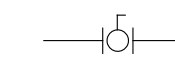
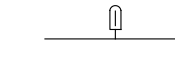
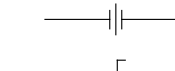
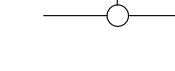

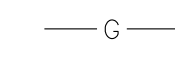
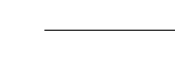
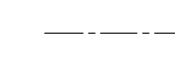
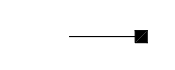



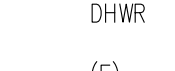


REVISIONS	

SYMBOLS

-  BALL VALVE
-  THERMOMETER
-  UNION
-  GAS VALVE
-  EXISTING PIPING
-  GAS PIPING
-  NEW PIPING
-  ELECTRICAL / WIRING
-  MOTORIZED DAMPER
-  MOTOR
-  DHWS DOMESTIC HOT WATER SUPPLY
-  DHWR DOMESTIC HOT WATER RETURN
-  (E) EXISTING

CONSTRUCTION NOTES: ○

- 1 COMPLETELY REMOVE EXISTING WATER HEATER AND INSTALL NEW LOCHINVAR OR EQUAL CWN0497PM HEATER WITH CIRC PUMP, MANUAL RESET, CONTACTS FOR EXHAUST DAMPERS, AUTO RESET, MP2 SEQUENCER, 5 YEAR HEAT EXCHANGER WARRANTY. MODIFY EXISTING BASE, PIPING, WIRING, CONTROLS, VENTING, ETC FOR A COMPLETE WORKING SYSTEM LEAD/LAG.
- 2 ROUTE COPPER PRESSURE RELIEF PIPING FROM VALVE TO EXIST FD
- 3 INSTALL NEW STORAGE TANK TEMPERATURE SENSOR. MODIFY WIRING AS REQUIRED TO CONTROL NEW WATER HEATERS.
- 4 INSTALL NEW 12" DIA. MOTORIZED DAMPER IN EXISTING FLUE. PROVIDE INTERCONNECTION WITH HEATER CONTROLLER TO OPEN ON CALL FOR HEAT; OTHERWISE, IS CLOSED.
- 5 MODIFY EXISTING WIRING FOR EXISTING COMBUSTION AIR DAMPER AND INTERCONNECT WITH NEW WATER HEATER OPERATION.

GENERAL NOTE

CONTRACTOR SHALL COORDINATE SHUT-DOWN OF EXISTING DOMESTIC HOT WATER SYSTEM PRIOR TO ANY WORK IN THIS AREA. DOWNTIME SHALL BE MINIMAL; TENANTS SHALL NOT BE WITHOUT HOT WATER AT ANY TIME

THE WATER HEATER SHALL BE EQUAL TO LOCHINVAR COPPER\_FIN MODEL CWN0497PM HAVING AN INPUT RATING OF 495,000 BTU/HR, A RECOVERY CAPACITY OF 486 GALLONS PER HOUR AT A 100°F RISE AND SHALL BE OPERATED ON NATURAL GAS.

THE WATER CONTAINING SECTION SHALL BE OF A "FIN TUBE" DESIGN, WITH STRAIGHT COPPER TUBES HAVING EXTRUDED INTEGRAL FINS SPACED SEVEN (7) FINS PER INCH. THE TUBES SHALL TERMINATE INTO A ONE PIECE, GLASS LINED, CAST IRON HEADER. THERE SHALL BE NO BOLTS, GASKETS OR "O" RINGS IN THE HEAD CONFIGURATION. THERE SHALL BE ACCESS TO THE FRONT HEADER OF THE HEAT EXCHANGER FOR THE PURPOSES OF INSPECTION, CLEANING OR REPAIR. THE HEAT EXCHANGER SHALL BE MOUNTED IN A STRESS FREE JACKET ASSEMBLY IN ORDER TO PROVIDE A "FREE FLOATING DESIGN" ABLE TO WITHSTAND THE EFFECTS OF THERMAL SHOCK. THE WATER HEATER SHALL BEAR THE ASME "HLW" STAMP FOR 160 PSI WORKING PRESSURE AND SHALL BE NATIONAL BOARD LISTED. THE COMPLETE HEAT EXCHANGER ASSEMBLY SHALL CARRY A FIVE (5) YEAR LIMITED WARRANTY. THE WATER HEATER SHALL BE EQUIPPED WITH A FACTORY SUPPLIED CIRCULATING PUMP OF SUFFICIENT CAPACITY TO ENSURE SCALE-FREE PERFORMANCE. THE PUMP SHALL BE ALL BRONZE AND PROVIDED FOR OPERATION ON 120 VOLT, 60 CYCLE, 1 PHASE POWER SUPPLY.

