

**MECHANICAL DEPT.
DESIGN FLOW DIAGRAM
BUILDING PROJECT**

**INFORMATION
PROVIDED BY
MECHANICAL TO
OTHER DISCIPLINES**

- PROJECT KICK-OFF**
- SETUP FEES AND PROJECT NUMBER W/ ACCOUNTING
 - CREATE PROJECT FOLDER
 - GO THROUGH PRODUCTION PROJECT START-UP CHECKLISTS
 - KICK-OFF MEETING USING STANDARDIZED AGENDA, MINIMUM:
 - SCOPE OF WORK
 - DESIGN TEAM
 - BUDGET
 - SCHEDULE W/ MILESTONES AND DELIVERABLES
 - SCHEDULE CHARRETTE WITH ARCHITECT AND OWNER IF APPROPRIATE
 - IDENTIFY RELEVANT UFC REQ'S FOR FEDERAL PROJECTS

**INFORMATION
REQUESTED BY
MECHANICAL FROM
OTHER DISCIPLINES**

35% SCHEMATIC DESIGN

- ARCHITECT**
- PRELIM MECHANICAL RM SIZES
 - FEEDBACK ON CODE ANALYSIS
 - CEILING SPACE REQ'D FOR SYSTEM OFFSETS/ELEVATIONS

- CIVIL**
- LOCATION OF WATER, FIRE DEPT CONNECTION, SEWER, RAIN LEADER, AND GAS METER

- STRUCTURAL**
- EQUIPMENT TYPES (BOILER, AHU, ETC) AND LOCATIONS
 - PRELIMINARY LOUVER, WALL, AND FLOOR PENETRATIONS

- ELECTRICAL**
- EQUIPMENT LOAD ESTIMATES
 - PRELIMINARY EQUIPMENT LOCATIONS

- MECHANICAL 35% DESIGN**
- IN-HOUSE CHARRETTE, IF OF APPROPRIATE SIZE/COMPLEXITY
 - CONCEPT NARRATIVE
 - RULE OF THUMB SYSTEM SIZING
 - SETUP DRAWINGS
 - LEAD MECH & LEAD DRAFTER DISCUSS SYSTEM OFFSET/ELEVATIONS
 - SAVE SYSTEM OFFSETS/ELEVATIONS ON REVIT SYNC PAGE
 - LIST SPECIFICATION SECTIONS
 - IDENTIFY OWNER DESIGN STANDARDS
 - IDENTIFY CODE IMPLICATIONS AND SPECIAL SYSTEM REQUIREMENTS
 - IDENTIFY LOCAL CODE AMENDMENTS

- ARCHITECT**
- FLOOR PLAN
 - CODE STUDY/ANALYSIS
 - BUILDING ELEVATIONS
 - AESTHETIC PLAN/INTENT FOR CEILING (ENTRY WAY, ELEVATORS, WINDOWS)

- CIVIL**
- WATER AND WASTE WATER UTILITIES
 - WATER FLOW/PRESSURE (HYDRANT TEST)

- STRUCTURAL**
- LIMITATIONS OF STRUCTURE / AREAS TO AVOID FOR EQUIPMENT LOCATION.
 - ROOF STRUCTURE AND INSULATION / SNOW LOAD.

- ELECTRICAL**
- AVAILABLE VOLTAGE AND PHASES
 - STANDBY GENERATOR?
 - INITIAL LIGHTING CONCEPT/DENSITY
 - ELECTRICAL ENTRANCE, MDP

65% DESIGN DEVELOP

- ARCHITECT**
- DIFFUSERS FOR RCP
 - MAIN DUCT AND PIPE ROUTING
 - FINAL MECH RM SIZES
 - COORDINATE RA PATH

- CIVIL**
- EXTERIOR EQUIP LOCATIONS
 - EXTERIOR TANKS

- STRUCTURAL**
- PRELIMINARY EQUIP WEIGHTS
 - CONFLICTS W/ PLUMBING WALLS
 - EQUIPMENT PADS
 - LOUVER, WALL, AND FLOOR PENETRATIONS
 - ROUTING DUCTS >16", PIPING >4"
 - PIPE ANCHOR AND MAJOR SEISMIC LOCATIONS

- ELECTRICAL**
- EQUIPMENT LOADS
 - EQUIPMENT LOCATIONS
 - DDC PANEL AND VFD LOCATIONS
 - DUCT DETECTORS
 - PRELIMINARY FSD

