

- 14g. (MICHIGAN ONLY) GAS "COMMERCIAL" WATER HEATER SHALL BE A RHEEM/RUUD MODEL HE 110-109. WATER HEATER SHALL HAVE A STORAGE CAPACITY OF 119 GALLONS WITH AN ENERGY INPUT OF 119,000 BTU. A RECOVERY OF 252 GALLONS PER HOUR AT A 90 DEGREE (FAHRENHEIT) TEMPERATURE RISE, AND BE EQUIPPED TO OPERATE ON NATURAL GAS. WATER HEATER SHALL BE STAINLESS STEEL CONSTRUCTION WITH A LIMITED FIVE-YEAR TANK WARRANTY. COMPARABLE TANK MAY BE USED ONCE APPROVED BY TIM HORTONS ENGINEER. VENT PER MANUFACTURER'S RECOMMENDATIONS.
15. WALL HYDRANTS SHALL BE FREEZELESS AUTOMATIC DRAINING TYPE AS MANUFACTURED BY WOODFORD, MODEL #12 OR EQUAL BY ZURN OR WADE.
16. COORDINATE ALL WORK WITH ELECTRICAL AND HVAC CONTRACTORS.
17. THIS CONTRACTOR SHALL GUARANTEE ALL WORK INSTALLED UNDER THE CONTRACT TO BE FREE FROM DEFECTIVE WORKMANSHIP AND MATERIALS, USUAL WEAR EXPECTED, AND SHOULD ANY SUCH DEFECTS DEVELOP WITHIN A PERIOD OF ONE YEAR AFTER ACCEPTANCE OF THE BUILDING BY THE OWNER, THIS CONTRACTOR SHALL REPAIR AND/OR REPLACE ANY DEFECTIVE ITEMS AND ALL DAMAGE RESULTING FROM FAILURE OF THESE ITEMS, AT NO EXPENSE WHATSOEVER TO THE OWNER.
18. BACKFLOW PREVENTER TO BE INSTALLED WHEN REQUIRED BY LOCAL CODE AND IS TO BE PROVIDED BY AND INSTALLED BY THE PLUMBING CONTRACTOR.

