1.0 GENERAL SPECIFICATION - ELECTRICAL

1.) SUPPLY AND INSTALL AII ITEMS, ARTICLES,

MATERIAL OPERATIONS INCLUDING ALL LABOUR, EQUIPMENT, MATERIALS & TOOLS NECESSARY TO COMPLETE ALL SYSTEMS SHOWN ON THE DRAWINGS RENDERING A COMPLETE INSTALLATION

2.) OBTAIN ALL PERMITS REQUIRED, ARRANGE FOR INSPECTION OF THE WORK BY INSPECTION AUTHORITY AND PAY ALL FEES PROVIDE FINAL CERTIFICATE TO THE OWNER.

3.) CONFORM TO THE LATEST REQUIREMENTS OF THE ELECTRICAL SAFETY CODE AND ALL RULES, BY-LAWS & AUTHORITIES HAVING JURISDICTION.

4.) ALL MATERIALS AND EQUIPMENT SHALL BE NEW, CSA APPROVED, BEAR CSA STAMP AND BE COMMERCIAL GRADE.

FROM DATE OF ACCEPTANCE.

5.) PROVIDE A CERTIFICATE OF GUARANTEE WORKMANSHIP AND MATERIAL FOR ONE YEAR

2.0 METHODS

1.) GROUND ALL EQUIPMENT TO THE REQUIREMENT OF THE ELECTRICAL SAFETY CODE AND INSPECTION AUTHORITIES.

2.) PROVIDE JUNCTION BOXES C/W COVER PLATES AS REQUIRED BY CODE.

3.) PROVIDE SEPARATE GROUND WIRE IN ALL PVC (CONCRETE) CONDUITS.

4.) PROVIDE SEPARATE NEUTRAL FOR EACH LIGHTING CIRCUIT.

5.) PROVIDE ONE IDENTIFIED, GROUNDED NEUTRAL CONNECTOR FOR EACH SET OF BRANCH CIRCUITS CONNECTED TO DIFFERENT MAINS AT THE PANELS. CHECK TO ENSURE COMMON NEUTRAL ARE CONNECTED TO THE SAME MAIN OR PHASE.

6.) MINIMUM WIRE SIZE SHALL BE # 12 AWG FOR HOMERUNS UP TO 90 FT. AND #10 AWG FOR HOMERUNS OVER 90 FT. UNLESS OTHERWISE NOTED.

7.) BALANCE THE LOADING ON FEEDERS SO THAT UNBALANCED LOAD IS LESS THAN 10%.

ELECTRICAL SCOPE OF WORK:

CONTRACTOR TO VISIT THE SITE AND FAMILIARIZE THEMSELVES WITH THE REQUIREMENTS OF THIS DESIGN.

REFER TO SPECIFICATION & GENERAL PROJECT NOTES INCLUDED IN THIS SET OF DWGS.

THE WORK SHALL CONSIST OF, BUT SHALL NOT BE LIMITED TO THE FOLLOWING:

- CONTRACTOR TO VISIT JOB SITE TO BECOME FAMILIAR WITH THE PROJECT PRIOR TO SUBMITTING TENDER. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR AND SHALL OBTAIN ALL PERMITS, INSPECTIONS, ETC, AS REQUIRED BY ALL AUTHORITIES HAVING JURISDICTION
- OVER THIS WORK AND SHALL PAY FOR SAME. ALL PERMITS SHALL BE DELIVERED TO THE OWNERS REPRESENTATIVE AS SOON AS THEY BECOME
- AVAILABLE AND PRIOR TO PROJECT COMPLETION. DETERMINE THE LOCATION OF ALL EXISTING SERVICES
- SO AS TO NOT DAMAGE DURING NEW CONSTRUCTION. SUPPLY & INSTALL ALL ELECTRICAL DISTRIBUTION
- INCLUDING BREAKERS & DISCONNECTS
- SUPPLY & INSTALL ALL NECESSARY CONDUIT & WIRING TO CU-01 ON ROOF. CONTRACTOR TO REVIEW CONDUIT
- ROUTING ON SITE & ADVISE ON OPTIMAL ROUTING. SUPPLY & INSTALL ALL NECESSARY CONDUIT & WIRING TO FC-01 OVER STAGE. CONTRACTOR TO REVIEW CONDUIT ROUTING & ADVISE ON OPTIMAL ROUTING.
- SUPPLY & INSTALL POWER DISTRIBUTION SYSTEM AS 8. SHOWN ON THE DRAWINGS.

8.) LIMIT THE VOLTAGE DROP AT THE END 7.0 COORDINATION OF FEEDERS AND BRANCH CIRCUITS TO 2% AT THE RATED LOAD OF THE CIRCUIT.

9.) ALL GROUNDING SHALL CONFORM TO THE ELECTRICAL SAFETY CODE AND LOCAL WORK, LIGHTING FIXTURES, ETC. WITH AUTHORITY REQUIREMENTS.

10.) ALL DISTRIBUTION EQUIPMENT SHALL BE MANUFACTURED BY SQUARE D UNLESS 8.0 ACCESSIBILITY OTHERWISE INDICATED ON DRAWINGS. 3.0 CONDUIT AND FITTINGS

1.) CONDUIT SIZES SHALL BE AS INDICATED OPERATION, MAINTENANCE AND REPAIRS. ON THE DRAWINGS AND SHALL NOT BE REDUCED IN SIZE WITHOUT AUTHORIZATION. CONDUIT IN FINISHED AREA SHALL BE CONCEALED. ALL CONDUIT 1.) THIS TRADE SHALL BE RESPONSIBLE SHALL BE INSTALLED PARALLEL TO BUILDING LINES.

2.) CLEAN INTERIOR OF ALL CONDUITS TO REMOVE WATER AND DEBRIS BEFORE PULLING WIRES.

4.0 EXAMINATION OF SITE

1.) THIS CONTRACTOR SHALL VISIT THE SITE OF THE PROJECT AND FAMILIARIZE HIMSELF WITH THE SPECIFIC SITE CONDITIONS.

2.) ANY DEVIATION AND / OR CONFLICTS ON SITE ESPECIALLY CONCERNING THE DISTRIBUTION DIAGRAM(S) AS SHOWN ON THE PLANS, SHALL BE REPORTED TO THE ENGINEER PRIOR TO SUBMITTING TENDER.

5.0 CONSTRUCTION SCHEDULE

1.) THIS CONTRACTOR SHALL SCHEDULE AND PERFORM HIS WORK TO MEET THE COMPLETION SCHEDULE AS SET OUT BY THE CLIENT.

6.0 REVISIONS AND EXTRAS

1.) NO ADDITIONAL MONEY OVER THE CONTRACT PRICE SHALL BE PAID UNLESS AN APPROVED CHANGE ORDER IS ISSUED BY THE ENGINEER.

2.) CLAIMS FOR EXTRAS SHALL BE SUBMITTED WITH A COMPLETE BREAKDOWN OF MATERIAL, LABOUR, HOURLY RATES, ETC.

1.) THIS CONTRACTOR SHALL BE RESPONSIBLE TO CO-ORDINATE THE INSTALLATION OF EQUIPMENT, CONDUIT OTHER TRADES AND THE OWNER PRIOR TO THE ACTUAL INSTALLATION.

1.) ALL WORK SHALL BE INSTALLED SO AS WORKING SYSTEM. TÓ BE READILY ACCESSIBLE FOR

9.0 RESPONSIBILITY

FOR THIS WORK UNTIL THE COMPLETION AND FINAL ACCEPTANCE, FOR REPLACING ANY ITEM THAT MAY BE DEFECTIVE, DAMAGED. LOST OR STOLEN WITHOUT ADDITIONAL COST TO THE OWNER OR DELAY TO THE COMPLETION OF THE PROJECT.

10.0 ELECTRICAL DRAWINGS

1.) THIS CONTRACTOR SHALL PREPARE, AT THEIS OWN EXPENSE, ANY LARGE SCALE WORKING DRAWINGS WHICH MAY BE REQUIRED BY THE EXAMINING AUTHORITIES.

