

TYSONS TOWER



Construction Manual

July 10, 2020

This manual serves as a guide to tenants, design consultants and contractors involved in the design and construction of Leasehold Improvements at Tysons Tower. The information provided within this manual is not intended to alter the Tenant's Lease Agreement, and in the case of a conflict between this manual and the Lease, the Lease shall govern.

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I. PROJECT DIRECTORY

PROJECT CONTACTS:

Owner

Macerich

1162 Pittsford-Victor Road, Suite 100

Pittsford, NY 14534 Attn: Sam Rinaldo (585) 402-1744

Sam.Rinaldo@macerich.com

General Contractor

Harvey-Cleary Builders 207A Perry Parkway

Suite 1

Gaithersburg, MD 20877

(301) 519-2288

Attn: Kevin Rogge

Structural Engineer

Cardno

1881 Campus Common Drive

Suite 103

Reston, VA 20191 (703) 391-0024

Attn: Larisa Ramich

UTILITES:

Electrical

Dominion Virginia Power 120 Tredegar Street Richmond VA 23219 (888) 667-3000

Sewer & Water

Fairfax Water 8570 Executive Park Ave. Fairfax, VA 22031 (703) 698-5800

Telephone / Television

Cox 3080 Centreville Road Herndon, VA 20171 (703) 480-7743

Property Manager

Hines Interests Limited Partnership 7900 Tysons One Place

Suite 200

Tysons Corner, VA 22102

(703) 942-6650

Attn: Hines Property Management

Architect (Architect of Record)

Gensler

2020 K Street, NW

Suite 200

Washington, D.C. 20006

(202) 721-5200

Attn: Theresa Sheils

MEP Engineer

KTA Group

2553 Dulles View Drive

Suite 400

Herndon, VA 20171

(703) 713-0300

Attn: Mark Koblos

Natural Gas

Washington Gas 6801 Industrial Road Springfield, VA 22151 (703) 750-4584

Telephone / Television

Verizon 703 East Grace Street Richmond, VA 23219 800-837-4966

Trash Removal

Keter Environmental Services, Inc. 1 (866) 679-5079 (317) 403-1174 Scott Wolff

REQUIRED CONSULTANTS:

Structural Engineer (Structural Reviews)

Cardno 1881 Campus Common Drive, Suite 103 Reston, VA 20191 (703) 391-0028 Attn: Larisa Ramich

REQUIRED SUBCONTRACTORS:

Fire Alarm - Tie In / Programming

Simplex 22712 Commerce Center Court Dulles, VA 20166 1 888 746-7539

Keying

Eastern Safe and Lock 6826 Hill Park Dr. Lorton, VA 22079 (703) 541-2200 Attn: Brian Ford

Telecommunications Riser Management

Integrated Communications Consulting, LLC 20868 Waterbeach Place Sterling, VA 20165 (703) 421-8901 Attn: David Wright

Building Controls

Honeywell International 400 Herndon Parkway, Suite 100 Herndon, VA 20170 (703) 879-9977 Attn: Mary Spiro

Roofing

Gordon Contractors, Inc. 9010 Edgeworth Drive Capitol Heights, MD 20743 (301) 350-6600 Attn: Steve Wilt

Air Balance

Metro Test and Balance 8640 Edgeworth Dr. Capital Heights Md. 20743 (301)-808-3660

II. LANDLORD REQUIREMENTS

DESIGN DEVELOPMENT PHASE

Required to be submitted to and approved by Landlord at completion of design development:

- Space Plan
- Design Development Documents Primary MEP & General Architectural (one full-size hard copy set & one half-size hard copy set)
- Occupancy Calculations (verify compliance with egress capacity of Base Building stairs)
- Project Budget

CONSTRUCTION DOCUMENTS PHASE

Required to be submitted to and approved by Landlord prior to construction commencement:

- Tenant Design & Construction Specifications
- 100% Construction Drawings (one full-size hard copy set & one half-size hard copy set), showing at least the following:

Energy Code Architectural Plans & Details Reflected Ceiling Plans
Finish Plan & Schedule Door and Hardware Schedule Furniture Plans
HVAC Plans & Details HVAC Equipment Schedule Lighting Plans
Power and Data Plans Plumbing Plans & Riser Diagrams Fire Protection Plans
Electrical Load Calculations Electrical One Line Diagrams

- Preliminary Construction Schedule
- Copy of the Building Permit
- Bid List of Tenant Contractor's pre-qualified Subcontractors
- Executed Acceptance of the floor by Tenant Contractor
- Written Acceptance of the Tenant Design and Construction Manual
- Executed Acceptance of the Tenant Contractor Work Rules
- Floor Punch List of Existing Conditions drafted by Tenant Contractor, prior to Turnover
- Insurance Certificates

DURING CONSTRUCTION

Required to be submitted to Landlord during Tenant fit-out:

- Issue for Construction Drawings (one full-size hard copy set & one half-size hard copy set)
- Project Team Directory/Contact List
- Detailed Construction Schedule
- Partial Lien Waivers for each Progress Payment
- Published Project Meeting Minutes
- Final Project Cost Projections
- Submittals on any Major Supplemental Equipment
- Keying Plan & Schedule
- Any Changes to Documents Previously Approved by Landlord

AFTER CONSTRUCTION

Required to be submitted to and approved by Landlord at project completion:

- Final As-Built Drawings and Specifications (two CDs & one full-size hard copy set)
- Copy of the Non-Residential Use Permit (Non-RUP) issued by Fairfax County
- Final Air Balance Report (one hard copy and soft copy)
- Fire Alarm Test Report (one hard copy and soft copy)
- Keying Plan, Schedule and Bitting Chart (one hard copy and soft copy)
- Inventory of Light Fixtures, Ballasts, and Lamps
- All Final Lien Waivers from Tenant Contractor, all Subcontractors, and all other Vendors
- Final Payment Application
- O&M Manuals for all Supplemental Equipment (one hard copy set in a labeled binder)
- Executed Asbestos & Polychlorinated Biphenyls (PCBs) Certifications by Tenant Contractor
- Written Response to Landlord Punchlist items from Tenant Contractor
- All Guarantees and Warranties

III. SYSTEMS DESIGN

BASE BUILDING DESIGN CRITERIA

Architecture

The floor-to-floor heights are 13'-0". The size of the floors are approximately 19,752 USF (mid rise office Level 2); 24,254 USF to 24,730 USF (mid rise office Levels 3 to 9); and 24,724 USF to 25,137 USF (high rise office Levels 10 to 20) with 30'-0" x 42'-6" planning bays.

Service Elevator

The service elevator is 5'-8'' wide x 7'-10%'' deep with a 4'-0'' wide x 9'-0'' high entrance and a capacity of 4500 lbs.

Structure

The Base Building is comprised of a normal weight concrete structure with a two-way flat slab system that is 8½" thick with mild steel reinforcing. The continuous slab-beams are typically 6'-0" wide and project 7½" below the bottom of the slab, and contain both post-tensioning tendons and mild steel reinforcing. Floors are designed typically for a live load capacity of 100 psf (including partition load). Base Building floors where no finish is specified will receive a power-driven trowel finish with the following tolerances for a randomly trafficked floor system (measured according to ASTM E 1155 within 24 hours of finishing):

- Specified Overall Values: Floor Flatness F(F) 25; Floor Levelness F(L) 20.
- Minimum Local Values: Floor Flatness F(F) 17; Floor Levelness F(L) 15.

Any structural modifications required during Tenant fit-out to accommodate concentrated heavy loading areas must be reviewed and approved by Landlord and the Base Building Structural Engineer.

Post-Tensioned Prestressed Concrete (Floors & Ceilings)

With the post-tensioned prestressed concrete beams having about 3/4" of concrete coverage, Tenant should follow these guidelines to avoid catastrophic damage to the prestressed tendons:

- All drills must have drill stops, bit stop, or stop box set to 1/2".
- Installers shall avoid drilling into post-tension beams.

Tysons Tower is considered a critical Structure with Fairfax county the following procedures must to be adhered to.

Contractor shall submit a plan identifying all the intended core drill locations to the owners representative and the structural engineer of record (Cardno) for location approval. Once the locations have been selected the Contractor will adhere to the established procedures set forth by Cardno for core drills, final approval of each core will be given by management.

Heating, Ventilation, and Air Conditioning

The Building is designed under ASHRAE 6.2 (2007), which also meets ASHRAE 6.1 for Outside Air, and is designed to meet the 2006 International Mechanical Code as Amended by Fairfax County.

The Heating, Ventilation, and Air Conditioning (HVAC) system serves Levels 2 through 20 with two custom Air-Handling Units (AHUs) on each floor. The AHUs, which are located on the east

and west sides of the cores, are fed by chilled water from three (3) 550-ton chillers located within the Central Plant on the Street Level. At full loads, these vertical draw through type AHUs deliver a total of 11,000 CFM of supply air (inclusive of 1835 CFM of outside air that is monitored by the Building Management & Control System) per unit. The AHUs are equipped with a single width, single inlet plenum type direct drive supply fan (that is operated by a 7.5 MHP motor); internal spring type vibration isolation; chilled water coils (with a working pressure of 150 psig) constructed from copper tubes, aluminum plate fins, and a stainless steel casing; and MERV-13 filters. A factory installed, wired, and commissioned Variable Speed Drive (VSD) is provided with each AHU, which interfaces with Building Management & Control System.

The AHUs deliver air with a Leaving Air Temperature of 48°F (Dry Bulb) consisting of outside air mixed with return air to each floor. Supply air is distributed from the AHUs via 48" x 12" ducts with 1 ½" external duct wrap 25' downstream of the AHU equipment room. (The Tenant shall branch the ductwork to terminal devices.) Air is then returned to the Base Building AHUs via a common return air plenum. Open transfer return air openings to the AHU room are located on the east and west sides of each floor. The Tenant Contractor must install and maintain MERV-8 rated filters for the AHU return air openings *during construction* and install new MERV-13 rated filters for the AHU return air openings *post-construction and prior to balancing*.

Tenant shall install series flow, variable primary air volume fan powered terminal units (FPTUs) above the finished ceiling, as needed in addition to the four (4) FPTUs provided on each floor, and connect each FPTU to the Supply ductwork. (Eight (8) additional FPTUs per floor are furnished by the Landlord as part of the Project Improvements, on a pro rata basis, to be installed by the Tenant.) Each FPTU in the exterior zones shall be equipped with electric heating coils designed for operation with the microprocessor-based Direct Digital Control (DDC) and a fan motor assembly consisting of a forward curved centrifugal fan with a direct drive motor. (The FPTUs in the interior office zones do not require electric heating coils, but the Tenant's engineer will need to determine if special interior spaces, such as a conference room or other high occupancy spaces, require electric heat.) The motors are electronically commutated, variable speed direct current brushless motors (ECMs) specifically designed for use with a single phase, 277V and 60 Hertz electric motor and dynamic fan speed control.

The Tenant design shall include multiple interior and perimeter zones to provide proper air distribution and temperature control within the premises. The FPTU will mix primary cold air from the floor-by-floor AHUs with warmer air from the ceiling plenum to supply a fixed volume of air at varying temperatures. For heating, the FPTU will re-circulate warm return air from the plenum. If the re-circulated air does not satisfy the heating requirements, the FPTU will activate its heating coils in stages until the temperature set point of the space is met.

