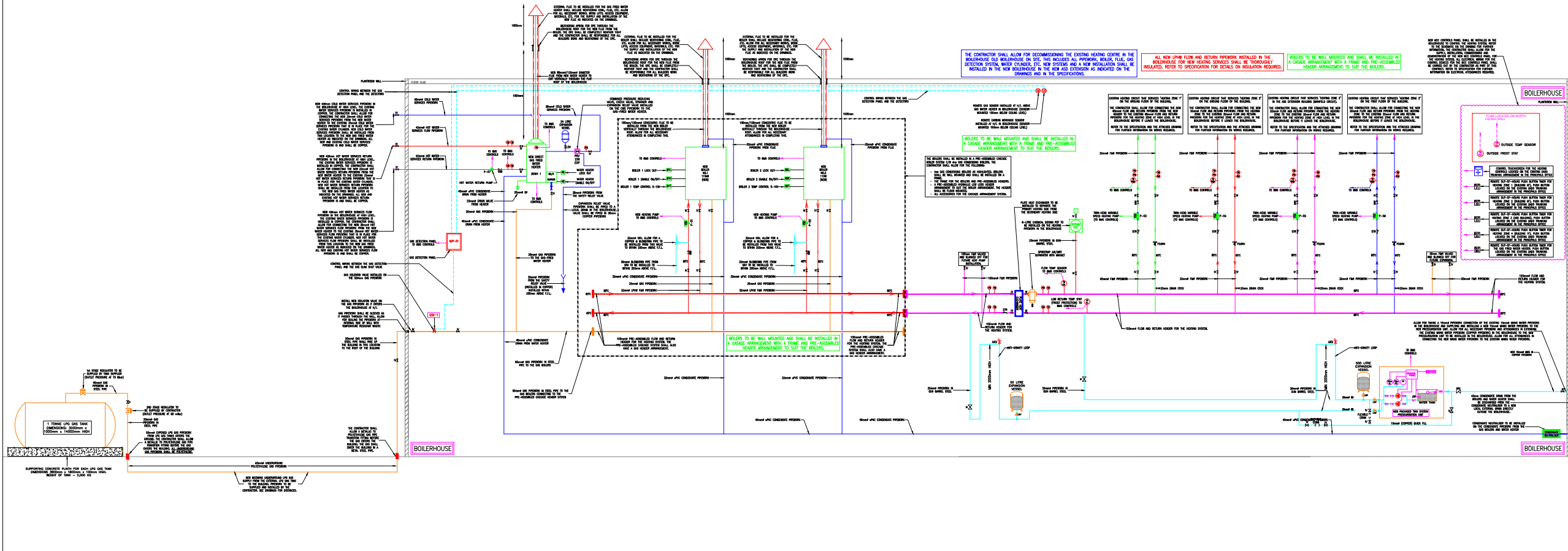
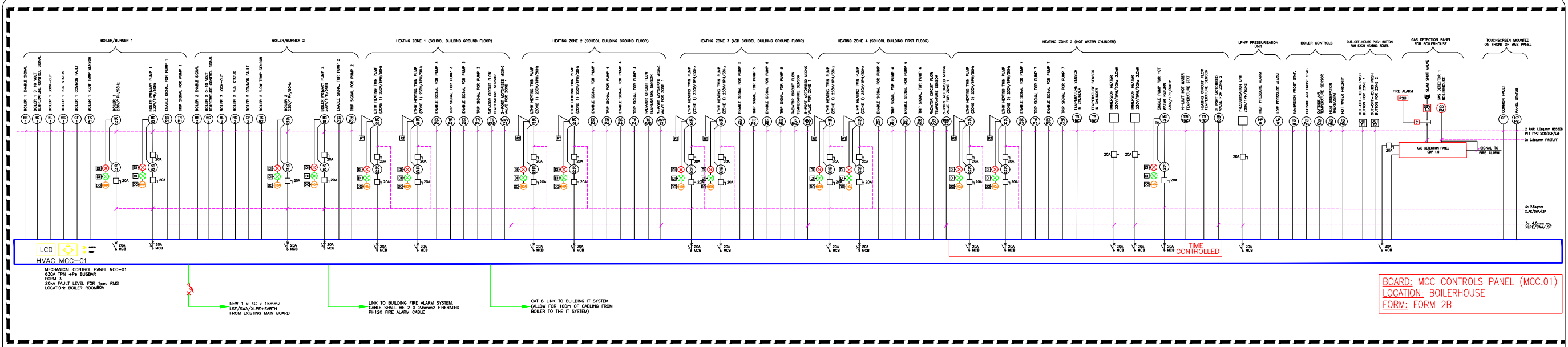




MECHANICAL SCHEMATIC LAYOUT (NOT TO SCALE)

- GENERAL NOTES:**
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL MECHANICAL, ELECTRICAL, ARCHITECTURAL AND STRUCTURAL DRAWINGS & SPECIFICATIONS.