11.0 AS-BUILT DRAWINGS

2.) THIS CONTRACTOR SHALL KEEP A SÉPARATE SET OF WHITE PRINTS ON THE SITE AND NOTE ALL CHANGES AND DEVIATIONS FROM THE ORIGINAL DESIGN.

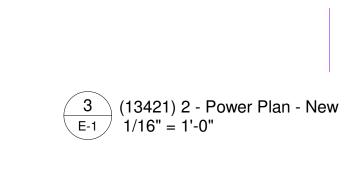
3.) ONE SET OF THESE PLANS SHOWING ALL AS-BUILT CONDITIONS SHALL BE FORWARDED TO THE ENGINEER AT THE COMPLETION OF THE WORK ONSITE.

4.) CONTRACTOR SHALL SUBMIT TO THE ENGINEER THE LISTED DOCUMENTS (SEE PLANS FOR LIST) FOR REVIEW AND APPROVAL AT THE COMPLETION OF THE PROJECT:



1.) BASED ON CONTRACT WITH OWNER, THE ENGINEER WILL REVIEW SHOP SUBMISSION DWGS FROM THE CONTRACTOR TO REVIEW THE ITEMS FOR GENERAL CONFORMITY TO THE DESIGN DWGS.

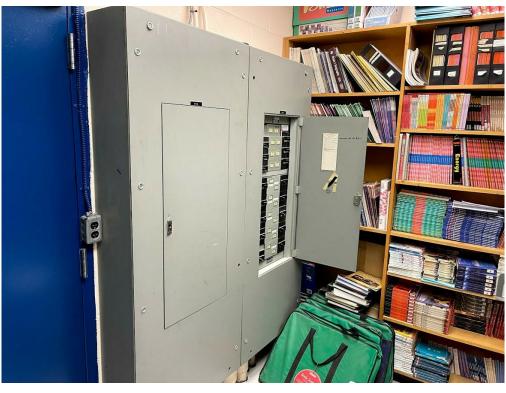
2.) THE SHOP DWG REVIEW WILL NOT RÉLEASE THE CONTRACTOR FROM **RESPONSIBILITY TO MAKE A FEASIBLE**



PPG

ÉÆX

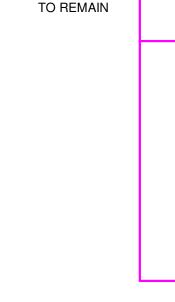
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EXISTING PANEL PPG

