DIVISION 23 - (HVAC)

SEE HVAC PLANS FOR FULL SCHEDULES

(COVER-M) Mechanical Equipment Schedule Summary - (New)

Level	Mark	Type Mark	Qty.	Description	Manufacturer	Model #	Voltage	Phase	Energy Source	Heating Capacity	Cooling Capacity	Air Flow	Supplied By	Controls Scheme / Comments
FFE Ground Floor	<varies>	BBH-1	3	BASEBOARD HEATER / 750W / 208V 1P	OUELLET	OFM0758BL	208 V	1	ELEC.	7,680 Btu/h	0.0 ton		DIV. 23	
<varies>	<varies>	DH-1	4	DUCT HEATER / 1kW / / 24V SCR MODULATING CONTROLS / 6" ROUND DUCT	THERMOLEC	TER-6-1120	120 V	1	ELEC.	13,650 Btu/h	0.0 ton		DIV. 23	
FFE Lower Level	FC-1-05	DH-2	1	DUCT HEATER / 2kW / 10"x6" DUCT / 24V SCR MODULATING CONTROLS	THERMOLEC	MSC0-02LS	208 V	1	ELEC.	6,820 Btu/h	0.0 ton		DIV. 23	
<varies>	<varies>	DH-3	2	DUCT HEATER / 3kW / 14"x6" DUCT / 24V SCR MODULATING CONTROLS	THERMOLEC	MSC0-03LS	208 V	1	ELEC.	20,470 Btu/h	0.0 ton		DIV. 23	
FFE Ground Floor	FFH-21	DH-4	1	DUCT HEATER / 30kW / 16"x16" DUCT / 24V SCR MODULATING CONTROLS	THERMOLEC	MSC0-30LS	208 V	3	ELEC.	102,360 Btu/h	0.0 ton		DIV. 23	
FFE Lower Level	FC-1-25	DHWT-1	1	HOT WATER TANK / ELECTRIC / 66 US GAL. (250L) TOP ENTRY / DUAL ELEMENT / 24 GPH FHR @100F	A.O. SMITH	DEN-66	208 V	3	ELEC.	0 Btu/h	0.0 ton		DIV. 22	
<varies>	<varies>	DHWT-2	3	HOT WATER TANK / 80 US GAL. (303L) / TOP ENTRY / DOUBLE ELEC. ELEMENT	BRADFORD WHITE	E32-80R-3	208 V	1		0 Btu/h	0.0 ton		DIV. 23	
FFE Lower Level	FC-1-02	FC-1	1	VRF / 0.75 TON / INDOOR UNIT / CEILING CONCEALED / c/w CONDENSATE PUMP	HISENSE	AVD-09 UX2SAH	208 V	1		11,300 Btu/h	0.8 ton	280 CFM	DIV. 23	
1 - Finished Ceiling	FC-1-01	FC-2	1	VRF / 1.25 TON / INDOOR UNIT / CEILING CONCEALED / c/w CONDENSATE PUMP	HISENSE	AVD-15H3FCH	208 V	1		17,100 Btu/h	1.3 ton	425 CFM	DIV. 23	
2 - Finished Ceiling	FC-1-09	FC-3	1	VRF / 1.6 TON / INDOOR UNIT / CEILING CONCEALED / c/w CONDENSATE PUMP	HISENSE	AVD-19H3FCH	208 V	1		21,500 Btu/h	1.6 ton	530 CFM	DIV. 23	
FFE Lower Level	<varies>	HP-1	2	OUTDOOR CONDENSING UNIT / SPLIT HEAT PUMP / 0.75 TON / 208V 1Ø / WINDGUARD / c/w WALL BRKT. (STRUCTURAL BY OTHERS)	HISENSE	AS-09UW3SVEDL-O	208 V	1	ELEC	19,000 Btu/h	1.5 ton	2,000 CFM	DIV. 23	
FFE Lower Level	<varies>	HP-2	4	OUTDOOR CONDENSING UNIT / SPLIT HEAT PUMP / 2 TON / 240V 1Ø / cw WALL BRACKET SUPPORT (STRUCTURAL BY OTHERS)	HISENSE	AVW-28H3FH-MCO	208 V	1	ELEC	108,000 Btu/h	9.0 ton	3,000 CFM	DIV. 23	
FFE Lower Level	FFH-22	HP-3	1	OUTDOOR CONDENSING UNIT / SPLIT HEAT PUMP / 1 TON / 240V 1Ø / cw WALL BRACKET SUPPORT (STRUCTURAL BY OTHERS)	HISENSE	AS-12UW3SXEDL-O	208 V	1	ELEC	13,000 Btu/h	1.0 ton	2,000 CFM	DIV. 23	
<varies>	<varies>	HRV-1	4	ENERGY RECOVERY VENTILATOR / LOW PROFILE / COLD CLIMATE	PANASONIC	FV-10VEC1	120 V	1		0 Btu/h	0.0 ton	100 CFM	DIV. 23	
<varies>	<varies>	KH-1	3	KITCHEN EXHAUST HOOD / DOMESTIC / UNDER CABINET / 30" / S.S. / c/w UNDER LIGHTS / DUCTLESS RECIRCULATING / c/w CHARCOAL FILTER	BROAN	BCS330SSC	120 V	1		0 Btu/h	0.0 ton	300 CFM	DIV. 23	
FFE Ground Floor	FFH-19	PS-1	1	ROOM STATIC PRESSURE SENSOR / WALL MOUNT / 0-10VDC	EH PRICE	ROOM STATIC	24 V			0 Btu/h	0.0 ton		DIV. 23	
										340,890 Btu/h	15.2 ton			