There are 2" condenser water supply and return taps (valved and capped for future) provided at each west Base Building core mechanical room on Levels 2 to 20 for Tenant supplemental cooling equipment. The maximum flow rate allotted per floor is 25 GPM. (The Tenant is responsible for providing any needed pumps for cooling tower pressure drops.) If Tenant Contractor connects to these valves, additional 2" future taps (with valves) shall be provided by Tenant for subsequent tenants.

On multi-Tenant floors, Tenant must consider existing and future tenant needs when connecting to Base Building AHU main ductwork lines. For example, Tenant shall provide access in ceilings where needed for future tenant connections. If existing tenant equipment is impacted, Tenant shall re-balance any impacted existing tenant mechanical equipment. Tenant shall also patch

and finish any damaged material in other tenants' spaces to match existing conditions.

Plumbing

The plumbing infrastructure is sufficient to support Base Building and typical future Tenant plumbing needs. There are 4" capped futures for waste; 2" capped futures for venting; and a 1½" valved future for domestic cold water tie-in (located at the east side core Mechanical Rooms). If Tenant Contractor connects to these pipes, futures for subsequent tenants shall be provided by Tenant.

The toilet rooms have ample fixtures and meet current high-rise building codes, and each floor has an ADA-compliant, two bowl (bi-level) electric water cooler (with a satin stainless steel backsplash and cabinet) to cool 7.5 gallons of water per hour.

Piping and Fixtures

The domestic water piping shall be type L copper with solder joint fittings; the sanitary and vent piping shall be service weight cast iron with no-hub coupling; and the plumbing fixtures shall be water efficient type and shall meet the latest version of LEED requirements.

Water Heaters

Each tenant shall provide their own electric water heater sized for demand and storage requirements to serve new fixtures installed as part of Tenant Improvements (e.g., additional restrooms fixtures, shower facilities, pantries, etc.). Water Heaters need to include a moisture sensing device within the overflow pan that will upon activation shut the water supply off to the Water Heater via Solenoid Valve.

Electrical

Power to Tenant floors is served via two (2) busways: Busway C (4000A, 277/480V, 3 PH, 4 Wire) serving Levels 2 to 10; and Busway B (4000A, 277/480V, 3 PH, 4 Wire) serving Levels 11 to 20. Electrical closets on each floor contain 250 Amp distribution sections for Tenant power and lighting. Every floor also contains an additional 200 Amp distribution (except Levels 2 and 3, which have an additional 420 Amp distribution) dedicated to Variable Air Volume boxes, AHUs, and electric water heaters (located on Levels 8, 15, and 20). The electrical system is designed to accommodate 8 watts/ft² of Tenant connected load on each floor. Tenant shall provide additional heating panels as required for Tenant build-out.

Landlord will provide two 42-pole high-voltage panels (277/480V) and two 42-pole low-voltage panels (120/208V) on each floor. All panels are circuit breaker type panelboards (with bolted-in circuit breakers). Landlord will also provide a Tenant metering system as detailed in Section IV of this Tenant Design and Construction Manual. Additional branch circuit breaker panels and electrical meter sockets shall be installed by the Tenant Contractor in accordance with the Tenant's design requirements. Space within the Base Building electrical rooms is provided for additional panels and meter sockets. All branch panels are to be installed in the electrical room (on the Tenant's floor) or within the Tenant's Premises. Tenant Contractor must provide a detailed, typed (not handwritten) breaker schedule inside the door of each panel, including the Landlord-provided panels, and issue them to Landlord for record as part of construction closeout. Additionally, Tenant Contractor shall label the front face of each panel, including Landlord-provided panels, with an engraved tag listing the panel's ID and the Tenant's name.

All initial energizing and service set-up for Tenant power must be coordinated by Tenant Contractor with Landlord.

Standby emergency power is provided via a diesel-powered 900 KW / 1125 KVA generator that serves emergency and exit lighting in the building, the fire alarm system, elevators in each zone, and the sprinkler system fire pumps.

Critical Tenant loads requiring separate emergency power systems must be coordinated with the Landlord and will require separate tenant supplied back-up systems.

There is an electrical ground bar in each Electrical Room, which is accessible to Tenant.

Lamps for Lighting

Building Standard lamps (as identified in this Section III of the Tenant Design and Construction Manual) will be purchased and stocked by the Base Building staff. Non-Building Standard lamps shall be purchased by Tenant and stocked in the Tenant Space. Installation of all replacement lamps will be performed, as needed, by the Base Building staff at no additional costs to Tenant.

Fire Protection

Core and shell standpipe system is installed in accordance with NFPA 13, 14, 20, and 24 (and all state and local code requirements) and includes a 6" fire suppression standpipe for a 2 ½" hose (with a 2 ½" to 1 ½" reducer & 1 ½" cap and chain), 4" sprinkler standpipe, and 2" drain in each stairwell (Stair A & Stair B). Capacities in the standpipes are delivered by horizontal split case, double suction, and motor controlled electric fire pumps as required by NFPA 20.

Sprinkler mains are provided throughout the core and shell office floors per NFPA 13 requirements. Tenant must remove, relocate and route branch lines and/or mains to new locations as required by the Tenant's design requirements, and the entire sprinkler installation shall be installed in accordance with the rules and regulations of the applicable NFPA 13 and NFPA 101 and comply with the regulations of the Fire Marshal and the local and state authorities having jurisdiction. All core and shell sprinkler types will have to be replaced by Tenant with building standard fully concealed sprinkler heads with a white cover, and upon completion, the Tenant shall furnish an inspection certificate. Any draindowns necessary for Tenant sprinkler work requires a minimum of a 48 hour notification to Landlord for risers and 24 hour notification for floors.

Tenants requiring special fire extinguishing systems (dry, chemical, or delayed) must provide a signal to the Fire Command Center on the Street Level that reports a trouble, alarm or activation of the Tenant's system.

Fire Alarm & Smoke Detection

A microprocessor based 24 Volt DC, electrically supervised, addressable fire detection, alarm, and communication (FDAC) system manufactured by **Simplex** is provided in the building. The features of this system include (upon automatic or manual system alarm detection) activation of a remote circuit to remote annunciator at the Building Security Desk, Engineer's Office, and Property Manager's Office; sounding of alarm tones associate with the alarm zone, and after a predetermined time, automatic transmission of a digitized voice; flashing of strobe lights; activation of stair pressurization fans; and activation of duct smoke detectors to shut down respective mechanical equipment. Upon activation of detectors associated with an elevator lobby, machine room, or hoistway, that elevator bank shall be automatically recalled. Emergency egress stairwell doors will unlock automatically allowing free entry from both sides of the doors in the event of an alarm signal. A Fire Command Center with a Fire Alarm Control

Panel Unit and Fire Alarm Annunciator is located on the Street Level of the building and is monitored 24 hours a day by (1) sending alarm and trouble signals from the above-grade garage, below-grade garage, or office tower to the Main Lobby Security Desk on the Plaza Level and Macerich's Main Fire Control Room in the Mall and (2) dialing to a remote third-party monitoring company, Simplex Monitoring.

Voice communication speakers and strobes are provided throughout the building as required by code for a shell condition. Tenant Contractor must coordinate relocation of existing devices, as required, with Base Building fire alarm subcontractor. Additional speakers and strobes will be required by the Tenant fit-out work, and the base system has the capacity for thirty-seven (37) speakers (tapped at 1 watt) per typical office floor and 25 visual strobes (75 candela) per floor. If the quantity of devices required, due to the layout of the Tenant space or the occupancy type, exceeds the current capacity, Tenant will be required to install additional circuit boards, power supplies, and amplifiers at the system's data gathering panels.

Building Management & Control System

The Building Management & Control System (BMCS) is a microprocessor based, fully networked, and real time system that optimizes the HVAC system, ensures reliability and efficiency of the building operation, and controls critical building functions (including the building's central mechanical, electrical, and plumbing systems). The BMCS includes an Operator Interface Workstation at the Base Building Engineering Office with graphics shown on a Video Display Unit. The BMCS also consists of a series of controllers, including: Communication Control Panels (CCPs) in the Central Plant, Cooling Towers, Main Electrical Room, and on every typical floor; Distributed Control Panels (DCPs) in the Chilled Water System, Condenser Water System, Air-Handling Unit, and Outside Air-Handling Unit; and Unitary Controllers (UCs) at each fan powered terminal unit (FPTU).

Tenant Contractor will need to extend the microprocessor-based DDC capabilities to each FPTU in the Tenant Space during fit-out work using the Property's required Controls subcontractor and update the floor graphics for modified or added equipment.

Building Security System

The Building Security System (BSS) is the integration of an Access Control and Monitoring System (AMCS) that controls access to specific Base Building doors and monitors activity at sensitive areas, a Closed Circuit Television (CCTV) security surveillance system that uses cameras to monitor the building, and a Security Intercom System (SIS) that provides two way voice communications.

As part of the AMCS, the Base Building entrances and passenger elevators have card readers manufactured by HID that only allow authorized personnel and Tenants through without an alarm. The CCTV uses a combination of fixed and pan-tilt-zoom cameras to capture video throughout the Project, such as at the Base Building entrance and exit points. The SIS includes call box stations in the parking levels and remote intercoms at the Base Building entrances, stairwells, and elevator cabs. System points are monitored at the Security Desk on the Plaza Level, in the Property Management Office, and in Macerich's Central Command Station.

Tenants will be responsible for security systems within their own individual Leased Premises. Tenant systems are required to be capable of using compatible HID readers and HID cards to allow Tenants to carry one access card readable by both Tenant and Base Building systems.

Any additional Tenant-provided security systems and equipment (such as cameras) are subject to Owner's approval.

Roofing

For warranty purposes, the Tenant shall use standard roofing details issued by the building's required Roofing subcontractor to prepare shop drawings detailing the interface of any of the Tenant's rooftop equipment with the roof and issue the shop drawings for the Owner's and the Base Building roof manufacturer's review and approval. To ensure that warranties are maintained, Tenant shall use the required Roofing subcontractor to perform any roof penetrations and should use the Base Building subcontractors to install roof curbs.

Waterproofing

Tenant shall provide waterproofing in all "wet areas" such as kitchens, restrooms, mop sinks, drinking fountains, etc. in the Tenant Space. The waterproof membrane must extend 6" vertically on all demising walls. This membrane shall be water tested by the Tenant Contractor and inspected and signed off on by Building Operations personnel. If the membrane fails the water test, it must be replaced. Notwithstanding the foregoing, no vertical membrane curb shall be required at entrance points to any cafeteria, pantry, coffee station, or other typical office water location.

Telephone & Data

The building's Main Telephone Room, which is located on Parking Level P1, receives the major phone and data carriers that enter the building. Any work in the Main Telephone Room must be installed on cable trays and with j-hooks and installed in locations approved by Property Management.

Conduits extend out from the Main Telephone Room to two separate phone risers. Phone risers consist of an east and a west closet (adjacent to Mechanical Rooms) with 4" sleeves and ground telephone bars for Tenant cabling. All cabling within these closets shall be also be installed on cable trays and with j-hooks and coordinated with Property Management. All Tenant equipment and final punchdowns must occur within the Tenant's Premises.

There is a telephone ground bar in each telephone closet (two per floor), which are accessible to Tenant.

