Contractor Rules and Regulations

Attached is a revision to the JPMorgan Chase Tower and 601 Travis Contractor Rules and Regulations. The additions and/or changes are listed below and have been incorporated into the Contractor Rules and Regulations. If you have any questions, please contact the Engineering Department at 713-223-0441.

Please complete and sign the information below. All Architects, General Contractor and all sub-contractors must individually complete the acknowledgement and acceptance form.
Upon completion, please email back to **jpmctowerhouston.tenantrequests@hines.com**

ACKNOWLEDGMENT & ACCEPTANCE

_____

Acknowledged and Accepted Date

_____

Print Name

_____

Title

_____

Type of Work Performed

_____

Print Company Name

_____

Phone Number

_____

Name of Tenant

A FULLY COMPLETED AND SIGNED COPY OF THESE RULES AND REGULATIONS MUST BE RETURNED TO THE PROPERTY MANAGER, PRIOR TO COMMENCING WORK BY THE ARCHITECT, ENGINEER, GENERAL CONTRACTOR AND EACH SUB-CONTRACTOR.

"Exhibit A"

JPMorgan Chase Tower
Insurance Requirements

CONTRACTOR AND SUB-CONTRACTOR INSURANCE REQUIREMENTS

Prior to inception of any project, all General Contractors and Sub-Contractors must supply a vendor's Certificate of Insurance with the following criteria as a minimum.

COVERAGE	LIMIT OF LIABILITY
General Liability	**$1,000,000 Per Occurrence Combined, Single Limit Bodily Injury and Property Damage**

Please make sure that the "General Liability" box and the "Occur" box are checked within the General Liability section.

Auto Liability	**$1,000,000 Per Occurrence Combined, Single Limit Bodily Injury and Property Damage**

Please make sure that one type of Auto Liability is checked.

Worker's Compensation	**As Determined By Statute**

The "WC Statutory Limits" box must be checked.

Employer's Liability	**$500,000 Per Accident**

Additional Insured: "600 Travis Owner, LLC and Hines Interests Limited Partnership are additional insureds as their interests may appear with respect to all policies except Worker's Compensation."

CERTIFICATE HOLDER:
600 Travis Owner, LLC
Hines Interests Limited Partnership
600 Travis, Suite B1.009
Houston, Texas 77002
(713) 223-0441

Should you have any questions regarding these requirements, please contact Hines Management at (713) 223-0441.

"Exhibit A"

601 Travis

Insurance Requirements

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Introduction

1. The intent of these Rules and Regulations is to establish working criteria for all construction and/or maintenance activity that may take place in the building. 600 Travis Owner, LLC and Hines appreciate your cooperation in following these rules.

2. A copy of these Rules and Regulations, acknowledged and accepted by the General Contractor, must be posted on the job site in a manner allowing easy access by all workers. It is the General Contractors responsibility to instruct all sub-contractor workers to familiarize themselves with these rules.

Permits / Submittals

1. **Requirement:** Permits and Licenses necessary for the completion of work shall be secured and paid for by the Contractor. A copy of all permits will be posted, at all times, in a readily accessible area at the construction site.

2. **Submittals:** Upon completion of work, the contractor shall immediately supply to Landlord the following items:

   A) Certificate of Occupancy
   B) Operations and Maintenance Manuals, when applicable
   C) A complete, full size set of as-built drawings / MEP, Architectural, Structural (Hard copy & Auto Cad files) and 2 half set drawings
   D) Copies of all permits related to the job
   E) Substantial Completion Letter (for warranty)
   F) Contractor's & Manufacturers' Guarantees
   G) GC & Sub-Contractor Lien Releases (See sample below. **Partial Release** with each invoice and **Final Release** with Final Payment invoice. Typical retainer included in Final Payment is 10% of total)
   H) NEBB/Air Balance (Verified by Engineering), when applicable

Insurance

1. Prior to commencement of work, The General Contractor shall provide the Landlord a certificate of insurance, in compliance with the requirements outlined in Exhibit "A" (attached), for themselves and each of the sub-contractors.

Work Approval / Base Building MEP Requirements / Government Regulations

1. **Work Approval:** The Building's Property Manager, prior to the start of construction, must approve all drawings, sub-contractors and material.

2. **Governmental Regulations:** Contractor shall comply with all applicable government regulations regarding the construction process.

3. **MEP Requirements:** The General Contractor and all sub-contractors are required to comply with all base-building specifications and this document. If any work is found that does not comply with the aforementioned specifications, the contractor will be responsible for making the necessary changes in order to comply. Any such changes that are made will be at the contractors' expense.

4. **Plan Submittal:** The Property Manager will require two copies of the plans. A copy of the plans shall also be submitted to the Building Control Contractor (Computrols or AW Mechanical) for review and pricing.

5. **TDLR Plan Review**

6. **Signed Construction Rules** (GC & Subs)

7. **Subcontractor Contact List**

8. **Contractor & Subcontractor Insurance Certificates** (See insurance requirements.)

9. **SDS** (Safety Data Sheet, Formerly MSDS) **Worksheet** *http://hinesctower.online-msds.com/*

10. **Asbestos Survey Report** (Landlord supplies.) EFI is the Landlord's Asbestos Consultant.

11. **Commercial Energy Code Compliance Form** (From MEP P.E. or Electrician before permitting. Landlord to review for Watts/SF compliance with terms Tenant Lease.

12. **Lien Waiver**. Required with all invoices. (Sample forms follow)

CONTRACTOR'S CONDITIONAL WAIVER AND RELEASE ON PROGRESS PAYMENT

Project_____

Application for Payment No. _____

On receipt by the signer of this document of a check from_____(maker of check) in the sum of $_____payable to_____(payee or payees of check) and when the check has been properly endorsed and has been paid by the bank on which it is drawn, this document becomes effective to release any mechanic's lien right, any right arising from a payment bond that complies with a state or federal statute, any common law payment bond right, any claim for payment, and any rights under any similar ordinance, rule, or statute related to claim or payment rights for persons in the signer's position that the signer has on the property of _____ (owner) located at_____(location) to the following extent: _____ (job description).

This release covers a progress payment for all labor, services, equipment, or materials furnished to the property or to _____ (person with whom signer contracted) as indicated in the attached statement(s) or progress payment request(s), except for unpaid retention, pending modifications and changes, or other items furnished. Before any recipient of this document relies on this document, the recipient should verify evidence of payment to the signer. The signer warrants that the signer has already paid or will use the funds received from this progress payment to promptly pay in full all of the signer's laborers, subcontractors, materialmen, and suppliers for all work, materials, equipment, or services provided for or to the above referenced project in regard to the attached statement(s) or progress payment request(s).

Date _____

_____ (Contractor's name) By (Signature)

_____ (Title)

STATE OF TEXAS §
§
COUNTY OF_____ §

This instrument was acknowledged before me on_____, 20__ (date), by _____ (name of person signing release), the_____(title of person signing release) of_____(Company name), a_____(state of organization of Company, such as "Texas")_____(type of entity, such as "corporation", "limited partnership", etc.), on behalf of said_____ _____(Company name).

_____
Notary Public in and for the State of Texas

_____
Printed or typed name of notary

My commission expires: _____

(SEAL)

CONTRACTOR'S CONDITIONAL WAIVER AND RELEASE ON FINAL PAYMENT

Project_____

Application for Payment No. _____

On receipt by the signer of this document of a check from (maker of check) in the sum of $_____ (payable to_____(payee or payees of check) and when the check has been properly endorsed and has been paid by the bank on which it is drawn, this document becomes effective to release any mechanic's lien right, any right arising from a payment bond that complies with a state or federal statute, any common law payment bond right, any claim for payment, and any rights under any similar ordinance, rule, or statute related to claim or payment rights for persons in the signer's position that the signer has on the property of _____ (owner) located at_____(location) to the following extent: _____ (job description).

This release covers the final payment to the signer for all labor, services, equipment, or materials furnished to the property or to_____(person with whom signer contracted). Before any recipient of this document relies on this document, the recipient should verify evidence of payment to the signer. The signer warrants that the signer has already paid or will use the funds received from this final payment to promptly pay in full all of the signer's laborers, subcontractors, materialmen, and suppliers for all work, materials, equipment, or services provided for or to the above referenced project up to the date of this waiver and release.

Date _____

_____ (Contractor's

name) By (Signature)

_____ (Title)

STATE OF TEXAS §
§
COUNTY OF_____ §

This instrument was acknowledged before me on_____, 20__ (date), by _____ (name of person signing release), the_____(title of person signing release) of_____(Company name), a_____(state of organization of Company, such as "Texas")_____(type of entity, such as "corporation", "limited partnership", etc.), on behalf of said_____ _____(Company name).