(COVER-M) Thermostat Schedule - (New)

Level	Mark	Type Mark	Qty.	Description	Manufacturer	Rm. #	Supplied By
FFE Lower Level	FC-1-21	TS-1	1	THERMOSTAT / PROGRAMMABLE / TOUCH SCREEN	HISENSE		DIV. 23
			1				
FFE Ground Floor	<varies>	TS-1	2	THERMOSTAT / PROGRAMMABLE / TOUCH SCREEN	HISENSE	<varies>	DIV. 23
			2				
2 - Floor	FFH-14	TS-1	1	THERMOSTAT / PROGRAMMABLE / TOUCH SCREEN	HISENSE	224	DIV. 23
			1				
Grand total			4				

DIVISION 22 - (PLUMBING)

SEE PLUMBING PLANS FOR FULL SCHEDULES

(COVER-P) Plumbing Fixture Schedule Summary - (New)

Level	Type Mark	Qty.	Description	Manufacturer	Barrier-Free (Blank = N/A)	Supplied By
FFE Lower Level	BF-1	1	BACKFLOW PREVENTER / "DCVA" TYPE / 2" CONN. / HORIZ. MNT.	WATTS		DIV. 22
FFE Lower Level	BF-2	1	BACKFLOW PREVENTER / "DCVA" TYPE / 1" CONN. / HORIZ. MNT.	WATTS		Div. 22
FFE Ground Floor	CO-3F	1	3"Ø C/O / FINISHED	SEE PROJECT SPEC.		DIV. 22
FFE Lower Level	CO-4F	2	4"Ø C/O / FINISHED	SEE PROJECT SPEC.		DIV. 22
FFE Ground Floor	FD-2F	1	FLOOR DRAIN / 2" / FINISHED c/w TRAP & PRIMER	SEE PROJECT SPEC.		DIV. 22
<varies>	FD-3F	3	FLOOR DRAIN / 3" / FINISHED c/w TRAP & PRIMER	SEE PROJECT SPEC.		DIV. 22
FFE Lower Level	FD-3U	1	FLOOR DRAIN / 3" / UNFINISHED c/w TRAP & PRIMER	SEE PROJECT SPEC.		DIV. 22
FFE Ground Floor	HB-1	2	HYDRANT / NON-FREEZE / 12" WALL THICKNESS/ 3/4" NOM. / c/w VACUUM BREAKER / KEY LOCK	WATTS		DIV. 22
FFE Lower Level	MS-1	1	SINK / JANITOR / FLOOR MNT. / PRECAST TERRAZZO / 24"x24"x12" / 3" DRAIN	FIAT		DIV. 22
<varies>	SH-1	2	SHOWER/ 5-PIECE / c/w GRAB BARS & SEAT / HANDHELD SHOWER VALVE	LONGEVITY	Yes	DIV. 22
2 - Floor	SH-2	1	SHOWER / c/w HEAD & CONTROLS	LONGEVITY	No	DIV. 22
<varies>	SNK-1	3	SINK / KITCHEN / DBL. BOWL / 7" DEEP / STAINLESS STEEL / DECK MNT. / SINGLE HANDLE FAUCET	KINDRED		DIV. 22
<varies>	SNK-2	3	LAVATORY / DROP-IN / SINGLE HANDLE STD. FAUCET	AMERICAN STD.	Yes	DIV. 22
FFE Ground Floor	SNK-3	1	LAVATORY / B.F. / WALL MNT. @ 34" TO RIM / SINGLE HANDLE STD. FAUCET	AMERICAN STD.	Yes	DIV. 22
FFE Ground Floor	WB-1	4	WALL BOX / LAUNDRY / LEAD FREE / 1/2" SUPPLIES / c/w WATER HAMMER ARRESTOR	OATEY		DIV. 22
FFE Ground Floor	WC-1	1	TOILET / B.F. / PUBLIC / BOWL, ELONG., 16 1/2" AFF / FLOOR MNT. / LINED TANK / OPEN SEAT NO COVER	AMERICAN STD.	Yes	DIV. 22
<varies>	WC-2	3	TOILET / PRIVATE / BOWL, ELONG., 15" AFF. / FLOOR MOUNT / LINED TANK / OPEN SEAT c/w COVER	AMERICAN STD.	Yes	DIV. 22
FFE Lower Level	WM-1	1	WATER METER	BY AHJ	Yes	BY AHJ
<varies>	WM-2	3	WATER METER / TENANT SUB-METER c/w REMOTE READOUT	BY CONTRACTOR	Yes	DIV. 22
FFE Lower Level	WM-3	1	WATER METER / TENANT SUB-METER c/w REMOTE READOUT	BY CONTRACTOR	Yes	DIV. 22
Grand total		36				

DIVISION 26 - (ELECTRICAL)

