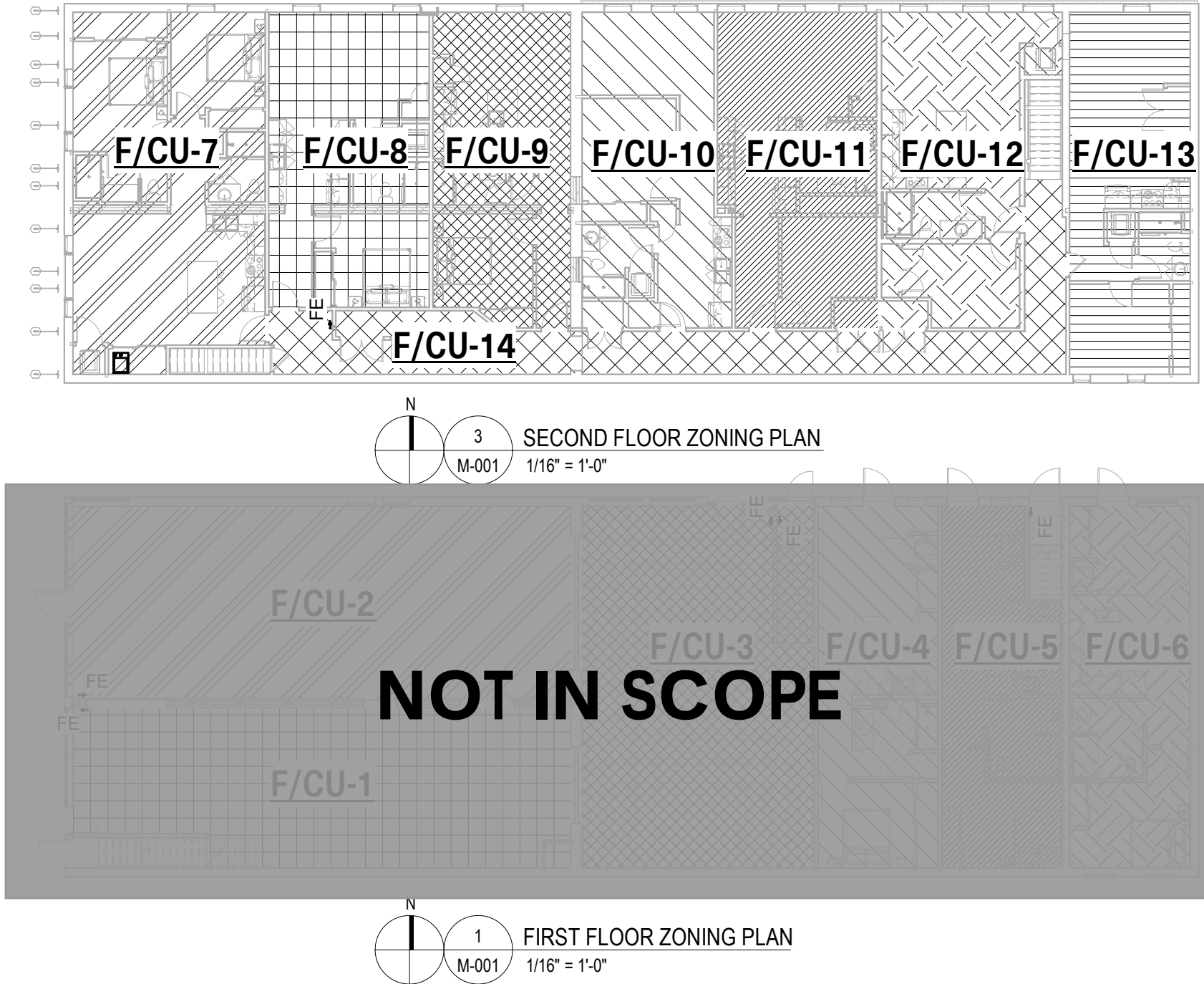




| TEMPERATURE CONTROLS SCHEMATIC SYMBOLS |                                                            |                                        |  | ABBREVIATIONS AND DESCRIPTIONS |                                                                           |      |                                         | SYMBOLS AND NOTATION STANDARDS |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|----------------------------------------|------------------------------------------------------------|----------------------------------------|--|--------------------------------|---------------------------------------------------------------------------|------|-----------------------------------------|--------------------------------|----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------|--|--|
| <div>MS</div>                          | MOTOR STARTER                                              | CONTACTS - NORMALLY CLOSED             |  | A                              | COMPRESSED AIR                                                            | LRA  | LOCKED ROTOR AMPS                       |                                | DASHED LINES INDICATE PIPING ROUTED BELOW SLAB OR GRADE                    | <div><div><div>FINNED TUBE ELEMENT LENGTH</div><div>FINNED TUBE ELEMENT HEAT IN MBH</div><div>GALLONS PER MINUTE FOR ELEMENT</div></div><div><div><div>FTR</div><div>A</div></div><div>X" - X"</div><div>X MBH</div><div>X GPM</div></div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |                                       |  |  |
| <div>S/S</div>                         | START/ STOP RELAY                                          | CONTACTS - NORMALLY OPEN               |  | ACC                            | AIR COOLED CONDENSER                                                      | LTU  | LAB AIR TERMINAL UNIT                   |                                | HATCH MARKS INDICATE EQUIPMENT OR MATERIALS TO BE DISCONNECTED AND REMOVED |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
| <div>CS</div>                          | CURRENT SWITCH                                             | PUSH BUTTONS - NORMALLY CLOSED         |  | AFF                            | ABOVE FINISHED FLOOR                                                      | LWB  | LEAVING WET BULB                        |                                | LIGHT LINE WEIGHT INDICATES EXISTING EQUIPMENT OR REFERENCED INFORMATION   | <div>SUPPLY DIFFUSER TYPE 1 (SCHEDULED) 8" DIAMETER NECK SIZE TWO DIFFUSERS WITH 100 CFM</div> <div>S-1</div> <div>80</div> <div>100-2</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |                                       |  |  |
| <div>LS</div>                          | LIMIT SWITCH                                               | PUSH BUTTONS - NORMALLY OPEN           |  | AHU                            | AIR HANDLING UNIT                                                         | LWT  | LEAVING WATER TEMPERATURE               |                                | HEAVY LINE WEIGHT INDICATES NEW WORK                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
| <div>R</div>                           | RELAY                                                      | SWITCH - NORMALLY CLOSED TIMING CLOSED |  | ALT                            | ALTERNATE                                                                 | MAT  | MIXED AIR TEMPERATURE                   |                                | MANUAL VOLUME DAMPER                                                       | <div>EQUIPMENT TAG</div> <div><div><div>X</div><div>X</div></div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |                                       |  |  |
| <div>H</div>                           | HUMIDITY SENSOR, DUCT MOUNTED                              | SWITCH - NORMALLY OPEN TIMING CLOSED   |  | AMP                            | AMPERE                                                                    | MAU  | MAKE UP AIR UNIT                        |                                | FIRE DAMPER DYNAMIC, VERTICAL OR HORIZONTAL                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
| <div>T</div>                           | TEMPERATURE SENSOR - DUCT MOUNTED RIGID ELEMENT            | SWITCH - NORMALLY CLOSED TIMING OPEN   |  | APD                            | AIR PRESSURE DROP                                                         | MAX  | MAXIMUM                                 |                                | SMOKE DAMPER, VERTICAL OR HORIZONTAL                                       | <div>THERMOSTAT/ TEMPERATURE SENSOR</div> <div>NEW CONNECTION</div> <div>EXHAUST/RETURN/TRANSFER ARROW</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |                                       |  |  |
| <div>T</div>                           | TEMPERATURE SENSOR - RIGID ELEMENT WITH THERMAL WELL       | SWITCH - NORMALLY OPEN TIMING OPEN     |  | ASHRAE                         | AMERICAN SOCIETY OF HEATING, REFRIGERATION AND AIR-CONDITIONING ENGINEERS | MBH  | THOUSAND BRITISH THERMAL UNITS PER HOUR |                                | COMBINATION FIRE & SMOKE DAMPER, HORIZONTAL                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