- MECHANICAL 65% DESIGN**
- PIPE AND DUCT MAINS ROUTED AND SIZED.
 - GRDS LOCATED W/ CFMS
 - EQUIPMENT SIZED
 - MECH ROOMS LAID OUT
 - PLUMBING FIXTURES ID'D
 - EQUIPMENT ID'D
 - SCHEMATICS
 - SPECS: ROUGH, EDITED TO PROJECT

- ARCHITECT**
- ENVELOPE DETAILS
 - REFLECTED CEILING PLAN (RCP)
 - BUILDING ELEVATIONS
 - FIRE & SMOKE RATED FLOOR/WALL LOCATIONS, SHAFTS, AND EXIT STAIRWELLS

- CIVIL**
- WASTE AND WATER INVERTS

- STRUCTURAL**
- SHEAR WALL LOCATIONS
 - BEAM DEPTH/LOCATIONS
 - FOOTING DEPTH/LOCATIONS
 - BRACE FRAME LOCATIONS
 - SEISMIC JOINT LOCATIONS

- ELECTRICAL**
- LIGHTING CONCEPT, LOCATIONS
 - TRANSFORMER LOCATIONS
 - HEAT PRODUCTION
 - PANEL LOCATIONS
 - CABLE TRAY LOCATION

95% CONSTRUCTION DOCS

- ARCHITECT**
- SOFFIT/FURRING COORDINATION
 - FLOOR/ROOF PENETRATIONS
 - COORDINATE RA PATH

- CIVIL**
- BOLLARDS/FENCE LOCATIONS
 - EQUIPMENT PADS

- STRUCTURAL**
- FINAL EQUIPMENT WEIGHTS
 - STRUCTURAL CONFLICTS
 - PADS AND SLOPED DRAINS
 - FLOOR, WALL, ROOF PENETRATIONS
 - SEISMIC LOAD POINTS
 - COORDINATE MAJOR MECH EQUIPMENT SUPPORT AND BRACING

- ELECTRICAL**
- EQUIPMENT LOAD CHANGES
 - EQUIPMENT LOCATIONS
 - FINAL FSD LOCATIONS
 - HEAT TRACE

- MECHANICAL 95% DESIGN**
- ALL PIPE, DUCTS, AND GRDS SIZED.
 - PIPES AND DUCTS IN MECH RMS DETAILED
 - SOUND, VIBRATION, EXPANSION, AND SEISMIC CONSIDERATIONS
 - DETAILS AND SECTIONS
 - FIRE PROTECTION SHEET
 - SPECS: NO BRACKETS, ALL EQUIPMENT PROVIDED, PRELIMINARY SEQUENCE OF OPERATION
 - COORDINATE WITH STRUCTURAL FOR MAJOR MECH EQUIPMENT SUPPORT AND BRACING. REF STRUCTURAL DRAWINGS & DETAILS.

- ARCHITECT**
- CEILING HEIGHTS
 - ADA REQUIREMENTS
 - UPDATED RCP, FLOOR PLAN
 - ROOM NAMES/NUMBERS

- CIVIL**
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- STRUCTURAL**
- ELEVATIONS OF STRUCTURE
 - SEISMIC REQUIREMENTS FOR SPECS

- ELECTRICAL**
- LIGHTING AND EQUIPMENT REQUIREMENTS FOR FOR SEQUENCE OF OPERATIONS AND COMMISSIONING

100% FINAL DOCS

- ARCHITECT**
- CEILING HEIGHTS
 - PATCH/PAINT COORDINATION
 - COORDINATE RA PATH
 - QC AND COORDINATION COMMENTS

- CIVIL**
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- STRUCTURAL**
- QC AND COORDINATION COMMENTS

- ELECTRICAL**
- CHANGES
 - FINAL EQUIPMENT LOADS
 - FINAL EQUIPMENT LOCATIONS
 - QC AND COORDINATION COMMENTS

- MECHANICAL FINAL DOCS**
- PROJECT SPECIFIC DETAILS
 - SECTION DEVELOPMENT
 - SPECS: FINAL.
 - CLEAN/CLEAR DRAWINGS REVISIONS AFTER BID PHASE (AS NECESSARY)

- ARCHITECT**
- CHANGES
 - ROOM ELEVATIONS, ROOM EQUIPMENT VERIFICATION
 - FINAL CEILING FINISH SCHEDULE
 - FINAL ROOM NAMES/NUMBERS

- CIVIL**
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- STRUCTURAL**
- CHANGES

- ELECTRICAL**
- CHANGES

