

**AON CENTER
707 WILSHIRE/637 WILSHIRE
LOS ANGELES, CA**



**Tenant Construction
Standards**

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SHORENSTEIN REALTY SERVICES, L.P.

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TENANT CONSTRUCTION STANDARDS

The following construction procedures, requirements, conditions and standards (these "Tenant Construction Standards") 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 Vendor, subvendor, architect, designer, or consultant ("Vendor") 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 Vendor 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 Tenant Construction Standards be deemed to have agreed to the provisions hereof. Any breach of these Tenant Construction Standards shall be deemed a breach under Vendor'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 Tenant Construction Standards 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 Tenant Construction Standards, the provisions of the Lease shall control. These Tenant Construction Standards shall be interpreted to the maximum extent possible consistent with the terms of Vendors 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 Tenant Construction Standards, the provisions of these Tenant Construction Standards shall control. Shorenstein Realty Services, L.P. or Shorenstein Realty Services East LLC for New York City properties ("SRS") is Landlord's agent for purposes of these Tenant Construction Standards, 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. Vendor 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 Vendor 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.
- G. Tenant and Architect to note fish tanks are not allowed.
- H. Tenant shall provide Property Manager with their final project accounting showing total costs of the project.

PRE CONSTRUCTION

- A. Prior to the commencement of any work, Vendor 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 emergency/exit lighting for Landlord's review and 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.
- 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 Vendor while in the adjacent tenant's space and the cost thereof shall be the joint and several liability of Tenant and Vendor. 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. Vendor 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. Vendor 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. Vendor shall arrange a pre-job walk-thru with Landlord. Landlord must approve all on site staging areas.
- G. Throughout the area of alterations, Vendor 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, Vendor shall provide to Landlord documentation evidencing Vendor's substantial experience in this Locality/Municipality and building type, and with the type of work proposed.
- I. Prior to commencing any work, Vendor 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, Vendor shall provide to Landlord evidence of the Vendor's ability to obtain performance and payment bonds for the project.
- K. Prior to commencing any work, Vendor 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 Vendor'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, Vendor shall provide to Landlord an insurance certificate and additional insured endorsement certifying that the insurance coverages required by Landlord in connection with the Work are in force at Vendor's sole cost and expense. Tenant shall maintain insurance coverages as required by its Lease. If Tenant contracts directly with the Architect and General Contractor for the Work, prior to commencing any Work, the Architect and General Contractor will execute a Letter Agreement for Landlord which contains an indemnity and waiver and insurance coverages required by Landlord. The Architect and General Contractor shall also provide insurance certificates and additional insured endorsements certifying that the insurance coverages required are in force prior to commencing any Work (see attached Architect or General Contractor Form of Indemnity/ Insurance Letter).
- M. Vendor to provide: List for Landlord's review and approval of all Vendor's and Sub-Contactor's personnel, including 24-hour emergency contact numbers for key personnel.

- N. Vendor to provide: Letters from locals to verify Union affiliation for Vendor, including its respective subvendors (when requested by Landlord).
- O. Vendor 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 Vendor to discuss the project scope and schedule.
- P. Vendor 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.
- Q. Vendor 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 Vendor must restore electrical service to the adjacent suite. Separate metering must be provided
- R. All work on the base building's fire/life safety panel (final tie-ins) will be performed by *TRL Services* and coordinated with Landlord. Only EDWARDS EST3 components can be utilized and plans must be approved in advance with TRL Services and Building Management. Vendor and Tenant are jointly and severally liable for all costs.
- S. No work shall be performed that would alter the building's exterior appearance or common areas without Landlords written approval.
- T. No changes to the perimeter window treatment will be accepted unless otherwise noted and approved by Landlord in its sole discretion.
- U. **Distributed Antenna System (DAS)**. DAS is owned and exclusively maintained by AT&T. Vendors shall not touch, alter, move or modify DAS system in any way. Modifications to DAS system for design alterations is to be controlled by AT&T. Any repairs incurred to DAS system during tenant improvement construction is at the sole cost of Vendor and/or Tenant. Contact Building Management Office for AT&T contact information.

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 Vendor. Security and/or engineering charges for operation of elevators outside of normal business hours of the Building shall be charged to Tenant and Vendor, jointly and severally, at Landlord's prevailing labor and material rate.

Building Standard Business Hours are:

Monday through Friday 8:00 AM to 6:00 PM

Saturday 9:00 AM to 1:00 PM

The building is closed during holidays.

- B. **Distributed Antenna System (DAS)**. DAS is owned and exclusively maintained by AT&T. Contractor shall not touch, alter, move or modify DAS system in any way. Modifications to DAS system for design alterations is to be controlled by AT&T. Any repairs incurred to DAS system during tenant improvement construction is at the sole cost of Contractor and /or Tenant. Contact Building Management Office for AT&T contact information.
- C. **SMOKING:** NO SMOKING IS ALLOWED ANYWHERE WITHIN THE PROPERTY INCLUDING THE SUB LEVEL PARKING, THIS INCLUDES SMOKING WITHIN PARKED VEHICLES. No smoking within 25 feet of any exterior entrance is permitted at any time. Designated smoking areas are located at the corner of 6th and Hope Streets and on Wilshire Blvd (Pegasus Appartements alley). This is a zero tolerance policy and failure to comply may result in removal from property.
- D. Work performed by Vendor 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.
- E. Weekly progress meetings must be held. Vendor is to conduct and issue minutes for weekly progress meetings, which may be attended by Landlord's representatives.
- F. At Landlord's sole discretion, any work that does not meet Building standards may be ordered removed and redone at Vendor's and Tenant's joint and several expense.
- G. 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.

- H. **Parking:** Contractor shall be required to pay the normal posted parking rates for all vehicles parked on the property if work is performed for a Tenant, and Tenant's Lease does not provide for the waiver of such charges. Contractors will self-park vehicles on parking level LL3 or other such area as designated by the parking operator. Valet has full authority for all parking.

If the Landlord has agreed in the Lease to provide parking validations for the contractors, the superintendent will be responsible to collect all the parking tickets from the sub-contractors and bring them to the property management office on the 48th floor for validation between the hours of 8:00am – 5:00pm.

NOTE: Contractor Parking: Contractor on-site parking is at the LL3 sub level and for larger jobs on LL2 unless otherwise specified by Management or Valet. LL3 and LL2 are for parking only. Valet has full authority for all parking and may change/alter parking at their discretion.

- Contractor personnel are prohibited from using the parking structure for any type of construction work shop or assembly of materials or equipment.
- No loitering or smoking is allowed.
- Trash is to be disposed of in trash cans located at the loading dock.
- Restrooms are also located on the loading dock for personnel use.

This is a zero tolerance policy and failure to comply may result in immediate removal from property.

- I. Landlord at its sole discretion, reserves the right to refuse entrance to employees of Vendor who cannot meet and maintain the requisite standard of workmanship and/or who violate any or all of the terms enumerated herein.
- J. **Loading Dock.** Loading Dock hours are from **5:00 AM** to **8:00 PM**, Monday through Friday and **9:00 AM** to **2:00 PM** on Saturdays. The delivery, loading, unloading and handling or pick up of all equipment, supplies, merchandise, fixtures and other materials or goods to and from the premises shall be done only at such times as stated above and only from the loading docks. All major deliveries and after-hours deliveries will be done only at such times as designated and prearranged through Management. Loading docks may not

be used for work areas, staging, storage, assembly or anything other than loading and unloading trucks, unless specifically approved by Management.

- K. Vehicles less than six feet, six inches, (6'-4") in height are not allowed to park in the loading dock – these vehicles must be unloaded and parked in the visitor parking area. Trucks taller than **12'-6"** in height or over **26'** in length are not allowed into the loading dock. After unloading their truck, the Dock Master may inform the delivery truck driver to remove their vehicle from the dock area due to high volume or overcrowded conditions. The vehicle must either move to the visitor parking area, or because of height restrictions, removed from the Property. Any parking costs incurred for offsite parking shall be the cost of the Contractor or delivery company and shall not be the responsibility of Owner or Management. The easement area on the west side of the Property is not to be used for contractor parking, and any such vehicles parked in this area will be subject to towing.
- L. Contractor is responsible for clean-up of loading dock area and service elevators following any deliveries. If necessary (such as after drywall deliveries) the loading dock area and service cars are to be swept and/or mopped. Failure to do so will result in cleaning charges billed back either to the Tenant or Contractor. **NO SMOKING IS PERMITTED ON LOADING DOCK**
- M. 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 Operations and Maintenance 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.
- N. **Maintain cleanliness throughout:** Public areas are to be kept clean at all times. Vendor shall not clutter or block hallways, exits, service elevator lobbies or electrical closets. No storage is allowed at any time within the telephone or Electrical rooms. Hard floor/wall protection may be required for high traffic or rolling loads across carpet/stone surfaces as well as the entrance to all elevators. This may include, but not limited to, masonite or plywood and is at the discretion of Landlord. Vendor 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 Vendor's joint and several cost.
- O. Vendor shall properly protect all traffic areas as directed by Building management and/or tenant within the tenant's leased premises and on all common building traffic areas, including freight areas, for the duration of the project.

- P. Vendor shall vacuum, and/or broom clean, or mop daily, occupied tenant areas and the building common areas that are affected by project construction.
- Q. Vendor 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.
- R. Any opening between the common building corridor or lobby and the project site is to be temporarily enclosed by means acceptable to Landlord at Vendor's and Tenant's joint and several cost until the permanent installation is completed.
- S. 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. No storage provided or allowed at loading dock
- T. Vendor shall not touch, secure or start any mechanical, electrical, plumbing, life safety, or other building automation systems without prior written approval of Landlord. Vendor 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.
- U. Vendor 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.
- V. Vendor 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.
- W. Prior to any work on the fire sprinkler system, a one business day advance written request shall be provided to Management showing all affected areas, details, plans and specifications. Only the Engineering Department shall perform sprinkler system drain downs and shall perform all system refills. If appropriate, charges may be assessed to the Tenant or Contractor. Only one floor to be drained at a time. **No Mechanical tees or by the field name "saddle taps" are allowed.**
- X. Vendor 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.
- Y. 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.

Where domestic water and/or supplemental chilled water apply, Trade name "Pro Press" fittings are not allowed. All copper fittings should be solder type.

- Z. Vendor 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. Drywall work
 - 6. Millwork
 - 7. Stone or concrete grinding/polishing
- AA. 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.
- BB. Vendor shall ensure that code compliant fire extinguishers and all other safety measures are available to prevent fire. All Hot Work rules apply. Vendor may request permission to have smoke detectors temporarily covered. Vendor 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.
- CC. In case of an accident, involving personnel or property, Vendor 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.
- DD. The use of any combustible fuel (gasoline, propane, CNG, etc) driven equipment within the Building is prohibited.
- EE. Radios, CD players or similar pieces of equipment are not allowed. There will be no smoking or tobacco products, alcohol, drugs or seeds permitted in or about the building. Smoking is explicitly prohibited inside the building and within 25 feet of any building entrance, outside air intake, and operable windows. Smoking is only allowed in designated outside smoking areas.
- FF. **Freight Elevators Usage:** Vendor's personnel shall use only freight elevators to access project sites. Freight elevator use is restricted: Its use shall be coordinated with Landlord. At no time will Vendor/Contractor's

workers, supplies, material or equipment be transported via the passenger elevators

1. Roof hatches in freight elevators will not be opened without:
 - (i) A hold-harmless agreement in form acceptable to Landlord, signed by each Vendor who will work in or around such elevator, and
 - (ii) The presence of the elevator maintenance company at Tenant's and Vendor's joint and several expense.
2. Landlord may require Vendor to directly contract with elevator maintenance Vendor for elevator related work. Vendor should arrange with elevator maintenance Vendor at least 72 hours in advance.
3. Use of freight elevators after normal Building Hours shall be at Tenant's and Vendor's joint and several cost. Any damage to any elevator shall be repaired at Tenant's and Vendor'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 Vendor, jointly and severally, at Landlord's prevailing labor and material rate.

Freight Elevator Dimensions:

See page 84 in Conveying systems for diagram

Service Elevator Car #8 – 78' Deep, 64" Wide and 11'6" High

Service Elevator Car #33 – 74" Deep, 80" Wide and 10' High

- GG. Vendor is to use specified restrooms only. Use of restrooms on tenant occupied floors is not allowed. Vendor is responsible for stocking and maintaining restrooms designated for their use.
- HH. Vendor's use of tenant equipment, lunchrooms, vending machines, copiers telephones, etc. is not allowed.
- II. **Core Drilling Concrete.** Prior to core drilling, sawing, cutting or penetrating beyond one half (1/2) inch of the surface of any concrete, specific approval from the Structural engineer of record and/or Engineering Department is required.
1. X-rays or SONAR of the area affected may be required to insure absence of electrical wiring, plumbing or structural elements and obstructions. *Note: for tenant floor plates (4th to 60th floors) generally there is not a requirement to X-Ray or SONAR, except in specific core locations in the building.* The Building's designated Structural Engineer may be needed to certify work.
 2. If required, the X-ray procedure must be performed between the hours of 11:00 PM and 5:00 AM. Contractor must post their employees in sufficient areas to protect individuals from accidentally walking into the dangerous

area of the X-ray beams. If needed, Security Officers will be provided at Vendors expense.

3. X-ray is mandatory for any penetrations at 637 parking structure since all decks are post tension; this is to include any concrete nails, small anchors, etc
 4. No core drilling through the Walker trenches is permitted without Landlord or Chief Engineer's approval. Coring of Monuments through Walker duct system should be avoided at all times. Should the situation arise where walker duct system is in path of core, Chief engineer and Landlord approval is required. All fire stop codes apply to restoring fire rating
- B. All abandoned or unused floor cores, or penetrations shall be capped and back filled with concrete.
- C. All Vendors, and subvendors shall wear company supplied identification and may be required to wear building supplied building passes.
- D. All pay applications must have all required conditional lien releases, signed and on letterhead from all vendors, subvendors, material suppliers, and laborers requesting payments for all progress billings and unconditional lien releases, signed and on letterhead from all vendors, subvendors, material suppliers, and laborers for all previously paid work.

CLOSEOUT

- A. Vendor 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 Vendor 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. Vendor shall instruct Landlord's Building engineers in the operation and maintenance of all equipment and systems installed.

- B. As-Built Drawings: Vendor 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. Plumbing plans at 1/8" = 1'0" scale showing all plumbing runs and tie in's
 4. 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).
 5. Reflected ceiling/Mechanical plans at 1/8" = 1'0" scale showing the HVAC system (duct runs, troffers, mixing boxes, special units, etc.) and sprinkler locations.
 6. Sprinkler plans at 1/8" = 1'0" scale showing all sprinkler piping, mains, arm overs, seismic bracing, head type and applicable hydraulic calculations.
- 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. PDF's also Required.
- 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 Vendor. 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, Vendor shall submit to Landlord:
1. A Conditional Waiver and Release of Lien from the Vendor and each of its subvendors, 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 Vendor and each of its subvendors, material suppliers and laborers, containing the appropriate provisions, is 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.
7. Tenant shall provide Property Manager with their final project accounting showing total costs of the project.

AMENDMENT

These Tenant Construction Standards 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 Vendors, and delivery of the same by Landlord to Tenant shall constitute Landlord's delivery thereof to Tenant's Vendor.

**ARCHITECT OR GENERAL CONTRACTOR FORM OF INDEMNITY/
INSURANCE LETTER****[SHORENSTEIN LETTERHEAD]**

Date:

[NAME OF GC OR ARCHITECT]

Street Address

City, State, Zip

Re: **[General Contractor]** **[Architectural]** services being provided by **[LEGAL NAME OF GC OR ARCHITECT]** ("Contractor") to **[TENANT NAME]** ("Tenant") for Tenant's leased premises at **[NAME AND ADDRESS OF BUILDING]** (the "Building") which Building is owned by **[FULL LEGAL NAME OF OWNERSHIP ENTITY]** ("Owner")

Gentlemen and Ladies:

Owner hereby consents to Contractor performing the above referenced work/services (the "Work") at the Building, subject to the terms of this letter agreement.

1. Waiver and Indemnity. Owner, Shorenstein Realty Services, L.P., Shorenstein Properties LLC, Shorenstein Company LLC, Shorenstein Management LLC, Shorenstein MB Inc., and their respective partners, managers, members, subsidiaries and affiliates and the officers, directors, agents, members, managers employees, clients, successors and assigns and authorized representatives of all the foregoing (collectively, the "Indemnified Parties"), shall not be liable to Contractor, and Contractor hereby waives all claims against such Indemnified Parties for, and releases such Indemnified Parties from liability for, any loss, injury or other damage to person or property in, on or about the work site or the Building, provided that the foregoing waiver shall be inapplicable to any loss, injury or damage resulting directly from the gross negligence or willful misconduct of the Indemnified Party seeking to enforce the waiver. Contractor shall hold the Indemnified Parties harmless from and indemnify and defend the -Indemnified Parties against any and all claims, liabilities, damages, costs and expenses, including, without limitation, 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 accident, injury or damage, howsoever and by whomsoever caused, to any person or property, occurring in, on or about the Work site, except to the extent such Claims are caused directly by the negligence or willful misconduct of such Indemnified Party. The release, waiver, and covenant to indemnify, defend and hold harmless provisions set forth above shall apply to the fullest extent permitted by law.

