
 - 1. Provide UL label on each rated access door.

2. Materials tested, labeled and inspected by Warnock Hersey International are acceptable upon approval of authorities.

HARDWARE**PART 1 - GENERAL**

1.1 SUMMARY

- A. General Requirements for Electrically Controlled Hardware.
 1. Fire Rated Doors: If retrofitting an existing rated door, assembly conditions to be maintained. Re-rating of door is required.
 - a. Electrical strikes are not permitted at rated door assemblies.
 2. Mortised or cylinder locksets provided with electrified hinges, also requiring building standard keyway override and not in public corridors or lobbies, shall be maintained by Tenant at Tenant's expense.
 - a. Non-electrified locking devices shall be provided with building standard override keyway, and not in public corridor or lobbies.
 3. Electrically controlled hardware shall be approved by City Fire Department, and be fail-safe.
 4. Electrically controlled entry hardware shall have an override switch in tenant space to permit unlocking of entry door.
 5. When 24V building power is to be used for egress door lock security purposes, the 24V circuit must be switch above the door with a relay. The 24V circuit may not be run through the tenant space or to tenant's security closets.
- B. Contractor is to coordinate all hardware requirements with any security devices. Contractor is to coordinate installation for proper operation, interface and connection with any security devices and/or security system.

1.2 SYSTEM DESCRIPTION

- A. Fire Rated Doors: Comply with requirements of Uniform Building Code Standard 7-2, NFPA 80 and applicable codes for fire rated door hardware; provide hardware bearing Underwriters Laboratory (UL) labels.

1.3 SUBMITTALS

- A. Keying Schedule: Coordinate directly with Landlord.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. All door lock hardware to be Schlage. Permanent keys, including Grand Master keys, Master keys, change keys and shut-out keys, are to be hand-delivered directly to Tenant and Landlord, as applicable.
- B. All secured door locks, including electrified, to have a key override feature keyed to building master key system.

DOOR ASSEMBLIES**PART 1 - GENERAL****1.1 SUMMARY**

- A. Section Includes: This section provides information regarding door and hardware.
 - 1. Locksets shall have interchangeable cores and building standard keyways.
 - a. Coordinate with Building management for specific keyways.
 - 2. Suite Entry Door Assembly;
 - a. Door: 1-3/4" thick solid core, Walnut veneer stained. Walnut veneer wood panel transom above door to match. Door and transom to be site finished.
 - b. Double Doors: Matched pair with rating.
 - c. Frame: Painted hollow metal and stained wood overlay to match door that does not violate rating of the frame.
 - d. Mail Slot and Liner; Existing mail slots and liners are to be replaced with plates matching existing hardware finish.
 - e. Hardware: Single Leaf Door: (non-Electrically overridden)
 - 1) Latch set: Sargent series 11, finish us10b
 - 2) Lockset: Bored lever lockset; Sargent series 11, finish us10b
 - 3) Hinges: Butt hinges, McKinney 4 1/2"x4 1/2", two pairs, finish us10b
 - 4) Door Stop: Ives dome stop IV #SP436A28
 - 5) Closer LCN 4040 Series, Pair of closers to be used for pair of doors.
 - f. Hardware: Single Leaf Door: (Emergency Egress Lockset)
 - 1) Latch set: Sargent series 82, finish us10b
 - 2) Lockset: Mortised lever Electric lockset; Sargent series 82 24v fail-safe, finish us10b
 - 3) Hinges: Butt hinges, McKinney 4 1/2"x4 1/2", two pairs, finish us10b
 - 4) Hinges: Electric, Murray model TEF2-2 High load power transfer hinge.

- 5) Door Stop: Ives dome stop IV #SP436A28
 - 6) Closer LCN 4040 Series, Pair of closers to be used for pair of doors.
 - g. Hardware: Matched Pair Doors:
 - 1) Lockset: Active leaf lever Electric lockset; Sargent series 11 bored , finish us10b, with dummy set on inactive leaf to match, if permitted for egress doors.
 - 2) Hinges: Butt hinges, McKinney 4 ½"x4 ½", two pairs, finish us10b
 - 3) Closer: LCN 4040 Series. Pair of closers to be used for pair of doors.
 - 4) Door Stop: Ives dome stop IV #SP436A28 with required riser and door mutes,
 - 5) Flush Bolts: Automatically operated, edge-mounted flush bolts, Ives #257, B26, finish satin bronze.
 - 6) Dust Proof Floor Strike: Ives #488 with Ives #487 plate, B260
 - 7) Astragal: Metal, finish to match door.
 - 8) Coordinator: Glynn- Johnson #COR-2 flush bolt #FB8, finish us10b.
3. Tenant Interior Door Assembly:
- a. Door: 3' x 9' x 1-3/4" thick solid core, Walnut veneer stained per tenant's specifications or paint grade. Door to be finished on site.
 - b. Double Doors: Matched pair.
 - c. Frame:
 - 1) Stained wood or painted hollow metal, color per building standard.
 - 2) Frame: Factory applied thermosetting paint finish or anodized aluminum, color per building standard. 1" or 1 ½" Trim.
 - d. Sidelights: 2" aluminum frame painted per building standard. with 1" mini-blinds installed within frame. Color of mini-blinds per tenant's specifications.
 - e. Hardware: Single Leaf Door:
 - 1) Latchset: Sargent series 11, finish us10b lever handle
 - 2) Lockset: Bored lever lockset; Sargent series 11, finish us10b
 - 3) Hinges: Butt hinges, McKinney 4 ½"x4 ½", two pairs, finish us10b
 - 4) Door Stop: Ives dome stop IV #SP436A28
 - f. Hardware: Matched Pair Doors:

- 1) Latchset: Sargent series 11, finish us10b.
 - 2) Lockset: Bored lever lockset; Sargent series 11, finish us10b.
 - 3) Closer: LCN 4040 Series. Pair of closers to be used for pair of doors.
 - 4) Hinges: Butt hinges, Butt hinges, McKinney 4 ½"x4 ½", two pairs, finish us10b
 - 5) Door Stop: Ives dome stop IV #SP436A28 with required riser and door mutes. Finish to be per tenant's specifications.
 - 6) Flush Bolts: Automatically operated, edge-mounted flush bolts, _____ Ives #257, B26.
 - 7) Dust Proof Floor Strike: Ives #488 with Ives #487 plate, B260.
 - 8) Coordinator: Glynn- Johnson #COR-2, finish us10b, flush bolt #FB8, at 20 minute rated doors only.
4. Building Core Door Assembly:
- a. Door: 1-3/4" thick solid core, one hour rated assembly door, or as required, solid core, paint grade, building standard door is to be painted to match adjacent wall. Field Verify door size.
 - b. Double Doors: Matched pair.
 - c. Frame: Hollow metal, painted to match adjacent walls.
 - d. Hardware: Match building standard.

END OF SECTION

SECTION 09260
GYP SUM BOARD ASSEMBLIES

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide gypsum board systems including light gage metal framing, suspension system for gypsum board systems, joint treatment, acoustical accessories, and general accessories for complete installation.

1.2 REFERENCES

- A. ASTM C754: Installation of Steel Framing Members to Receive Screw-Attached Gypsum Wallboard, Backing Board, or Water-Resistant Backing Board.
- B. ASTM C840: Application and Finishing of Gypsum Board.

1.3 SYSTEM DESCRIPTION

- A. Performance Requirements: Perform gypsum board systems work in accordance with recommendations of ASTM C754 and ASTM C840 unless otherwise specified.
 - 1. Loads: Comply with applicable requirements of San Francisco and California Building Codes for design of metal framing for gypsum board systems.
 - 2. Vertical Dimensions: Typical slab-to-slab heights is 12'-6".
 - 3. Seismic Requirements: Comply with code requirements for seismic bracing.
- B. Fire-Rated Assemblies: Listed by Underwriter's Laboratory, Gypsum Association (GA) File No's in GA-600 Fire Resistance Design Manual, or other listing approved by applicable authorities.

1.4 PROJECT CONDITIONS

- A. Maintain areas to receive gypsum board at minimum 50 degree F for 48 hours prior to application and continuously after application until drying of joint compound is complete; comply with ASTM C840.

1.5 MATERIALS

- A. Framing Materials: Comply with ASTM C754; provide gauges as recommended by manufacturer for spans and maximum deflections specified and as required by applicable codes.
 - 1. Studs: ASTM C645, screw-type Cee-shaped.
 - a. Provide minimum 25-gauge studs.

- b. Provide heavier than 25-gauge as required to comply with performance requirements (deflections).
 - c. Composed of at least 40% recycled content, or as available.
 - d. Manufactured regionally within a radius of 500 miles, if available.
 2. Runners: Match studs.
 3. Furring Members: ASTM C645, screw-type, hat-shaped.
 - a. Sound Rated Assemblies: Provide resilient channels where required to provide required sound transmission classifications.
 4. Channels: ASTM C754.
 5. Hangers: ASTM A641, Class 1 wire, not less than sizes in Table No. 5 of ASTM C754 and as required by applicable codes; hanger rods, flat hangers, and angle-type hangers as required.
 6. Fasteners and Anchorages: As recommended by gypsum board system manufacturer.
 7. Suspension System: ASTM C645, suspension system composed of main beams and cross furring members interlocking to form supporting network; recommended by gypsum board system manufacturer.
- B. Gypsum Board: Comply with ASTM C840; maximum permissible lengths; ends square cut, tapered edges on boards to be finished
 1. Typical: ASTM C1396, Type X, fire rated gypsum board.
 2. Thickness: Minimum 5/8" thickness; 1/4" thick facing board is to be used to provide smooth uniform surface at curved drywall construction.
 3. Manufactured regionally within a radius of 500 miles, if available.
- C. Gypsum Board Accessories: Comply with ASTM C840.
 1. Provide protective coated steel corner beads and edge trim; type designed to be concealed in finished construction by tape and joint compound.
 2. Corner Beads: Manufacturer's standard metal beads.
 3. Edge Trim: "L", "LK", or "LC" casing beads.
 4. Reinforcing Tape, Joint Compound, Adhesive, Water, Fasteners: Types recommended by system manufacturer and conforming with ASTM C475.
 - a. Typical Joint Compound: Chemical hardening type for bedding and filling, ready-mixed or powder vinyl type for topping.

5. Control Joints: Back to back casing beads.
 - a. Back control joints with 4 mil thick polyethylene air seal.
6. Metal top track shall be used at all ceiling height partitions.

D. Acoustical Accessories:

1. Acoustical Insulation: Preformed mineral fiber, ASTM C665, Type I; friction fit type without integral vapor barrier; as required to meet STC ratings as directed by Architect, or of thickness as directed by Architect.
2. Acoustical Sealant: ASTM C919, type recommended for use in conjunction with gypsum board.
 - a. Type: Paintable, non-shrinking and non-cracking where exposed, nondrying, nonskinning, nonstaining, and nonbleeding where concealed.

1.6 INSTALLATION

- A. Metal Framing Erection: Erect metal framing in accordance with ASTM C754 and manufacturer's recommendations.
- B. Ceiling Framing Installation: Erect in accordance with ASTM C754 and manufacturer's recommendations.
- C. Gypsum Board Installation: Install in accordance with ASTM C840 and manufacturer's recommendations.

END OF SECTION

SECTION 09510
ACOUSTICAL CEILINGS

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide acoustical ceiling systems, with suspended metal grid system, trim, and accessories as required for complete finished installation.
 - 1. Survey space to determine variation of floor slabs from level. Identify high and low points, and coordinate with Architect in field to establish datum for laying out each ceiling area.
 - a. Ceiling Height in Tenant areas and corridors to be 9'-9" unless otherwise approved by Landlord.
 - 2. Coordinate layout and installation of acoustical ceiling units, suspension system components and accessories with other work supported by, or penetrating through ceilings, including but not limited to:
 - a. Light fixtures.
 - b. Fire and smoke-detection system components.
 - c. HVAC equipment.
 - d. Fire-suppression system components.
 - e. Partitions.
 - 3. Attempt grid layout to align with corridor or existing layout.

1.2 SYSTEM DESCRIPTION

- A. Seismic Design Requirements: Comply with code requirements for seismic bracing of ceiling suspension system, and with ASTM E580.
 - 1. Ceiling Struts: Provide struts as detailed on Drawings and as required by code.
 - 2. Slack Wires: Provide safety slack wires, two per fluorescent fixture on diagonally opposite corners and a single wire for each recessed down light.
- B. Fire Performance Characteristics: Provide products listed by Underwriters Laboratories (UL) or other independent testing laboratory acceptable to applicable authorities.
 - 1. Flame Spread/Smoke Density: Provide products meeting code requirements for maximum 25 flame spread and maximum 25 smoke density.
 - 2. Fire Rated Assemblies: Provide systems rated as part of acoustical material and suspension systems for Floor-Ceiling Assemblies.

1.3 REFERENCES

- A. ASTM C635: Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings.

- B. ASTM C636: Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings.
- C. ASTM E580: Application of Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels in Areas Requiring Seismic Restraint.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Suspension System: Comply with ASTM C635, as applicable to type of suspension system required for type of ceiling units.
 - 1. Grid Systems: Direct hung, steel "T" exposed grid system,
 - a. Fineline 9/16" with 7/8" wall angle.
 - b. Field verification required when matching a specific suite.
 - 2. Attachment Devices: Size for 5 times design load in ASTM C635, Table 1, Direct Hung.
 - 3. Hanger Wires: Galvanized carbon steel, ASTM A641, soft temper, prestretched, yield-stress load of at least three times design load, but not less than 10 gauge.
 - 4. Straps, Tubes and Angles: Provide galvanized steel as required to meet state and local requirements for seismic design loads.
 - 5. Structural Class: Minimum intermediate-duty system.
 - 6. Edge Molding: Manufacturer's standard angle molding for edges and penetrations of ceiling, with single flange of molding exposed.
 - 7. Finish of Exposed Items: Manufacturer's standard white baked enamel.
 - 8. Maximum Allowable Deflection: L/360.
- B. Acoustical Panels: ASTM E1264 type and form.
 - 1. Panels: Rockfon Tropic SLN 1020
 - 2. Sizes: 2'x2'.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Coordinate with other work supported by or penetrating through ceilings, including light fixtures, HVAC equipment and partition systems.

3.2 INSTALLATION

- A. Install acoustical ceiling systems in accordance with manufacturer's recommendations and ASTM C636.
 - 1. Finished Ceilings: True to lines and levels and free from warped, soiled or damaged grid or acoustical units.

- B. Install ceiling suspension system to resist seismic loads as required by state and local codes, including extra hanger wires and compression supports for ceilings and light fixtures.

MARBLE WAINSCOTT

PART 1 – GENERAL

An exact match of the stone wainscot in the common areas on multi tenant low rise floors is not available. The recommended substitute is Quaker Gray available from Tennessee Marble (865-955-9500 or www.tnmarbke.com). Stone sample must be submitted to Owner for approval prior to order and installation.

END OF SECTION

SECTION 10520**FIRE EXTINGUISHERS AND CABINETS****PART 1 - PRODUCTS**

1.1 MATERIALS

A. Fire Extinguishers:

1. Typical: Provide 2A-10BC multi-purpose dry chemical type fire extinguisher.
2. Hazardous Areas: Provide 4A-60BC multi-purpose dry chemical type fire extinguisher at locations designated by Fire Marshal as hazardous.