HEATING, VENTILATING, AND AIR CONDITIONING

1. PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY TO COMPLETE THE HEATING AND VENTILATING WORK INDICATED ON THE DRAWINGS AND AS REQUIRED BY LOCAL CODES AND ORDINANCES.
2. INCLUDED IN THIS SECTION IS ALL WORK TO INSTALL KITCHEN HOODS AND ROOM VENTS AS SHOWN ON THE DRAWINGS. ALL HOODS AND FANS ARE TO BE TIM HORTONS STANDARD, APPROVED SUPPLIERS. ROOF MOUNTED EXHAUST FANS TO BE INSTALLED ON PREFABRICATED CURB FINISHED AND INSTALLED BY HVAC CONTRACTOR.
3. HEATING AND COOLING UNITS AS INDICATED ON THE DRAWINGS TO BE FURNISHED AND INSTALLED BY THIS CONTRACTOR. HEATING AND COOLING UNITS INDICATED ON THE DRAWINGS AND HEREINAFTER SPECIFIED ARE DESIGNED TO MEET ASHRAE 90-1 BASED ON COLUMBUS, OHIO DESIGN CONDITIONS OF 90°F SUMMER AND 0°F WINTER. (SEE NOTE 15)
4. DIFFUSERS, REGISTERS, LOUVERS SHALL BE AS PER MODEL AND SIZE INDICATED ON DRAWINGS. NO SUBSTITUTES SHALL BE ACCEPTED UNLESS APPROVED BY THE OWNER OR ARCHITECT IN WRITING. DIFFUSERS AND LOUVERS NOT MEETING SPECIFICATION AS SHOWN ON DRAWINGS SHALL BE REPLACED AT THE HVAC CONTRACTOR'S EXPENSE.
5. ROOF EXHAUST FANS SHALL BE AS PER MODEL AND SIZE INDICATED ON DRAWINGS. NO SUBSTITUTES SHALL BE ACCEPTED UNLESS APPROVED BY THE OWNER OR ARCHITECT IN WRITING. FANS NOT MEETING SPECIFICATION AS SHOWN ON DRAWINGS SHALL BE REPLACED AT THE HVAC CONTRACTOR'S EXPENSE.
6. UNLINED SUPPLY AND RETURN AIR DUCTWORK SHALL BE WRAPPED WITH INSULATION. INSULATION AND APURTANCES SHALL HAVE A FLAME SPREAD RATING NOT EXCEEDING TWENTY-FIVE (25) AND A SMOKE DEVELOPED RATING NOT EXCEEDING FIFTY (50). THE INSULATION SHALL BE FLEXIBLE FIBERGLASS DUCT WRAP LAMINATED TO FOIL REINFORCED KRAFT VAPOR BARRIER FACING WITH 2" STAPLING FLANGE AND HAVE A MINIMUM INSTALLED R-VALUE OF 5.0. INSULATION SHALL NOT BE APPLIED UNTIL THE GENERAL CONSTRUCTION HAS PROGRESSED SUFFICIENTLY TO INSURE AGAINST PHYSICAL OR MOISTURE DAMAGE TO THE INSULATION. ALL INSULATION DAMAGED THROUGH FAILURE TO OBSERVE THIS DIRECTIVE SHALL BE REPLACED AT HVAC CONTRACTOR'S EXPENSE. INSTALL ALL INSULATION ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
7. BEFORE FINAL ACCEPTANCE BY THE OWNER, AN OWNER'S REPRESENTATIVE SHALL INSPECT THE ENTIRE HVAC SYSTEM AND SUBMIT A WRITTEN REPORT TO THE OWNER FINAL BALANCE OF HVAC SYSTEM SHALL BE PERFORMED BY HVAC CONTRACTOR. NO FINAL PAYMENT WILL BE MADE UNTIL THE ABOVE REPORT HAS BEEN RECEIVED AND THE HVAC SYSTEMS ARE IN BALANCE.
8. WHERE REQUIRED BY GOVERNING ORDINANCES, PROVIDE FIRE DAMPERS CONFORMING TO NFPA 90A. SUPPLY DUCTS TO HAVE 1" FIBERGLASS INSULATION. EXHAUST INSTALLATION SHALL CONFORM TO NFPA 96.
9. WHERE REQUIRED, PROVIDE CLASS "B" GAS VENT FLUES COMPLETE WITH CAP, COLLAR AND FLASHING.
10. INSTALL THERMOSTAT COMPLETE WITH ALL NECESSARY WIRING AND CONTROLS, LOCATION AS INDICATED ON THE DRAWINGS. THERMOSTAT SHALL PROVIDE FOR AUTOMATIC AND MANUAL FAN OPERATION.
11. INSTALL AND CONNECT THE COMPLETE SYSTEM IN STRICT ACCORDANCE WITH ALL GOVERNING CODES, ORDINANCES AND THE LATEST CODES AND MANUALS OF THE NATIONAL WARM AIR HEATING AND AIR CONDITIONING ASSOCIATION AND SMACNA.
12. LINE ALL SUPPLY AND RETURN RECTANGULAR AIR DUCTS WITH 1" RIGID DUCT LINER.
13. ADJUST ALL CONTROLS AND EQUIPMENT FOR PROPER OPERATION. LUBRICATE AND CLEAN ALL EQUIPMENT PRIOR TO ACCEPTANCE OF BUILDING OWNER.
14. COORDINATE ALL WORK WITH ELECTRICAL AND PLUMBING CONTRACTORS.
15. FURNISH THE OWNER WITH ALL OPERATING MANUALS AND MAINTENANCE INSTRUCTIONS FOR EQUIPMENT INSTALLED.
16. THIS CONTRACTOR SHALL GUARANTEE ALL WORK INSTALLED UNDER THE CONTRACT TO BE FREE FROM THE DEFECTIVE WORKMANSHIP AND MATERIALS, USUAL WEAR EXPECTED, AND SHOULD ANY SUCH DEFECTS DEVELOP WITHIN A PERIOD OF ONE YEAR AFTER ACCEPTANCE OF THE BUILDING BY THE OWNER, THIS CONTRACTOR SHALL REPAIR AND/OR REPLACE ANY DEFECTIVE ITEMS AND ALL DAMAGE RESULTING FROM FAILURE OF THESE ITEMS, AT NO EXPENSE WHATSOEVER TO THE OWNER.
17. HVAC CONTRACTOR IS RESPONSIBLE TO NOTIFY GENERAL CONTRACTOR OF REQUIRED CHANGES IN ROOF OPENINGS FOR ROOF TOP UNITS DUE TO CHANGE IN EQUIPMENT SIZE DICTATED BY APPROPRIATE OPTION ABOVE.
18. HVAC CONTRACTOR IS RESPONSIBLE TO NOTIFY GENERAL CONTRACTOR, ELECTRICAL, AND PLUMBING CONTRACTORS OF CHANGES IN ELECTRICAL AND GAS REQUIREMENTS FOR THE ROOF TOP UNITS, FANS, AND DUCTWORK DUE TO CHANGES IN EQUIPMENT CAPACITIES OR SITE CONDITIONS AS DICTATED BY APPROPRIATE OPTION ABOVE.