2. Insurance. Prior to commencing any Work at the Building, Contractor shall deliver to Owner an insurance certificate evidencing that Contractor maintains the insurance coverages set forth in Exhibit A attached to this letter agreement with regard to the Work. (The parties acknowledge that Tenant is required to maintain certain insurance coverages under its lease at the Building and that this agreement does not release Tenant from such obligation under the lease.) At all times during the performance of the Work, Contractor shall maintain (and Tenant is required under its lease to cause Contractor to maintain) such coverages in force, at its sole cost, from companies reasonably acceptable to Owner's agent, Shorenstein Realty Services, L.P. Owner reserves the right to reasonably modify the coverages in attached Exhibit A and Contractor shall comply with such reasonable modifications upon written notice from Owner of such modifications. In addition, Contractor shall cause all -subcontractors, suppliers and any other person or party acting under Contractor's direction or control or on its behalf in connection with the performance of the Work ("Subcontractors") to maintain in force, from companies reasonably acceptable to Shorenstein Realty Services, L.P., the types of insurance in Exhibit A that are applicable to their work or service and with limits of liability in the greater of (i) the amounts customarily maintained by such Subcontractors in accordance with industry standards or (ii) the amounts, if any, to be maintained by such Subcontractors as set forth in a written notice by Owner. As more specifically provided in Exhibit A, Contractor and all -Subcontractors shall name Tenant, Owner and the other Indemnified Parties as additional insureds for ongoing and completed operations.

3. Attorneys' Fees; Miscellaneous. In the event of any action or proceeding between Owner and Contractor to enforce any provision of this Agreement, the losing party shall pay to the prevailing party all costs and expenses, including, without limitation, reasonable attorneys' fees and expenses, incurred in such action. Notwithstanding any other provision of this Agreement, the liability of Owner for its obligations hereunder is limited solely to Owner's interest in the Building as the same may from time to time be encumbered, and no personal liability shall at any time be asserted or enforceable against any other assets of Owner. In no event shall either party be liable to the other party for consequential or remote damages.

The permission granted Contractor to perform the Work in the Building is conditioned upon Contractor's delivery to Owner of an original of this letter duly signed by Contractor and the insurance certificate(s) required to be maintained by Contractor under Exhibit A. Nothing herein relieves Contractor from its obligation to comply with Owner's construction standards, procedures, conditions and requirements for the Building as in effect from time to time, a copy of which shall be provided by Owner to Contractor upon request.

(continued on next page)

Please evidence your agreement with the above by signing and returning to us a duplicate copy of this letter.

Very truly yours,

[OWNER ENTITY] a Delaware limited liability company

By Shorenstein Realty Services, L.P., a
Delaware limited partnership, its managing agent

By_____

Name_____

Title_____

The undersigned agrees to the terms above:

[ARCHITECT OR GC LEGAL NAME]

By_____

Name_____

Title_____

EXHIBITS

Exhibit A – Insurance Requirements

EXHIBIT A

Insurance Requirements

- Commercial General Liability: including blanket contractual liability coverage sufficiently broad to cover the indemnification obligations above; with limits of 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 including coverage for broad form property damage and independent contractors. Such insurance shall be at least as broad as Insurance Services Office ("ISO") Form CG 00 01. 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 \$25,000.
- 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 Owner.
- 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 for Each Employee; and \$1,000,000 Bodily Injury Disease Aggregate.
- Contractor's 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 \$2,000,000 per claim and aggregate. For exterior work at the Building, or work that affects the Building's structure, the minimum limits for Professional Liability shall be \$5,000,000 per claim and aggregate.
- Per-project Aggregate Limit, the general aggregate limit in the Commercial General Liability policy shall apply on a "per project" basis instead of a "per policy" basis. A copy of the actual endorsement as broad as Insurance Services Office ("ISO") form CG 2503 is required.
- Additional Insured Parties: All insurance policies other than Workers' Compensation, Employer's Liability and if required Professional Liability (Errors & Omissions) shall name Owner, Shorenstein Properties LLC, Shorenstein Company LLC, Shorenstein Realty Services, L.P. (or Shorenstein Realty Services East LLC for New York City locations), Shorenstein Management LLC, Shorenstein MB Inc., and their respective Members, Partners, Officers,

Directors and Shareholders, and any other party specified by Owner at any time and from time to time as additional insureds with respect to the Work. The Commercial General Liability insurance shall provide coverage for the additional insureds at least as broad as that provided to the named insureds for both ongoing and completed operations. The limits of the coverage provided to the additional insureds shall be the greater of that set forth in this Agreement or the full limits set forth in the policy(ies). A copy of the actual additional insured endorsement as broad as Insurance Services Office ("ISO") form CG2010 1185 must accompany the certificate.

- Primary Insurance: The Commercial General Liability Policy shall provide that such insurance is primary to and non-contributory with any liability insurance carried by Owner, Shorenstein Realty Services, L.P. and the other Indemnified Parties 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 Contractor's 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 Owner insurance certificates completed by a duly authorized representative of their insurer certifying that at least the minimum insurance coverages required are in effect together with copies or originals of all required endorsements. Contractor shall give Owner not less than thirty (30) days' written notice prior to any cancellation or material change in coverage.
- Waiver of Subrogation, Etc.: Contractor shall cause all liability and Workers' Compensation insurance policies to provide that the insurance company waives all rights of recovery by way of subrogation against Owner, Shorenstein Realty Services, L.P. and the other Indemnified Parties, in connection with any matter covered by such policy. Contractor hereby waives any right of recovery against Owner, Shorenstein Realty Services, L.P. and the other Indemnified Parties, 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.

CONSTRUCTION PROJECT CLOSEOUT CHECKLIST

Construction Project Closeout

Checklist

MANDATORY – Documents to collect prior to or with the final application for payment for all construction projects. All documentation should be kept in the project file unless specifically called out differently:

1. Final As-Built Architectural Plans (CAD) – to be forwarded to our plan Archivist	<input type="checkbox"/>
2. Final As-Built Mechanical Electrical Plans – to be forwarded to your Chief Engineer	<input type="checkbox"/>
3. Final As-Built Fire Sprinkler Plans – to be forwarded to your Chief Engineer	<input type="checkbox"/>
4. Final As-Built Life Safety Plans – to be forwarded to your Chief Engineer	<input type="checkbox"/>
5. Completely signed off Permit Card showing completion of project and/or allowing Occupancy	<input type="checkbox"/>
6. Permit set of plans (usually delivered with the signed off Permit Card	<input type="checkbox"/>
7. Completed and signed off Punch List	<input type="checkbox"/>
8. All Operations and Maintenance Manuals	<input type="checkbox"/>
9. All equipment, material and workmanship warranties	<input type="checkbox"/>
10. Final Pay Application including Conditional Lien release or Waiver from the General / Prime Contractor	<input type="checkbox"/>
11. AFTER FINAL PAYMENT – Within three (3) business days of Final Payment you should receive a Final Unconditional Lien Release or Waiver from the General / Prime Contractor	<input type="checkbox"/>
12. Forward completed Construction Pricing information per each project as per the following procedures: Go to the SHWEB/ Property Management & Construction Department / PM&C Library / Construction - Chapter 9 / Resources and Forms and choose one of the appropriate Construction	<input type="checkbox"/>

Templates (not all types of jobs are listed or currently required to have a Template completed). Save the appropriate Template to your drive so you can input the required project information. Forward the completed Template to the "Construction Pricing Team" internal; e-mail address. If there are any questions on the completed Template the Construction Pricing Team will contact you. The Templates have drop down menus for individual cells on the form. Always (only) use the Construction Templates from the SHWEB for this task	
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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

GENERAL BUILDING INFORMATION**1.1 PROJECT DIRECTORY****A. Building Owner:**

SRI TEN 707 Wilshire LLC
c/o Shorenstein Realty Services, L.P.
707 Wilshire Boulevard, Suite 4840
Los Angeles, CA 9001

B. Building Manager:

Shorenstein Realty Services, L.P.
707 Wilshire Boulevard, Suite 4840
Los Angeles, CA 90017
Phone # 213-614-2300 FAX # 213-614-2784

Contact: Rosie Ulfik, General Manager
Traci Goodpaster, Property Manager
Esther Avagyan-Ramirez, Assist. Property Manager
Robert Jones, Chief Engineer

C. Leasing:

Tim Miller
JLL
515 S. Flower Street, Suite 1300
Los Angeles CA. 90017
Phone # 213 239 6024 FAX # 213 239 6100

D. Building Consulting Mechanical/Electrical/Plumbing:

FIRM USED: Simon S. Wong & Associates
ADDRESS: 3415 S. Sepulveda Blvd Los Angeles CA. 90034S
Phone # 310 313 0030 FAX # 310 313 0050
EMAIL: sswong@earthlink.net
CONTACTS: Simon Wong

E. Building Consulting Structural:

1. FIRM USED: Nabih Youssef & Associates
ADDRESS: 800 Wilshire Blvd Los Angeles CA. 90017
PHONE: 213 362 0707 FAX: 213 688 3099
CONTACTS: Owen Hata or Jacob Rodrigues
2. FIRM USED: Erkel Greenfield & Associates
ADDRESS: 500 North Brand Boulevard, Suite 1160 Glendale, CA. 91203
PHONE: 818.638.8041
CONTACTS: Jacob "Jack" Ratiu

PLANNING & DESIGN GUIDELINES**2.0 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.

3.0 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.

4.0 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. Base Building PDF and CAD (CADs where feasible) as built available upon request.
- C. **Distributed Antenna System (DAS)**. Office planners and Architects to incorporate DAS system cabling and antennas per AT&T pre-determined design locations. DAS is owned and exclusively maintained by AT&T. Vendor shall not touch, alter, move or modify DAS system in any way. Modifications to DAS system for design alterations is to be controlled by AT&T. Any repairs incurred to DAS system during tenant improvement construction is at the sole cost of Vendor and/or Tenant. Contact Building Management Office for AT&T contact information.
- D. Office planners shall coordinate the placement of partitions, light fixtures and other interior systems in relation to the base building MEP systems, structural elements and exterior curtain wall (Mullion and glazing) 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.
- E. Where slab-to-slab partitions are specified, HVAC transfer ducts shall be installed to reduce interference with functioning of above-ceiling return-air plenum.
- F. Tenant's keying and proximity card access systems shall be approved by Landlord and coordinated with Landlord keying schedule
- G. Electronic security, access control systems and delayed egress 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. Tenant security and delayed egress communication systems to be monitored by tenant or tenant managed vendors per applicable code where 24-7 monitoring is required. Below codes are general reference only and subject to change. CBC Means of Egress general Reference:
 - 1. CBC 1010.1.9.12 Access-controlled elevator lobby doors in high-rise office buildings.
 - 2. CBC 1010.1.9.9 Electromechanically locked egress doors.
 - 3. CBC 1010.1.9.7 Delayed Egress.

4. Tenant solely responsible for maintaining delayed egress systems. Should delayed egress system fail during required annual LAFD regulation 4 High Rise testing tenant shall have said repairs made within 30 days to maintain code compliance. Landlord repairs for tenant delayed egress systems will be billed back accordingly to tenant.
- H. Modifications to base building HVAC, Electrical, Plumbing, and Sprinkler systems shall be submitted for Landlord's review and approval, and at landlord sole discretion may be subject to third party review. 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 for electricity and BTU consumption.
- I. **Tenant Supplemental Chilled water systems** are at a pro-rated share of 2 tons per floor from 4th to 30th floor. Pro-rated share of 1.5 tons per floor from 31 to the 60th floor. Chilled water riser (Hot taps where applicable) are located at the north core elevation.
- J. Tenants shall maintain clear access to any base building mechanical or electrical closet within Tenant's premises.
- K. Improvements visible from common and public areas are to be identified in submittal and require Landlords review and approval.
- L. 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.
- M. 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, and at landlord sole discretion may be subject to third party review.
- N. 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 Vendor's cost.
- O. Alterations that effect building fire life safety systems and smoke control shall be pre-approved by Fire Department and Landlord.
- P. **Core Drilling Concrete**. Prior to core drilling, sawing, cutting or penetrating beyond one half (1/2) inch of the surface of any concrete, specific approval from the Engineering Department is required.
 1. X-rays or SONAR of the area affected may be required to insure absence of electrical wiring, plumbing or structural elements and obstructions. *Note: for tenant floor plates (4th to 60th floors) generally there is not a requirement to X-Ray or SONAR, except in specific core locations in the building.* The Building's designated Structural Engineer may be needed to certify work.
 2. If required, the X-ray procedure must be performed between the hours of 11:00 PM and 5:00 AM. Contractor must post their employees in sufficient areas to protect individuals from accidentally walking into the dangerous area of the X-ray beams. If

needed, Security Officers will be provided at Vendors expense. No core drilling through the Walker trenches is permitted without Landlord or Chief Engineer's approval.

3. X-ray is mandatory for any penetrations at 637 parking structure since all decks are post tension; this is to include any concrete nails, small anchors, etc.
- Q. When plumbing impacts the ceiling of the tenant space below, layout must be provided to the Owner for review and approval. Plumbing must be painted to match the existing conditions of the tenant space below.
- a. Drip pans may be required where cores impact mechanical/electrical or tenant systems to space below.
- R. Conduit routing
- a. All visible conduits shall be Electrical Metallic Tubing (EMT). Flexible Metal Conduit will not be allowed.
 - b. Layout of exposed conduit in the ceiling of tenant space below must be provided in a drawing for Owner review and approval.
 - c. Owner requires that conduit shall be installed at right angles to the exterior walls. Diagonal runs are not allowed. Conduit shall run as tight to the deck as possible, with bottom of conduit no lower than 4" from the deck.
 - d. Paint conduit to match existing conditions.
 - e. Owner approval is required when conduit impacts the aesthetics of architectural elements of the space below.
 - f. Drip pans may be required where cores impact mechanical/electrical or tenant systems to space below.
- S. 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

“GREEN” BUILDING CONSTRUCTION STANDARDS**1.0 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 (“LEED”), the U.S. Green Building Council LEED-Commercial Interiors Rating System (“LEED CI”) or LEED-Operation and Maintenance Rating System (“LEED O+M”) is the referenced document. It will be the responsibility of Vendor to identify and implement the most current Rating System version that applies to the Project.

2.0 MANDATORY GREEN BUILDING STANDARDS**A. Waste Management**

- 1. Adhere to LEED O+M, MR Credit, Solid Waste Management - Facility Maintenance and Renovation, including but not limited to:
 - a. At least 70% of non-hazardous demolition and construction waste, by weight or volume, will be recycled for all projects.
 - b. Vendor will provide documentation of performance toward this goal as part of Close Out Package.
- 2. Vendor will establish a project waste management plan that includes the following components: a waste diversion goal (70%), the materials for diversion, the volume of waste anticipated, safe storage location, appropriate waste removal procedures, and diversion strategies to be used.
- 3. Comply with all local jurisdiction construction waste management requirements.

B. Indoor Air Quality (IAQ)

- 1. Ventilation System Design: Adhere to LEED CI, EQ Prerequisite, Minimum Indoor Air Quality Performance.
- 2. Ventilation System Construction: Adhere to LEED O+M, MR Prerequisite, Facility Maintenance and Renovation Policy, including but not limited to:
 - a. Meet or exceed the control measures of the Sheet Metal and Air Conditioning National Vendors 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.
 - b. Isolate work areas to prevent contamination of clean or occupied areas.
 - c. Clean the construction area daily.
 - d. Seal air registers during construction.
 - e. Shut down the return side of HVAC systems if possible.

- f. 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 most current version of the ASHRAE 52.2 standard.
- g. Replace filters on HVAC units with filtration media as specified in the final design prior to occupancy.
- h. The construction space and affected ventilation ducts shall be thoroughly cleaned of all waste, dust, residues, and particles after construction has ended.
- i. Flush-Out: Vendor shall determine whether, following installation of all interior finishes and completion of all construction but before occupancy, a flush-out or air quality testing is needed. If any materials containing VOCs or formaldehyde were used in construction, flush-out shall be required until no detectable odor remains in the space.
- j. Vendor 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 Vendor absorbing the costs to return the equipment to its proper condition. Vendor 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 Vendor 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.

C. Sustainable Purchasing

- 1. Adhere to LEED O+M, MR Credit, Purchasing – Facility Maintenance and Renovation, including but not limited to:
 - a. Products and Materials: At least 50%, by cost, of the base building construction materials purchased will meet the LEED purchasing criteria for LEED O+M, MR Credit, Purchasing – Facility Maintenance and Renovation.
 - b. Furniture and Furnishings: To the extent reasonably possible, furniture and furnishings will meet the LEED purchasing criteria for LEED O+M, MR Credit, Purchasing – Facility Maintenance and Renovation.
 - c. Vendor shall provide documentation of the quantity, unit cost, and sustainability attributes of each material being procured.

D. Mechanical, Electrical, and Plumbing Requirements

All building specific information including model numbers, etc. are located in the Mechanical and Electrical sections of this document.