B. Fire Extinguisher Cabinets:

1. Cabinet Depth: Provide cabinets designed for space available in walls with fire extinguisher cabinets, and of sufficient depth to house 2A-10BC multi-purpose dry chemical type fire extinguisher.
 - a. Hazardous Areas: Provide cabinets designed to house 4A-60BC multi-purpose dry chemical type fire extinguisher at locations designated as hazardous.
2. Frame: Trimless, recessed, door frame flush with finish wall.
3. Metal Gauges: Manufacturer's standard for series specified.
4. Box: Provide manufacturer's standard box with white baked enamel interior finish and baked enamel exterior finish.
5. Doors & Cabinets: Steel, full flush metal panel, with catch; provide thermosetting primer compatible with factory finish white paint.
6. Door Hardware: Continuous type hinge permitting door to open 180 degrees; provide either lever handle with cam action latch, or door pull and friction latch, suitable for use by persons with disabilities.
7. Identification: After installation and finishing is completed, silk-screen or apply decal letters spelling "FIRE EXTINGUISHER" as applicable.
 - a. Letter size, style and location as selected by Architect.
8. Fully recessed in corridors and common areas. Semi recessed in tenant spaces.

END OF SECTION

SECTION 10810**Toilet Accessories****PART 1 - GENERAL**

1.1 SUMMARY

- A. Access for persons with disabilities: Comply with California Building Code and Americans with Disabilities Act Accessibility Guidelines. (ADAAG)

PART 2 – PRODUCTS**2.1 MULTI-TENANT MENS' & WOMEN'S RESTROOMS ACCESSORIES (FLOORS 3-11)**

- A. Vanity mirror : Verify with Property Manager
- B. Coat hooks: Verify with Property Manager
- C. Soap Dispensers: Verify with Property Manager for current product.
- D. Sanitary Napkin Disposal: Verify with Property Manager.
- E. Sanitary Napkin Vending machine: Bobrick / B-2800, satin stainless steel, 25 cent single coin, cat 74 key.
- F. Toilet Tissue Dispenser: Bobrick B-2888 Contura, satin stainless steel.
- G. Towel Dispenser / Waste Receptacle: Bobrick / B-3807Y satin stainless steel. Verify with Property Manager for current product.
- H. Seat Cover Dispenser: Bobrick/ B-4221, satin stainless steel, surface mount. Verify with Property Manager for current product.

SECTION 12490

PERIMETER LOUVER BLINDS AND WINDOW COVERINGS

PART 1 - GENERAL

1.2 SUMMARY

- A. Provide horizontal louver blind and window covering systems with operating hardware, attachments, and accessories as required for complete finished operational installation.

PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. Mecho Roller Shades
- B. Substitutions: Not permitted unless otherwise approved by Landlord.

2.2 MATERIALS

Mecho Roller Shades- See Landlord for Current Specifications.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install louvered blinds in window sash in accordance with blinds manufacturer's recommendations and installation instructions.
 - 1. Provide templates where necessary for preparation of sash for installation of blinds.
- B. Secure in place with flush countersunk mechanical fasteners.
- C. Adjust parts for smooth operation.

END OF SECTION

SECTION 12495
SOLAR-CONTROL FILM

PART 1 - GENERAL

1.1 SUMMARY

- A. Window film is to be applied to exterior windows only with prior written approval from Landlord.

1.2 QUALITY ASSURANCE

- A. Mock-Up: Provide complete full size solar-control film installation in actual window unit; approved mock-up may be incorporated into Project.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Must be submitted to Landlord for approval.

2.2 MATERIALS

- A. Solar-Control Film: *Submit to Landlord for approval.*

PART 3 - EXECUTION

3.1 PREPARATION

- A. Clean glass surfaces to receive solar-control film just prior to application.
- B. Remove dirt, tape, and film substances as required to achieve substrate suitable for application of solar-control film as recommended by solar-control film manufacturer.

3.2 INSTALLATION

- A. Install solar-control film in accordance with manufacturer's recommendations and installation instructions.
- B. Apply solar-control film smooth, clean, and without wrinkles, gaps or overlaps; eliminate air pockets and ensure full bond to wall surface.
- C. Use single sheets of film. Where size of glass exceeds available size of film, install seams at locations as approved on shop drawings, butt edges tightly without gaps or overlaps.
 - 1. Horizontal seams are not permitted at line of sight areas located between 36" above floor to 78" above floor.

END OF SECTION

SHORENSTEIN

235 Montgomery Street, San Francisco

6/23/2021

12495 - 2

SOLAR-CONTROL FILM

SECTION 13130

ROOF ANTENNAS AND SATELLITE DISHES

PART 1 - GENERAL

1.1 SUMMARY

- A. New and relocated roof antennas shall be structurally mounted; satellite dish mounting shall be structurally engineered and permanently mounted to building, no sleds permitted.
- B. Roof antennas and Satellite Dishes are only permitted if specified in Lease. Installation and mounting design must be reviewed and approved by Landlord's Mechanical Engineer at tenant's sole expense.

1.2 SYSTEM DESCRIPTION

- A. Design Requirements: Design structural supports for antenna and satellite dishes in accordance with applicable state and local code requirements.
- B. All cabling related to the installation or relocation of roof antennas, satellite dishes and receiver/transmitters, to be enclosed in conduit and routing of such to be reviewed and approved by Landlord. Conduit to be painted to match adjacent surfaces.

END OF SECTION

SECTION 13850
LIFE SAFETY SYSTEM

PART 1 - GENERAL

1.1 SUMMARY

- A. Contact Landlord for Life Safety Representative's phone number.
 - 1. Contract with Building Life Safety Vendor to: provide, program, supervise connections, and assist in testing life safety components.
 - 2. Current life safety system service and maintenance contractor (CLSSSMC) is testing and maintenance contractor for life safety systems installed in building.
 - a. If CLSSSMC is not contractor for the life safety systems, a final test (with no failures) shall be scheduled with both life system contractor and CLSSSMC.
 - b. This test is required to ensure equipment is operating as required prior to incorporation into building testing and maintenance contractor schedule.
- B. Related Sections:
 - 1. Section 16100 – Electrical work including: conduit, wire, and identification.

1.2 SYSTEM DESCRIPTION

- A. Base Building System:
 - 1. Life Safety System: Honeywell XLS 1000
 - 2. System Components:
 - a. Fire Control Center (FCC/status command center) is located on the first floor main lobby.
 - b. Remote enunciator panel at Lobby security console.
 - c. Front end computer located in the engineering office.
- B. Design Criteria:
 - 1. Design drawings are to be submitted to Landlord for review prior to being submitted to the San Francisco Department of building Inspectors or Fire Department.
 - 2. Fans 2,000 cfm and larger shall have smoke detector in supply air duct, airflow switch, and connection to corresponding life safety system including status.
 - a. Fan and associated dampers shall automatically shut down upon actuation of duct smoke detector.

3. Provide smoke detectors, speaker/strobe devices, tamper switches, water flow switches, and pull stations in locations as specified in NFPA and by Authority Having Jurisdiction (AHJ).
4. Special fire protection systems and Emergency Power Off (EPO) switches, shall report to corresponding life safety system. Coordinate with appropriate trade.
5. Do not overload life safety device loops. Count devices and verify and provide load capacity calculations.
6. Tenant alterations and improvements that exceed standard device and point quantities per floor, which require a base building system upgrade, are the responsibility of the Tenant.
7. All strobe upgrades are required to be connected to the synchronized strobe booster panels.

1.3 SUBMITTALS

- A. Submit life safety system electrical installation drawings to Landlord for review and approval prior to submitting for permit.
 1. General contractor will supply to life safety system contractor a floor plan or reflected ceiling plan showing all special use areas and other special tenant requirements (example: access card entry doors, etc), and Mechanical Drawings on CAD.
 2. Life safety contractor to provide life safety and associated wiring diagrams including layout and location of alarm and signaling, devices, life safety power supplies and connections to existing life safety system to Landlord for review and approval prior to submitting for permit.
 - a. Include layout and location of alarm and signaling and life safety module panels for power connections to life safety system.
 - b. Show location and connection to other devices and equipment included in complete operation of life safety system.
 - c. Show conduit runs, risers, wire counts, and device wiring order.
 - d. Drawings to be stamped by professional engineer licensed in California and completed within five days of receipt of drawings by life safety contractor.
 3. Life safety contractor shall submit life safety drawings to General Contractor. General Contractor shall submit plans to Landlord for review and approval
 - a. Upon approval by Landlord and General Contractor, life safety contractor shall submit plans to City Fire Department, unless otherwise directed.
 - b. Certification by life safety contractor shall be made to building safety vendor upon final testing and approval.
- B. Project Closeout Submittals:

1. Provide evidence of Life Safety Vendor approval of life safety system.
2. Provide Landlord with notification, punch list, and as-built drawings.
3. General Contractor shall coordinate testing with San Francisco Fire Prevention Bureau, Landlord, and life safety contractor.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Initiating Devices to Correspond with Building System:

1. Manual Pull Station: Honeywell #S464A1144.
2. Smoke Detector: #TC806A 1037 or #TC807A 1036
3. Duct Smoke Detector: Honeywell #TC807A-1036

B. Signaling Devices to Correspond with Building System:

1. Alarm Speaker/Strobe: Honeywell #SC812A ½ watt 70.7 volt, white
 - a. Wall mounted combination devices are to be used where possible.
2. Strobe Light: Coordinate with Honeywell for current strobe device schedules.

C. Auxiliary Devices

1. Door Release: Magnetic door holder is to be as specified by Honeywell, compatible with existing life safety system.
2. Airflow switch: Airflow switch for fan status is to be as specified by appropriate system manufacturer, connected to fans as specified in this section.
3. Fan Starter: Fan starter as specified by appropriate system manufacturer.
4. Tamper and Flow Switches: Sprinkler tamper and flow switches are to match existing.
5. Smoke/Fire Damper Actuator: Actuator to control dampers is to match existing.
6. Smoke/Fire Damper End Switch: Smoke/Fire damper end switch for both open and closed status is to match existing.

D. Wire and Cable: Use building wire as specified in Section 16100 – Electrical, #16AWG minimum.

1. Provide conductors with color coded insulation to match existing in corresponding building and for following life safety devices:
 - a. Speaker Wiring. Brown/orange, #16 twisted pair
 - b. Strobes (Class A 4-wire loop). Blue/yellow #12 twisted pair.

- c. Smoke Detection. Red shielded #16 twisted pair, red and black conductors.
 - d. Manual Pull Station. Blue/white #16 twisted pair.
 - e. Sprinkler Flow Tamper. Orange/yellow #16 twisted pair
 - f. 24 Volt. Red/black #14 twisted pair.
2. All Life Safety related wiring to be hard piped in EMT conduit painted red.

PART 3 – EXECUTION

3.1 DEMOLITION

- A. Existing Life Safety System: Make connections as directed by life safety contractor. Maintain existing system in service until new system is accepted.
 1. Disable system only to make switchovers and connections.
 2. Notify Landlord, Building Engineer, manufacturer's representative and local fire service at least 48 hours before partially or completely disabling system.
 3. Minimize outage duration. Make temporary connections to maintain service in areas adjacent to work area.
 4. Provide fire watch when detection or signaling circuits are disabled.
 5. System shall not be left in disabled state.
 6. Demolition of all existing wiring and conduit shall be back to the source.

3.2 INSTALLATION – As per Building's Life Safety Vendor Specifications and Instructions and in compliance with local codes:

- A. Field Connection to Existing Systems: Make connections as directed by life safety contractor.
- B. Trouble alarms, system disables, or supervision alarms are not permitted to remain in the system after the work day is complete. All work must be coordinated with Honeywell to ensure a clear system during construction.
- C. Life Safety Module Panel and Power Supply: Provide remote power supply adequate to power control panel and life safety modules, remote detectors, door holders, smoke dampers, relays, and alarm signaling devices.
 1. Module and power supply will operate strobe lights, according to acceptable voltage drop calculations as calculated by life safety contractor according to NFPA and Authority Having Jurisdiction (AHJ).
- D. Initiating Devices: Install devices in accordance with appropriate system manufacturer's instructions.
 1. Install manual station with operating handle per OSHA and ADA rules and regulations.
- E. Signaling Devices: Install devices in accordance with appropriate system manufacturer instructions.

1. Provide additional signaling devices to meet audibility requirements: Minimum sound level of 75dba or 10dba above ambient noise level, with doors closed, whichever is greater.
 2. Provide additional strobes to meet ADA and UL requirements.
 3. Install audible and visual signal devices as per code above finished floor.
- F. Auxiliary Devices: Install in accordance with appropriate system manufacturer's instructions.
1. Mount outlet box for electric door holder to withstand pulling force as per code.
 2. Make conduit and wiring connections to door release devices, sprinkler flow switches, sprinkler, valve tamper switches, duct smoke detectors, and other devices as instructed by Life Safety Vendor.
 3. Automatic Detector Installation: As per NFPA 72E.
- G. Wire and Cable: Use #16 AWG minimum size conductors for fire alarm detection and #12 AWG for strobe signal circuit conductors.
1. Identify life safety system conduit with painted red stripe.
 2. All life safety J-box covers to be painted red.
 3. Route conduit through corridors to maximum practical extent.
 4. Speaker wiring shall be in separate conduit from strobe wiring and addressable device loop wiring.
 5. Door hold open wiring shall be run in separate conduit from life safety wiring.
 6. Egress door lock release connections for tenant security systems;
 - a. Building's emergency egress door lock wiring shall be interrupted by installation of individual relays located above each door location that is triggered by tenant security system.
 - b. Emergency egress door lock wiring shall not be used by or run through tenant security system devices.

3.2 EXECUTION

A. Testing

1. All testing to be done before 7 am or after 6:00 pm.
2. Any building engineering, security or maintenance costs related to Tenant's life safety system is to be paid by Tenant at Landlord's prevailing rate for labor and materials.
3. Testing shall be scheduled with Landlord at least 2 weeks in advance.

END OF SECTION

SECTION 15300

FIRE PROTECTION

PART 1 - GENERAL

1.1 SUMMARY

- A. Fire Protection system, which shall be pre-engineered or handled as "design-build" contract.
 - 1. Contractor/Design Engineer is completely responsible for verification of design criteria, design, installation and performance of system.
 - 2. Installation contractor shall have a Class C-16 Fire Protection Contractor's License.
 - 3. Extent of base building upgrade fire protection work shall depend upon Tenant criteria, City Fire Marshal and risk insurer's requirements; all of which shall be taken into account.
 - a. Where no special Tenant criteria exists and existing system complies with City Fire Marshal requirements, no upgrade other than sprinkler head relocation shall be required.
 - 4. Design piping and layout of sprinklers for full coverage of tenant improvement area, and verify proper operation of flow and tamper switches serving area.
 - 5. Coordinate with Landlord, Chief Engineer, and with Honeywell for supervision, testing, remote alarm, and trouble monitoring.
 - 6. Include incidental work that can be reasonably inferred and necessary to provide systems described.
 - 7. Coordinate work schedule with Landlord and Building Engineer.
 - 8. No mechanical "T's" shall be installed.
 - 9. All sprinkler work will be required to have a hydrostatic test with water from the fire riser. Testing is to be coordinated with the Building Engineer.
 - 10. Existing base building sprinkler test and drain piping arrangement at fire water riser or stand pipe riser area shall remain unaltered.
- B. Related Sections:
 - 1. Section 13850: Life safety system.

1.2 SYSTEM DESCRIPTION

- A. Design Criteria: Verify following design criteria, available pressure and apply latest NFPA 13 and all local and State Code and Regulation.