_____
Notary Public in and for the State of Texas

_____
Printed or typed name of notary

My commission expires: _____

(SEAL)

Workers Conduct / Construction Practices

1. **Quality Control:** Basic expectation for all trades is for work to be done in a first-class manner. In areas behind mechanical room doors and/or above the ceiling, coordination of work with other trades will be necessary to ensure that expectation. Easy access to all electrical junction boxes and air distribution equipment is required.

2. **Alcohol:** No alcohol, drugs, or persons under the influence are admissible on the premises at any time.

3. **Smoking:** Pursuant to the City of Houston Tobacco Smoking Ordinance, there will be no smoking, traditional or electronic, permitted in the building.

4. **Access to other areas of building:** Workers are not allowed to access any part of the building other than the designated construction work area / freight elevator and loading dock.

5. **Professionalism:** No abusive language, actions or radios will be permitted. It will be the responsibility of the General Contractor to enforce this regulation on a continual basis.

6. **Work Disruption:** Any work that has the potential to disrupt normal business activity of other tenants must be performed outside normal business hours. Normal business hours for construction projects are defined as 6 a.m. – 6 p.m. (these times are subject to change at any time). Examples of this type of work are defined, but not limited to the following: A) Drilling or cutting of concrete floors, or structural members. B) Any work in which machine noise or vibration may disrupt normal office procedures. C) Material stocking, demolition, and trash removal. D) Any work requiring access to occupied tenant space. In such cases, please allow ample time for coordination with the affected tenant. A 48-hour notice is required. E) High VOC paints, sealants, stains, adhesives, etc.

7. **Protection of Property:** Contractor will take necessary precautions to protect existing property (i.e., walls, wall coverings, carpet, floors, furniture and fixtures) and shall repair or replace, without cost to Landlord, any damage that may occur as a result of construction work.

8. **Shielding of Work Area:** Construction on multi-tenant floors shall be demised so that activities cannot be viewed outside of the construction site. This can be done by keeping the entry door/doors closed or if needed by constructing a demised wall with entry door. Such wall should be painted and provided with cove base so as to blend with the surrounding common area. After construction, this demised wall shall be removed and the common area corridor restored to its pre-construction condition.

9. **Housekeeping:**

   A) **Daily Requirement**: For life and fire safety, the General Contractor shall maintain the construction site free from the accumulation of waste material and debris. Trash should be removed daily and site left with broom finish.

   B) **Common Area:** Tracking of dust and debris into building common area is not allowed. In the event that the Landlord is required to clean up after the contractor's crew, the General Contractor shall be invoiced accordingly.

   C) **Final Cleanup:** The final cleanup by the General Contractor shall encompass corridor and lease space light fixtures, walls, floors, windows, sills, mini blinds, cabinets, counters, HVAC diffusers or grilles, or blank off plates, mechanical rooms, restrooms and/or any area associated with the project. If the Landlord is forced to clean any of the above, the General Contractor shall be invoiced accordingly.

10. **Tool Clean-up:** The building's restroom facilities are not to be used for the cleaning of tools or paint materials. Anyone caught putting paint, joint compound, etc. down any drains inside the building will be asked to leave the building. The General Contractor will be responsible for any riser blockages caused by adding materials to the drains.

11. **Removal of Existing Material:** All existing material not reused in the construction project, except as directed by the Property Manager, shall be disposed of by the General Contractor as waste or unwanted material. Materials which may be reused, should be referred to the Property Manager prior to disposition.

12. **Trash Removal:** Contractor is responsible for the removal of all construction-related trash.

13. **Dumpsters**: Delivery and Pick-up are only allowed during the hours of 6:00p.m. through 6:00a.m. Property Management must be notified. Dumpsters larger than 30 yards in size are not permitted on the loading dock. Security must be present to observe dumpster delivery/pick-up in case damage to overhead sprinkler pipe and ductwork occurs. Any damage due to delivery or removal of dumpsters is the responsibility of the General Contractor. Dumpsters should be clearly labeled with the contractors' company name on the loading side of the dumpster. Construction trash in building dumpsters is strictly prohibited.

14. **Roof:** All materials must be removed from the roof or secured on a daily basis to ensure that nothing becomes airborne or noise.

15. **After-Hours Security:** required for access into adjacent tenant suites and this labor is a billable service. A 48-hour notice is required.

16. **Uniforms:** All contractors must wear a uniform that designates their employer. A company t-shirt with name and/or logo will suffice.

Indoor Air Quality

1. **Responsibility:** Contractor will take whatever steps necessary in order to assure that no air quality problems are created by the construction process. The General Contractor shall be imposed a fine of $200 for each incident in which building personnel are called upon to respond to a tenant complaint. The General Contractor should be aware of the hazards associated with all products used in the construction process. Final responsibility is accepted by the General Contractor for all claims or damages that arise as a result of building contamination.

   The General Contractor is required to control all odors, fumes and VOC's associated with the construction process.

2. **Ventilation:** Exterior window exhaust fans equipped with collapsible rain proof dampers or vanes are required on all construction floors and must be sized to achieve a negative pressure within the entire construction area**. A minimum of one fan per 5,000 square feet is required.** The General Contractor is responsible for ensuring that negative pressure is achieved within the entire construction area.

   - Exterior window exhaust fans must be used in construction areas. Schedule with Hines engineering for access to construction exhaust fans when needed at JPMorgan Chase Tower Fans will need to be constructed for 601 Travis.

   - Negative pressure must be maintained during hours of actual construction beginning with Demo activities. A negative pressure must be maintained 24 hours a day beginning with the use of paints, solvents, floor coverings, adhesives, or any other similar product until the completion of construction.

   If during construction, it is necessary to operate additional ventilation equipment, the general contractor will reimburse JPMorgan Chase Tower and 601 Travis for all associated energy consumption and man-hours to coordinate.

3. **VOC Product Selection**, **(Building Materials Specifications)**:

   A. Pollutant Specifications

   Target Standards are designed to maintain building air concentration of chemical emissions within acceptable levels. Expressed in terms of air concentrations of microgram per cubic meter (ug/m^3) for specific pollutants, the Target Standards are:

   1. **Formaldehyde (CHOH)** - 60 ug/m^3
   2. **Total Volatile Organic Compounds** (VOC) - 500 ug/m^3
   3. **Total Particles** - 50 ug/m^3
   4. **4-phenylcyclohexene (4-PC)** - 6.5 ug/m^3 (butastyrene backed carpet only)
   5. Any regulated pollutant should meet an emission rate standard that will not generate an air concentration greater than that promulgated by the National Ambient Air Quality Standard under specified conditions (**U.S. EPA, Code of Federal Regulations, Title 40, Part 50**).

6. Any pollutant not specifically mentioned above should meet an emission rate standard that will not produce an air concentration level greater than 1/10 the Threshold Limit Value (TLV) industrial workplace standard at the anticipated building loading within 30 days of installation under specified conditions. (**Reference: American Conference of Governmental Industrial Hygienists, 6500 Glenway, Building D-7, and Cincinnati, Ohio 45211-4438**). The predicted 30-day post installation building air concentration shall be based on the emission rate as derived from the appropriate empirical decay model (**e.g. ASTM D5116-90**).

7. All testing pursuant to this specification shall be completed in accordance with **ASTM D5116-90 and/or EPA-600/8-89-074** and all data shall be made available for review and approval.

B. Documentation Requirements

1. Pollutant emissions data provided by the manufacturer for specified interior furnishings and materials indicating compliance with target specifications are required to be submitted to the Management Office prior to installation.

2. All pollutant specifications must be included in the contract documents.

3. For all interior design materials, furnishings and finishes Contractor shall provide manufacturer's written disclosure of any substance emitted by each product listed on:

   a. The International Agency for Research on Cancer list of chemical carcinogens.

   b. The Carcinogen List of the National Toxicology Program.

   c. The Reproductive Toxin List of the Catalog of Teratogenic Agents.

4. Many materials used in a building product or furnishing require a Material Safety Data sheet (MSDS). Contractor must provide a MSDS for chemicals that can be emitted by installed products.

C. Supplement Building Requirements

1. Each material and substance shall be installed in such a manner that it will produce the lowest practical level of emissions. In accordance with manufacturer's recommendations, drying times should be chosen so that pollutant emission rates, as set forth in these IAQ standards, are achieved prior to installation of the "dry" furnishings.

2. The least amount feasible of "wet" materials, such as adhesives, sealants; glazes, caulks, paints, etc. shall be used during construction and applications. Control strategies for achieving this minimal use must be prepared and submitted to Landlord for review.