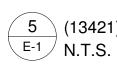


REPLACE ABANDONED ELEC. HEAT BREAKERS FOR NEW FAN COIL & COND. UNIT



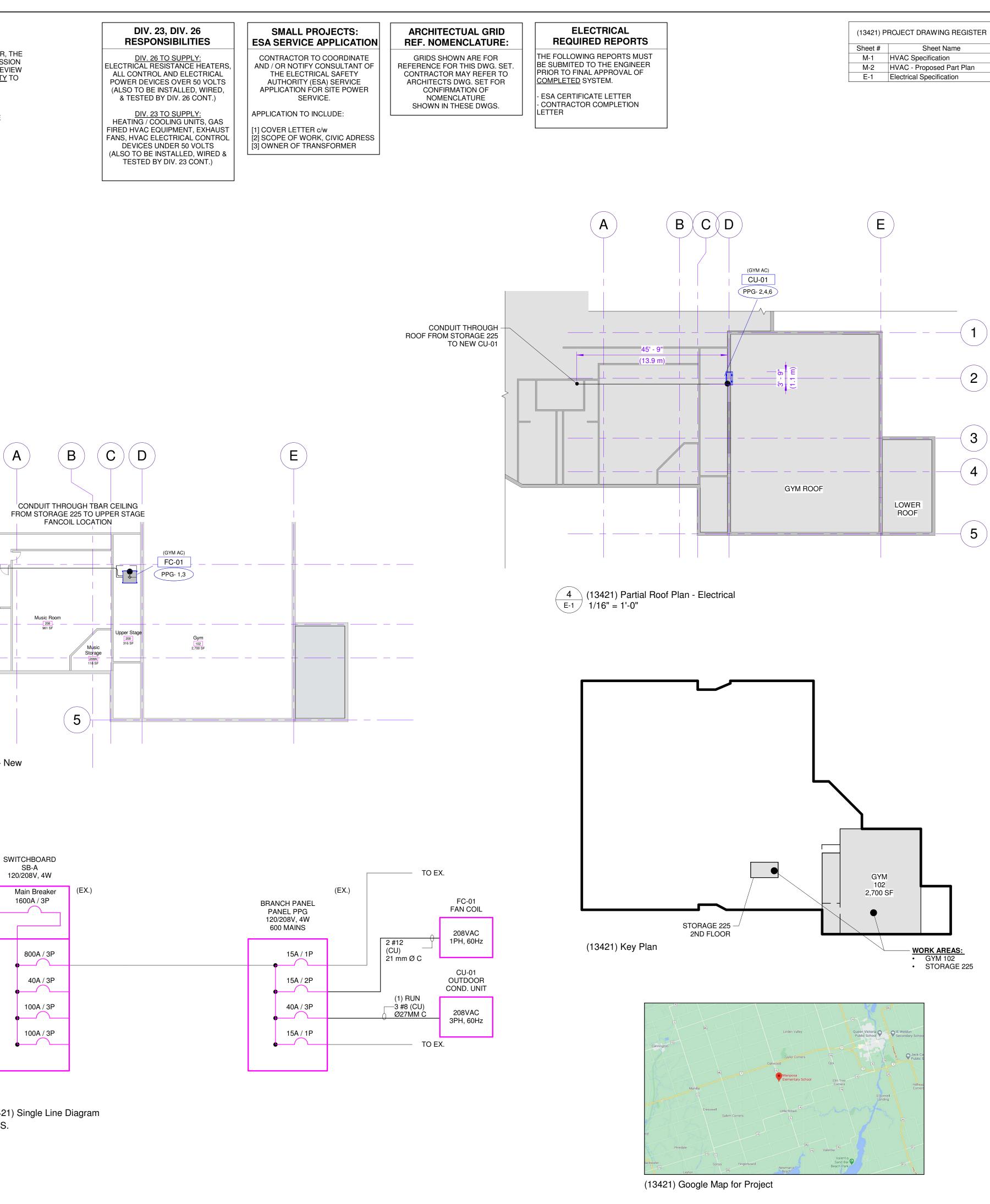
EX. ELEC

DISTRIBUTION



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(13421) Single Line Diagram

(NORTHS ENGINEERING & TECHNOL		
92 Caplan Ave. Suite #517 Barrie, Ontario L4N 9J2 Tel. (705) 719-1003 Fax (705) 719-0490 dlong@nset.ca www.nset.ca			
	dlong@nset.ca www.nset	.ca	
[1]	GENERAL DRAWING / DESIGNER NOT ALL CONSTRUCTION METHODS AND MATERIA THE LATEST EDITION OF THE PROVINCE OF O CODE", LOCAL REGULATIONS AND AUTHORIT JURISDICTION.	LS TO CONFORM TO	
[2]	THE CONSULTANT RESERVES THE RIGHT TO MAKE REASONABLE CHANGES IN ORDER TO ACCOMMODATE CONDITIONS ARISING DURING CONSTRUCTION FOR ADDITIONAL FEES. ADDITIONAL CONSTRUCTION COSTS ARRIVING FROM SUCH CHANGES MAY APPLY AND ARE TO BE NEGOTIATED BETWEEN THE OWNER AND		
[3]	CONTRACTOR. DRAWINGS ONLY SHOW GENERAL INTENT AN EXACT DETAILS OF INSTALLATIONS ARE TO B	E PROVIDED BY	
[4]	CONTRACTOR(S). DO NOT SCALE DRAWINGS. CONTRACTOR/AGENT/OWNER TO REPORT AL ERRORS, OMISSIONS OR DISCREPANCIES TO	L DISCOVERIES OF	
[5]	PROCEED WITH CONSTRUCTION ONLY USING REVISED DRAWINGS MARKED "ISSUED FOR C	THE LATEST	
[6]	THIS DRAWING IS SPECIFIC TO THIS PROJECT USED FOR OTHER "SIMILAR" PROJECTS.		
[7]	THIS DRAWING IS THE PROPERTY OF NORTHS TECHNOLOGIES LTD. UN-AUTHORIZED RE-PR IS PROHIBITED.		
[8]	SHOP DRAWINGS: BASED ON CONTRACT WITH OWNER, THE EN REVIEW SHOP SUBMISSION DWGS FROM THE	CONTRACTOR TO	
	REVIEW THE ITEMS FOR <u>GENERAL CONFORM</u> DWGS. THE SHOP DWG REVIEW WILL NOT RE CONTRACTOR FROM ESPONSIBILITY TO MAKE WORKING SYSTEM. THESE SHOP DRAWINGS	IITY TO THE DESIGN ELEASE THE E A FEASIBLE	
ALLOW	PLUMBING FIXTURES, HVAC EQUIPMENT, HVA MINIMUM 1-2 WEEKS FOR COMPLETION (BASE	AC DIFFUSERS. ED ON COMPLEXITY	
[9]	THE DESIGNER DOES NOT ACCEPT RESPONS OTHER DESIGNER'S WORK IN ASSOCIATION V RESPONSIBILITY FOR ANY FINAL ASSEMBLY/S	VITH THIS PROJECT	
[10]	RESPONSIBILITY FOR ANY FINAL ASSEMBLY(S APPLICABLE BUILDING CODES IS NOT ACCEP DESIGNER.		
[11]	REQUESTS FOR CHANGES OR SUBSTITUTION PLANS AND / OR SPECIFICATIONS WILL BE SU ADDITIONAL FEES CHARGED BY THE CONSUL	BJECT TO	
[12]	SITE VISITS TO REVIEW IMPLEMENTED DESIGNS WITHIN THE SCOPE OF THIS PROJECT TO BE ARRANGED WITH THE OWNER.		
[13]	MINIMUM FORTY EIGHT (48) HOURS PRIOR NO PROVIDED FOR SITE VISITS - ONCE ARRANGE	D.	
[14]	REQUESTS FOR THE RELEASE OF THIS DRAW NORTHSTAR ENGINEERING & TECHNOLOGIES PURPOSE OF TENDERING PURPOSES BY ANY MADE BY THE OWNER OR ARCHITECT IN WRI	S LTD. FOR THE CONTRACTOR TO I	
[15]	TENDER PRICING BY CONTRACTORS OF DRAV ON DWGS MARKED "ISSUED FOR TENDER" OF	WINGS TO BE BASE	
[16]	CONSTRUCTION" ONLY. ALL REQUESTS FOR DESIGN CHANGES / SUBS MADE IN WRITING. ADDITIONAL FEES MAY APP		
	MINIMUM (1) ONE WEEK TO REVIEW AND RES REQUESTS.		
DRAWING REVISIONS No. Description Date			
1	Preliminary	Apr. 08/21	
2	Issued for Permit & Tender	Apr. 27/21	
Engine	eer's Seal:		
5	Apr. 27/21		
Clien t.	Frillium Lakelands D School Board	District	
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	t Name: Mariposa ES - Gym	HVAC	
Dwg. I	Upgrades		
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13421			
Drawn by: Northstar Eng. Checked by: J.D.L.			
Scale: As indicated Revision #: 2.0			
Drawir	^{ng #:}		
Proise	t Date: Mar 30/21	Arch-D (24" v 26	
- rolec	t Date: Mar. 30/21	Arch-D (24" x 3	

1.0 GENERAL SPECIFICATION - MECHANICAL HVAC

1.) PERFORM ALL MECHANICAL WORK DETAILED ON THESE DRAWINGS TO PROVIDE A COMPLETE AND FULLY FUNCTIONING OPERATING SYSTEM TO THE SATISFACTION OF THE OWNER AND THE DESIGN PROVIDED.

2.) DRAWINGS ARE DIAGRAMMATIC AND SHOW GENERAL DESIGN AND ARRANGEMENT OF MECHANICAL SYSTEM INSTALLATION. CONTRACTOR TO VERIFY ALL DUCT RUNS AND POSSIBLE INTERFERENCE WITH EXISTING SERVICES AND STRUCTURAL FEATURES, ANY REQUIRED RELOCATION OF EXISTING SERVICES TO ACCOMMODATE HVAC SYSTEM TO BE INCLUDED IN COST ESTIMATE.

3.) SPECIFIED WORK IN THIS DESIGN DOES NOT IMPLY OR DETERMINE CONTRACTUAL LIMITS OR SCOPE BETWEEN SUB-CONTRACTORS, CONTRACTORS AND THE OWNER.

4.) ALL WORK AND MATERIAL IS TO COMPLY WITH THE APPLICABLE BUILDING CODES, LOCAL BYLAWS AND AUTHORITIES HAVING JURISDICTION.

5.) CONTRACTOR TO OBTAIN AND ARRANGE ALL APPLICABLE PERMITS AND INSPECTIONS AS PER THE LOCAL AUTHORITY. CONTRACTOR TO PAY FOR ALL FEES ASSOCIATED WITH THE PERMIT PROCESS, INCLUDING ALL APPLICABLE TAXES. CORRESPONDENCE WITH THE PERMIT OFFICE TO BE THE RESPONSIBILITY OF THE CONTRACTOR UNLESS OTHERWISE ARRANGED WITH THE OWNER.

6.) CONTRACTOR TO VISIT THE SITE AND VERIFY ALL EXISTING CONDITIONS TO ENSURE DESIGN CAN BE COMPLETED AS INTENDED AT THE TENDER STAGE AND PRIOR TO COMMENCING WORK.

7.) CONTRACTOR SHALL CONTACT THE LOCAL GAS COMPANY AS SOON AS POSSIBLE AND VERIFY THAT GAS SERVICE IS AVAILABLE AT PRESSURE AND CAPACITY REQUIRED FOR THE PROJECT. HE SHALL INFORM ENGINEER IMMEDIATELY, IF THERE IS ANY PROBLEM WITH GAS SERVICE WHATSOEVER. IT SHALL BE THIS CONTRACTOR'S RESPONSIBILITY TO COORDINATE SERVICE REQUIREMENTS WITH THE LOCAL AUTHORITY COMPANY BEFORE ANY OF HIS WORK PROCEED WELL AS DURING CONSTRUCTION.

8.) FOR THE DURATION OF THE CONTRACT, THE WORK SHALL BE KEPT IN A CLEAN AND NEAT CONDITION. REMOVE WASTE MATERIAL FROM THE SITE.

9.) INSURANCE SHALL BE MAINTAINED BY THE CONTRACTOR TO PROTECT THE OWNER AND OTHER TRADES FROM ALL CLAIMS. ALL TRADESMEN TO BE LICENSED, ADEQUATELY TRAINED, BRIEFED ON SITE SAFETY, HAVE APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT IN PLACE AT ALL TIMES AND MEET THE REQUIREMENTS OF ALL APPLICABLE ONTARIO GOVERNING ASSOCIATIONS AND GOVERNMENT BODIES.

10.) ALL CONTRACT DOCUMENTS SHALL BE EXAMINED TO ENSURE FAMILIARITY WITH THE WORK OF OTHER TRADES. MAINTAIN MAXIMUM CEILING HEIGHTS, MINIMUM FURRING SIZES, AND MAXIMUM USE OF THE OCCUPIED SPACE.

11.) WORK SHALL PRESENT A NEAT CLEAN APPEARANCE ON COMPLETION. INDIVIDUAL ELEMENTS SHALL BE ALIGNED PERPENDICULAR OR PARALLEL TO BUILDING SURFACES. EQUIPMENT AND FIXTURES SHALL BE ACCURATELY SET, PLUMBED AND LEVELED.

12.) IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY THAT MATERIAL AND EQUIPMENT BE BROUGHT INTO THE BUILDING IN SUCH ASSEMBLIES AND SIZES AS TO ENTER INTO THE SPACES WHERE THEY ARE TO BE LOCATED AND TO BE SMALL ENOUGH TO BE HOISTED INTO THE BUILDING WITHOUT DIFFICULTY. ANY CUTTING, PATCHING, ETC., INVOLVED IN GETTING LARGE ASSEMBLIES INTO PLACE, SHALL BE THE RESPONSIBILITY OF THIS SUBCONTRACTOR.