| <div>DD</div>                          | DUCT SMOKE DETECTOR                                        | SWITCH - NORMALLY OPEN                 |  | AUX                            | AUXILIARY                                                                 | MCA  | MINIMUM CIRCUIT AMPACITY                |                                | COMBINATION FIRE & SMOKE DAMPER, VERTICAL                                  | <div>BLANK OFF SECTION</div> <div>PIPE ENDCAP</div> <div>VENT THROUGH ROOF</div> <div>PIPE ELBOW DOWN</div> <div>PIPE ELBOW UP</div> <div>BACKFLOW PREVENTER</div> <div>ISOLATION VALVE</div> <div>BALANCE VALVE</div> <div>BALANCE VALVE WITH FLOW MEASURING</div> <div>CONTROL VALVE</div> <div>BALL VALVE</div> <div>GAS VALVE (MANUAL)</div> <div>PIPE CONTINUATION</div> <div>PRESSURE REGULATING VALVE</div> <div>OUTSIDE STEM AND YOKE VALVE</div> <div>OUTSIDE STEM AND YOKE VALVE WITH TAMPER SWITCH</div> <div>CHECK VALVE</div> <div>PIPE FLEXIBLE CONNECTION</div> <div>PIPE UNION</div> <div>CLEAN OUT - PIPE FLANGE</div> <div>CLEAN OUT - IN FLOOR</div> <div>PUMP</div> <div>HOSE BIBB</div> <div>WALL HYDRANT</div> <div>WATER METER</div> <div>FLOOR DRAIN/ SINK</div> <div>FLOW MEASURING DEVICE</div> <div>THERMOMETER</div> <div>STRAINER</div> <div>REDUCER - CONCENTRIC</div> <div>REDUCER - ECCENTRIC</div> <div>FUNNEL FLOOR DRAIN - ELEVATION (DETAILS)</div> <div>FLOOR DRAIN - ELEVATION (DETAIL)</div> <div>ACCESS DOOR</div> <div>FLEXIBLE CONNECTOR</div> <div>VARIABLE FREQUENCY CONTROLLER</div> <div>AUTOFLOW VALVE</div> |  |                                       |  |  |
| <div>FM</div>                          | FLOW METER                                                 | THERMAL OVERLOAD, SINGLE PHASE         |  | AV                             | ACID VENT                                                                 | MCH  | MECHANICAL                              |                                | TRANSITION: SYMMETRIC                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
| <div>FS</div>                          | FLOW SWITCH                                                | TRANSFER SWITCH - TEMPERATURE ACTUATED |  | AVTR                           | ACID VENT THROUGH ROOF                                                    | MIN  | MINIMUM                                 |                                | TRANSITION: ASYMMETRIC                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
| <div>M</div>                           | DAMPER ACTUATOR                                            | SWITCH - LIMIT- NORMALLY OPEN          |  | AW                             | ACID WASTE                                                                | MISC | MISCELLANEOUS                           |                                | 90 DEG RADIUS ELBOW (R/W = 1.5)                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
| <div>DPT</div>                         | DIFFERENTIAL PRESSURE TRANSMITTER                          | SWITCH - LIMIT- NORMALLY CLOSED        |  | BAS                            | BUILDING AUTOMATION SYSTEM                                                | M/S  | MOTOR STARTED                           |                                | MITERED ELBOW WITH TURNING VANES                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
| <div>DPS</div>                         | DIFFERENTIAL PRESSURE SENSOR                               | HAND/OFF/AUTO SWITCH                   |  | BCU                            | BLOWER COIL UNIT                                                          | MV   | MANUAL AIR VENT                         |                                | TEE, BOOT ENTRY BRANCH                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
| <div>PS</div>                          | PRESSURE SWITCH                                            |                                        |  | BOD                            | BACK DRAFT DAMPER                                                         | NC   | NORMALLY CLOSED                         |                                | TEE, ROUND BRANCH                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
| <div>T</div>                           | THERMOSTAT OR TEMPERATURE SENSOR                           | TRANSFORMER                            |  | BFP                            | BACK FLOW PREVENTER                                                       | NO   | NORMALLY OPEN                           |                                | TEE, CONICAL ROUND BRANCH                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
| <div>T/H</div>                         | TEMPERATURE & HUMIDITY SENSOR                              | FUSE                                   |  | BHP                            | BRAKE HORSE POWER                                                         | NPFA | NATIONAL FIRE PROTECTION AGENCY         |                                | CEILING MOUNTED RETURN GRILLE / REGISTER                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