3. "Dry" furnishings material, such as carpet, acoustical panels, textiles, etc. shall not be installed until "wet" materials have been applied and allowed to dry to the fullest extent feasible.

D. Building Product Selection

The availability of product emission data will allow informed selection of building materials. These selections can be weighted in the following manner:

1. Competing products that have emission rates below the target specification can be

selected based solely on cost, most favorable emission rates or other product characteristics.

2. Selection from competing products of equivalent cost and features should be weighted to select the product with the lowest emission rate.

3. Significant cost increases from a low and high emission product should trigger a renewed search for a better alternative. **If none is found, and the high emission product is selected based on cost considerations, special handling protocols must be developed that ensure controlled product application.** For example: Varnish, lacquers or high VOC odor producing products are not to be used in the building without approval of the Management Office. This type of work should be done off premises or in a well-ventilated area approved by the Engineering Dept.

E. Product Categories

1. Research will be required by Architect and/or Contractor to determine which manufacturers provide products that meet the emission rate standard. The following list of product categories is not all-inclusive but provides a guide to basic types of building products for which emission standards will apply:

(a) adhesives
(b) ceiling substances
(c) ceiling tiles/other ceiling systems
(d) floor covering, textile/non-textile
(e) insulation
(f) office furniture systems/seating
(g) office machines
(h) paints and coatings
(i) sealants and caulks
(j) textiles, decorative
(k) wall covering and wall units
(l) window treatments
(m) wood fixtures, trim and millwork

F. During the Construction period

Contractor must actively manage the construction process from an IAQ standpoint:

1. Confirm that all products actually used in the building are those for which VOC compliance certification test results were provided.

2. Plan the timing of construction activities so heavily polluting activities. Typically, “wet” material application (painting) should occur before absorbent materials (carpet and furniture) are installed.

3. Follow IAQ ventilation procedures to ensure that the bulk of emissions are removed before exposing the occupants to off-gassing.

4. Provide adequate documentation and records to show that IAQ procedures were followed.

Telecom/Data/Riser

Prior to running any and all forms of cable, the “Tenant/Contractor Cable-Conduit Request Instructions” document MUST be filled out, signed, and returned to the Hines Management Office for approval prior to any work taking place.

This form can be found at www.chasetower.com under 'Tenant Info", then "Forms", then "Cable & Conduit Installation Request".

Electrical Issues:

1. All electrical circuits, panels and associated metering devices will be appropriately marked as to the area and or equipment serviced by the circuit(s) in question.

2. All electrical panels, junction or pull boxes which have covers or doors removed or any new electrical panels that are installed shall be fully covered, closed, or replaced.

3. All new electrical panels shall be hinged.

4. Any cabling, wiring, electrical conduit, panel boards, transformers, etc. which are not to be reused in the tenant build-out must be demoed 100% back to the original source or origin. No materials or equipment are to be left unused in any mechanical room, maid’s closet or ceiling space.

5. Data cable runs that transition through building mechanical rooms will be labeled on all floors.

6. All connections to new or existing bus taps shall utilize flexible connections as per bus way manufacturer’s recommendations.

7. All step-down transformers providing power to 120V emergency lighting shall be located in the maid’s closet, or tenant’s mechanical room, protected with a smoke detector.

8. Circuits shall be identified in the field, at each junction box, by legibly marking with permanent marker the following: voltage, panel and circuit breaker number. This identification shall be made on each conduit leaving the j-box.

9. Any tenant equipment that is to be installed in the building's mechanical room must be approved by the property management office.

10. All free air cabling shall be routed close to the structural deck, supported by ring clips. Cabling is not allowed on top of ceiling grid. All existing wires within construction area are the contractors’ responsibility to “prepare” as required by code.

11. All flexible conduit, (BX), shall be routed close to the structural deck and in-line with ceiling grid. BX is not allowed on top of or supported by the ceiling grid. Electrical runs exceeding 15ft must be run through hard conduit.

12. All emergency circuits shall be run with RED colored BX.

13. **Wire/Conduit/Cabling management.** In all cases, all electrical components shall be installed in such a way so as to allow ease of access into the ceiling space and to mechanical/electrical components therein. Wire runs shall be routed high, close to the structural deck and out of the way of ceiling access. EXP: Choose routing along ceiling main support T's instead of over and across ceiling tile openings. For clarification, see the engineering department.

14. "Looping" of any electrical circuits from electrical device to electrical device is not allowed. "Looping" or "Daisy Chaining" of light fixtures is not allowed. Each device or light fixture must go to a junction box in the office/area, minimizing the amount of flexible conduit. All homeruns to be installed in conduit and fed into each office/area and branched with flexible conduit.

15. All flexible conduit, unless otherwise approved by management must be kept at a maximum of 18 inches, i.e., heat strips, water heaters, etc. It is approved to have one (1) j-box above an office and run flex conduit to wall plugs. All other conduit in the space shall be EMT.

16. Trenching of the concrete floor for under floor routing of conduit/piping, etc. is not allowed for any reason. All coring for electrical or plumbing shall be scheduled with the tenant above and below to minimize the disturbance to any adjacent tenants.

17. Panel schedules must comply with NEC 2022 408.4(A) Circuit Directory or Circuit Identification. Partial floor construction the original schedule must remain in the panel or be added to new schedule. "Existing Circuit" will not be accepted.

18. Electrical metering shall be installed for any usage over the building supplied wattage per square foot as explained in the lease agreement and shall be tied to Entronix system. A junction box shall be installed before and after any metered transformer to allow adequate room to install the meter's CT's, (Current Transducers). Power for the meter shall be from a local electrical circuit, protected by a breaker and manufacturer supplied fuse.

19. Obsolete or unsupported electrical meters shall be replaced with approved meter that are ModBus RTU compatible.

    The preferred option is the electrical meter Veris E50 ModBus RTU. Veris Industries Inc. phone number 1-800-354-8556 ext. 223

    Responsibilities: The electrical system is the overall responsibility of the Electrical contractor. Connection to Entronix system shall be made by Entronix or A&W Mechanical working as a sub to the electrical contractor.

20. FCU Related Issues:

    - 120V Power Supply for Fan Coil Unit (FCU's): The electrical contractor will install a 120V power supply with local switch at the service location of the FCU to be used by control contractor for FCU controls.

    - UV Light Issues: Electrical contractor shall provide a 120V switch for local disconnect of UV light.

    - Start/Stop Control: Electrical contractor to install fan relay, (provided by control contractor), for stop/start control of FCU. Control contractor will provide 24VAC

to fan relay and interface with the base building AHU or tenant control.

- Tenant should retain start/stop control of all tenant FCU's.

- All FCU's supplying tenant office space should be tied into the Building Automation Computer. Cooling units for tenant equipment, i.e., telephone or computer rooms should not be tied into the BAC.

- AHU/FCU starter. All AC units shall be installed with a starter equipped with a Hand/Off/Automatic switch.

- Only Bray-Delta control valves shall be used, sized appropriately for each specific unit.

- Tenant FCU's shall have their own individual Kele enclosures, keyed same as base building enclosures, with necessary 8x or 16x Computrols control boards, transformer, switches, etc. Tenant FCU's shall not be tied into existing base building panels.

21. **Labeling**: All switches, (with the exception of standard wall switches for lighting), shall be labeled by electrical contractor identifying the equipment/devices controlled.

22. **Include watts/sqft** of low and high voltage within tenant space to electrical drawings.

23. **Contractor shall provide Ark Flash Study for new panels in coordination with existing Ark Flash Study for building. Analysis to be performed by building preferred vendor. Include all labeling on panel as required.**

24. All meters new and existing to be function tested and demonstrated to Hines Engineering and confirm it is on the BMCS.

<u>HVAC Issues</u>:

1. Air Balance:

A) Deliver to landlord a certified air balance report which will verify airflow delivery per the construction drawings at the end of construction.

B) For partial floor build-outs the contractor shall provide an air balance report noting total air velocity in CFM for each zone outlet and the total AHU air velocity (**PRE AND POST CONSTRUCTION**) in CFM as obtained via traversing all of the main supply ducts in the mechanical room. In addition, any and all zones that partially serve the new construction space will be traversed at the point(s) where the zone duct serves any other lease space(s). The air balance for the new tenant shall not adversely affect surrounding tenants.

C) HVAC contractor shall balance the outside air to achieve 20 CFM/per person.

D) Recommend air balance contractor provide one (1) comfort balance upon tenant move-in.