  - THE CONTRACTOR SHALL CO-ORDINATE FULLY WITH ALL OTHER TRADES BEFORE COMMENCING WORK. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL THE NECESSARY INFORMATION TO ALLOW THE MAIN CONTRACTOR CO-ORDINATE ALL SERVICES.
  - THE MECHANICAL CONTRACTOR SHALL ALLOW FOR CO-ORDINATING THE MECHANICAL INSTALLATION WITH THE ELECTRICAL CONTRACTOR ON SITE. EXTRA COSTS INCURRED DUE TO THE CO-ORDINATION EXCEEDS NOT BEING COMPLETED WILL NOT BE ACCEPTED BY THE ENGINEER.
  - DO NOT SCALE THIS DRAWING. ALL DIMENSIONS TO BE TAKEN ON SITE.
  - THE CONTRACTOR SHALL ALLOW FOR THE SUPPLY AND INSTALLATION OF ALL MECHANICAL SERVICES INDICATED ON THIS DRAWING.
  - THE CONTRACTOR SHALL BE RESPONSIBLE TO IDENTIFY SUITABLE FINAL ROUTES FOR PPEWORK, MECHANICAL SERVICES, ETC. AS INDICATED ON THE DRAWINGS.
  - NEW MARKS RUN OF MECHANICAL PPEWORK SHALL BE INSTALLED IN THE AREAS AS INDICATED. THIS IS INDICATIVE ONLY AND IF THE CONTRACTOR FINDS A MORE CONVENIENT ROUTE FOR THE MECHANICAL SERVICES ON SITE THEN THAT WILL BE ACCEPTABLE.
  - FINAL LOCATION OF ALL ITEMS OF PLUMB/EQUIPMENT/PPEWORK, ETC. SHALL BE AGREED ON SITE WITH THE EMPLOYERS REPRESENTATIVE AND THE CLIENT.
  - ALL SERVICES THROUGH FIRE BARRIERS SHALL BE SLEEVED EACH SIDE OF THE BARRIER. THE MAIN CONTRACTOR SHALL ALLOW FOR FIRE PROOFING THE OPES AFTER SERVICES IS INSTALLED.
  - THE CONTRACTOR SHALL ALLOW FOR ALL NECESSARY LABOUR, WIRING AND ATTENDANCES IN COMPLETING ALL THE MECHANICAL WORKS AS INDICATED ON THE DRAWINGS AND SPECIFICATIONS.
- MECHANICAL SCHEMATIC NOTES:**
- LOCATION OF ALL ITEMS OF PLUMB/EQUIPMENT/PPEWORK ROUTES, ETC. SHALL BE AGREED ON SITE WITH THE EMPLOYERS REPRESENTATIVE AND THE CLIENT.
  - REFER TO ALL OTHER DRAWINGS FOR SPECIFIC LAYOUT OF REQUIRED SERVICES THROUGHOUT THE BUILDING.
  - THE CONTRACTOR SHALL ENSURE ALL RADIATORS ARE MEASURED IN RELEVANT LOCATIONS PRIOR TO ORDERING.
  - FINAL LOCATIONS OF ALL RADIATORS TO BE CO-ORDINATED ON SITE WITH FIXED FURNITURE LOCATIONS.
  - ALL PPEWORK IS SIZED BASED ON A FLOW TEMPERATURE OF 80 DEGREES CELSIUS AND A RETURN TEMPERATURE OF 60 DEGREES CELSIUS.
  - ALL OIL PPEWORK SHALL BE MEDIUM GRADE BLACK MILD STEEL TUBE & SHALL BE WELDED THROUGHOUT.
  - EQUIPMENT TO HAVE LOCAL ISOLATING VALVES.
  - AUTOMATIC AIR VENTS SHALL BE PROVIDED AT ALL HIGH POINTS THROUGHOUT THE SYSTEM.
  - DRAIN VALVES SHALL BE PROVIDED AT ALL LOW POINTS THROUGHOUT THE SYSTEM.
  - THE BOILER SHALL BE FITTED WITH A PERMANENTLY FIXED NOTICE, 200 x 200mm SIGNED TO THE BOILER CASING WITH THE FOLLOWING WORDING: "IMPORTANT NOTICE - DO NOT REDUCE THE BOILER OPERATING FLOW TEMPERATURE BELOW 80°C".
  - THE HEATING SYSTEM PPEWORK THROUGHOUT (INCLUDING ALL HEATING PPEWORK IN THE PLANTROOM AND IN THE BUILDING) SHALL BE MEDIUM GRADE BLACK MILD STEEL TUBE.