THE COMBUSTION CHAMBER SHALL BE SEALED AND COMPLETELY ENCLOSED WITH CERAMIC FIBERBOARD INSULATION. A BURNER/FLAME OBSERVATION PORT SHALL BE PROVIDED. THE BURNERS SHALL BE A PREMIX DESIGN, CONSTRUCTED OF HIGH TEMPERATURE STAINLESS STEEL AND FIRE ON A HORIZONTAL PLANE. THE WATER HEATER SHALL USE A COMBUSTION AIR BLOWER(S) TO PRECISELY CONTROL THE FUEL/AIR MIXTURE FOR MAXIMUM EFFICIENCY. COMBUSTION AIR BLOWERS SHALL OPERATE FOR A PRE-PURGE PERIOD BEFORE BURNER IGNITION AND A POST-PURGE PERIOD AFTER BURNER OPERATION.

THE WATER HEATER SHALL BE CONSTRUCTED WITH A HEAVY GAUGE GALVANIZED STEEL JACKET ASSEMBLY, PRIMED AND PRE-PAINTED ON BOTH SIDES WITH A MINIMUM DRY FILM THICKNESS OF 0.70 MILS. THE JACKET DESIGN SHALL ALLOW SINGLE UNIT VENTING CONNECTION WITHOUT THE USE OF EXTERNAL DRAFT HOOD DEVICES.

THE WATER HEATER SHALL BE CERTIFIED AND LISTED BY CSA INTERNATIONAL UNDER THE LATEST EDITION OF THE HARMONIZED ANSI Z21.10.3 TEST STANDARD FOR THE US AND CANADA. THE WATER HEATER SHALL COMPLY WITH THE ENERGY EFFICIENCY REQUIREMENTS OF THE LATEST EDITION OF THE ASHRAE 90.1 STANDARD. THE WATER HEATER SHALL OPERATE AT A MINIMUM OF 81% THERMAL EFFICIENCY.

STANDARD OPERATING CONTROLS SHALL INCLUDE AN IMMERSION TYPE TEMPERATURE CONTROLLER TO REGULATE WATER TEMPERATURES. MULTIPLE IMMERSION SAFETY HIGH LIMIT CONTROLS SHALL ALSO BE SUPPLIED. THE STANDARD CONTROL SYSTEM SHALL INCLUDE A PROVEN PILOT HOT SURFACE IGNITION SYSTEM WITH FULL FLAME MONITORING CAPABILITY. MULTIPLE MAIN GAS VALVES WITH REDUNDANT VALVE SEATS AND A BUILT IN LOW GAS PRESSURE REGULATORS SHALL BE SUPPLIED AS STANDARD.

ADDITIONAL STANDARD CONTROLS SHALL INCLUDE A FLOW SWITCH, BLOCKED FLUE/LOW AIR PRESSURE SWITCHES FOR EACH FAN, LOW VOLTAGE TRANSFORMER FOR THE CONTROL CIRCUIT AND AN ASME TEMPERATURE AND PRESSURE RELIEF VALVE. THE MANUFACTURER SHALL VERIFY PROPER OPERATION OF THE BURNERS, ALL CONTROLS AND THE HEAT EXCHANGER BY CONNECTION TO WATER AND VENTING FOR A FACTORY FIRE TEST PRIOR TO SHIPPING.