Satellites & Antennas

Satellite dishes and any exterior antennas require a separate agreement with the Landlord (if not already included as part of the Lease), and any associated equipment must be installed at Tenant's expense. The equipment information, routing, installation location, and details must be approved by Landlord prior to commencement of this work.

Hardware & Keying

The building system is a high-security Schlage system. Tenant Contractor or Architect must provide a detailed spreadsheet and floor plan indicating how the space is keyed. Initial installation of cylinders, cores, and actual keying shall be coordinated by the Tenant Contractor.

LEED & Green Initiatives

Landlord strongly encourages the Tenant to follow the **LEED for Commercial Interiors** program for design and construction criteria during the build-out. Guidelines can be found on the U.S. Green Building Council's LEED website at www.usgbc.org/LEED.

BUILDING STANDARDS:

Required on all Tenant Floors:

Mechanical Locks	Schlage L9000 Series Mortise Locks.
Electro -	Schlage L9000EL Series Electro-Mechanical Locks.
Mechanical Locks	
Cylinders	Full Faced with shouldered compression rings; 6-pin; standard thread;
,	keyed into building system; cams to suit lock function of Schlage (SCH)
	30-001 Mortise Cylinder w/ 36-083 Compression Rings.
IVAC	,
Interior Square	24" x 24" Nailor UNI panel face diffuser, all steel construction, with
Ceiling Outlet	frame suitable for ceiling type; faceplate with aerodynamically shaped,
Diffusers	hemmed edge; baked enamel off-white finish.
Perimeter	Uninsulated, 2" wide Nailor N Series Model 59NDR xx-D-TR-FS
Diffusers	Combination Supply/Return Slot Diffuser. Supply air shall be discharged
	horizontally along the ceiling toward the interior and vertically
	downward along the curtain wall.
	-
	Integral return plenum shall be excluded at perimeter spaces where
	ceiling is provided with a cove at the window system to provide more
	visual glass (North and East elevations where bounded by Skin Type B)
	When this occurs, provide continuous 1 ½" Nailor 5075 R extruded
	aluminum linear slot opening at top of sidewall of perimeter.
Perimeter FPTU's	Variable Primary Air Fan-Powered Terminal Unit with ECM Motor and
	Electric Heating Coil manufactured by Nailor , Model D35SST/ D35SEST.
Duct Insulation	Duct Liner with Water Repellant Enhanced Surface and Fire Resistant
(Liner & Wrap)	Coating on Surface Facing the Air Stream.
	25'-0" Downstream of Typical Floor Air Handling Unit Equipment Room
	1 ½" External Duct Wrap.
	25'-0" Upstream and Downstream of Exhaust Fans (nonemergency run)
	1" thick Certainteed ToughGard 150 Density Flexible Duct Liner.
	Tenant shall provide insulation on exterior of Tenant's ductwork where
	duct liner is not installed as part of the Base Building conditions.
Flexible Duct	FlexmasterUSA Flexible Air Duct in Ductwork connected to various Air
	Outlets; Not to exceed lengths of 10'-0"; Min. Bending Radius of 1.5x
	Duct Diameter; No More than two (2) 90° bends; Min. of 18" straight
	section at inlet to all Terminal Equipment.
Return Air	24" x 24" Nailor UNI panel face diffuser, all steel construction, with
Diffusers	frame suitable for ceiling type; faceplate with aerodynamically shaped,
	hemmed edge; baked enamel off-white finish.
Return Air Filters	American Air Filter High Capacity, Factory Assembled, 12" thick; MERV-
	14 rating; ASHRAE Test Std 52.2-99 average efficiency of 80-90%. (No
	Substitutions)

Occupancy Sensor	Sensor Switch Adaptive Technology & Dual Technology (Ultrasonic and PIR); Adjustable Time Delay up to 30 Minutes; 180-degree field of view; Minimum Coverage of 900 sf.
Electrical	
Conduit	Where underground, exposed to weather, in concrete slabs, in hazardous locations, systems operating over 600 volts, or greater than 4" in diameter: Rigid Steel and Intermediate Metal Conduit by Allied joined with threaded pipe couplings and secured with double locknuts; hot dipped galvanized inside and out.
	For 4" diameter and smaller, except where rigid steel conduit required, Electrical Metallic Tubing (EMT) Conduit joined with Midwest Catalog 460-469 steel couplings (Rigid Steel and EMT conduit shall be joined with Midwest Catalog 420-422 steel couplings)
	Junction boxes by Unity Manufacturing.
Breaker Panels	General Electric A Series Panelboards: Panel ID LPX - Type AQ; Panel ID HLX - Type ADP; Panel ID MHX - Type AD
Meters	E-Mon #480400DKIT.
Fire Alarm	
Speaker (conditioned areas)	Simplex Series 4902.
Strobe (conditioned areas)	Simplex Series 4906 Truealert.
Speaker/Strobe (conditioned areas)	Simplex Series 4906 Truealert.
Heat Detector	Simplex 4098-9733/4098-9792.
Smoke Detector (Photoelectric)	Simplex 4098-9714/4098/9792.
Smoke Detector (Duct Mounted)	Simplex 4098-9714/4098-9756.
Fire Protection	
Sprinkler Heads	Victaulic V3802 Concealed Type with White Cover.
Room Sensors	
Room Sensors	Honeywell TR21 Wall Mounted Temperature Sensor (Offices) and the Honeywell TR23 (conference rooms).; White Protective Enclosure; No Manufacturer's Logos, Name, or Markings on Casing; Accuracy of 0.36° F; Temperature Range of 45° F to 99° F.

^{*}This is only a partial specification list. Landlord reserves the right to review all products proposed for Tenant work to ensure compatibility with the Base Building systems.

Required in Multi-Tenant Corridors Only:

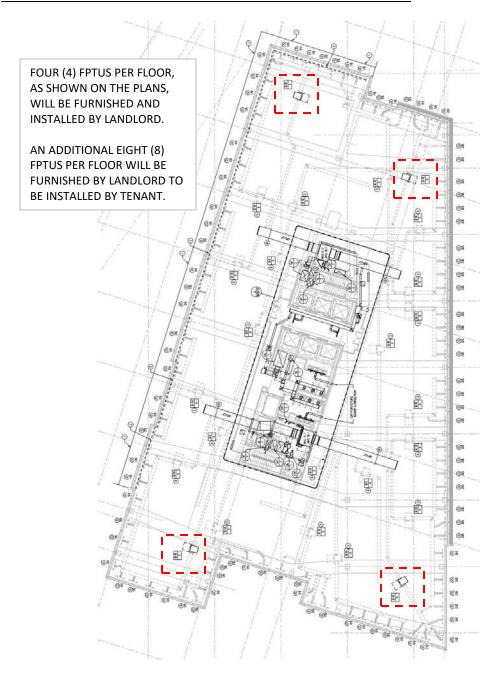
Doors, Frames, and Ha	nrdware
Interior Glass Entrances	6'-4" wide x 9'-0" high Double Flush Glass Doors with 1/2" thick Monolithic, Class 1 (clear), 100% Heat Soaked Tempered Glass (GL-04); Transom with 1/4" thick Monolithic, Class 1 (clear), 100% Heat Soaked Tempered Glass (GL-13); Ultra Narrow Rails and Stiles; Rixon-Firemark 28 Series Concealed Floor Closers (PH-28), non-hold open, 345 Top Pivot, with extended spindles; 1/2" aluminum threshold; and Blumcraft H-100F Panic Device with Full Height F-Handle & ES-100 Mounting Bars (to accept Folger Adam 310-1 electric strikes) from 1-1/4" diameter stainless steel tubing in #4 finish.
Solid Doors	Custom Grade with Medium Density Overlay Veneer with Grade 1-LD-1 or 1-LD-2 Particleboard Core manufactured by VT Industries ; 8'-0" high x 1 ¾" thick; Painted White (Sherwin Williams "Snowbound" SW 7004).
Frames	Welded Hollow Metal Frames from 16 Gauge Steel manufactured by Pioneer for Openings up to and including 48" Wide (14 Gauge Steel for Openings more than 18" Wide) with Full 5/8" Stops.
Levers	Schlage (SCH) 03 Design (A Rose) with 09-905 Thumbturn Lever.
Door Closer	LCN 4010 Series (pull side mount) or 4110 Series (push side mount).
Door Floor Stops	H.B. Ives FS436 (doors without thresholds) or FS438 (doors with thresholds / undercut doors) Cast Half Dome Design in US26D finish with Rubber Bumper.
Door Wall Stops	H.B. Ives (IVS) WS401CCV (masonry) or WS402CCV (gypsum) Cast Disc Type with Concave Rubber Bumper.
Ceiling Systems	
Grid	Armstrong Suprafine Exposed T-Grid; 9/16"; White.
Tile	Armstrong Ultima; 24 x 24 x ¾"; White.
Lighting	
Square Fixture (BW)	2' x 2' fluorescent by Focal Point Equation comprised of 20 gauge steel reflector; housing back box in matte satin white powder coat finish; thick frosted acrylic diffuser; 1/8" conical prismatic lens; anodized extruded side rails/steel ends. Lamps: (2) F14T5/830 3000K by G.E.
Linear Fixture (BH)	4'-0" x 0'-3" linear fluorescent by Mark Architectural Lighting with steel backbox housing; 3" wide nominal lensed aperture (white lay-in acrylic lens); trimless edge detail and integral electronic ballast; white finished 1 ½" deep vertical regress. Lamps: (2) F28T5/830 3000K.
Downlight (BJ) (drywall only)	0'-3" diameter lensed aperture, adjustable downlight by USAI with steel backbox housing, white finished die-cast aluminum trim ring, <i>trimless edge</i> (painted to match finished ceiling), Solite spread lens and integral electronic transformer. Lamps: Ushio EXN/FG/ULTRA TITAN, 50W, 12V, 3100K, 36°.
Downlight (BJ-1)	0'-3" diameter lensed aperture, adjustable downlight by USAI with steel backbox housing, white finished die-cast aluminum trim ring, <i>overlap trim edge</i> (finished matte white), Solite spread lens and integral electronic transformer. Lamps: Ushio EXN/FG/ULTRA TITAN, 50W, 12V, 3100K, 36°.

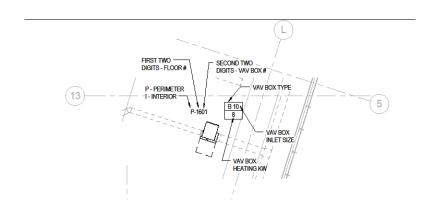
^{*}This is only a partial specification list. Landlord reserves the right to review all products

proposed for Tenant work to ensure compatibility with the Base Building systems.