SEE ELECTRICAL PLANS FOR FULL SCHEDULES

(COVER-E) Lighting Fixture Schedule - (New)

Level	Type Mark	Qty.	Description	Manufacturer	Voltage	Supplied By	Comments (Controls)
1 - Finished Ceiling		1	OCCUPANCY SENSOR w/ TIMER / CEILING MOUNTED	WATTSTOPPER	120 V	DIV. 26	
<varies>	A1	4	LUMINAIRE / INDOOR / LINEAR / SURFACE / 24" LENGTH / LED DIRECT	LITHONIA LIGHTING	120 V	DIV. 26	
<varies>	A2	6	LUMINAIRE / INDOOR / LINEAR / SURFACE / 48" LENGTH / LED DIRECT	LITHONIA LIGHTING	120 V	DIV. 26	
<varies>	B	4	LUMINAIRE / INDOOR / VANITY / WALL / 24" LENGTH / LED DIRECT	LITHONIA LIGHTING	120 V	DIV. 26	
<varies>	C	3	LUMINAIRE / INDOOR / LINEAR / WALL / 48" LENGTH / LED DIRECT	LITHONIA LIGHTING	120 V	DIV. 26	
<varies>	E1	4	EXIT SIGN COMBO / cw BATT. & DBL. EMERG. LIGHT / CEILING / GREEN PICTOGRAM / SINGLE FACE / STRAIGHT-THRU / 120V / 12V-80W BATTERY / 12V-6W LED / WHITE	LUMACELL	120 V	DIV. 26	
FFE Ground Floor	E2	1	EMERG. LIGHT / WALL / REMOTE DOUBLE HEAD / 12V / WHITE	LUMACELL	12 V	DIV. 26	
FFE Ground Floor	E3	1	EMERG. LIGHT / WALL / REMOTE SINGLE HEAD / 12V / WHITE	LUMACELL	12 V	DIV. 26	
1 - U/S Landing	E4	1	EXIT SIGN COMBO / cw BATT. & DBL. EMERG. LIGHT / CEILING / GREEN PICTOGRAM / DOUBLE FACE / RIGHT ARROW / 120V / 12V-80W BATTERY / 12V-6W LED / WHITE	LUMACELL	120 V	DIV. 26	
<varies>	K	10	LUMINAIRE / INDOOR / TAPE / SURFACE / 18" LENGTH / LED DIRECT	LITHONIA LIGHTING	120 V	DIV. 26	
<varies>	L1	2	LUMINAIRE / INDOOR / DOME / SURFACE / 11" / LED DIRECT	LITHONIA LIGHTING	120 V	DIV. 26	
<varies>	L2	18	LUMINAIRE / INDOOR / DOME / SURFACE / 14" / LED DIRECT	LITHONIA LIGHTING	120 V	DIV. 26	
FFE Ground Floor	LP1	7	LUMINAIRE / OUTDOOR / POLE LIGHT / SINGLE / RECT. HEAD / LED DIRECT	LUMENPULSE	120 V	DIV. 26	
FFE Ground Floor	LP2	2	LUMINAIRE / OUTDOOR / POLE LIGHT / SINGLE / RECT. HEAD / LED DIRECT	LUMENPULSE	120 V	DIV. 26	
FFE Ground Floor	LP3	14	LUMINAIRE / OUTDOOR / BOLLARD / 4 - WAY / LED DIRECT	LUMENPULSE	120 V	DIV. 26	
<varies>	LW1	24	LUMINAIRE / OUTDOOR / WALL PACK / WALL / LED DIRECT	LITHONIA LIGHTING	120 V	DIV. 26	
FFE Ground Floor	LW2	3	LUMINAIRE / OUTDOOR / WALL PACK / WALL / LED DIRECT	LITHONIA LIGHTING	120 V	DIV. 26	
2 - Floor	P	4	LUMINAIRE / INDOOR / PENDANT / SUSPENDED / LED DIRECT	LITHONIA LIGHTING	120 V	DIV. 26	
1 - Finished Ceiling	TC	1	ASTRONOMIC TIME SWITCH	INTERMATIC	120 V	DIV. 26	
Grand total		110					

1 E1/M1/P1 (04322) 3D Cover (Type A) - New

3 E1/M1/P1 (04322) 3D Cover (Type B) - New

(04322) PROJECT DRAWING REGISTER

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M-4	HVAC - Specifications
M-5	HVAC - Scope of Work
M-6	HVAC - Scope of Work
M-7	HVAC - Bldg.1
M-8	HVAC - Bldg. 2
M-9	HVAC - Bldg. 3
M-10	HVAC - Bldg.4
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M-12	HVAC - Bldg.6
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P-10	Plumbing -Bldg. 5
P-11	Plumbing - Bldg. 6
P-12	Plumbing -Typical Building
P-13	Plumbing - Details
P-14	Plumbing - Water Schematic
P-15	Plumbing - Sanitary Schematic
E-3	Elec. Power - Specifications
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E-6	Electrical Site Plan
E-7	Elec. - SLD
E-8	Power/Comm - Bldg. 1
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E-15	Elec. Lighting - Bldg 4
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E-18	Power/Comm - Bldg. 6
E-19	Elec. Lighting - Bldg 6
E-20	Elec. Typical Building
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LICENSED PROFESSIONAL ENGINEER
J. D. LONG
Dec. 20/24
PROVINCE OF ONTARIO

NORTHSTAR PROJECT

HVAC, PLUMBING, ELECTRICAL DESIGN DRAWINGS

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Client: WW Inc.

