Town of Simsbury

933 HOPMEADOW STREET SIMSBURY, CONNECTICUT 06070

Engineering Department

DATE: **August 17, 2020**

RE: **BID NO. 20-06**
Simsbury Farms Ice Rink Refrigeration Condensing Unit Replacement and Controls Upgrade
Simsbury, Connecticut

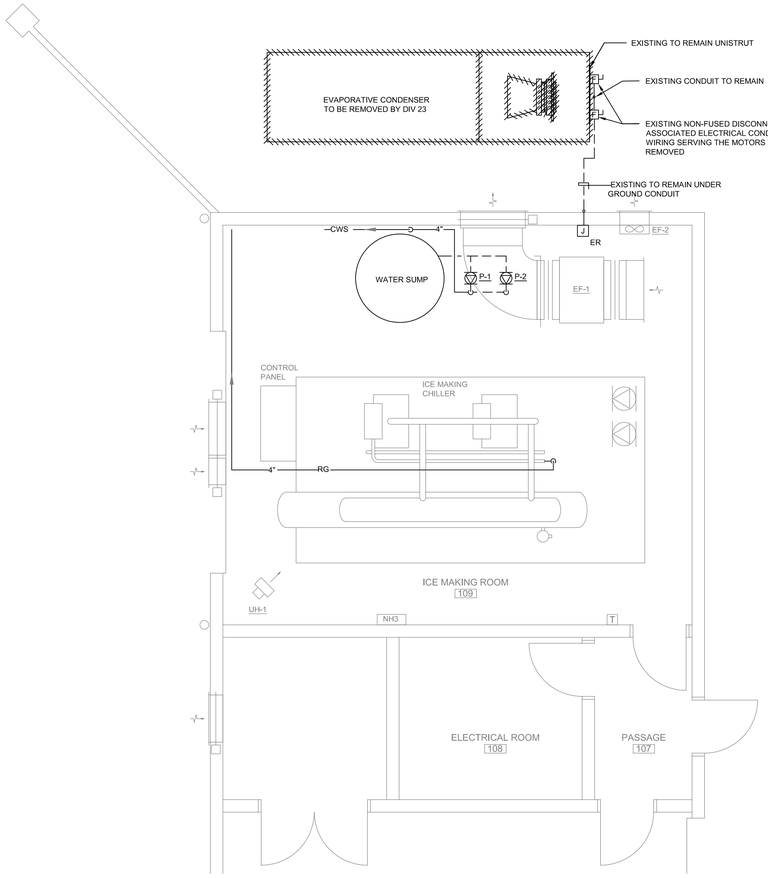
This **Addendum No. 1** includes clarification, revisions and additions to the documents. Modifications are hereby made to the Project Documents dated August 2020, for the above-referenced project.

REVISIONS

ADDITIONS

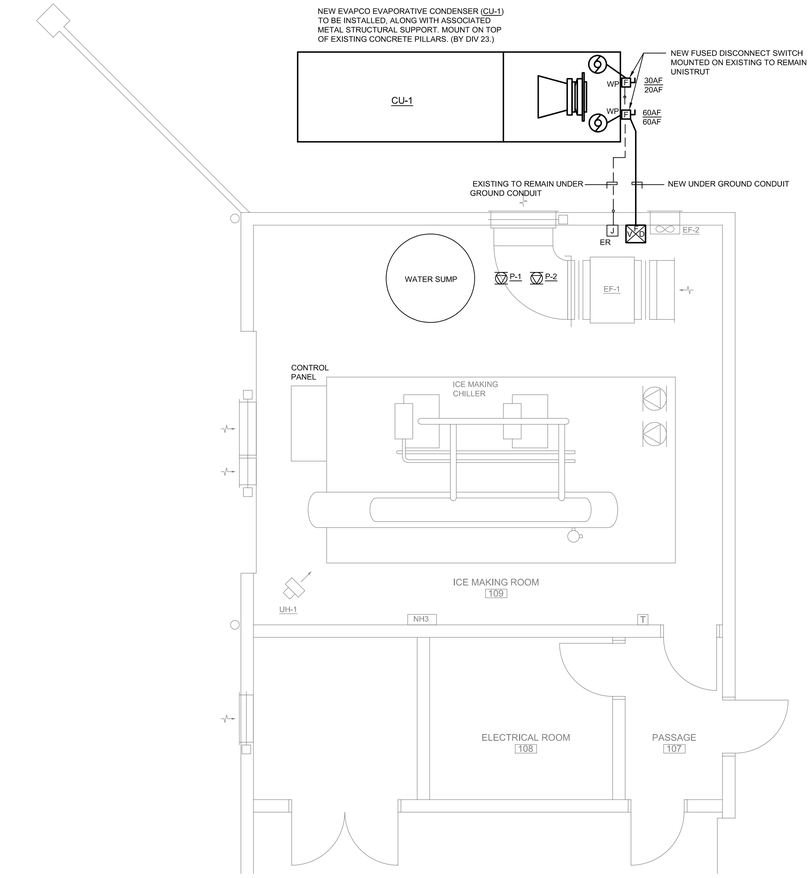
1. Add attached drawings E.100 and E.101 to the contract documents.