1. Occupancy: Office, High-rise building, 31 stories.
2. Hazard: Light hazard.
3. Construction: Non-combustible.
4. Zoning: Looped by floor.
5. Hose Streams: Verify.
6. Existing Application Rate: 0.16 GPM/SF for ordinary hazard, 0.10 GPM/SF light hazard.
7. Existing Area of Application: 1500 SF.
8. Comply with State Building Code, State Fire Code, State Fire Marshal requirements, applicable City codes and requirements, and applicable National Fire Protection Association standards and pamphlets.

B. Existing System:

1. Existing pumped Class II combined standpipe system is used to supply existing fire sprinkler loops on all floors. Risers are located in 4 riser stacks; fire drain riser is located at main stairwell only.
2. Building has fire protection system that consists of combined fire standpipe risers in each stairwell, fire hose valve connections in each stairwell vestibule, floor loops, branch piping, and concealed sprinkler heads.
3. Approval Calculations: Prepare hydraulic calculations of fire protection system.
 - a. Submit to Owner's insurance company and City Fire Department.
 - b. Submit one approved copy from each to Landlord, bearing stamp and/or signature of City Fire Department before proceeding with installations.

1.3 SUBMITTALS

- A. Sprinkler plans and specifications shall be submitted to landlord for review and approval prior to commencement of work.
- B. Certificate of Installation: Submit certificate upon completion of fire protection piping that indicates work has been tested in accordance with NFPA 13, and that system is operational, complete and has no defects.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Piping: Piping and related fittings shall be manufactured domestically and Fire Marshal (FM) and UL approved and stamped.
 1. Pipe shall be black steel, Schedule 40 domestic seamless, conforming to ASTM standard applicable to the required pressure class.
 - a. No Schedule 10 piping shall be allowed.
 2. Fittings are to be threaded ductile iron conforming to ANSI standards applicable to required pressure class.

3. Pipe Supports: Install pipe supports, braces and anchors per NFPA 13 and as required by all local and State Code and Regulation.
 - a. Powder driven concrete inserts shall not be allowed.
- B. Piping Specialties:
 1. Gauges are to be Marsh No. 8, 3-1/2" Dial, 0-300 psi scale, UL listed and approved, 1/4" bottom connection stainless steel bezel.
 2. Flow Switches: Vane tape with adjustable time delays, UL listed, each with two contacts for local and remote alarms. Coordinate with Life Safety System provider for each building.
- C. Sprinkler Heads:
 1. Manufacturer: Viking.
 2. Sprinkler heads shall be Viking Microfast Model M—Quick Response Sprinkler (155 degrees and rated to 175 PSI of working pressure.
 3. Concealed Heads: Viking Horizon Mirage 165 degree F ½ inch Quick Response FM Approved with factory painted white cover.
 4. Newly installed and relocated sprinkler heads are to be placed in center of tile.
- D. Preaction System: Preaction system shall be UL listed and FM approved with battery backup.
 1. Provide required test connection and drain. Test drain shall be connected to main sprinkler drain.
 2. All pre-action systems shall be monitored by building fire life safety system.
 3. Dry piping shall be galvanized.
- E. Fire Suppression System: FM-200 Fire Extinguishing System.
 1. FM-200 Fire Extinguishing system shall be approved by Landlord prior to installation.
 2. All suppression systems shall be monitored by building fire life safety system.

PART 3 – EXECUTION

3.1 INSTALLATION

- A. Existing System: Draining and filling of sprinkler system shall only be performed by Building Engineers. Provide Property Manager and Chief Engineer at least 72 hours notice when requesting drain down of system.
- B. Piping: Install pipe, fittings and hangers in accordance with latest NFPA 13 pamphlet and City Fire Marshal requirements, including seismic sway and uplift bracing.
 1. Reducers: Make reductions in pipe sizes with one piece reducing fitting. Bushings are not acceptable.

2. Except where length of the pipe exceeds 20 feet, do not use couplings.
3. Sprinkler head clearance between deflectors and walls or ceiling shall be in accordance with requirements of latest NFPA Pamphlet No. 13.
4. Vendor to contact Landlord for impairing water supply to existing sprinkler system. Vendor to notify City Fire Department to determine fire safety precautions to be observed during sprinkler impairment, such as fire watches, charged hose lines, etc.
 - a. Contractor shall be responsible for precautions during entire impairment.
 - b. Vendor to contact Landlord to restore system.
 - c. When system is fully restored to normal working order Contractor shall verify control valves are fully opened.
 - d. Sprinkler system impairment shall not involve more than one floor at a time.

C. Sprinkler System:

1. Carry exposed and concealed horizontal lines of pipe on specified hangers properly spaced and set to allow pipe to adjust for expansion and contraction
 - a. Use trapeze hangers for supporting groups of pipes
 - b. Piping in Parallel: Evenly spaced and supported
2. Conceal piping in ceilings, furred walls and partitions and pipe spaces, except where specifically noted otherwise.
 - a. Check piping runs beforehand and with existing services to insure clearance
 - b. Provide maximum head room to clear openings in exposed areas.
 - c. Run piping in strict coordination with mechanical ducts and equipment, structural, and architectural conditions
 - d. When other work prevents installation of piping, reroute piping.
 - e. Verify inverts and pitched lines of other trades and contractors before starting work.
3. Where exposed pipe is permitted, install parallel to or at right angles with building walls and tight to walls or columns where possible
4. No valve and no piece of equipment or trim shall support weight of any pipe
 - a. Install valves and other trim in accessible locations.
5. Pressure Gauges: Install in supply line and drain line along with test port indicator in main stairs
6. Newly-installed and relocated sprinkler heads are to be placed in center of tile

3.2 CLEANING

- A. After fire sprinkler piping installation has been completed, flush system under pressure as required by NFPA 13.

3.3 FIELD QUALITY CONTROL

- A. Site Tests: Test installation in accordance with following requirements and applicable codes
 - 1. Notify Building Engineer and Landlord in writing at least three days in advance of any test.
 - 2. Perform testing in presence of following persons:
 - a. City Fire Department Inspector.
 - b. Fire Marshall.
 - c. Chief Engineer.
 - d. Life Safety subcontractor's representative.
 - 3. Test piping at no less than 200 psig pressure or 50 psig above system static operating pressure, whichever is greater.
 - 4. Perform operational and alarm test under simulated service conditions.
 - 5. Coordinate testing procedures with Building Engineer.
- B. Tests Certificates and Approvals: Submit to Landlord certificates, in triplicate, indicating approval of Work, performance of tests, and final inspection issued by Fire Marshal before final acceptance of sprinkler system.

END OF SECTION

SECTION 15400**PLUMBING****PART 1 - GENERAL**

1.1 SUMMARY

- A. Plumbing work is to depend upon actual alterations and improvements that have to be performed. However, a minimum scope of work for a typical tenant is to include all functions listed below:
1. Prepare design drawings based upon proposed tenant layout.
 - a. Obtain building permit for construction using design drawings.
 2. Reroute existing and provide new piping as required.
 - a. Provide seismic restraints required by Code, or this Specification, for all equipment, pipe and materials furnished under this Section.
 - b. Contractor is responsible for design of restraints and for proof of adequacy of restraints.
 3. Add, relocate or remove existing plumbing fixtures. Plumbing to be capped shall have water, vent, and waste lines at floor below removed back to source.
 - a. Install plumbing fixtures per California Code of Regulations, Title 24, Part 2, requirements for access for persons with disabilities.
 4. Notify Building Engineer prior to any core drilling, and X-ray floor if requested by Landlord. All coring and x-raying shall be performed after hours or as directed by Landlord.
 5. A burn permit card shall be obtained from the Building Engineers office prior to commencement of soldering.
 6. Tenant Data Closets – All Tenants with water-cooled air conditioning systems within their space are to furnish and install a building standard leak detection sensor (s) that is connected to the buildings leak detection system AND provide manual shut-off valves to be able to stop the water flow to their individual system (s). The shut-off valves are to be easily accessible without a ladder. Cross-reference HVAC Section 3.3 BEMS INTERFACE Section.
 7. Tenant Kitchen Equipment – All Tenants are to furnish and install a building standard leak detection sensor in locations within the kitchen that will sense leaks that occur from any source that uses water which includes but is not limited to; refrigerators, dishwashers, coffee makers, filter systems, etc. Consult Chief Engineer for sensor specifications and where sensors should be located. Cross-reference HVAC Section 3.3 BEMS INTERFACE Section..

8. Private Restrooms – All Tenants are to furnish and install a building standard leak detection sensor (s) in any private restrooms within their space. Each sensor shall be connected to the building leak detection system for monitoring. Consult Chief Engineer for sensor specifications and where sensors should be located. Cross-reference HVAC Section 3.3 BEMS INTERFACE Section.
 9. Review drawings with Landlord and Chief Engineer prior to construction.
 10. Arrange for necessary inspections, pay fees for inspections, and turn over copies of inspection reports and certificates to Landlord.
- B. Submit request and schedule for disruptions to Landlord and Engineering at least 48 hours in advance.
1. Water interruptions are to be scheduled after normal business hours to prevent disruptions to other tenants.

1.2 SYSTEM DESCRIPTION

- A. Building is provided with multiple wet columns with 3" waste, 3" vent, and 1" domestic cold water stub-outs and 1" tempered water at each floor of building for future lavatory or sink connection only.
1. Domestic water is distributed within building by domestic water booster pumps located on Basement Level, to PRV stations located on the 18th Floor and 31st Floor.
 2. Water piping serving core area shall not be tapped into for tenants' use.
- B. Building provides cold and tempered water to public restrooms only. If Tenant requires hot water, provide instantaneous electric type tankless water heaters for hot water within Tenant kitchen/break room at point-of-use.
- C. Design Criteria:
1. New plumbing installation shall drain and vent to the same riser system that cold and tempered water is provided from.
 2. Existing building lavatory or sink angle stop valves shall be replaced with any and all lavatory or sink work.
 3. Soil, Waste and Vent System shall be per California Plumbing Code, Latest Edition and applicable local regulations.
 4. Water Piping: Size piping per California Plumbing Code, Latest Edition. Limit velocities 5 feet per second and friction loss to no more than 8 feet per 100 feet.
 5. Gas Piping: Size per California Plumbing Code, Latest Edition.
 6. Plumbing design drawings and calculations shall be signed by a competent registered mechanical engineer in the State of California.
- D. Restroom Standards

2.1 MATERIALS

- A. Piping: Pipes and fittings are to be domestically manufactured.
 - 1. Sanitary, waste/soil and vent piping aboveground, is to be cast iron, standard weight, no-hub joint, with neoprene sleeve and stainless steel band.
 - 2. Domestic water piping is to be Type "L" hard copper throughout.
- B. Piping Accessories:
 - 1. Clean-Outs:
 - a. No-hub cast iron pipe cleanouts are to be permitted in horizontal drainage piping.
 - b. Provide wall or floor covers for cleanouts in concealed piping.
 - c. Provide polished chrome-plated escutcheons in finished rooms, and polished brass in other areas.
 - 2. Fittings:
 - a. Fittings for use with sanitary waste/soil and vent piping are to be coated, cast iron, no-hub type with mechanical joints of stainless steel band with neoprene sleeve.
 - b. Fittings for use with domestic water piping are to be wrought copper solder joint ANSI B16.22.
 - c. Brass screwed fittings are to be Schedule 40, flat band, IPS with no plain couplings permitted.
 - d. Make joints in brass pipes without the use of lamp wick or filler except "utility compound" or Permacel Teflon tape may be applied to male threads only. All are to be reamed.
 - e. All pipe and fittings are to be domestically manufactured.
- C. Valves: Valves and valve construction shall be suitable for the pressure, temperature, and fluid quality of the service in which they are to be used. Valves shall be domestically manufactured.
 - 1. Cold and Tempered Water Valves: ½"-3" Stockham, NRS Gate, Bronze, union bonnet, threaded, figure B-130.
 - 2. Ball Valves: 1/2"-2" Stockham, two-piece, threaded, figure S-214-BR-R-T-T.
 - 3. Vacuum Breakers: Watts No. 800.

D. Water Heaters:

1. Tank less water heaters

(e.g. Chromomite Model SR-30-277V or Model E-46LLP) or Building Standard.

2. Tank water heaters

Model and installation shall be approved by Chief Engineer. Automated water leak detection and shut –off system is required – Flood Stopper™
www.thefloodstopper.com or Equal.

- a. Sensor to be located in water heater containment pan or other potential problem areas. Locations to be approved by Chief Engineer. Wireless or hardwired is acceptable.
- b. Location of control panel to be approved by Chief Engineer.
- c. Shut-off valve to be located on supply line for water heater.
- d. Local alarm to be provided.
- e. Installation to be inspected and approved by Chief Engineer prior to acceptance.

E. Insulation:

1. Materials shall have flame spread/smoke developed rating of 25/50 or less in accordance with ASTM E84, NFPA 255 and UL 723. Thickness shall be in accordance with Title 24 energy regulations.
 - a. Domestic tempered water and refrigerated water mains and branches are to be fiberglass, rigid molded, non-combustible.
2. Insulation Jackets: Domestic tempered and refrigerated water pipes are to be all service 24 ASJ/SSL, fire retarding vapor barrier, factory applied, stapled.
3. Pipe Protection Saddles are to be Insul-coustic Div., Insul-Shield Model 704 or Pipe Shields, Inc., Model A1000 or A2000.
4. Pipe Protection Saddles are to be Insul-coustic Div., Insul-Shield Model 704 or Pipe Shields, Inc., Model A1000 or A2000.

PART 3 – EXECUTION

3.1 INSTALLATION

- A. Rough-In and Final Connection: Contractor is to provide rough-in and final connection for all fixtures and equipment requirements.
 1. Contract Drawings are to indicate general arrangement of required rough-in, however, details and dimensions are to be determined from information obtained from supplier of item.

2. Requirements apply equally to equipment furnished by Tenant or other Contractors.
 3. Fasten plumbing fixtures securely to required supports or building structure; and ensure that fixtures are level and plumb.
 4. Secure plumbing supplies behind or within wall construction so as to be rigid, and not subject to pull or push movement.
 5. Support piping independent of wall construction.
 6. Waste water line from a dishwasher shall pass through the code required listed air gap and shall terminate to an industrial grade in-sink garbage disposal unit. Submit to the Landlord disposal unit submittal data for approval.
- B. Piping: Conceal piping in walls, furred spaces, pipe spaces or above suspended ceilings as shown on Drawings.
1. Group piping wherever practical and install uniformly in straight parallel lines, squarely with building lines.
 2. Contractor is to support horizontal piping with pipe hangers. Do not use perforated metal tape. Install and secure piping so that tempered and cold lines and lines of dissimilar metal are not in contact.
 3. Contractor is to verify equipment dimensions and requirements for rough-in work. Bending or offsetting of finished piping connections and "cocking" of fittings or trim will not be acceptable. Do not support any piping weight from equipment.
 4. Contractor is to install sanitary piping according to the following guidelines:
 - a. Install piping at the uniform grade, making all joints close and square.
 - b. Maintain a minimum 1/4" fall per foot on all waste lines.
 - c. All waste lines and fittings are to be no less than 17-gauge brass or chrome-plated tubing material.
 - d. Acid or chemicals of any nature are not to be dumped into the Sanitary System.
 5. All potable water piping is to have copper joints with 95-5 Tin-Antimony or other non-lead solder.
 6. All piping, fittings, escutcheons, valves, supports, hangers, etc. where installed in conjunction with plumbing fixtures or benchwork-containing items requiring plumbing connections, are to be chrome-plated where exposed to view.
 - a. The term "exposed to view" is to apply to all piping from the point that it leaves the wall, ceiling or floor construction to the point of final connection to the fixture.
 - b. Piping built into fixed benchwork with concealing doors is not considered exposed.