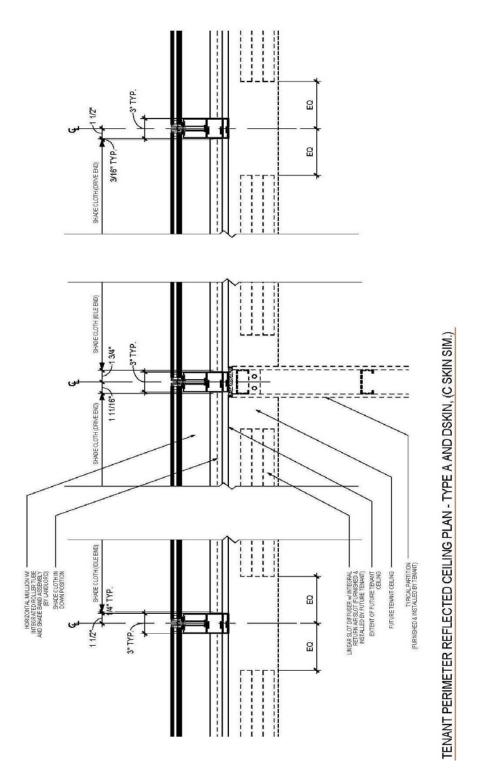
IV. REQUIRED DETAILS

FAN-POWERED TERMINAL UNIT TYPICAL FLOOR LAYOUT & ID TAGS

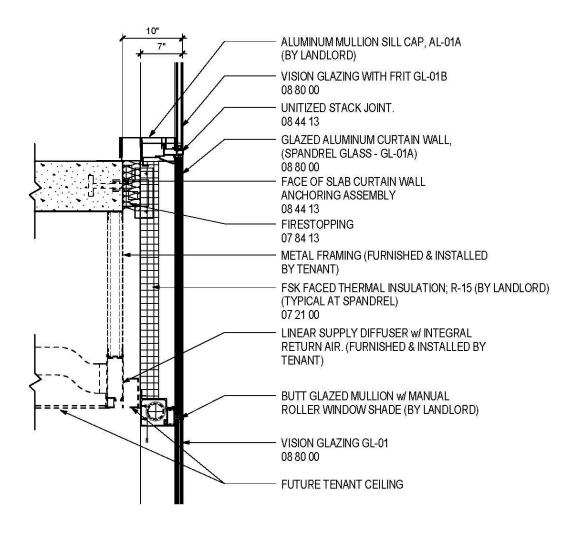




PARTITION TO PERIMETER MULLION (Perimeter Diffusers WITH Integral Returns)

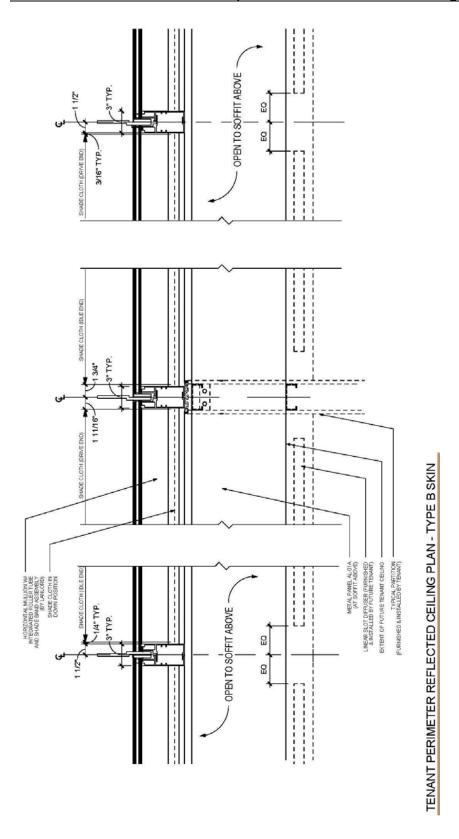


PARTITION TO PERIMETER MULLION (Perimeter Diffusers WITH Integral Returns)

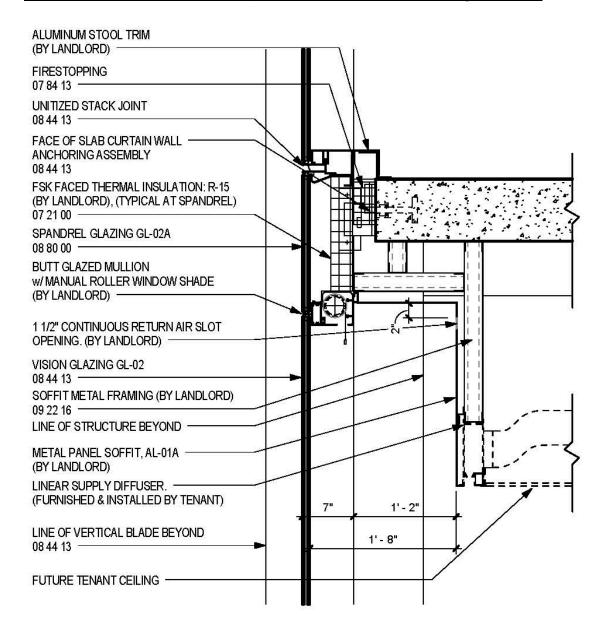


DIFFUSER W/ INTEGRAL RETURN AIR (TYPE A AND D SKIN, C SKIN SIM.)

PARTITION TO PERIMETER MULLION (Perimeter Diffusers WITHOUT Integral Returns)

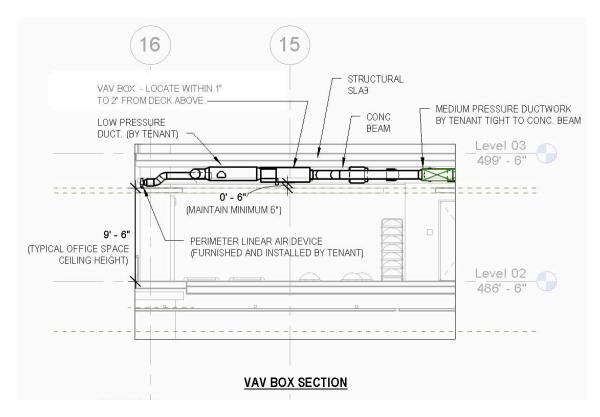


PARTITION TO PERIMETER MULLION (Perimeter Diffusers WITHOUT Integral Returns)



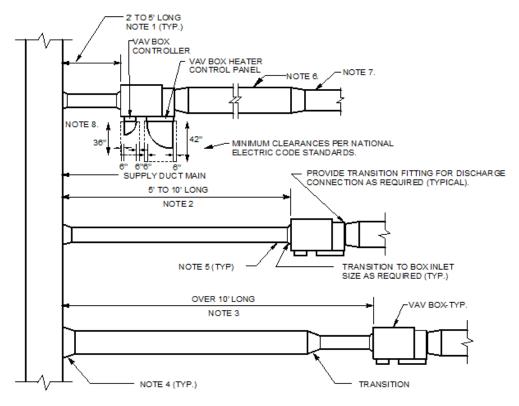
DIFFUSER WITHOUT INTEGRAL RETURN AIR (TYPE B SKIN ONLY)

PERIMETER DIFFUSER & FAN-POWERED TERMINAL UNIT SECTIONS



FOUR (4) FPTUS PER FLOOR WILL BE INSTALLED BY LANDLORD. THE REMAINING FPTUS SHALL BE INSTALLED BY THE TENANT.

FAN-POWERED TERMINAL UNIT ACCESS



TENANT SHALL:

- 1. PROVIDE 2' MIN. STRAIGHT RIGID DUCT AT BOX INLET (TYPICAL).
- PROVIDE METAL RIGID DUCT OF STANDARD INLET DUCT SIZE FOR COMBINED LENGTH UP TO 10' MAX (SEE SCHEDULE FOR SIZES).
- PROVIDE 5' MAX. DUCT OF STANDARD INLET DUCT SIZE PLUS SHEET
 METAL DUCT OF INCREASED INLET DUCT SIZE FOR COMBINED LENGTH OVER
 10' LONG (SEE SCHEDULE FOR SIZES).

STANDARD INLET DUCT SIZE	5" DIA	6" DIA	8" DIA	10" DIA	12" DIA	14" DIA
INCREASED INLET DUCT SIZE	6" DIA	8" DIA	10" DIA	12" DIA	14x12	18x12

- PROVIDE RECTANGULAR TO ROUND, CONICAL TAP, OR EQUIVALENT AT EACH CONNECTION TO SUPPLY DUCT MAIN.
- PROVIDE MINIMUM 2-1/2 DUCT DIAMETERS OF STRAIGHT DUCT FOR COMPLIANCE WITH THE MANUFACTURER'S INSTALLATION REQUIREMENTS (TYP).
- 6. SEE SCHEDULE FOR LOW PRESSURE DUCT SIZE

STANDARD INLET DUCT SIZE	5" DIA	6" DIA	8" DIA	10" DIA	12" DIA	14" DIA
LOW PRESSURE DUCT SIZE	10x8	10x8	16x8	18x10	24x 10	24x12

- 7. PROVIDE DOWNSTREAM TRANSITION WHERE SHOWN ON TENANT PLANS (TYPICAL).
- CLEARLY INDICATE ALL UNIT ACCESS DOORS, ACCESS CLEARANCES, AND CODE CLEARANCES ASSOCIATED WITH EACH TERMINAL UNIT ON ALL TENANT FLOOR PLAN SHOP DRAWING LAYOUTS FOR EACH TERMINAL UNIT.

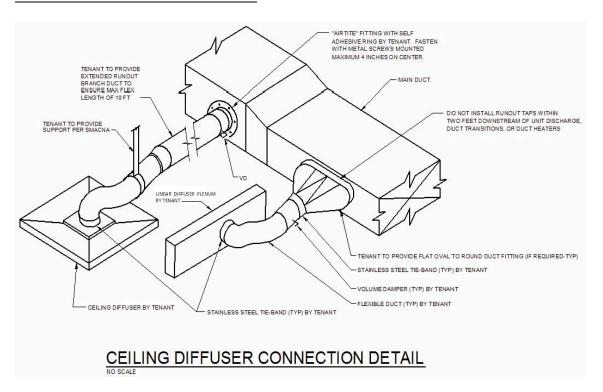
VAV BOX CONNECTION DETAIL

NO SCALE

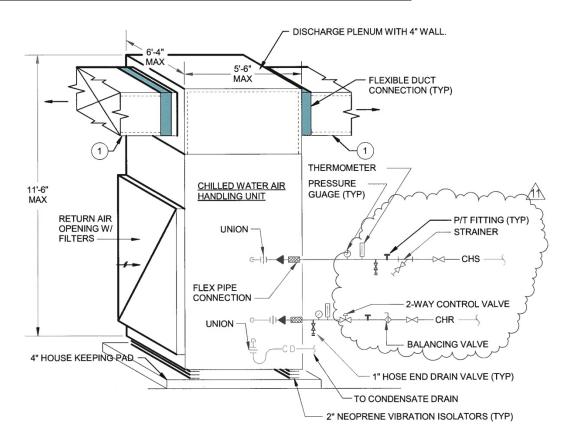
GENERAL NOTE:

LOCATIONS FOR REQUIRED CEILING ACCESS TO VAV TERMINAL UNIT CONTROLLERS AND VAV TERMINAL UNIT HEATER CONTROL PANELS SHALL BE COORDINATED BY THE TENANT.