THIS ENDS ADDENDUM NO. 1.



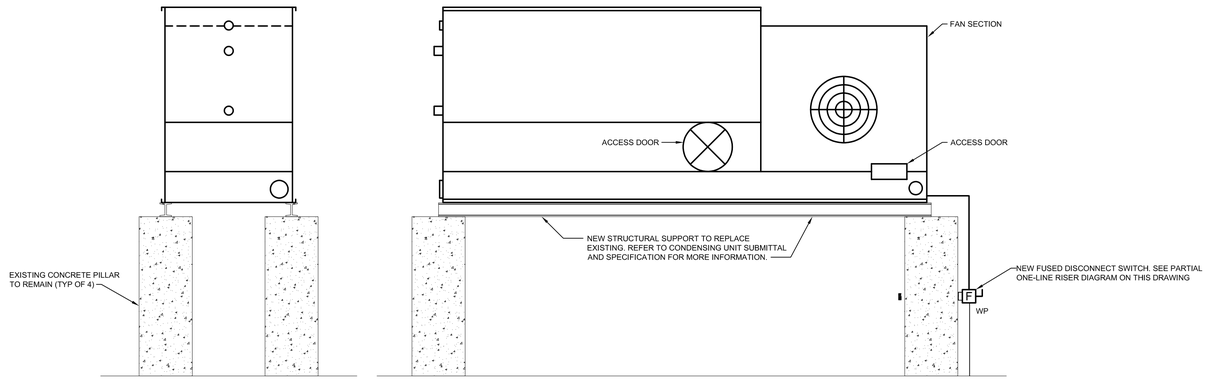
1 ELECTRICAL DEMOLITION PLAN

SCALE: 1/4" = 1'-0"



2 ELECTRICAL NEW WORK PLAN

SCALE: 1/4" = 1'-0"



3 EVAPORATIVE CONDENSER ELEVATION DETAIL

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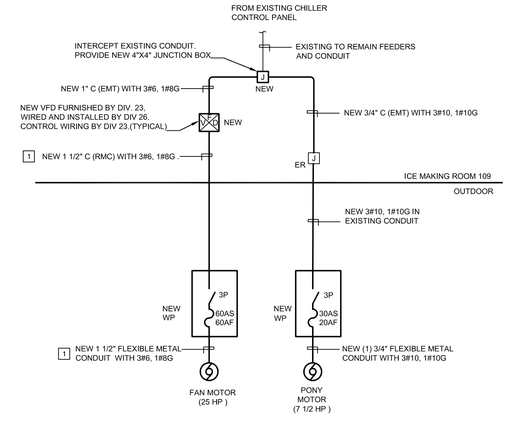

1 600 VAC, UL1277, TC-ER, (3) STRANDED TINNED COPPER CONDUCTORS PLUS FULL SIZE INSULATED GROUND, OVERALL BELDFOIL PLUS 85% TINNED COPPER BRAID SHIELD, FULL SIZE DRAIN WIRE, XLPE INSULATED CONDUCTORS, BLACK PVC JACKET, 1000V UL FLEXIBLE MOTOR SUPPLY CABLE. BELDEN #29502 - 29507.

4 ELECTTRICAL PARTIAL ONE-LINE RISER DIAGRAM

SCALE: N.T.S.

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PROJECT NAME:

TOWN OF SIMSBURY
ICE RINK REFRIGERATION
CONDENSING UNIT REPLACEMENT AND
CONTROLS UPGRADE
100 OLD FARMS ROAD
SIMSBURY, CT, 06070

KEYPLAN

N

REVISIONS

REV. NO.	DATE	DESCRIPTION

DRAWING TITLE:

ICE RINK ELECTRICAL DEMOLITION AND NEW WORK PLAN

DATE:	*04-30-2020*
DRAWN BY:	*RZP*
CHECKED BY:	*EDA*
SCALE:	*AS NOTED*
PROJ #:	*2020004.00*

DRAWING NUMBER:

E1.00

File Name:E1.00-ELECTRICAL DEMOLITION AND NEW WORK.dwg 8/17/2020 9:08:52 AM User ID: Parra, Roberto
File Path: T:\2020\2020004.00\Dwgs\Electrical

ELECTRICAL SPECIFICATION

PART 1 - GENERAL

1.1 GENERAL

A. ARCHITECT'S GENERAL CONDITIONS ARE A PART OF THIS DIVISION. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES AND REGULATIONS OF LOCAL AND STATE AGENCIES AND UTILITY COMPANIES. THIS CONTRACTOR SHALL BEAR THE COST OF ALL FEES, PERMITS, LICENSES AND TAXES AND ANY UTILITY COMPANY CHARGES IN CONNECTION WITH THE WORK. ALL EQUIPMENT INSTALLED SHALL BE UL LISTED.

B. AIA DOCUMENT A201-CURRENT VERSION, "GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION" IS HEREBY MADE PART OF THESE SPECIFICATIONS.