- 1. Adhere to LEED CI, EA Prerequisite, Minimum Energy Performance.
- 2. Lighting Motion Sensors: Occupancy Sensors with manual override are mandatory for all construction. Daylight responsive controls shall be located as per local code. 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.
- 3. Heating, Ventilating, Air Conditioning and Refrigeration Equipment

- a. Adhere to LEED CI, EA Prerequisite, Fundamental Refrigerant Management.
 - b. Adhere to LEED O+M, EA Prerequisite, Fundamental Refrigerant Management, including but not limited to:
 - i. Heating, ventilating, air conditioning and refrigeration (HVAC&R) equipment shall not contain CFC. When reusing existing HVAC&R equipment, complete a phase-out of CFC or demonstrate that phase-out would result in more than a 10-year payback period
 - c. Once-through, potable water cooling systems shall not be used.
4. Magnetic Lighting Ballasts
- a. Magnetic lighting ballasts are not allowed. Use only electronic ballasts. Energy savings electronic type, suitable for lamps specified, 120-277 volts match luminary voltage, class P, UL listed, non-PCB and RFI limited, sound rating A, crest factor 1.6 or less, high frequency (20 kHz or greater), maximum total harmonic distortion (THD) less than or equal to 10%, minimum true power factor 0.97, 3 year written warranty against mechanical or electrical defects under normal conditions of use.
5. Lamps and Ballasts
- a. Lamps and ballasts, including manufacturer, type, watts and mercury content shall meet lighting power density established by ASHRAE/IESNA Standard 90.1 – 2010. All lamps shall be certified by the U.S. Environmental Protection Agency's ENERGY STAR program. 707 Wilshire and 637 parking structure have been converted to LED's either by retrofitting existing fixtures or with new LED fixtures. LED's shall be maintained accordingly throughout and where feasible on new construction.
6. Variable Air Volume (VAV) boxes
- a. When installing new building standard VAV boxes, use Direct Digital Control (DDC). DDC boxes should be installed on the Delta BAS Backbone
7. Tenant supplemental Units:
- a. When installing new tenant supplemental cooling (Chilled water) and/or Exhaust fan systems, use Direct Digital Control (DDC) where feasible. Tenant supplemental systems should be installed as a stand-alone application and metered (Lease dictates) for electricity and BTU consumption accordingly. Tenant supplemental chilled water is at a Pro-rated share of 2 tons per floor, for floors 4 to 30, and 1.5 tons per floor for floors 31 to 60.
8. Faucets
- a. Adhere to LEED CI, WE Prerequisite, Indoor Water Use Reduction, or local standard if more stringent, for all restroom sinks, kitchen sinks, and shower heads.
 - i. Where available, Vendor 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.
9. Low Flow Fixtures
- a. Adhere to LEED CI, WE Prerequisite, Indoor Water Use Reduction, or local standard if more stringent, for all toilets and urinals.
 - i. Where available, Vendor 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.

10. Commissioning Process

- a. Adhere to LEED CI, EA Prerequisite, Fundamental Commissioning and Verification.

E. Equipment and Appliances

1. Vendor 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

F. Water and Energy-Efficient Construction Practices

1. Vendor shall use resource-efficient construction practices 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.

END OF SECTION

HAZARDOUS MATERIALS**1.1 SUMMARY**

A. Section Includes: Hazardous materials special procedures.

1. The Contractor shall comply with Title 8 of the California Code of Regulations California-OSHA and Title 29 of the Code of Federal Regulations (OSHA) for all safety and labor requirements. The Contractor shall comply with Title 27 of the California Code of Regulations California-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

GENERAL QUALITY REQUIREMENTS**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. Vendor 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. Vendor 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.

END OF SECTION

TEMPORARY FACILITIES AND CONTROLS**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 Tenant Construction Standards 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 Tenant Construction Standards 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. All fire watch protocols apply where and when applicable.
- C. Use of Existing Facilities:
 - 1. Existing emergency 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

METALS**METAL FABRICATIONS**

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

1.2 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.

1.3 FABRICATION.

- A. Handrails: When tested according to ASTM E935, handrails to be capable of withstanding following:
 - 1. Concentrated loads (e.g. of 200 foot-pounds) per code applied at any point in any direction.
 - 2. Uniform loads of (e.g. 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 (e.g. 300 foot-pounds) per code applied at any point in any direction.
 2. Uniform loads (e.g. 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.

END OF SECTION

WOOD AND PLASTICS**ARCHITECTURAL WOODWORK****1.1 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.

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. Vendor 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.

1.3 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.
- C. Telephone/server/IDF rooms:
 - 1. Plywood backer boards shall be Fire retardant (FRTW) type per applicable NFPA and local code approved for use in high rise buildings.

END OF SECTION

BUILDING INSULATION

1.1 MATERIALS

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

END OF SECTION

THERMAL AND MOISTURE PROTECTION**PATCHING EXISTING FIREPROOFING**

1.1 GENERAL: Comply with all of the Contract Documents.

1.2 SCOPE OF WORK: Refer to "Division Scope of Work" in architectural plans or similar.

1.3 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.

1.4 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.

1.5 SUBMITTALS

- A. Manufacturers' Data: Submit manufacturer's instructions for proper application of sprayed fireproofing. The Vendor will research the W.R. Grace website to find the most up to date version of the specification <http://www.na.graceconstruction.com/>. The Vendor 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.

1.6 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.

1.7 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 Vendor shall provide enclosures with heat to maintain temperatures.
- B. General Vendor 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.

1.8 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.

1.9 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 Vendor, 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 fireproofing 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 Vendor 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.

1.10 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.

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 Vendor, 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 Vendor, 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 Vendor 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 Vendor "shall place fans on all of the columns", so if there are 40 columns throughout the space the Vendor will place 40 fans during the mechanical drying process and additional fans shall be placed to create air flow in one direction.
- J. The Vendor 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 Vendor 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 Vendor 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 all of the representative samples are below 15% moisture concentration.
- M. The Vendor 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 Vendor with a letter

of acceptance of the drying and concur that the mechanical drying system can be removed.

1.11 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

1.12 FIRE-RESISTIVE RATING

- A. Fire resistive rating shall be:
- 2 hours for Slab 1-0" min thickness.
 - 2 hours for Secondary Girders/Beams 1-0" min thickness.
 - 3 hours for all Primary Girders/Beams 1-1/2" min. thickness.
 - 3 hours for all Columns 1-7/8" min. thickness.
- Spray on fireproofing thickness is general reference from base building plans.

1.13 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

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

NOTE:**DOORS AND WINDOWS****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.

PART 2 - PRODUCTS**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. 3'0" x 8'6" Quartered Sappelle Mahogany or Clear Maple - Fire rated wood door 20 minute rating.
 - 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, vertical grain Honduran Mahogany veneers for stained finish; minimum 1/30" (0.033" thick) before sanding; match building standard doors.
 - 4. Opaque Painted Face Veneers: WIC/Premium Grade White Birch veneers for opaque pain 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: 3'-0" by 8'-6" (Field verify height) each leaf.

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**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.

1.3 MATERIALS

- A. Gypsum board ceiling system access panels type: Manufacturer, WindLock glass fiber reinforced Stealth Panels 18"x18" Min size.
- B. Steel recessed Wall mounted (Flange type) non rated Access door: 6"x6" to 20"x20" paint grade or brushed stainless steel. Application dictates size and style. ACUDOR or equal
- C. Steel recessed Wall mounted (Flange type) fire rated Access door: 18"x18" to 24"x24" paint grade or brushed stainless steel. Application dictates size and style. Manufacturer: ACUDOR or equal
- D. B and C steel doors above not allowed in exposed gypsum ceiling systems unless noted otherwise and approved by landlord.

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 typically 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.
 - b. Exemption to above: With landlord approval, and where tenant occupies full floor, has full right-of-way to floor PEL and/or freight lobbies then LADBS codes for Delayed Egress apply. See Section G "Planning and Design Guidelines" in this document.
 3. All Electrically controlled hardware shall be approved by City Fire Department, and be fail-safe unlocked.
- B. Vendor is to coordinate all hardware requirements with any security devices. Vendor 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 and Chief Engineer.

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.

DOOR ASSEMBLIES

1.1 SUMMARY

- A. Landlord final approval needed for all suite exterior door and Jam finish types and are to match the floor existing conditions. If no existing conditions are available to match, Architect shall follow building standards and as directed by Landlord for suite exterior door and Jam finishes. This is true for tenant doors that are to remain in a held open condition exposing interior door finishes.
- B. **Section Includes:** This section provides information regarding door and hardware.
 - 1. All Locksets shall have standard Schlage 6 pin cores and building standard keyways.
 - a. Core, Exterior, and Suite Entry Doors: See onsite locksmith for keyway specifications.
 - b. Low rise Interior Suite Doors: See onsite locksmith for keyway specifications.
 - c. High rise Interior Suite Doors: See onsite locksmith for keyway specifications.
 - 2. **Suite Entry Door Assembly:**
 - a. Door: 3'.0" wide by 8'6" high by 1-3/4" thick solid core, Quartered Sappelle Mahogany or Clear Maple - Fire rated wood door 20 minute rating
 - b. **Double Doors:** Matched pair with rating.
 - c. Frame: Painted hollow metal, fire rated one hour assembly. Western Integrated Door Frame 315 series type, 302 trim 24" Sidelight.

d. Suite Entry Door Hardware: Single Leaf Door:

- 1) Latch set: Schlage mortise L series 626 finish
- 2) Lockset: Schlage mortise L series lockset Design: 17A lever. finish: 626 (6 pin – 1 1/8") Restricted Keyway (See on-site locksmith)
- 3) Hinges: McKinney TA-2714 4 1/2" x 4" Hinges to match frame. US26D finish
- 4) Door Stop: Burns 510-626 Satin Chrome Plated Brass Low Dome Stop Material: Cast Brass with Gray Rubber Bumper, Size: 1-3/4" diameter x 1" High x 1/8" Base thickness without threshold, 1/2" base thickness or equivalent with threshold.
- 5) Closer: NORTON 7500 M273644-7 689 Aluminum Finish. Pair of closers to be used for pair of doors

e. Suite Entry Door Hardware: Matched Pair Doors:

- 1) Lockset: Schlage mortise L series lockset Design: 17A lever Finish: 626 (6 pin – 1 1/8") Restricted Keyway (See on-site locksmith)
- 2) Hinges: McKinney TA-2714 4 1/2" x 4" Hinges to match frame. US26D finish
- 3) Closer: NORTON 7500 M273644-7 689 Aluminum Finish. Pair of closers to be used for pair of doors.
- 4) Door Stop: Burns 510-626 Satin Chrome Plated Brass Low Dome Stop Material: Cast Brass with Gray Rubber Bumper, Size: 1-3/4" diameter x 1" High x 1/8" Base thickness without threshold, 1/2" base thickness or equivalent with required riser and door mates,
- 5) Flush Bolts: Automatically operated, edge-mounted flush bolts, DCI #842-US26D
- 6) Dust Proof Floor Strike: DCI 626 finish
- 7) Astragal: Metal, finish to match door.
- 8) Coordinator: Glynn Johnson coordinator 600 series. Quality door stop cast aluminum #331ES x 332. Firemark electromagnetic door release #997
- 9) Door Thresholds: Pemko Saddle

f. Alternate single or double entry doors. Where feasible per LADBS Code compliance and required landlord approval:

- 1) Masonite Architectural: <https://architectural.masonite.com/graham-maiman/french-door-and-fire-rated-options/>
- 2) Framed glazing doors shall be of single lite (1 Lite) type and rated 20 minute fire rating with Schlage locking hardware per D-1, D-2 and E-1 hardware callout above.

2. Tenant Interior Door Assembly:

- a. Door: 3' 0" wide by 8' 6" high by 1-3/4" thick solid core, Quartered Sappelle Mahogany or Clear Maple veneer stained per tenant's specifications.
- b. Double Doors: Matched pair.
- c. **Interior Frame:**
 - 1) Western Integrated Door Frame 315 series type, 302 trim #WHI-1328868. 3' 0" x 8' 6" 24" Sidelight Factory painted clear aluminum or painted hollow metal, color per plans and specifications.
 - 2) Frame: Factory applied thermosetting paint finish or anodized aluminum, color per plans and specifications.
- d. Sidelights: 2" aluminum frame painted per tenant's specifications with 1" mini-blinds installed within frame. Color of mini-blinds per tenant's specifications.
- e. **Interior Hardware: Single Leaf Door:**
 - 1) Latchset: Schlage mortise L series 626 finish or Finish and lever style handle to be per tenant's specifications.
 - 2) Lockset: Schlage mortise L series 626 finish or Finish and lever style to be per tenant's specifications.
 - 3) Hinges: McKinney TA-2714, 4-1/2" by 4-1/2". Finish to be per tenant's specifications.
 - 4) Door Stop: : Burns 510-626 Satin Chrome Plated Brass Low Dome Stop Material: Cast Brass with Gray Rubber Bumper, Size: 1-3/4" diameter x 1" High x 1/8" Base thickness without threshold, 1/2" base thickness or equivalent with required riser and door mutes. Finish to be per tenant's specifications.
- f. **Interior Hardware: Matched Pair Doors:**
 - 1) Latchset: Schlage mortise L series 626 Finish or Finish and lever style to be per tenant's specifications.
 - 2) Lockset: Schlage mortise L series lever handle. Finish and lever style to be per tenant's specifications.
 - 3) Closer: NORTON 7500 M273644-7 689 Aluminum Finish Pair of closers to be used for pair of doors. Finish to be per tenant's specifications.
 - 4) Hinges: Butt hinges, Mckinney, 4-1/2" by 4-1/2". Finish to be per tenant's specifications.
 - 5) Door Stop: Burns 510-626 Satin Chrome Plated Brass Low Dome Stop Material: Cast Brass with Gray Rubber Bumper, Size: 1-3/4" diameter x 1" High x 1/8" Base thickness without threshold, 1/2" base thickness or equivalent with required riser and door mutes. Finish to be per tenant's specifications.

- 6) Flush Bolts: Automatically operated, edge-mounted flush bolts, DCI #842-US26D
- 7) Dust Proof Floor Strike: DCI 626 finish
- 8) Coordinator: Glynn Johnson coordinator 600 series. Quality door stop cast aluminum #331ES x 332. Firemark electromagnetic door release #997 finish to match door frame, flush bolt #FB8, at 20 minute rated doors only.

3. Building Core Door Assemblies:

- a. Door: 3' 0" wide by 8' 6" high by 1-3/4" thick solid core, one and a half hour rated assembly door (90min stairwell,), or as required, solid core, paint grade, building standard door is to be painted to match adjacent wall.
- b. Double Doors: Matched pair. 3'0" x 8'6" Quartered Sappelle Mahogany or Clear Maple, field verify required when replacing.
- c. Frame: Hollow metal, painted to match adjacent walls.
- d. Hardware: Match building standard.

4. Stairwell Doors:

- a. HiTower (Now Security Door Controls, SDC) 7500 series controller 24VDC with door intrusion and door locked option strike, Strike to fail safe (Unlocked condition on power failure) utilizing SDC mortise with Schlage lockset.
- b. If Panic hardware is required, Yale 7000 Series is the compatible option with the above SDC 7500 series mortise on existing stairwell doors.
- c. **Smoke Seals** National Guard Products Snap on concealed seal #170NA. 1" x 13/32. Pemko Silicon-seal self-adhesive door gasket. Pemko Silicon-seal self-adhesive door gasket.

END OF SECTION

GLAZING**PART 1 - GENERAL****1.1 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.

1.2 REFERENCES

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

1.3 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.

PART 2 – PRODUCTS**2.1 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.

PART 3 - EXECUTION

3.1 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.

END OF SECTION

FINISHES**GYPSUM 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 CITY: Los Angeles and STATE Of California Building Codes for design of metal framing for gypsum board systems.
 - 2. Vertical Dimensions: Typical slab-to-slab heights are as follows.
 - a. Floor 13' 6" typical deck to deck. Architect to reference 1972 as build Architectural sheet A2.2. Architect and Vendor to field verify.
 - 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.

PART 2 – PRODUCTS**2.1 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. Curtain Wall Exterior glazing Sill:
 1. Architect and vendor to reference 1972 as build Architectural sheet A5.3 **Sill Detail 1** where gypsum board meets sill. This area to be left free of gypsum mud and sealants to allow independent movement of components. Sill detail to remain free of architectural obstructions limiting removal of sill for glazing repairs.
- D. Curtain Wall Exterior glazing Head/linear detail:
 1. Architect and vendor to reference 1972 as build Architectural sheet A5.3 **Head Detail 2** where gypsum board (Hard lid) meets head/linear. This area to be left free of gypsum mud and sealants to allow independent movement of components. This is true for acoustical ceiling systems. head detail to remain free of architectural obstructions limiting removal of head for glazing repairs.

2. Typical ceiling heights are 8'-8" and are controlled by the perimeter linear. Verify in field.
- E. 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.
- F. 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.