2. Air Distribution:

A) All flex ducts must be externally insulated.
B) Flex ducts shall not exceed 8' in length.
C) Duct tape cutouts not used shall be covered with a duct plate and insulation.
D) All new ductwork must be externally lined.
E) Any time there is drywall to deck; the Engineer will calculate proper openings for return air.
F) Leave access or control for operating all dampers/mechanical devices.

3. HVAC Controls:

A) Demonstrate to Engineering Department that all thermostats/DDC sensors function correctly, are controlling the correct zone, and are properly calibrated.
B)
C) The contractor is responsible for the proper function of all zone thermostats/DDC sensors and, (if required), the removal and safe storage of all thermostats / DDC sensors during the course of the construction. If the construction requires the relocation and/or replacement of any thermostats / DDC sensors, this shall be coordinated with the Engineering Department at the contractor's expense.
D)
E) ~~Reuse~~ DDC sensors by mounting them to the deck before walls are removed.
F)
G) If during construction activities, the wiring to the sensor is cut; it shall be replaced at contractor's cost. Wiring must be taken back to the field panel with no cuts/breaks/or connection, ensuring one continuous circuit. ***Note:** The control wiring for floors already under DDC is bright pink in color. Use caution during demolition.
H)
I) All tenant equipment located within the construction space shall be DDC. Whether new or existing. All pneumatics shall be demolished and converted to DDC if necessary. FCU access points, doors and filters shall not be blocked by any device or wire. No VAV boxes, in any form, will be permitted.

4. Filtration:

A) General contractor must install a blanket construction filter and a mini pleat filter in lieu of base building filters prior to demolition of the area. In addition, construction floors with the filter rack box filter system require the mini pleat filter to be removed and stored.

a. JPMorgan Chase Tower-

i. A construction filter (Gold series 3 ply link 2ea. 20x96-102 w/aegis north units / Gold series 3 ply link 2ea. 24x96-102 w/aegis for the south AHU) and a blanket filter wrap is to be installed. Occupied floors where construction is in progress must have a construction filter installed prior to and following demolition.
ii. Base building AHU filters must be changed by the mechanical contractor following the completion of construction. This must be done after hours when unit is not being utilized.

b. 601 Travis-

i. Double blanket wrap filters.

5. Other Miscellaneous Requirements:

- **IMPORTANT** – **JPMorgan Chase Tower**- Any work in the exterior offices on the Southwest face of the building must have 5/8" sheetrock or other material approved by Hines Engineering fully covering the exterior windows to prevent accidental breakage. These need to be painted black on the window side to maintain our exterior appearance. See Property Manager for installation procedures or any questions. No demolition or construction shall start until these windows are protected.
-
- Mechanical room doors shall remain closed and locked during construction To gain access the GC can check out a key from the Engineering Office.
-
- Mechanical rooms shall not be used for storage and will be kept clean at all times.
- The General contractor shall have both AHU's and mechanical rooms thoroughly cleaned to Hines satisfaction after the completion of the construction project. Hines engineering must be contacted to inspect the condition after the cleaning is complete.
-
- Unused Products: Any piping, HVAC equipment, exhaust fans, etc. which are not to be reused in the tenant build out must be demoed 100% back to the original source or origin. No materials or equipment are to be left unused in any mechanical room, maid's closet or ceiling space.
-
- Vacant tenant spaces cannot be used for any type of construction material storage or any other use without approval from the Property Manager.
-
- Air Cooled AC Units: Not allowed in the building.
-
- Temp. Air Cooled AC Units: Allowed on a temporary basis. However, a window must be pulled and heat exhausted from the building.
-
- New equipment location to be field verified and shown accurately on drawings. All new chilled water hot taps require a minimum 2-inch connection. Supplemental cooling will not be allowed in tenant it areas.

6. Supplemental Chilled Water Fan Coil Units Specifications

I. <u>Fan Coil Unit Minimum Specifications</u>

1. Filters will meet Merv 13 specifications
2. Install UVC lights as recommended by manufacturer. Local distributor is Sterile Air (Bill Tillman) See Specs below, (#17)
3. Copper tube aluminum fin chilled water coil designed at **300 PSIG** working pressure
4. Low pressure forward curved fan
5. ODP motor
6. Adjustable pitch drives
7. 304 stainless steel drain pan with 2nd drain connection
8. Casing liner
9. Double wall construction
10. Hinged fan section access doors with handles
11. 1 inch 1.5 PCF fiberglass insulation
12. Pillow block bearings

13. 42-degree entering chill water temperature with an 18-degree temperature difference across the coil
14. Stainless steel coil casing.
15. Coil and support to be a minimum 1" above the bottom of the primary drain pan
16. Heat Load Analysis: Heat load analysis shall be on the blue print detailing the anticipated load at the time of design.
17. FCU Specs: Shall be noted on plans. Unit size will be compared to heat load analysis.

18. Recommended units are:

- Specialty Mechanical Products "Customaire ". The local manufacturer for these units is A/C Engineered Systems. **Contact: Gus Rodriguez: Phone #: 281-530-3700**

- "Reco" The local manufacturer for these units is Roessler Equipment Co., Inc. **Contact: Davis Porterfield: Phone #: 713-782-2701**

19. UVC Germicidal Disinfection Unit UVC device shall be installed on all new and existing fan coil units. Device should be installed after fan coil units are installed and commissioned. Power should be turned immediately after installation and exposure to the cold side of the coil.

General: Factory assembled and tested, consisting of a housing, power source, reflector, emitter sockets and emitter. Constructed to withstand HVAC environments. Manufactured by Sterile Aire USA, Model DE 241 VO or Sterile Ladder Series. The UVC manufacturer in conjunction with the air handling unit manufacturer shall select and design the UVC device for maximum effective control of microorganisms on coils, condensate drain pans and internal air handling unit surfaces.

Housing: Constructed of hospital grade stainless steel with 1/2" electrical knockout on both ends.

Power Source: 120V, Class P2 rapid start type with power factor of 9.95 and power conversion of not less than seventy-five (75%) percent. Designed to maximize photon production, radiance and reliability and suppress RF and line noise in airstreams of 41-132ºF and air flows to 1000fpm.

Reflector: Constructed of heavy gauge, specular finished aluminum allow with a minimum eighty-six (86%) percent reflectance at 254mm.

Sockets: Medium bi-pin, double click safety, twist lock type, constructed of UVC resistant polycarbonate.

Emitter: VHO, T5 diameter, medium bi-pin type to produce the specified output, constructed of Type "L", hard glass quartz, producing no ozone. Igniter shall be 10mm, tri-coil type, clamped to a short mount, nickel inner lead. Base shall be ceramic with cast in power pins. Emitter life shall not be less than five thousand (5000) hours.

Testing: Independently test unit under typical HVAC conditions and in accordance with IES Lighting Handbook, 1981 Applications. Total output per one inch of length not less than 10 uW/cm2 at 1 meter in 45ºF air at 400fpm.

II. Fan Coil Unit Installation Specifications

1. Fan coil unit, drain piping, chilled water piping and ductwork is to be hung as high as possible above the ceiling.

2. The fan coil unit must be secured to the deck utilizing properly sized vibration isolators (spring type).

3. Provide 30" of free and clear access on **All Sides** (Excluding the discharge side) of the fan coil unit. Nothing shall inhibit access to the access panels, drain line connections, control valves, unions, isolation valves, electrical boxes or controls. This to include the following: beams, walls, piping, electrical conduit, light fixtures, etc.

4. A secondary drain pan must be installed. It must be made of 16-gauge galvanized metal (minimum) with a cross breaking sloped towards a 3/4" drain connection. The sides must be a minimum of 2" high and must extend on all sides a minimum of 6" beyond the sides of the fan coil unit. It must have soldered watertight edges and a 2" hem for stability.

   The secondary drain line must be routed to a conspicuous location (Example: Above kitchen sink or private Restroom sink) with a minimum slope of 1/8". If the secondary drain line absolutely cannot be run to a conspicuous location, it can be tied into the primary drain line or routed to the floor drain in an AHU room only if the secondary drain pan is installed with a water detection device. This device must be located at the drain connection of the secondary pan and must turn the AHU off in the event of water detection.

   The drain pan must be supported so that the unit is not in contact with the bottom of the secondary drain.

5. All chilled water piping is to be ASTM black steel screw pipe or copper rated appropriately for each individual floor. All fittings (unions, 90's, 45's and couplings) are to be of equal ratings.

   Primary drain pan lines must be galvanized steel pipe or hard drawn copper and insulated in the same manner as chilled water piping.

6. The chill water piping must be so that all devices (chilled water control valves, isolation valves and balancing valves) have unions on both sides to accommodate repairs. Main isolation valves off the riser are to be located in the mechanical room and have a capped drain valve after the isolation valve for draining purposes.