1.2 SCOPE

A. DEMOLITION:

1. THE CONTRACTOR SHALL REFERENCE MECHANICAL AND ELECTRICAL PLANS AND REMOVE OR RELOCATE EXISTING ELECTRICAL MATERIALS AS SHOWN OR WHICH EXIST ON WALLS AND PARTITIONS BEING REMOVED. ADDITIONALLY, THE CONTRACTOR SHALL REMOVE ALL ELECTRICAL FEEDS TO EXISTING FURNITURE PARTITIONS TO BE REMOVED. REMOVAL OF WIRING THAT IS NO LONGER IN SERVICE SHALL BE COMPLETE BACK TO SOURCE. EXISTING CONDUIT MAY BE REUSED WHEN IN SUITABLE CONDITION. WIRING FOR BRANCH CIRCUITS SHALL NOT BE REUSED UNLESS OTHERWISE NOTED. CIRCUITS THAT REMAIN SHALL BE LEFT IN OPERATING CONDITION.
2. EXISTING ELECTRICAL MATERIALS SHALL NOT BE REUSED UNLESS SO INDICATED ON THE DRAWINGS. EXISTING FLUSH-MOUNTED BOXES IN GOOD CONDITION MAY BE REUSED IF LOCATED AS SHOWN FOR NEW BOXES ON DRAWINGS. FLUSH-MOUNTED BOXES NOT BEING REUSED SHALL BE COVERED WITH SUITABLE COVER PLATES, SURFACE BOXES AND RACEWAYS SHALL BE REMOVED.
3. ALL MATERIALS REMOVED UNDER THIS DIVISION AND NOT SCHEDULED FOR REUSE OR REQUESTED BY THE OWNER, SHALL BE DISPOSED OF OFF SITE.

B. NEW WORK:

1. PROVIDE COMPLETE ELECTRICAL LIGHTING, POWER, FIRE ALARM AND SPECIAL SYSTEMS AS INDICATED ON THE CONTRACT DRAWINGS.
2. PROVIDE ALL ELECTRICAL WORK NECESSARY TO POWER OWNER-SUPPLIED EQUIPMENT. PROVIDE ALL RECEPTACLES, POWER WIRING, UNDERFLOOR DISTRIBUTION SYSTEM ACTIVATION FITTINGS, CORE DRILLS, ETC., NECESSARY FOR A COMPLETE INSTALLATION.
3. REFER TO ARCHITECTURAL SPECIFICATIONS FOR SECURITY SYSTEM REQUIREMENTS.
4. SYSTEMS SHALL BE COMPLETE IN ALL RESPECTS, TESTED, APPROVED AND READY FOR OPERATION.
5. MAINTAIN EXISTING RECEPTACLES ON EXISTING WALLS TO REMAIN, RECONNECT CIRCUITS THAT ARE INTERRUPTED.

C. WORK BY OTHERS:

1. OTHER TRADE CONTRACTORS AND OWNER'S EQUIPMENT VENDORS SHALL INSTALL ALL MOTORS FOR EQUIPMENT PROVIDED UNDER THEIR TRADE WORK CONTRACTS; MOTORS SHALL BE READY FOR WIRING BY THE ELECTRICAL CONTRACTOR.
2. OTHER TRADE CONTRACTORS AND OWNER'S EQUIPMENT VENDORS SHALL FURNISH AND DELIVER TO THE ELECTRICAL CONTRACTOR WIRING DIAGRAMS FOR ALL ELECTRICALLY OPERATED EQUIPMENT. OTHER TRADE CONTRACTORS SHALL FURNISH RELAYS AND CONTROL EQUIPMENT TO THE ELECTRICAL CONTRACTOR WHO SHALL INSTALL AND WIRE THESE DEVICES. THE ELECTRICAL CONTRACTOR SHALL PROVIDE MOTOR STARTERS AND DISCONNECT SWITCHES.
3. THE GENERAL CONTRACTOR SHALL PROVIDE EXCAVATION, BACKFILL, CHASES, OPENINGS, CUTTING, PATCHING, PAINTING AND FINISH WORK.
4. THE GENERAL CONTRACTOR SHALL INSTALL ALL ACCESS DOORS WHERE REQUIRED; DOORS NEEDED FOR ACCESS TO ELECTRICAL SYSTEMS SHALL BE FURNISHED BY THE ELECTRICAL CONTRACTOR.

1.3 SHOP DRAWING SUBMITTALS

A. SUBMIT SHOP DRAWINGS ON EQUIPMENT AND MATERIALS, IN SEXTUPLET (6 COPIES), TO THE ENGINEER FOR APPROVAL. THE DRAWINGS SHALL INCLUDE RATINGS, PERFORMANCE INFORMATION, OPERATING DATA AND WIRING DIAGRAMS. THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR WORK PERFORMED OR EQUIPMENT SUPPLIED THAT IS NOT IN AGREEMENT WITH APPROVED SHOP DRAWINGS.

B. THE FOLLOWING LIST OF ELECTRICAL ITEMS MUST BE SUBMITTED BY THIS CONTRACTOR FOR APPROVAL:

1. FUSED DISCONNECT SWITCH.

C. SUBMIT, FOR REVIEW, LIST OF MANUFACTURERS AND GRADE OR TYPE OF MATERIAL PROPOSED, INCLUDING WIRE, TERMINATING SYSTEMS, CONNECTORS, CONDUIT, WIREWAY AND FITTINGS. SUBMIT SAMPLES IF REQUESTED.

