# MECHANICAL / PLUMBING SYMBOLS AND ABBREVIATIONS

## PLUMBING

- COLD WATER
- HOT WATER
- HOT WATER RETURN
- 140°— HOT WATER (140° F)
- 140°— HOT WATER RETURN (140° F)
- 180°— HOT WATER (180° F)
- 180°— HOT WATER RETURN (180° F)
- T — TEMPERED WATER
- CSW — COLD SOFT WATER
- HSW — HOT SOFT WATER
- HSWR — HOT SOFT WATER RETURN
- NPW — NON-POTABLE WATER
- G — GAS
- A — AIR (WITH PSI)
- STORM WATER (SUSPENDED)
- STORM WATER (BURIED)
- SANITARY WASTE (SUSPENDED)
- SANITARY WASTE (BURIED)
- SANITARY VENT LINE
- D — DRAIN LINE
- W — WELL WATER
- GM — GAS METER
- WM — WATER METER
- RPBP (REDUCED PRESSURE) / RPZ BACKFLOW PREVENTER

## PIPE FITTINGS

- ELBOW UP
- ELBOW DOWN
- TEE UP
- TEE DOWN
- CONCENTRIC REDUCER
- ECCENTRICAL REDUCER
- END CAP
- UNION
- STRAINER
- FLANGED CONNECTION
- FLOW ARROW
- PIPE ANCHOR
- EXPANSION JOINT
- PIPE SLEEVE
- PIPE ALIGNMENT GUIDES
- FLEX CONNECTOR
- PIPE PITCH ARROW (DOWN IN ARROW DIRECTION)
- PRESSURE GAUGE
- AUTOMATIC AIR VENT
- COMPOUND GAUGE
- AIR CHAMBER
- SHOCK ABSORBER
- ELBOW
- TEE
- CO — CLEANOUT
- FD — FLOOR DRAIN
- THERMOMETER

## STEAM PIPING

- BFW — BOILER FEED WATER
- EBFW — EMERGENCY BOILER FEED WATER
- LPS — LOW PRESSURE STEAM
- MPS — MEDIUM PRESSURE STEAM
- HPS — HIGH PRESSURE STEAM
- LPR — LOW PRESSURE CONDENSATE RETURN
- MPR — MEDIUM PRESSURE CONDENSATE RETURN
- HPR — HIGH PRESSURE CONDENSATE RETURN
- PD — CONDENSATE PUMP DISCHARGE
- CR — CONDENSATE RETURN
- F&T — FLOAT & THERMOSTATIC TRAP
- IB — INVERTED BUCKET TRAP
- T — THERMOSTATIC TRAP

## HVAC PIPING

- CS — CONDENSER WATER SUPPLY
- CR — CONDENSER WATER RETURN
- CHWS — CHILLED WATER SUPPLY
- CHWR — CHILLED WATER RETURN
- GS — GROUND LOOP WATER SUPPLY
- GR — GROUND LOOP WATER RETURN
- HS — HEATING WATER SUPPLY
- HR — HEATING WATER RETURN
- FOS — FUEL OIL SUPPLY
- FOR — FUEL OIL RETURN
- FOV — FUEL OIL VENT
- RD — REFRIGERANT DISCHARGE
- RS — REFRIGERANT SUCTION
- RL — REFRIGERANT LIQUID
- RHG — REFRIGERANT HOT GAS
- DTS — DUAL TEMPERATURE SUPPLY
- DTR — DUAL TEMPERATURE RETURN

## VALVES

- SHUT-OFF VALVE
- VERTICAL SHUT-OFF/NEEDLE VALVE
- BALANCING VALVE
- CHECK VALVE
- PRESSURE REDUCING VALVE
- MAKEUP WATER VALVE
- TCV — FLOW CONTROL VALVE
- SAFETY/PRESSURE RELIEF VALVE
- AUTOMATIC AIR VENT
- TEMP/PRESSURE RELIEF VALVE
- CONTROL VALVE (TCV)
- 3-WAY CONTROL VALVE
- THROTTLING VALVE

## REFRIGERATION VALVES/FITTINGS

- D — FILTER-DRYER
- S — SIGHT GLASS
- CHARGING VALVE
- EVAPORATOR PRESSURE REGULATOR
- MANUAL REFRIGERATION VALVE
- THERMOSTATIC EXPANSION VALVE