7. Contractor is to provide 12"- long air chambers (full pipe size) or Nibco Model 620L on all hot and cold water connections to fixtures.
8. Contractor is to install a set of shut-off ball valves whenever making connections into wet columns. Valve future outlets are to be left no less than full size of tee coming off said riser.
 - a. Piping is not to be permitted to be up sized after connecting to wet column.
 - b. All waste lines are to have no less than full-size futures.
9. Copper piping will be used for all domestic water lines to Tenant owned appliances, such as water filters, coffee machines, icemakers, refrigerators, etc.
10. Copper tubing will not be allowed.

C. Hangers and Supports

1. Contractor is to use Superstrut or Grinnell hangers and structural attachments. Install properly braced for seismic restraint and spaced as follows:
 - a. $\frac{1}{2}$ " – $\frac{3}{4}$ " for 5'- $\frac{3}{8}$ " minimum rod size
 - b. 1" – 1 $\frac{1}{4}$ " for 6'- $\frac{3}{8}$ " minimum rod size
 - c. 1 $\frac{1}{2}$ " - 2" for 8'- $\frac{3}{8}$ " minimum rod size
 - d. 2 $\frac{1}{2}$ " - 3" for 8'- $\frac{1}{2}$ " minimum rod size
 - e. 4" for 8'- $\frac{5}{8}$ " minimum rod size
2. Contractor is to use cadmium plated or galvanized hangers, attachments, rods, nuts, bolts, etc.
3. Contractor is not to burn or weld structural members without Landlord's approval.
4. Contractor is to provide 19 gauge galvanized steel sleeves when pipes pass through partitions, walls, floors, concrete slabs. Sleeves are to be 2" larger than the pipe and extend 2" above floor slabs.
 - a. On Non-rated walls seal annular space with fiberglass.
 - b. On Fire walls seal with UBC approved and UL listed fire stopping system with the same "F" and "T" rating as the firewall.
5. Contractor is to support hangers by attaching hangers to existing steel beam, or where such is lacking, by providing auxiliary structural support consisting of channels, angles or Unistruts. Do not use expansion shields. The rods on all hangers are to be of adequate size to support the load they carry.
6. Contractor is to support no-hub cast iron pipe with a minimum of two hangers per each length of pipe.
 - a. Hangers are to be installed on each side of joint. Where an excessive number of fittings are installed between hangers, provide additional hangers.
 - b. Securely anchor fittings to building construction at changes of direction to eliminate horizontal movement.

D. Insulation:

1. For cold service, longitudinal laps and 4" vapor barrier strip at butt joints shall be sealed with BP 85-20, white and seal off ends of pipe insulation at valves, fittings and flanges and at 21' of continuous runs with BF 85-20 or IC-225.
2. Seal vapor barriers and make continuous through hangers, sleeves, etc.
3. Domestic Tempered Water Service: Use pre-molded glass fiber covers on all fittings and valves. Insulate fittings with OC 110 insulation cement to a thickness equal to the adjoining insulation.
4. Contractor is to finish fittings and valves with open-weave glass cloth applied with BF 30-36 adhesive on hot service.
5. For Cold Service (Domestic Refrigerated Water) contractor is to install a vapor barrier on fittings and valves consisting of open-weave glass cloth applied with BF 30-35 adhesive and finished with a flooding brush coat of the same adhesive.
6. Fasten insulation with aluminum bands on approximately 18" centers at all fittings and valves.
7. Protect insulation on tempered pipes from hangers and guides by pipe protection saddle soldered to the pipe and filled with pipe insulation or insulating cement. Saddles are not to be welded to pipe hanger or support.
8. Protect insulation on cold pipes from hangers and guides by 180 degrees galvanized steel saddle on outside of insulation and vapor barrier.

E. Vacuum Breakers: Install pressure vacuum breakers 12" above the highest outlet they are protecting.

1. Install accessibility for periodic testing and assure unit will not become inoperative if subjected to long periods under pressure.
2. Vacuum breakers are to render positive protection against back-siphonage and incorporate a check valve and vacuum relief with inlet discharge shut-offs and field-testing cocks in one assembly.
3. Vacuum breakers are to be rated to 150 PSI working pressure and are to withstand water temperatures of 170 degrees Fahrenheit.
4. Check, gate and globe valves, nipples and other fittings are to conform to piping material in which they are installed.
5. Vacuum relief valves are to be of brass construction with spring-loaded diaphragm member to assure positive opening of air inlet when back-siphonage occurs.
6. Plumbing fixtures are to have their own sets of shut-off valves.

3.2 FIELD QUALITY CONTROL

- A. Site Tests: Contractor shall test all systems in accordance with applicable codes, regulations, and ordinances.

1. Test drains, waste and vent piping as follows:
 - a. Test system to hydrostatic pressure equivalent to at least 10' head of water.
 - b. After filling, shut off water supply and allow water to stand two hours under test, during which time there is to be no loss or leakage.
 2. Test water distribution systems to pressure of at least 50 PSIG higher than their normal operating static or street main pressure; minimum test 150 PSIG. Run test for two hours with no loss in pressure.
 3. If any test shows work to be defective in any way or at variance with specification requirements, make necessary changes and remedy defects.
 4. Test piping systems after installation and prior to being put to use, covered or concealed by insulation or building construction.
 5. Provide results of testing to Landlord.
 6. Plumber is to furnish and pay for all devices, materials supplies and labor required in connection with tests.
 - a. Plumber is to make tests in presence and to satisfaction of Landlord, Plumbing Engineer and other inspectors of the City, applicable insurance association and public utilities inspectors having jurisdiction.
 - b. Plumber is to notify Landlord and Chief Engineer at least 48 hours in advance of making required tests so arrangements may be made for their presence to witness tests.
- B. Inspection by Chief Engineer: Contractor is to notify the Landlord at least 48 hours in advance of completion of construction.
1. A walk-through and punch list is to be scheduled for Landlord and/or Chief Engineer to review installation for conformance with approved construction documents and Tenant Construction Standards.
 2. All floors are to be x-rayed and approved by Chief Engineer prior to any core drilling.

3.3 CLEANING

- A. Contractor is to thoroughly blow out, rod out or wash out piping at least twice before final connections are made and before operation of equipment and piping.
- B. Method is to be in manner as directed and/or approved by Chief Engineer to remove accumulation of dirt, chips or other harmful material.
- C. Contractor is to snake out existing waste lines back to stack.

3.4 STERILIZATION OF PIPES

- A. After preliminary purging, cleaning, and flushing of the system, chlorinate entire potable domestic water system in accordance with current recommendations of

American Water Works Association and in accordance with pertinent state and local health codes and regulations.

1. Chlorinate only when prescheduled and provide proper warning signs at outlets.
2. Upon completion of sterilization, thoroughly flush entire potable water system and immediately fill system.
3. When sterilization and flushing are complete, arrange with pertinent agencies for required tests on piping system.

END OF SECTION

SECTION 15700**HVAC****PART 1 - GENERAL**

1.1 SUMMARY

- A. Scope of HVAC work for tenant shall depend upon actual alterations and improvements to be performed. However, minimum scope of work for typical tenant shall include functions outlined below.
1. Design and Drawings: Calculate HVAC loads and prepare new design drawings based upon proposed tenant layout.
 2. Use available air quantities from base building system.
 3. Provide copy of professional engineer licensed in California. Stamped plans to Landlord for review and approval.
 4. Obtain building permit for construction for same approved scope of work.
 5. Coordinate demolition with Landlord and/or Chief Engineer (or designee) to maintain integrity of building systems.
 - a. Costs for repair of damage to building systems and unauthorized interruption of building services shall be charged to Tenant/Contractor as applicable.
 - b. Contact Chief Engineer or designee to examine parts before disposal.
 - c. Demolish and remove from premises items not to be reused in new design.
 - d. Prior to the demolition of any wall, which contains an existing thermostat, contact the Chief Engineer for the procedure to safe-off thermostat and associated wiring.
 6. Reroute existing and provide new duct runs as required for Project.
 7. Provide acoustically lined transfer air duct boot with ends turned up to create proper return air path in areas enclosed by full height (slab to slab) walls. Transfer air boot shall be sized at no more than 500 FPM air velocity.
 8. Add new heating water piping if needed to serve Tenant space.
 - a. Add new condenser water piping if needed to serve Tenant space. Extend new futures of equal size and install isolation valves in manner that allows dedicated shutdown without the interruption of existing tenants.
 9. Add, relocate and remove air outlets.

10. Provide new thermostats and controls as required to meet current building standards.
 11. Provide new VAV boxes if new layout requires additional HVAC zones complete with heating water reheat coil (where required for perimeter zones) and necessary controls.
 - a. HVAC zones are not to be split between two suites.
 12. Adjust and balance air and water system to obtain designed performance and provide independent written report.
 - a. Submit copy of field hand written report to Landlord and Engineering Department prior to technician leaving premises after conducting balance.
 13. Odor producing activities including but not limited to photo processing, printing, copying, food preparation or storage shall have adequate ventilation and exhaust to prohibit odors or elevated levels of contaminants from entering other tenant spaces, public spaces, non-public spaces, and adjacent properties.
 - a. Special ventilation, exhaust and pollution control equipment may be necessary.
- B. Exhaust from tenant space terminating to outside of building shall be approved by Landlord.
1. Plans showing complete exhaust duct routing and termination point shall be submitted to Landlord office for approval.

1.2 SYSTEM DESCRIPTION

- A. Air Cooling: Air Conditioning for floors 12 through 16 consists of two self contained VAV Air Handling units per floor. Floor 23 is served by one VAV air handling unit with dedicated air cooled chiller located outside on adjacent roof.
1. Air on these floors is distributed to different zones on floor through VAV terminal units
 2. Ceiling outlets are perforated face ceiling diffusers
 3. Return air distribution from floor is through plenum.
 4. Except for floors 12 through 16, floor 23 and partial 3rd and 4th floors, no other floor has any means of air cooling.
 5. 3rd and 4th floor north wing is served by water cooled chiller located on 2nd floor garage
 6. Air handling system is a constant volume with reheat coils
- B. Heating: Steam fin tube radiators provide perimeter heating on all floors.
1. On floors 12 through 16 and floor 23 VAV terminal unit controller provides heating control for the steam radiators as well

2. On un-air conditioned floors, radiators shall have or be upgraded with building standard pneumatic actuator and thermostat.
3. Radiator Systems: Radiator removal and radiator relocation is prohibited. Special relocation or removal shall be submitted for review and approval.

1.3 SUBMITTALS

- A. Prior to commencing work, mechanical contractor shall assist General Contractor in submitting to Landlord required documentation including following.
 1. Landlord approved construction documents.
 2. Construction permit.
 3. Include City and Fire Department variations granted for Project.
- B. Mechanical contractor shall submit a written request and schedule for disruptions to buildings services no less than 72 hours in advance.
- C. Contractor shall review equipment and material submittals prepared by suppliers, verify compliance with Construction Standards, mark copies as acceptable, and submit to Architect. After Architect's approval, submit three (3) sets of approved documents to Landlord and Engineering Department.
- D. Project Closeout Submittals: Prior to Landlord final inspection and acceptance of construction, Contractor shall be required to provide following documentation to Landlord.
 1. Two complete sets of operating, maintenance and installation manuals.
 2. One set of complete, reproducible as-built (and CD with latest CAD version) drawings including control and wiring diagram: Drawings shall contain key map of floor with tenant location and summary of CFM and GPM used from base building systems.
 3. Two (2) bound air and water balance reports approved and stamped by Mechanical Engineers. Balance reports shall include:
 - a. Variable air volume box address for reference.
 - b. Detailed readings for each outlet for each VAV balanced including design and actual readings (both minimum and maximum).
 - c. The size and flow coefficient of each VAV box.
 - d. Supply and return water temperatures and flow rates.
 - e. Where applicable, heating hot water flow and discharge air temperature at maximum heating.
 - f. Floor plan of space balanced showing box and outlet locations.
 4. All equipment including, but not limited to, heat pumps, VAV boxes, exhaust fans, etc. shall be labeled consistent with existing label system.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Fin tube Radiators (steam)

1. New fin tube radiator shall be low pressure 2 feet, 2 tier slant/fin type.
2. Floors having air conditioning:
 - a. Fin tube radiators shall have ddc actuators and control valves.
 - b. DDC control valves shall be for low pressure steam, linear modulation with pressure drop not to exceed 3psi.
3. Floors without air conditioning:
 - a. Fin tube radiators shall have or be upgraded with building standard pneumatic actuator and thermostat.

B. Ductwork:

1. General: Ductwork shall be low pressure (0.06" per 100') galvanized sheet metal in accordance with latest edition of the SMACNA duct manual and ASHRAE guide.
 - a. Seal transverse and longitudinal joints of ductwork to comply with CAC Title 24.
 - b. Seal duct joints using Hard cost PS-S tape or DT tape and HD-20 adhesive as recommended by manufacturer.
2. Flexible Ducts: Thermaflex or Genflex flexible sound absorbing ducts with outer plastic liner, R-4 insulation, helical support wire and scrim cloth inner liner. Liner shall be black.
 - a. Flexible ducts shall be UL Class I air ducts shall comply with UL-181, NFPA 90A and 90B, and shall be approved by the City of San Francisco maximum flexible duct length shall be 6'-0" and no more than one long radius 90 degree elbows shall be allowed.
 - b. Flexible duct may be used at end of runs only.
3. Seismic Flexible Duct: Same as flexible ducts. Provide at round duct crossing building seismic joints. Length of duct to be determined by the seismic joint displacement.
4. Kitchen Hood Exhaust Ducts: Grease ducts serving a Type I hood shall be No. 16 gauge steel or No. 18 gage stainless steel as required by duct size in accordance with San Francisco codes and California Mechanical code.
 - a. Continuously weld longitudinal joints.
 - b. Weld all transverse joints and reinforcing angles.

- c. Do not cross-break bottom panels of duct.
- C. Air Terminal Units:
- 1. Single Duct, Variable Air Volume Terminal Units:
 - a. Manufacturer:
 - 1) Titus Model DESV or approved equal.
 - b. Casing: Minimum 22 gage galvanized steel, internally lined with 1" thick dual density glass fiber insulation that complies with UL 181, NFPA 90A, and ASTM G21 and G22.
 - 1) Casing Air Leakage: Not more than 2% at 3" W.G. static pressure.
 - c. Damper: Heavy gage steel with shaft rotating in Delrin or bronze oilite self-lubricating bearings.
 - 1) Shaft shall be clearly marked on end to indicate damper position.
 - 2) Damper shall have mechanical stops to prevent overstroking, and synthetic seal to limit close-off air leakage to maximum of 3% at 3" W.G. static pressure.
 - 3) Terminal units shall be capable of normal operation at minimum of 0.75" static pressure.
 - d. Due to building capacity and systems, use or reuse of installed building VAV's must be coordinated with Chief Engineer.
 - e. Provide 8 feet minimum acoustically lined (1" duct liner) plenum downstream of all VAV terminal units.
 - 2. Actuators and Controls: Provide digital electronic actuators, flow analyzers and controls as required.
 - a. All controls must be compatible with existing Honeywell control system.
 - b. Controls must be capable of modulating and sensing air flow between zero and maximum cataloged cfm.
 - c. Units shall be field adjustable.
 - d. Temperature sensors shall have communications port for field service, no temperature display, no local control, and compatible with existing control system.
 - e. All building automation system work to be performed by Honeywell to match operations and graphic interface of existing building. Contact property management for contact information.