CEILING DIFFUSER CONNECTION DETAIL

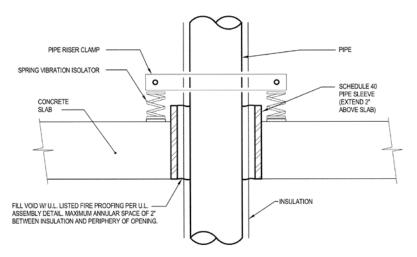


TYPICAL OFFICE LEVEL AIR HANDLING UNIT PROVIDED BY LANDLORD

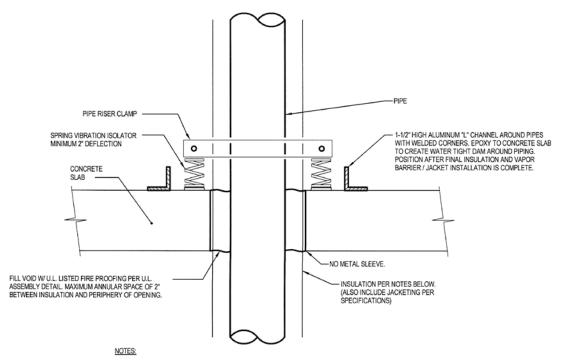


SUPPLY AIR DUCT FOR FIRST 25'-0" FROM AIR HANDLING UNIT SUPPLY AIR PLENUM TO BE SMACNA STANDARD DUCTWORK (22 GAUGE DUCTWORK WITH 1 ½" X 1 ½" X 3/16" THICK ANGLE BRACING ON 28" CENTERS) WITH 1 ½" EXTERNAL DUCT WRAP.

VERTICAL PIPE PENETRATIONS



(IN SHAFT) VERTICAL PIPE PENETRATION DETAIL NO SCALE



 MAINTAIN A MINIMUM 2 HOUR "F" RATING AND MINIMUM 2 HOUR "T" RATING. INSTALL PER THE FOLLOWING U.L. DETAIL NUMBERS BASED ON THE PIPE SIZES INDICATED BELOW:

FOR 14" TO 16" DIA. PIPING: "XHEZ.C-AJ-5103"

CONTINUOUS 3" THICK HIGH DENSITY FIBERGLASS PIPE INSULATION WITH 0.010" THICK ALUMINUM METAL JACKET 12"
HIGH FROM EDGE OF FILL (EDGE OF SLAB). PROVIDE ADDITIONAL JACKET PER SPECIFICATIONS.

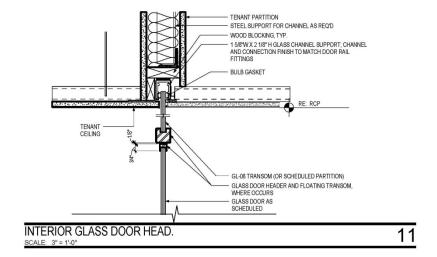
FOR 12" DIA. AND SMALLER PIPING: "XHEZ.C-AJ-5271"

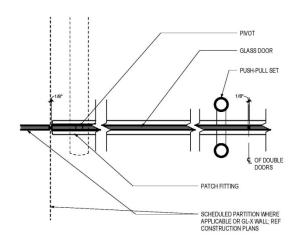
CONTINUOUS 2" THICK HIGH DENSITY FIBERGLASS PIPE INSULATION WITH JACKET PER SPECIFICATIONS.

(NOT IN SHAFT) VERTICAL PIPE PENETRATION DETAIL

NO SCALE

INTERIOR GLASS DOORS

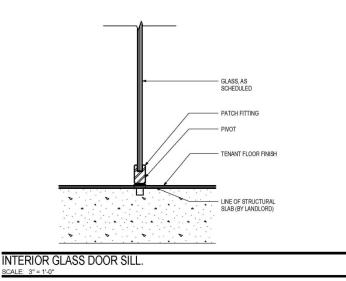




INTERIOR GLASS DOOR JAMB.

SCALE: 3"=1"-0"

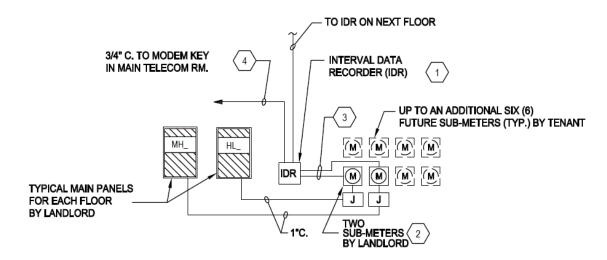
12



13

26

TENANT METERING CONFIGURATION PROVIDED BY BASE BUILDING



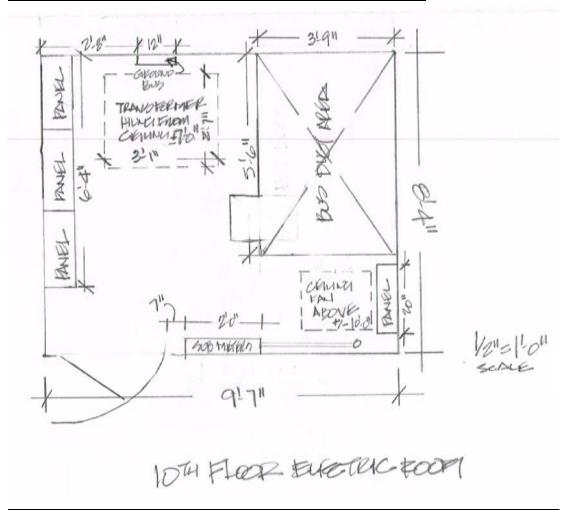
TENANT METERING CONFIGURATION

NO SCALE

- 1 LANDLORD SHALL PROVIDE IDR ON EACH FLOOR, ADJACENT TO MAIN 277/480V PANELBOARD. IDR SHALL MONITOR UP TO EIGHT KWH/DEMAND METERS, AND SHALL REPORT ENERGY USAGE DATA TO MODEM KEY IN MAIN TELECOM RM.
- 2 LANDLORD SHALL PROVIDE TWO (2) INITIAL SUB-METER, E-MON #480400DKIT. CONFIGURE SUB-METER TO MONITOR MAIN PANELBOARD FOR THE HALF-FLOOR. FUTURE SUB-METERS, UP TO A TOTAL OF SIX (6), PER FLOOR, ARE SHOWN DASHED.
- $\left\langle \, 3 \,
 ight
 angle$ Landlord shall provide manufactuRER--supplied cable from IDR to initial sub-meter.
- 4 LANDLORD SHALL PROVIDE CABLE FROM LEVEL 02 IDR TO MODEM KEY. LANDLORD SHALL COORDINATE CABLE WITH MANUFACTURER.

LANDLORD IS PROVIDING AN **E-MON SYSTEM** THAT CONSISTS OF **MONITORING SOFTWARE** (E-MON #RIGHTENERGYSW), A **MODEM KEY** (E-MON #EKM-E) LOCATED IN THE MAIN TELECOMMUNICATIONS ROOM, AN **INTERVAL DATA RECORDER** (E-MON #IDR-8-ST) IN THE ELECTRICAL ROOM ON EACH FLOOR, AND **TWO INITIAL SUB-METERS** IN EACH ROOM.

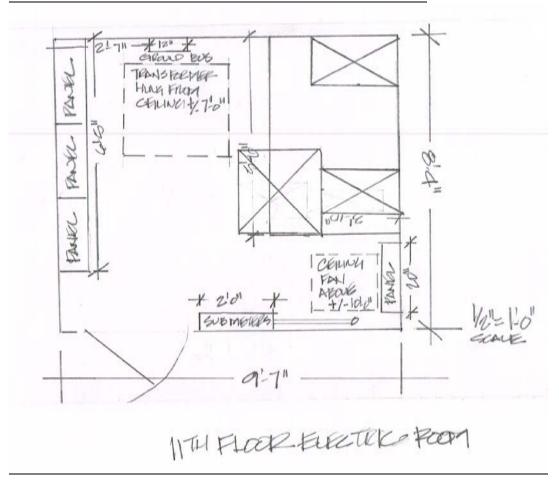
LEVEL 10 - BASE BUILDING ELECTRICAL ROOM AS-BUILT CONDITIONS



The "Bus Duct Area" includes the bus pad dimensions.

Tenant shall confirm as-built conditions and verify that required clearances are achievable for additional electrical panels prior to design. Conditions on other levels will differ from Level 10.

LEVEL 11 - BASE BUILDING ELECTRICAL ROOM AS-BUILT CONDITIONS



Tenant shall confirm as-built conditions and verify that required clearances are achievable for additional electrical panels prior to design. Conditions on other levels will differ from Level 11.

IV. COORDINATION DRAWINGS

Landlord strongly recommends that the Tenant Plans (including both architectural and engineering specifications) include the following language requiring the Contractor to prepare and submit "Coordination Drawings" to ensure adequate coordination of above-ceiling work before and during construction:

"Prepare composite working drawings ("Coordination Drawings") at a suitable scale not less than 1/4"=1'-0, clearly showing how the work of all other trades will be coordinated. Any work installed in conflict with the work of other trades shall be corrected at no cost to the Tenant or Landlord.

The Contractor and all Subcontractors shall prepare a complete set of Coordination Drawings indicating the actual equipment to be furnished and installed under this Contract, and the location and/or exact routing for all items including but not limited to: light fixtures, conduit, piping, ductwork, and related above ceiling items. Coordination Drawings shall also include locations of all slab penetrations. The Contractor shall make allowances to include 1" slab deflection in all areas as part of the coordination of above ceiling work. The Coordination Drawings shall be submitted to Tenant's Architect and Tenant in a timely manner after award of the Contract. The sheet metal drawings shall be prepared and shall serve as the base drawings. The Coordination Drawings shall be approved by the Contractor. If the Contractor allows one trade to install work before coordinating with work of other trades, the Contractor shall make necessary changes to correct the condition without extra charge.

This requirement for Coordination Drawings shall not be construed as authorization for the Contractor or Subcontractor to make any unauthorized changes to the Tenant Plans. The Contractor may, however, subject to acceptance of Tenant's Architect and without extra charge, make reasonable modifications in the layout as needed to prevent conflict with work of other trades, or for the proper execution of the work.

All architectural parameters on the Coordination Drawings shall be maintained such as ceiling height, chase walls, and equipment room sizes, unless prior written authorization to modify such space allocations is received from Tenant's Architect. Prior to final acceptance of the Work, the Contractor shall provide the Coordination Drawings originals to the Landlord.

Landlord will require a 6" minimum clear space between ceiling and bottom of plenum hung MEP equipment. All piping and duct work must be installed as tight to the underside of the deck as possible."

V. TENANT CONTRACTOR WORK RULES After Base Building is Substantially Complete

The following rules and regulations ("Rules of the Project") governing work at Tysons Tower at Tysons Corner Center, including adjacent supporting areas located within or outside the Premises (collectively, the "Project"), are intended as guidelines within which a Contractor must operate. For the purposes of the Rules of the Project, Tysons Corner Office I, LLC is the "Owner"; Hines Interests Limited Partnership is the "Development Manager" and _______ is the "Contractor." "Property Manager" shall mean the designated on-site representative of the Development Manager (703) 942-6650.

1. Insurance Requirements:

Prior to the commencement of Contractor's work, Contractor and any subcontractor(s) must procure insurance coverage as described by Attachment A hereto in a form, in amounts, and from insurers reasonably acceptable to Property Manager. Such insurance must name Owner, Development Manager, Property Manager, and Tenant as additionally insureds.

2. Work Hours:

Normal Business Hours: Monday through Friday 8:00 a.m. to 6:00 p.m.

Saturday 9:00 a.m. to 1:00 p.m.

