

ELECTRICAL SPECIFICATIONS:

1. EXAMINE SITE AND CONDITIONS

1.1. EXAMINE THE SITE, EXISTING BUILDING AND THE LOCAL CONDITIONS AFFECTING THE WORK. NO ALLOWANCE WILL BE MADE LATER FOR ANY EXPENSES INCURRED THROUGH THE FAILURE TO MAKE THESE EXAMINATIONS OR TO REPORT ANY SUCH DISCREPANCIES IN WRITING TO THE CONSULTANT.

2. CUTTING AND PATCHING

2.1. ALL CUTTING AND PATCHING REQUIRED BY THE SUBCONTRACTOR SHALL BE PERFORMED BY THE SUBCONTRACTOR. ALL SUCH WORK SHALL BE DONE BY TRADESMEN SKILLED IN AND CERTIFIED FOR THIS PARTICULAR TRADE.

2.2. PROVIDE FIRE BARRIERS AROUND ALL COMPONENTS IN HOLES WHICH PENETRATE FIRE SEPARATIONS. THE FIRE BARRIER MEDIUM PROVIDED SHALL MAKE THE FIRE SEPARATION EQUAL TO OR BETTER THAN THE ONE WHICH WAS CUT AWAY. ALL MATERIALS SHALL BE CSA APPROVED AND UL LISTED.

2.3. PROVIDE ACCESS PANELS AND DOORS REQUIRED FOR THE WORK OF THIS DIVISION.

2.4. WHERE SLABS AND FOUNDATION WALLS ARE TO BE CORE-DRILLED AND OPENINGS TO BE CUT, ALL LOCATIONS SHALL BE X-RAYED PRIOR TO DRILLING OR SAWCUTTING.

2.5. ALL X-RAYING SHALL BE DONE AFTER 21:00 HOUR AND IN ACCORDANCE WITH THE REQUIREMENTS OF THE AUTHORITIES HAVING JURISDICTION. ONLY PERSONNEL QUALIFIED IN THE USE OF THE TYPE OF EQUIPMENT REQUIRED TO X-RAY THE SAWCUTS OR DRILLING SHALL BE PERMITTED TO PERFORM THIS WORK ON THE SITE. NO ALLOWANCE WILL BE MADE LATER FOR EXPENSES INCURRED THROUGH THE FAILURE OF PERFORMING THESE X-RAYS.

2.6. PROVIDE AMPLE NOTICE AND COORDINATE THIS WORK WITH LANDLORD FOR TIME, DURATION AND LOCATIONS REQUIRED AND ADHERE TO THE LANDLORD'S REQUIREMENTS. NO SAWCUTS OR DRILLING SHALL PROCEED WITHOUT PRIOR WRITTEN CONSENT OF THE LANDLORD. RETAIN AND PAY FOR THE SERVICES OF BUILDING STRUCTURAL CONSULTANT FOR REVIEWING AND APPROVING BUILDING STRUCTURE TO BE CUT.

2.7. FOR WORK TO BE CARRIED OUT IN OTHER TENANT'S SPACE, GENERAL CONTRACTOR SHALL INCLUDE COSTS OF SECURITY GUARD SERVICES AS REQUIRED BY THE LANDLORD.

2.8. ALL NOISE RELATED CONSTRUCTION ACTIVITIES SUCH AS DRILLING AND FLOOR CORING SHALL BE RESTRICTED TO AFTER REGULAR WORKING HOURS AND APPROVED BY THE LANDLORD. WORKING HOURS ARE FROM 8:00 AM TO 6:00 PM.

3. CODES, PERMITS, FEES AND INSPECTIONS

3.1. ALL WORK SHALL BE INSTALLED IN ACCORDANCE WITH ALL BY-LAWS AND REGULATIONS OF ALL AUTHORITIES HAVING JURISDICTION.

3.2. ALL EQUIPMENT SUPPLIED SHALL CONFORM TO THE REGULATIONS OF CSA AND THE ONTARIO HYDRO.

3.3. PROVIDE ALL NECESSARY NOTICES, OBTAIN ALL REQUIRED PERMITS AND PAY ALL FEES TO ARRANGE FOR INSPECTION OF ALL WORK. FURNISH FINAL UNCONDITIONAL CERTIFICATE OF APPROVAL UPON COMPLETION OF THE WORK.