- f. VAV controllers shall provide control signal to steam radiator control valve actuator. (minimum of 8)
3. Communication wiring to be routed to match existing. All new VAV terminal unit installations require a connection to an existing or new LAN trunk as well as a control power circuit. Field verify existing conditions and design to meet Tenant requirements.
4. Reheat Coils: Reheat coils shall be made of seamless copper tube with aluminum fins mechanically bonded to coils and shall be rated for required working pressure at floor on which they are installed. (Minimum 2 row coil is required).
 - a. Install to meet manufacturer's recommendations.

D. Air Outlets:

1. Supply Air Outlets: New air outlets shall be 24" by 24" perforated face ceiling diffusers with square neck and integral dampers.
 - a. Provide round to square transitions if round duct is used.
 - b. Manufacturer:
 - 1) Titus/Model PSS for narrow tee ceiling system.
 - c. New linear slot diffusers shall be Titus/Model ML-39-NT or match existing with 1" slot for narrow tee ceiling system.
2. Return Air Outlets: New return air outlets shall be 24" by 24" perforated face ceiling grille with 22" by 22" neck.
 - a. Manufacturers:
 - 1) Titus Model PAR, or approved substitute.
 - b. New and reused perforated face grilles shall be provided with flex duct.
 - c. Interior of diffuser to be black.
3. Kitchen Air Outlets: New supply, return and exhaust air outlets located within kitchen area shall be constructed of aluminum of same types as noted above.

E. Duct Specialties:

1. Flexible duct connections are to be Vent-Glas by Vent-Fabrics, Inc. Install at AC units or ceiling fans to maintain not less than 2" metal to metal separation.
2. Turning vanes are to be Double thickness, air foil type.
3. Duct Access Doors are to have Ruskin/Model ADH 22.

4. Concealed Damper Regulators are to be Ventlock Model 677 with miter gears and rod attachment, as required.

F. Dampers:

1. Balancing Dampers shall be as follows:
 - a. Provide single or multi-blade balancing dampers constructed per SMACNA/ASHRAE recommendations.
 - b. Provide hand locking quadrant and install where required for proper operation. Provide ribbon at each damper for easy identification.
2. Fire Dampers to be UL listed and California Fire Marshal approved and shall comply with the latest UL and Fire Marshal testing criteria.
 - a. For supply Air, Fire Damper shall be Ruskin DIBD2 Style B.
 - b. For Return Air, Fire Damper shall be Ruskin DIBD2 Style B.
3. Combination Fire/Smoke Dampers (FSD) are to be as follows:
 - a. California Fire Marshal approved, UL listed per UL 555 and UL 555S leakage Class I and 350°F elevated temperature rating.
 - b. Heavy 13 gauge equivalent frame construction.
 - c. Low pressure drop airfoil blades.
 - d. Firestat.
 - e. Damper electric actuator, power open – fail close type, heavy duty, low noise and non-stall type.
 - f. Manufacturers:
 - 1) Ruskin FSD60 or approved equal.
 - g. FSD shall be installed with remote position indicating contacts wired to report back to Life Safety Panel.

G. Water Source Heat Pump Units:

1. Manufacturer
 - a. Florida Heat Pump: EC Series R-410A.
 - b. Liebert Mini-Mate2, to be used only for computer room supplemental cooling.
 - c. Or Building Approved model.
2. Units shall be horizontal mounted, 277/480v.s
3. Factory assembled packages to be completely piped, wired and charged with refrigerant requiring only power, control, and piping connections.
 - a. Heat Pumps shall be of extended range model for 45 - 90 degrees F entering condenser water.

2. Valves: The use of gate valves is not permitted.
 - a. Manufacturers:
 - 1) NIBCO.
 - 2) Crane.
 - 3) Stockham
 - 4) Grinnell.
 - b. Hand valves 1/2" through 2" are to be full port ball valve, threaded, 2-1/2" and above are to be butterfly, lug type with infinite throttling and memory stop handle.
 - c. Balance valves 1/2" through 2" are to be Ball valves, 2-1/2" and above are to be plug valves.
 - d. Flow Balancing Device is to be Bell & Gossett or Building Standard circuit setter. (Pressure rating as required.)
 - e. Condenser water loop shall be equipped with Griswold pressure independent flow control valves.
 - f. Thermometers and Wells are to be Weksler Model 5AA, 5" diameter, with appropriate temperature scale according to application. (Pressure rating as required.)
 - g. Pressure gauges are to be Weksler EA14 or equal, 4-1/2" diameter. (Pressure rating as required.)
 - h. For Temperature and Pressure Test Station use Peterson Engineering Company, 1/4" or 1/2" MPT "Pete's Plug" with solid brass fitting cap. (Pressure rating as required.)
 - i. Air Vents are to be Lunkenheimer #1778 - 3/8 manual. (Pressure rating as required.)
 - j. Strainers are to be Muessco, Armstrong "Y pattern with blow-off hose valve and hose adapter. (Pressure rating as required.)
 - k. Seismic Fittings: MetraFlex/MetraLoop with copper sweat end fittings. Provide at pipe crossing building seismic joints. Model number to be determined by seismic joint displacement.
- K. Pipe and Ductwork Insulation:
 1. General: Comply with State Code of Regulations, Title 24 or code energy regulations.
 2. Manufacturers:
 - a. Owens-Corning Fiberglass.
 - b. Knauf.
 - c. Manville.

- d. Certain-Teed.
 - 3. Ductwork Insulation: Glass fiber, flexible, non-combustible blanket with vapor barrier jacket bonded to aluminized foil.
 - 4. Ductwork Liner: Glass fiber liner, flexible, non-combustible blanket with permacote coating, ASTM G21 and G22.
 - 5. Pipe: Fiberglass, rigid and pre-molded, non-combustible, with all-service jacket with self sealing longitudinal laps and butt strips.
 - 6. Pipe Insulation Protection Shield: Waterproofed hydrous calcium silicate insulation impregnated with silicon solution, incased in a 360 degree, 18 gauge by 6" long galvanized sheet metal shield.
- L. Identification:
- 1. Self-Adhesive Markers: W. H. Brady Co. or Westline Products.
 - 2. Semi-Rigid Plastic Markers: Seton Name Plate Company.
 - 3. Or Building Approved model.

PART 3 – EXECUTION

3.1 INSTALLATION

- A. Duct Installation: Install ductwork and dampers according to SMACNA standards. Ductwork shall be routed as tight to structure as possible. Provide ribbon at each manual balancing damper for easy identification.
- 1. Provide supports and seismic bracing per latest SMACNA Manual "Guidelines for Seismic Restraints of Mechanical Systems".
 - 2. Combination Fire/Smoke damper shall be installed as required by City of San Francisco.
 - 3. Fire dampers and Fire/Smoke dampers shall be installed according to California State Fire Marshal and City of San Francisco Fire Marshal and exactly as tested by UL to develop fire ratings.
 - a. Provide 18" by 12" minimum access doors in ductwork and furring.
 - 4. Internal linings, flex ducts and adhesives shall be labeled in accordance with UL 181 Standard for Safety.
 - 5. Provide return air grilles to allow free passage of return air above ceiling to mechanical room or return air shaft.
 - a. Strategically place return grilles to promote cross ventilation, even temperature distribution, and compensate for solar load. Coordinate locations with Chief Engineer or designee.

6. Provide return air openings using acoustically lined (1" duct liner) transfer air boots with ends turned up (with Fire Dampers, Fire/Smoke dampers, if required) in Tenant demising partitions.
 7. Install air system to conform to ASHRAE recommended noise criteria for private offices. Noise criteria shall be based upon finishes of actual furnishings in Tenant space (partition, floor, furniture type).
 8. Maximum flexible duct length shall be 6'-0" and no more than one radius 90° elbow shall be allowed. Flexible duct is only permitted for end runs.
 9. Extend make up air ducts for electrical rooms so that they are ducted to a return grill inside the tenant space.
 10. Extend make up air duct from restrooms so that it is tied to interior VAV box and a return grill inside tenant space. Balance distribution of air so that it does not create an excessive negative pressure condition in public restrooms.
 11. Kitchen Hood Exhaust Duct:
 - a. Installation shall be in accordance with latest versions of State California Mechanical Code, NFPA, and City of San Francisco requirements.
 - b. Provide access doors at each change in direction and at intervals to provide for adequate inspection and cleaning.
 - c. Slope duct minimum 1/4" per foot down toward hood. For horizontal duct exceeding 75 feet in length, slope duct a minimum 1" per foot down toward hood or an approved grease reservoir.
 - d. Duct from point of penetration of ceiling, wall or floor to outside air shall have a fire-rated enclosure to be provided by the General Contractor.
 - e. Seal duct enclosure around duct and vent to outside through weather protected openings.
 - f. Separate enclosure from duct by at least 3" and not more than 12". Enclosure shall serve single grease exhaust system.
- B. Piping Installation: Piping, joints, valves, piping specialties, pump casings, AC unit coils, etc. shall be suitable for the building pressure zone at floor on which they are installed.
1. Contractor is to use superstrut or Grinnell hangers and structural attachments. Install properly braced for seismic restraint and spaced as follows:
 - a. 1/2" – 3/4" for 5'-3/8" minimum rod size
 - b. 1" – 1 1/4" for 6'-3/8" minimum rod size
 - c. 1 1/2" - 2" for 8'-3/8" minimum rod size
 - d. 2 1/2" - 3" for 8'-1/2" minimum rod size
 2. Use cadmium plated or galvanized hangers, attachments, rods, nuts, bolts, etc.

3. Do not burn or weld structural members without Chief Engineer's approval.
 4. Provide galvanized steel sleeves when pipes pass through fire rated partitions, walls, floors, concrete slabs. Sleeves shall be 2" larger than the pipe and extend 2" above floor slabs. Seal openings and gaps in piping as follows:
 - a. On Non-rated Walls seal annular space with fiberglass.
 - b. On Fire Walls use U.B.C. approved and U.L. listed fire safing sealants.
- C. Duct and Piping Insulation: Wrap unlined sheet metal supply and return air ducts with 1-1/2" thick duct wrap with reinforced foil facing, fiberglass RFK 75 insulation. Owens Corning, Mansville, or Certain Teed.
1. Provide acoustical 1" lining 10' minimum downstream of all AC units and 5' upstream and downstream of conference exhaust fans.
 2. Insulate condensate drain lines with 1" premolded fiberglass with ASJ.
 3. Insulate condenser water lines above computer and other critical areas.
 4. Insulate heating water pipes in accordance with Title 24 requirements.
- D. A. C. Unit and Heat Pump Installation: See Diagram 4.01 for details.
1. Air conditioning units and heat pumps shall be installed above non-critical areas and above readily accessible ceilings (storage rooms, etc.).
 2. Provide adequate access for filter removal, inspection of moving parts, and controls.
 3. AC units and heat pumps shall be supported with vibration isolation hangers and shall be seismically braced
 4. Pipe condensate drain line, with vent, to nearest condensate riser as directed by Chief Engineer or designee. Do not trap pumped condensate lines.
 5. Provide ducted return for all AC units for all server or equipment rooms.
 6. All Supplemental HVAC and/or heat pump shall be metered separately for 24/7 metering.
- E. Access Requirements: Provide and coordinate installation of access panels required for maintenance and inspection of all valves, dampers and equipment (including base building).
1. Provide access panels for all items of equipment.
 2. Coordinate exact location and type of access door/panel with Chief Engineer.
 3. Color code with building standard color labels all HVAC access location ceiling tiles.

F. Controls:

1. Air conditioning units and heat pumps shall be started/stopped by building standard programmable thermostats provided by installing contractor.
2. Floors without air conditioning:
 - a. Fin tube radiators shall have or be upgraded with building standard pneumatic actuator and thermostat.
3. VAV terminal units shall be controlled by Honeywell thermostats, to match existing.
 - a. Fin tube radiators shall have ddc actuators and control valves controlled by the VAV terminal unit.
 - b. Do not locate interior zone thermostats in conference rooms, computer rooms or other rooms with unusual heat gain patterns unless these rooms are served by their own dedicated VAV terminal unit.
 - c. Locate thermostats 4'-0" above finished floor.
 - d. Thermostats shall comply with Title 24 and current codes.
 - e. Coordinate thermostat location with Chief Engineer or designee.
 - f. Communication cabling (LAN Trunk) shall contain no T-Taps. All terminal unit communication lines will be connected in parallel (daisy chained) up to a maximum of 33 TECs per LAN trunk (3 LANS per FLNC per floor).
 - g. When terminal units are added or relocated, communication trunk and control wiring will be rerouted to match existing installation (atop branch duct, back to medium pressure loop and back out to new branch). No spider webbing is allowed.
 - h. Control Power to be fed from transformer panel at electrical closet. Limit of six (6) TECs per transformer. Match existing installation.
 - i. Consult with engineering Department for clarification. Failure to match building standard installation will result in rewiring at contractor's expense.
4. Select control valves for VAV terminal units based upon maximum pressure drop available for branch piping at branch tees.
5. Duct smoke detectors shall be provided by Honeywell. Wiring to be provided by Division 16 supervised by Life Safety System representative. Coordinate installation and connection with Life Safety System representative and Division 16.
 - a. AC units and heat pumps handling 2,000 cfm or more shall have a smoke detector in supply air duct. Upon smoke detection, smoke detector shall turn AC unit or heat pump off and annunciate at fire alarm panel.
 - b. AC units and heat pumps handling less than 2,000 cfm shall be automatically shut off upon floor alarm. Restart sequence shall be automatic upon reset of alarm device.

6. New fire/smoke dampers shall not interfere with Life/Safety Smoke Control System Operation.
- G. Inspection by Engineering Department: Contractor shall notify Landlord in writing at least one week in advance of completion of construction.
 1. A walk-through and punch list shall be scheduled for Chief Engineer to review installation for conformance with approved construction documents and Tenant Construction Standards Prior to ceiling close.