7. All ball valves are to be bronze two-piece body, stainless steel ball, Teflon seats and stuffing box ring, lever handle, balancing stops and threaded ends.

8. All chilled water piping is to be insulated with a 1" glass fiber pipe insulation with an all service jacket finish. All joints to be reinforced with a white vapor barrier and hanger locations are to be reinforced with shields and protection blocking. Armaflex insulation is not to be used under any circumstances.

9. Metering of the chilled water and electricity of the fan coil unit is required. Obsolete or unsupported BTU meters shall be replaced with approved meter.

   Chilled Water: BTU totalization via BTU meter connected to Entronix system.

   Preferred BTU meter: Onicon System-40 (ModBus RTU) tied into Entronix system. Meter to be mounted so that the display can be read.

   Electrical: Tenant is responsible for all electricity consumed by any supplemental HVAC equipment. (See electrical for metering info). All meters are to be mounted in a visible and accessible location.

10. Meter Communication to Entronix system (Protocol) by Entronix or A&W Mechanical

    BTU Meter: Onicon System-40
    kWh Meter: Veris E50
    Meter Communication to BAS (Protocol): All Meters must be tied to the ENTRONIX system by AW Mechanical ONLY

11. Obsolete or unsupported electrical meters shall be replaced with approved meter.

    Responsibilities: The electrical/metering system is the overall responsibility of the Electrical contractor. Connection to Entronix system shall be made by Entronix or A&W Mechanical, working as a sub to the electrical contractor.

- All meters new and existing to be function tested and demonstrated to Hines Engineering and confirm it is on the Entronix.

Any work that disrupts any part of the chilled water riser insulation must be coordinated through Hines Engineering located on level “B”. Hot tap locations must be spotted by Hines Engineering prior to the tap.

All CHW piping must be hydro tested for a minimum of three hours at 1 ½ times the normal operating pressure of the system. This test must be verified and witnessed by Hines Engineering.

All CHW systems must utilize PT’s plugs to balance all control valves and coils. All systems must be balanced to design specifications and witnessed by Hines Engineering.

-- End of HVAC Issues -

Tenant Systems

- **All new tenant HVAC equipment, i.e., FCU's shall be DDC and compatible with the building's BAC.**

- **Demo of existing pneumatic tubing in ceilings:** Assuming that there will be no pneumatically controlled devices on the floor, tenant or base building, all pneumatic tubing can be removed during the demo process.

Phone / Data Cable Identification

All phone and data cables must be securely tagged on each floor with the tenant's name and suite number at the origin and every location where it crosses a corridor wall or adjacent tenant wall. All floor-to-floor vertical cable/conduit installations must be approved in advance, in writing by Hines Property Management at 713-223-0441. Any abatement for floor-to-floor vertical wire pulls will be paid by the tenant.

***Tenant's phone equipment shall be installed inside their space, not inside the mechanical room.**

Plumbing Issues

1. **Unused products:** Any piping, water heaters, drain lines, etc. which are not to be reused in the tenant build out must be demoed 100% back to the original source or origin. No materials or equipment are to be left unused in any mechanical room, maid's closet or ceiling space.

2. **Future Connections:** When connecting to existing domestic water systems, a new full-sized valve should be provided downstream of new connection for future use. Pro-Press fittings are not allowed in the building.

3. **Floor Drains/Waterproofing:** Floor drains and waterproofing are required in all kitchens, coffee bar locations and tenant restrooms. The concrete deck and surrounding walls shall be waterproofed to prevent water migration. Floor shall be sloped to the drain by building up the floor where possible, while still maintaining ADA accessibility. Areas protected by waterproofing shall pass a one-hour water test, achieved by damming the area, plugging floor drain and filling work area with water. Coordinate with engineering department. Must be witnessed by Hines Engineering. Drains without continuous use must have trap guards installed.

4. **Water Heaters**: Contact Building Engineer to position water heater prior to installation. No water heaters are to be located inside mechanical rooms without approval from property management.

5. **Drain Risers:** Provide "drain riser" in mechanical room, in locations with multiple drain lines being routed on floor of mechanical room as follows:
    - Pipe should be 11/2" cup copper.
    - Pipe turns down into drain.
    - Route pipe to nearest wall and up 7 feet.
    - Provide 3" funnel at top of pipe.

6. **Waterproofing:** Ensure that an adequate amount of waterproofing is installed around floor drains.

7. **Kitchen Area/Coffee Bars:** All waste drains from kitchen areas and coffee bars must be tied into the water fountain waste risers. No kitchen area or coffee bars are to be tied into the sanitary risers.

8. **Kitchen Areas**: No plastic or Polyethylene tubing is allowed to hook up coffee machines, refrigerators, etc. Copper tubing shall be utilized for these types of connections.

9. **Drain/Existing Piping**: Consideration should be made to determine the age of any existing piping prior to reuse.

10. Hines recommends adding water detection with automatic stop valves where applicable.

Structural Beams

Penetrating Structural Beams: Any routing of plumbing, sprinklers, ductwork, etc., shall be installed around any beam. If penetrating a structural beam is necessary, a drawing must be provided by an approved Structural Engineering company and approved by Hines before any work proceeds. Any work performed on structural beams in this building will be done by an approved contractor. See approved contractor list for phone number and contact.

Life Safety

1. **Electronic Locks:**
   - All lock installations shall comply with any and all applicable governmental codes. Design drawings for the installation shall be submitted to Landlord for review and comment prior to installation.

   - Pre-Test: Prior to City inspection and lock activation, a function test must be conducted. All trades associated with the lock installation shall be present for the test.

   - All electronic locks shall have a Master Key by-pass installed prior to the lock activation, allowing building personnel access as required in emergency situations. The T1 (JPMorgan Chase Tower) / J1 (601 Travis) approved override switch is **Securitron Model #SCR901494**

   - **Stairwell re-entry doors must be tied into the buildings fire life safety door lock release.**

   - **No alarm testing during normal business hours. Testing must be scheduled 72 hours prior to scheduling**

   - **Electronic locks cannot be energized prior to this function test.**

- Following approval by the City Inspector, a copy of the drawings, and approved permit, must be forwarded to building management.
- If a lock is removed from service the building's Engineering Manager must be notified so that building and City of Houston documentation can be kept up to date.
- Updated CAD files for the building life safety system must be included. Updates to the ONYX workstation will also be required.

2. Floor Penetrations:

- All floor penetrations shall be caulked, cemented or filled (immediately upon coring or discovery) with materials which are fire rated and match specifications of the original floor composition.
- **All floor penetrations shall be sealed by the building approved fire proofing contractor as identified in the approved contractors list.**

3. Welding / Cutting Torch/ Grinding Use:

- At no time is any welding, cutting torch, grinding or any open flame tool to be used in the building without prior approval in the form of a **Hot Work Permit.**
- Hot work permits can be obtained from the engineering department in suite B2-7 at JPMorgan Chase Tower. If approval is granted, the contractor must coordinate the timing with the Property Management Office.
- Base Building hours are Monday thru Friday **(6 AM to 6 PM)**.
- After-hours hot work must be scheduled through the Property Management Office at JPMorgan Chase Tower, suite B1.009.
- Soldering may take place during regular hours only if the entire floor is vacant.
- Welding / cutting will always be scheduled for after hours or on a weekend.
- Welding / cutting work requires a smoke eater with new charcoal filters in place.
- No hot work will be permitted on a multi – tenant floor during business hours.
- No hot work will be permitted on a floor that does not have sprinkler protection.
- A dedicated fire watch will always be present during **all** hot work. The fire watch will not be allowed to perform any other work except to watch for fire and have fire extinguisher in hand. The fire watch must be at the hot work location for a minimum of 1 hour after the hot work has stopped.

4. Fireproofing:

- The General Contractor is responsible for all fireproofing issues.

- Any damage to the integrity of the base building fireproofing whether existing or caused by construction activities will be restored by an approved fire proofing contractor as identified in the approved contractors list. Fireproofing will match or supersede the building standard. Because the fireproofing design varies according to beam size and location, reference the blue print # A105 in the Engineering office for specific design information.

- Immediately following the demo phase, all areas that have been compromised and any existing areas will be properly fireproofed. **NO EXCEPTIONS.**

- The engineering department will make inspections with the General contractor during demo phase and during the construction of the lease area to ensure compliance regarding fireproofing.

5. Fire System:

- All sprinkler work on occupied floors must be done after hours. After hours are Monday through Friday 6:00PM to 6:00AM, or 7:00AM to 3:00PM on Saturday (per prior approval).

- Twenty-four (24) hour notice must be submitted to the building management office for approval for any work affecting base building, MEP, sprinkler, fire safety or security systems.