| <div>CO2</div>                         | CARBON DIOXIDE SENSOR                                      | GROUND                                 |  | BOD                            | BOTTOM OF DUCT                                                            | NC   | NOT IN CONTRACT                         |                                | CEILING MOUNTED SUPPLY DIFFUSER/GRILLE                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
| <div>••</div>                          | ALARM & STROBE                                             | MOTOR, SINGLE PHASE                    |  | BOU                            | BOTTOM OF PIPE                                                            | NO   | NORMALLY OPEN                           |                                | CEILING MOUNTED EXHAUST GRILLE/REGISTER                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
| <div>LEL</div>                         | FLAMMABILITY SENSOR                                        | VARIABLE FREQUENCY CONTROLLER          |  | BTU                            | BRITISH THERMAL UNIT                                                      | NPW  | NON POTABLE COLD WATER                  |                                | INTERIOR CLEAR DUCTWORK DIMENSIONS: WIDTHxHEIGHT                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
| <div>ECM</div>                         | OXYGEN SENSOR                                              | ELECTRICALLY COMMUTATED MOTER          |  | BTUH                           | BRITISH THERMAL UNIT PER HOUR                                             | OA   | OUTSIDE AIR                             |                                | INTERIOR CLEAR DUCTWORK DIMENSIONS:ROUND; DIAMETER                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
| <div>PS</div>                          | POWER SUPPLY                                               | DAMPER - PARALLEL BLADE                |  | C                              | COMMON                                                                    | OAT  | OUTSIDE AIR TEMPERATURE                 |                                | INTERIOR CLEAR DUCTWORK DIMENSIONS-OVAL; WIDTHxHEIGHT                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
| <div>AI</div>                          | ANALOG INPUT - SIGNAL - BAS/EMS/DDC                        | DAMPER - OPPOSED BLADE                 |  | CAP                            | CAPACITY                                                                  | OS&Y | OUTSIDE SCREW AND YOLK                  |                                | SUPPLY AIR DUCT UP                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
| <div>AO</div>                          | ANALOG OUTPUT - SIGNAL - BAS/EMS/DDC                       | GUARD FOR STAT OR SENSOR               |  | CH                             | CHILLER                                                                   | OV   | OUTLET VELOCITY                         |                                | SUPPLY AIR DUCT DOWN                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
| <div>DI</div>                          | DIGITAL INPUT - SIGNAL - BAS/EMS/DDC                       | CONTROLLER                             |  | CHW                            | CHILLED WATER                                                             | PC   | PUMPED CONDENSATE                       |                                | RETURN AIR DUCT UP                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
| <div>DO</div>                          | DIGITAL OUTPUT - SIGNAL - BAS/EMS/DDC                      | EMERGENCY SHUT-OFF SWITCH              |  | CHWS                           | CHILLED WATER SUPPLY                                                      | PCR  | PROCESS COOLING RETURN                  |                                | RETURN AIR DUCT DOWN                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
| <div>AI</div>                          | ANALOG INPUT - SIGNAL - BAS/EMS/DDC - PACKAGED EQUIPMENT   | HAND/OFF/AUTO SWITCH                   |  | CND                            | CONDENSATE                                                                | PCS  | PROCESS COOLING SUPPLY                  |                                | EXHAUST AIR DUCT UP                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
| <div>AO</div>                          | ANALOG OUTPUT - SIGNAL - BAS/EMS/DDC - PACKAGED EQUIPMENT  |                                        |  | CO                             | CLEAN OUT                                                                 | PD   | PRESSURE DROP (FEET OF WATER)           | PW                             | PROCESS WATER                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  | EXHAUST AIR DUCT DOWN                 |  |  |