3.2 ADJUSTING AND BALANCING

- A. Testing and balancing shall be performed by an independent third party balancing contractor and shall be in accordance with AABC and NEBB Standards.
 1. Balancing contractor shall bring equipment including hand tools, ladders, hardware, and software, and make connections to properly balance electronic VAV controls.
 2. Balancing contractor to check in the Chief Engineer prior to commencing any balance work.
 3. Balancing contractor shall also coordinate with Chief Engineer to enter set points and balancing values into Building Energy Management System (BEMS).
 4. Balancing contractor to notify BEMS contractor that values are entered and complete so that changes can be backed up and saved permanently.
- B. After systems are complete and operating, Contractor shall submit to Chief Engineer preliminary air and water balancing report indicating CFM and GPM at connections to the base building systems, and gross CFM and GPM at main duct branches, reheat coils, AC units, and heat pumps.
 1. Quantities shall be marked on reduced size Construction Document Drawing. At Chief Engineer's request, Contractor shall submit other preliminary measurements required.
- C. Before final air and water balancing, Mechanical Contractor shall complete following tasks:
 1. Complete water pressure testing for leakage.
 2. Complete all "punch list" items.
 - a. Install dampers and other balancing devices.
 - b. Check AC units, heat pumps, and VAV terminal units.
 - c. Set manual balancing dampers, valves, and balancing valves at 100%, open position. Verify combination fire/smoke and fire dampers to be open.
 - d. Clean ducts and install filters.
 - e. Calibrate control systems.
 3. Balance air to following tolerance:
 - a. Each Outlet: $\pm 10\%$

- b. Each Room with Multiple Outlets: 0% to $\pm 10\%$
 - c. Each system: 0% to $\pm 10\%$ of system CFM.
4. Upon completion of balancing of new work and existing portions of system, provide to Chief Engineer a copy of handwritten test data to be used for final report. Copy is to be delivered to Chief Engineer prior to Balancing Contractor leaving premises.
 - a. Balancing Contractor is to review report with Engineering Department representative and point out discrepancies found while conducting test and balance. Copy is to be delivered to Chief Engineer prior to Balancing Contractor leaving premises.
 - b. Work to be accomplished per above criteria and AABC and NEBB Standards.
 5. Upon satisfactory completion of balance and operation test, submit two sets of reports to Chief Engineer on final readings (bound 8-1/2" by 11" AABC format). Balance report is to include, but not be limited to:
 - a. Variable air volume box address for reference.
 - b. Detailed readings for each outlet for each VAV balanced, including design and actual readings (both minimum and maximum).
 - c. The size and flow coefficient of each VAV box.
 - d. Where applicable, heating hot water flow and discharge air temperature at maximum heating.
 - e. Floor plan of space balanced showing box and outlet locations.
- D. Identification:
1. Equipment Identification: Identify AC units, heat pumps, exhaust fans and other mechanical equipment by attachment of approved nameplates with respective functional names and symbols as used in Drawings and Schedules.
 - a. Coordinate identification (tags and nomenclature) with Chief Engineer.
 2. (Example: Variable Air Volume Boxes Identification):
 - a. Coordinate identification numbers with Chief Engineer or designee for new and relocated VAV boxes.
 3. Piping Identification: Identify content and direction of pipelines and branches (except hose in accessible spaces).
 - a. Use either self-adhesive markers or semi-rigid plastic (snap-on) markers equal to "Setmark" pipe markers.
 - b. Apply legends, bands and arrows at intervals of not over 50 feet.
 - c. Apply within 5 feet of each side of wall, slab and ceiling penetrations and within 5 feet of valves and changes in direction.

- d. Coordinate identification (colors and nomenclature) with Chief Engineer.

3.3 BEMS INTERFACE

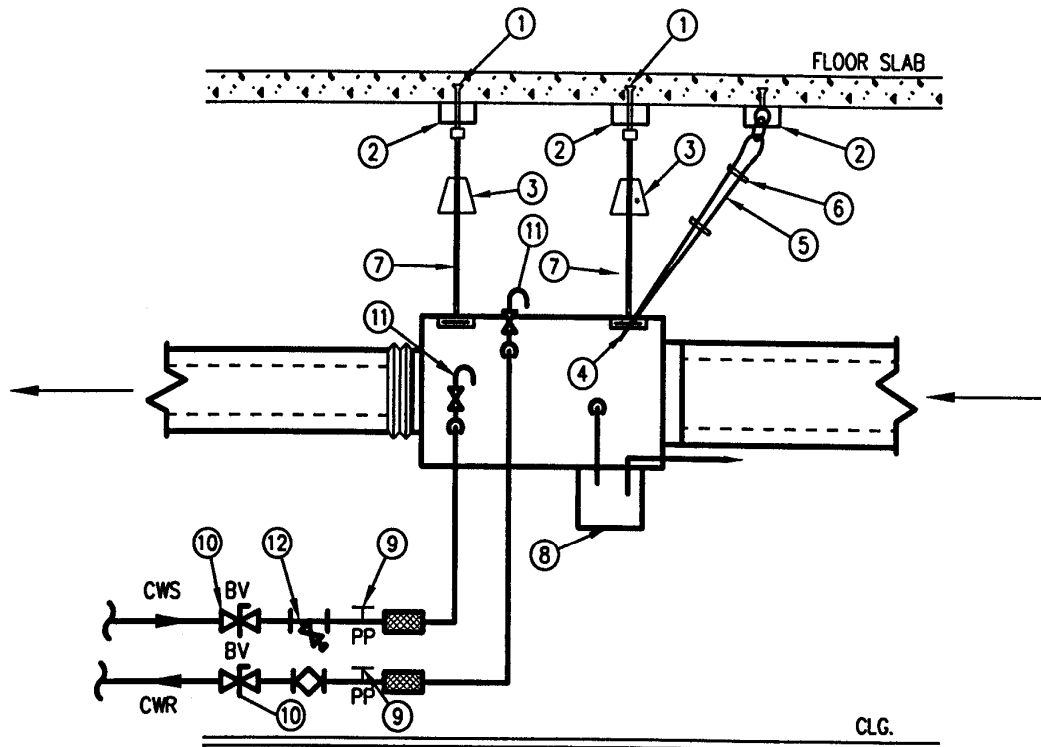
- A. Building Energy Management System (BEMS) contractor shall commission all Terminal boxes and other related equipment included in Tenant Construction.
 1. Upon completion of air and water balance, BEMS technician will conduct upload from all new Controllers to the Main Control Module (MCM) so that entered data is backed up and reloadable in case of TEC failure or memory loss.
 2. Tenant Data Closets – All Tenants with water-cooled air conditioning systems within their space are to furnish and install a building standard leak detection sensor (s) that is connected to the buildings leak detection system AND provide manual shut-off valves to be able to stop the water flow to their individual system (s). The shut-off valves are to be easily accessible without a ladder. Cross-reference HVAC Section 3.3 BEMS INTERFACE Section.
 3. Tenant Kitchen Equipment – All Tenants are to furnish and install a building standard leak detection sensor in locations within the kitchen that will sense leaks that occur from any source that uses water which includes but is not limited to; refrigerators, dishwashers, coffee makers, filter systems, etc. Consult Chief Engineer for sensor specifications and where sensors should be located. Cross-reference HVAC Section 3.3 BEMS INTERFACE Section..
 4. Private Restrooms – All Tenants are to furnish and install a building standard leak detection sensor (s) in any private restrooms within their space. Each sensor shall be connected to the building leak detection system for monitoring. Consult Chief Engineer for sensor specifications and where sensors should be located. Cross-reference HVAC Section 3.3 BEMS INTERFACE Section.
 5. BEMS technician will check communication to all new equipment and verify proper application, operation and equipment designation number. BEMS addresses for Controllers are to match number assignment on the field and field labels.
 6. A floor graphic interface shall be amended or developed showing area serviced by new equipment on the floor in which it is located. Match design of existing BEMS graphics.
 - a. Use architectural CAD drawing of Tenant Construction Space as a background.
 - b. Floor graphic shall have a link back to the Main Directory Graphic at upper left corner.
 - c. Floor graphic shall have links to a graphic for each Controller on the floor. All Controller links are to be labeled to match equipment designation number.
 - d. Use contrasting colors to better depict demarcation lines for each area served on floor by Controllers.
 - e. Graphics interface to be completed and operational by Tenant move-in date.
 - f. Coordinate access to BEMS front end and graphics installation with Building Chief Engineer or designee.

SHORENSTEIN

235 Montgomery Street, San Francisco

END OF SECTION

4.01 – AC UNIT/HEAT PUMP INSTALLATION DETAIL



4.01 – AC UNIT/HEAT PUMP INSTALLATION DETAIL

NOTE: ALL SUPPORT COMPONENT SIZES AND MINIMUM BOLT EMBEDMENT SHALL BE BY MANUFACTURERS INSTRUCTIONS OR CALCULATED BY A REGISTERED STRUCTURAL ENGINEER BASED ON UNIT WEIGHT.

- ① HILTI KWIK-BOLT
- ② UNISTRUT OR "L" ANGLE IRON
- ③ MASON VIBRATION ISOLATORS
- ④ "Z" SHAPED BRACKET
- ⑤ SEISMIC BRACE CABLE (TENSION CABLE ONLY TO REMOVE SLACK)(TYPICAL OF 4)
- ⑥ U-BOLT CLIPS
- ⑦ THREADED ROD (TYPICAL OF 4)
- ⑧ CONDENSATE PUMP
- ⑨ P.P. – PETE'S PLUG
- ⑩ B.V. – BALL VALVE
- ⑪ AIR VENTS AT SUPPLY AND RETURN HIGH POINTS
- ⑫ STRAINER WITH BLOWDOWN VALVE AND HOSE ADAPTER WITH CAP

SECTION 16100**ELECTRICAL****PART 1 - GENERAL**

1.1 SUMMARY

- A. Electrical work for Tenant; work shall depend upon actual alterations and improvements to be performed. However, a minimum scope of work for a typical tenant shall include functions specified in this section.
 - 1. Demolish and remove from premises all equipment, wire and raceway that are not to be reused in the new design. Wiring demolition shall be taken back to panelboard and removed, including neutrals.
 - 2. Extend existing and provide new branch circuit wiring with conduit and/or wiring, manufactured wiring system, or a combination of both.
 - 3. Re-label breaker panel circuit directories at end of Project to indicate what each breaker serves.
 - a. Directories shall be typed or computer generated. Hand written directories are not acceptable.
 - b. Directories shall be specific to areas served. Description to be specific to the use of the room and also state the architectural room number.
 - 4. Excessive power usage, such as welding and dehumidifying, is to be metered and charged to the construction project; coordinate with Landlord.
- B. Related Sections:
 - 1. Section 13850: Life safety system.

1.2 DEMOLITION

- A. Clean existing materials and equipment that are to be reused. Report damage or defects to the Building Engineer.
- B. Luminaires: Remove existing luminaires for cleaning. Use mild detergent to clean all exterior and interior surfaces, rinse with clean water and wipe dry. Replace lamps, ballasts and broken electrical parts.
- C. Disconnect and remove all abandoned conduit wiring and equipment. Floor monuments that are capped shall have associated conduits, pull boxes, and wiring at floor below removed back to source.
- D. Disconnect and remove all abandoned conduit, telephone/data cabling. Floor monuments that are capped shall have associated conduits, pull boxes, and cabling at floor below removed back to source.
- E. Disconnect and remove abandoned panelboards and J-boxes.

1.3 SYSTEM DESCRIPTION

- A. Base Building Systems: Building is served by Pacific Gas and Electric underground utility power. The building operates on a 480v 3 phase power grid. The electrical distribution within the building consists of the following:
1. 120/208 volt, 3 phase, 4 wire distributed at each floor. (Original conduit riser system)
 2. 277/490 volt, 3 phase, 4 wire bus riser. (Bus riser installed in 1990) Panels located in riser closets on floors 3 through 30.
- B. Design Criteria:
1. If Tenant needs more power than what the base building can provide, Tenant shall install necessary service equipment as required and coordinate all requirements with the Landlord and with Pacific Gas and Electric
 2. Design and Drawings: Calculate electrical requirements and prepare new design drawings and Title 24 All applicable codes. Energy efficiency calculations based upon proposed Tenant layout. Use available power from base building system. Coordinate floor power distribution with Landlord and Chief Engineer or designee.
 - a. Provide a key map on each drawing. Include electrical load schedules and load summary.
 - b. Obtain building permit for construction using design drawings.
 3. Do not distribute power from one floor to feed loads on another (e.g.: Do not install a bus duct switch on the 7th floor to feed a new panel on the 6th floor).
 - a. Power distribution shall be done from electrical closet and services to correspond with floor at which work is being completed.
 4. Do not connect more than 6 general-purpose outlets on any 120-volt branch circuit.
 5. Provide dedicated neutral for all 120-volt branch circuits feeding electronic equipment (computers, copiers, fax machines, printers, etc.).
 6. Provide dedicated neutral for each 120-volt dedicated branch circuit.
 7. Perform required core drilling during non-business hours. Contractor is to x-ray slabs and obtain authorization from Landlord prior to any core drilling.
 - a. Coordinate with Chief Engineer.
 8. Plenum rated cable may be used for telephone and data cabling only.
 - a. Cable shall be installed as specified under Data Cabling section.
 - b. Routing path shall be via corridors and other spaces permitting access to cable with minimum interference to tenants during cable changes.

9. Provide wall mounted telephone and data outlets with corresponding outlet box and appropriately sized conduit stub-up into nearest accessible ceiling space.
10. Provide emergency lighting to maintain a minimum of 0.5 foot- candles. Verify capacity on emergency riser with Electrical Engineer of record prior to increasing emergency lighting load.
11. Verify transformer locations with Landlord prior to installation.
 - a. Transformer size may require installation of Fire Smoke Dampers at electrical room ventilation ducts as well as supplemental cooling.
 - b. Weight of transformer may require Structural Engineering coordination.
12. For 120/208 volt, 3-phase, 4 wire feeders serving branch circuit panelboards and computer distribution equipment, the neutral conductor shall have calculated ampacity of not less than 150% of phase conductor ampacity.
 - a. Neutral conductor shall be considered current carrying conductor for purposes of determining NEC derating factors.
13. As required by Landlord, Energy Consumption Metering E-Mon D-Mon meters with RS-485 Data link to metering communication trunk shall be provided. Installation shall be coordinated with Landlord and Chief Engineer.
14. Data Centers: Data Centers within Tenant's premises shall be metered such that energy usage data can be collected: 1) at a point downstream from any and all uninterruptible power supplies (UPS), and 2) for all IT equipment, and IT equipment only, in the data center. Metering system shall meet the U.S. Environmental Protection Agency ENERGY STAR Portfolio Manager requirements for Data Center benchmarking. Metering system shall conform to Landlord's Design Criteria as specified in this document under Electrical Section 1.3.B.13. Data Center shall be defined as any demised space of more than 500 square feet that is dedicated to high-density computing functions (e.g., server racks) and may, but not necessarily, include a raised floor, dedicated supplemental cooling system, and one or more UPS.
15. Maximum design load for new 120/208 volt panelboards: 180 amps.
16. Data Centers: Data Centers within Tenant's premises shall be metered such that energy usage data can be collected: 1) at a point downstream from any and all uninterruptible power supplies (UPS), and 2) for all IT equipment, and IT equipment only, in the data center. Metering system shall meet the U.S. Environmental Protection Agency ENERGY STAR Portfolio Manager requirements for Data Center benchmarking. Metering system shall conform to Landlord's Design Criteria as specified in this document under Electrical Section 1.3.B.13. Data Center shall be defined as any demised space of more than 500 square feet that is dedicated to high-density computing functions (e.g., server racks) and may, but not necessarily, include a raised floor, dedicated supplemental cooling system, and one or more UPS.
17. New or relocated exit signs shall be connected to the 277v emergency power circuit feeding the floor.
18. Lighting alterations.

- a. Where existing lighting is being altered, provide 277 volt lighting and connect to 277 Volt panel board.
 - b. Where existing lighting fixtures are being reused, provide new 277 Volt ballasts and connect to 277 volt panel board.
- C. Tapping on Hot Bus Prohibited: Whenever bus tap is to be made, bus has to be de-energized.
1. Coordinate with Chief Engineer for shutdown window allotment.
 2. Schedule activity for after-hours or weekends.