Contractor General Conditions: (Reference Construction Contract, dated XX/XX/XXXX)

Trash Removal: Monday through Friday 8:00 p.m. to 6:00 a.m.

Loading Dock: As scheduled with Property Manager

Contractor shall act with reasonable diligence in a manner (including the use of overtime labor) and at a time, or times, to prevent interference with the normal business operation of the Project, take measurable care to safeguard the Project, promptly repair any damage caused by Contractor, or subcontractors, and restore the Project to the condition existing before such activity. All work by Contractor which is to be performed at times other than normal business hours must be approved by Property Manager in advance prior to commencing such work. All work performed by Contractor outside of normal business hours which requires a building engineer will incur charges at the hourly overtime engineering rate. The charges will be billed back to the contractor.

3. Conduct:

Contractor shall be responsible for all its actions on the Project as well as those of its subcontractors, suppliers, agents and visitors. No loud, abusive or otherwise offensive language or actions will be allowed. Contractor shall promptly remove from the Project any employee deemed inappropriate or abusive by Property Manager. There is to be no smoking on the Project.

4. Project Logistics Plan:

- (a) Contractor must submit a Project Logistic Plan to Property Manager for approval prior to the start of construction. These plans should delineate Contractor's planning with respect to security, material loading, trash removal including dumpster coordination (contractor must use plywood to protect slab beneath dumpster), anticipated protection, flammable material cabinets, fire extinguisher locations, shanty locations and duration, restroom facilities, signage and, to the extent possible, system shutdowns and predetermined overtime.
- (b) Contractor, in the Project Logistics Plan, must accommodate and maintain a safe and legal means of egress to the Base Building exterior.

5. Quick Response Team:

Contractor shall designate a quick response team available to respond to "priority" items that may directly affect the Project occupants and submit the names and contact numbers of each response team member to Property Manager. The response team shall be supplied with communication devices by Contractor (2-way radio, cellular phone, etc.) at Contractor's expense.

6. Contractor Conflicts:

In general, all Contractor's work must be scheduled so that it in no way conflicts with, interferes with, or impedes the operation of the Project. Any portion of Contractor's work that is in conflict with the operation of the Project must be rescheduled by Contractor. All work by Contractor which is to be performed at times other than normal business hours must be approved by Property Manager 48 hours in advance of commencing such work.

7. Existing Conditions:

- (a) Contractor must, in the presence of Property Manager, review the existing conditions prior to taking over an area from Property Manager and must accept the work area in "as-is" condition unless material deficiencies exist which prevent Contractor from starting construction. If such material deficiencies do exist, Property Manager shall make the necessary repairs in a mutually-agreeable timeframe to enable Contractor to start construction, and then Contractor must accept the work area in "as-is" condition.
- (b) Prior to the start of construction, Contractor shall create a videotape or photographic documentation of the construction area and access areas which may be affected by the proposed construction and provide a copy to Property Manager. This will document the condition of the space prior to construction start and clearly define Property Manager/Contractor responsibility for repairs and replacement. Failure to produce such documentation will indicate acceptance of the space by Contractor in "as-is" condition.
- (c) Contractor will be required, with Property Manager's approval, to provide, maintain, and remove protection for finished surfaces, equipment and all elements of the Project susceptible to damage by construction activity under their control. Protection is to

include and not be limited to homasote, masonite, tarps, insulation, plywood, etc. Protection of hallway carpets, wall coverings, and elevators from damage with masonite board, carpet, cardboard, or pads is required.

- (d) Property Manager reserves the right at any time to require additional protection as deemed necessary to protect the Project. Contractor shall restore the premises affected by construction operations, including but not limited to the replacement of ceiling tile prior to the start of the next business day.
- (e) All systems within the Project, unless specifically noted otherwise, are turned over to Contractor in an operable condition. Non-working system or components of systems following any construction work are the responsibility of Contractor to rectify.
- (f) All work done by Contractor must be consistent with the Tenant Plans previously approved by Development Manager or Property Manager.

8. Project Start:

Before Contractor will be allowed to move materials, equipment, personnel or any other items onto the Project, or commence construction of its work, Contractor must procure written permission from Property Manager and provide a signed copy of the Tenant Contractor Work Rules and an acceptable Certificate of Insurance per Attachment A. Such permission will be given when suitable arrangements have been made between Contractor and Property Manager.

9. Trash Removal:

- (a) Clean-up and rubbish removal via designated construction exit/entrance to a central trash collection point and to a container/dumpster, Contractor is to establish an agreement for services through the Buildings waste management provider, Property management reserves the right to remove the container/dumpster at any time. Property Management will establish an area for the dumpster but is not responsible for any construction or non-construction trash placed in the dumpster. All fees are the responsibility of the Contractor. Contractor must at all times, on a regular basis, keep its area of work free from accumulations of waste material, debris or rubbish caused by, or incidental to Contractor's work. Food and beverage related waste material must, at all times, be removed on a daily basis. Hazardous, noxious or flammable materials shall not be left on the Project overnight without prior approval of Property Manager. Any debris, rubbish, materials or equipment left at any time in an undesignated area on the Project or in any location following completion of Contractor's work will be disposed of by Property Manager at Contractor's expense.
- (b) Per Fairfax County code cardboard generated during the project must be recycled at the Contractor's expense through an approved recycling vendor. Note: Contractor may not utilize the building cardboard recycling baler. Contractor will develop a plan for cardboard recycling and will receive approval from Property Management.
- (c) All work areas must be kept clean and safe. No trash storage is permitted in Tenant's leased premises or core areas. Any materials in any core area not under construction

will be subject to removal and disposal at any time, at Contractor's expense without prior notice.

(d) Contractor is responsible for cleaning all areas of work under its control and/or accessed by its personnel, including but limited to:

Stairways/Means of Egress	Building Perimeter/Plaza	Central Plant
Telephone/Electrical Closet	Temporary Entrance/Office	Toilet Rooms
Elevator & Vestibules	Loading Dock	Garage

(e) If Contractor chooses to use a dumpster to hold construction waste, Contractor is responsible for coordinating dumpster delivery and removal with Property Management at least one week in advance. Contractor must place dumpster where indicated by building staff and use protective plywood beneath the dumpster.

10. Materials Delivery:

Contractor must schedule with Property Manager access to unloading areas at the Project. All materials unloaded at the Project must be moved to area of use immediately and shall not impact use of this facility in any way. Property Manager shall not be responsible in any way for Contractor's materials anywhere on the Project.

11. Building Access:

- (a) Contractor, its subcontractors, suppliers, agents, and visitors may only use a designated Building entrance for access (Loading Dock) to their work on the Project. No access to the Project's lobby or public corridors on the Ground Floor will be permitted at any time. Contractor is responsible for protection, ramps, door removal, security, and a dust free environment at this building entrance.
- (b) Contractor, its subcontractors, agents, and visitors must arrange access and coordinate all access to tenant occupied areas with Property Manager and Tenants' authorized personnel.
- (c) Property Manager may institute and monitor a badge system with the purpose of controlling access to the Project and monitoring construction personnel within the premises for the duration of the work. Contractor should anticipate tight controls by Property Manager of all personnel entering or leaving the premises, including, but not limited to, the inspection of gang boxes. If a badge system is instituted, all construction personnel will be required to wear their badges at all times while on the Project. Access will be denied to all personnel without a badge and those discovered without a badge will be escorted off the Project.
- (d) Access into spaces under construction must be limited to one door. If an unfinished lease space has two doors, one must be locked. Passage can occur through the door most convenient to the service elevator and should have a temporary foot mat.

(e) There will be no contractors, suppliers, agents or visitors allowed parking in the Loading Dock. Contractors and Suppliers are allowed to load and unload tools and materials and are expected to immediately vacate the dock upon unloading.

12. Vertical Transportation:

Passenger and shuttle elevators are not available for access to the Project, or for delivery of materials. Service elevator usage must be scheduled with Property Manager.

13. Temporary Utilities/Protection:

- (a) Utilities: Contractor will be afforded access, if necessary, to temporary utilities including electricity and water. Contractor must coordinate connection to such service with Property Manager. Contractor must return all areas used for temporary service (including, but not limited to toilet facilities, janitor's closets, electrical telephone or mechanical rooms) to an "as-existing" condition. Property Manager will invoice Contractor on a monthly basis for the use of utilities.
- (b) **Toilets:** Contractor may use only those toilet facilities specifically designated and approved by Property Manager. Contractor shall submit an anticipated protection plan for said facilities as part of the Project Logistics Plan. At no time may any construction personnel use non-designated toilet facilities.
- (c) Stairways: The stairway doors must not be held open by any means, and the lock sets or strikes cannot be tampered with in any way. Stairways and exitways are to be kept clear for safe egress at all times. Contractor's safety officer will inspect all means of egress daily to ensure that these requirements are met.
- (d) **Doors:** All core doors including electrical, telephone and mechanical area doors are not to be opened without an authorized key, wired or mechanically blocked at any time. All doors found to be propped open will be closed and locked.
- (e) Core Area Mechanical, Electrical, Telephone and Service Elevator Vestibule: Upon completion of construction, Contractor shall restore all areas to their original condition as established prior to construction start. Contractor must schedule a pre-construction and post-construction walk-through with Property Manager.
- (f) **Construction Entrance:** A fully enclosed dust-free enclosure is to be installed at the entrance to the construction area.

14. Security:

- (a) Contractor is responsible for the security of its own material, equipment, tools, and work in place. In addition, Contractor is responsible for securing access to and from Tenant's premises.
- (b) Contractor is responsible for the cost of additional security in Tenant's premises when such additional service is deemed necessary by Tenant or Contractor. Requests for additional guard service are to be directed to Property Manager 48 hours in advance,

and the cost of any such required service will be billed to Contractor.

(c) Contractor must provide Property Manager or designated representative at all times with keys or other devices that are required to access any area secured by Contractor on the Project.

15. Project Damage:

Contractor shall be responsible for all damage to the Project, existing tenant space or to other contractor's work caused by Contractor.

16. Safety:

- (a) Contractor is responsible to ensure that the workplace is maintained in a safe and orderly manner for all persons working therein. Contractor shall not engage in any labor practice that may impact another contractor's work. Contractor shall comply with all governing federal (including OSHA), state (including VOSH), and local safety and health laws and regulations that pertain to such work in Fairfax County on the Project. If required, temporary fire protection equipment in accordance with governing regulations, or as reasonably required by Property Manager, shall be provided by Contractor at its sole expense.
- (b) Contractor must supply Property Manager with the following materials 48 hours before work commences:
 - i. A copy of their Hazard Communication Standard Program as required by OSHA.
 - ii. A list of products and their hazardous substances which Contractor and/or subcontractors plan to use. The list should include dates and shifts. The list is to be updated as work progresses.
 - iii. In the event that materials, products, and/or processes being prepared for this project contain, or may emit, any volatile organic compounds ("VOC"), formaldehyde formations or hazardous out-gassing, as determined by the manufacturer must be identified as such and an OSHA-compliant "Materials Safety Data Sheet" shall be submitted for the prepared product or material for review by Property Manager. Material Safety Data sheets must be provided for all products to be used on site.
 - iv. Temporary ventilation plan for removal of VOC/fumes from space until permanent HVAC systems in full operation or as directed by Property Manager.
 - v. Written notification for all burning / welding operations (Hot Work) and Impairments shall be provided to Property Manager in writing via Impairment form at least 48 hours prior to such work. A hot work permit will be issued by Property Management at the time the work is to commence. Tenant contractor is at no time allowed to disable more than one Fire Life Safety System from service at a time. All oxyacetylene / propane must be removed when work is completed. Property Manager will require the presence of an on-site engineer employed by Property

Manager during all Hot Work and Impairments operations. Methods of joining pipe other than soldering (Pro Press etc.) is not allowed unless otherwise approved by property management.