1.4 RECORD DRAWINGS

A. NEATLY AND ACCURATELY RECORD ALL CHANGES TO CONTRACT DOCUMENTS ON RECORD SET OF DRAWINGS FURNISHED BY THE GENERAL CONTRACTOR. THESE RECORD "AS-BUILT" DRAWINGS SHALL INCLUDE LOCATIONS OF SPECIFIC ITEMS AS LISTED IN THE VARIOUS SPECIFICATION DIVISIONS. UPON PROJECT COMPLETION, THESE RECORD DRAWINGS SHALL BE TURNED OVER TO THE ENGINEER.

1.5 DEFINITION

A. AS USED ON CONTRACT DRAWINGS, THE TERM "TO PROVIDE" SHALL MEAN "TO FURNISH, INSTALL AND CONNECT COMPLETELY IN THE SPECIFIED OR APPROVED MANNER THE ITEM OR MATERIAL DESCRIBED."

1.6 GUARANTEE

A. MATERIALS, EQUIPMENT AND WORKMANSHIP SHALL HAVE STANDARD WARRANTY AGAINST DEFECTS IN MATERIAL AND WORKMANSHIP. FAILURES DUE TO DEFECTIVE OR IMPROPER MATERIAL, EQUIPMENT, WORKMANSHIP OR DESIGN SHALL BE MADE GOOD, FORTHWITH, BY AND AT THE EXPENSE OF THE CONTRACTOR, INCLUDING DAMAGE DONE TO AREAS, MATERIALS AND OTHER SYSTEMS RESULTING FROM SUCH FAILURES. GUARANTEE PERIOD SHALL EXTEND FOR ONE YEAR FROM THE DATE OF ACCEPTANCE.

1.7 INSPECTION

A. CONTRACT DRAWINGS ARE DIAGRAMMATIC AND DO NOT SHOW EVERY REQUIRED FITTING, ETC. THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH EXISTING SITE CONDITIONS PRIOR TO SUBMITTING A BID, AND SHALL INCLUDE ALL EQUIPMENT AND ACCESSORIES NECESSARY FOR COMPLETE AND OPERATIONAL SYSTEMS.

1.8 INSURANCE

A. FURNISH INSURANCE CERTIFICATES REQUIRED BY THE OWNER.

1.9 PERMITS, LAWS, ORDINANCES, CODES AND STANDARDS

A. OBTAIN AND PAY FOR PERMITS, INSPECTIONS, LICENSES AND CERTIFICATES REQUIRED. WORK OF THIS CONTRACT SHALL MEET CURRENT ACCEPTED EDITIONS OF THE STATE BUILDING CODE, STATE FIRE SAFETY CODE AND OTHER LAWS, RULES AND REGULATIONS OF LOCAL, STATE AND FEDERAL AUTHORITIES INCLUDING, BUT NOT LIMITED TO: NATIONAL FIRE PROTECTION ASSOCIATION #13; NATIONAL FIRE PROTECTION ASSOCIATION #90A; NATIONAL FIRE PROTECTION ASSOCIATION #90B; NATIONAL FIRE PROTECTION ASSOCIATION #99; INTERNATIONAL PLUMBING CODE; INTERNATIONAL MECHANICAL CODE; NATIONAL FIRE PROTECTION ASSOCIATION #70 (NATIONAL ELECTRICAL CODE); AND LOCAL UTILITY COMPANY REQUIREMENTS. PAY UTILITY COMPANY BACKCHARGES. EQUIPMENT, MATERIALS AND COMPONENTS LISTED IN UL PRODUCT DIRECTORIES, SHALL BEAR UL LABELS.

1.10 ARRANGEMENT OF WORK

A. WORK SHALL BE COORDINATED BETWEEN TRADES TO PREVENT INTERFERENCE. WORK SHALL PRESENT A NEAT COORDINATED APPEARANCE. INSTALL WORK AS NECESSARY TO PROVIDE MAXIMUM POSSIBLE HEADROOM, ADEQUATE CLEARANCE AND READY ACCESS FOR INSPECTION, OPERATION, SAFE MAINTENANCE AND REPAIR AND CODE CONFORMANCE. WHERE SPACE APPEARS INADEQUATE, CONSULT THE ARCHITECT BEFORE PROCEEDING WITH INSTALLATION.

1.11 WORKMANSHIP

A. EQUIPMENT AND MATERIALS SHALL BE NEW, OF FIRST QUALITY, SELECTED AND ARRANGED TO FIT PROPERLY INTO SPACES INDICATED. INSTALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

1.12 COORDINATION WITH OWNER

A. WORK SHALL BE SCHEDULED WITH THE OWNER. INTERRUPTIONS IN OWNER'S ACCESS TO THE SITE SHALL BE SUBJECT TO OWNER LIMITATIONS OF DATE AND DURATION.