## RADIATION SYMBOLS

- FINNED TUBE RADIATION
- FINNED TUBE RADIATION IN COVER
- BARE PIPE IN COVER
- RADIATION COVER ONLY

## DUCT SYMBOLS

- VOLUME DAMPER
- SUPPLY DUCT UP
- RETURN OR EXHAUST DUCT UP
- SUPPLY DUCT DOWN
- RETURN OR EXHAUST DUCT DOWN
- INTERNAL LINED DUCT
- FD — FIRE DAMPER (FD) IN DUCT
- FSD — COMBINATION FIRE/SMOKE DAMPER (FSD) IN DUCT
- SD — SMOKE DAMPER (SD) IN DUCT
- ACCESS PANEL

## FIRE PROTECTION SYSTEM

- PENDANT SPRINKLER HEAD
- UPRIGHT SPRINKLER HEAD
- CONCEALED SPRINKLER HEAD
- F — FIRE PROTECTION PIPING
- DS — DRY STANDPIPE
- DP — DRY PIPE SPRINKLER PIPING
- PA — PRE-ACTION SPRINKLER PIPING
- WP — WET FIRE PROTECTION PIPING
- FIRE HYDRANT
- SIAMESE HOSE CONNECTION
- PIV — POST INDICATOR VALVE
- TS — TAMPER SWITCH
- FS — FLOW SWITCH
- ALARM CHECK VALVE

## MEDICAL

- GO — GAS OUTLET
- O — OXYGEN OUTLET
- MA — MEDICAL AIR OUTLET
- N — NITROGEN OUTLET
- NO — NITROUS OXIDE OUTLET
- V — VACUUM OUTLET
- S — SLIDE
- MA — MEDICAL AIR
- N — NITROGEN
- O — OXYGEN
- NO — NITROUS OXIDE
- V — VACUUM LINE
- ACID WASTE (SUSPENDED)
- ACID WASTE (BURIED)
- DW — DISTILLED WATER
- AV — ACID VENT
- DI — DEIONIZED WATER

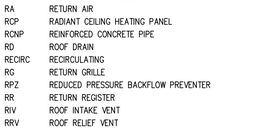
## ABBREVIATIONS

| | | | |
|---|---|---|---|
| AD | AREA DRAIN | INV. EL. | INVERT ELEVATION |
| AFC | AUTOMATIC FLOW CONTROL | LAT | LEAVING AIR TEMPERATURE |
| AFF | ABOVE FINISHED FLOOR | LAV | LAVATORY |
| AHR | AIR HOSE REEL | MBH | 1000 BTU/HOUR |
| AHU | AIR HANDLING UNIT | MECH | MECHANICAL |
| ALT | ALTERNATE | MH | MANHOLE |
| AP | ACCESS PANEL | MC | MECHANICAL CONTRACTOR |
| AS | AIR SEPARATOR | MS | MOP SINK |
| BD | BLOWDOWN | MUV | AUTOMATIC MAKE-UP VALVE |
| BDD | BACKDRAFT/PRESSURE RELIEF DAMPER | NC | NORMALLY CLOSED |
| BTU | BRITISH THERMAL UNIT | NO | NORMALLY OPEN |
| BV | BALANCE VALVE | OA | OUTSIDE AIR |
| CB | CATCH BASIN | OBD | OPPOSED BLADE DAMPER |
| CI | CAST IRON | OD | OUTSIDE DIAMETER |
| CL | CENTERLINE | OFD | OVERFLOW DRAIN |
| CO | CLEANOUT | OSD | OPEN SITE DRAIN |
| COND | CONDENSATE | PFHX | PLATE AND FRAME HEAT EXCHANGER |