1.4 SUBMITTALS

- A. Prior to commencing any work, electrical contractor shall assist general contractor in submitting to Landlord required documentation:
1. Approved construction documents and construction permit.
- B. Provide copy of professional engineer stamped plans to Landlord for review and approval.
- C. Electrical contractor shall submit a written request and schedule for disruptions to building services no less than 72 hours in advance and a minimum of ten working days when shutdown affects other tenants.
- D. Contractor shall review all equipment and material submittals prepared by suppliers, verify compliance with Construction standards, mark copies as acceptable to him, and submit to the Architect. After Architect's approval submit one copy to the Landlord and Engineering Department.
- E. Project Closeout Submittals: Prior to Landlord final inspection and acceptance of construction, contractor shall be required to provide following documentation to Landlord:
1. Two complete sets of operating and maintenance.
 2. One set of complete, reproducible as-built drawings and CAD files. As-built drawings shall contain key map of floor with Tenant location and load summary of electrical power used from base building systems.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Conduit:
1. Electrical Metallic Tubing (EMT):
 - a. Description: ANSI C80.3; zinc-coated tubing with protective enamel coating on inside.
 - b. Fittings and Conduit Bodies:

- 1) ANSI/NEMA FB 1.
 - 2) Concrete-tight steel or malleable iron, or pressure-cast body with steel or malleable iron nuts.
 - 3) Use compression type for 2 inch trade size and smaller, use compression or set-screw type for 2-1/2 inch trade size and larger.
2. Metal Conduit: Use in exposed dry and damp locations below switch height where conduit may be exposed to physical damage.
 - a. Rigid Steel Conduit: ANSI C80.1; threaded, hot-dipped galvanized, including threads, with protective coating on inside and outside.
 - b. Fittings and Conduit Bodies:
 - 1) ANSI/NEMA FB 1.
 - 2) Rigid Steel Conduit: Use threaded steel or malleable iron fittings.
 3. Flexible Metal Conduit: Use for connections to lighting fixtures in accessible ceiling spaces, connections to equipment in dry systems and dry locations. Do not use under raised computer room floors.
 - a. Description: Zinc-coated, interlocked steel construction.
 - b. Fittings: ANSI/NEMA FB 1; steel or malleable iron clamp or squeeze type, or pressure cast screw-in type. Do not use die-cast, set-screw, or sheet metal screw-in type on flexible metal conduit.
 4. Liquid Tight Flexible Metal Conduit: Use for connections to equipment in damp and wet locations.
 - a. Description: Galvanized interlocked steel construction with PVC jacket.
 - b. Fittings: ANSI/NEMA FB 1; steel or malleable iron, watertight type.
- B. Poke Through Service Fittings:
1. Manufacturer:
 - a. Wiremold Walker Flush Poke through Series.
 - b. Hubble Flush Poke through Series.
 2. Description: Assembly comprising service fitting, poke through component, firestops and smoke barriers, and junction box for conduit termination.
 3. Fire Rating: 2 Hours.
 4. Flush Profile: No above floor pedestals permitted.
 - a. Provide triple service capability, power, voice, and data (P/V/D).

- b. Provide complete assembled unit, including finish flange, in color as selected.
 - c. Provide conduit adapter with closure plugs where required.
 - C. Firestopping: Comply with local City and State requirements.
 1. Description: U.L. Approved firestop material for cable and conduit penetrations.
 2. Fire Rating: Re-establish rating of penetrated barrier.
 - D. Building Wire and Cable:
 1. Description: Single conductor, insulated wire.
 2. Conductor: Copper.
 3. Insulation Voltage Rating: 600 volts.
 4. Insulations ANSI/NFPA 70, Type THHN/THWN for sizes 2 and smaller, Type THHN for sizes #1 and larger.
 5. New wiring shall be in conduit with following exceptions.
 - a. MC cabling is acceptable in existing walls and for vertical drops for outlets and switches in ceiling spaces with access tiles.
 - b. Do not use MC cabling for exposed work in non-accessible ceiling spaces.
 - c. MC cabling may also be used for light fixture connections with an eight-foot maximum length.
 - E. Wiring Connectors:
 1. Spring Wire Connectors: Corrosion-resistant, live-action spring in insulated shell, rated 105-degrees C.
 2. Compression Connectors and Lugs: Circumferential (non-indenter) type.
 - F. Boxes:
 1. Device, Luminaire and Equipment Supporting Boxes:
 - a. Sheet Metal Outlet Box: ANSI/NEMA OS1, galvanized steel. Minimum 4-inch square and 1-1/2 inches deep; rated for weight of equipment supported; include 1/2-inch male fixture studs where required.
 2. Pull and Junction Boxes: Sheet metal box, NEMA OS 1, screw cover, minimum 4-inch square and 1-1/2 inches deep galvanized steel or gray baked enamel finish.
 - G. Manufactured Wiring Systems:
 1. Installation of a manufactured wiring system must be specifically approved by the Landlord.

2. Description: An integrated electrical branch wiring system for lighting that is pre-manufactured and supplied in accordance with NEC Article 604 and UL Standard #183.
3. Wires: #12 AWG copper with 600V, 90 degree C insulation in color-coding per NEC and building standards.
4. Integration: Capability of 5 wires, including #12 AWG copper ground wire, within flexible steel conduits with cable end heads and approved connectors keyed for proper interconnection.
5. Voltage: Select proper 120V or 277V system, as applicable, and ensure that system components are keyed to prevent backfeeding and interconnection between different voltage systems.
6. Manufacturer:
 - a. Lithonia RELOC wiring systems.
 - b. Thomas Industries Electro/Connect.

H. Wiring Devices: Smooth white plastic.

1. Wall Switches: Low voltage, momentary contact.
 - a. Leviton Decora Series
 - b. Pass and Seymour Decorator Series.
2. Wall Dimmers: Solid-state dimmer for incandescent, low voltage or fluorescent lamps.
 - a. Lutron Nova Series.
 - b. Prescolite Horizon Series.
3. Receptacles: Duplex Convenience Receptacle, Type 5-15R, Specification Grade. Use same manufacturer and series for receptacles and wall switches.
4. Wall Plates: Use same manufacturer and series as for receptacles and switches.
5. Occupancy Sensors: Ultrasonic switch sensor, suitable for the space application and compatible with the electronic ballast(s) they control. White finish.
 - a. Watt Stopper Ceiling Sensor, one or two-way.
 - b. Watt Stopper Model DW-200 Dual Relay PIR wall switch: Dual Switch buttons, automatic/manual on, 120/277 volt dual rating.
 - 1) Switch to be wired so that "I" button controls single center lamp and "II" button controls two outside lamps on a three-lamp fixture, or as required for ceiling system fixtures to provide best use of lamps.

I. Supporting Devices:

1. Support Channel: Galvanized or painted steel.
 2. Hardware: Corrosion resistant.
- J. Electrical Identification:
1. Nameplates: Engraved three-layer laminated plastic, white letters on a black background.
 2. Wire and Cable Markers:
 - a. Use color-coded conductors for branch circuit wiring.
 - b. Use plastic impregnated cloth or epoxy film markers, split sleeve or tubing type for feeders.
 3. Use colored tape to identify conduit systems.
- K. Enclosed Switches:
1. Fusible Switch Assemblies: NEMA KS 1, Type HD load interrupter enclosed knife switch with externally operable handle interlocked opening front cover with switch in ON position. Handle lockable in OFF position.
 2. Non-fusible Switch Assemblies: NEMA KS 1, Type HD load interrupter enclosed knife switch with externally operable handle interlocked opening front cover with switch in ON position. Handle lockable in OFF position.
 3. Enclosures: NEMA KS 1, Type 1.
- L. Dry Type Transformers:
1. Manufacturers:
 - a. ITC Type "R".
 - b. General Electric.
 - c. Square D.
 2. Dry Type Transformers: ANSI/NEMA ST 20; factory-assembled, air cooled dry type transformers; ratings as shown on the Drawings or as required for load served; designed for non-sinusoidal loads K-factor not less than thirteen (13). Derated standard transformers are not acceptable.
 3. Insulation: UL Class 185 degrees C, 115 degree C rise. Transformers rated above 112.5KVA shall be UL Class 150 degree C, 80 degree C rise or shall be located in fire-rated room.
 4. Winding Taps, Transformers Less than 15 KVA: Two 5 percent below rated voltage, full capacity taps on primary winding.
 5. Winding Taps, Transformers 15 KVA and Larger: ANSI/NEMA ST 20.
 6. Sound Levels: ANSI/NEMA ST 20.

7. Ground core and coil assembly to enclosure by means of a visible flexible copper grounding strap.
8. Mounting: Transformers 75 KVA and less shall be suitable for wall, floor, or trapeze mounting; transformers larger than 75 KVA shall be suitable for floor or trapeze mounting.
9. Coil Conductors: Continuous windings with terminations brazed or welded.
10. Enclosure: ANSI/NEMA ST 20; Type 1. Provide lifting eyes or brackets.
11. Isolate core and coil from enclosure using vibration-absorbing mounts.
12. Nameplate: Include transformer connection data, overload capacity based on rated allowable temperature rise, and inscription: "Suitable for non-sinusoidal current load with K-factor not to exceed 13".
13. Transformer to be Energy Star rated.

M. Panelboards:

1. Manufacturers:
 - a. 120/208 V: Square D NQOD
 - b. 277/480 V: General Electric, match existing.
 - c. Substitutes are not allowed.
2. Enclosure: NEMA PB-1; Type 1.
3. Cabinet Size: 6 inches deep; 20 inches wide.
4. Provide flush or surface cabinet front with concealed trim clamps, concealed hinge and flush lock all keyed alike. Finish in manufacturer's standard gray enamel.
5. Provide panelboards with copper bus, extending full height of panel. Provide copper ground bus in all panelboards. Provide neutral bus with terminals for each circuit in the panel, including future circuits.
6. Minimum Short Circuit Rating: Refer to the building ARC Flash study and provide a panelboard that exceeds the available fault current at the location. If no ARC Flash study is available, consult with Chief Engineer for direction.
7. Molded Case Circuit Breakers: Bolt-on type ambient-compensated thermal magnetic trip circuit breakers, with factory assembled common trip handle for multiple pole units. Provide circuit breakers UL listed as Type SWD for lighting circuits. Provide UL Class A ground fault interrupter circuit breakers where required.
8. Provide lugs with approved connectors for size of conductors feeding panel. Provide double lugs and extra gutter space for parallel feeder conductors.

N. Enclosed Circuit Breakers:

1. Molded Case Circuit Breakers: NEMA AB 1.
 2. Enclosure: NEMA AB 1, Type 1. Fabricate enclosure from steel, finish with manufacturer's standard enamel finish, gray color. Include provisions for padlocking.
- O. Lighting Fixtures:
1. Building Standard Down Lights: Recessed LED down light 3000K.
 - a. Indy L4 4" Series
 - b. Approved substitute.
 2. Building Standard 2x4: Recessed 2x4 fixture, recessed direct/indirect 3000K lamps.
 - a. Lithonia 2ALL Series
 - b. Submit alternate fixtures to landlord for Approval.
 - c. Building standard fixtures are required within 10ft of exterior glazing and visible from building exterior.
 3. Building Standard 2x2: Recessed 2x2 fixture, recessed direct/indirect, 3000K
 - a. Lithonia 2ALL Series
 - b. Submit alternate fixtures to landlord for Approval.
 - c. Building standard fixtures are required within 10ft of exterior glazing and visible from building exterior.
 4. Building Standard Linear Pendant : 4" Aperture. Indirect/ Direct.3000K
 - a. Finelite HP4
 - b. Submit alternate fixtures to landlord for Approval.
 - c. Building standard fixtures are required within 10ft of exterior glazing and visible from building exterior
 5. Building standard exit sign will be connected to emergency generator: Recessed ceiling or top mounted edge lit emergency exit sign
 - a. Lithonia Precise Collection,
 - 1) Lighting source to be LED (LRP)
 - 2) One or two sided depending on location and use.
 - 3) Green lettering on mirror background (GMR)
 - 4) Battery back up units not permitted. All exit signs to be connected to building Emergency lighting circuits.
- P. Ballasts:
1. Fluorescent Ballasts: Not Permitted.
- Q. Lamps:

1. Manufacturers:

- a. Sylvania

R. Lighting Control System

1. Description: An electronic/low voltage relay panel controlled system, interfaced with Life Safety/Building Management System central control.
 - a. All lighting circuits, except for emergency circuits, will be routed through and controlled by the lighting control panel.
2. Relays: UL listed, barrier mounted, low voltage control of inductive loads. Rated at 20 amps per 120 or 277 volts AC, momentary-pulsed, mechanically latched.
3. Switches: Momentary contact, low voltage type, to match existing.
4. Control: Central sweep-on, sweep-off capabilities. In addition the building also has warning off-on flicker capability and tenant dial-up capabilities.
5. Occupancy Sensors: Dual-technology sensors-infrared and ultra-sonic-for wall or ceiling mounting with required area coverage.
 - a. Watt Stopper: Wall Mount #WS-120/277 or #WA-100.
 - b. Watt Stopper: Ceiling Mount #W-2000A.

S. Power Metering Devices:

1. Emon Dmon metering devices. Submit for approval

T. Bus Riser Tap Switches GE QMR 600 Volt, 200KA RMS sym.

U. Surveillance Cameras

1. PELCO (Mini Dome) Series
2. Color to be approved by Landlord.

PART 3 - EXECUTION

3.1 PREPARATION

1. Examine panelboards and distribution equipment affected by Work for defective conditions and report such conditions to Landlord.
2. Provide temporary wiring and connections to maintain existing systems in service during construction.
3. Existing Telephone System: Maintain existing system in service until new system is accepted. Disable system only to make switchovers and connections. Notify Chief Engineer and Telephone Utility Company at least 48 hours before partially or completely disabling system. Minimize outage duration. Make temporary

connections to maintain service in areas adjacent to work area. Notify Landlord/Building Engineer.

4. Panelboards: Clean exposed surfaces and check tightness of electrical connections. Provide closure plates for vacant positions. Provide typed circuit directory showing revised circuiting arrangement.
5. Clean existing materials and equipment that are to be reused. Report damage or defects to Chief Engineer.
6. Luminaires: Remove existing luminaires for cleaning. Use mild detergent to clean all exterior and interior surfaces; rinse with clean water and wipe dry. Replace lamps, ballasts, and broken electrical parts.
7. Disconnect and remove all abandoned conduit wiring and equipment. Floor monuments that are capped shall have associated conduits, pull boxes, and wiring at floor below removed back to source.
8. Disconnect and remove abandoned panelboards and J boxes.

3.2 INSTALLATION

A. Conduit: install conduit in accordance with NECA "Standard of Installation".

1. Conduit Supports:

- a. Arrange supports to prevent misalignment during wiring installation.
- b. Support individual conduits using spring steel clips, coated steel or malleable iron straps, lay-in adjustable hangers, clevis hangers, and split hangers. Use spring steel clips attached to #10 hanger wires installed for the specific purpose of supporting conduits. Fasten wire at both ends. Limit use of spring-steel-clip-and-wire supports so that no conduits are supported solely by this method and so that no conduit run contains more than two consecutive supports of this type.
- c. Group related conduits; support using conduit rack. Construct rack using steel channel.
- d. Fasten conduit supports to building structure and surfaces.
- e. Do not support conduit with wire or perforated pipe straps. Remove wire used for temporary supports
- f. Do not attach conduit to ceiling support wires.

2. Arrange conduit to maintain headroom and present neat appearance.

3. Conduit Routing:

- a. Routing exposed conduit and conduit installed above accessible ceilings parallel and perpendicular to walls.
- b. Route conduits to clear access openings.