4. GUARANTEE

4.1. THIS SUBCONTRACTOR SHALL GUARANTEE ALL WORK AND APPARATUS INSTALLED UNDER HIS CONTRACT AGAINST ALL DEFECTS OF WORKMANSHIP AND MATERIAL FOR A PERIOD OF ONE YEAR AFTER FINAL ACCEPTANCE OF HIS WORK BY THE OWNER AND SHALL MAKE GOOD ALL DEFECTS DEVELOPING DURING SUCH TIME WITHOUT ADDITIONAL EXPENSE TO THE OWNER.

5. SHOP DRAWINGS

5.1. SUBMIT SHOP DRAWINGS AS REQUESTED BY THE CONSULTANT. SHOP DRAWINGS SHALL INDICATE CLEARLY THE MATERIALS AND/OR EQUIPMENT ACTUALLY BEING SUPPLIED, ALL DETAILS OF CONSTRUCTION, ACCURATE DIMENSIONS, CAPACITY, OPERATING CHARACTERISTICS AND PERFORMANCE.

6. IDENTIFICATION AND LABELING

6.1. IN EACH JUNCTION AND OUTLET BOX, PROPERLY IDENTIFY THE BRANCH WIRING WITH CIRCUIT TAGS.

6.2. REVISE EXISTING DIRECTORY OF PANELBOARDS TO THE CONSULTANT'S SATISFACTION, CLEARLY INDICATING ALL BRANCH LOADS ADDED OR REVISED. ALL PANEL DIRECTORIES (REVISED OR NEW) SHALL BE TYPED WRITTEN.

6.3. PROVIDE IDENTIFICATION LAMACOID NAMEPLATES WHICH ARE GLUE ATTACHED FOR THE NEW EQUIPMENT. IDENTIFICATION TO INCLUDE NAME OF THE EQUIPMENT / NAME OF THE SUPPLY SOURCE; RATED LOAD AMP (A) OR HORSEPOWER (HP) - VOLTAGE (V) - NUMBER OF PHASE (Ø) - NUMBER OF WIRE (W)

E.G. PANEL C (1/2")  
FED FROM PANEL 5EP (3/8")  
100A - 120/208V - 3Ø - 4W (3/8")

6.4. NAMEPLATES TO BE A BLACK BACKGROUND WITH WHITE ENGRAVED LETTERS FOR BUILDING POWER AND RED BACKGROUND WITH WHITE ENGRAVED LETTERS FOR GENERATOR OR UPS POWER. MINIMUM SIZE LETTERS 3/8". SUBMIT WORDINGS OF NAMEPLATES FOR APPROVAL PRIOR TO MANUFACTURE.

6.5. NAMEPLATES TO BE PROVIDED FOR SWITCHBOARDS, DISTRIBUTION PANELS, BRANCH PANELBOARDS, DISCONNECTS, TRANSFORMERS, STARTERS, WIREWAYS, POWER SUPPLIES AND OTHER MAJOR SYSTEMS COMPONENTS.

6.6. FOR EACH NEWLY INSTALLED AND EXISTING RECEPTACLE AND SYSTEM FURNITURE CONNECTIONS IN THE RENOVATED SPACE, PROVIDE CIRCUIT IDENTIFICATION ON THEIR FACEPLATES WITH DYMO-TAPE OR APPROVED EQUIVALENT INDICATING PANEL DESIGNATION AND CIRCUIT NUMBER.

7. RECORD DRAWINGS

7.1. OBTAIN AND PAY FOR ONE SET OF WHITE PRINTS OF ELECTRICAL DRAWINGS. AS JOB PROGRESSES, MARK UP THE WHITE PRINTS IN RED TO ACCURATELY INDICATE INSTALLED WORK. UPON COMPLETION OF THIS WORK, HAND THESE OVER TO THE CONSULTANT FOR REVIEW AND APPROVAL. INCORPORATE APPROVED CHANGES ONTO A REPRODUCIBLE MYLAR AND SUBMIT THEM TO THE CONSULTANT.