1.13 OPERATION OF SERVICES AND UTILITIES

A. SHUTDOWN OF EXISTING SERVICES AND UTILITIES SHALL, WITHOUT EXCEPTION, BE COORDINATED WITH THE PROPER UTILITY AND WITH THE OWNER AS TO DATE, TIME OF DAY, AND DURATION BEFORE ANY SERVICE IS INTERRUPTED. NOTIFY THE OWNER OF ESTIMATED DURATION OF SHUTDOWN PERIOD AT LEAST TEN DAYS IN ADVANCE OF PROPOSED SHUTDOWN.

1.14 PROTECTION

A. CLOSE OPEN ENDS OF WORK WITH TEMPORARY COVERS OR PLUGS DURING CONSTRUCTION TO PREVENT ENTRY OF FOREIGN MATERIAL. PROTECT EXISTING PROPERTY, EQUIPMENT AND FINISHES FROM DAMAGE. REPAIR, TO ORIGINAL CONDITION, EXISTING PROPERTY THAT HAS BEEN DAMAGED DURING EXECUTION OF THE WORK.

B. TEMPORARY HEATING: APPLY TEMPORARY HEAT TO ELECTRICAL EQUIPMENT INCLUDING BUT NOT LIMITED TO SWITCHGEAR, SWITCHBOARDS, TRANSFORMERS AND MOTOR CONTROL CENTERS ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS, THROUGHOUT PERIODS WHEN ENVIRONMENT IS NOT CONTROLLED FOR TEMPERATURE AND HUMIDITY WITHIN MANUFACTURER'S STIPULATED SERVICE CONDITIONS.

1.15 CLEANING

A. WORK SITE MUST BE KEPT CLEAN. RUBBISH, DEBRIS AND LEFTOVER OR EXCESS MATERIALS SHALL BE REMOVED DAILY.

1.16 LUBRICATION

A. NO EQUIPMENT SHALL BE OPERATED FOR TEMPORARY SERVICE OR TESTING WITHOUT PROPER LUBRICATION. ITEMS REQUIRING LUBRICATION SHALL BE LEFT FRESHLY AND FULLY LUBRICATED AT TIME OF SUBSTANTIAL COMPLETION. FURNISH OWNER WITH ONE COMPLETE NEW SET OF ANY SPECIAL LUBRICATION DEVICES REQUIRED FOR SERVICING, E.G., GREASE GUNS, FITTINGS AND ADAPTERS.

1.17 PAINTING

A. EQUIPMENT AND MATERIALS SHALL HAVE STANDARD MANUFACTURER'S FINISH EXCEPT WHERE OTHERWISE NOTED.

1.18 CUTTING AND PATCHING

A. CUTTING AND PATCHING TO BE PERFORMED BY GENERAL CONTRACTOR. PAINTING OF FINISHED SURFACES AFTER PATCHING SHALL BE AS SPECIFIED BY ARCHITECT OR SHALL MATCH ADJACENT FINISHES.

1.19 WATERPROOFING

A. PROVIDE NECESSARY SLEEVES, CAULKING AND FLASHING REQUIRED TO MAKE OPENINGS WATERPROOF.

1.20 FIREPROOFING

A. AT CLOSING OF EACH WORKING DAY, OPENING CUT BETWEEN FLOORS AND THROUGH FIRE-RATED PARTITIONS SHALL BE PROVIDED WITH UL APPROVED, CLASS A "NONCOMBUSTIBLE", FIRESTOPPING WITH RATINGS EQUAL TO THAT OF ADJACENT CONSTRUCTION.

1.21 BASES AND SUPPORTS

A. PROVIDE NECESSARY SUPPORTS, PADS, BASES AND PIERS FOR EQUIPMENT. EQUIPMENT SHALL BE SECURELY ATTACHED TO BUILDING STRUCTURE IN ACCEPTABLE MANNER. ATTACHMENTS SHALL BE OF STRONG AND DURABLE NATURE, AS DETERMINED BY THE OWNER.

1.22 ACCESS

A. PROVIDE ADEQUATELY SIZED ACCESS DOORS, FOR ACCESS TO CONCEALED EQUIPMENT AND COMPONENTS REQUIRING SERVICING OR INSPECTION. DOORS SHALL HAVE FIRE RATINGS EQUAL TO CONSTRUCTION IN WHICH THEY ARE LOCATED.

1.23 TESTS

A. PERFORM TESTS REQUIRED BY THE OWNER, LEGAL AUTHORITIES AND AGENCIES. EACH PIECE OF EQUIPMENT, INCLUDING MOTORS AND CONTROLS, SHALL BE OPERATED CONTINUOUSLY FOR MINIMUM ONE-HOUR TEST. CORRECT ALL DEFECTS APPEARING DURING TESTS, AND REPEAT TESTS UNTIL NO DEFECTS ARE DISCLOSED. FINAL TESTS SHALL BE MADE IN THE OWNER'S PRESENCE.

1.24 SYSTEMS OPERATION AND MAINTENANCE

A. UPON COMPLETION OF THE WORK AND AT A TIME DESIGNATED BY THE ENGINEER, THE CONTRACTOR SHALL FURNISH INSTRUCTION MANUALS INCLUDING DATA, WARRANTIES, ETC., AND SHALL INSTRUCT THE OWNER OR HIS REPRESENTATIVE AS TO THE ARRANGEMENT, LOCATION AND OPERATION OF ALL EQUIPMENT AND SYSTEMS FURNISHED AND INSTALLED UNDER THE ELECTRICAL CONTRACT.