| <div>DI</div>                          | DIGITAL INPUT - SIGNAL - BAS/EMS/DDC - PACKAGED EQUIPMENT  | HAND/OFF/AUTO SWITCH                   |  | DDC                            | DIRECT DIGITAL CONTROL                                                    | PH   | PERIMETER HEAT                          |                                | FLEXIBLE DUCT                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
| <div>DO</div>                          | DIGITAL OUTPUT - SIGNAL - BAS/EMS/DDC - PACKAGED EQUIPMENT |                                        |  | DEG                            | DEGREE                                                                    | PHR  | PERIMETER HEAT RETURN                   | PS                             | PUMPED STORM                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  | AIR TERMINAL UNIT WITH HOT WATER COIL |  |  |
|                                        |                                                            |                                        |  | DFU                            | DRAINAGE FIXTURE UNIT                                                     | PHR  | PERIMETER HEAT RETURN                   |                                | AIR TERMINAL UNIT WITH ELECTRIC COIL                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | DN                             | DOWN                                                                      | PHS  | PERIMETER HEAT SUPPLY                   |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | DNZ                            | DOWNSPOUT NOZZLE                                                          | PIV  | PRESSURE REDUCING VALVE                 |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | DT                             | DRAIN TILE                                                                | PS   | PUMPED STORM                            |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | DWH                            | DOMESTIC WATER HEATER                                                     | PSI  | POUNDS PER SQUARE INCH                  |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | DX                             | DIRECT EXPANSION COOLING                                                  | PSIA | POUNDS PER SQUARE INCH - ABSOLUTE       |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | F                              | FIRE PROTECTION                                                           | PSIG | POUNDS PER SQUARE INCH - GAUGE          |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | FE                             | DEGREES FAHRENHEIT                                                        | PW   | PROCESS WATER                           |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | FCU                            | FAN COIL UNIT                                                             | PWR  | PROCESS WATER RETURN                    |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | FD                             | FLOOR DRAIN                                                               | PWS  | PROCESS WATER SUPPLY                    |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | FLA                            | FULL LOAD AMPS                                                            | RA   | RETURN AIR                              |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | FP                             | FIRE PUMP                                                                 | RAT  | RETURN AIR TEMPERATURE                  |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | FS                             | FLOOR SINK                                                                | RC   | ROOF CONDUCTOR                          |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | FT                             | FEET                                                                      | RCP  | RADIANT CEILING PANEL                   |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | FTR                            | FINNED TUBE RADIATION                                                     | RD   | ROOF DRAIN                              |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | G                              | NATURAL GAS                                                               | RF   | RETURN FAN                              |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | GA                             | GAUGE                                                                     | RH   | RELATIVE HUMIDITY                       |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | GAL                            | GALLON                                                                    | RH   | ROOF HYDRANT                            |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | GRH                            | GRAVITY RELIEF