| CONV | HYDRONIC CONVECTOR | PIV | POST INDICATOR VALVE |
| CUH | CABINET UNIT HEATER | PLBG | PLUMBING |
| CW | COLD WATER | PRV | PRESSURE REDUCING VALVE |
| DB | DRY BULB | PUH | PROPELLER UNIT HEATER |
| DF | DRINKING FOUNTAIN | RA | RETURN AIR |
| DIA | DIAMETER | RCP | RADIANT CEILING HEATING PANEL |
| DIFF | DIFFUSER | RCNP | REINFORCED CONCRETE PIPE |
| DS | DOWNSPOUT | RD | ROOF DRAIN |
| DXC | DIRECT EXPANSION COOLING COIL | RECIRC | RECIRCULATING |
| EA | EXHAUST AIR | RG | RETURN GRILLE |
| EAT | ENTERING AIR TEMPERATURE | RPZ | REDUCED PRESSURE BACKFLOW PREVENTER |
| EBBR | ELECTRIC BASE BOARD RADIATION | RR | RETURN REGISTER |
| EC | ELECTRICAL CONTRACTOR | RIV | ROOF INTAKE VENT |
| EG | EXHAUST GRILLE | RRV | ROOF RELIEF VENT |
| ECONV | ELECTRIC CONVECTOR | SA | SUPPLY AIR |
| ECUH | ELECTRIC CABINET UNIT HEATER | SAN | SANITARY |
| EF | EXHAUST FAN | SD | SMOKE DAMPER |
| ELEC | ELECTRICAL | SG | SUPPLY GRILLE |
| ELEV | ELEVATION | SHDR | SHOWER DRAIN |
| EOM | END OF MAIN DRIP | SK | SINK |
| EPUH | ELECTRIC PROPELLER UNIT HEATER | SR | SUPPLY REGISTER |
| ER | EXHAUST REGISTER | SS | STAINLESS STEEL |
| ERCP | ELECTRIC RADIANT CEILING PANEL | STHX | SHELL AND TUBE HEAT EXCHANGER |
| ESP | EXTERNAL STATIC PRESSURE | TCC | TEMPERATURE CONTROL CONTRACTOR |
| EWC | ELECTRIC WATER COOLER | TCP | TEMPERATURE CONTROL PANEL |
| EWH | ELECTRIC WATER HEATER | TG | TRANSFER GRILLE |
| ET | EXPANSION TANK | TO | TRANSFER OPENING |
| EXTG. E. | EXISTING | TP | TRAP PRIMER LINE |
| FD | FLOOR DRAIN OR FIRE DAMPER | TYP | TYPICAL |
| FPVAV | FAN POWERED VAV | UR | URINAL |
| FOB | FLAT ON BOTTOM | VAV | VARIABLE AIR VOLUME |
| FSD | COMBINATION FIRE/SMOKE DAMPER | VCP | VITRIFIED CLAY PIPE |
| FTR | HYDRONIC FINNED TUBE RADIATION | VFD | VARIABLE FREQUENCY DRIVE |
| GC | GENERAL CONTRACTOR | VS | VENT STACK |
| GEN | GENERAL | VTR | VENT THRU ROOF |
| HB | HOSE BIBB | W | WASTE |
| HTG | HEATING | WB | WET BULB |
| HW | HOT WATER | WC | WATER CLOSET |
| ID | INTERNAL DIAMETER | WH | WALL HYDRANT |
| | | WS | WASTE STACK |