PRODUCTS

1.25 WIRE CABLE AND RACEWAYS

A. RIGID GALVANIZED STEEL CONDUIT (RGS) SHALL BE USED FOR ALL EXTERIOR WIRING AND WHERE SUBJECT TO DAMPNESS, EXCEPT AS NOTED BELOW OR AS SPECIFICALLY NOTED ON THE DRAWINGS. CONNECTORS AND COUPLINGS SHALL BE GALVANIZED STEEL THREADED TYPE LISTED FOR RMC USE.

B. ELECTRICAL METALLIC TUBING (EMT) SHALL BE USED FOR FEEDERS RUN ABOVE GROUND IN DRY AREAS. CONNECTORS AND COUPLINGS SHALL BE GALVANIZED STEEL, EITHER COMPRESSION TYPE OR HEAVY-DUTY SET SCREW-TYPE, LISTED FOR EMT USE. INDENT OR CRIMP-TYPE CONNECTORS ARE NOT ALLOWED.

C. EMT OR RGS SHALL BE USED FOR ALL CIRCUIT HOMERUNS.

D. SCHEDULE 40 POLYVINYL CHLORIDE (PVC) CONDUIT MAY BE USED FOR UNDERGROUND POWER AND TELEPHONE WIRING EXCEPT AS SPECIFICALLY OTHERWISE NOTED ON THE DRAWINGS. ALL ELBOWS SHALL BE RIGID STEEL CONDUIT.

E. MINIMUM SIZES SHALL BE AS FOLLOWS:

1. CONDUIT AND EMT: 3/4" UNLESS OTHERWISE NOTED.
2. FLEXIBLE METAL CONDUIT: ½"
3. WIREWAY: 4" X 4".

F. FLEXIBLE METALLIC CONDUIT (FMC) OR LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LFMC) SHALL BE USED FOR CONNECTIONS TO VIBRATING EQUIPMENT AND FURNITURE PARTITIONS. CONNECTORS, FITTINGS AND CLAMPS FOR FMC SHALL BE GALVANIZED STEEL, LISTED FOR FMC USE. CONNECTORS AND COUPLINGS FOR LFMC SHALL BE ZINC PLATED MALLEABLE IRON OR STEEL, WITH ENGAGEMENT WINDOW LOCKNUT AND SEALING RING: LIQUID, OIL, AND RAIN-TIGHT; SUITABLE FOR WET LOCATIONS, LISTED FOR LFMC USE: ACCEPTABLE EQUIVALENT TO O-Z/GEDNEY "TYPE 4Q".

1. BLUE TYPE LA LIQUID-TIGHT FLEXIBLE METAL CONDUIT (LFMC) SHALL BE USED FOR ALL WIRING BENEATH RAISED FLOOR.
2. GREY/TAN TYPE LA LIQUID-TIGHT FLEXIBLE METAL CONDUIT (LFMC) SHALL BE USED FOR FINAL CONNECTIONS TO VIBRATING EQUIPMENT AND TO FURNITURE PARTITIONS FROM UNDERFLOOR DUCT ACTIVATION FITTINGS.

G. WIRING THAT MUST BE RUN ALONG THE SURFACE OF THE EXISTING WALLS SHALL BE RUN IN WIREMOLD #500 SURFACE METAL RACEWAY, WIREMOLD #2100 SURFACE METAL RACEWAY OR AS OTHERWISE SPECIFIED ON THE DRAWINGS.

H. CONDUCTORS SHALL BE NEW COPPER WITH 600 VOLT CODE GAUGE INSULATION CONFORMING TO NEC REQUIREMENTS. WIRE #10 AND SMALLER SHALL BE SOLID CONDUCTOR WITH THWN/THHN INSULATION, SIZE #8 AND LARGER SHALL BE STRANDED CONDUCTORS WITH THWN/THHN INSULATION. SIZE #3 AND LARGER SHALL BE STRANDED CONDUCTORS WITH XHHW INSULATION. MINIMUM SIZE WIRE FOR LIGHT AND POWER CIRCUITS SHALL BE #12 AWG. THE CONTRACTOR SHALL INCLUDE AN INDIVIDUAL CODE SIZED GREEN INSULATED GROUND CONDUCTOR FOR ALL CIRCUITS; THE USE OF THE CONDUIT SYSTEM OR CABLE COVERING AS THE SOLE MEANS OF GROUNDING WILL NOT BE PERMITTED.

I. COMMON NEUTRALS SHALL NOT BE USED FOR RECEPTACLE CIRCUITS, UNLESS OTHERWISE NOTED ON PLANS. WHEN USED, COMMON NEUTRAL CONDUCTOR AMPERE RATING SHALL BE DOUBLE THE PHASE CONDUCTOR RATING.

J. ALL CONDUITS AND WIRING SHALL BE RUN CONCEALED INSIDE WALLS WHERE POSSIBLE. EXPOSED CONDUITS WHERE ALLOWED SHALL BE RUN NEATLY IN LINES PARALLEL OR PERPENDICULAR TO BUILDING WALLS.