- The Contractor shall coordinate all Fire Alarm System and Fire Sprinkler System related work with the building Management office. None of the aforementioned work shall commence until appropriate measures have been taken, and approved to assure that no false alarms will occur, that adequate building protection shall be maintained, and that all proper agencies have been notified of the shutdown parameters. Contractor shall be responsible for insuring restoration of such systems to normal operations immediately following completion of the work including notification to building management that the system is restored. No work on alarm generating devices during business hours.

- Contractor **shall be imposed a fine of $300 by the** owner for labor incurred responding to false alarms, caused by the contractor or construction.

- The contractor shall coordinate with building approved fire alarm company to remove/reinstall the smoke detectors to ensure proper protection while minimizing the potential for false alarms.

- Any after hour work or testing of the Fire Alarm System or Fire Sprinkler System will be manned by building personnel. GC will be billed for the time expended (3 hour minimum). **No alarm testing during normal business hours. No drain-downs during hot work.**

Light Bulbs and Ballasts

Contractor is responsible for insuring that all light fixtures in the work area are working properly and are fully operational and cleaned upon job completion. This includes replacement of tubes and ballasts as required in light fixtures that are replaced added or re-positioned. The ballast will carry a 5-year warranty with a $25 replacement labor allowance.

The JPMorgan Chase Tower light bulb and ballast spec is:

- GE T-8 XLSP 30 Eco Lamp 277 Volt
- Phillips <10% TDH Low Watt Programmable Instant Start
- 2x2 U-tube style lights are no longer supported by the building

The 601 Travis light bulb and ballast spec is:

- GE F28 T8 SP35 ECO
- Phillips <10% TDH Low Watt Programmable Instant Start
- 2x2 U-tube style lights are no longer supported by the building

Locks and Keyways

Only building standard locks and keyways are to be installed in the leased premises and all keying must be coordinated through **Infinity Locks**. Prior to installation, all proposed hardware and keyways must be reviewed and approved by building management.

Abatement

Any abatement performed will be paid for by tenant.

Hazardous Materials

Hazardous materials may not be brought onto or stored on the premises until obtaining written permission from the management office. Permission will not be given unless such material is properly stored in appropriate containers, (i.e.: flammable liquid cabinet), and all required permits are obtained from the City of Houston. Hazardous Materials are defined, but not limited to, the following:

- Flammable Liquids
- Combustible Metals
- Cryogenics Oxidizing Agents
- Pressurized Gases
- Flammable Solids
- Liquefied Gases
- Radioactive Materials / Explosives

Contractor shall provide to the management office, prior to the start of construction, a complete MSDS binder for all chemicals used on the job.

Penetrations

All penetrations of piping, duct work, conduits, etc. through wall partitions, and doors shall be fire sealed to the landlord's satisfaction in order to maintain the integrity of the structures fire safety rating.

SALVAGE ITEMS

All items salvaged for Owner's future use shall be removed to the storage staging area specified by the Property Manager **by the General Contractor**. Masonite shall be used to protect flooring while transporting materials to storage areas. This activity shall be coordinated with the Property Manager.

Top Track & Window Track / Framing: All top track which is bent, deeply scratched, painted, and are cut shorter that 8', should be discarded. All window track and framing should be discarded.

Ductwork /Air Distribution Devices / Electrical Duct Reheats: All ductwork shall be discarded. All air distribution devices (i.e. diffusers/strip diffusers, circular non-insulated hard duct, and troffers) that are bent irreversibly, split open, or custom made are to be discarded. All others shall be transported to the storage staging area. All electrical reheats shall be abandoned in place.

Restroom Partitions & Hardware: All Restroom hardware and partitions, which are re-usable, will be salvaged and shall be transported to the storage staging area.

Distributed Antenna System (DAS): Each floor of JPMorgan Chase Tower includes a designed distributed antenna system. The installed DAS antennas shall remain on the floor and the cabling shall remain intact. During demolition the antennas and cabling shall be protected or stored by the General Contractor. The Antennas shall be located at or near the same location as this system is designed for adequate floor coverage.

Miscellaneous: All items not identified above shall be brought to the attention of the Property Manager to determine disposition.

The General Contractor shall reimburse the owner for expenses related to removing the abovementioned items if they are neglected during the project.

SECURITY

Building Access

Normal business hours are from **6:00 A.M. to 6:00 P.M.,** Monday through Friday. After 6 P.M. and through the weekend, all entrances to the building are locked and ingress is by card-key access or pre-approved access list only.

Any and all access after normal business hours must be approved and coordinated through the Hines Management Office**. No exceptions.**

All workers shall use the loading dock entrance, so visitor ID badges can be issued. These badges must be worn at all times.

After-hours security is required for access into adjacent tenant suites and this labor is a billable service.

Loading Dock

- JP Morgan Chase Tower has a 24-bay loading area to be used by trucks and vehicles making deliveries. The entrance to the loading dock is located on the corner of Texas between Milam and Travis with a clearance height of eleven feet

- 601 Travis has a 15-bay loading area to be used by trucks and vehicles making deliveries. The entrance to the loading dock is located on Travis Street with a clearance height of thirteen feet

- Loading dock parking is for delivery of materials and equipment only (no hand held items). Upon completion of any delivery, all vehicles must be removed and parked off premises.

- All spaces are on a first come, first serve basis. All vehicles parked on the loading dock are governed by a 30-minute parking limitation.

- Management reserves the right to tow vehicles after 30 minutes should the contractor, mover, truck driver, etc. does not adhere to the rules and regulations outlined.

- Stocking of material and large deliveries that can disrupt the normal operation and flow of the freight elevators will not be allowed access into the loading dock and are required to be scheduled for after hour loading dock access. All construction deliveries are after hours.

Freight Elevators

- All construction materials, tools and trash are to be transferred to and from the work area via the freight elevators.

- **Propping of the freight elevator doors is prohibited**. Contractor is responsible to pay for damages, elevator service calls and housekeeping labor.

- Under no circumstances shall the passenger elevators be used for the purpose of

moving tools, materials, equipment or trash.

- Use of the freight elevators will be on a first come, first serve basis.
- All after-hours use must be scheduled through the Property Management Office.

- In the event the building furnishes an approved elevator operator for after hour operations, an hourly fee will be assessed (4-hour minimum).

Approved Contractor List for JPMorgan Chase Tower and 601 Travis

The contractors on this list were approved by using the following guidelines:

Contractors must supply a current Certificate of Insurance with adequate coverage amounts and correct Additional Insured/Certificate Holder information, found in Exhibit A (Insurance Requirements) in this document.

Contractors must have a favorable Dunn and Bradstreet rating, where applicable.

Contractor must supply a comprehensive list of references including projects of similar size and scope to the proposed project.

Building Management has final approval of the contractor, based on interview(s) with the contractor, their work history in the building, their work history in other buildings and their reputation in the industry.

MECHANICAL			
COMPANY	**Contact**	**Phone**	**Email | Website**
CFI Mechanical	Roy Cizmar	O: 832-467-0777 C: 713-828-4702	roycizmar@cfimechanical.com
Letsos	Glen Greer	O: 713-783-3201 C: 713-875-1542	ggreer@letsos.com
A|W Mechanical Services	Charlie Bozeman	O: 281-914-3033	charlieb@awmechanical.com
Gowan	Scott Joutraw	O: 713-696-5400 C: 713-817-2315	sjoutraw@gowaninc.com
Advance Cooling Towers	John Burnett	O: 432-523-3578 C: 737-881-5581	Betsy@actcoolingtowers.com Advancecoolingtowers.com
Cooling Towers (For Cooling Towers only)	Malerie Roy	O: 281-484-2665 F: 281-484-2371	www.Coolingtowersllc.com
PLUMBING			
COMPANY	**Contact**	**Phone**	**Email | Website**
American Plumbing	Roy Pickett	O: 832-527-2738	royaps@gmail.com
CFI Mechanical	Roy Cizmar	O: 832-467-0777 C: 713-828-4702	roycizmar@cfimechanical.com
AMS	Bob Henry	O: 281-403-1701 C: 281-507-5069	rhenry@amscofusa.com
Gowan	James Carman	O: 713-696-5400 C: 713-829-7884	
Graco	Gavon Vera	O: 713-865-2470 C:	gvera@gracomechanical.com
Letsos	Glen Greer	O: 713-783-3201 C: 713-875-1542	
CERTIFIED AIR BALANCERS			
COMPANY	**Contact**	**Phone**	**Email | Website**
Mesah Commissioning Inc.	Derek James	O: 713-785-9021 C:	