13.) THE CONTRACTOR SHALL CONFER WITH ALL OTHER CONTRACTORS INSTALLING EQUIPMENT, PLANT PIPING, OTHER WORK, FOUNDATIONS, ETC., WHICH MAY AFFECT HIS INSTALLATION, AND HE SHALL ARRANGE HIS EQUIPMENT, PIPING, ETC., IN PROPER RELATION WITH OTHER APPARATUS, AND WITH THE BUILDING CONSTRUCTION. HE SHALL ALSO CONFIRM THE ELECTRICAL CHARACTERISTICS OF THE PROJECT AND ORDER EQUIPMENT ACCORDINGLY.

14.) ADEQUATE ALLOWANCE SHALL BE MADE FOR EXPANSION AND CONTRACTION OF DUCT AND GAS PIPING SYSTEMS. COORDINATE EQUIPMENT, PIPING AND DUCTWORK INSTALLATION TO PROVIDE ADEQUATE SERVICE CLEARANCES AND REMOVAL

15.) THE CONTRACTOR TO MAINTAIN A SET OF 'AS-BUILT' DRAWINGS AND PROVIDE TO THE OWNER AT THE COMPLETION OF WORK. ALL CHANGES IN DUCT LOCATIONS, SIZING, AIR TERMINALS ETC. SHALL BE DOCUMENTED.

16.) IN THE EVENT THAT THE CONTRACTOR OR AUTHORITY HAVING JURISDICTION DOES NOT AGREE WITH THE ENGINEER'S PLANS. THEIR REQUEST SHALL BE COMMUNICATE TO THE ENGINEER IN WRITING, CONTRACTOR SHALL CONSULT THE ENGINEER BEFORE PROCEEDING WITH CHANGES. EACH CONTRACTOR SHALL PREPARE DRAWINGS IN ADDITION TO ENGINEER'S DRAWINGS AS MAY BE REQUIRED BY VARIOUS INSPECTION DEPARTMENTS HAVING JURISDICTION, AND OBTAIN THEIR APPROVAL BEFORE PROCEEDING WITH THE WORK

17.) CHARGES FOR ANY REQUIRED 'PREMIUM HOURS' REQUIRED TO BE INCLUDED IN COST ESTIMATES. CONTRACTOR TO CONSIDER SCHEDULING OF OTHER CONTRACTORS SO AS TO NOT INTERFERE WITH THE OVERALL SCHEDULE. CONTRACTOR SHALL CONSIDER SCHEDULING AND SIMULTANEOUS WORKING OF DIFFERENT TRADES ON THE PROJECT.

18.) FIXTURE / EQUIPMENT SUBSTITUTIONS, IF INITIATED BY THE CONTRACTOR, SHALL BE MADE SO AS TO ENSURE OPERATING PERFORMANCE IS NOT REDUCED. RE-REVIEW OF SPECIFICATIONS FOR SUBSTITUTED EQUIPMENT MAY RESULT IN ADDITIONAL CHARGES BY THIS CONSULTANT. ALL CORRESPONDENCE FOR CLARIFICATION OF DESIGN FEATURES, SPECIFICATIONS, AND EQUIPMENT SUBSTITUTIONS SHALL BE MADE IN WRITING INCLUDING APPROVED SHOP DRAWINGS OF NEW PRODUCTS. ALLOW FOR A 1 WEEK RESPONSE TIME FROM CONSULTANT. ANY ADDITIONAL COSTS RELATED TO EQUIPMENT SUBSTITUTIONS TO BE ABSORBED BY THE CONTRACT.

19.) THE OWNER (OR OWNER'S REPRESENTATIVE) IS TO PROVIDE THE ENGINEER WITH AN ACCURATE CONSTRUCTION SCHEDULE AT THE OUTSET OF CONSTRUCTION AND INCLUDE UPDATES AS APPLICABLE. SITE VISITS DURING CONSTRUCTION ARE TO BE AGREED TO AT THE OUTSET AND AMPLE NOTIFICATION TO BE GIVEN TO VISIT THE SITE (MIN. 48 HOURS).

20.) THIS CONTRACTOR SHALL SCHEDULE AND PERFORM HIS/HER WORK TO MEET THE COMPLETION SCHEDULE, NOTED ABOVE, AS SET OUT BY THE CLIENT.

2.0 PENETRATIONS

1.) ANY OR ALL CUTTING. CORING AND PATCHING SHALL BE VERIFIED WITH THE OWNER PRIOR TO PERFORMING WORK. PAYMENT FOR SUCH SERVICES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. ANY PENETRATION OF STRUCTURAL MEMBERS, FLOORS OR CEILINGS TO BE APPROVED IN WRITING BY THE STRUCTURAL ENGINEER OF RECORD.

2.) PROVIDE SLEEVES, FLASHING AND COUNTER FLASHING WHERE MECHANICAL SERVICES PENETRATE WALLS, FLOORS AND ROOFS. ANNULAR SPACE BETWEEN SLEEVES AND SERVICES SHALL BE CAULKED WITH FIREPROOF MATERIAL AND SEALED AIR TIGHT. EX. 2-PART FLEXIBLE POLYURETHANE GROUT - SIKAFIX PU.

3.) CONTRACTORS SHALL NOTIFY THE CONTRACTOR AND OTHER CONTRACTORS WHO ARE CONCERNED, OF ALL OPENINGS, FOUNDATION WORK, HANGERS, INSERTS, ANCHORS, OR OTHER PROVISIONS NECESSARY IN THEIR WORK FOR THE INSTALLATION OF HIS WORK, AND HE SHALL FURNISH ALL INFORMATION AND NECESSARY MATERIALS IN AMPLE TIME SO THAT PROPER PROVISIONS CAN BE MADE FOR SAME, AND SHALL SUPPLY AND CORRECTLY AND ACCURATELY PLACE ALL INSERTS, SLEEVES, ANCHORS, ETC.

4.) FAILURE TO COMPLY WITH THESE REQUIREMENTS ON THE PART OF THIS CONTRACTOR WILL RENDER HIM RESPONSIBLE FOR THE COST OF CUTTING OPENINGS, INSTALLING HANGERS AND OTHER PROVISIONS AT A LATER DATE, AND THE SUBSEQUENT PATCHING, ETC., THEREBY REQUIRED.

5.) NO CUTTING SHALL BE DONE WITHOUT PERMISSION. ALL SUCH WORK SHALL BE DONE BY TRADESMEN SKILLED IN AND CERTIFIED FOR THIS PARTICULAR TRADE.

6.) ALL PENETRATIONS TO BE APPROVED BY THE LANDLORD IN WRITING.

7.) ANY EXTERIOR PENETRATION TO BE APPROPRIATELY FLASHED AND WEATHER PROOFED WITH APPROVED SEALING METHODS. PROVIDE 'BIRD SCREENS' ON ALL EXTERIOR INTAKE AND EXHAUST GRILLES. THERMAL INSULATION TO BE PROVIDED FOR DUCTS SERVING EXTERIOR GRILLES. MIN. 2" FOIL WRAPPED INSULATION REQUIRED.

8.) ALL PLANNED & UN-PLANNED PENETRATION OF SERVICES THROUGH RATED FIRE ASSEMBLIES TO BE COMPLETED USING AN APPROVED FIRE STOP MATERIAL AND METHOD. RATED FIRE DAMPERS AS PER ARCHITECTURAL DRAWINGS AND AS SPECIFIED ON THESE PLANS. ALL FIRE DAMPERS ARE TO BE ACCESSIBLE FOR RESETTING

3.0 HVAC INSTALLATION

1.) ALL MATERIALS SHALL BE NEW, OF GOOD QUALITY AND MEET THE SATISFACTION OF THE OWNER / ARCHITECT. ALL ITEMS REQUIRED TO PROVIDE A COMPLETE WORKING SYSTEM - INCLUDING ITEMS NOT SPECIFIED OR SHOWN, SHALL BE INCLUDED. 2.) MECHANICAL EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND

TO FACILITATE EASY SERVICE, MAINTENANCE AND REMOVAL.