K. ALL SPLICES FOR #10 OR SMALLER SHALL BE MADE WITH "SCOTCHLOK" SPRING CONNECTORS OR EQUAL. SPLICES FOR #8 OR LARGER SHALL BE MADE WITH UL APPROVED COMPRESSION CONNECTORS.

1.26 GROUNDING AND BONDING

A. EQUIPMENT GROUNDS

1. GROUNDING SHALL BE INSTALLED AND TESTED IN ACCORDANCE WITH NFPA 70 (NEC) AND TO SATISFACTION OF LOCAL ELECTRICAL INSPECTOR AND ARCHITECT.
2. PROVIDE GREEN THHN INSULATED COPPER EQUIPMENT GROUNDING CONDUCTOR BETWEEN THE GROUND BUS OF THE SOURCE DISTRIBUTION PANEL OR SWITCHBOARD AND EACH LOAD BEING SERVED. CONDUCTOR SHALL BE SIZED ACCORDING TO NEC TABLE 250.122. PROVIDE SEPARATE GROUNDING CONDUCTOR FOR EACH BRANCH CIRCUIT, UNLESS OTHERWISE INDICATED ON CONTRACT DRAWINGS.
3. MAINTAIN ELECTRICAL CONTINUITY OF RACEWAYS.

B. MATERIALS

1. ABOVE-GRADE AND EXPOSED CONNECTIONS SHALL BE BURNDY OR ACCEPTABLE EQUIVALENT.
2. WIRE SHALL BE STRANDED BARE COPPER OR INSULATED COPPER, AS INDICATED ON CONTRACT DRAWINGS.
3. BUS SHALL BE COPPER BAR, AS INDICATED ON CONTRACT DRAWINGS.
4. BUSHINGS AND PRESSURE LUGS SHALL BE BY T&B, O.Z./GEDNEY OR ACCEPTABLE EQUIVALENT.
5. PIPE CLAMPS SHALL BE BY O.Z./GEDNEY OR ACCEPTABLE EQUIVALENT.

1.27 SAFETY SWITCHES

C. SAFETY SWITCHES SHALL BE FUSED, 600 VAC, HEAVY-DUTY TYPE IN NEMA ENCLOSURES SUITABLE FOR THE ENVIRONMENT IN WHICH THEY SHALL BE INSTALLED. SWITCHES SHALL BE SQUARE D, GENERAL ELECTRIC OR CUTLER-HAMMER EQUIVALENT TO THE FOLLOWING SQUARE D TYPES:

1. FUSED DISCONNECT 2- AND 3-POLE: "TYPE H"
2. FUSED, RAINTIGHT (WP) DISCONNECT SWITCHES IN NEMA 3R ENCLOSURES: "TYPE H-R".

1.28 FUSES

A. FUSES FOR CIRCUIT PROTECTION SHALL BE UL LISTED, NON-RENEWABLE, LOW PEAK, DUAL-ELEMENT, TIME DELAY FUSES. BUSSMAN TYPE FRN-RK (250 VOLT) OR FRS-RK (460 VOLT) UL CLASS RK5 OR APPROVED EQUAL.

PART 2 - EXECUTION

2.1 GENERAL

A. THE ELECTRICAL CONTRACTOR SHALL ENSURE THAT NO PIPING, DUCTWORK, LEAK PROTECTION APPARATUS OR OTHER EQUIPMENT FOREIGN TO THE ELECTRICAL TRADE PASSES THROUGH THE SPACE EQUAL TO THE WIDTH AND DEPTH OF THE ELECTRICAL DISTRIBUTION EQUIPMENT AND EXTENDING FROM THE FLOOR TO THE STRUCTURAL CEILING.

2.2 LOAD BALANCE

A. THE ELECTRICAL CONTRACTOR SHALL BALANCE THE LOADS ON THE THREE PHASES IN THE ELECTRICAL PANELBOARD IN WHICH HE DOES WORK INSOFAR AS PHYSICALLY POSSIBLE, AND REPORT EACH PANEL LOADING TO THE ENGINEER.

2.3 CIRCUIT BREAKER TESTING/SETTING

A. FEEDER CIRCUIT BREAKERS SHALL BE TESTED BY AN INDEPENDENT TESTING FIRM WITH 10 YEARS EXPERIENCE, PRIOR TO INSTALLATION.

B. TESTS SHALL BE PERFORMED AT SPECIFIED TRIP SETTING TO ENSURE PROPER OPERATION.

C. RESULTS OF TEST SHALL BE FURNISHED TO OWNER FOR RECORD.

D. VERIFY FINAL TRIP SETTINGS FOR ADJUSTABLE OR INTERCHANGEABLE CIRCUIT BREAKER ELEMENTS. INSTANTANEOUS SETTINGS SHALL BE MINIMUM UNLESS NOTED OTHERWISE.