8. ADDITIONAL WORK AND CHANGES

8.1. NO ADDITIONAL MONEY OVER AND ABOVE THE CONTRACT PRICE. WILL BE PAID FOR EXTRA WORK UNLESS A WRITTEN ORDER, APPROVED BY THE OWNER. SUBMIT A QUOTATION WITH A COMPLETE BREAKDOWN OF MATERIALS, LABOUR AND MARKUPS, WHEN SUBMITTING LUMP SUM PRICES FOR EXTRAS AND CREDITS.

9. MATERIALS AND STANDARDS

9.1. MATERIALS AND METHODS OF INSTALLATION NOT SPECIFIED SHALL AT LEAST EQUAL TO OR MATCH WITH BASE BUILDING.

10. ALTERNATIVES AND SUBSTITUTIONS

10.1. NO SUBSTITUTIONS SHALL BE MADE WITHOUT WRITTEN APPROVAL.

10.2. ANY ALTERNATIVE SUGGESTED SHALL BE ACCOMPANIED BY ALL DATA REQUIRED TO EVALUATE THE ALTERNATIVE. ALTERNATIVES SHALL BE ACCEPTED ONLY AT THE DIRECTION OF THE CONSULTANT.

10.3. THE SUBCONTRACTOR SHALL BE RESPONSIBLE FOR THE PERFORMANCE AND EXTRA COST OR LIABILITY OF ALL SUBSTITUTIONS AND ALTERNATIVES.

11. PROTECTION

11.1. PROTECT ALL EQUIPMENT FROM WEATHER AND CONSTRUCTION DEBRIS UNTIL SUBSTANTIAL COMPLETION IS ACKNOWLEDGED AND BUILDING IS TURNED OVER TO OWNER.

12. PREMIUM TIME

12.1. ALL WORK WHICH SHALL REQUIRE SHUTDOWN OF ELECTRICAL SERVICES AND LIFE SAFETY SYSTEM, AND NOISE-RELATED CONSTRUCTION ACTIVITIES SHALL BE PERFORMED ON PREMIUM TIME. INCLUDE IN THE TENDER PRICE FOR SUCH WORK.

13. SPRINKLERPROOF

13.1. ALL ELECTRICAL EQUIPMENT EXPOSED TO SPRINKLER TO BE SPRINKLERPROOF.

14. BASE BUILDING REQUIREMENTS

14.1. ALL CONSTRUCTION WORK IN THE BUILDING MUST BE CARRIED OUT IN STRICT ACCORDANCE WITH LANDLORD'S RULES AND REGULATIONS OF THE LEASEHOLD IMPROVEMENT MANUAL AND BE CLEARED THROUGH PROPERTY MANAGEMENT. OBTAIN A COPY OF SUCH RULES AND REGULATIONS FROM PROPERTY MANAGEMENT PRIOR TO TENDER CLOSE.

14.2. WHEN NECESSARY TO RUN ELECTRICAL CORDS IN COMMON AREAS, CORDS TO BE STRUNG OVERHEAD IN CEILING.

14.3. DELIVERIES TO BE ARRANGED THROUGH BUILDING SUPERINTENDENT OF ANY WORK SCHEDULED AFTER NORMAL BUSINESS HOURS OR ON THE WEEKEND SO HE MAY NOTIFY SECURITY TO ALLOW CONTRACTORS ENTRANCE TO THE BUILDING.

14.4. ALL ELECTRICAL WORK TO BE UNDERTAKEN BY QUALIFIED TRADESMEN WHO ARE TO SUPPLY THEIR TICKET NUMBER TO THE BUILDING SUPERINTENDENT PRIOR TO COMMENCING WORK. UNDER NO CIRCUMSTANCES SHALL AN APPRENTICE BE PERMITTED TO WORK IN THE BUILDING UNLESS DIRECTLY SUPERVISED BY A QUALIFIED TRADESMAN ON SITE.

14.5. THE SUBCONTRACTOR SHALL BE IN GOOD STANDING WITH THE WORKMEN'S COMPENSATION BOARD AND CARRY INSURANCE AS SPECIFIED BY THE ONTARIO CONTRACTORS ASSOCIATION.