Address: Minden, ON

Project Name: Gull River Affordable Housing

Dwg. Name: Project Cover

NSET Project #: 04322

Drawn by: Northstar Eng. | Checked by: J.D.L.

Scale: AS NOTED | Revision #: 6.0

Drawing #: E1/M1/P1

Project Date: Jan. 14/22 | Arch-D (24" X 36")

3 E2/M2/P2 (04322) Bldg. Type A Front View
N.T.S.

4 E2/M2/P2 (04322) Bldg. Type A Rear View
N.T.S.

5 E2/M2/P2 (04322) Bldg. Type B Front View
N.T.S.

6 E2/M2/P2 (04322) Bldg. Type B Rear View
N.T.S.

NORTHSTAR PROJECT

HVAC, PLUMBING, ELECTRICAL & FIRE PROTECTION DESIGN DRAWINGS

(04322) PROJECT DRAWING REGISTER

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E2/M2/P2	Project Cover
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M-4	HVAC - Specifications
M-5	HVAC - Scope of Work
M-6	HVAC - Scope of Work
M-7	HVAC - Bldg.1
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M-9	HVAC - Bldg. 3
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P-10	Plumbing -Bldg. 5
P-11	Plumbing - Bldg. 6
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E-6	Electrical Site Plan
E-7	Elec. - SLD
E-8	Power/Comm - Bldg. 1
E-9	Elec. Lighting - Bldg 1
E-10	Power/Comm - Bldg. 2
E-11	Elec. Lighting - Bldg 2
E-12	Power/Comm - Bldg. 3
E-13	Elec. Lighting - Bldg 3
E-14	Power/Comm - Bldg. 4
E-15	Elec. Lighting - Bldg 4
E-16	Power/Comm. - Bldg. 5
E-17	Elec. Lighting - Bldg. 5
E-18	Power/Comm - Bldg. 6
E-19	Elec. Lighting - Bldg 6
E-20	Elec. Typical Building
E-21	Electrical Schedules
E-22	Electrical Details

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Client: WW Inc.

Address: Minden, ON

Project Name: Gull River Affordable Housing

Dwg. Name: Project Cover

NSET Project #: 04322

Drawn by: Northstar Eng.	Checked by: Checker
Scale: AS NOTED	Revision # 5.0

Drawing #: E2/M2/P2

Project Date: Jan. 14/22 — Arch-D (24"x36")

PROFESSIONAL ENGINEER
D. J. LONG
Dec. 20/24
PROVINCE OF ONTARIO

26 05 00 COMMON WORK RESULTS FOR ELECTRICAL

26 05 00 - 1.0 ELECTRICAL INSTALLATION

1. SUPPLY & INSTALL ALL ITEMS, ARTICLES, MATERIAL OPERATIONS INCLUDING ALL LABOUR, EQUIPMENT, MATERIALS & TOOLS NECESSARY TO COMPLETE ALL SYSTEMS SHOWN ON THE DRAWINGS RENDERING A COMPLETE INSTALLATION.

2. THE INSTALLATION SHALL COMPLY WITH THE REQUIREMENTS OF THE LATEST EDITION OF THE CANADIAN ELECTRICAL CODE, THE ELECTRICAL SAFETY CODE & ALL RULES, BY-LAWS & AUTHORITIES HAVING JURISDICTION.

3. THE SCOPE OF WORK IS AS DESCRIBED HEREIN & SHOWN ON THE DRAWINGS, AS WELL AS WORK ASSOCIATED ALL CURRENT, APPLICABLE STANDARDS & CODES AS WELL AS ALL BY-LAWS

26 05 00 - 2.0 DRAWINGS & SPECIFICATIONS

1. DRAWINGS ARE DIAGRAMMATIC & SHOW APPROXIMATE LOCATIONS OF EQUIPMENT & CONNECTING SERVICES. ANY INFORMATION REGARDING ACCURATE MEASUREMENT OF THE BUILDING ARE TO BE TAKEN AT THE SITE. DO NOT SCALE THE DRAWINGS, & DO NOT USE THE DRAWINGS FOR PREFABRICATION WORK.

2. READ THE ELECTRICAL DRAWINGS IN CONJUNCTION WITH ALL OTHER STRUCTURAL, ARCHITECTURAL, SITE CIVIL, LANDSCAPE, SPRINKLER, MECHANICAL, ETC., DRAWINGS. PROPERLY PLAN, COORDINATE, & ESTABLISH THE LOCATIONS & ROUTING OF SERVICES WITH ALL SUBCONTRACTORS AFFECTED PRIOR TO INSTALLATION SUCH THAT THE SERVICES WILL CLEAR EACH OTHER AS WELL AS ANY OBSTRUCTIONS, INCLUDING STRUCTURAL COMPONENTS OF THE BUILDING.

