

**Project:** \_\_\_\_\_

Civil/Site Utilities

- Meter pits have meters or spool piece same size as meter installed
- Link seals around all vault pipe penetrations with bolt heads inside the vault
- Tamper switches on the PIV and other FP valves present
- Sump pump installed in vault complete
- Buried water piping is 5'0" deep minimum
- HHW piping is ductile iron with granular insulation
- CHW is HDPE
- Thrust blocks are installed
- Piping tracer wires are installed.
- HHW and CHW valves are installed and boxes are at finished grade and the correct lids are installed
- Electrical duct banks are concrete encased. Warning tape installed.
- Duct bank conduits have been swabbed and mandrel pulled through
- All piping systems have been flushed
- Domestic disinfection complete with test reports turned over
- Hydrostatic pressure test report on fire, domestic, CHW and HHW received
- All excavations have been properly backfilled and compacted
- Flow fill used around valve boxes and CHW piping
- Natural gas service installed and active
- Field set of as-builts checked periodically

## Plumbing

- Drains are cast iron
- Domestic water is copper with soldered joints
- Backflow preventers are Watts 909
- Pump bases are grouted
- Cleanouts are accessible and per plan
- Hammer arresters are accessible and per plan
- Shut off / isolation valves are accessible and per plan
- Steam pressure is verified and PRV is correct
- Insulation is fiberglass and correct thickness
- Valves and accessories are insulated per specs
- Vents are through roof instead of using air admittance valves
- Natural gas piping is black iron painted yellow
- NG pressure is acceptable
- Compressed air is per plans and is 80 psi minimum
- Water lines have been flushed and disinfected and reports turned over
- Pressure test reports turned over
- Storm drains are insulated
- Autoflush valves tested and operational
- Mop sink H/C supply lines have check valves installed
- Thermostatic mixing valves are set up and witnessed operational
- Stored HW is 140 degrees minimum
- Hand washing sink HW is 100 - 120 degrees
- Dishwashing sink HW is 110 - 120 degrees
- HW system has thermometers and pressure gages per plan
- Water heater(s) are plumbed per plan and piped to drain
- Condensing water heaters have neutralizer kits installed
- Water softener(s) are plumbed per plan and piped to drain
- Water softener(s) are set up and tested. Hardness report turned over
- Initial softener salt fill is supplied
- Exterior spigots/hydrants present per plan
- Basement pipe penetrations are sealed with link seals with bolt heads inside.
- Field set of as-builts checked periodically

## Fire Protection

- Design drawings submitted to FM Global and the State w/ comments received
- Mains schedule 40. Roll grooved, not cut grooved
- Complete drain down is possible. Piped to drain. Incl. fire pump test header
- No traps without drains
- Pressure ratings (175 or 300) per specs
- Head temps are per drawings and specs
- Hydrostatic pressure test reports turned over
- Sprinkler bell is present and functioning
- FDC is 5" Storz
- Test header is located near a storm drain, easily hose accessible
- All flows and tampers are wired and tested
- All dry/preaction points are monitored by the fire alarm system
- Preaction system panel is installed and tested complete
- Concealed heads in finished spaces
- Zone valves are accessible and equipped with flow switches and drains/insp. test
- Fire pump transfer switch has been tested and pump run on generator
- Pump controller alarm points monitored by the fire alarm system
- Jockey pump is accessible
- Air compressor is accessible
- Risers have automatic air vents
- Hydraulic calcs and name plates present
- All testing complete and test reports turned over
- All valves are locked and monitored
- Fire pump room lighting is on emergency power
- Fire pump normal power feed is from pad mounted xfmr and thru a fused disconnect
- Field set of as-builts checked periodically