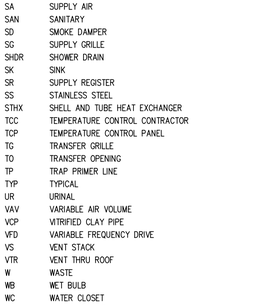
## TEMPERATURE CONTROL/MONITORING

- $T_H$ — ROOM THERMOSTAT (HEAT)
- $T_{H,C}$ — ROOM THERMOSTAT (HEAT/COOL)
- $T_C$ — ROOM THERMOSTAT (COOL)
- T — DUCT THERMOSTAT (PNEUMATIC)
- $T_E$ — DUCT THERMOSTAT (ELECTRIC)
- H — HUMIDISTAT
- $CO_2$ — CARBON DIOXIDE SENSOR
- FS — FLOW SWITCH
- T — TEMPERATURE SENSOR
- FM — FLOW METER
- M — MOTORIZED DAMPER
- DPT — DIFFERENTIAL PRESSURE TRANSMITTER
- PETE'S PLUG
- VFD — VARIABLE FREQUENCY DRIVE
- TCP — TEMPERATURE CONTROL PANEL

## DRAWING NOTATIONS




## SECTIONS AND DETAILS




## GENERAL NOTES:

1. THESE NOTES APPLY TO EACH AND EVERY DRAWING IN THIS SET.
2. ALL NEW WORK IS DRAWN DARK. ALL WORK DRAWN LIGHT AND FOLLOWED BY (E.) IS EXISTING. ALL WORK SHALL REMAIN UNLESS SPECIFICALLY NOTED OTHERWISE.
3. FIELD VERIFY ALL EXISTING CONDITIONS AS TO EXACT SERVICE, LOCATION, TYPE OF MATERIAL, ETC. BEFORE BIDDING AND BEFORE BEGINNING RENOVATION WORK.
4. COORDINATE ALL SHUT-DOWNS, DELIVERY AND STORAGE OF MATERIALS, ETC. WITH OWNERS REPRESENTATIVE.
5. CONTRACTORS SHALL PROTECT ALL EXISTING OWNER FACILITIES DURING CONSTRUCTION. ANY AND ALL OWNER FACILITIES DAMAGED OR DISCONNECTED BY CONTRACTOR OPERATIONS SHALL BE FULLY RESTORED TO PREVIOUS OPERATING AND APPEARANCE CONDITION BY CONTRACTOR.
6. ADDITIONAL GENERAL NOTES SPECIFIC TO A PARTICULAR DRAWING ARE NOTED ON THOSE DRAWINGS.
7. THOROUGHLY REVIEW ALL DRAWINGS PRIOR TO ANY DEMOLITION WORK. ANY DEVICES REMOVED ACCIDENTALLY WILL BE REPLACED AT NO ADDITIONAL COST TO OWNER.
8. CONTRACTOR SHALL BE RESPONSIBLE FOR CORE DRILLING AND CUTTING HOLES THRU WALLS, FLOOR OR ROOF AS REQUIRED TO INSTALL NEW PIPING, DUCTWORK, ETC. WHETHER SHOWN OR NOT. PROVIDE SLEEVES FOR ALL PIPING AND CONDUIT THAT PENETRATE FULL HEIGHT WALLS.
9. SMOKING, ALCOHOL, DRUGS, WEAPONS AND CONTRABAND ARE STRICTLY FORBIDDEN ON THIS PROPERTY.
10. DISPOSAL OF DEMOLISHED MATERIALS SHALL COMPLY WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
11. PROVIDE 24/24 ACCESS PANELS IN HARD CEILINGS WHEREVER ACCESS IS REQUIRED TO INSTALL OR SERVICE MECHANICAL EQUIPMENT.
12. CONTRACTOR SHALL PROVIDE MATERIALS AS REQUIRED TO PROTECT SURFACE OF EXISTING FINISHED FLOORS. PROVIDE PROTECTION UNDER WHEELS OF SCAFFOLDS, LIFTING DEVICES AND ANY OTHER EQUIPMENT THAT COULD DAMAGE THE EXISTING FLOOR FINISHES.
13. FIELD VERIFY EXACT SIZES OF EXISTING PIPING SYSTEMS SHOWN TO BE CONNECTED TO. IN THE EVENT ACTUAL SIZE IS DIFFERENT THAN SHOWN ON DRAWING, CONTACT ENGINEER FOR DIRECTION PRIOR TO ANY WORK.
14. NOTIFY THE OWNER A MINIMUM OF 72 HOURS PRIOR TO ANY SHUT-DOWN OR SERVICE INTERRUPTION. NOTIFICATION REQUIRED FOR ALL SHUT-DOWNS REGARDLESS OF SYSTEM(S) AFFECTED OR THEIR EXPECTED DURATIONS.
15. REMOVE AND REPLACE CEILINGS, LIGHT FIXTURES ETC. AS REQUIRED TO INSTALL MECHANICAL AND PLUMBING SYSTEMS. REPAIR TO PREVIOUS (OR BETTER) CONDITION. COORDINATE WITH 'A' SERIES DRAWINGS.
16. ALL WIRING AND/OR TUBING TO THERMOSTATS SHALL BE ROUTED CONCEALED. WIREMOLD IS NOT ACCEPTABLE. COORDINATE THERMOSTAT LOCATIONS WITH G.C. PRIOR TO WALL CONSTRUCTION.
17. MOUNT THERMOSTATS AT 56" A.F.F. UNLESS NOTES OTHERWISE.
18. COLORS OF EXPOSED UNITS SHALL BE SELECTED BY ARCHTECT. COLORS SHALL BE MANUFACTURER'S STANDARD OR CUSTOM COLOR AS REQUESTED. SUBMIT COLOR CHARTS WITH SHOP DRAWINGS.
19. ALL UNDERLINED EQUIPMENT IS SCHEDULED. SEE M600 SERIES DRAWINGS FOR SCHEDULES.

**A MAXIMUM 6 HOUR DOWN-TIME OF PLUMBING SYSTEMS IS ALLOWED.**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UA UNIT I CHILDCARE RENOVATION
MARRIED STUDENT HOUSING

SYMBOLS AND ABBREVIATIONS, GENERAL NOTES

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| FILENAME: | |
| PROPERTY NO.: | |
| REVISIONS | |
| 1 | |
| 2 | |
| DATE: | 05/01/2013 |
| SCALE: | AS SHOWN |
| DRAWN BY: | S.D.F. |
| CHECKED BY: | D.E.D. |
| APPROVED BY: | D.E.D. |
| PROJECT NO.: | DA #13052 |

SHEET NO.:

MP001