Tenant Contractor must also adhere to Fairfax County's Fire Prevention Code (FPC) at all times as well as obtain any necessary permits.

- (c) Contractor shall designate a qualified safety officer to oversee the work and provide life safety training to all personnel. Contractor shall submit the name of this person to Property Manager.
- (d) No flammable liquids, gases, or other highly combustible material will be allowed to be stored on the Project. Contractor shall at no time use, generate, release, store, treat, dispose of, or otherwise deposit, in, on, under or about the Property, any material or substance which may be hazardous or toxic as determined from time to time by any governmental body or by Property Manager ("Hazardous Materials"); or permit or allow any third party to do so, without Property Manager's express, prior, and written consent. Contractor's compliance with the terms of this Paragraph 16 and with all environmental laws and regulations shall be at Contractor's sole cost and expense. Contractor shall pay or reimburse Property Manager for any costs or expense incurred by Property Manager, including reasonable attorneys', engineers', consultants', and other experts' fees and disbursements incurred or payable to determine, review, approve, consent to or monitor the requirements for compliance with all environmental laws and regulations, including, without limitation, above and below ground testing. Any and all chemical containers, vessels or other equipment supplied by Contractor for use by building personnel and/or for use on the Project, shall remain the property of the Contractor. Upon notice from Property Manager, Contractor shall cause such items to be removed from the Project and properly disposed of, in accordance with the applicable laws, codes or regulations, at Contractor's sole expense and responsibility. If Contractor fails to comply with the provisions of this Paragraph, Property Manager shall have the right, but not the obligation, without in any way limiting its other rights and remedies, to take such actions as Property Manager deems necessary or advisable to clean up, remove, resolve, or minimize the impact of, or otherwise deal with, any Hazardous Materials on or affecting the Project, following the receipt of any notice or information asserting the existence of any Hazardous Materials. All reasonable costs and expenses paid or incurred by Property Manager in the exercise of any such rights shall be payable by Contractor to Property Manager upon demand.
- (e) Any time that a burning or welding device is used, the contractor performing the work must post at the job site for the entire duration of the job a valid Fairfax County Hot Work Permit. All surrounding areas must be protected from the heat and/or flame of the device. All personnel who are welding or using any type of cutting torch must hold and present a copy of their Certificate of Fitness to perform such activities to Property Manager prior to the commencement of the work. Additionally, all personnel employed to perform fire watch responsibilities must provide a copy of their certification to perform such services to the Property Manager before any work begins.
- (f) Contractor shall give immediate verbal notice to the Property Manager (and written notice within twenty-four (24) hours) after Contractor learns of any accident or

emergency occurrence, fire or other casualty, or any damages to the Project, the building equipment, or Tenant Improvements, including but not limited to damage caused by others.

(g) Contractor shall also provide clear warning notices and effective barriers around work in public areas and tenant spaces.

17. Field Offices:

Contractor shall not store any material on the Project or erect any sheds, offices or similar structures without the prior approval of Property Manager. Any stored material, shed, office, or other material which interferes with orderly progress of other contractors' work must promptly be relocated or removed from the Project as directed by Property Manager. Property Manager may designate a Contractor field office adjacent to the Project. If designated, Contractor will be responsible for building space out, and will need to provide power, telephone, lighting, floor protection, etc. to it. Drywall and paint must be installed in areas of the Contractor's office space that are visible to the public or other tenants

18. Pedestrian and Vehicular Traffic:

Contractor shall in no way interfere with or endanger public pedestrian and vehicular traffic adjacent to the Project nor interrupt the flow of traffic in and out of the Project. Contractor shall provide its own traffic control personnel, at its sole expense and in coordination with Property Manager, to coordinate deliveries to the Project.

19. Vending Machines:

No vending machines or concessions will be permitted on the Project.

20. Signage:

Contractor shall not be permitted to post any identifying signage except for information and directional signage as approved, in advance, by Property Manager.

21. Supervision:

While working at the Project, Contractor must maintain supervisory personnel on the Project at all times. Such personnel must be fully empowered to coordinate, respond to and authorize Contractor's work as necessary to enable work to proceed.

22. Fire Alarm:

(a) Contractor must arrange for all connections to the Base Building fire alarm system to be performed by the required electrical/fire alarm subcontractor (identified in Section 1 of the Tenant Design and Construction Manual), and the work is to be coordinated with the Property Manager. All costs associated with such work shall be the responsibility of Contractor.

- (b) For any work requiring suppression of the alarm systems, Contractor must notify Property Manager 48 business hours prior to requirement (via Impairment Form). At no time will the Fire Alarm System and Sprinkler system be allowed to be impaired at the same time.
- (c) Property Manager must be notified 48 business hours prior to the use of any burning or welding device or demolition work so that the fire alarm system can be taken "off-line." Notification must also be given immediately upon work completion.
- (d) Smoke detectors and other fire alarm system devices must be protected when performing work which may cause these devices to become unduly dusty. Any protection such as paper, tape and plastic, etc., <u>must be removed daily</u>.
- (f) Interruptions of the operation of the Fire Alarm System in excess of 4 hours will require the creation of a Fire Watch including all recording and operations information as required by NFPA 101 at the sole expense of the Contractor.

23. Air Balance:

Contractor must arrange for air balance with an air balance subcontractor approved by Property Manager. Air balance reports shall be prepared and submitted in a format approved by Tenant's MEP Engineer. All costs associated with such work shall be the responsibility of Contractor.

24. Progress Meetings:

Contractor agrees to conduct weekly job progress meetings with Property Manager. Any Contractor or subcontractor, if requested, must attend and be represented by an individual empowered to speak and act on Contractor's behalf.

25. Disruptive Work:

- (a) Contractor agrees to perform work involved in slab penetrations, steel erection, interruptions of Project services, including but not limited to; fire protection, electrical, HVAC and plumbing services or other disruptive work between the hours of 7:00 p.m. and 7:00 a.m. Mondays through Fridays and after 2:00 p.m. Saturdays or such other times designated by Property Manager so as not to disturb occupants of the Project. All work performed by Contractor during non-normal working hours must be scheduled 48 hours in advance with Property Manager. Any work requiring an interruption in utility, HVAC or life safety system services to other tenants of the Project shall be scheduled at least 48 hours in advance with Property Manager and shall be performed under the supervision of Property Manager's operating engineer. Contractor shall bear the cost of Property Manager's operating engineer, at an overtime rate, with a 4-hour minimum.
- (b) The following construction operations which take place on any floors of the Project must be performed outside Normal Business Hours identified in Paragraph 2. These operations include, but are not limited to:
 - i. Drilling, cutting or chiseling of the concrete floor slab.

- ii. Drilling or cutting of any structural member or installation of new structural member.
- iii. Any work which generates vibration that may be disruptive to normal office operations. (Shooting drywall track, drilling pipe or duct work hangers, installing tackless strips, etc.).
- iv. Welding or operating a compressor.
- v. Draining or tapping into sprinkler piping or plumbing risers or loops.
- vi. Spraying or lacquering.
- vii. Work in occupied tenant spaces.
- viii. Work in tenant ceilings.
- (c) No cutting, drilling, or patching of existing work shall be permitted without prior written consent of Property Manager. Request for permission to do cutting, drilling, or patching shall include explicit details and description of work and must not under any circumstances diminish the structural integrity or functional capabilities of the Project components or systems. Tenant must provide Ground Penetrating Radar (GPR) and X-Ray reports to be reviewed by the Base Building Structural Engineer of Record, at Tenant's expense, and written approval must be conveyed prior to any penetrations being made. Field visitations may be required, depending on types and locations of penetrations. Additionally, depending on scale of GPR and X-Ray work, occupancy of Project may be restricted as work is being performed. Tenant shall coordinate "after hours" work with Property Manager. Chipping or channeling is not permitted.
- (d) Contractor shall provide reasonable notice, but not less than one week, to Property Manager for Project system (including elevator) shutdowns necessary to perform the work, including a description of work intended, a comprehensive schedule of shutdowns, anticipated duration of shutdown, systems involved, contingency plans, and required Property Manager support staff. If such work interferes with the Project occupants' ability to conduct business, Contractor shall perform such work, or effect such interruption, during non-business hours consistent with good construction practices. All Contractors shall work to coordinate shutdowns so as to reduce the frequency of occurrence and duration of service interruption.
- (e) The following Base Building systems must not be shut down, operated, interrupted, modified or reconfigured without the expressed prior written consent of Property Manager. An engineer employed by Property Manager must be present during all shutdowns at a reimbursable overtime rate (four-hour minimum). Special care must be taken when these systems serve other tenant areas.

Elevator Domestic Water Electrical Power

Air Distribution Standpipe Security

Chilled Water Sprinkler Life Safety/Fire Alarm

Condenser Water Heating Hot Water BMCS

Cooling Tower Plumbing Telephone/Data

(f) All new HVAC piping and existing HVAC piping that is drained must be cleaned, flushed and treated in accordance with Property Manager's design specifications. Prior to

connecting into the system, Contractor must coordinate this work with Property Manager and the approved water treatment vendor. All new piping must be hydrostatically tested in accordance with requirements by the local jurisdiction (at a minimum) before being brought on line.

- (g) Contractor must provide updated panel schedules in typed form to Property Manager.
- (h) NFPA 70E and OSHA 29 CFR 1910 Arc Flash and electrical safety requirements must be adhered to all times. The buildings Arc Flash program is required to be updated in accordance with NFPA and OSHA copies of all calculations in for extended services shall be turned over to property management upon completion of the project.
- (i) Panel covers must be reinstalled at the end of the work day.
- (j) If work on the standpipe and sprinkler system is required, Property Manager must be notified 48 hours in advance, and necessary Project staff will be dispatched to operate the shut-off valves at the Contractor's expense. When work is completed, Property Manager must again be notified to reactivate the system. At no time will a floor be left without sprinkler coverage unless a fire watch, previously authorized by Property Manager, is instituted with Property Manager's participation.
- (k) Contractor is responsible for providing fire extinguishers in accordance with OSHA requirements, with current inspection tags during the construction period within the work area, and at a ratio of one fire extinguisher per 7,500 square-feet or part thereof under construction.

26. Burning:

Open fire or rubbish burning is strictly prohibited.

27. Fire and Life Safety Systems:

- (a) Contractor shall be responsible for false alarms of the Project's Fire and Life Safety System generated by Contractor. Each event of a false alarm will cause Contractor to be charged \$250.00, plus any additional fees charged by the Fairfax County Fire Department in response to these alarms.
- (b) Fire and Life Safety System equipment must remain in operation at all times during construction. Approvals to take the system (or any part) out of service, must be obtained from Property Manager in writing via the Building's Impairment Access form. Posting of fire watch will be required per Fairfax County code during all Impairments when the system is fully or partially out of service.
- (c) Any efforts to disable the smoke detectors in the work area must be coordinated with Property Manager and must be reversed so as to put all Fire and Life Safety Systems back into service during non-normal working hours. Contractor will be charged \$250.00 for each incident where the Fire and Life Safety Systems on the Project are left in a disabled condition, and will be responsible for costs, if any, related to the repair of the systems damaged by Contractor.