3.) SUSPENSION OF ANY MECHANICAL EQUIPMENT SPECIFIED IN THIS DESIGN IS THE RESPONSIBILITY OF THE CONTRACTOR. VERIFICATION WITH OTHER CONSULTANTS MAY BE REQUIRED. MINIMUM 3/8" DIA. THREADED ROD HANGERS ACCEPTED. EQUIPMENT MAY REQUIRE VIBRATION ISOLATION. SEE MFG. INSTALLATION MANUALS.

4.) ALL AIR DUCTWORK SHALL BE FABRICATED AND SUPPORTED IN ACCORDANCE WITH THE LATEST EDITIONS OF THE ASHRAE EQUIPMENT GUIDE. NFPA 90A. SMACNA DUCT MANUAL. SHEET METAL USED TO FABRICATE THE DUCTWORK SHALL BE GALVANIZED AND SHALL CONFORM TO ASTM A-446 WITH Z-275 METRIC COATING, AND NOT LIGHTER THAN 26 GAUGE. SEAL ALL DUCTWORK AIR TIGHT. PROVIDE R/A TRANSFER DUCTS C/W SOUND ATTENUATION BETWEEN CEILING PLENUMS AND R/A CORRIDORS COORDINATED WITH OTHER DUCTS AND SERVICES AS REQUIRED. REFER TO PLANS FOR ANY SPECIFIC DESIGN REQUIREMENTS AS APPLICABLE.

5.) ALL EXTERIOR DUCTWORK FROM HEATING / COOLING UNITS TO BE THERMALLY INSULATED WITH MIN. 2" THERMAL INSULATION, WEATHER-PROOF WRAPPED. INTERIOR DUCTWORK WITHIN 10 FT. OF ROOF OR EXTERIOR PENETRATION TO BE THERMALLY INSULATED WITH MIN. 1.5" INSULATION, ALUM. FOIL WRAPPED. ALL INSULATION AND WRAP TO BE APPLIED TO THE EXTERIOR OF THE DUCTS. REFER TO PLANS FOR CLARIFICATIONS.

6.) ALL AIR DISTRIBUTION TERMINALS (AS REQUIRED) TO BE PROVIDED WITH FLOW ADJUSTING BALANCING DAMPER LOCATED AT THE TRUNK OR BRANCH DUCT TAKE-OFF - UNLESS OTHERWISE SPECIFIED ON PLANS. OWNER/ARCHITECT TO APPROVE THE LOCATION, TYPE AND APPEARANCE OF ALL AIR TERMINALS AND GRILLES. EH PRICE / GREENHECK PRODUCTS ARE SPECIFIED IN THIS DESIGN.

7.) ELEVATION OF EXTERIOR GRILLES TO BE ABOVE NORMAL SNOW HEIGHTS AND NOT IN AREAS PRONE TO SNOW DRIFTING. INTAKE AND EXHAUST GRILLES TO BE SEPARATED BY MINIMUM 10 FT. AS PER NFPA 96. SEE DETAIL.

8.) FRESH AIR INTAKE SYSTEMS: PROVIDE EXTERNAL BIRD SCREEN ON GOOSENECK INTAKES. PROVIDE FILTER FOR ALL MAKE-UP AIR EQUIPMENT, FANS, SYSTEM COMPONENTS, THESE COMPONENTS TO BE FURNISHED WITH FLEXIBLE DUCT (DURADYNE) NEOPRENE OR EQUIVALENT.) COMPLETE SYSTEM TO BE THERMALLY INSULATED. ALL COILS TO BE CASED INCLUDING CONDENSTATE DRAINS. PROVIDE SERVICE CONNECTIONS AS PER MFG. PROVIDE ACCESS TO ANY ADJUSTMENTS CONSIDERING INSULATION. (SERVICE PANELS TO BE SEPARATELY INSULATED FOR EASY REMOVAL. MINIMAL GAPS TO INSULATION - INSULATION TO BE CONTINUOUS AS MUCH AS POSSIBLE.) PROVIDE CONDENSATE DRAINS IN ALL DUCT LOW POINTS. INTERNAL NOISE ATTENUATING ACOUSTICAL INSULATION MAY BE REQUIRED AS SPECIFIED OR REQUIRED. MINIMUM 1' MATERIAL FASTENED WITH MECHANICAL FASTENERS REQUIRED. ALL DUCT SIZES INDICATED ARE AFTER INSULATION IS ADDED.

<u>CONDENSATE DRAINS (AS REQUIRED</u> ALL HVAC EQUIPMENT THAT PRODUCES CONDENSATE MUST BE PLUMBED AND INDIRECTLY DRAINED TO AN ACCEPTABLE SANITARY FIXTURE OR HUB DRAIN AS PER OBC 7.4.2.1. SEE DETAIL.

9.) GAS PIPING

<u>NATURAL GAS PIPING (AS REQUIRED)</u> ENTIRE NATURAL GAS INSTALLATION SHALL CONFORM TO NATIONAL STANDARD OF CANADA CAN/CSA-B149.1-10 NATURAL GAS INSTALLATION CODE AS PREPARED BY CANADIAN GAS ASSOCIATION AND IN ACCORDANCE WITH THE LATEST LOCAL AMENDMENTS. PIPING SHALL BE SCHEDULE 40 BLACK CARBON STEEL PIPE COMPLYING WITH ASTM-A53. FITTINGS SHALL BE

PAINTED SAFETY YELLOW WITH RUST INHIBITED PAINT.

ENTIRE PROPANE GAS INSTALLATION SHALL CONFORM TO NATIONAL STANDARD OF CANADA CAN/CSA-B149.2-10 FOR PROPANE INSTALLATION CODE AS PREPARED BY CANADIAN GAS ASSOCIATION AND IN ACCORDANCE WITH THE LATEST LOCAL AMENDMENTS. PIPING SHALL BE SCHEDULE 40 BLACK CARBON STEEL PIPE COMPLYING WITH ASTM-A53. FITTINGS SHALL BE OF EITHER MALLEABLE IRON OR STEEL SCREWED FITTINGS COMPLYING WITH ANSI-B16.3. ALL EXTERIOR GAS PIPING TO BE PAINTED SAFETY YELLOW WITH RUST INHIBITED PAINT.

A READILY ACCESSIBLE MANUAL SHUT-OFF VALVE SHALL BE INSTALLED FOR EACH APPLIANCE AND SHALL BE OF EITHER LUBRICATED PLUG, OR ECCENTRIC TYPE. ALL GAS PIPING SHALL BE PAINTED YELLOW-ORANGE BY GENERAL CONTRACTOR.

10.) REFRIGERANT PIPING: SUCTION AND LIQUID LINES SHALL BE TYPE ACR COPPER WITH SOLDER TYPE FITTINGS USING 95/9 SILVER SOLDER. EVACUATE COMPLETED SYSTEM WITH VACUUM PUMP TO ENSURE REMOVAL OF MOISTURE. RECHARGE WITH FREMONT TO MANUFACTURER'S SPECIFICATIONS. THOROUGHLY CHECK ENTIRE SYSTEM WITH LEAK DETECTOR WHEN UNDER PRESSURE AND REPAIR ANY LEAK.

PAINTING

11.) ALL EQUIPMENT FABRICATED FROM STEEL AND NOT FACTORY FINISH PAINTED SHALL BE SUPPLIED WITH A PRIME COAT DONE AT THE SUPPLIER'S FACTORY. IF DAMAGED IN TRANSIT OR ON THE JOB, THIS CONTRACTOR SHALL TOUCH UP WITH RED LEAD PRIMER BEFORE FINISH PAINTING.

ACCESS DOORS

12.) LOCATE ACCESS DOORS WHERE REQUIRED AND OF SUFFICIENT SIZE FOR SERVICING VALVES, DAMPERS, CLEANOUTS, ETC, DOORS SHALL BE FLUSH MOUNTING, SCREWDRIVER ACCESS, METAL TYPES, 16 GAUGE PRIMED STEEL.