15. WIRING METHODS

15.1. POWER AND LIGHTING DISTRIBUTION SYSTEMS:

15.1.1. UNLESS OTHERWISE INDICATED, WIRES IN EMT CONDUITS WITH WATERTIGHT COUPLINGS FOR FEEDERS AND BRANCH WIRING. ACO90 CABLE SHALL ONLY BE USED IN DRYWALL CEILING, WITHIN DRYWALL PARTITIONS AND FOR FIXTURE DROPS FROM LIGHTING JUNCTION BOXES. MAXIMUM AC-90 CABLE LENGTH USED SHALL NOT EXCEED 15'.

15.1.2. WIRING BETWEEN NEW POWER JUNCTION BOXES IN THE CEILING AND INCLUDING ALL HOME RUN TO BRANCH PANEL - STRICTLY WIRES IN EMT CONDUITS.

15.1.3. WIRING BETWEEN NEW LIGHTING JUNCTION BOXES IN CEILING AND INCLUDING HOME RUN TO BRANCH PANEL - WIRES IN EMT CONDUITS.

15.2. USE LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT COMPLETE WITH SEPARATE GROUND WIRE FOR CONNECTION TO MOTORS, SECONDARY TRANSFORMERS, ETC.

15.3. TELEPHONE AND DATA SYSTEMS: FISH WIRE IN EMT CONDUITS AND SURFACE METAL RACEWAYS. MINIMUM SIZE CONDUIT SHALL BE 3/4".

15.4. FIRE ALARM: CABLES IN CONDUITS.

15.5. ALL WIRING IN FINISHED AREAS SHALL BE INSTALLED CONCEALED. NO EXPOSED WIRING IN FINISHED AREAS SHALL BE PERMITTED.

16. REMOVAL OF EXISTING

16.1. REMOVE ALL REDUNDANT WIRING INCLUDING VOICE, DATA AND POWER WIRING LEFT BY THE PREVIOUS TENANT IN CEILING SPACE. REMOVE VOICE AND DATA JACKS, BOXES AND PLATES WHERE CABLES ARE REMOVED. GENERAL CONTRACTOR TO PATCH, PRIME AND PAINT SUCH HOLES IN DRYWALL.

16.2. REMOVE ALL EXISTING WIRING DEVICES, WIRING AND CONDUITS IN WALLS OR CEILINGS WHICH ARE TO BE REMOVED.

16.3. WHERE EXISTING THROUGH FLOOR ELECTRICAL AND COMMUNICATION SERVICES ARE REMOVED, THE GENERAL CONTRACTOR SHALL FILL THE HOLES WITH CONCRETE AND SMOOTH THE FLOOR AS REQUIRED.

16.4. ALL SYSTEMS AND COMPONENTS WHICH ARE AFFECTED BY THE RENOVATION SHALL REMAIN OPERATIONAL SUBSEQUENT TO PROJECT COMPLETION.

16.5. RELAMP, REFURBISH, REPAIR, REPLACE AS NECESSARY ALL DEFECTIVE PARTS OF ALL EXISTING LUMINARIES DESIGNATED TO REMAIN AND BE REUSED.

17. WIRE AND CABLE

17.1. UNLESS OTHERWISE NOTED ON DRAWINGS, CONDUCTORS SHALL BE OF COPPER, RATED MINIMUM #12, 600 VOLTS, 90 DEG. C. USE STRANDED CONDUCTORS FOR WIRE SIZES #12 AWG OR LARGER.

17.2. WIRING SHALL BE CONTINUOUS WITHIN RACEWAYS AND SPLICES SHALL BE PERMITTED ONLY AT OUTLETS AND JUNCTION BOXES.

18. WIRING DEVICES

18.1. SPECIFICATION GRADE, WHITE COLOR, DECORA STYLE FOR RECEPTACLES AND COVERPLATES.

18.2. VERIFY MOUNTING HEIGHT AND LOCATIONS OF ALL WIRING DEVICES WITH INTERIOR DESIGNER PRIOR TO ROUGH-IN.

18.3. WHERE LIGHTING SWITCHES, DIMMERS AND FAN SWITCH ARE SHOWN GROUPED TOGETHER, THEY SHALL BE INSTALLED IN SAME COMMON GANG COVERPLATE AND BOX WHERE POSSIBLE WITHOUT BREAKING OFF HEAT SINKS. PROVIDE NECESSARY BARRIER IN OUTLET BOX TO SEPARATE 120V FROM 347V.