3. THE DRAWINGS ARE INTENDED TO CONVEY THE SCOPE OF WORK & DO NOT SHOW ARCHITECTURAL & STRUCTURAL DETAILS. ELECTRICAL CONTRACTOR SHALL PROVIDE, AT ELECTRICAL CONTRACTOR'S COST, ALL OFFSETS, FITTINGS, TRANSFORMATIONS, & SIMILAR PRODUCTS REQUIRED AS A RESULT OF OBSTRUCTIONS & OTHER ARCHITECTURAL & STRUCTURAL DETAILS BUT NOT SHOWN ON THE DRAWINGS.

4. THE DRAWINGS & SPECIFICATIONS ARE COMPLEMENTARY & INTENDED TO BE COOPERATIVE. PERFORM ALL WORK THAT IS SHOWN, SPECIFIED, OR REASONABLY IMPLIED ON THE DRAWINGS BUT NOT MENTIONED IN THE SPECIFICATION, OR VICE-VERSA, AS THOUGH FULLY COVERED BY BOTH.

5. SHOULD ANY DISCREPANCY APPEAR BETWEEN THE DRAWINGS & SPECIFICATIONS WHICH LEAVES THE ELECTRICAL CONTRACTOR IN DOUBT AS TO THE TRUE INTENT & MEANING OF THE PLANS & SPECIFICATIONS, A RULING SHALL BE OBTAINED FROM THE ENGINEER. IF THIS IS NOT DONE, IT WILL BE ASSUMED THAT THE MOST EXPENSIVE ALTERNATE HAS BEEN ALLOWED FOR.

26 05 00 - 3.0 PERMITS, FEES, & CERTIFICATES

1. CONTRACTOR TO OBTAIN ALL PERMITS REQUIRED, ARRANGE FOR INSPECTION OF THE WORK BY INSPECTION AUTHORITY & PAY ALL FEES PROVIDE FINAL CERTIFICATE TO THE OWNER. WORK SHALL NOT COMMENCE ON THE INSTALLATION UNTIL ESA (ONTARIO ELECTRICAL SAFETY AUTHORITY) PLANS REVIEW AS WELL AS THE LOCAL UTILITY'S REVIEW COMMENTS HAVE BEEN RECEIVED & REVIEWED BY THE ENGINEER AS WELL AS THIS CONTRACTOR.

26 05 00 - 4.0 EXAMINATION OF THE SITE

1. PRIOR TO SUBMITTING THEIR TENDER, THE ELECTRICAL CONTRACTOR SHALL CAREFULLY EXAMINE THE SITE & ASCERTAIN ALL CONDITIONS, WHICH SHALL AFFECT HIS TRADE. REPORT TO THE CONSULTANT, PRIOR TO BID SUBMITTAL, ANY EXISTING SITE CONDITION THAT WILL OR MAY AFFECT PERFORMANCE OF THE WORK AS PER THE DRAWINGS & SPECIFICATIONS. FAILURE TO DO SO WILL NOT BE GROUNDS FOR ADDITIONAL COSTS.

26 05 00 - 5.0 STANDARD OF MATERIAL & WORKMANSHIP

1. ALL MATERIALS & EQUIPMENT SHALL BE NEW, CSA APPROVED, BEAR CSA STAMP & BE OF THE BEST COMMERCIAL QUALITY OBTAINABLE FOR THE PURPOSE.

2. ALL WORK SHALL BE EXECUTED IN A NEAT & WORKMANLIKE MANNER BY JOURNEYMAN TRADESMEN WHO PERFORM ONLY THE WORK THAT THEIR CERTIFICATES PERMIT, OR BY APPRENTICE TRADESMEN UNDER DIRECT ON SITE SUPERVISION OF AN EXPERIENCED JOURNEYMAN TRADESMAN.

3. WORKMANSHIP SHALL BE OF THE HIGHEST STANDARDS THROUGHOUT & SHALL BE MINIMUM OF THE CURRENT TRADE PRACTICES FOR ELECTRICAL INSTALLATIONS IN THIS BUILDING.

4. UNLESS OTHERWISE SPECIFIED ALL EQUIPMENT IS TO BE INSTALLED IN ACCORDANCE WITH THE EQUIPMENT MANUFACTURER'S RECOMMENDATIONS & INSTRUCTIONS, & REQUIREMENTS OF GOVERNING CODES, STANDARDS, & REGULATIONS. GOVERNING CODES, STANDARDS, & REGULATIONS TAKE PRECEDENCE OVER MANUFACTURER'S INSTRUCTIONS.

5. ENSURE THAT PROPER ACCESS & SERVICE CLEARANCES ARE MAINTAINED AROUND EQUIPMENT, & WHERE APPLICABLE, ACCESS SPACE FOR FUTURE EQUIPMENT REMOVAL OR REPLACEMENT IS NOT IMPEDED. REMOVE & REPLACE ANY EQUIPMENT WHICH DOES NOT MEET THIS REQUIREMENT.

6. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECTING ALL WORK COMPLETED CONTRARY TO THE INTENT OF THE DRAWINGS AND SPECIFICATIONS. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE CAUSED TO THE OWNER OR ANY OF THE OTHER TRADES BY IMPROPER LOCATION OR CARRYING OUT OF HIS WORK.