SUBSTITUTIONS

13.) ALL EQUIPMENT SPECIFIED TO BE USED OR EQUIVALENT EQUAL. EQUIPMENT SUBSTITUTIONS, IF INITIATED BY THE CONTRACTOR, SHALL BE MADE SO AS TO ENSURE OPERATING PERFORMANCE IS NOT REDUCED. RE-REVIEW OF SPECIFICATIONS FOR SUBSTITUTED EQUIPMENT MAY RESULT IN ADDITIONAL CHARGES BY THIS CONSULTANT. ALL CORRESPONDENCE FOR CLARIFICATION OF DESIGN FEATURES, SPECIFICATIONS, AND EQUIPMENT SUBSTITUTIONS SHALL BE MADE IN WRITING INCLUDING APPROVED SHOP DRAWINGS OF NEW PRODUCTS. ALLOW FOR A 1 WEEK RESPONSE TIME FROM CONSULTANT. ANY ADDITIONAL COSTS RELATED TO EQUIPMENT SUBSTITUTIONS TO BE ABSORBED BY THE CONTRACT.

ELECTRICAL EQUIPMENT

14.) ELECTRICAL COMPONENTS RELATED TO MECHANICAL EQUIPMENT ARE TO BE INCLUDED BY THE DIV. 23 CONTRACTOR (OVER 50 VOLTS WIRED BY DIV. 26 CONTRACTOR), UNLESS SPECIFIED. CONTROLS DEVICES FOR HVAC UNITS TO BE BY DIV. 23.

15.) ALL DAMAGE TO ADJACENT BUILDING FEATURES OR SYSTEMS LIKE DRYWALL PLASTER, FLOORS, WOOD FINISHES OR OTHER MATERIALS, OR DAMAGE TO OTHER EQUIPMENT, CAUSED BY SUCH DEFECTS OF THIS CONTRACTOR'S WORK OR BY SUBSEQUENT REPLACEMENTS AND REPAIRS, SHALL BE MADE GOOD AT THE EXPENSE OF THIS CONTRACTOR. ALL REPAIR WORK SHALL BE DONE BY TRADES RESPONSIBLE FOR THE ORIGINAL WORK.

4.0 CONTROLS

1.) OWNER/LANDLORD OR ARCHITECT TO APPROVE LOCATIONS OF ALL THERMOSTAT AND CONTROL DEVICES. UNLESS SPECIFIED. CONTROLS DEVICES FOR HVAC UNITS TO BE BY DIV. 23. 5.0 JOB COMPLETION

1.) DEMONSTRATION OF THE OPERATION TO THE OWNER IS REQUIRED AT THE COMMISSIONING STAGE

2.) ALL SYSTEMS SHALL BE RUN-IN, TESTED AND BALANCED FOR PROPER OPERATION BEFORE ACCEPTANCE BY THE OWNER. TESTS SHALL BE PERFORMED AS REQUIRED BY CODES, BYLAWS, AND AUTHORITIES. WALK THE SYSTEM FROM THE AIR HANDLING EQUIPMENT TO TERMINAL UNITS TO DETERMINE VARIATIONS OF INSTALLATION FROM DESIGN.

3.) PERFORM TESTS AS INSTRUCTED BY THE ENGINEER TO DEMONSTRATE THAT THE WORK CONFORMS TO THE CONTRACT DOCUMENTS. PROVIDE WRITTEN REPORTS OF SAME.

4.) CARRY OUT ALL REQUIRED TESTS ON SYSTEMS TO SATISFY THE AUTHORITIES IN ACCORDANCE WITH THE BUILDING CODE. PROVIDE WRITTEN REPORTS OF SAME.

5.) EXAMPLE OF A TYPICAL HVAC EQUIPMENT AND SYSTEM CHECK - INCLUDES (BUT NOT LIMITED TO): PLACE ALL FANS (SUPPLY, RETURN AND EXHAUST) IN OPERATION AND VERIFY (WITH REPORTS) THE FOLLOWING ITEMS (AS APPLICABLE):

A) FAN ROTATIONS.

- B) MOTOR AMPERAGE & VOLTAGE TO GUARD AGAINST OVERLOAD.
- C) OPERABILITY OF STATIC PRESSURE LIMIT SWITCH. D) AUTOMATIC DAMPERS FOR PROPER POSITION.
- E) THERMOSTAT FUNCTION. F) ZONE CONTROL FUNCTION.
- G) AIR & WATER RESETS OPERATING TO DELIVER REQUIRED TEMPERATURES.

6.) FINAL AIR BALANCING (AS REQUIRED BY LIST OF REPORTS) OF SYSTEM TO TAKE PLACE AFTER OCCUPANCY TO ADDRESS ANY CONCERNS. FAN SHEAVE ADJUSTMENTS AND SIZING TO BE THE RESPONSIBILITY OF THE CONTRACTOR. AS A MINIMUM, A FINAL INSPECTION BY ENGINEERING CONSULTANT IS IMPERATIVE FOR ANY FINAL APPROVALS.

7.) CONTRACTOR TO REMOVE ANY CEILING TILES / ACCESS COVERS AND PREPARE SITE FOR INSPECTIONS AS REQUIRED. CONTRACTOR TO PROVIDE CERTIFIED, GOOD CONDITION LADDERS / 'GENIE LIFT' AS REQUIRED WITH APPROPRIATE PERSONAL HARNESSES AND SAFETY GEAR FOR USE BY THE ENGINEER ONSITE.

8.) CONTRACTOR TO PROVIDE A NEAT, TABBED BINDER CONTAINING ALL EQUIPMENT MANUALS AND SPECIFICATION SHEETS REQUIRED FOR PROPER MAINTAINING AND SERVICING OF THE EQUIPMENT. BINDER TO CONTAIN AIR BALANCING REPORTS. WATER BALANCING REPORTS AS REQUIRED.

9.) A WRITTEN WARRANTY TO BE PROVIDED FOR A MIN. OF ONE YEAR FROM THE DATE OF ACCEPTANCE BY THE OWNER. PROVIDE LABOUR. MATERIAL AND SERVICES TO CORRECT ALL FAULTS REPORTED DURING THE GUARANTEE PERIOD.

OF EITHER MALLEABLE IRON OR STEEL SCREWED FITTINGS COMPLYING WITH ANSI-B16.3. ALL EXTERIOR GAS PIPING TO BE

MECHANICAL DRAWINGS:

THIS CONTRACTOR SHALL PREPARE, AT THEIR OWN EXPENSE, ANY LARGE SCALE WORKING DRAWINGS WHICH MAY BE REQUIRED BY THE EXAMINING AUTHORITIES.

CONSTRUCTION TO COMMENCE BASED ON APPROVED DRAWING ONLY LISTED "FOR TENDER & CONSTRUCTION" IN REVISION BLOCK AT RIGHT.

AS-BUILT DRAWINGS

THIS CONTRACTOR SHALL KEEP A SEPARATE SET OF WHITE PRINTS ON THE SITE AND NOTE ALL CHANGES AND DEVIATIONS FROM THE ORIGINAL DESIGN.

TWO SETS OF THESE PLANS SHOWING ALL AS-BUILT CONDITIONS SHALL BE FORWARDED TO THE ENGINEER AT THE COMPLETION OF THE WORK ONSITE.

THE ENGINEERS UPDATING OF THIS INFORMATION IS BASED ON CONTRACTUAL AGREEMENTS WITH THE OWNER. THE QUALITY OF THE UPDATES ARE BASED ON CONTRACTOR WORK. ALLOW MINIMUM 1-2 WEEKS FOR COMPLETION (BASED ON COMPLEXITY).

SHOP DRAWINGS:

BASED ON CONTRACT WITH OWNER, THE ENGINEER WILL REVIEW SHOP SUBMISSION DWGS FROM THE CONTRACTOR TO REVIEW THE ITEMS FOR <u>GENERAL CONFORMITY</u> TO THE DESIGN DWGS.

THE SHOP DWG REVIEW WILL NOT RELEASE THE CONTRACTOR FROM RESPONSIBILITY TO MAKE A FEASIBLE WORKING SYSTEM. THESE SHOP DRAWINGS SHALL CONSIST OF (BUT NOT LIMITED TO)

MAJOR MECHANICAL EQUIPMENT, FANS, DIFFUSERS, LOUVERS, GRILLES, HVAC CONTROLS.