  - INSULATION SHALL BE PREFORMED SECTIONS OF RIGID MINERAL WOOL WITH ALUMINIUM FOIL LAMINATE COVER. INSULATION SHALL BE FITTED TO ALL CONNECTIONS, BENDS, TEES AND VALVES.
  - ALL HEATING PUMPS SHALL BE OPERATED THROUGH VARIABLE SPEED DRIVES.
  - UNLESS INDICATED, THE SIZE OF ISOLATING VALVES, DRAIN VALVES, COMMISSIONING VALVES, ETC. SHALL MATCH THE INDICATED LINE SIZE OF THE PPEWORK. WHERE THE EQUIPMENT IS INDICATED.
  - THE CONTRACTOR SHALL ALLOW FOR ALL BENDS, ELBOWS AND NECESSARY PPEWORK IN ORDER TO INSTALL THE COMPLETE HEATING SYSTEM.
  - SEE SPECIFICATION FOR FURTHER INFORMATION ON THE MECHANICAL AND ELECTRICAL ATTENDANCES REQUIRED.
  - REFER TO ALL OTHER DRAWINGS FOR SPECIFIC LAYOUT OF REQUIRED HEATING SERVICES THROUGHOUT THE EXTENSION OF THE BUILDING.
  - ALL BUILDERS WORK AND TRENCHING SHALL BE CARRIED OUT BY THE MAIN CONTRACTOR. THE MECHANICAL CONTRACTOR AND ELECTRICAL CONTRACTOR SHALL CO-ORDINATE WITH THE MAIN CONTRACTOR AT AN EARLY STAGE ON THE PROVISION OF SPES, TRENCHES, OPENINGS, ETC. FOR THE NECESSARY INSTALLATION OF THE MECHANICAL AND ELECTRICAL SERVICES AS INDICATED ON THE DRAWINGS. TRENCHING, DUCTING AND PIPING TO BE INSTALLED AS PER DRAWINGS AND AS PER DETAILS ON THE DRAWINGS.
  - THE MECHANICAL CONTRACTOR AND ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE TO IDENTIFY SUITABLE FINAL ROUTES FOR ALL UNDERGROUND DUCTING FOR THEIR SERVICES. ROUTES THAT ARE INDICATED ON THE DRAWING ARE ONLY INDICATIVE.
  - REFER TO OTHER DRAWINGS FOR SPECIFIC LAYOUT OF REQUIRED SERVICE THROUGHOUT THE BUILDING.
- MCC CONTROL NOTES:**
- THE MECHANICAL CONTRACTOR SHALL ALLOW FOR THE SUPPLY AND COMMISSIONING OF THE MCC/BMS CONTROLS PANEL AND SUBSEQUENT CONTROL SYSTEMS FOR THE BUILDING. THE MECHANICAL CONTRACTOR SHALL LINK UP WITH THE ELECTRICAL CONTRACTOR FOR THE WIRING OF THE MCC/BMS CONTROLS PANEL AND ASSOCIATED DEVICES.
  - THE ELECTRICAL CONTRACTOR SHALL ALLOW FOR THE INSTALLATION AND WIRING OF THE MCC/BMS CONTROLS PANEL AND SUBSEQUENT BUILDING SYSTEMS FOR THE BUILDING. THE ELECTRICAL CONTRACTOR SHALL LINK UP WITH THE MECHANICAL CONTRACTOR FOR THE WIRING OF THE MCC/BMS CONTROLS PANEL AND ASSOCIATED DEVICES. ALL ELECTRICAL WIRING FOR THE MCC/BMS CONTROLS PANEL SHALL BE COMPLETED AND CARRIED OUT BY THE ELECTRICAL CONTRACTOR.
  - REFER TO ALL OTHER DRAWINGS FOR SPECIFIC LOCATIONS OF CONTROL DEVICES AND MECHANICAL EQUIPMENT.
  - THE ELECTRICAL CONTRACTOR SHALL ENSURE THAT ALL ELECTRICAL SERVICES FOR THIS PROJECT ARE INSTALLED IN ACCORDANCE WITH THE ETS REGULATIONS.
  - ALL CIRCUITS CONTAINING MOTORS, PUMPS, BOOSTER SETS ETC. SHALL BE PROTECTED WITH D-TYPE BREAKERS.
  - LINKS TO FIRE ALARM SYSTEM SHALL BE MADE USING FIRE RATED CABLE.
  - ALL INSTRUMENT CABLES SHALL BE 4 PAIR BILDEN INDIVIDUALLY SCREENED C/W LSF SHEATH (UNO).