7. PROVIDE A CERTIFICATE OF GUARANTEE OF WORKMANSHIP & MATERIAL FOR ONE YEAR FROM DATE OF ACCEPTANCE.

26 05 00 - 6.0 COORDINATION OF THE WORK

1. REVIEW ALL THE CONTRACT DOCUMENTS & COORDINATE THE WORK WITH THE WORK OF ALL OTHER TRADES.

2. PROPERLY PLAN, COORDINATE, & ESTABLISH THE LOCATIONS & ROUTING OF SERVICES WITH ALL SUBCONTRACTORS AFFECTED PRIOR TO INSTALLATION SUCH THAT THE SERVICES WILL CLEAR EACH OTHER AS WELL AS ANY OBSTRUCTIONS, INCLUDING STRUCTURAL COMPONENTS OF THE BUILDING.

3. COORDINATE THE LOCATIONS OF THE ELECTRICAL DEVICES WITH THE MILLWORK DRAWINGS. THE CONTRACTOR SHALL REVIEW THE ARCHITECTURAL DRAWINGS & SECTIONS FOR LOCATIONS OF MILLWORK PRIOR TO ROUGH-IN. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ ENGINEER OF ANY DISCREPANCIES. CONFIRM FINAL LOCATION OF ALL DEVICES WITH THE ARCHITECT & OWNER IN WRITING.

4. COORDINATE SIZE OF BREAKERS & FEEDERS WITH ALL MECHANICAL EQUIPMENT , FEEDERS ON DRAWINGS ARE BASED ON DESIGN LOADS PROVIDED IN MECHANICAL DRAWINGS. CONTRACTOR SHALL CONFIRM THE FEEDER SIZES & BREAKERS ON SHOP DRAWINGS PRIOR TO ROUGH-IN & PURCHASE OF MATERIAL/ EQUIPMENT TO POWER UP MECHANICAL UNITS. DISCREPANCIES ARE TO BE NOTED TO THE ENGINEER.

26 05 00 - 7.0 PENETRATIONS

1. ANY OR ALL CUTTING, CORING & 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. THIS DIVISION SHALL PREPARE SLEEVING DRAWINGS INDICATING THE SIZE & LOCATIONS OF OPENINGS REQUIRED IN CONCRETE FLOOR SLABS, ROOF SLABS/DECKS & WALLS FOR CONDUIT, BUS DUCTS & EQUIPMENT FOR REVIEW BY THE STRUCTURAL ENGINEER & ARCHITECT.

3. CONTRACTORS SHALL NOTIFY THE OWNER OR GENERAL CONTRACTOR (& OTHER CONTRACTORS WHO ARE INVOLVED) OF ALL OPENINGS, FOUNDATION WORK, HANGERS, INSERTS, ANCHORS, OR OTHER PROVISIONS NECESSARY IN THEIR WORK FOR THE INSTALLATION OF HIS WORK, & SHALL FURNISH ALL INFORMATION & NECESSARY MATERIALS IN AMPLE TIME SO THAT PROPER PROVISIONS CAN BE MADE FOR SAME, & SHALL SUPPLY & CORRECTLY, 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 & OTHER PROVISIONS AT A LATER DATE, & THE SUBSEQUENT PATCHING, ETC., THEREBY REQUIRED.

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

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

7. ANY EXTERIOR PENETRATION TO BE APPROPRIATELY FLASHED & WEATHER PROOFED WITH APPROVED SEALING METHODS.

26 05 00 - 8.0 ACCESS DOORS

1. SUPPLY ACCESS DOORS TO GIVE ACCESS TO ALL ELECTRICAL WORK WHICH MAY NEED MAINTENANCE OR REPAIR BUT WHICH IS CONCEALED IN INACCESSIBLE CONSTRUCTION, EXCEPT AS OTHERWISE SPECIFIED HEREIN OR ON THE DRAWINGS.

2. ACCESS DOORS IN FIRE RATED CONSTRUCTION ARE TO BE ULC LISTED & LABELED AND OF A RATING TO MAINTAIN THE FIRE SEPARATION INTEGRITY.

26 05 00 - 9.0 FIRE STOPPING

1. WHERE ELECTRICAL WORK PENETRATES FIRE RATED CONSTRUCTION, PROVIDE ULC LISTED & LABELED FIRESTOPPING & SMOKE SEAL MATERIALS INSTALLED IN ACCORDANCE WITH REQUIREMENTS OF CAN4-S115 (RATINGS F, FT, FH, AND FTH AS REQUIRED), CAN/ULC-S101, & ALL OTHER GOVERNING AUTHORITIES TO SEAL THE PENETRATIONS.

26 05 00 - 10.0 MOUNTING HEIGHTS

1. MOUNTING HEIGHT OF EQUIPMENT IS FROM FINISHED FLOOR TO CENTERLINE OF EQUIPMENT UNLESS SPECIFIED OR INDICATED OTHERWISE.