ALLOW MINIMUM 1-2 WEEKS FOR COMPLETION (BASED ON COMPLEXITY - LARGER PROJECTS MAY REQUIRE MORE REVIEW

SUBSTITUTIONS MAY IMPACT PROJECT BUDGETS. GENERALLY, CHANGES TO MAJOR SYSTEMS WILL INCUR ADDITIONAL FEES.

MECHANICAL HVAC - SCOPE OF WORK

CONTRACTOR TO VISIT THE SITE AND FAMILIARIZE THEMSELVES WITH THE REQUIREMENTS OF THIS DESIGN.

REFER TO SPECIFICATION & GENERAL PROJECT NOTES INCLUDED IN THIS SET OF DWGS.

THE WORK SHALL CONSIST OF, BUT SHALL NOT BE LIMITED TO THE FOLLOWING:

TENDER PHASE

- DWGS ARE GENERAL LAYOUT CONTRACTOR TO PROVIDE A
- COMPLETE WORKING SYSTEM ALL QUESTIONS RELATED TO MISSING OR UNCLEAR DESIGN DETAILS TO BE COMMUNICATED IMMEDIATELY TO THE ENGINEER VIA THE GENERAL CONTRACTOR USING THE RFI PROCESS. (NORTHSTAR GENERALLY WILL NOT PROVIDE VERBAL DIRECTIVES ON THIS PROJECT
- VISIT THE SITE TO REVIEW THE CONDITIONS PROVIDE ANY QUESTIONS TO THE BID ADMINISTRATOR IN WRITING

PLANNING & MOBILIZATION PHASE

- REVIEW SITE CONDITIONS AGAIN TO CONFIRM THE VIABILITY OF THE DESIGN
- REPORT ANY CONFLICTS TO THE ENGINEER IN WRITING SHOP DRAWINGS WILL NOT CONSTITUTE A CHANGE IN CONCEPT CONTROLS COORDINATION WITH OTHER TRADES. THIS TYPE OF CHANGE WILL COME IN THE FORM OF AN OFFICIAL CHANGE NOTICE THRU THE PROJECT COORDINATOR.
- THE GENERAL CONTRACTOR AND OR CLIENT PROJECT COORDINATOR TO FACILITATE A COMPLETE REVIEW OF ALL TRADES DESIGN DRAWINGS.
- ENGINEER TO BE RETAINED TO FACILITATE TO ATTEND AN ALL TRADES PROJECT KICK-OFF ONSITE (OWNER IN ATTENDANCE)
- THIS TRADE SHALL REVIEW THE TOGETHER WITH THE ELECTRICAL CONTRACTOR TO CONTROLS AND POWER DETAILING AND COORDINATE THE WORK TOGETHER AND NOTICE THE ENGINEER OF ANY DISCREPANCIES IMMEDIATELY
- MECHANICAL ITEMS THAT HAVE ELECTRICAL FEATURES OVER 50V TO BE REVIEWED WITH THE ELECTRICAL TRADES THIS CONTRACTOR SHALL BE RESPONSIBLE FOR AND SHALL OBTAIN
- ALL PERMITS, INSPECTIONS, ETC. AS REQUIRED BY ALL AUTHORITIES HAVING JURISDICTION OVER THIS WORK AND SHALL PAY FOR SAME. 9. CONFIRM ALL EXISTING SERVICES ON THE PROPERTY BEFORE DIGGING.
- DETERMINE THE LOCATION OF ALL EXISTING SERVICES SO AS TO NOT 10. DAMAGE DURING NEW CONSTRUCTION.

CONSTRUCTION PHASE

- INSTALL ALL CLIENT SUPPLIED MECHANICAL UNITS & CONTROLS. SUPPLY & INSTALL ALL DUCT WORK, GRILLES, DIFFUSERS, FLOW DAMPERS, CONTROLS WIRING.
- PROVIDE DUCT INSULATION AS PER ASHRAE 90.1 & DRAWINGS. SUPPLY AND INSTALL ALL FIRE DAMPERS AS REQUIRED BY THE
- ARCHITECTURAL DRAWINGS. ALL EXPOSED DUCTWORK TO BE PAINTED. CONFIRM COLOUR WITH **OWNER & ARCHITECT.**
- SUPPLY & INSTALL CONTROLS TO SHUT DOWN ALL FANS IN EVENT OF FIRE ALARM. SUPPLY & INSTALL UNISTRUT & THREADED ROD SUPPORTS FOR THE
- FAN COIL IN THE EX. GYM STAGE. SUPPLY & INSTALL CONDENSATE PIPING FROM FAN COIL TO HUB
- DRAIN IN MECHANICAL ROOM VIA INDIRECT CONNECTION. INSTALL HEAT PUMP OUTDOOR UNIT MOUNTED ON THE ROOF.
- CONTRACTOR TO SUPPLY & INSTALL PRESSURE TREATED SLEEPERS. 10. SUPPLY & INSTALL VIBRATION ISOLATORS, DUCT FLEX CONNECTORS FOR ALL HRV'S & AIR HANDLERS.
- ALL EXTERIOR PENETRATIONS TO BE SEALED "LEAKPROOF". COMMISSION & TEST ALL MECHANICAL EQUIPMENT & VERIFY 12. CORRECT OPERATION IN WRITING. SET-UP, TEST & CONFIGURE ALL
- PROGRAMMABLE THERMOSTATS. 13. NOTIFY THE ENGINEER OF INSPECTIONS. PROVIDE A MIN. OF 48 HOURS NOTICE
- SUPPLY AND INSTALL ALL REFRIGERANT PIPING COMPLETE WITH HANGERS & INSULATION. SUPPLY & INSTALL CABLE & PROGRAMMING TO INTEGRATE HISENSE
- 15. FAN COIL & ASSOCIATED OUTDOOR UNIT INTO THE BUILDINGS EX. BACNET SYSTEM. ALLOW FOR MIN. 10 CONTROL POINTS. TEST ALL PIPING SYSTEMS FOR LEAKS PRIOR TO OPERATION.
- MAINTAIN AS-BUILT DWGS. 17. 18.
- PROVIDE ALL REPORTS REQUIRED AS LISTED TO THE ENGINEER. PROVIDE ACCURATE BALANCED AIR SUPPLY TO EACH ROOM AS INDICATED ON DRAWINGS INCLUDING FRESH AIR SYSTEM. SUBMISSION OF CERTIFIED AIR BALANCING REPORT IS MANDATORY ONE WEEK PRIOR TO ENGINEERS FINAL INSPECTION.

SUPPORT FROM CEILING STRUCTURE REFER TO MFG. MOUNTING

INSTRUCTIONS VIBRATION -ISOLATION ON HANGING RODS

PROVIDE FLEXIBLE DUCT

CONNECTION

SUPPLY AIR -

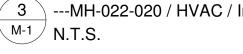
DUCT

NOTES:

ALL UNITS SHALL BE LOCATED TO ALLOW FOR MFG. CLEARANCE REQUIREMENTS & COMPLETE SERVICE. INSTALL UNIT IN THE CORRECT ORIENTATION AS PER MFG MANUAL

CONFIGURE CONTROLS BY SETTING DIP SWITCHES & THERMOSTAT OPERATION.

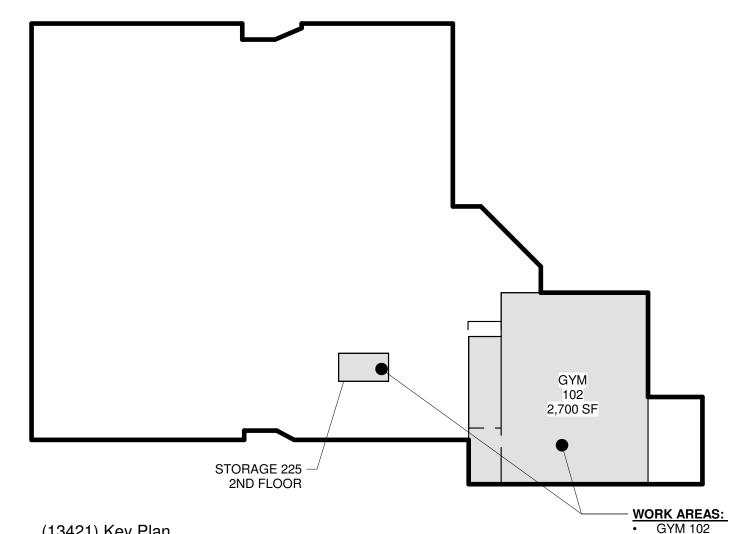
PROVIDE ONE EXTRA FILTER TO BE







4 (13421) Ex. Stage Photo \ M-1 / N.T.S.