HOOD                                                       | RL   | REFRIGERANT LIQUID                      |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | GPH                            | GALLON PER HOUR                                                           | RLF  | RELIEF AIR                              |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | GPM                            | GALLON PER MINUTE                                                         | RPM  | REVOLUTIONS PER MINUTE                  |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | HB                             | HOSE BIBB                                                                 | RS   | REFRIGERANT SUCTON                      |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | HC                             | HEATING COIL                                                              | RTU  | ROOFTOP UNIT                            |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | HEPA                           | HIGH EFFICIENCY PARTICULATE ARRESTANCE                                    | SA   | SUPPLY AIR                              |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | HL                             | HIGH LIMIT                                                                | SA   | SOUND ATTENUATOR                        |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | HOA                            | HAND/OFF/AUTO                                                             | SAN  | SANITARY WASTE                          |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | HP                             | HEAT PUMP                                                                 | SF   | SUPPLY FAN                              |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | HP                             | HORSEPOWER                                                                | SH   | SHOWER                                  |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | HPLR                           | HEAT PUMP LOOP RETURN                                                     | SK   | SINK                                    |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | HPLS                           | HEAT PUMP LOOP SUPPLY                                                     | SMR  | SNOW MELT RETURN                        |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | HTG                            | HEATING                                                                   | SMS  | SNOW MELT SUPPLY                        |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | HUV                            | HORIZONTAL UNIT VENTILATOR                                                | SP   | STATIC PRESSURE                         |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | HV                             | HEATING VENTILATION                                                       | SPEC | SPECIFICATION                           |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | HVAC                           | HEATING, VENTILATION, AIR CONDITIONING                                    | SOFT | SQUARE FEET                             |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | HWH                            | HOT WATER HEATING                                                         | S/S  | START/STOP                              |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | HWHR                           | HOT WATER HEATING RETURN                                                  | SS   | SERVICE SINK                            |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | HWS                            | HOT WATER HEATING SUPPLY                                                  | ST   | STORM                                   |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | HW                             | DOMESTIC HOT WATER                                                        | STM  | STEAM                                   |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | HWR                            | DOMESTIC HOT WATER RETURN                                                 | SW   | SWITCH                                  |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | HX                             | HEAT EXCHANGER                                                            | TC   | TEMPERATURE CONTROL                     |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | HZ                             | HERTZ                                                                     | TC   | TEMPERING COIL                          |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | ID                             | INSIDE DIAMETER                                                           | TCP  | TEMPERATURE CONTROL PANEL               |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | IE                             | INVERT