- c. Route conduits parallel and at right angles to building grid lines.
 4. Maintain 6 inches of clearance between conduit and piping.
 5. Maintain 12 inches of clearance between conduit and surfaces with temperatures exceeding 104° F (40° C).
 6. Cut conduit square using saw or pipecutter; de-burr cut ends.
 7. Bring conduit to shoulder of fittings; fasten securely.
 8. Bends:
 - a. Install no more than equivalent of four 90-degree bends between boxes. Use conduit bodies to make sharp changes in direction, as around beams.
 - b. Metal Conduit Larger than 2 inch Trade Size: Use factory elbows or fabricate bends with hydraulic one-shot bender.
 9. Provide suitable fittings to accommodate expansion and deflection where conduit crosses seismic, control and expansion joints.
 10. Provide suitable pull line in each empty conduit except sleeves and nipples.
 11. Provide insulated equipment ground conductor in flexible conduit.
 12. Provide chromium-plated escutcheons on each exposed conduit-penetrating floor, wall or ceiling in finished spaces.
 13. Termination of Conduit Stubs:
 - a. Above Floor and in Ceiling Spaces: Use conduit bushing.
 - b. Install conduit to preserve fire resistance rating of partitions and other elements, per NFPA.
- B. Service Fittings: Install all new products in accordance with the manufacturers' instructions.
 1. Provide components, accessories, and adapters to correspond with existing floor distribution system.
- C. Firestopping: Comply with local City and State requirements.
 1. Install firestopping at fire rated wall and through slab penetrations.
 2. Apply materials in accordance with manufacturer's instructions.
 3. Install backing materials to arrest liquid material leakage.
 4. Protect adjacent surfaces from damage by material installation.
 5. Clean adjacent surfaces of firestopping material.
 6. Do not use white firestopping

D. Building Wire and Cable:

1. Install products in accordance with manufacturer's instructions.
2. Use solid conductor for feeders and branch circuits 10 AWG and smaller.
3. Use conductor not smaller than 12 AWG for power and lighting circuits.
4. Pull all conductors into raceway at same time. Do not use mechanical means to pull conductors #8 AWG and smaller.
5. Use suitable wire pulling lubricant for building wire 4 AWG and larger.
6. Neatly train and lace wiring inside boxes, equipment, and panelboards.
7. Clean conductor surfaces before installing lugs and connectors.
8. Measure tightness of bolted connections and compare torque measurements with manufacturer's recommended values.
9. MC Cabling: Tie off and support per code. Run in parallel lines to grid and to maintain clear symmetrical installation.
10. Phone/Data cabling shall be properly supported to comply with NEC and ShoreNSTEIN cabling specifications.

E. Wiring Connectors:

1. Make splices, taps, and terminations to carry full ampacity of conductors with no perceptible temperature rise.
2. Use compression connectors for copper conductor splices and taps, 6 AWG and larger. Use compression tool designed for the size and type of connector being compressed.
3. Use insulated spring wire connectors with plastic caps for copper conductor splices and taps, 8 AWG and smaller.

F. Boxes:

1. Install electrical boxes as required for splices, taps, wire pulling, equipment connections and compliance with regulatory requirements.
2. Install electrical boxes to maintain headroom and to present neat mechanical appearance.
3. Install pull boxes and junction boxes above accessible ceilings and in unfinished areas only.
4. Inaccessible Ceiling Areas: Install outlet and junction boxes no more than 6 inches from ceiling access panel or from removable recessed luminaire.
5. Install boxes to preserve fire resistance rating of partitions and other elements; arrange boxes to meet regulatory requirements and use materials and methods per National Electric Code and NFPA. Where 3-gang or larger openings are required, re-establish rated construction around boxes.

6. Align adjacent wall-mounted outlet boxes for switches, thermostats, and similar devices with each other.
7. Use flush mounting outlet boxes in finished areas.
8. Do not use through-walls boxes or install flush mounting boxes back-to-back in walls; provide minimum 6 inch separation. Provide minimum 24 inches separation in acoustic rated walls.
9. Secure flush mounting box to interior wall and partition studs. Accurately position to allow for surface finish thickness.
10. Use stamped steel bridges or bar hanger assemblies to fasten flush mounting outlet box between studs.
11. Install flush mounting box without damaging wall insulation or reducing its effectiveness.
12. Use adjustable steel channel fasteners for hung ceiling outlet box.
13. Do not fasten boxes to ceiling support wires.
14. Support sheet metal boxes independently of conduit.
15. Use gang box where more than one device is mounted together, including floor boxes. Do not use sectional box.
16. Use Plaster Rings for all concealed work; depth of rings shall be as required to reach finished surfaces.
17. Coordinate mounting heights and locations of outlets mounted above counters, benches and backsplashes per NEC and NFPA codes. Otherwise building standards mounting height is 42 inches.
18. Coordinate trimming of openings for outlet boxes in partitions to achieve neat, closely-fitting openings.
19. Adjust flush-mounting outlets to make front flush with finished wall material.
20. Install knockout closure in unused box openings.

G. Wiring Devices:

1. Install products in accordance with manufacturer's instructions.
2. Install devices plumb, level, and rigidly in place.
3. Install switches with OFF position down, 2 inches to 8 inches from trim on the strike side of door.
4. Install wall dimmers to achieve power rating required for load shown on Drawings.
5. Use dedicated neutral conductor on dimmer circuits.
6. Install receptacles with grounding pole on top.
7. Connect wiring device grounding terminal to outlet box with bonding jumper.
8. Install switched receptacles with top half switched.

9. Install decorative plates on switch, receptacle, and blank outlets in finished areas. Use multi-gang plates for multiple devices.
10. Connect wiring devices by wrapping conductor around screw terminal.
11. Install protective rings on active flush cover service fittings.
12. Install isolated ground receptacle so that ground conductor is isolated from metallic raceway.
13. Inspect each wiring device for defects.
14. Operate each wall switch with circuit energized and verify proper operation.
15. Verify that each receptacle device is energized.
16. Test each receptacle device for proper polarity and integrity of ground connection.
17. Test each GFCI receptacle device for proper operation.
18. Adjust devices and wall plates to be flush and level.

H. Supporting Devices:

1. Fasten hanger rods, conduit clamps, and outlet and junction boxes to building structure using expansion anchors and beam clamps.
2. Use toggle bolts or hollow wall fasteners in hollow masonry, plaster, or gypsum board partitions and walls; expansion anchors in solid masonry walls; self-drilling anchors or expansion anchor on concrete surfaces; sheet metal screws or spring steel bar retainer clips in sheet metal studs; and wood screws in wood construction.
3. Do not fasten supports to piping, ductwork, mechanical equipment, or conduit.
4. Do not use powder-actuated anchors without specific permission from Landlord.
5. Do not drill structural steel members without specific permission from Landlord.
6. Fabricate supports from structural steel or steel channel, rigidly welded or bolted to present a neat appearance. Use hexagon head bolts with spring lock washers under all nuts.
7. Install surface-mounted cabinets and panel-boards with minimum of four anchors. Provide steel channel supports to stand cabinet one inch off wall.
8. Bridge studs top and bottom with channels to support flush-mounted cabinets and panel-boards in stud walls.

I. Electrical Identification

1. Degrease and clean surfaces to receive nameplates.

2. Install nameplates parallel to equipment lines. Label building electrical equipment to match existing.
3. Secure nameplates to equipment fronts using screws or rivets. Secure nameplate to inside face of recessed panel-board doors in finished locations.
4. Embossed tape will not be permitted for any application.
5. Wire Identification:
 - a. Provide wire markers on each conductor in panel-board gutters, pull boxes, outlet and junction boxes, and at load connection. Identify with branch circuit or feeder number. Identify control wire with number as indicated on schematic and interconnection diagrams equipment manufacturer's shop drawings for control wiring. If more than one neutral conductor is present, mark each with related circuit numbers.
 - b. Color code all secondary branch circuit and feeder conductors as follows:

<u>Conductor</u>	<u>120/208 Volt</u>	<u>277/480 Volt</u>
Phase A	Black	Brown
Phase B	Red	Orange
Phase C	Blue	Yellow
Neutral	White	Grey
Ground	Green	Green
Switch leg	Phase color	Phase color
 - c. Use green color for any conductor intended solely for equipment grounding, unless it is bare.
 - d. Use wire with insulation of required color. For sizes of wire which may not be available in specified colors use self-adhesive wrap around, markers of solid colors to color code conductors.
 - e. Color code conductors at accessible locations.
 - f. Make color-coding for signal system such as life safety, intercommunication, etc., in accordance with programs or schedules prepared by the equipment manufacturer.
 - g. Use same color throughout a given system for any signal or control wires performing the same function.
6. Nameplate Engraving:
 - a. Panel-boards: 1/4 inch; identify equipment designation. 1/8 inch; identify voltage rating and source.
 - b. Individual Circuit Breakers, Enclosed Switches, and Motor Starters: 3/16 inch; identify load served and source of supply.
 - c. Transformers: 1/4 inch; identify equipment designation. 1/8 inch; identify primary and secondary voltages, primary source, and secondary load and location.

- d. Special Purpose Power Receptacles: 3/16 inch; identify voltage, phase and source of supply.
 - e. Light Switches Not in Sight of Fixtures They Control: 3/16 inch; identify location of light fixtures controlled.
 - f. Engraving on device plates with black enamel filled lettering is acceptable in lieu of separate nameplates.
7. Conduit Color Coding Schedule:
- a. Except for life safety conduit, use colored tape to identify conduit by system. Apply tape to each length of conduit installed above grade so that at least one marker is located between any 2 couplings.
 - b. 480 Volt, Three-Phase System: Yellow.
 - c. 208 Volt, Single and Three-Phase System: Dark Blue.
 - d. Life Safety System: Spray paint with red strip.
 - e. Telephone System: Grey.
 - f. Data System: White
 - g. Grounding: Green
8. Outlet and Junction Box Marking: Mark outside of cover plates of junction boxes installed in exposed or accessible ceilings to identify circuits present. For signal systems, identify system by name. Use black permanent ink marking pen.
9. Affix label to pull rope identifying termination point.
10. Concealed Equipment: Identify location of electrical equipment installed above suspended ceiling by placing a black thumbtack in the nearest ceiling tile. Equipment to be identified includes: junction boxes, disconnect switches, low voltage lighting equipment, pull boxes, and any special equipment. For life safety system, use a red thumbtack.
- J. Enclosed Switches:
- 1. Install disconnect switches where indicated.
 - 2. Install fuses in fusible disconnect switches.
 - 3. Provide adhesive label on inside door of each switch indicating UL fuse class and size for replacement.
- K. Dry Type Transformers:
- 1. Set transformer plumb and level.

2. Use flexible conduit, 2 feet (0.6 m) length, for connections to transformer case. Make conduit connections to side panel of enclosure.
3. Mount transformers on vibration isolating pads suitable for isolating the transformer vibration from the building structure.
4. Provide seismic restraints.
5. Set taps on transformers to 118 to 122 volts for 120 volt nominal systems, and proportionately equivalent values for higher voltage systems.

L. Panelboards:

1. Install panelboards plumb. Install flush mounted panel-boards flush with wall finishes.
2. Height shall be 6'-6" (2.0m) to top of panel.
3. Provide filler plates for unused spaces in panelboards.
4. Provide typed circuit directory in plastic holder for each branch circuit panelboard.
 - a. Hand written directories shall not be accepted.
5. Out of each recessed panel-board, stub a one inch conduit into the accessible ceiling space above for each 3 spares or spaces in the panel-board.
6. Contact Building Engineer for proper meter configuration and wiring for relay interface with Building Automation System.

M. Enclosed Circuit Breaker:

1. Install enclosed circuit breakers plumb.
2. Height shall be 6 feet 7 inches to operating handle.
3. Inspect each circuit breaker visually.
4. Perform several mechanical ON-OFF operations on each circuit breaker.
5. Adjust trip settings so that circuit breakers coordinate with other overcurrent protective devices in circuit.

N. Lighting Fixtures:

1. Install in accordance with manufacturers instructions.
2. Verify ceiling construction; coordinate with luminaire trim and accessories.
3. Install suspended luminaires using pendants supported from swivel hangers. Provide pendant length required to suspend luminaire at indicated height.
4. Support luminaires larger than 2 x 4 foot size independent of ceiling framing.

5. Install surface mounted luminaires plumb and adjust to align with building lines and with each other. Secure to prohibit movement.
 6. Suspended Grid Ceilings: Support 2x4 foot and smaller recessed luminaires in grid ceiling by installing #12 (minimum) hangers at each corner of the affected ceiling grid. Provide 2 additional hanger wires directly from the structure above to the fixture housing. Install appropriate seismic bracing.
 7. Install recessed luminaires to permit removal from below.
 8. Install recessed luminaires using accessories and firestopping materials to meet regulatory requirements for fire rating.
 9. Install clips to secure recessed grid-supported luminaires in place.
 10. Install accessories furnished with each luminaire.
 11. Make wiring connections to branch circuit using building wire with insulation suitable for temperature conditions within luminaire.
 12. Bond products and metal accessories to branch circuit equipment grounding conductor.
 13. Install specified lamps in each luminaire.
 14. Aim and adjust luminaires as directed.
 15. Adjust exit sign directional arrows as indicated.
 16. Clean electrical parts to remove conductive and deleterious materials.
 17. Remove dirt and debris from enclosure.
 18. Clean photometric control surfaces as recommended by manufacturer.
 19. Clean finishes and touch up damage.
- O. Ballasts:
1. Install in accordance with manufacturers' instructions.
- P. Lamps:
1. Install in accordance with manufacturers' instructions.
 2. Relamp any failed lamps at substantial completion.
- Q. Data Cabling:
1. All installations are to be conducted by a BICSI certified Contractor.
 2. All Cabling is to be suspended by dedicated hangers manufactured to meet the specifications of the installation. Cabling is to be hung as tight to the overhead slab as possible so that it does not conflict with other MEPFS installations and does not obstruct the access of building personnel via ceiling tiles. The use of

existing hangers, i.e. electrical, plumbing, ceiling, etc. is prohibited. Field manufactured hangers are not acceptable.

3. All cabling runs are to be bundled neatly and run in parallel lines to the ceiling grid. Cabling is to have home runs with branches maintaining perpendicular zone distribution. Spider webbing (i.e. diagonal runs) of cable is not acceptable.
4. All cabling routed to poke through outlets will be hard piped when entering a space other than that of the tenant's premises. Routing of conduit is to follow the building's parallel lines and run tight to the overhead slab to minimize the possibility of future conflict with MEPFS installations in other tenant's premises.
5. On multi-floor tenant applications, all tenant cabling is to be routed within the leased premises via a strategically placed cored and fire sealed penetration. The routing of cabling from floor to floor for the specific and dedicated use of a tenant cannot be by means of the building's telecommunications riser without specific written consent from Property Management and Lease Document.
6. The building's telecommunications infrastructure was installed following TIA/EIA-568-A Commercial Building Cabling Standards. Any and all modifications and/or additions to such system are to be submitted for Property Management's written approval and installed to maintain and follow said standard.

NOTE: It is not the intent of Property Management or the Engineering Department to dictate the type of equipment, system or cabling that are to be used. The type of system and equipment will be selected by the tenant to fit their needs. The cabling installation standards are set to make the identification and differentiation of cabling systems easier and to assure that they will not interfere with any other systems as installed. Should any questions arise with regard to cable installation in a tenant's premises, it is the responsibility of the tenant and/or contractor to obtain clarification and approval from Property Management. Failure to comply with said standards may result in removal of substandard installation and reinstallation at the tenant and/or contractor's expense.

END OF SECTION