DIVISION 16 - ELECTRICAL

1. PROVIDE A COMPLETE ELECTRICAL SYSTEM AS INDICATED ON THE DRAWINGS AND DESCRIBED HEREIN.
2. ELECTRIC WORK SHALL COMPLY WITH THE LATEST NATIONAL ELECTRIC CODE AS WELL AS STATE AND LOCAL GOVERNING CODES.
3. PAY FOR ALL PERMITS AND INSPECTIONS AND PROVIDE A CERTIFICATE OF INSPECTION.
4. PROVIDE REQUIRED SERVICE AND EQUIPMENT GROUNDING SYSTEMS. THE CONDUIT SYSTEM SHALL BE ELECTRICALLY CONTINUOUS AND SHALL BE SAFELY GROUNDED AT THE DISTRIBUTION PANEL. ALL DEVICES SHALL BE BONDED TO THE CONDUIT SYSTEM. PROVIDE A SEPARATE GROUNDING CONDUCTOR IN EACH CONDUIT, #12 MINIMUM OR AS SHOWN ON DRAWINGS.
5. MATERIALS SHALL BE NEW WITH MANUFACTURER'S NAME PRINTED THEREON AND UNDERWRITER'S LABORATORY LISTED. THE SELECTION OF MATERIALS AND EQUIPMENT TO BE PROVIDED UNDER THIS CONTRACT SHALL BE IN STRICT ACCORDANCE WITH THE SPECIFICATIONS AND DRAWINGS. THIS CONTRACTOR SHALL SUBMIT TO THE ARCHITECT FOR APPROVAL 3 COPIES OF EQUIPMENT AS FOLLOWS: MAIN DISTRIBUTION PANEL, PANELBOARDS, DISCONNECT SWITCHES AND LIGHTING FIXTURES.
6. IDENTIFY DISCONNECT SWITCHES WITH LAMINATED PHENOLIC NAMEPLATES WITH 1/4" MINIMUM HEIGHT LETTERS.
7. PROVIDE POWER WIRING AND HOOKUP FOR EACH MECHANICAL AND KITCHEN EQUIPMENT ITEM. THIS CONTRACTOR SHALL MOUNT, PROVIDE WIRING, AND MAKE FINAL CONNECTIONS TO EQUIPMENT CONTROL PANELS (WHICH INCLUDE PREWIRED STARTERS, RELAYS, ETC.) FURNISH AND INSTALL ALL STARTERS WHICH ARE NOT FURNISHED AS A PART OF MECHANICAL EQUIPMENT.
8. DISCONNECT SWITCHES SHALL BE THE HEAVY DUTY TYPE IN NEMA 1 ENCLOSURE OR EQUAL BY SQUARE D OR ARROW-HART. SWITCHES SHALL BE QUICK-MAKE, QUICK-BREAK, EXTERNALLY OPERATED AND INTERLOCKED.