2. IF MOUNTING HEIGHT OF EQUIPMENT IS NOT SPECIFIED OR INDICATED, VERIFY BEFORE PROCEEDING WITH INSTALLATION.

3. FOR BARRIER-FREE MOUNTING HEIGHTS FOR DEVICES, CONFORM TO REQUIREMENTS OF THE GOVERNING CODE OR REGULATION.

4. INSTALL ELECTRICAL EQUIPMENT AT FOLLOWING HEIGHTS UNLESS INDICATED OTHERWISE.

- LOCAL SWITCHES: 1200 MM (48 IN.).
- WALL RECEPTACLES - GENERAL: 450 MM (18 IN.).
- WALL RECEPTACLES - ABOVE TOP OF CONTINUOUS BASEBOARD HEATER: 200 MM (8 IN.).
- WALL RECEPTACLES - ABOVE TOP OF COUNTERS OR COUNTER SPLASH BACKS: 175 MM (7 IN.).
- WALL RECEPTACLES - IN MECHANICAL ROOMS: 1200 MM (48 IN.).
- PANELBOARDS: 2000 MM (80 IN.) TO TOP OF PANEL.
- TELEPHONE AND INTERPHONE OUTLETS: 450 MM (18 IN.).
- WALL MOUNTED TELEPHONE AND INTERPHONE OUTLETS: 1200 MM (48 IN.).
- FIRE ALARM STATIONS: 1150 MM TO CENTRE.
- WALL MOUNTED FIRE ALARM HORNS: 2300 MM (90 IN.).
- TELEVISION OUTLETS: 450 MM (18 IN.).
- WALL MOUNTED SPEAKERS: 2100 MM (83 IN.).
- CLOCKS: 2100 MM (83 IN.).
- BARRIER FREE PUSHBUTTONS: 1100 MM (43 IN.).
- WALL MOUNTED EXIT SIGNS - FOR 2400 MM (95 IN.) TO 2500 MM (100 IN.) CEILING AREAS: 2100 MM (83 IN.).
- WALL MOUNTED EXIT SIGNS - FOR ALL CEILINGS GREATER THAN 2500 MM (100 IN.) CEILING AREAS: 2400 MM (95 IN.).
- WALL MOUNTED BATTERY PACKS & EMERGENCY HEADS - FOR 2400 MM (95 IN.) TO 2500 MM (100 IN.) CEILING AREAS: 2100 MM (83 IN.).
- WALL MOUNTED BATTERY PACKS & EMERGENCY HEADS - FOR ALL CEILINGS GREATER THAN 2500 MM (100 IN.) CEILING AREAS: 2400 MM (95 IN.).
- WALL MOUNTED OCCUPANCY SENSORS: 1200 MM (48 IN.).
- WALL MOUNTED VISIBLE SIGNAL DEVICES: ENTIRE LENS SHALL BE NO LESS THAN 2000 MM (79 IN.) & NO MORE THAN 2400 MM (95 IN.)
- TOP OF REMOTE ANNUNCIATOR & PASSIVE GRAPHIC PANELS SHALL BE NO MORE THAN 1800MM (72 IN.) ABOVE FINISHED FLOOR.

26 05 00 - 10.0 CONSTRUCTION SCHEDULE

1. OWNER (OR OWNER'S REPRESENTATIVE) TO PROVIDE THE ENGINEER WITH ACCURATE CONSTRUCTION SCHEDULE AT THE OUTSET OF CONSTRUCTION & INCLUDE UPDATES AS APPLICABLE.

2. THIS CONTRACTOR SHALL SCHEDULE & PERFORM HIS WORK TO MEET THE COMPLETION SCHEDULE, NOTED ABOVE, AS SET OUT BY THE CLIENT.

26 05 00 - 11.0 CHANGES OR REVISIONS & 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.
3. THERE SHALL BE NO EXTRA CLAIM FOR RELOCATION OF ANY EQUIPMENT WITHIN 10 FEET FROM ORIGINAL LOCATION.
4. WHENEVER THE CONSULTANT PROPOSES IN WRITING TO MAKE A CHANGE OR REVISION TO THE DESIGN, ARRANGEMENT, QUANTITY OR TYPE OF ANY WORK FROM THAT REQUIRED BY THE CONTRACT DOCUMENTS, PREPARE AND SUBMIT TO THE CONSULTANT FOR APPROVAL, A QUOTATION BEING THE ELECTRICAL CONTRACTOR'S PROPOSED COST FOR EXECUTING THE CHANGE OR REVISION.
5. RELOCATING ANY MECHANICAL EQUIPMENT LESS THAN 10 FEET IS NOT TO BE CONSIDERED AN EXTRA IN THE PROJECT
6. CONTRACTOR TO PROVIDE PRICING ON ALL NORTHSTAR ISSUED OFFICIAL CHANGE ORDERS IN THE FORMAT REQUESTED BASED ON THE SPECIFIC ITEM NUMBERS LISTED ON THE NORTHSTAR CHANGE REQUEST DOCUMENT. ONE PRICE FOR EACH ITEM LISTED. PRICING TO INCLUDE ALL LABOUR AND MATERIALS REQUIRED FOR THE SCOPE REQUESTED. NORTHSTAR WILL NOT NECESSARILY APPROVE PRICING BASED UPON INDUSTRY PRICE GUIDES SUCH AS "ALLPRISER" OR SIMILAR METHOD. PRICING WILL BE REVIEWED BASED ON FAIR MARKET CONDITIONS. CONTRACTOR TO PROVIDE CHANGE ORDER PRICING IN A TIMELY MANNER FOR NORTHSTAR'S REVIEW. NO WORK SHALL PROCEED UNTIL OFFICIAL WRITTEN ACCEPTANCE IS ISSUED BY NORTHSTAR.