## Mechanical

- Incoming HHW and CHW basement penetrations sealed with link seals
- Copper hydronic piping is brazed joint
- Pump bases grouted
- Pumps aligned
- Belts aligned and tensioned
- All equipment and system startup tasks complete and documented
- Isolation valves installed per plan and accessible
- Control wiring installed in conduit
- Data jacks installed near BAS system control panels
- LED displays are installed on the front of main control panels
- Laminated copies of control drawings are located in control panels
- BTU Meters are installed per manufacturer's recommendations and are Onicon system 10 with F-3500 flow meters
- Roller hangers are used where HHE or steam pipe exceed 100' of straight length
- Filter sections accessible
- HHW incoming full flow bag filter installed
- Bridges installed per plan
- Incoming HHW and CHW S/R are labeled
- Fire and smoke dampers installed and accessible
- Control boxes on VAV's and FCU's are accessible
- Volume dampers installed and accessible with handles left on
- Correct insulation and thickness installed complete incl. at valves and accessories
- Insulation sealed
- Piping system and direction labeling complete
- Valve tags installed and charted
- Piping and ductwork pressure test witnessed and reports received
- Duct openings sealed throughout construction
- Equipment clearances maintained
- Piping systems flushed and treated
- Flex duct limited to 5'0" max
- Air vents installed at high points
- Piping per details incl. all accessories
- TAB complete and pencil copy and final copies of reports turned over
- Commissioning visits documented and deficiency reports addressed
- Commissioning complete
- BMS user interface (laptop/tablet) has been turned over
- Air handling units, fan coil units and blower coil units have been cleaned including all internal sections
- All air filters are new and an extra set has been provided for each piece of equipment.
- Field set of as-builts checked periodically

## Electrical

- Correct feeder/service main bonding jumper arrangement
- Correct generator bonding arrangement (3P/4P ATS's)
- Ground ring installed and/or bonded to
- Transformers properly grounded and bonded
- Breakers are set per Engineer's settings report
- No water piping over electrical equipment
- Panel covers are hinged door-in-door style
- Working clearances maintained
- All box supports in stud walls span 2 studs
- Box rough-in heights are correct
- No back-to-back boxes
- No MC/AC cable except for fixture whips
- Fixture whips are 6'0" or less and are only from box to fixture, not daisy chained
- Conduits run in center of stud walls to avoid drywall screw penetration
- Conduits supported within 3' of boxes
- EMT fittings are steel (no die cast)
- Rigid elbows used for floor slab penetrations
- Minimum conduit size is 3/4"
- No conduits run within floor slabs
- Exposed exterior conduits are GRC
- Office and conference room sensors are vacancy mode set to 30 minutes
- Corridor and RR sensors are occupancy and set to 30 minutes
- All sensors are PIR only with the most sensitive setting
- Generator housing is true walk-in
- Generator fuel initial fill provided
- Generator testing and training complete
- Arc flash labels are installed
- Meters are installed in main switchgear and have Ethernet jack installed
- Field set of as-builts checked periodically

## Fire Alarm

- All fire alarm cabling is installed in conduit
- Metasys cabinet furnished and installed
- All flows and tampers are wired and accessible
- Sprinkler bell is wired through FACP
- Fire pump control panel is monitored (all points)
- Preaction system panel is monitored and/or controlled
- All smoke and heat detectors are accessible incl. duct detectors
- Owner's witnessed testing is 100% complete
- Final test reports are turned over
- Internet connectivity demonstrated
- All mass notification functions tested and demonstrated
- All panel bypasses tested and demonstrated
- Training is complete
- Copy of the software is turned over
- Field set of as-builts checked periodically

## Telecommunications

- All box supports in stud walls span 2 studs
- Minimum conduit size is 1" and is stubbed to corridor skeletal openings
- Data cabling is CAT 6A with blue jacket
- All cabling is plenum rated
- MDF and IDF's are built per the drawings
- Data jacks are installed at each meter, each BMS panel, FACP and each access control panel
- Copper and fiber test results turned over
- Field set of as-builts checked periodically

NOTE: The above list is meant to be used as a tool for both all involved to use for MEP construction inspection from rough-in through punch-out. It is not an all-inclusive list and is not project specific but rather a "one size fits all" minimum requirement for the applicable items on any given project. Some projects may require more or less inspection.