PART 3 – EXECUTION

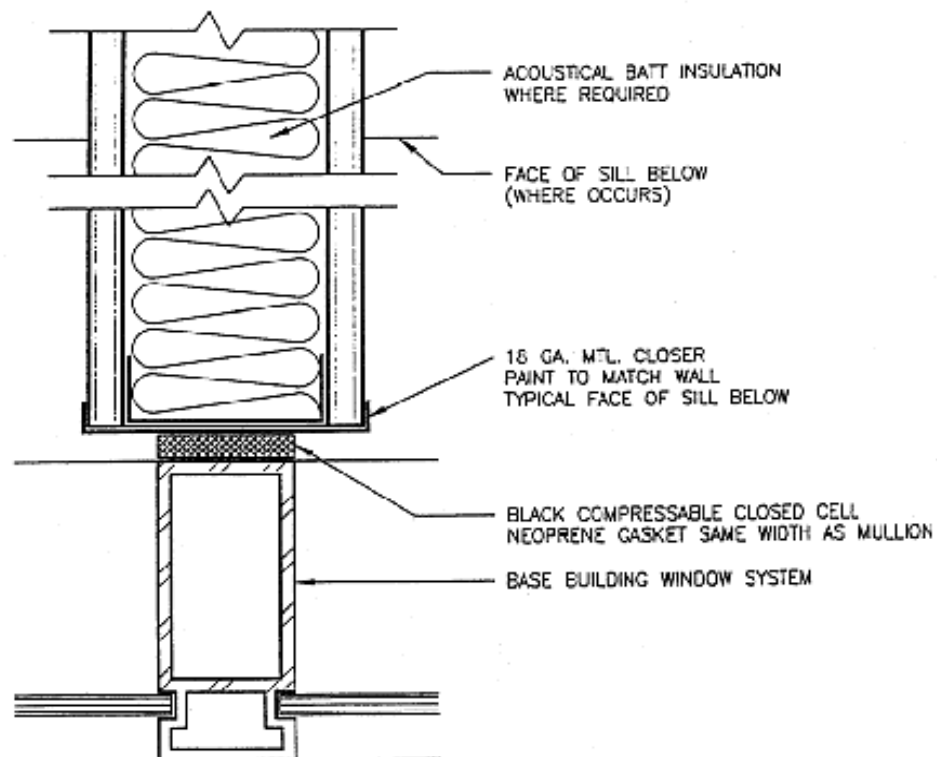
3.1 INSTALLATION

- 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

ATTACHMENT:

707 DEMISING WALL TO WINDOW MULLION (TYP)



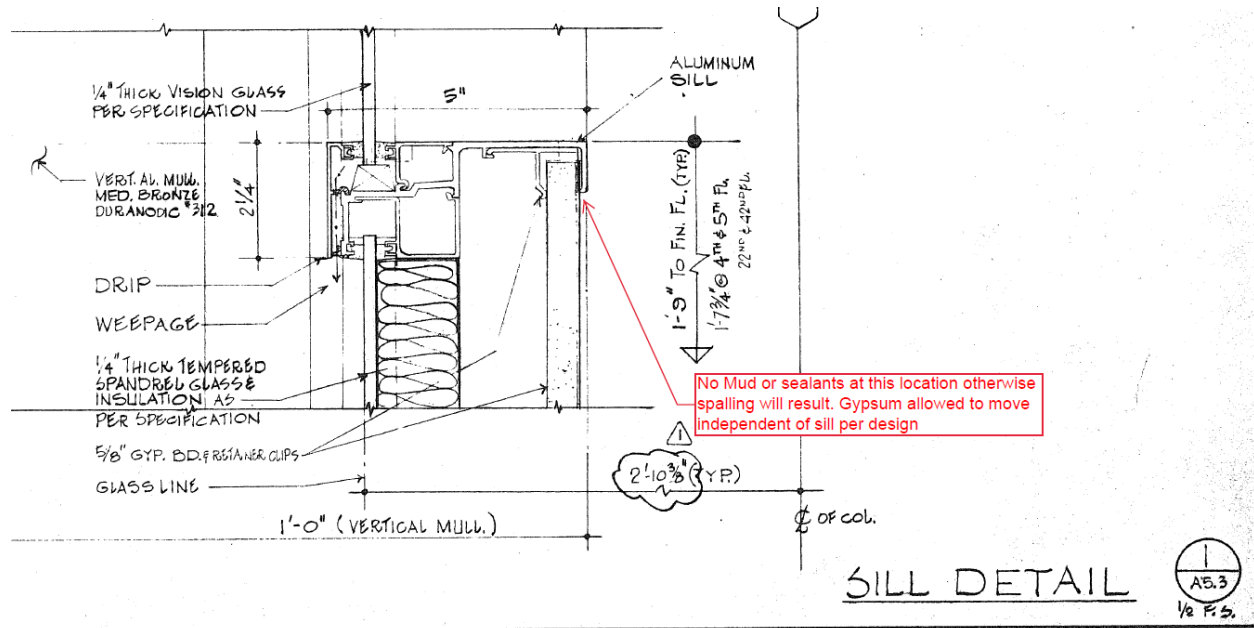
* NOTE: NEW FASTENERS ARE NOT PERMITTED
AT (E) EXTERIOR WINDOW COMPONENTS.

WALL TO WINDOW MULLION

P-16F

SCALE: N.T.S.

707 PERIMETER CURTAIN WALL SILL FROM A5.3 DETAIL 1 (TYP)



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 8'-8" unless otherwise approved by Landlord. Field conditions dictate, field verification required.
 - b. Structural Horizontal main beam heights are typically 9'-0" with required structural fire proofing. Field conditions dictate, field verification required.
 - c. Sprinkler mains at beam transitions typically 8'-10". Varies. Field conditions dictate, field verification required.
 - 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. Exposed Grid Systems: Direct hung, Armstrong steel "T" type exposed grid system, standard 9/16" width, with 1/8 reveal. (Field verification required when matching a specific suite.)
 - a. Provide Armstrong Silhouette XL 1/8"Reveal.
 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:** Armstrong Ultima 9/16" Beveled Tegular 1912
 2. **Sizes:** 24" x 24"
 3. **Finish:** white painted finish.

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.

END OF SECTION

TILE**PART 1 – GENERAL****1.1 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.

PART 2 – PRODUCTS**2.1 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.

2.2 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.

PART 3 – EXECUTION**3.1 INSTALLATION**

- C. 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.

- D. Locate expansion joints, control joints, contraction joints, and isolation joints where recommended by TCA Handbook and as approved by Architect.
- E. Install membranes for restroom, shower rooms, kitchens and anywhere floor drains are installed, or where damages could impact floor below. Drain pan may be required in locations below plumbing runs relative tenant and equipment on impacted floors below. Leak detection and/or Flood Stop for critical areas should be considered.

END OF SECTION

RESILIENT TILE FLOORING**PART 1 - GENERAL****1.1 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.

1.2 PROJECT CONDITIONS

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

PART 2 - PRODUCTS**2.1 MATERIALS**

- A. Passenger elevator lobby Stone (PEL): Emser 12x24 Action "Cue"
 - 1. Cove Base: Johnsonite 2.5: Rubber Base straight
 - 2. Color: 68 White Sand.
- B. Tenant Spaces:
 - 1. Resilient Tile: 12" by 12" by 1/8" thick; vinyl composition tile conforming to ASTM F1066, Composition 1.
 - 2. FloorScore Certified.
 - 3. Color and Pattern: As selected by Landlord or Architect from manufacturer's full range of available colors.
- B. Resilient Base: 1/8" thick x 2-1/2" high Rolled Rubber Wall Base Type III Commercial. Provide coved 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

2.2 PREPARATION

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

END OF SECTION

CARPET**PART 1 - GENERAL**

- 1.1 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.
- 1.2 Certificate of Compliance: Provide manufacturer's certificate of compliance stating each material delivered conforms to Specifications.

PART 2 - PRODUCTS**2.1 MATERIALS**

- A. Carpet & Rug Institute (CRI) Green Label Plus.
- B. **Building Standard Common Area Carpet:**
 1. **Hallways:** Shaw Drift 5T142 9"x36" Carpet Tile.
 2. **Color:** Breeze
 3. **Carpet in Elevator Lobby(PEL):** Shaw Ikat 60786 Broadloom Capret, Color 85402 timeless
 4. **Cove Base:** Johnsonite 2.5: Rubber Base straight 68 White Sand
 5. **Base color:** 68 White Sand
- C. 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
 5. Maximum Allowance for fully furnished and installed price:
 - a. Direct Glue \$30/sq. yd.
 - b. Over Pad \$35/sq. yd.

D. 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

E. Base: 1/8" thick x 2-1/2" high Rolled Rubber Wall Base Type III Commercial. Provide straight base at carpeted floor surfaces 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.

2.2 PREPARATION

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

PART 3 – EXECUTION

3.1 INSTALLATION

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

END OF SECTION

VINYL WALL COVERING

PART 1 - GENERAL

1.1 REFERENCES

- A. Federal Specification CCC-W-408: Wall Covering, Vinyl Coated.
- B. Architect and Tenant note:
 - 1. Wall coverings in all common areas require landlord approval. Wall coverings used in tenant spaces are tenant responsibility where wall coverings impact building core and may require penetration in emergency situations.

PART 2 - PRODUCTS

2.1 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.

END OF SECTION

WALL FABRICS

1.1 MATERIALS

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

END OF SECTION

PAINTS AND COATINGS**PART 1 - GENERAL****1.1 SUBMITTALS**

- A. Certificates: Furnish certificates from each manufacturer stating materials are top quality lines and suitable for intended use on this Project.
- B. Landlord final approval needed for all suite exterior door and Jam finish types and are to match the floor existing conditions. If no existing conditions are available to match, Architect shall follow building standards and as directed by Landlord for suite exterior door and Jam finishes. This is true for tenant doors that are to remain in a held open condition exposing interior door finishes.

PART 2 - PRODUCTS**2.1 MATERIALS**

- C. 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 South Coast Air Quality Management District (SCAQMD) Rule #1113.
 - b. First Coat: Vinyl Latex Enamel Underbody.
 - c. Finish Coats: Latex Semigloss Enamel to cover.
 - 4. Wood, Stained Finish:
 - a. Meets the requirements of South Coast Air Quality Management District (SCAQMD) Rule #1113.
 - 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. Common area Door and frames paints: Dunn Edwards, SZRO 50, Dew 395 Heirloom Shade, P-3/Semi-Gloss - Doors and frames throughout, including elevators- Use Semi-Gloss enamel paint.
7. Common Area Wall paints: Dunn Edwards, SZRO 30, Dew 386 Precious Pearl, P-1/Eggshell - Perimeter Walls throughout common areas.
- D. 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.

END OF SECTION

SPECIALTIES**FIRE EXTINGUISHERS AND CABINETS****PART 1 - PRODUCTS****1.1 MATERIALS****A. Fire Extinguishers:**

1. **Typical:** Potter Roemer 5lb-3005 2A-10BC, 10lb-3010 4A-10BC, A,B & C hung centered in cabinet (As per code). **Kidde Fire extinguishers are not allowed.**
2. **Hazardous Areas:** Fire extinguisher type, size and application as per California and LAFD code for the given environment applied. If LAFD code calls for ABC class, Provide Potter Roemer 5lb or 10lb, A,B & C hung centered in cabinet. **Kidde Fire extinguishers are not allowed.**
3. At locations designated by Fire Marshal or inspector considered as hazardous.

B. Fire Extinguisher Cabinets:

- a. **Common Corridors:** ALTA FX Cabinets, 7025-DV-6-VR Where applicable use option -FRC. Where corridors are existing- match existing FX cabinets unless noted otherwise and approved by Landlord.
- b. **Tenant spaces:** Potter Roemer FX Cabinets, 7021-DV or 7026-DV (FX size requirement dictates cabinet)
2. 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.
3. Frame: Trimless, recessed, door frame flush with finish wall.
4. Metal Gauges: Manufacturer's standard for series specified.
5. Box: Provide manufacturer's standard box with white baked enamel interior finish and baked enamel exterior finish.
6. Doors & Cabinets: Steel, full flush metal panel, with catch; provide thermosetting primer compatible with factory finish white paint.
7. 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.

8. 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.
9. Fully recessed in corridors and common areas. Semi recessed in tenant spaces.

END OF SECTION

FURNISHINGS**PERIMETER LOUVER BLINDS AND WINDOW COVERINGS****PART 1 - GENERAL****1.1 SUMMARY**

- A. Provide Vertical Blinds: Solar Vertical Systems SVS-515 3 ½" wide fabric vanes **(North)** Color – white dawn. Travelers – SVS – 8000, Color – Black. SVS-615 3 ½" wide fabric vanes **(East, West, South)** Color – white dawn. Travelers – SVS – 8000, Color – Black. and window covering systems with operating hardware, attachments, and accessories as required for complete finished operational installation.

PART 2 - PRODUCTS**2.1 MANUFACTURER**

- A. Solar Vertical Systems or Travelers SVS 8000
- B. Substitutions: Not permitted unless otherwise approved by Landlord. Proposed substitutions would need to color match White Dawn existing blind louvers for exterior color continuity between neighboring floors. No color exceptions taken. Landlord approved substitute blinds are the sole responsibility of tenant.

2.2 MATERIALS

- A. Description of window covering
 - 1. Vertical Blinds: Solar Vertical Systems SVS-515 3 ½" wide fabric vanes **(North)** Color – white dawn. Travelers – SVS – 8000, Color – Black. SVS-615 3 ½" wide fabric vanes **(East, West, South)** Color – white dawn. Travelers (Frame) – SVS – 8000, Color – Black.
 - 2. White Dawn (Vertical) Traveler- Black Frame
 - 3. Tilt Control: Manufacturer's standard color to match shades. Blind operator typical on right side. Vertical binds to open to the right unless application specific.
 - a. Horizontal Locks: Design to hold blinds in proper alignment at any point of travel.
 - 4. Head Rail: 1-1/2".

PART 3 - EXECUTION**3.1 INSTALLATION**

- A. Install louvered blinds in window sash in accordance with blinds manufacturer's recommendations and installation instructions.

1. Center Blinds with curtain wall head detail. Blind mounting to be consistent throughout.
 2. Blind mounting not allowed at linear without prior written landlord approval. Architectural detail required for approval.
 3. Blind mounting or architectural elements shall not impede curtain wall head detail removal for vision glazing removal. Reference 3.2 below
 4. 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.

3.2 References:

- A. Base building as build Architectural sheet A5.3 head detail #2, Sill detail #1, Mullion Detail #5.

END OF SECTION

SOLAR-CONTROL FILM (OPTIONAL)**PART 1 - GENERAL****1.1 SUMMARY**

- A. Section Includes: Provide solar-control film at exterior windows where required, with accessories as required for complete finished operational installation.
 - 1. 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. 3M
- B. Substitutions: Not permitted.

2.2 MATERIALS

- A. Solar-Control Film: 3M- N.V. 25

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

SPECIAL CONSTRUCTION**ROOF ANTENNAS AND SATELLITE DISHES for 707 and 637****(If allowable per Lease)****PART 1 - GENERAL****1.1 SUMMARY**

- A. New and relocated roof antennas shall be structurally mounted and where applicable structural approval by building structural engineer of record; satellite dish mounting shall be structurally engineered and permanently mounted to building, no sleds permitted. All antennas to be approved by landlord and landlord third party roof manager.

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.
- C. Update to rooftop RF study required for all new antenna/satellite installations at vendor cost. Landlord rooftop manager executes all applicable rooftop RF study reports.
- D. Where applicable and is subject to change by landlord at landlords will, All exposed antennas are to be painted to match background existing conditions and maintain a clean sightline.
- E. **Core Drilling Concrete**. Prior to core drilling, sawing, cutting or penetrating beyond one half (1/2) inch of the surface of any concrete, specific approval from the Structural engineer of record and/or Engineering Department is required.
 - 1. X-rays or SONAR of the area affected may be required to insure absence of electrical wiring, plumbing or structural elements and obstructions. *Note: for tenant floor plates (4th to 60th floors) generally there is not a requirement to X-Ray or SONAR, except in specific core locations in the building.* The Building's designated Structural Engineer may be needed to certify work.
 - 2. If required, the X-ray procedure must be performed between the hours of 11:00 PM and 5:00 AM. Contractor must post their employees in sufficient areas to protect individuals from accidentally walking into the dangerous area of the X-ray beams. If needed, Security Officers will be provided at Vendors expense.
 - 3. X-ray is mandatory for any penetrations at 637 parking structure since all decks are post tension; this is to include any concrete nails, small anchors, etc
 - 4. No core drilling through the Walker trenches to be permitted without Landlord or Chief Engineer's approval. Coring of Monuments through Walker duct system

should be avoided at all times. Should the situation arise where walker duct system is in path of core, Chief engineer and Landlord approval is required. All fire stop codes apply to restoring fire rating

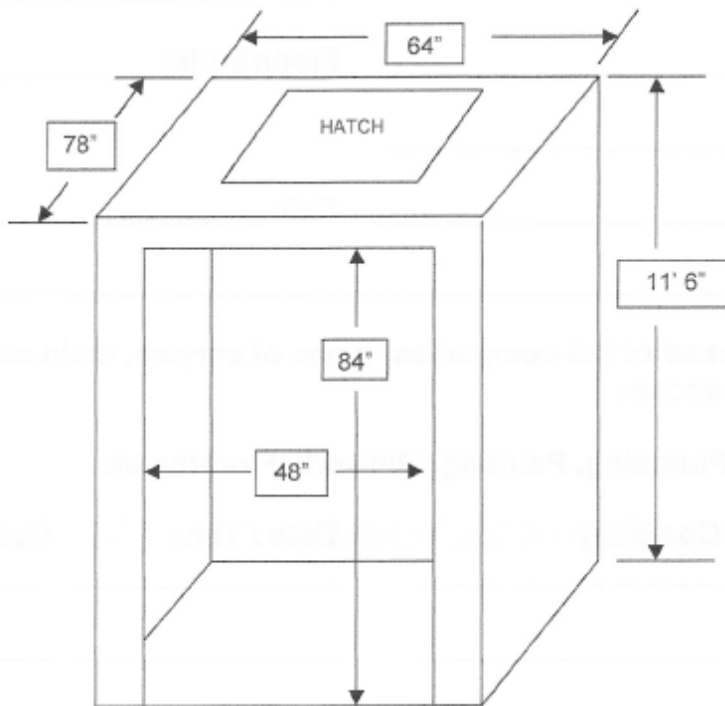
END OF SECTION

CONVEYING SYSTEMS**ELEVATOR INFORMATION**

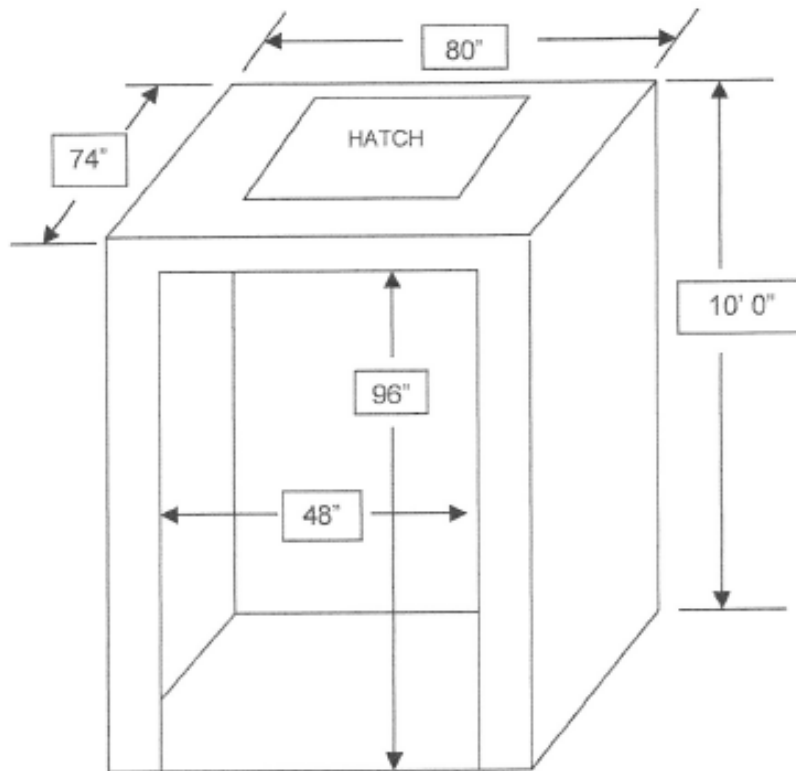
Contact Landlord for specific elevator information.