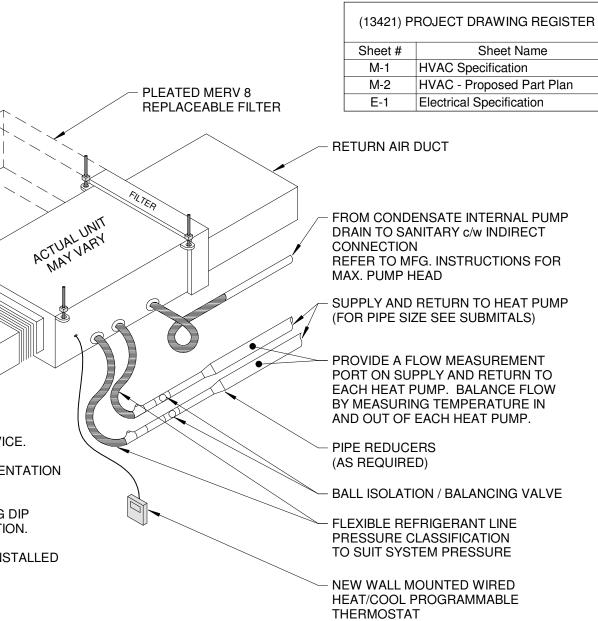


(13421) Key Plan

MECHANICAL REPORTS **REQUIRED FOR SIGN-OFF**

- THIRD PARTY AIR BALANCING
- REPORTS AHJ (AUTHORITY HAVING
- JURISDICTION INSPECTION REPORTS
- MECHANICAL EQUIPMENT
- COMMISIONING REPORTS CONTRACTOR COMPLETION
- LETTER OPERATION MANUAL
- (INCLUDING AS-BUILT DWGS)

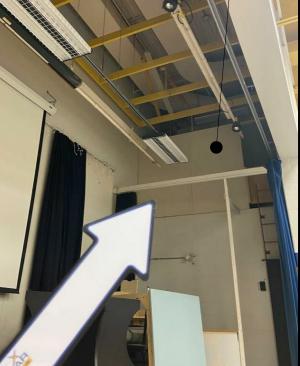
ENSURE FILTERS ARE PROPERLY INSTALLED INSTALLED PRIOR TO TURNOVER.



---MH-022-020 / HVAC / Install / Split AC HP / Generic Ducted - Installation

COIL UP ON MEZANINE

LOCATION OF NEW FAN -



ueen Victoria O IE W

STORAGE 225

(13421) Google Map for Project

		<u> </u>		
	NORTHS/ ENGINEERING & TECHNOLOG	AR Es ltd.		
92 Caplan Ave. Suite #517 Barrie, Ontario L4N 9J2				
Tel. (705) 719-1003 Fax (705) 719-0490 dlong@nset.ca www.nset.ca				
[1]	GENERAL DRAWING / DESIGNER NOTES: ALL CONSTRUCTION METHODS AND MATERIALS TO			
	THE LATEST EDITION OF THE PROVINCE OF ONTAR CODE", LOCAL REGULATIONS AND AUTHORITIES H/ JURISDICTION.	AVING		
[2]	THE CONSULTANT RESERVES THE RIGHT TO MAKE CHANGES IN ORDER TO ACCOMMODATE CONDITIO DURING CONSTRUCTION FOR ADDITIONAL FEES. A CONSTRUCTION COSTS ARRIVING FROM SUCH CH, APPLY AND ARE TO BE NEGOTIATED BETWEEN THI CONTRACTOR.	NS ARISING DDITIONAL ANGES MAY		
[3]	DRAWINGS ONLY SHOW GENERAL INTENT AND SC EXACT DETAILS OF INSTALLATIONS ARE TO BE PRO CONTRACTOR(S). DO NOT SCALE DRAWINGS.			
[4]	CONTRACTOR/AGENT/OWNER TO REPORT ALL DISCOVERIES OF ERRORS, OMISSIONS OR DISCREPANCIES TO THE DESIGNER.			
[5] [6]	PROCEED WITH CONSTRUCTION ONLY USING THE LATEST REVISED DRAWINGS MARKED "ISSUED FOR CONSTRUCTION". THIS DRAWING IS SPECIFIC TO THIS PROJECT AND CANNOT BE			
[7]	USED FOR OTHER "SIMILAR" PROJECTS. THIS DRAWING IS THE PROPERTY OF NORTHSTAR TECHNOLOGIES LTD. UN-AUTHORIZED RE-PRODUC	ENGINEERING &		
[8]	IS PROHIBITED. <u>SHOP DRAWINGS:</u> BASED ON CONTRACT WITH OWNER, THE ENGINEE			
	REVIEW SHOP SUBMISSION DWGS FROM THE CON REVIEW THE ITEMS FOR <u>GENERAL CONFORMITY</u> TO DWGS. THE SHOP DWG REVIEW WILL NOT RELEAS CONTRACTOR FROM ESPONSIBILITY TO MAKE A FE WORKING SYSTEM. THESE SHOP DRAWINGS SHAL PLUMBING FIXTURES, HVAC EQUIPMENT, HVAC DIP	TRACTOR TO D THE DESIGN E THE ASIBLE L CONSIST OF		
ALLOW [9]	MINIMUM 1-2 WEEKS FOR COMPLETION (BASED ON THE DESIGNER DOES NOT ACCEPT RESPONSIBILIT	COMPLEXITY). Y FOR		
[10]	OTHER DESIGNER'S WORK IN ASSOCIATION WITH T RESPONSIBILITY FOR ANY FINAL ASSEMBLY(S) THA APPLICABLE BUILDING CODES IS NOT ACCEPTED B	T VIOLATE		
[11]	DESIGNER. REQUESTS FOR CHANGES OR SUBSTITUTIONS TO EQUIPMENT, PLANS AND / OR SPECIFICATIONS WILL BE SUBJECT TO			
[12]	ADDITIONAL FEES CHARGED BY THE CONSULTANT SITE VISITS TO REVIEW IMPLEMENTED DESIGNS W SCOPE OF THIS PROJECT TO BE ARRANGED WITH	ITHIN THE		
[13]	MINIMUM FORTY EIGHT (48) HOURS PRIOR NOTICE TO BE PROVIDED FOR SITE VISITS - ONCE ARRANGED.			
[14]	REQUESTS FOR THE RELEASE OF THIS DRAWING SET FROM NORTHSTAR ENGINEERING & TECHNOLOGIES LTD. FOR THE PURPOSE OF TENDERING PURPOSES BY ANY CONTRACTOR TO BE MADE BY THE OWNER OR ARCHITECT IN WRITING.			
[15]	TENDER PRICING BY CONTRACTORS OF DRAWING: ON DWGS MARKED "ISSUED FOR TENDER" OR "ISS CONSTRUCTION" ONLY.			
[16]	ALL REQUESTS FOR DESIGN CHANGES / SUBSTITU MADE IN WRITING. ADDITIONAL FEES MAY APPLY. A MINIMUM (1) ONE WEEK TO REVIEW AND RESPOND	LLOW		
DRAWING REVISIONS				
No.	Description	Date		
1 2	Preliminary Issued for Permit & Tender	Apr. 08/21 Apr. 27/21		
Engine	eer's Seal:			
	Jon Tom To			
	J.D. GNG			
	Apr. 27/21			
ClientTrillium Lakelands District				
School Board				
^{Address:} 755 Eldon Rd, Mariposa, ON K0M 2M0				
	Project Name: Mariposa ES - Gym HVAC			
Upgrades ^{Dwg. Name:} HVAC Specification				
NSET Project #:				
	13421 Drawn by: Northstar Eng. Checked by: J.D.L.			
Drawn Scale:		D.L. .0		
Drawir	Drawing #: M-1			

Project Date: Mar. 30/21

Arch-D (24" x 36"