9. SWITCHES SHALL BE 20 AMP HUBBELL 1221-1 SINGLE POLE OR 1223-1 THREE WAY. DUPLEX RECEPTACLES SHALL BE 20 AMP HUBBELL 5362-1, PASS AND SEYMOUR, ARROW-HART AND BRYANT SHALL BE CONSIDERED AS EQUAL. GROUND FAULT INTERRUPTING SHALL BE G1TR1R1SF. COVER PLATES SHALL BE SIERRA (PASS AND SEYMOUR). SWITCH PLATES TO BE SERIES #8-IN. DUPLEX PLATES TO BE SERIES #5-IN. DUPLEX PLATES IN DINING ROOM TO BE #P-8 ETC. ALL COVERPLATES TO HAVE SATIN FINISH #302 STAINLESS STEEL (EXCEPT DINING ROOM PLATES).
10. TEST ELECTRICAL SYSTEM FOR SHORT CIRCUITS AND MEGGER TEST FEEDERS AND BRANCH CIRCUIT WIRING, INSURE LOW IMPEDANCE GROUND SYSTEM.
11. THE ELECTRICAL SERVICE TO THE SITE SHALL BE VERIFIED BY THIS CONTRACTOR PRIOR TO BIDDING JOB. THIS CONTRACTOR SHALL PROVIDE CONDUIT, CABLE, CONCRETE, CONNECTIONS AND OTHER EQUIPMENT REQUIRED FOR AN UNDERGROUND ELECTRICAL SYSTEM FROM THE POWER COMPANY EQUIPMENT TO THE NEW DISTRIBUTION SWITCHBOARD DB1. IT SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR TO COORDINATE ELECTRICAL SERVICE ENTRANCE WORK WITH THE POWER COMPANY. SECURING CONTRACTS WITH POWER COMPANY FOR THE INSTALLATION OF PRIMARY ENTRANCE, INCLUDING CHARGES BY POWER COMPANY IN BID, AND PERFORMING WORK REQUIRED BY POWER COMPANY IN ACCORDANCE WITH POWER COMPANY RULES AND REGULATIONS TO INSURE A COMPLETE ELECTRICAL SERVICE.
12. THIS CONTRACTOR SHALL VERIFY POWER COMPANY REQUIREMENTS AND CHARGES PRIOR TO BIDDING AND INCLUDE SUCH IN BID.
13. FOR SERVICE AND PANEL FEEDER WIRING, USE TYPE THHN CABLE. USE TW CABLE FOR INTERIOR BRANCH CIRCUIT WIRING EXCEPT AS NOTED. DESIGN IS BASED ON COPPER CONDUCTORS AND ALL WIRING SHALL BE COPPER. MINIMUM #12 AWG. WIRING SHALL BE IN CONDUIT. SPLICE WIRES #9 AWG. AND LARGER WITH APPROVED SOLDERLESS CONNECTORS SUCH AS ILSCO PROPERLY TAPED AND INSULATED. SPLICE SMALLER WIRES WITH MECHANICAL CONNECTORS SUCH AS 3M "SCOTCH-LOCK" TYPE R.
14. PROVIDE RIGID GALVANIZED STEEL HEAVY WALL CONDUIT/OR SCHEDULE 80 PLASTIC CONDUIT FOR SERVICE AND PANEL FEEDER CONDUITS. FITTINGS SHALL BE STEEL, THREADED, SET-SCREW TYPE WITH INSULATED THROATS. FURNISH EMT CONDUIT FOR INTERIOR WIRING WHERE PHYSICAL DAMAGE IS NOT A CONSIDERATION. MINIMUM CONDUIT SIZE IS 3/4" EXCEPT FOR FLEXIBLE RUNOUTS TO FIXTURES, MOTORS, ETC. WHICH MAY BE 1/2".
15. CONDUIT SHALL BE CONCEALED WHEREVER POSSIBLE AND SHALL BE RUN PARALLEL OR PERPENDICULAR TO BUILDING WALLS AND CEILINGS.