19. MANUAL MOTOR STARTERS

19.1. AS INDICATED, PROVIDE SINGLE PHASE MANUAL MOTOR STARTERS OF APPROPRIATE SIZE AND TYPE, INCLUDING:

19.1.1. QUICK MAKE AND BREAK SWITCHING MECHANISM.

19.1.2. OVERLOAD HEATER WITH MANUAL RESET AND TRIP INDICATION SIZED TO MATCH THE NAMEPLATE FULL LOAD CURRENT OF THE MOTOR.

19.1.3. INTEGRAL NEON PILOT LIGHT.

19.1.4. IN FINISHED AREAS, STARTERS SHALL BE FLUSH MOUNTED WITH STAINLESS STEEL COVERS.

20. CLOSED OUT DOCUMENTS

20.1. AT THE END OF THE PROJECT, SUBMIT 3 COPIES OF CLOSED OUT DOCUMENTS CONTAINING NEW EQUIPMENT SHOP DRAWINGS REVIEWED BY THE CONSULTANT, HYDRO INSPECTION CERTIFICATE, WARRANTY CERTIFICATE, FIRE ALARM VERIFICATION CERTIFICATE WITH DETAILED TECHNICIAN'S TEST REPORT, AS-BUILT DRAWINGS, PERMIT CLOSURE NOTICE.

LEGEND

NOTES: EQUIPMENT SHOWN DOTTED [---] ARE EXISTING TO BE REMOVED. EQUIPMENT SHOWN [---] ARE EXISTING TO REMAIN. EQUIPMENT SHOWN BOLD [---] ARE NEW OR RELOCATED.

⊙ 120V CONNECTION TO EQUIPMENT.

⊠ 208V 1Ø CONNECTION TO EQUIPMENT.

⊙ 208V 3Ø CONNECTION TO EQUIPMENT.

⊠ 347V 1Ø CONNECTION TO EQUIPMENT.

⊙ 600V 3Ø CONNECTION TO EQUIPMENT.

⊠ DISCONNECT SWITCH.

⊠ 15A-125V 2P-3W GROUNDED DUPLEX WHITE RECEPTACLE, WALL MOUNTED.

⊠ 15A-125V 2P-3W GROUNDED QUADRAPLEX RECEPTACLE, WALL MOUNTED.

⊠ JUNCTION BOX MOUNTED IN CEILING SPACE.

⊠ STEPDOWN TRANSFORMER IN CEILING SPACE.

+42" DENOTES TO BE INSTALLED 42" ABOVE FINISHED FLOOR.

A-1 DENOTES ELECTRICAL EQUIPMENT CONNECTED TO PANEL A, CIRCUIT #1.

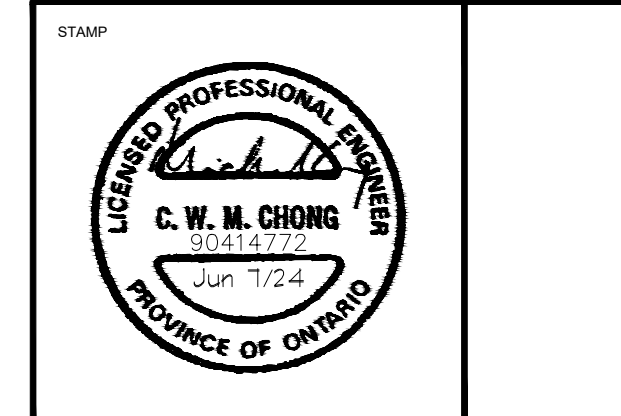
⊠ DENOTES NOTE 2.

⊠ DENOTES MECHANICAL EQUIPMENT EF-1.

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No.	Date	Issued or Revised
	Aug 07, 2024	Issued for Tender
	Jun 07, 2024	Issued for Permit
	Mar 26, 2024	Issued for Review



PROJECT:  
**HVAC SYSTEMS REVISIONS & HOT WATER TANK REPLACEMENT**  
150 DISCO ROAD, BLDG 'A'  
TORONTO

DRAWING TITLE:  
**LEGEND & SPECIFICATION - ELECTRICAL**

SCALE: AS NOTED DATE: NOV 2023

DRAWN BY: A.Z. PROJECT NO: 2341

DRAWING NO: **E-1**