- A. Freight elevators are secured controlled access system. Elevator use is restricted to freight deliveries, building staff and construction services. Tenants are allowed limited service where it applies
- B. Freight elevator cleanliness shall be maintained at all times.
- C. Damages incurred during use by tenant/general contractor/vendor misuse is the sole responsibility of said tenant, general contractor and/or vendor.
- D. Freight Elevator Reservations are on a first come first served basis.
- E. Passenger elevators are for tenant services business foot traffic only and are not allowed for freight or construction use.
- F. Freight elevator car # 8 and #33 dimensions;

***FREIGHT ELEVATOR CAR #8 DIMENSIONS,
4000 LB CAPACITY***



***FREIGHT ELEVATOR CAR #33 DIMENSIONS,
5000 LB CAPACITY***



END OF SECTION

MECHANICAL**FIRE PROTECTION****PART 1 - GENERAL****1.1 SUMMARY**

- A. Fire Protection system, which shall be pre-engineered or handled as "design-build" contract. Design build requires landlord approval.
 - 1. Vendor/Design Engineer is completely responsible for verification of design criteria, design, installation and performance of system.
 - 2. Installation Vendor shall have a Class C-16 Fire Protection Vendor'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 the Electrical section for supervision, testing, remote alarm, and trouble monitoring.
 - 6. Building Engineering staff performs drain down and refills. Coordinate drain downs 24 hours ahead. No more than one floor drained at any one time.
 - 7. No hot work permitted on a drained/non protected floor.
 - 8. Include incidental work that can be reasonably inferred and necessary to provide systems described.
 - 9. Coordinate work schedule with Landlord and Building Engineer.
 - 10. **No mechanical "T's" shall be installed. This would include the field name "Saddle Taps"**
 - 11. **All end branch lines and arm overs:** splay wired at 90 degree angles to the supported pipe and 45 degrees to the upper deck for seismic stability. Minimum 12ga wire as per ASTM A641. As per IBC (International Building Code) Three wraps around pipe and tied back with a minimum of three wraps back on hanger wire.
 - 12. 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.

13. Existing base building sprinkler test and drain piping arrangement at fire water riser or stand pipe riser area shall remain unaltered.

A. Related Sections:

1. 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: Type: 1 62 story high-rise
2. Hazard: Light hazard.
3. Construction: Non-combustible.
4. Zoning: Verify.
5. Hose Streams: Verify.
6. Existing Application Rate: Verify.
7. Existing Area of Application: Verify.
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. Building is Type: 1, Location: Stair 5A and stair 6 risers to supply existing or future fire sprinkler loops on each floor.
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. This is to include any LADBS/LAFD field notes that may impact base building.
- 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. See paragraph 11 in Section 1.1 above.
 - a. **Powder driven concrete inserts shall not be allowed.**
- B. Piping Specialties:
1. Floor level Gauges are to be Marsh No. 8, 3-1/2" Dial, 0-300 psi scale, UL listed and (FM) approved, 1/4" NPT 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 compliant with Edwards EST system. Coordinate with Life Safety System provider for each building.
- C. Sprinkler Heads:
1. **Manufacturer:** Reliable G4 Concealer 155 degree F 1/2" orifice white plate
 2. Standard common area and tenant space sprinkler heads shall be Reliable G4 Concealer 1/2" orifice white plate rated at 155 degrees F, quick response, UL listed, FM listed, plated with factory painted white enamel escutcheon plate for concealed heads.
 3. Upright Pendant and recessed pendant shall be: TYCO Series TY-FRB rated at 155 or 165 degrees F. UL listed, FM listed as per NFPA 13. Temperature rating where code applies.
 4. For hard ceiling installations where concealed heads are specified, sprinkler heads shall be Reliable G4 Concealer quick response concealed sprinkler heads. Concealed Heads: 165 degree F 1/2 inch Quick Response FM Approved with factory painted white cover.
 5. **Floors 4 to 21 require 300psi rated sprinkler heads regardless of type used above.**
 6. Newly installed and relocated sprinkler heads are to be placed in center of tile.
- D. Preaction/Deluge System: Preaction system shall be UL listed and FM approved with battery backup.

1. Provide required test connection and drain. Where feasible, test drain shall be connected to main sprinkler drain.
 2. All pre-action systems shall be monitored by building Edwards EST fire life safety system.
- 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 Edwards EST fire life safety system.

PART 3 – EXECUTION

3.1 INSTALLATION

- a. 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 Coordinate drain downs 24 hours ahead. 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. Vendor 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 Vendor shall verify control valves are fully opened and system is leak free.
 - d. Sprinkler system impairment shall not involve more than one floor at a time.
 - e. No hot work permitted on a drained/non protected floor.
- b. **Core Drilling Concrete.** Prior to core drilling, sawing, cutting or penetrating beyond one half (1/2) inch of the surface of any concrete, specific approval from the Structural engineer of record and/or Engineering Department is required.
 1. X-rays or SONAR of the area affected may be required to insure absence of electrical wiring, plumbing or structural elements and obstructions. *Note: for tenant floor plates (4th to 60th floors) generally there is not a requirement to X-Ray or SONAR, except in specific core locations in the building.* The Building's designated Structural Engineer may be needed to certify work.

2. If required, the X-ray procedure must be performed between the hours of 11:00 PM and 5:00 AM. Contractor must post their employees in sufficient areas to protect individuals from accidentally walking into the dangerous area of the X-ray beams. If needed, Security Officers will be provided at Vendors expense.
3. X-ray is mandatory for any penetrations at 637 parking structure since all decks are post tension; this is to include any concrete nails, small anchors, etc
4. No core drilling through the Walker trenches to be permitted without Landlord or Chief Engineer's approval. Coring of Monuments through Walker duct system should be avoided at all times. Should the situation arise where walker duct system is in path of core, Chief engineer and Landlord approval is required. All fire stop codes apply to restoring fire rating.

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 subVendor's representative.
 3. Where feasible, test piping at no less than 200 psig pressure or 50 psig above system static operating pressure, whichever is greater.
 4. Where pressure testing above floor control valve/s working PSI is not feasible and unless noted otherwise, Pressure testing not to exceed floor level control valve and safety relief valve static pressures.
 5. Perform operational and alarm test under simulated service conditions.
 6. Coordinate testing procedures with Building Chief 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

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.
 - b. Base Building PDF As builds available upon request.
 - c. Trade name "Pro Press" fittings are not allowed. All copper fittings required and should be solder type.
 - d. Trade name PEX pipe or ABS is not allowed. All copper fittings required and should be solder type.
 - e. Tenant water filtration systems shall be ran in copper tubing with applicable copper fittings. No plastic piping or fittings allowed.
 - f. All applicable tenant kitchen/breakroom sink water supply and water filtration systems to utilize flood stop controls.
 - g. Fish tanks are not allowed.
 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. Vendor 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 State Code of Regulations, (e.g. Title 24, Part 2, Chapter 11 B) requirements for access for persons with disabilities.
 4. Core Drilling Concrete:
 - a. Prior to core drilling, sawing, cutting or penetrating beyond one half (1/2) inch of the surface of any concrete, specific approval from the Structural engineer of record and/or Engineering Department is required.
 - b. X-rays or SONAR of the area affected may be required to insure absence of electrical wiring, plumbing or structural elements and obstructions. *Note: for tenant floor plates (4th to 60th floors) generally there is not a requirement to X-*

Ray or SONAR, except in specific core locations in the building. The Building's designated Structural Engineer may be needed to certify work.

- c. If required, the X-ray procedure must be performed between the hours of 11:00 PM and 5:00 AM. Contractor must post their employees in sufficient areas to protect individuals from accidentally walking into the dangerous area of the X-ray beams. If needed, Security Officers will be provided at Vendors expense.
 - d. X-ray is mandatory for any penetrations at 637 parking structure since all decks are post tension; this is to include any concrete nails, small anchors, etc
 - e. No core drilling through the Walker trenches to be permitted without Landlord or Chief Engineer's approval. Coring of Monuments through Walker duct system should be avoided at all times. Should the situation arise where walker duct system is in path of core, Chief engineer and Landlord approval is required. All fire stop codes apply to restoring fire rating.
- 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, install and monitor a leak detection system and provide manual shut-off valves to be able to stop the flow to their individual system (s). The shut-off valves are to be easily accessible. Cross-reference HVAC Section 3.3 BEMS Section for controls.
 - 7. Tenant Kitchen Equipment – All Tenants are to furnish and install a leak detection and notification system to all Tenant Kitchen Equipment similar to the Flood Stopper standards (Plumbing Section 2.1.D.2 below). Cross-reference HVAC Section 3.3 BEMS Section for controls.
 - 8. Review drawings with Landlord and Chief Engineer prior to construction.
 - 9. 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.

1.2 SYSTEM DESCRIPTION

- A. The Building is provided with two 4" waste on the North and South elevations and two 4" vents at the same elevations on each floor respectively. There are also two 2" drain and vents on the east and west elevations that can be utilized for condensate drains. Access to the 2" east and west drains and path of travel require authorization of the Chief engineer. two 1-1/2" domestic cold water stub outs at each floor on the North and South elevations.
- 1. Domestic water is distributed within building by domestic water boosters triplex pump system located on LL1 level via the domestic pump room.

2. Water piping and drainage serving core area shall not be tapped into for tenants' use.
 3. Thinwall Copper Drain Waste Vent (Trade name DWV) piping not allowed.
- B. Building provides cold water to public restrooms only. If Tenant requires hot water, provide instantaneous (Eemax) electric type tankless water heaters for hot water within Tenant kitchen/break room at point-of-use.
1. Instantaneous electric type water heaters by the trade brand "Cronomite" not allowed.
- C. Design Criteria:
1. Soil, Waste and Vent System shall be per California Plumbing Code, Latest Edition and applicable local regulations.
 2. 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.
 3. Plumbing design drawings and calculations shall be signed by a competent registered mechanical engineer in the State of California
- D. Restroom Standards

PART 2 - PRODUCTS

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. Behind restroom wet walls and any toilet application the use of Heavy duty no-hubs are required that Comply with ASTM C-564 and ASTM C-1277 and Conform to CISPI 310, typical trade name Husky clamps.
 2. Domestic water piping is to be Type "L" hard copper throughout.
 - a. Trade name "Pro Press" fittings are not allowed. All copper fittings required and should be solder type.
 - b. Trade name PEX pipe or ABS is not allowed. All copper fittings required and should be solder type.
 - c. Tenant water filtration systems shall be ran in copper tubing with applicable ferril type copper fittings. No plastic piping or fittings allowed. Press lock fittings are not allowed.
 - d. All applicable tenant kitchen/breakroom sink water supply and water filtration systems to utilize flood stops.
 3. Fish tanks are not allowed.

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. Cleanout covers shall meet design standards.
- 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. Thinwall Copper Drain Waste Vent (Trade name DWV) piping not allowed.
- b. Behind restroom wet walls and any toilet application the use of Heavy duty no-hubs are required that Comply with ASTM C-564 and ASTM C-1277 and Conform to CISPI 310, typical trade name Husky clamps.
- c. Fittings for use with domestic water piping are to be wrought copper solder joint ANSI B16.22.
- d. Brass screwed fittings are to be Schedule 40, flat band, IPS with no plain couplings permitted.
- e. 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.**
- f. 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. Main riser Restroom water supply Valves are Nibco Extended-Life Ductile Iron Butterfly Valve with Manual locking Lever, Water-Resistant, typical 2-1/2" Pipe (Contractor to Field Verify pipe size), EPDM Seat minimum 250psi rated at 225 degrees.
- 3. Vacuum Breakers: Watts No. LF800M4FR.

D. Water Heaters:

1. Tankless water heaters

Building Standard is Eemax units. SP4277 rated at 4.1kw for single sink only applications. Where plumbing code applies EX4277T with ML designation for multi lavatory service in restrooms. EX50T or EX60T for single kitchen faucet with dishwasher. Check with manufacturer for current part numbers and Cal Green compliance for flow.

2. Tank water heaters:

Not typically used. Tank type hot water heaters should be avoided in design however should a design specifically require greater volume than can be achieved with tankless designs then all flood stop controls apply and drainage requirements for T&P blow off drainage. Additionally said hot water tanks shall be the sole responsibility of tenant.

E. Flood Stop:

Automated water leak detection system – 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.

i. 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.

F. 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: Vendor 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 Vendors.
 - 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. Coring requires approval of structural engineer. Scanning is required to locate core.
- C. 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. When plumbing impacts the ceiling of the tenant space below, layout must be provided to the Owner for review and approval. Plumbing must be painted to match the existing conditions of the tenant space below.
 - 3. Vendor 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.
 - 4. Vendor 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.
 - 5. Vendor 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.
- 6. All potable water piping is to have copper joints with 95-5 Tin-Antimony or other non-lead solder.
- 7. 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.
- 8. Vendor is to provide 12"- long air chambers (full pipe size) or Nibco Model 620L on all hot and cold water connections to fixtures.
- 9. Vendor 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.
- 10. Copper piping will be used for all domestic water lines to Tenant owned appliances, such as water filters, coffee machines, icemakers, refrigerators, etc.

D. Hangers and Supports

- 1. Vendor 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'-3/8" minimum rod size
 - b. 1" – 1 $\frac{1}{4}$ " for 6'-3/8" minimum rod size
 - c. 1 $\frac{1}{2}$ " - 2" for 8'-3/8" minimum rod size
 - d. 2 $\frac{1}{2}$ " - 3" for 8'-1/2" minimum rod size
 - e. 4" for 8'-5/8" minimum rod size
- 2. Vendor is to use cadmium plated or galvanized hangers, attachments, rods, nuts, bolts, etc.
- 3. Vendor is not to burn or weld structural members without Landlord's approval.
- 4. Vendor 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. Vendor 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. Vendor 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.
 - c. See Above Section 1.1 paragraph 4 regarding anchoring and post tension.
- E. 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. Vendor 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) Vendor 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 of 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.
- F. 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: Vendor 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 (Stand alone testing) 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/Chief Engineer.
 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: Vendor 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. Punch walk shall be conducted before walls and ceilings are closed up.
2. All floors are to be x-rayed and approved by Landlord prior to any core drilling see section 1.1 paragraph 4 above.

3.3 CLEANING

- A. Vendor 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. Vendor 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

HVAC**PART 1 - GENERAL****1.1 SUMMARY:****A. Building summary, general HVAC:**

707 Wilshire HVAC distribution supply air system is a double duct design. Return air is a common plenum return at the core. The stacked distribution and return air is shared up to 10 floors and is controlled by path of least resistance (common air shaft return) for all floors within the respective distribution system. 707 HVAC BAS distribution has 6 systems.

Tenant floor plates incorporate a perimeter linear design and shall be utilized in all tenant improvement projects. 707 Base building M-3 Air distribution Schedule with most recent engineering notes detail the linear layout and distribution at respective elevations.

707 utilizes a full Delta DDC BAS system. All new floors shall utilize Delta DDC controls for VAV's

707 HVAC BAS design is optimized for energy efficiency with respect to tenant needs. Baseline setpoint is 74deg. Heating duct is only utilized in winter time or cold inclement conditions and shall be considered in the air balance to minimize double duct VAV short cycling when in cooling mode only.

See exhibits 3.4 below for general HVAC distribution clarity.

B. Building summary for tenant supplemental chilled water:

707 wilshire has two supplimental chilled water systems with the risers being located on the north core of the property. No condenser water is provided.

1. Chilled water is at a pro rated share:

- a. Floors 4 to 30 are a pro-rated share of 2.0 tons per floor.
- b. Floors 31 to 60 are a pro-rated share of 1.5 tons per floor.

1.2 REFERENCES:

- A. Mechanical engineer to reference 707 Base building M-3 Air distribution Schedule with most recent engineering notes. Typical for all floors.
- B. Recommended references as needed based on floors designed:
 1. M-1.8 4th floor Mech, with most recent engineering notes.
 2. M-1.9 5th floor Mech, with most recent engineering notes.
 3. M-1.15 22nd floor Mech, with most recent engineering notes.

4. M-1.21 42nd floor Mech, with most recent engineering notes.
5. M-1.27 61st floor Mech, with most recent engineering notes.
6. M-1.28 62nd floor Mech, with most recent engineering notes.

1.3 SCOPE AND DESIGN:

- B. 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. All Supplemental systems shall be broke out on separate plan sheets.
 3. 707 is common air plenum return dictated by path of least resistance. Mechanical engineer to include appropriate return air sound boots in all Architect design full height walls.
 - a. Where full height walls occur throughout, induced return air, with emphasis at the perimeter elevations should be considered in design
 4. Use available air quantities from base building system.
 5. Perimeter offices affected by high solar loading or density shall incorporate additional comfort cooling in addition to the base building linears.
 6. Sound attenuation for supplemental cooling or exhaust fans in general office space not to exceed NC-35 or applicable codes for noise within office spaces.
 7. Base Building PDF Mechanical As builds available upon request.
 8. Provide copy of professional engineer licensed in the state of California Stamped plans to Landlord for review and approval.
 9. Obtain building permit for construction for same approved scope of work.
 10. 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/Vendor as applicable.
 - b. Contact Chief Engineer or designee to examine parts before disposal.
 - c. Base building perimeter Linears are to be utilized in design or salvaged back to building attic stock for future restoration. Under no circumstances shall linear's be disposed of.
 - d. Demolish and remove from premises items not to be reused in new design.
 - e. 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.