16. CONDUIT INSTALLED IN OR BELOW SLAB SHALL BE GALVANIZED RIGID CONDUIT/OR PLASTIC CONDUIT. NO CONDUIT LARGER THAN 1 1/2" DIA. WILL BE INSTALLED IN SLAB.
17. PROVIDE STRUCTURAL STEEL FRAMEWORK AND HANGING RODS WITH BRACES AND ACCESSORIES WHERE REQUIRED TO HOLD EQUIPMENT IN FINAL POSITION. PROVIDE STEEL SHAPES AND FRAMES TO SUPPORT 1" WALL MOUNTED EQUIPMENT WHERE NORMAL WALL STRENGTH MAY BE INADEQUATE.
18. ELECTRICAL DEVICES, MOTOR STARTERS, DISCONNECT SWITCHES, ETC. SHALL BE SUPPORTED INDEPENDENT OF AND ISOLATED FROM EQUIPMENT VIBRATION.
19. COORDINATE WITH KITCHEN EQUIPMENT SUPPLIER ALL INTERIOR WIRING CONNECTIONS NEEDED DURING ASSEMBLY OF KITCHEN EQUIPMENT.
20. PROVIDE POWER TO CASH REGISTERS WITH THE FOLLOWING GROUNDING REQUIREMENTS:
- A. SYSTEM POWER AND GROUND MUST BE MADE ONLY AT THE MAIN ENTRANCE PANEL. THE GROUND CONDUCTOR MUST BE OF INSULATED WIRE EQUAL IN SIZE TO THE POWER CONDUCTOR (CONDUIT MAY NOT BE USED AS THE GROUND CONDUCTOR).
 - B. THE GROUND CONDUCTOR MUST NOT BE USED AS A RETURN OR NEUTRAL CONDUCTOR FOR ANY EQUIPMENT AND MUST NOT BE USED AS A GROUND FOR ANY EQUIPMENT OTHER THAN CASH REGISTER EQUIPMENT.
 - C. RECEPTACLES FOR THE REGISTERS MUST BE 2 POLE, 3 WIRE, 120 VOLTS, 20 AMPERES. THE GROUND MUST BE INSULATED FROM THE MOUNTING HARDWARE.
 - D. FOR ADDITIONAL INFORMATION, IF REQUIRED, CONTACT TIM HORTONS, 4150 TULLER ROAD, SUITE 236, DUBLIN, OH 43017.
 - E. THE REGISTER CONDUITS MUST NOT BE USED FOR ANY OTHER EQUIPMENT.
21. PROVIDE FIXTURES AS LISTED ON LIGHTING FIXTURE SCHEDULE. PROVIDE NECESSARY MOUNTING HARDWARE FOR A COMPLETE INSTALLATION. PROVIDE LAMPS, BALLASTS AND SPECIAL CONTROLS.
22. FURNISH AND INSTALL EMPTY CONDUIT, OUTLETS AND BACKBOARD TO ACCOMMODATE TELEPHONE COMPANY WIRING AND EQUIPMENT AS SHOWN ON DRAWINGS. WORK SHALL BE INSTALLED IN STRICT ACCORDANCE WITH TELEPHONE COMPANY REQUIREMENTS.
23. THIS CONTRACTOR SHALL GUARANTEE WORK INSTALLED UNDER THE CONTRACT TO BE FREE FROM DEFECTIVE WORKMANSHIP AND MATERIALS, USUAL WEAR EXPECTED, AND SHOULD ANY SUCH DEFECTS OCCUR WITHIN A PERIOD OF ONE YEAR AFTER ACCEPTANCE OF THE BUILDING BY THE OWNER, THIS CONTRACTOR SHALL REPAIR AND/OR REPLACE ANY DEFECTIVE ITEMS AND DAMAGE RESULTING FROM FAILURE OF THESE ITEMS, AT NO EXPENSE WHATSOEVER TO THE OWNER.

REVISIONS:

DATE ISSUED: 07-02-2008
*INDICATES NO RETURN TO THE SHEET

Atlanta
 Boston
 Chicago
 Dallas
 Los Angeles
 Miami
 Sacramento



Tim Hortons
 1408 CONGRESS STREET
 PORTLAND, ME 04102

SPECIFICATIONS

SAI # 0818
 DRAWING NUMBER: SP9

DRAWN BY: DDS CHECKED BY: JPY