HVAC CONTROLS			
A|W Mechanical Services	Charlie Bozeman	O: 281-914-3033 C:	charlieb@awmechanical.com
Computrols	Ramon Torres Wayne Leatherwood	O: 281-830-4931 C: 281-382-8910	Ramon.torres@computrols.com Computrols.com
FIREPROOFING			
Certified Fireproofing	Mark Daigle	O: 713-690-7600 C: 713-818-2368	mark@fireproofcontractor.com
INSULATION			
Paragon Insulation	Charlie Rodriguez	O: 281-403-1701 C: 281-507-5069	
ELECTRICAL			
COMPANY	**Contact**	**Phone**	**Email | Website**
Britain Electric	Tim Newman	O: 713-237-8807 C: 281-808-6371	timn@britainelectric.com
Fisk Electrical	Toby Davis	O: 713-224-1081 C: 281-725-2975	tdavis@fishcorp.com
McDonald Electric	Randy Berry	O: 713-759-1829 C: 713-875-0427	rberry@mcdonaldinc.com
High Rise	Marty Kolb	O: 281-933-1616 C: 281-960-3190	marty@highriseelectric.com
Caprock	Justin Lovoi	O: 713-225-0553	info@caprockelectric.com
CABLE PULLS			
COMPANY	**Contact**	**Phone**	**Email | Website**
Datavox	George Scullane	O: 713-881-7128 C:	georges@datavox.net
IeSmart Systems	Marshal Bankston	O: 713-216-5856 C: 832-731-1550	mbarkston@iesmartsystems.com
Fisk Electric	Toby Davis	O: 713-224-1081 C: 281-725-2975	tdavis@fiskcorp.com
FIRE ALARM			
COMPANY	**Contact**	**Phone**	**Email | Website**
VSC Fire & Security	Ryan Hyde Brandon Contreras	O: 713-910-3242 C: 281-923-9014	rhyde@vscfire.com bcontreras@vscfire.com
FIRE SPRINKLER SYSTEMS			
Fire Pro Tech	Carlos Melendez	O: 832-674-7896 C:	c.melendez@fireprotechllc.com
Union Fire Protection	Sean Roberts	O: 832-299-4501 C: 713-206-8837	Sean.roberts@unionfireprotection.com www.unionfireprotection.com
Capitol Fire Protection	Frank Mayo	O: 713-781-4000 C: 713-392-4535	fmayo@capfire.us
Firetron	Ed Phillips	O: C: 832-851-6241	Edward.phillips@firetron.com Firetron.com

GLASS and GLAZING			
COMPANY	**Contact**	**Phone**	**Email | Website**
Bosshamer Glass	Jimmy Bosshamr	O: 713-937-3917 C:	bosshamer@msn.com
Clay's Glass	Jason Terry	O: 713-681-1240 C: 713-545-7791	jasonterrycgs@aol.com
Lakeview Glass	Javier Medrano	O: 281-741-3062 C:	javier@lakeviewglass.com lakeviewglass.com
SECURITY and MAG LOCKS			
COMPANY	**Contact**	**Phone**	**Email | Website**
AIC	Eddie Smith	O: 281-492-2585 C: 281-492-2585	eddie@aic-security.com

ROOFING			
COMPANY	**Contact**	**Phone**	**Email | Website**
Competition Roofing	Wayne Ferguson	O: 713-937-7710 C: 832-300-0304	wferguson@conpetitionroofing.com chamberlinltd.com
Taylor Waterproofing	Bob Taylor	O: 713-691-1430 C: 281-831-0296	btaylor@taylorwaterproofing.com
Chamberlin Roofing & Waterproofing	Mike Lawrence	O: 713-880-1432 C: 713-857-7211	mike@cwrsi.com chamberlinltd.com

WATRPROOFING			
COMPANY	**Contact**	**Phone**	**Email | Website**
Taylor Waterproofing	Bob Taylor	O: 713-691-1430 C: 281-831-0296	btaylor@taylorwaterproofing.com
AMST	Phil Sokulski	O: 713-520-9573 C: 713-875-6264	p.sokulski@jpbs-amst.com
Chamberlin Roofing & Waterproofing	Mike Lawrence	O: 713-880-1432 C: 713-857-7211	mike@cwrsi.com chamberlinltd.com
JR Jones Roofing & Waterproofing	Dominic Harkay	O: 713-522-1600 C: 713-870-3632	dharkay@jrjwaterproofing.com
Tadco Roofing & Waterproofing	Luis Pineda	O: C: 346-386-8408	lpineda@tadocoroofing.com www.tadcoroofingcom
TDC Waterproofing & Restortion	Robert E. Baker "Big Bob"	O: 713-545-7009 C: 713-462-0786	rbaker@tdcwaterproofing.com

STRUCTURAL ENGINEERING			
COMPANY	**Contact**	**Phone**	**Email | Website**
Sterling Engineering	Jeffery Melkus	O: 281-583-7088 C:	jmelkus@segoc.com
CBM Engineers, Inc.	Nick Tahtouh	O: 281-583-7088 C:	nick@cbmengineers.com

STRUCTURAL BEAMS			
COMPANY	**Contact**	**Phone**	**Email | Website**
Sterling Engineering	Jeffery Melkus	O: 281-304-7696 C: 281-403-5013	jmelkus@segoc.com

APPROVED GENERAL CONTRACTORS			
COMPANY	**Contact**	**Phone**	**Email | Website**
Commercial Renovators, Inc.	Zachary	O: 71-571-9614 C: 832-264-6688	zachary@commrenovators.com www.commrenovators.com
TXPMC	Mustafa Guner	O: 281-830-1655	www.txpmconstruction.com
ERC Service LLC	Eddy Castro	O: 713-256-9085 C:	ercsvllc@gmail.com
Basic Builders	Don Baer	O: 713-460-3966 C: 832-309-0769	dbaer@basicbuilders.net
D.E.Harvey Builders	Dan Hlavac	O: 713-550-1574 C: 281-541-4572	dhlavac@harveybuilders.com
O'Donnell Snider	Trey Snider	O: 713-782-7660 C:	tsnider@odonnellsnider.com
Turner Construction	Stan Jablonski	O: 713-358-8223 C: 832-250-6186	sdjablonski@tcco.com
APPROVED GENERAL CONTRACTORS, Continued			
COMPANY	**Contact**	**Phone**	**Email | Website**
Gallant	Greg Janak	O: 713-275-9900 C: 832-360-7764	gjanak@gallantbuilders.com
Endurance	Evan Bobbitt	O: 281-787-6727	ebobbitt@endbs.com www.endbs.com
Trademark HITT	Chris Hines	O: 713-688-9496 C: 281-850-3403	chines@trademarkconst.com
DOOR REPAIR, PAINTING, REFINISHING			
COMPANY	**Contact**	**Phone**	**Email | Website**
Bravo Restoration	Al Dowden	O: 832-922-0860 C:	abdowden@aol.com
Scantlan, Glenn & Rene (Door)	Glen & Rene Scantlan	O: 281-429-2763 C: 832-274-8621	
APPROVED MEHANICAL ENGINEERING LIST			
COMPANY	**Contact**	**Phone**	**Email | Website**
I.A. Naman	J.J. Burdin PE	O: 713-860-3673 C: 713-376-5624	Jjburdin@ianaman.com
Redding Linder Burr	Michael Lemerond	O: 713-237-9800 C: 2815464240	mlemerond@rlbengineers.com
Wylie	Ben Wylie	O: 713-785-2526 C: 713-806-2856	gwylie@wylieassociates.com
APPROVED ASBESTOS SURVERY | ASBESTOS ABATEMENT			
COMPANY	**Contact**	**Phone**	**Email | Website**
EFI Global	Rick Anderson PE	O: 832-518-5145 C: 832-236-9531	richanderson@efiglobal.com
APPROVED ACCESSIBILITY AND CODE SERVICES (ADA)			
COMPANY	**Contact**	**Phone**	**Email | Website**
American Construction Investigations, LTD	Jeromy Murphy	O: 713-864-8494 C:	jmurphy@acico.com
Accessible Design Solutions	Crystal Palomo	O: 281-999-3733 C:	crystal@ads-texas.com

JPMorgan Chase Tower & 601 Travis

BUILDING STANDARD MATERIALS

Light Fixtures 2’ x 4’	Match Existing Motorola / Phillips Alto T-8 Lamp 277 Volt Motorola <10% TDH Low Watt Instart Start Ballast Is this correct?
Locksets	Sargeant 8205 LNB US-26
Closures	Sargeant EB-1250 UO
ADA Door Assist	LCN Door Closure Middle Swing Automatic Operator
Ceiling Tile (N/A Sheetrock)	Armstrong World Industries 1912 Ultima, Beveled Tegular/Lay-In 24” x 24” Factory Applied Latex, White Class A 15/16” Grid
Occupancy Sensors	Sensorswitch Passive Dual Tech Decorator Wall Sensors WSD-PDT Series
Doors	Teak Veneer Solid Core 3’ x 9’
Door Frames	Raco FS-123 Fastrack Frames Bronze Duralaq, Series 375
Hinges	T2731 4 1/2 x 4 D3