ELEVATION                                                          | TD   | TRENCH DRAIN                            |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | IH                             | INTAKE HOOD                                                               | TEMP | TEMPERATURE                             |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | IN                             | INCHES                                                                    | TSP  | TOTAL STATIC PRESSURE                   |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | IW                             | INDIRECT WASTE                                                            | TU   | AIR TERMINAL UNIT                       |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | KW                             | KILOWATT                                                                  | TYP  | TYPICAL                                 |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | KWH                            | KILOWATT HOUR                                                             | UH   | UNIT HEATER                             |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | LAT                            | LEAVING AIR TEMPERATURE                                                   | UL   | UNDERWRITER                             |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | LAV                            | LAVATORY                                                                  | UR   | URINAL                                  |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | LBS                            | POUNDS                                                                    | UV   | UNIT VENTILATOR                         |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | LDB                            | LEAVING DRY BULB                                                          | V    | VENT                                    |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | LOW LIMIT                      | LOW LIMIT                                                                 | VAC  | VACUUM                                  |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | LPC                            | LOW PRESSURE CONDENSATE                                                   | VAV  | VARIABLE AIR VOLUME                     |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  | LPS                            | LOW PRESSURE STEAM                                                        | VB   | VACUUM BREAKER                          |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  |                                |                                                                           | VFC  | VARIABLE FREQUENCY CONTROLLER           |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  |                                |                                                                           | VIF  | VERIFY IN FIELD                         |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  |                                |                                                                           | VTR  | VENT THROUGH ROOF                       |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  |                                |                                                                           | VUV  | VERTICAL UNIT VENTILATOR                |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  |                                |                                                                           | W    | WASTE                                   |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  |                                |                                                                           | WB   | WET BULB                                |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  |                                |                                                                           | WC   | WATER CLOSET                            |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  |                                |                                                                           | WC   | WATER COLUMN                            |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  |                                |                                                                           | WH   | WALL HYDRANT                            |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |
|                                        |                                                            |                                        |  |                                |                                                                           | WPD  | WATER PRESSURE DROP                     |                                |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                       |  |  |