  - FIRE ALARM INPUT/OUTPUT UNIT SHALL INTERFACE WITH MCC PANEL.
  - SUFFICIENT ROOM SHALL BE PROVIDED AT THE TOP OF THE MCC PANEL FOR CABLE TERMINATIONS.
  - ALL ISOLATORS SHALL BE LABELLED USING TRAVOLYTE LABELS.
  - SEE SCHEMATIC FOR DETAILS ON THE MCC/BMS CONTROLS PANEL AND WIRING DETAILS. WIRING DETAILS TO BE CONFIRMED BY THE MCC/BMS CONTROLS SPECIALIST AND DISCUSSED WITH THE ELECTRICAL CONTRACTOR PRIOR TO ANY CONTROLS WIRING.
  - THE MCC/BMS CONTROLS PANEL SHALL BE APPROVED BY THE ENGINEER PRIOR TO ORDERING.
  - REFER TO THE SPECIFICATION FOR THE SPECIFIC CONTROL OF THE SYSTEMS.
  - THE MECHANICAL CONTRACTOR SHALL ALLOW FOR ALL ADEQUATE RESOURCES AND LABOUR IN CO-ORDINATING THE ELECTRICAL WIRING OF THE MCC/BMS CONTROLS PANEL AND DEVICES. THE CONTRACTOR SHALL ALLOW FOR MARKING AND LABELLING THE SPECIFIC AREA AND POINT WHERE THE CONTROLS SENS, SENSORS, DEVICES, ETC. TO THE ELECTRICAL CONTRACTOR SO THAT ALL POINTS ARE WIRED.
  - THE NEW MCC CONTROLS PANEL SHALL BE INTERFACED TO THE NEW FIRE ALARM SYSTEM FOR THE BUILDING.
  - THE NEW MCC CONTROLS PANEL SHALL BE INTERFACED TO THE BUILDING'S IT SYSTEM AND NETWORK.



MCC CONTROLS SCHEMATIC (NOT TO SCALE)

| MECHANICAL SCHEMATIC SYMBOLS |                                                    |       |                                                       | MCC CONTROLS SYMBOLS |                          |    |                      |
|------------------------------|----------------------------------------------------|-------|-------------------------------------------------------|----------------------|--------------------------|----|----------------------|
| F                            | FLOW                                               | SRV   | SAFETY RELEASE VALVE                                  | DI                   | = DIRECT INPUT           | HP | = HIGH PRESSURE      |
| R                            | RETURN                                             | CRV   | COMMISSIONING REGULATING VALVE                        | MC                   | = MOTOR CONTROLLER       | KP | = KEYPAD             |
| GB                           | GUN BARRELL                                        | FOORV | FIXED ORIFICE DOUBLE REGULATING VALVE (COMMISSIONING) | GM                   | = GAS METER              | MV | = MOTORIZED VALVE    |
| 3-PORT                       | 3-PORT MOTORIZED MIXING VALVE                      | FOORV | FIXED ORIFICE DOUBLE REGULATING VALVE (COMMISSIONING) | WM                   | = WATER METER            | CF | = COMMON FAULT       |
| ALTITUDE                     | ALTITUDE GAUGE                                     | FOORV | FIXED ORIFICE DOUBLE REGULATING VALVE (COMMISSIONING) | WD                   | = FUSE DISCONNECT SWITCH | TS | = TEMPERATURE SENSOR |
| TP                           | TWIN HEAD PUMP (*DENOTES REFERENCE NUMBER TO PUMP) | DRV   | DRAIN VALVE                                           | TS                   | = TEMPERATURE STAT       | TS | = TEMPERATURE STAT   |
| TP                           | TWIN HEAD PUMP (*DENOTES REFERENCE NUMBER TO PUMP) | AOV   | AUTOMATIC OPENING VENT                                | TS                   | = TEMPERATURE STAT       | TS | = TEMPERATURE STAT   |
| STR                          | STRAINER                                           | DWV   | DEAD WEIGHT VALVE                                     | TS                   | = TEMPERATURE STAT       | TS | = TEMPERATURE STAT   |
|                              |                                                    | ISV   | ISOLATION VALVE                                       | TS                   | = TEMPERATURE STAT       | TS | = TEMPERATURE STAT   |
|                              |                                                    | TS    | TEMPERATURE SENSOR/STAT (* DENOTES NUMBER OF DEVICE)  | TS                   | = TEMPERATURE STAT       | TS | = TEMPERATURE STAT   |
|                              |                                                    | TS    | TEMPERATURE SENSOR/STAT (* DENOTES NUMBER OF DEVICE)  | TS                   | = TEMPERATURE STAT       | TS | = TEMPERATURE STAT   |

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