INTERIOR FINISHES

Main Lobby

Floor:	Laurentain Rose - Flame Finish Insets - Barre Grey - Flame Finish
Walls: Section needs update	Barre Grey - Polished Finish (Typical)

Elevator Cabs

Walls:	Krypton
Floor:	Karastan – Fortitude, Color# 1142 Chicory (Direct glue down), and Floor is steel base with wood glued, screwed & floated to taper down to threshold.
Doors:	Stainless Steel - #8 Mirror Finish
Handrails:	2 1/2” Outside Diameter - Stainless Steel
Ceiling:	Stainless Steel - Tyler #104 - Imperial Finish

Typical Corridors

Carpet:	
Accent Carpet*:	
Base:	4” Resilient Straight Roppe Rubber, Black
Door Frame:	Raco FS123 Series 375 - Bronze Duralaq
Doors:	Teak
Ceiling:	24” x 24” Armstrong 705A Armstrong Prelude 15/16” Exposed Tee System
Hardware:	Sergeant - Lever Handle US 26 Finish with Butts to Match Frame
Paint:	M3 - 9916 SW paint eggshell (for hallways) 869 SW paint - eggshell or flat (for tenant suites)

Fixtures – Building Standard are:

Sink:	Kohler, (Ladena, K-2214) White Vitreous China
Fittings:	Chicago
Faucet:	Sloan EAF-150-BAT-CP-1.5 GPM-AER-IR-IQ-FCT Code Number 3335000 General Model Name: EAF150 CP Battery Faucet (IQ)
Soap Dispenser	Bobrick B-824 Counter-mounted SureFlo Automatic
P-Trap:	McGuire #8902
P-U STOP:	Chicago #1006
Flush Valve	Sloan, Royal, 3.5 GPF but changed the internal to 1.6
600 Water Closet	American Standard 6.0 (LPF) / 1.6 (GPF) Elongated bowl, top spud 2257101.020
600 Urinal	American Standard 3.8 (LPF) / 1.0 (GPF) JETBROOK 1.0 6571.014.020
601 Water Closet	American Standard 6.0 (LPF) /1.6 (GPF)
601 Urinal	American Standard 1.9/3.8 (LPF), 0.5/1.0 (GPF)

Insulate drain and supply lines with Plumberex #3011 or Equal

Grab Bars:	Bobrick B-2840
Toilet Tissue Dispenser:	Bobrick B-2840

Restrooms – Men Are these finishes still correct?

Counter:	Sierra Grey Granite - Polished
Floor:	1” Tile, Daltile, D-200 Desert Grey Speckle
Wall & Base	1” Tile, American Olean A-12 Salt and Pepper, plus Cove Piece at transition; carrier must be supported so that commodes and urinals do not have movement.
Grout:	Laticrete Daltile 544 Bright White

Toilet Partitions:	Benjamin Moore Industrial Maintenance Coatings #3453

Restrooms - Women

Counter:	Imperial Red Granite - Polished
Floor:	1” x 1” American Olean A-94 Willow Speckle
Wall & Base	1” Tile, American Olean A-12 Salt and Pepper, plus Cove Piece at transition
Grout:	Laticrete Daltile 544 Bright White
Toilet Partitions:	Benjamin Moore Industrial Maintenance Coatings #3453

Fire Extinguisher Cabinets

Model: ESM - A; Trim: 3/8; JL Industries

Exit Signs

Regardless of style of sign chosen within a tenant space, the following sign shall be used:

Exitronix,
623-580-3948 – 800 LED-EXIT
LED Edge-Lit 900 Series
6” Lettering, Recessed Mounting, Red Lettering, Brushed Aluminum

MINIMUM MEP ENGINEERING REQUIREMENTS

This outline identifies mechanical and electrical engineering requirements that should be included with the base proposal for all engineered lease space at 601 Travis.

Schematic Design

1. Consult with client and owner to ascertain requirements for the project.

2. Assist in block space requirement for M/E systems. (If necessary)

3. Conduct equipment survey of existing space to determine power and wiring requirements of existing equipment. (If any)

Design Development

1. Consult with client and owner to ascertain refined requirements. (If necessary)

2. Prepare schematic design development documents indicating zoning and areas with 24-hour air conditioning. (If necessary)

3. Provide alternate for supplemental air and independent controls for all conference, LAN, computer and other special use rooms.

4. Small projects may not require this development. (To be determined by owner)

Contract Documentation

A. Mechanical Requirements

1. Engineer shall use backgrounds from CAD disks showing reflected ceiling plan which indicates partition walls, doors (including door swings), and pattern and location of light fixtures to show the following:

   a. Existing ductwork, diffusers and air quantities for entire floor
   b. Air supply and return outlet types
   c. Air supply and return outlets, locations and air quantities
   d. Total CFM quantities of AHUs.
   e. CFM quantities of each zone
   f. Thermostat and building automatic control temperature sensor locations
   g. Fire and smoke dampers where required by code
   h. Schedule of capacity for new equipment
   i. Base building AHU zone identification. Drawing attached.
   j. Engineer shall design the metering of tenant's Chilled Water service in accordance with the tenants lease language. The recommended meter type is listed below

2. BTU Meter
   a. BTU Meter: Onicon System-40
   b. Meter Communication to BAS (Protocol): All Meters must be tied to the ENTRONIX system by AW Mechanical ONLY

B. Electrical Lighting Requirements

1. Engineer shall use backgrounds on CAD disks showing reflected ceiling plan indicating partition walls, doors (including door swings), and pattern and location of light fixtures to show the following:

   a. Circuiting of building standard light fixtures.
   b. Designation of fixture types (Client to select fixtures)
   c. Switching of light fixtures
   d. Tabulation of circuits and electrical loads to show compliance with base building load allocation.
   e. Emergency egress and exit lighting where required by code.

2. New equipment location to be field verified and shown accurately on drawings.

3. Indicate area fire alarm system devices where required by code.

C. Electrical Power Requirements

1. Engineer shall use backgrounds on CAD disks showing building perimeter, core layout, locations of partition walls, doors, telephone outlets, electrical equipment outlets, receptacle outlets, data/signal outlets, and dimensions of floor and wall outlets (where a specific dimension is required) to show the following:

   a. Circuiting of general purpose electrical outlets and standard office equipment
   b. Special electrical requirements
   c. Tabulation of circuits and electrical loads to show compliance with base building load allocation
   d. Include watts/sq. ft. of low and high voltage within tenant space to electrical drawings.

2. Engineer shall design the metering of tenant's electrical service in accordance with the tenants lease language. The recommended meter type is listed below:
   a. kWh Meter: Veris E50
   b. Meter Communication to BAS (Protocol): All Meters must be tied to the ENTRONIX system by AW Mechanical ONLY

D. Panel schedules must comply with NEC 2022 408.4(A) Circuit Directory or Circuit Identification. Partial floor

E. Construction the original schedule must remain in the panel or be added to new schedule. "Existing Circuit" will not be accepted.

F. Plumbing Requirements

1. Engineer shall show plumbing requirements on mechanical background along with necessary riser diagrams, details and equipment specifications.

2. Water services for coffee bars including sanitary waste and vent piping.

3. New equipment location to be field verified and accurately shown on drawings.

Administration Requirements

1. Review shop drawings and other submittal data at least twice.

2. Make at least two job visits and provide a written report of each visit to the building Property Manager and engineering department.

3. Make a final job site visit and provide written report to building Property Manager and engineering department.

4. Review and provide a written report on the mechanical air balance report.

5. Provide a mechanical CAD file to the building engineering department, to be used to update the building HVAC controls graphics page.

Other Requirements

1. All design work will adhere to JPMorgan Chase Tower and 601 Travis base building mechanical, electrical, and plumbing specifications.

2. All design work will comply and reference, in the mechanical notes, JPMorgan Chase Tower and 601Travis Contractors Rules and Regulations.

3. Mechanical design must include and follow JPMorgan Chase Tower and 601 Travis Mechanical / Electrical Notes (TME - 1).

4. Mechanical design must include and follow JPMorgan Chase Tower and 601 Travis AHU / FCU specifications.

5. Metering Devises: A schedule of all utility meters as part of the project is required.