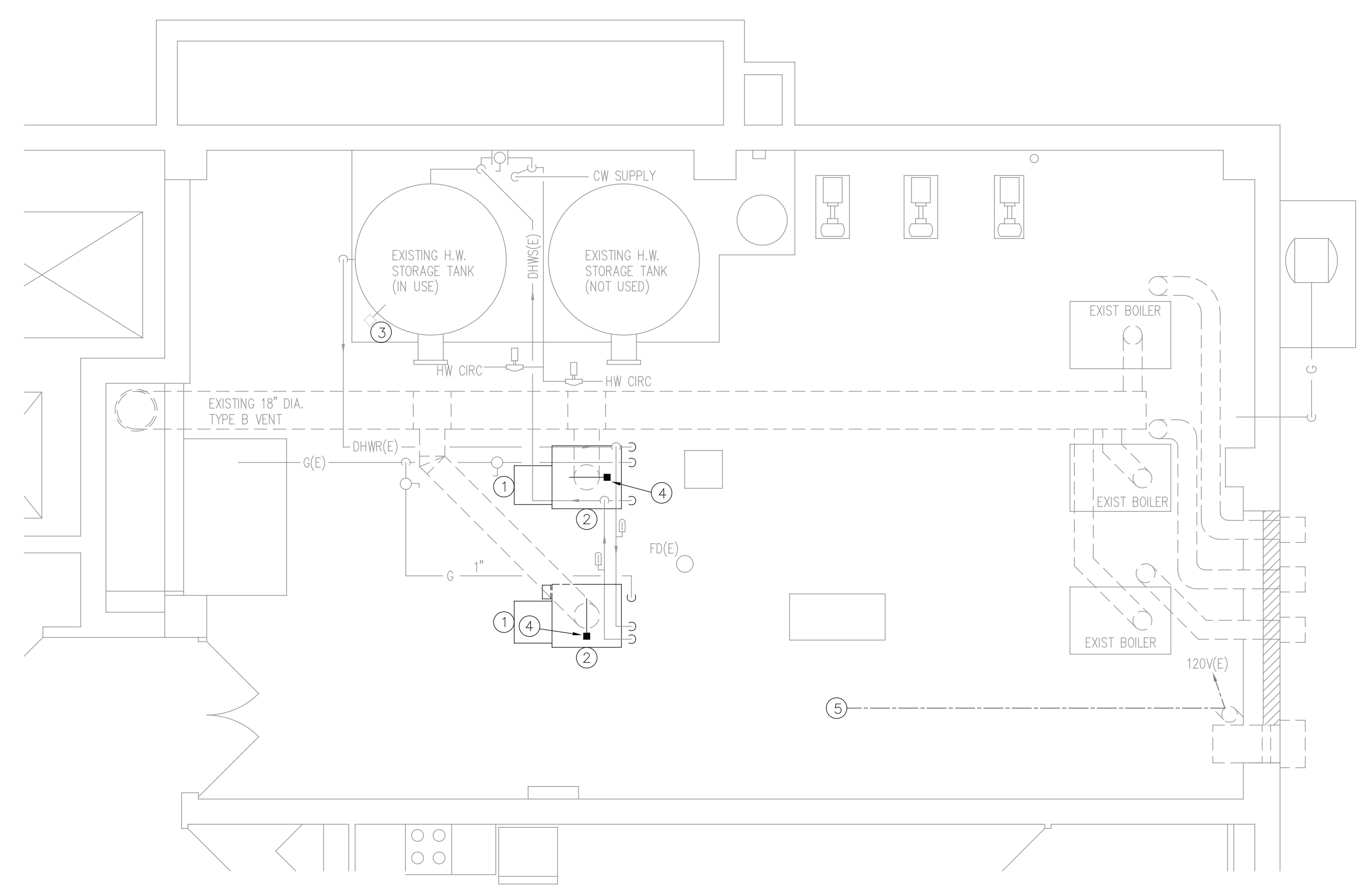
A 24 VAC CONTROL CIRCUIT AND COMPONENTS SHALL BE USED. ALL COMPONENTS SHALL BE EASILY ACCESSED AND SERVICEABLE. ALL COMPONENTS SHALL HAVE MULTI-PIN, PLUG IN TYPE CONNECTORS TO EASE SERVICE, TROUBLESHOOTING AND LOWER REMOVAL AND REPLACEMENT COST.

THE UNITS CONTROL PANEL SHALL CONTAIN THE TEMPERATURE ADJUSTMENT CONTROL, A LIGHTED ON/OFF MAIN POWER SWITCH AND INDICATING LIGHTS FOR CALL FOR HEAT PRE-PURGE, TRIAL FOR IGNITION, FLAME FAILURE AND ALARM.

THE WATER HEATER SHALL BE APPROVED FOR INDOOR OR OUTDOOR INSTALLATION. THE WATER HEATER SHALL BE APPROVED FOR CONVENTIONAL VENTING AND SHALL BE CLASSIFIED CATEGORY I, NEGATIVE DRAFT, NON-CONDENSING. THE VENT MATERIAL SHALL BE A TYPE "B" DOUBLE WALL.

THE WATER HEATER SHALL HAVE AN INDEPENDENT LABORATORY RATING FOR OXIDES OF NITROGEN (NOX) OF LESS THAN 30 PPM CORRECTED TO 3% O<sub>2</sub>.

THE FIRING CONTROL SYSTEM SHALL BE HOT SURFACE IGNITION WITH ELECTRONIC FLAME SUPERVISION WITH ON/OFF FIRING.



FLOOR PLAN - BOILER ROOM  
 SCALE: 1/4" = 1'-0"  
 NORTH