11. Reroute existing and provide new duct runs as required for Project.
 12. 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 in accordance to space requirements for sufficient return air. Full height tenant demising walls shall account for return air required per the entire tenant space.
 13. Add new Chilled water piping (For above standard chilled water units) 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.
 14. Add, relocate and remove air outlets.
 15. Provide new thermostats and controls as required to meet current building standards.
 16. 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.
 17. 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.
 18. 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.
- C. 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.
- 1.4 Core Drilling Concrete:
1. Prior to core drilling, sawing, cutting or penetrating beyond one half (1/2) inch of the surface of any concrete, specific approval from the Structural engineer of record and/or Engineering Department is required.
 - a. X-rays or SONAR of the area affected may be required to insure absence of electrical wiring, plumbing or structural elements and obstructions. *Note: for tenant floor plates (4th to 60th floors) generally there is not a requirement to X-Ray or SONAR, except in specific core locations in the building.* The Building's designated Structural Engineer may be needed to certify work.

- b. If required, the X-ray procedure must be performed between the hours of 11:00 PM and 5:00 AM. Contractor must post their employees in sufficient areas to protect individuals from accidentally walking into the dangerous area of the X-ray beams. If needed, Security Officers will be provided at Vendors expense.
- c. X-ray is mandatory for any penetrations at 637 parking structure since all decks are post tension; this is to include any concrete nails, small anchors, etc
- d. No core drilling through the Walker trenches to be permitted without Landlord or Chief Engineer's approval. Coring of Monuments through Walker duct system should be avoided at all times. Should the situation arise where walker duct system is in path of core, Chief engineer and Landlord approval is required. All fire stop codes apply to restoring fire rating

1.2 SYSTEM DESCRIPTION

- A. **Air Systems (Reference system summary 1.1):** Base building air system consists of a Double duct heating and cooling system. There are 6 basic main HVAC fan systems, each of which feeds approx. 10 floors. No HVAC hydronic heating water is provided, heat comes from the perimeter heating supply loop at each floor.
 - 1. Air system distribution on floor is through zone mixing dampers and air handling perimeter linear and ceiling diffusers. Return air on the floor is through return air handling common return ceiling plenum. Air is distributed to zones through variable air volume (VAV) boxes. MEP and vendor Site verification required for all floor level HVAC mechanical supply and return floor layout
 - a. All Delta DVC-V304 single duct and double duct VAV controllers and communicate back to the Delta DSM-RTR main controller. All DSM-RTR's communicate via fiber back bone to the BAS servers. Main Equipment such as pumps, fans, chillers etc. are operationally controlled via Delta controls EntellBus systems controller which talks back to the servers via same fiber backbone
 - b. Interior zones are cooling only. **Delta Controls DVC-V304AF-B** Controller (single duct)
 - c. Exterior zones are Double duct. **Delta Controls DVC-V304A-B-DD** Controller (double duct).
 - d. Base system air volume is modulated by the building BAS via separate static sensors and VFD's at the supply and return fans.
 - e. Air outlets are **Price brand** 24"x24" drop in perforated face ceiling diffusers throughout.
 - f. Return air is through 24"x24" **Price brand** perforated face ceiling grills no less than one in each office/room/conference room to common ceiling return plenum.
 - g. Chilled water is supplied to main building Air Handling Units only.

- h. Heating air is supplied down to each floor for perimeter zone reheat via main system fan electric strip heating.
- i. Supplemental Chilled water risers are available to connect tenant for auxiliary and/or off-hour air conditioning.
- j. Use of supplemental Chilled water system requires approval by building management and Chief Engineer. Additionally, a \$1,000.00 fee per ton or any fraction thereof may be assessed.
- k. All Supplemental units are subject to monthly charges for electrical, water, and chemical treatment consumption. All supplemental units shall be metered.

1.3 SUBMITTALS

- A. Prior to commencing work, mechanical Vendor shall assist General Vendor 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 Vendor shall submit a written request and schedule for disruptions to buildings services no less than 72 hours in advance.
- C. Vendor 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, Vendor 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. 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 California HVAC Mechanical codes.
 - 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 Los Angeles 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 Los Angeles 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.

B. Air Terminal Units:

1. Single Duct, Variable Air Volume Terminal Units:
 - a. Manufacturer:
 - 1) **Price Model SDV5000** (Single duct) **Price model DDS5000** (Double duct) 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. Units shall be field adjustable.
 - b. Temperature sensors shall have communications port for field service, no temperature display, no local control, and compatible with existing control system.
 - c. All building automation system work to be performed by Diversified Thermal Systems to match operations and graphic interface of existing building. Contact:

Vendor Name: Diversified Thermal Services
Street Address: 1220 N. Barsten Way
City, State, Zip: Anaheim, CA 92806
Telephone #: 714-632-7401
3. Communication wiring to be routed to match existing. All new VAV terminal unit installations require a connection to an existing or new trunk as well as a control power circuit. Field verify existing conditions and design to meet Tenant requirements.

C. 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) **Price PDMC, APDMC** for building standard tee bar acoustical ceiling system.
 - c. Where feasible, new linear slot diffusers shall be **Titus/Model ML-39-NT** or Building Standard **Price** 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) **Price PFRF, APFRF** for building standard tee bar acoustical ceiling system.
 - 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.
- D. 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.
- E. 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 (e.g. Ruskin DIBD2 style B, 100% free air) or approved equal.
 - b. For Return Air, Fire Damper shall be (e.g. Ruskin DIBD2 style B, 100% free air) or approved equal.
 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) (e.g. Ruskin FSD60) or approved equal.
- g. FSD shall be installed with remote position indicating contacts wired to report back to Life Safety Panel.

A. Supplemental A/C Units:

- 1. Manufacturer:
 - a. Carrier, Magic air, Leibert, APC chilled water in row cooling.
- 2. Units shall be horizontal mounted, 277/480v.s
- 3. Factory assembled packages to be completely piped, wired and requiring only power, control, and piping connections. Trade name “Pro Press” fittings are not allowed. All copper fittings should be silver soldered.
 - a. Unit shall include a sound insulating liner around entire unit with 1 ½ inch thick sectional panels for access. To meet all codes for fire rating.
- 4. Ratings: UL Listed, ARI certified, to meet Title 24 or to code energy regulations.
- 5. Sound Power Levels: Selected to conform to ASHRAE guidelines for office occupancy.
- 6. Thermostat: Delta if applicable. Totaline or Leibert (If Leibert equipment is used)
- 7. Pressure rating shall be as required by location.
- 8. Provide secondary drain pan with connection routed to conspicuous location. Pipe primary drain to nearest condensate drain riser, coordinate routing with Chief Engineer or designee. Provide condensate pump for primary drain and condensate overflow switch kit as part of manufacturer's package when location of unit does not allow proper drainage to Risers.
 - a. Coordinate pump location with Chief Engineer or designee.
 - b. Overflow secondary drain shall be white with escutcheon where it penetrates ceiling.

B. Fans: Cook, Greenheck, or Penn-Zephyr ceiling exhaust fans with electronic volume regulator.

- 1. Sound power levels shall be selected to conform to ASHRAE guidelines for office occupancy.

2. All After hours chilled water units to be monitored with ONICON-MCR Technologies system 10 with BACNET Interface Card
 3. All After hours Exhaust fans to be monitored with E-mon-D-Mon Model#20825D – KIT -#208400D- KIT with pulse outputs.
 4. Kitchen Hood Exhaust: UL 762 listed for grease removal. Provide drain connection with grease trap and vented roof curb.
- C. Pipe and Pipe Fittings: Piping shall conform to ASTM and be free of defects. Pipes and pipe fittings shall be manufactured domestically.
1. For Chilled and domestic Water Use: Type “L” hard drawn pressure pipe copper with 95/5 or other lead free solder and wrought copper fittings. See plumbing section for further details.
 2. For Condensate Drain Pipe Use: Copper type M, ASTM B88, wrought copper fittings, soldered joints.
- D. Valve and Piping Specialties
1. Dielectric Nipples and Unions:
 - a. Epco or approved equal, rated for minimum 210 °F temperature.
 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 (e.g. Bell & Gossett) or Building Standard circuit setter. (Pressure rating as required.)
 - e. Chilled water loop shall be equipped with Griswold, Belimo or Building Standard pressure independent flow control valves.
 - f. Thermometers and Wells are to be (e.g. Weksler Model 5AA, 5") or Building Standard diameter, with appropriate temperature scale according to application. (Pressure rating as required.)
 - g. Pressure gauges are to be (e.g. Weksler EA14 or equal, 4-1/2") or Building Standard 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 (e.g. Lunkenheimer #1778 - 3/8") or Building Standard manual. (Pressure rating as required.)
 - j. Strainers are to be (e.g. Muessco, Armstrong "Y") or Building Standard pattern with blow-off hose valve and hose adapter. (Pressure rating as required.)
 - k. Seismic Fittings: (e.g. MetraFlex/MetraLoop) or Building Standard with copper sweat end fittings. Provide at pipe crossing building seismic joints. Model number to be determined by seismic joint displacement.
- E. 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.
- F. 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 Los Angeles.
3. Fire dampers and Fire/Smoke dampers shall be installed according to California State Fire Marshal and City of Los Angeles Fire Marshal and exactly as tested by UL to develop fire ratings.
 - a. Provide 18" by 18" minimum access doors in ductwork and furring. See Access Door section for further details.
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 common 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 and/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 independent interior VAV box. 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 of California Mechanical Code, NFPA, and City of Los Angeles 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 Vendor.
 - 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. Vendor 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'-3/8" minimum rod size
 - b. 1" – 1 $\frac{1}{4}$ " for 6'-3/8" minimum rod size
 - c. 1 $\frac{1}{2}$ " - 2" for 8'-3/8" minimum rod size
 - d. 2 $\frac{1}{2}$ " - 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. See core drilling section for anchoring limitations and requirements.
 - 5. 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. Supplemental A. C. Unit Installation: See Diagram 4.01 for details.
 - 1. Supplemental Air conditioning units 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. Use Mason Industries or code approved equivalent (Requires Chief Engineer review and Landlord approval) Vibration Isolators, size as required.
 4. Pipe condensate drain line, with vent, to nearest drain 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 related equipment 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. Supplemental Air conditioning units shall be started/stopped by building standard programmable thermostats provided by installing Vendor.
 2. VAV terminal units shall be controlled by Engineering through the Delta BAS thermostats, to match existing.
 - a. 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.
 - b. Do not locate any zone thermostats in direct proximity to exterior glazing or office printers.
 - c. Locate thermostats 4'-0" above finished floor.
 - d. Thermostats shall comply with Title 24 or California State requirements.
 - e. Coordinate thermostat location with Chief Engineer or designee.
 - f. Communication cabling (Delta LAN Trunk) shall contain no T-Taps. All terminal unit communication lines will be connected in parallel (daisy chained) up to a maximum of 34 TECs per LAN trunk (3 LANS per Delta DSM).
 - 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) Delta DDC controllers per transformer circuit. Match existing installation.
 - i. Consult with engineering Department for clarification. Failure to match building standard installation will result in rewiring at Vendor's expense.
 - 3. Select control valves for VAV terminal units based upon maximum pressure drop available for branch piping at branch tees.
 - 4. Duct smoke detectors shall be provided by **TRL Services**. 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 handling 2,000 cfm or more shall have a smoke detector in supply air duct. Upon smoke detection, smoke detector shall turn AC unit off and annunciate at fire alarm panel.
 - b. AC units handling less than 2,000 cfm shall be automatically shut off upon floor alarm. Restart sequence shall be automatic upon reset of alarm device.
 - 5. New fire/smoke dampers shall fail open.
- G. Inspection by Engineering Department: Vendor 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 Vendor and shall be in accordance with AABC and NEBB Standards.
 - 1. Balancing Vendor shall bring equipment including hand tools, ladders, hardware, and software, and make connections to properly balance electronic VAV controls.
 - 2. Mechanical contractor, and automation contractor, to confirm that all Isolation dampers, return dampers are open prior to testing and commissioning.
 - 3. Balancing Vendor to check in the Chief Engineer prior to commencing any balance work.
 - 4. Balancing Vendor shall also coordinate with Chief Engineer to enter set points and balancing values into Building Automation System (BAS).
 - 5. Balancing Vendor to notify BAS Vendor that values are entered and complete so that changes can be backed up and saved permanently.
- B. After systems are complete and operating, Vendor 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 Supplemental units.

1. Quantities shall be marked on reduced size Construction Document Drawing. At Chief Engineer's request, Vendor shall submit other preliminary measurements required.
- C. Before final air and water balancing, Mechanical Vendor 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 Vendor leaving premises.
 - a. Balancing Vendor 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 Vendor 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. Variable Air Volume Boxes Identification: All shall receive VAV designation number with SD single duct cooling only zones (i.e. VAV-XXXX-SD) and DD for zones with cooling and heating (i.e. VAV-XXXX-DD). All Delta BAS floor graphics should reflect what is called out at the VAV terminals as per their respective zones within the floor
 - a. Example: VAV-1478-DD would be an exterior zone (Cooling and Heating) variable air volume box at SW corner of 14th Floor.
 - b. 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 DELTA BAS INTERFACE

- A. Building Automation System (BAS) Vendor shall commission all Terminal boxes and other related equipment included in Tenant Construction.
 1. Upon completion of air and water balance, BAS 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 VAV controller failure or memory loss.
 2. Tenant Data Closets – All Tenants with water-cooled air conditioning systems within their space are to furnish, install and monitor a leak detection system and provide manual shut-off valves to be able to stop the flow to their individual system (s). The shut-off valves are to be easily accessible. Cross-reference Plumbing Section 1.1 Summary.
 3. Tenant Kitchen Equipment – All Tenants are to furnish and install a leak detection and notification system to all Tenant Kitchen Equipment similar to the Flood Stopper standards (Plumbing Section 2.1.D.2 below). Cross-reference Plumbing Section 1.1 Summary.
 4. BAS technician will check communication to all new equipment and verify proper application, operation and equipment designation number. BAS addresses for Controllers are to match number assignment on the field and field labels.

5. 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 BAS graphics.
 - a. Use architectural CAD drawing of Tenant Construction Space as a background.
 - b. Use contrasting colors to better depict demarcation lines for each area served on floor by Controllers.
 - c. Graphics interface to be completed and operational by Tenant move-in date.
 - d. Coordinate access to BAS front end and graphics installation with Building Chief Engineer or designee.

3.4 – Figures 1 and 2 General Floor level and common return air distribution:

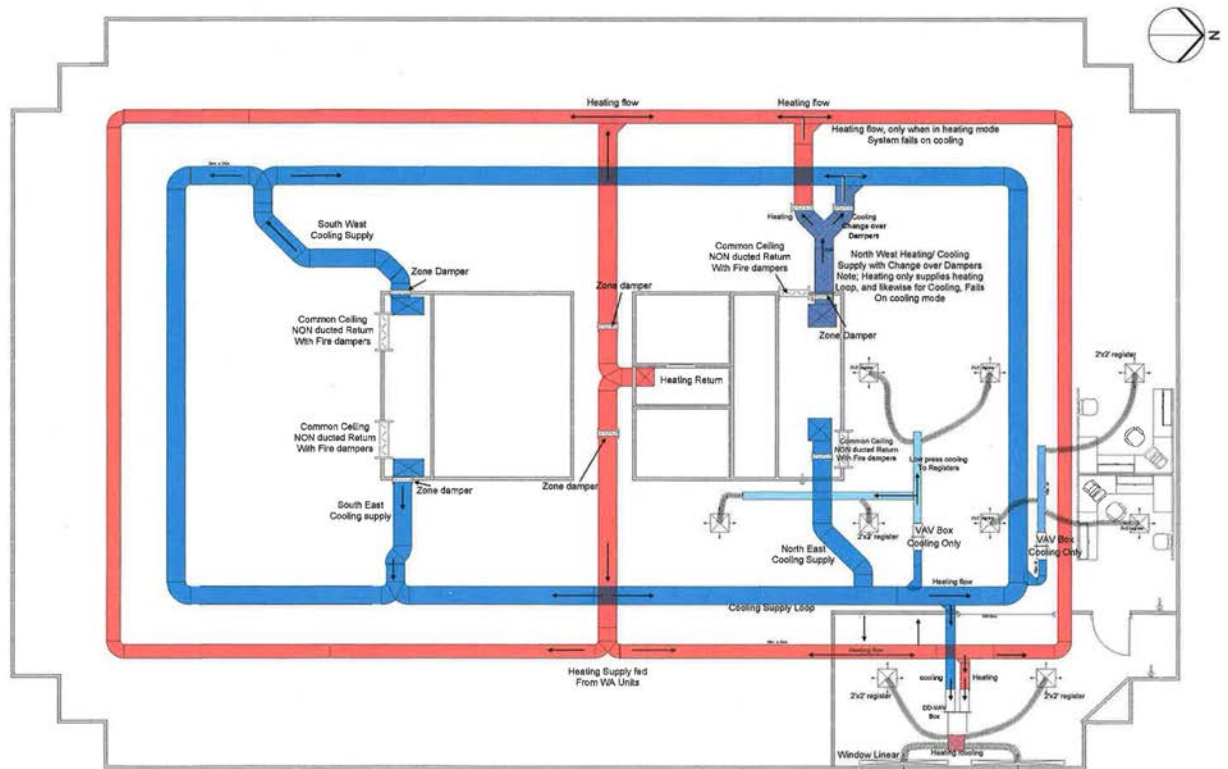


Figure 1

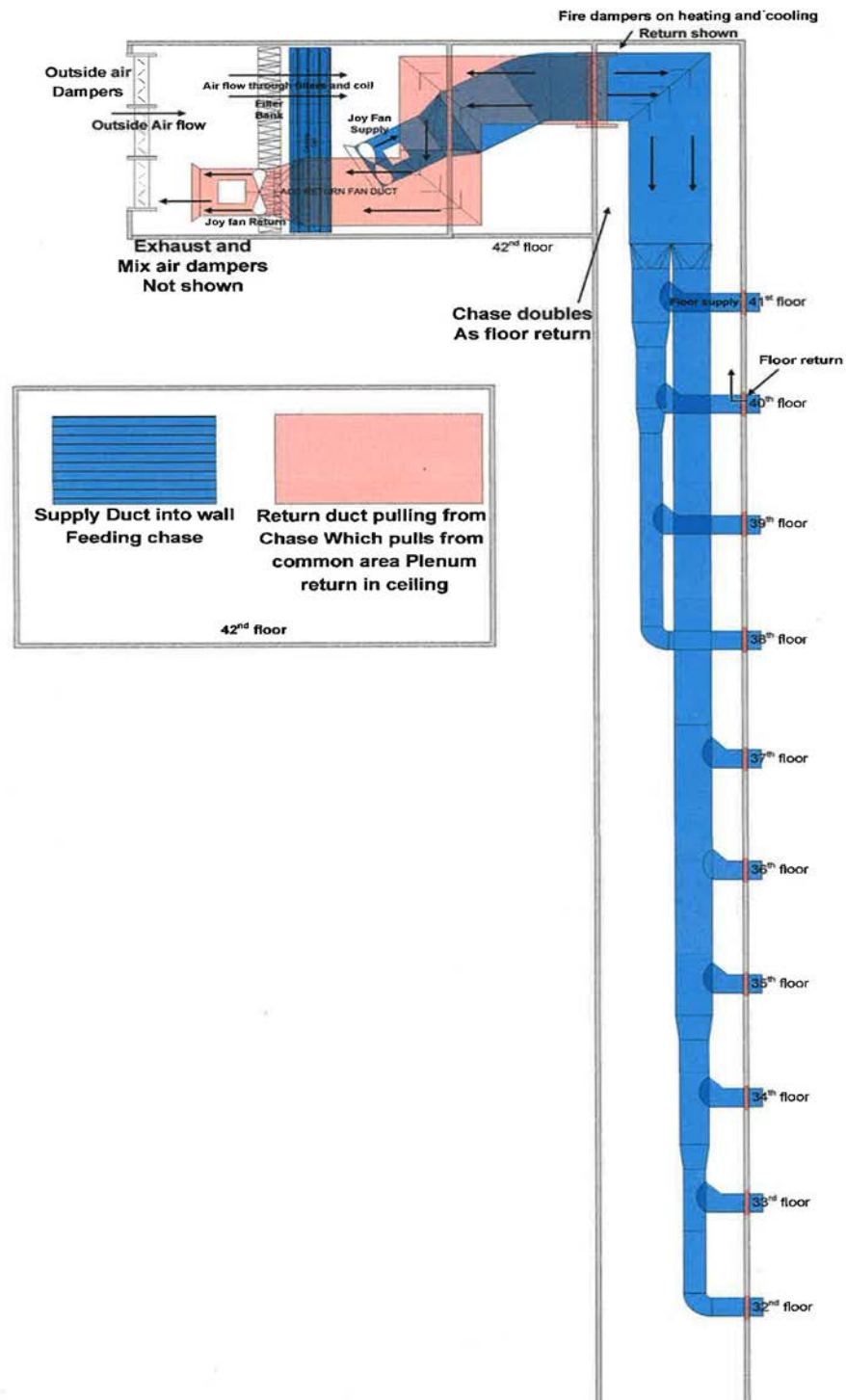
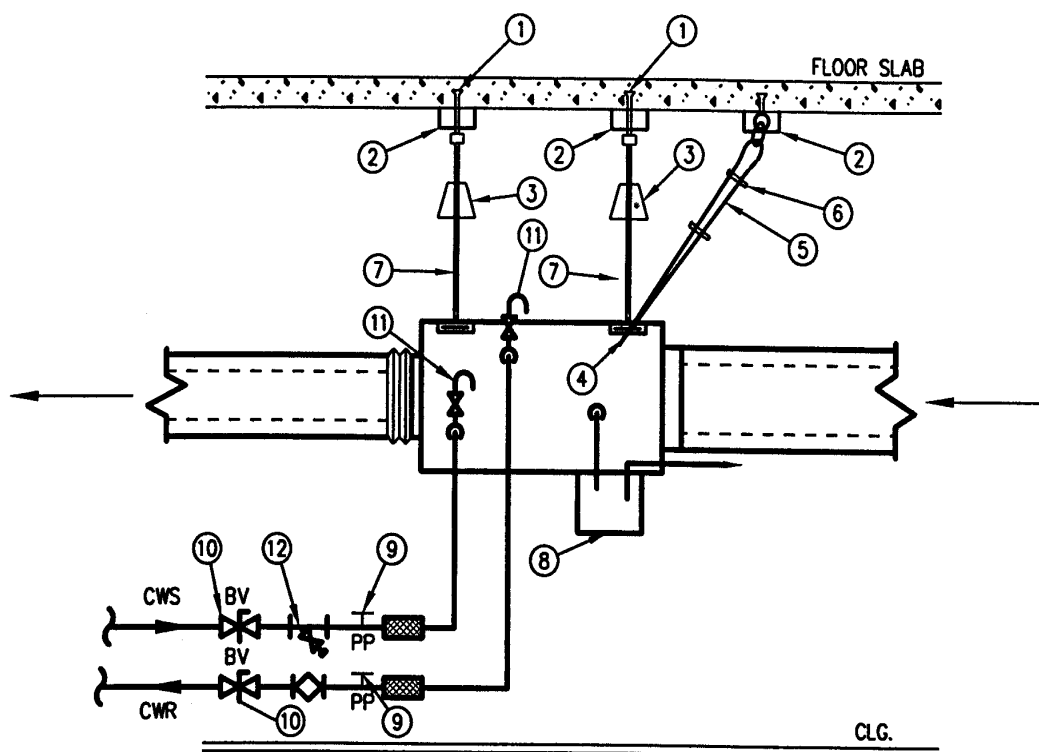


Figure 2

Figure 1 is a detailed floor plan of a building, showing the layout of the ventilation system. The plan includes various rooms, corridors, and stairwells. Rooms are labeled with numbers 1 through 10, and their respective CFM (Cubic Feet per Minute) values are provided. The plan also shows the locations of fans, ducts, and other ventilation components. The layout is complex, with many rooms and corridors, and the ventilation system is designed to provide adequate airflow throughout the building.

3.6 – SUPPLIMENTAL AC UNIT INSTALLATION DETAIL (TYP)



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

END OF SECTION

ELECTRICAL**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, or a combination of both.
 3. Manufactured wiring systems. Exemption to manufactured systems are pre fabricated low voltage and required title 24 lighting controls.
 - a. Power poles of any type are not allowed.
 4. Perimeter Knee walls and exterior columns can be utilized for electrical services.
 - a. NOTE: exterior curtain wall spandrel glass is located behind perimeter knee walls. Exercise care to prevent striking or damaging glazing when working in these locations.
 - b. Resore spandrel glazing thermal insulation upon completion of work.
 5. 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.
 - c. Carry existing (Existing tenants) circuits on all respective directories.
 6. Excessive power usage, such as welding and dehumidifying, is to be metered and charged to the construction project; coordinate with Landlord.
- B. **Hot Work:**
1. Hot work is not allowed. All NFPA 70E codes apply for PPE. Coordinate all panel shutdowns with Chief Engineer. All Lockout tagout rules apply. Violation of this section is immediate grounds for removal from property.
- C. Related Sections:

1. 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 luminaries 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 Core Drilling Concrete:

- 2. Prior to core drilling, sawing, cutting or penetrating beyond one half (1/2) inch of the surface of any concrete, specific approval from the Structural engineer of record and/or Engineering Department is required.
 - a. X-rays or SONAR of the area affected may be required to insure absence of electrical wiring, plumbing or structural elements and obstructions. *Note: for tenant floor plates (4th to 60th floors) generally there is not a requirement to X-Ray or SONAR, except in specific core locations in the building.* The Building's designated Structural Engineer may be needed to certify work.
 - b. If required, the X-ray procedure must be performed between the hours of 11:00 PM and 5:00 AM. Contractor must post their employees in sufficient areas to protect individuals from accidentally walking into the dangerous area of the X-ray beams. If needed, Security Officers will be provided at Vendors expense.
 - c. X-ray is mandatory for any penetrations at 637 parking structure since all decks are post tension; this is to include any concrete nails, small anchors, etc
 - d. No core drilling through the Walker trenches to be permitted without Landlord or Chief Engineer's approval. Coring of Monuments through Walker duct system should be avoided at all times. Should the situation arise where walker duct system is in path of core, Chief engineer and Landlord approval is required. All fire stop codes apply to restoring fire rating

1.4 SYSTEM DESCRIPTION

- A. Base Building Systems: Building is served by LADWP underground utility power via indoor transformer vault. The electrical distribution within the building consists of the following:

B. Base building Single lines available on request

1. One 277/480 volt, 3-phase 4-wire bus riser
2. 277/480 volt, 3-phase, 4-wire bus tap locations at each floor
3. As base building design No 120/208 Emergency power is distributed to tenant spaces. Critical 120/208 is reserved for Fire life safety systems within the property.
4. Tenant Emergency power is supplied by Generator#3 at ground level. Distribution board is located on the 5th floor in the emergency distribution electrical room.
5. One 277/480 volt, 3-phase, 4-wire lighting panelboard on floor level main Electrical Room.
6. Two 120/208 volt, 3-phase, 4-wire panelboards, one in Electrical Room and one in Telco room.
 - a. One 120/208 "A" panel is located on the west side, One 120/208 "B" panel is located on the east side in the Telco room
 - b. Connected plug load shall not exceed 4 watts per square foot. Total connected plug and lighting load not to exceed 5.5 watts per square foot or within Title 24 regulations.
7. References:
 - a. Electrical engineer to reference the latest single line edition E-1, E-2, E-3, E-4, E-5 and E-6 Rev. date 10/2018

C. Design Criteria:

1. If Tenant needs more power (Above standard) than what the base building can provide, where feasible and with landlord written approval, Tenant shall install necessary service equipment at tenant sole cost as required and coordinate all requirements with the Landlord and with the Chief Engineer. Additional power is considered above standard and subject to all applicable metering.
2. Design and Drawings: Calculate electrical requirements and prepare new design drawings as per Title 24 guidelines For California and Los Angeles county 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. All above standard equipment shall be identified separately on plans with applicable metering at the source.
 - c. 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. Vendor is to x-ray slabs and obtain authorization from Landlord prior to any core drilling. See 1.3 above.
 - a. Coordinate with Chief Engineer.
8. Plenum rated cable may be used for telephone, data and HVAC DDC 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.
 - a. See base building floor level electrical plans and updated single lines for emergency circuits. Vendor to field verify.
 - b. Electrical circuits for tenant floors shall not share emergency circuits from the neighboring stairwell lighting.
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, Quadlogic meters with RS-485 Data link or Emon-D-Mon Model# 20825D – Kit # 208400D – Kit with Pulse Outputs** to metering communication trunk shall be provided. Installation shall be coordinated with Landlord and Chief Engineer.
14. Maximum design load for new 120/208 volt panelboards: 180 amps.

15. 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.

D. Tapping on Hot Bus Prohibited.

1.5 SUBMITTALS

- A. Prior to commencing any work, electrical Vendor shall assist general Vendor 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 Vendor 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. Vendor 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, Vendor 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. See Section 1.3 above for coring
 2. Manufacturer:
 - a. Wiremold Walker Flush Poke Through Series.
 - b. Hubble Flush Poke Through Series.
 3. Description: Assembly comprising service fitting, poke through component, firestops and smoke barriers, and junction box for conduit termination.
 4. Fire Rating: 2 Hours.
 5. 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, (Scotchlock type) rated 105-degrees C.
 - 2. Compression Connectors and Lugs: Circumferential (non-indenter) type.
 - 3. **Push in wiring connectors are not allowed.**
- 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:
5. Manufactured wiring systems. Exception to manufactured systems are pre fabricated low voltage and required title 24 lighting controls.
 6. Furniture system whips are allowed.
 7. Power poles of any type are not allowed.
- H. Wiring Devices: Smooth white plastic. (Decora White)
1. Wall Switches: Low voltage, momentary contact or Pass & Seymour 2601-120/277 (Decora white) Or Leviton equivalent.
 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. Wiring Devices for title 24 LED:
1. Color: White Decora.
 2. Controls: Wattstopper.
- J. Supporting Devices:

1. Support Channel: Galvanized or painted steel.
2. Hardware: Corrosion resistant.

K. 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.

L. 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.

M. Dry Type Transformers:

1. Architectural/Structural/MEP review by landlord and/or landlord architect/engineer of record approval required for addition of transformers and trapeze mounting.
2. Manufacturers:
 - a. ITC Type "R".
 - b. General Electric.
 - c. Square D.
3. 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.
4. 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.
5. Winding Taps, Transformers Less than 15 KVA: Two 5 percent below rated voltage, full capacity taps on primary winding.
6. Winding Taps, Transformers 15 KVA and Larger: ANSI/NEMA ST 20.

7. Sound Levels: ANSI/NEMA ST 20.
 8. Ground core and coil assembly to enclosure by means of a visible flexible copper grounding strap.
 9. 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.
 10. Coil Conductors: Continuous windings with terminations brazed or welded.
 11. Enclosure: ANSI/NEMA ST 20; Type 1. Provide lifting eyes or brackets.
 12. Isolate core and coil from enclosure using vibration-absorbing mounts.
 13. 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".
 14. Transformer to be Energy Star rated.
- N. Panelboards:
1. Manufacturers:
 2. As build original 120/208 and 277/480 tenant floor panels are Westinghouse throughout. ("A", "B" and "L" panels)
 3. 120/208 and 277/480 Expansion panels and lighting panel replacement upgrade shall be Siemens manufacture
 4. Enclosure: NEMA PB-1; Type 1.
 5. Cabinet Size: 6 inches deep; 20 inches wide.
 6. 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.
 7. Provide panelboards with copper bus, extending full height of panel. Minimum bus rating shall be 225 amps. 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: 10,000 amperes rms symmetrical for 208 volt panelboards; 14,000 amperes rms symmetrical for 480 volt panelboards. Where available fault current is higher, meet or exceed the higher values.
 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.
- O. 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.

P. Lighting Fixtures:

1. Building Standard Down Lights, tenant spaces/common areas:
 - a. Can Lighting: Gotham 4" Evo Downlight. CAT# F3 EVO 35/15 4AR MD LD 277 EZ1.
2. Building Standard (OLD) 2x2 or 2x4 tenant spaces/common areas:
 - a. Recessed 2x2 or 2x4 fixture, recessed direct/indirect, with (For 2x4) 2x Phillips Instant Fit LED T8 Lamps 4' lamp=43487-8 Mod9290002881 or (For 2x2) 2' lamp= 45202-9 Mod# 9290011180
3. Building Standard (NEW) 2x2 or 2x4 tenant spaces/common areas:
 - a. Lithonia 2VTL2 2'x2' 33L ADP LP385
 - b. Lithonia 2VTL4 2'x4' 33L ADP LP385
4. Alternate tenant spaces/common areas:
 - a. Simkar Altus series AHPCLD 2'x2' 43w 3500k U1=120/277v Type LF-1 LED.
 - b. Simkar Altus Series AHPCLD 2'x4' 24 EL 45W 3500CCT U1
5. Note: Tenant Improvement allowance permitting, efforts should be made in space planning design phase to match new LED lighting within a given space. IE, where older egg crate parabolic lights encroach new space sightline, egg crate parabolic should be changed to indirect type light. Where new LED fixtures are installed within a tenant space where older building standard existing lighting is egg crate or Simcar Fluorescent, existing lights shall be retrofitted with Phillips Instant Fit LED 3500k Lamps. Architect and MEP Engineers shall make the appropriate call outs so all lights match in color temper within a given tenant space, unless otherwise noted by tenant/landlord in writing and/or lease.