2.4 GENERAL WIRING TESTS

A. AT THE TIME OF FINAL INSPECTION AND TEST, ALL WIRING AND CONNECTIONS THROUGHOUT THE RENOVATION AREAS MUST BE COMPLETED, DEVICES AND EQUIPMENT PROPERLY OPERATING, LIGHTING FIXTURES INSTALLED, AND POWER AND LIGHTING CIRCUIT AND CONTROL WIRING CLEARLY IDENTIFIED WITH APPROVED TAGS READY FOR ACCEPTANCE. EACH SYSTEM SHALL TEST FREE FROM SHORT CIRCUIT AND GROUNDS.

B. INSULATION RESISTANCE FOR LOW VOLTAGE CABLES AND WIRING SHALL BE PERFORMED AT 1000 VOLT D.C. FOR ONE (1) MINUTE. WHEN INSULATION RESISTANCE MUST BE DETERMINED, SWITCHBOARDS, PANELBOARDS, FUSE HOLDERS, SWITCHES AND OVERCURRENT DEVICES SHALL BE IN PLACE, AND THE INSULATION RESISTANCE WHEN TESTED AT 1000 VOLTS D.C. SHALL BE NO LESS THAN 100,000 OHMS FOR #14 AND #12 WIRE AND 250,000 OHMS FOR #10 WIRE AND LARGER.

2.5 OPERATIONAL TESTS

A. EACH PIECE OF ELECTRICAL EQUIPMENT, INCLUDING LIGHTING FIXTURES, MOTORS AND CONTROLS SHALL BE OPERATED CONTINUOUSLY FOR MINIMUM TEST PERIOD OF ONE HOUR.

B. DEMONSTRATE BY OPERATING EQUIPMENT THAT CIRCUITS AND DEVICES ARE IN GOOD OPERATING CONDITION. EACH ITEM OF CONTROL EQUIPMENT SHALL BE OPERATED MINIMUM OF FIVE TIMES. DEMONSTRATION SHALL BE PERFORMED AFTER WIRING TESTS.

2.6 MECHANICAL SYSTEM ADJUSTMENT AND TESTING

A. BE PRESENT DURING ADJUSTMENT PERIOD AND FINAL TESTING OF MECHANICAL SYSTEMS. TAKE READINGS NECESSARY TO ENSURE THAT ELECTRICAL SYSTEMS ARE OPERATING PROPERLY. TESTS FOR MECHANICAL WORK ARE DETAILED UNDER DIVISION 15, MECHANICAL WORK.

B. TAKE AMPERE READINGS WITH TRUE RMS READING AMMETER AT EACH ELECTRICAL COMPONENT, SUCH AS MOTOR AND HEATING COIL, TO DETERMINE PROPER OPERATION.

C. RECORD READINGS AND SUBMIT THEM IN TRIPLICATE TO THE ENGINEER FOR REVIEW.

2.7 LABELING

A. LABEL ALL NEW DISCONNECTS, STARTERS, MOTORS, FURNITURE FEEDER BOXES, IN A MANNER ACCEPTABLE TO THE ARCHITECT. PROVIDE UPDATED PANEL SCHEDULES IN ALL PANELBOARDS WITHIN THE SCOPE OF WORK.

B. ALL MANUFACTURER'S NAMEPLATES SHALL BE KEPT CLEAN AND FREE OF PAINT.

C. DATA/COMMUNICATIONS WIRING DONE UNDER THIS CONTRACT SHALL BE RECORDED ON CABLE MANAGEMENT DRAWINGS. EACH OUTLET SHALL BE ASSIGNED A NUMBER WHICH SHALL BE KEYED TO ITS PUNCHDOWN LOCATION.

D. PROVIDE PRINTED, COLORED, ADHESIVE LABELS FOR ALL ELECTRICAL EQUIPMENT, SUCH AS BUT NOT LIMITED TO SWITCHBOARDS, PANELBOARDS, MOTOR CONTROL CENTERS, DISCONNECT SWITCHES, METER SOCKET ENCLOSURES, ETC. TO WARN QUALIFIED PERSONNEL OF POTENTIAL ELECTRIC' ARC FLASH HAZARDS. LABEL SHALL BE A MINIMUM OF 4" X 5" AND READ AS FOLLOWS:

WARNING

ARC FLASH HAZARD
APPROPRIATE PPE REQUIRED
FAILURE TO COMPLY CAN RESULT IN DEATH OR INJURY
REFER TO NFPA 70E

END OF SECTION

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SECURITY:
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CIVIL ENGINEER:
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PROJECT NAME:

TOWN OF SIMSBURY
ICE RINK REFRIGERATION
CONDENSING UNIT REPLACEMENT AND
CONTROLS UPGRADE
100 OLD FARMS ROAD
SIMSBURY, CT, 06070

KEYPLAN

N

REVISIONS

REV. NO.	DATE	DESCRIPTION

DRAWING TITLE:

ELECTRICAL SPECIFICATIONS

DATE: 05-20-2020
DRAWN BY: RZP
CHECKED BY: EDA
SCALE: AS NOTED
PROJ #: 2020004.00

DRAWING NUMBER:

E1.01

File Name:E1.01 -ELECTRICAL SPECIFICATIONS.dwg 8/17/2020 9:00:08 AM User ID: Parra, Roberto
File Path: T:\2020\2020004.00\Dwgs\Electrical