- (d) Any tie-ins to the Fire and Life Safety System must be performed by building's required Fire Alarm subcontractor, at Tenant's expense, and coordinated through Property Manager. Property Manager must be notified 48 business hours prior to working on any of the devices. If any panels or devices are to be accessed, an approved fire alarm technician must be on site. The approved technician is to monitor all work related to the Fire/Life Safety System as it progresses. At no time is the Fire and Life Safety System to be tied into without the presence of an approved fire alarm technician. Any devices that are accidentally or otherwise made to be inoperable must be repaired or replaced immediately.
- (e) Fire Marshal Inspections need to be coordinated with Property Manager 48 Business Hours in advance and be scheduled before 8:00 a.m. and after 6:00 p.m.

28. Permits:

Contractor must obtain all building permits, including a final Non-Residential Use Permit (Non-RUP), as required by Fairfax County for Contractor's work. A copy of the building permit must be supplied to the Property Manager before any work commences, and the original Non-Residential Use Permit (Non-RUP) must be supplied to the Property Manager at the time of issuance.

29. Indoor Air Quality Specifications:

Property Manager has established acceptable indoor air quality ("IAQ") procedures. Attachment B outlines, in general, the conditions under which Tenant construction must take place in order to comply with established Property Manager IAQ requirements. Contractor must meet with Property Manager prior to the commencement of construction to review all specific requests, as outlined in Attachment B, attached hereto.

30. Good Construction Procedures:

- (a) All abandoned or removed equipment above the ceiling and behind the walls (water lines, electrical lines, duct work, telecommunication wiring etc.) must be removed and taken back to the point of origination such as Breakers Panels, Risers etc. this also includes items discovered in the field.
- (b) Building standard signs are to be ordered through the Property Manager. Requests for and deviation from this standard must be submitted, in writing, to Property Manager for approval.
- (c) All cabling must be plenum rated due to the return air ceiling plenum in the building.
- (d) All penetrations must be waterproofed and have firestop installed in accordance with the National Fire Protection Association (NFPA).
- (e) Any and all equipment and cabling installed in ceilings cannot be supported by the suspended ceiling or any existing guy wires. They must be secured to the underside of

the slab and comply with all National Fire Safety Codes.

- (f) All waste lines that create condensation due to ice machines, refrigerators, etc., must be insulated to prevent leaks. Repairs performed due to uninsulated lines will be charged to the Tenant.
- (g) There will be no sweating or welding during Normal Business Hours THE FIRE ALARM SYSTEM CANNOT BE OVERRIDDEN FOR THIS PURPOSE DURING NORMAL BUSINESS HOURS. ALL CONTRACTORS AND SUBCONTRACTORS MUST COMPLY WITH THESE GUIDELINES. FAILURE TO DO SO MAY RESULT IN WORK STOPPAGE UNTIL SUCH TIME AS FULL COMPLIANCE BY THE CONTRACTOR OR SUBCONTRACTOR IS ACCOMPLISHED.

AGREED TO AND ACCEPTED					
Ву:					
Contractor:					
Date:	_				
Ву:					
Tenant:					
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Ву:					
Project Manager:					
Date:					
Ву:					
Sub-contractor:					
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Tysons Tower

Owner Certificate of Insurance Requirements

INSURANCE Vendors/Contractors

Before proceeding with any of Contractor's work, Contractor shall furnish to Owner and Property Manager, a certificate in form approved by Owner (not to be unreasonably withheld) executed in duplicate by Contractor's insurance agent evidencing the insurance required with insurance companies approved by Owner (not to be unreasonably withheld). Certificates not in approved form or which are incomplete will be returned to Contractor for revision and resubmission. Certificates must clearly indicate the work for which the certificate is submitted. Contractor shall keep said insurance in full force until acceptance of its work by the Tenant. Such insurance shall be modifiable or cancelable only on written notice to Owner and Property Manager from the insurance company, mailed to Owner and Property Manager, ten (10) days in advance of modification or cancellation. In the event of cancellation notice, Contractor shall obtain similar insurance coverage from other approved insurance companies prior to the effective cancellation of the original insurance coverage. In the absence of such insurance, Contractor shall cease all work and vacate the Project, until such time as new Certificates of Insurance, as described above, are received by Owner and Property Manager.

	Coverage	Minimum Limits of Liability
1	. Commercial General Liability Insurance	\$1,000,000 per occurrence \$1,000,000 personal & adv injury \$2,000,000 general aggregate \$2,000,000 products – comp/op agg
2.	Excess/Umbrella Liability	\$5,000,000
3.	Comprehensive Automobile Liability Occurrence insurance to include non- Owned, hired or rented vehicles as well as owned vehicles.	\$1,000,000 combined single limit
4.	Statutory Minimum Worker's Compensation.	
5.	Employers' Liability	\$1,000,000 each accident \$1,000,000 disease – each employee \$1,000,000 disease – policy limit

It is agreed that in no event shall this insurance company have any right of recovery against MACW Property Management Company, LLC, Hines Interests Limited Partnership, Owner's or Property Manager's agents or Owner's Architects or Engineers.

Evidence of the above coverage should be provided to Owner and Property Manager by means of a Certificate of Insurance with Owner and Property Manager as certificate holders. The Certificate of Insurance shall also include the following provisions:

The entities listed below are additional insured on all policies (other than Worker's Compensation), and that such policies (other than Worker's Compensation) will be primary insurance over any other available insurance to the additional insured for the negligence of Contractor. The following wording shall be included for the additional insured:

- Tysons Corner Holdings LLC,
- Tysons Corner LLC,
- Tysons Corner Office 1 LLC,
- MACW Tysons, LLC,
- MACWH, LP,
- Walleye Retail Investments LLC,
- Macerich Walleye LLC,
- Walleye LLC,
- IMI Walleye LLC,
- DB Holdings LLC,
- MACDB Corp.,
- Tysons Corner Property LLC,
- The Macerich Partnership L.P.,
- The Macerich Company,
- MACW Property Management Company, LLC,
- Hines Interests Limited Partnership,

and all owned, managed, controlled, non-controlled and subsidiary companies, corporations, entities, joint ventures, lenders, ground lessors, LLC's, partnerships and all their constituent partners and members.

Contractor shall also carry such additional insurance as may be required by the law in the Fairfax County. Contractor shall keep the insurance required by this paragraph in full force and effect until acceptance of its work by Owner. If Contractor shall subcontract any of its work, Contractor shall be responsible for seeing that such subcontractor shall have the insurance coverage and shall furnish Owner and Property Manager evidence thereof before the subcontractor commences work on the Project.

All policies of insurance must have a current rating of A-, VIII or better.

CERTIFICATE OF LIABILITY INSURANCE							DATE (MM/DD/YY)				
PRODUCER THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND								DER. THIS			
General Contractor's Insuran			ıce		INSURER A:				Deliaion of		
***Separate limits required for Crane & Helicopter									Policies of rance must have a		
NSURE Contra						INSURER B:		current rating of A-,			
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	GENERAL LIABILITY	X							EACH OCCURRENCE		\$1,000,000
	X Commercial General Liability								FIRE DAMAGE (Any one fir	re)	
	Claims Made x Occur								MED EXP (Any one person)		
									PERSONAL & ADV INJUR	Y	\$1,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER: Or Or								GENERAL AGGREGATE		\$2,000,000
	POLICY PRO LOC JECT								PRODUCTS - COMP/OP AC		\$2,000,000
	AUTOMOBILE LIABILITY	X							(Ea Accident)		\$1,000,000
	X ANY AUTO								BODILY INJURY (Per person)		
	ALL OWNED AUTOS SCHEDULED AUTOS								BODILY INJURY (Per accident)		
	HIRED AUTOS NON-OWNED AUTOS								PROPERTY DAMAGE (Per accident)		
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DESCR	REPTION OF OPERATIONS/LOCATIONS/V Reference Tenant Name and Center	Name					EMEN	T/SPE	I CIAL PROVISIONS		
CERT	Please see page 2 below for property										
CERTIFICATE HOLDER ADDITIONAL INSURED, INSURER LETTER Macerich c/o Amy E. Christ				CANCELLATION SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.							
1175 Pittsford-Victor Rd., Ste. 220 Pittsford, NY 14534 amy.christ@macerich.com				AUTHORIZED REPRESENTATIVE							
			1								

ATTACHMENT B

INDOOR AIR QUALITY

ASHRAE 62-89 Ventilation Standard for Acceptable Indoor Air Quality has been used as a guideline for this document in establishing minimum IAQ standards in addition to those required by local codes.

A. General

- Adequate ventilation during the construction process is the key to maintaining acceptable indoor air quality. It is during Tenant construction that the largest quantity of air borne chemicals is likely to be released.
- 2. Owner recommends that materials and finishes be selected and specified which produce a minimum amount of chemical emissions.
- 3. Owner recommends that the construction schedule include adequate time after installation of materials and finishes for the removal of toxic emissions ("off-gassing") which are present in many construction materials, finishes and furnishings.
- 4. All HVAC equipment and delivery systems (i.e., ductwork, diffusers, etc.) must be clean and designed so as to not encourage accumulation or distribution of microbial growth or other air borne contaminants.

B. Requirements

The HVAC system should be designed to include sufficient air volume distribution to the
occupants, adequate outside air delivered to the occupants, ease of air system balance, and
adequate start-up commissioning with follow-up documentation and verification. HVAC ducts,
plenums and equipment shall be designed, constructed and installed to minimize or prohibit the
growth or dissemination of micro organisms.

Such design shall include:

- External thermal duct insulation
- Dual wall construction of equipment handling air
- Stainless steel components inside air handling equipment
- Air filtration to minimize the introduction of dirt and to clean re-circulated air.
- 2. Produce a minimum of two (2) air changes of outside air per hour in the construction area and enclose the construction area when construction begins, i.e., grinding concrete floors, sanding sheet rock, or application of wet products like painting, sealing, etc. Supply fans must be operated only during hours of actual construction, not 24 hours a day. Supply fan operation must be programmed to use outside air in lieu of return air. Caution must be exercised in cold weather.
- 3. Provide a minimum of two (2) air changes of outside air, twenty-four (24) hours per day commencing with installation of floor covering products, and continuing until the last day before

- occupancy. Caution must be exercised in cold weather.
- 4. Contractor should, whenever feasible, allow wet applications to dry completely before installing dry materials and furnishings.
- 5. Prior to commencing work, Contractor must provide Property Manager with Material Safety Data Sheets (MSDS) for all applicable materials and products. Specific installation criteria will be approved based upon this information.
- 6. Contractor shall be required to minimize the air concentrations of volatile organic compounds (VOCs) by controlling their source and selecting building materials based in part on their favorable air quality characteristics.
- 7. Contractor shall minimize, whenever possible, the on-site use of wet materials producing VOCs such as lacquer, adhesives, paints, etc. Factory application of these finishes should be specified whenever possible.
- 8. CFM readings must be taken before work is started and after work is completed any time changes are made to an air supply system that serves another tenant.