Q. Restroom Lighting:

- a. Soffit Lighting Fixture: Lithonia Z series 1 lamp GEB10IS Lamp type 17w T8x24", 25w T8x34", 32 T8x48". Restroom Soffit is control for light fixture length.
- b. Lamp type: Phillips Instant Fit LED T8 Lamp. 2' lamp= 45202-9 Mod# 9290011180. 3' lamp= 45206-0 Mod# 9290011184. 4' lamp= 43487-8 Mod# 9290002881
- c. Can Lighting: Gotham 4" Evo Downlight. CAT# F3 EVO 35/15 4AR MD LD 277 EZ1
- d. Backlit mirror lighting: CORE Lighting Group. LSM-30 3.0 flexible indoor LED strip. Cat#: LSM30-35K-PF-24V / LSA-ALU78-SD / LSA-CVR78-FR Type: F2
- e. LED Driver: PSDM-200W-24 INDOOR & OUTDOOR HIGH POWER MAGNETIC DIMMABLE LED DRIVER

R. Exit signage:

2. Building standard exit signs connected to emergency generator: Recessed ceiling or top mounted edge lit LED emergency exit sign.
 - a. Lithonia model #2LRP IGC 277.
 - 1) Lighting source to be LED (#2LRP)
 - 2) Brushed aluminum housing
 - 3) One or two sided depending on location and use(Precise Edge Lit Green Letters)
 - 4) Green lettering on mirror background (GMR)
 - b. Battery backup units not permitted. All exit signs to be connected to building Emergency lighting circuits. (or per building specifications)

D. Lamps:

1. Manufacturers:
 - a. Phillips Instant Fit LED T8 lamps. 3500k in tenant spaces. 4100k in mechanical spaces.

C. Lighting Control System:

1. **Where new Title 24 applies Wattstopper LED lighting controls is the standard**
2. Description for common areas and restrooms: An electronic/low voltage relay panel controlled system, interfaced with Life Safety/Delta Building Automation System.
 - a. Building standard General Electric Lighting Control Panel with RR7 relays and Delta DLC-1212E controller tied to BAS
 - b. All lighting circuits, except for emergency circuits, will be routed through and controlled by the lighting control panel located in floor level main electrical room.
3. **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.
4. Switches: Momentary contact, low voltage type, to match existing.
5. Control: Central sweep-on, sweep-off capabilities. In addition the building also has warning off-on flicker capability and tenant dial-up capabilities.
6. Occupancy Sensors: Dual-technology sensors-infrared and ultra-sonic-for wall or ceiling mounting with required area coverage.

- a. Watt Stopper: Wall Mount #WA – 300 - 120/277 #WI-300 Dual Relay
- b. Watt Stopper: Ceiling Mount #WT-600,WT-1100 WT-200, WT-2250.

7. Switches:

- a. Pass & Seymour 2601-120/277 (Decora white) Or Leviton equivalent

D. Power Metering Devices:

1. E-mon-D-Mon Model # 20825D – KIT - # 208400D – KIT With pulse outputs

E. Surveillance Cameras:

1. PELCO (Mini Dome) Series or per building specifications
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. Conduit Routing (within tenant space below):

- a. All visible conduits shall be Electrical Metallic Tubing (EMT). Flexible Metal Conduit will not be allowed.
- b. Layout of exposed conduit in the ceiling of tenant space below must be provided in a drawing for Owner review and approval.
- c. Owner requires that conduit shall be installed at right angles to the exterior walls. Diagonal runs are not allowed. Conduit shall run as tight to the deck as possible, with bottom of conduit no lower than 4" from the deck.
- d. Paint conduit to match existing conditions.
- e. Owner approval is required when conduit impacts the aesthetics of architectural elements of the space below.

5. Maintain 6 inches of clearance between conduit and piping.

6. Maintain 12 inches of clearance between conduit and surfaces with temperatures exceeding 104° F (40° C).
 7. Cut conduit square using saw or pipecutter; de-burr cut ends.
 8. Bring conduit to shoulder of fittings; fasten securely.
 9. 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.
 10. Provide suitable fittings to accommodate expansion and deflection where conduit crosses seismic, control and expansion joints.
 11. Provide suitable pull line in each empty conduit except sleeves and nipples.
 12. Provide insulated equipment ground conductor in flexible conduit.
 13. Provide chromium-plated escutcheons on each exposed conduit-penetrating floor, wall or ceiling in finished spaces.
 14. 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.
- D. Building Wire and Cable:
1. Install products in accordance with manufacturer's instructions.
 2. Use solid conductor for feeders and branch circuits 12 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 (Scotchlock type) with plastic caps for copper conductor splices and taps, 8 AWG and smaller.
 - a. **Push in wiring connectors are not allowed.**

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.
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. 120 Volt, single phase: Plain
 - e. Building Automation: Blue.
 - f. Life Safety System: Red.
 - g. Telephone System: Grey.
 - h. Data System: White
 - i. 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. Vendor to note/install any additional sound attenuation requirements for mounting per Electrical and Architectural plan.
5. Provide seismic restraints.
6. 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.

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) hanger 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. Where ballasts are feasible, Install in accordance with manufacturers' instructions.
- P. Lamps (Where feasible):
1. Install in accordance with manufacturers' instructions.
 2. Relamp (LED retrofit lamps) any failed lamps at substantial completion.
- Q. Each Tenant shall have sub meters. Contact Building Engineer for proper meter configuration (BACNET) and wiring for relay interface with Building Automation System.

R. Data Cabling:

1. All installations are to be conducted by a BICSI certified Vendor.
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 Vendor 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 Vendor's expense.

END OF SECTION

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 Vendor (CLSSSMC) is testing and maintenance Vendor for life safety systems installed in building.
 - a. If CLSSSMC is not Vendor for the life safety systems, a final test (with no failures) shall be scheduled with both life system Vendor and CLSSSMC.
 - b. This test is required to ensure equipment is operating as required prior to incorporation into building testing and maintenance Vendor schedule.
- B. Related Sections:
 - 1. Electrical work including: conduit, wire, and identification.

1.2 SYSTEM DESCRIPTION

- A. Base Building System:
 - 1. System Components:
 - a. Fire Control Center (FCC/status command center) is located on Lower Bank Level (LBL)
 - b. Life safety terminal panel and power supply is located in the main Telephone room on the east side core on each floor.
 - c. Remote enunciator panel at: See engineering department for locations.
- B. Design Criteria:
 - 1. 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.
 - 2. 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).
 - 3. Special fire protection systems and Emergency Power Off (EPO) switches, shall report to corresponding life safety system. Coordinate with appropriate trade.

4. Do not overload life safety device loops. Count devices and verify and provide load capacity calculations.
5. 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.

1.3 SUBMITTALS

- A. Submit life safety system electrical installation drawings to Landlord for review and approval prior to submitting for permit.
 1. General Vendor will supply to life safety system Vendor 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 Vendor 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 Vendor.
 3. Life safety Vendor shall submit life safety drawings to General Vendor. General Vendor shall submit plans to Landlord for review and approval
 - a. Upon approval by Landlord and General Vendor, life safety Vendor shall submit plans to City Fire Department, unless otherwise directed.
 - b. Certification by life safety Vendor 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 Vendor shall coordinate testing with Fire Prevention Bureau, Landlord, and life safety Vendor.

2.1 MATERIALS

A. Initiating Devices to Correspond with Building System:

1. Manual Pull Station: Manual Pull Station Model # Siga-270 Red.
2. Smoke Detector: Edwards, SIGA-PS Intelligent Photoelectric.
3. Duct Smoke Detector: Siga-DH Intelligent duct detector housing.

B. Signaling Devices to Correspond with Building System:

1. Alarm Speaker/Strobe: Edwards Integrity Series Model# 964, 965 series.
2. Ceiling mounted combination devices are to be used where possible.
3. Strobe Light: Edwards, Model# 202-3A,-5A,-6A,-7A,-8A White frame.

C. Auxiliary Devices

1. Door Release: Magnetic door holder is to be as specified by Edwards Siga – Model #1501,A1501, 1504, 1505, 1509, Floor & wall models Rixon Model # 4869 – 12, 24 or 120 volt 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.
 - b. Strobes (Class A 4-wire loop).
 - c. Smoke Detection.
 - d. Manual Pull Station.
 - e. Sprinkler Flow Tamper.
 - f. Door Release.
 - g. Transmission Line.
 - h. Security Detection Device.
2. All Life Safety related wiring to be hard piped in EMT conduit.

PART 3 – EXECUTION**3.1 DEMOLITION**

- A. Existing Life Safety System: Make connections as directed by life safety Vendor. 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 Vendor.
- B. 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 Vendor according to NFPA and Authority Having Jurisdiction (AHJ).
- C. 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.
- D. 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.
- E. 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.
- F. 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.

3.2 EXECUTION

G. Testing

1. All testing to be done 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.

END OF SECTION

ENGINEERS & CONTRACTORS:**ARCHITECTURE & ENGINEERING**

MA Design Group	Murrie Alcorn	213-229-8906
Gensler	Matt Gammel	213-327-3728
Shlemmer Algaze Assoc.	Vatche Daldemian	213-929-1401

ELECTRICAL ENGINEERING

Simon S. Wong & Associates	Simon Wong	310-313-0030
GLUMAC	Kameron Beeks	213-239-8866
AlfaTech	Diarmuid Hartley	213-212-9861
ARC Engineering	Muhannad Abdulhamid	818-508-6300

FIRE LIFE SAFETY ENGINEERING

C.A. Gamble and Associates	Carol A. Gamble	949-459-8300
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MECHANICAL ENGINEERING

Simon S. Wong & Associates	Simon Wong	310-313-0030
GLUMAC	Kameron Beeks	213-239-8866
AlfaTech	Diarmuid Hartley	213-212-9861
ARC Engineering	Muhannad Abdulhamid	818-508-6300

STRUCTURAL ENGINEERING

Nabih Youssef & Associates	Owen Hata	213-362-0707
Erkel / Greenfield & Associates	Iacob"Jack" Ratiu	818-638-8041

VIBRATION & SOUND ENGINEERING

Newson/Brown	Martin Newson	310-829-6343
HVAC Mechanalysis	Denny Mikus	949-489-0709
Veneklassen & Associates	Jerry Christoff	310-450-1733

AUTOMATION/DDC CONTROLS

Diversified Thermal Services (Exclusive Provider)	Dan Bailey	714-632-7401
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FIRE ALARM EQUIPMENT AND INSTALLATION

*TRL Systems(Exclusive Provider)	Miguel Bautista	800-266-1392
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MECHANICAL CONTRACTORS

ACS (Exclusive Provider)	John Baker	626-797-0547
Diversified Thermal	Dan Bailey	714-632-7401
Emcor Mesa Energy	Harry Archung	949-460-0460
Air-Tec	Dale Whitaker	213-549-1698
ACCO	Wayne Passafiume	818-244-6571

AIR BALANCE

Winaire, Inc.	Jim Windell	714-901-2747
ABCO	George Ortega	626-991-2465

CEILINGS

SHORENSTEIN

Sharp
G&S Acoustics

Wayne Heathcote
Jeff Gilbert

707 Wilshire, Los Angeles

818-767-4474
805-338-9072

DEMOLITION

IRS

Carlos Herrera

626-968-3399

DOORS & FRAMES

Architectural Doors
AM Doors

Fred Behnami
Darryl Allen

714-898-3667
310-532-1919

DRYWALL

Unlimited Interiors
Best Interiors
Trendex
PCI
Anning Johnson

John Bald
Jim Linquest
Brian Cox
Steve Schechter
Matt Parsons

310-214-5464
717-637-5550
818-587-3300
714-985-9923
626-369-7131

ELECTRICAL CONTRACTORS

Complete Electric
David Stone Electric
Carol Electric
AT Electric
R & R Electric
GEC Electric

George McDonald
David Stone
Rod Thomas
AJ Tielman
Rick Alcantar
Robert Guillien

213-718-2380
909-599-5212
562-594-1174
818-674-1862
310-785-0288
909-480-3915

FIRE SUPPRESSION

24-7
Campbell Fire Protection
Kimble Fire Protection
Regency
Cosco

Jim Donatz
Scott Campbell
Tim Devlin
Jay Rappaport
Wes Sue

562-698-3830
323-582-5130
714-894-7310
818-982-0126
323-321-5155

FLOORING (CARPET)

Eagle Flooring
DFS Flooring
Renegade Flooring

Bernie Guevera
Richard Friedman

310-423-1400
818-374-5267
310-268-1800

GLAZING WINDOW

Giroux
Tinker Glass
Rountree Glass
Performance Glass
Zaun Glass

John McEwen
Joe Tinker
Don Rountree
Rich Brinkerhoff
Todd Zaun

213-763-2032
949-477-2651
818-246-1785
818-551-5454
818-848-5612

MASONRY

R.E. Smith
Classic Tile & Marble

Bobby Smith
Thomas Lee

818-352-8897
818-822-4866

METERING

Onicon (BTU, Chilled water)

ONICON Inc.

727-447-6140

MILLWORK

AM Cabinets	Daniel	310-532-1919 x112
Artcrafters Cabinets, Inc.	Bob	818-752-8960
Giannelli Cabinet	John Giannelli	818-882-9787

PAINTING

Southland Painting	Jon Rael	818-764-1300
Duggan & Associates	Nelson Cullum	310-539-1812
GPS Painting	David Cuevas	714-730-8904
J. Jeschke	Joe Jeschke	310-488-8787
The Palos Company	David Palos	909-527-3803
Randall McAnany Company	Tim McAnany	310/822-3344

PLUMBING

Precision Plumbing	Scott Quinn	805-529-4748
Muir Chase Plumbing	Bob Luna	818-500-1940
All Area Plumbing	Robert Felix	323-939-9990
Neptune	Gonzo Murillo	818-768-7048

RISER MANAGEMENT

Light Source One	Travis Marg	213-286-2621
Summit Riser Systems	Scot Brown	949-632-2854

*** Exclusive Providers**

- The Building Management Office may approve other contractors following review.

END OF SECTION

SHORENSTEIN

707 Wilshire, Los Angeles

DATE: _____

TENANT: _____

**SUITE NO./
WORK SITE:** _____

CONTRACTOR: _____

CONTRACTOR LICENSE NO: _____ **LICENSE TYPE:** _____

ADDRESS: _____

SUPERINTENDENT: _____ **OFFICE:** _____

CELL: _____

**EMERGENCY
CONTACT:** _____ **PHONE:** _____

**REQUESTOR:
BRIEF WORK
DESCRIPTION:** _____

Name/Company/Trade	24 Hour Emergency Phone	Access Date/Time	Ins. Cert. ✓
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

General Contractor/Subcontractor Information/Access Form (CONT.)

SHORENSTEIN

707 Wilshire, Los Angeles

TENANT: _____ SUITE NO./
WORK SITE: _____

CONTRACTOR: _____

Name/Company/Trade	24 Hour Emergency Phone	Access Date/Time	Ins. Cert.
			✓
_____	_____	_____	_____
_____	_____	_____	_____
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_____	_____	_____	_____

**AON CENTER
707 WILSHIRE
DAILY HOT WORK PERMIT FORM**

REQUEST TO CONDUCT WORK USING AN OPEN FLAME, TORCH, AND/OR WELDING

To: Building Management Office

NAME: _____ DATE: _____

COMPANY: _____ CELL: _____

FLOORS NEEDED: _____

Building requirements: This permit must be approved by the Building Management and a building engineer prior to any work. Contractor will be responsible for scheduling a dedicated person for fire watch duty. Fire watch personnel should be someone trained in the use of a portable fire extinguisher. An appropriate extinguisher for the express purpose of extinguishing the materials that are being welded and the materials in the surrounding area must be on hand.

If the contractor cannot provide such a person or extinguishing equipment, the building management will assign one of the buildings' staff so trained in this area for an hourly charge
(See Building Services Rate Sheet).

Name/Company/Trade	24 Hour Emergency Phone	Date/Time	Floor/ Suite
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

BRIEF WORK
DESCRIPTION: _____

FIRE WATCH WILL BE PROVIDED BY: _____

AUTHORIZED BY: _____

Building Management Office_____
Signature_____
Building Engineering Office_____
Signature

THIS FORM IS TO BE FILLED OUT DAILY. FORM EXPIRES AT END OF WORK DAY

**AON CENTER
707 WILSHIRE
REQUEST FOR ACCESS/ACCESS CARD FORM**

NAME: _____ DATE: _____

COMPANY: _____ CELL: _____

FLOORS NEEDED: _____

☐ FREIGHT ELEVATOR ACCESS CARD☐ PASSENGER ELEVATOR ACCESS CARD

Cardholder agrees to the following terms and conditions:

- 1) Card is not transferable and must be used only by assigned personnel.
- 2) Cardholder is responsible for returning the card. If the card is lost, broken, defaced, or not returned cardholder will pay the current replacement fee per card (see Building Services Rate Sheet). Payment must be by check or money order payable to **Shorenstein Reality Services, LP**
- 3) Card is property of the building and may be confiscated or terminated at discretion of the building at any time.
- 4) Blocking elevator doors may damage the elevator. Delaying or restricting regular freight service is prohibited. Freight passenger will be responsible for the repair of any damage incurred whether accidental or intentional. If dedicated service is required speak to the Security Supervisor on duty.

Signature: _____

Building Office Approval: _____

Office use only:

CARD NUMBER(s) ASSIGNED: _____

Expiration Date: _____

RESTRICTIONS: _____

Programmed by: _____ Issued by: _____ Date: _____

**AON CENTER
707 WILSHIRE
REQUEST FOR BUILDING SERVICES FORM**

TENANT NAME _____

SHORENSTEIN
SUITE NO/WORKSITE: _____

707 Wilshire, Los Angeles
TELEPHONE _____

REQUEST FOR: ☐ After-Hours HVAC ☐ Vendor Access
 ☐ Freight Elevator Reservation ☐ Building Services

Request _____

AFTER-HOURS HVAC: ☐ Heating ☐ Air-Conditioning ☐ Ventilation

Date: _____ Start Time: _____ End Time: _____ Floor(s): _____

Date: _____ Start Time: _____ End Time: _____ Floor(s): _____

VENDOR/CONTRACTOR AFTER-HOURS ACCESS REQUEST:

Name/ Company: _____ Date & Time: _____ Floor (s): _____

Name/ Company: _____ Date & Time: _____ Floor (s): _____

Name/ Company: _____ Date & Time: _____ Floor (s): _____

Briefly describe the Scope of Work:

FREIGHT ELEVATOR RESERVATION:

Company: _____ Date: _____ Time: _____ to _____ Floor (s): _____

Company: _____ Date: _____ Time: _____ to _____ Floor (s): _____

Please See Building Management office for latest rate sheet for After-Hours HVAC, Freight Elevator pricing. A building services representative will provide individual quotes for special service requests. Only authorized representatives for your company can approve all above requested work.