26 05 00 - 12.0 SHOP DRAWINGS:

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. THESE SHOP DRAWINGS SHALL INCLUDING BUT NOT LIMITED TO DISTRIBUTION, LUMINAIRES, EXIT SIGNS, OCCUPANCY SENSORS, BATTERY PACKS, FIRE ALARM EQUIPMENT, TELECOMMUNICATIONS EQUIPMENT & CABLING. ALLOW MINIMUM 5 BUSINESS DAYS TO RETURN REVIEWED SHOP DRAWINGS. (BASED ON COMPLEXITY).

3. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL DIMENSIONS. THE ENGINEER'S REVIEW OF SHOP DRAWINGS SHALL BE FOR GENERAL DESIGN ONLY & SHALL NOT RELIEVE THE ELECTRICAL CONTRACTOR OR SUPPLIER FROM THEIR RESPONSIBILITY FOR ERRORS, PROPER FITTING, & CONSTRUCTION OF THE WORK & FURNISHING OF MATERIALS. THE REVIEW SHALL NOT BE CONSTRUED AS APPROVING DEPARTURES FROM THE CONTRACT DOCUMENT REQUIREMENTS IF SUCH DEPARTURES ARE NOT SPECIFICALLY NOTED IN A COVERING LETTER ACCOMPANYING SUCH DRAWINGS.

4. ANY DEVIATION FROM THE DESIGN, DRAWINGS OR COMPONENT CONFIGURATION, IS TO BE COMMUNICATED CLEARLY TO THE CONSULTANT SEPARATELY, AND MUST INCLUDE A SKETCH, SYSTEM CONTEXT RATIONALE FOR THE CHANGE, BENEFIT FOR THE CHANGE FOR THE CONSULTANTS REVIEW.

26 05 00 - 13.0 SUBSTITUTIONS

1. 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, & 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.

26 05 00 - 14.0 ELECTRICAL WORK TESTING REQUIREMENTS

1. SATISFACTORILY PERFORM ALL TESTING REQUIRED BY GOVERNING AUTHORITIES, CODES, REGULATION BEFORE ENERGIZING ANY PORTION OF THE ELECTRICAL SYSTEM. RESULTS OF SUCH TESTS SHALL CONFORM TO THE REQUIREMENTS OF THE CANADIAN ELECTRICAL CODE & SHALL BE TO THE SATISFACTION OF THE AUTHORIZED INSPECTION AGENCY & THE ENGINEER.

2. ANY TEST RESULTS THAT DO NOT MEET THE MINIMUM REQUIREMENTS OF THE MANUFACTURER, CANADIAN ELECTRICAL CODE, AUTHORIZED INSPECTION AGENCY & THE ENGINEER SHALL BE REPAIRED IN A METHOD APPROVED BY THE ENGINEER & RETESTED AT THE EXPENSE OF THE CONTRACTOR.

3. SUBMIT ALL TEST RESULTS TO THE ENGINEER FOR APPROVAL

26 05 00 - 15.0 EQUIPMENT AND SYSTEM COMMISSIONING

1. AFTER SUCCESSFUL START-UP & PRIOR TO SUBSTANTIAL PERFORMANCE, COMMISSION THE ELECTRICAL WORK USING APPROVED COMMISSIONING SHEETS. SUBMIT FINAL COMMISSIONING DATA SHEETS. INCLUDE FOR EQUIPMENT MANUFACTURER'S REPRESENTATION AT THE SITE TO ASSIST IN THE COMMISSIONING PROCESS.

26 05 00 - 16.0 INTERRUPTION OF SERVICES

1. ANY INTERRUPTION OF THE ELECTRICAL SERVICES TO ANY PART OF THE BUILDING SHALL ONLY OCCUR AS AUTHORIZED BY THE OWNER & WITH NOTIFICATION TO ANY MONITORING ORGANIZATIONS OR PARTIES. MAKE ALL NECESSARY ARRANGEMENTS WITH THOSE CONCERNED & INCLUDE FOR ANY OVERTIME REQUIRED TO ENSURE THAT THE INTERRUPTION IS HELD TO A MINIMUM.

26 05 00 - 17.0 CLEANING AND WASTE REMOVAL

1. CLEAN ALL ELECTRICAL EQUIPMENT THAT HAS BEEN EXPOSED TO CONSTRUCTION DUST & DIRT, INSIDE & OUT, PRIOR TO TURN OVER TO OWNER. EQUIPMENT IS SUBJECT TO REVIEW BY ENGINEER'S REPRESENTATIVE &/OR OWNER.

2. CONTRACTOR IS RESPONSIBLE FOR REMOVING THEIR OWN WASTE FROM THE SITE. ALL RE-USABLE MATERIALS SHALL BE RECYCLED.

26 05 00 - 18.0 DEMONSTRATION OF THE SYSTEM

1. DEMONSTRATE THE FUNCTION AND OPERATION OF EACH SYSTEM TO THE OWNER.

26 05 00 - 19.0 PROJECT CLOSEOUT SUBMITTALS

PRIOR TO APPLICATION FOR SUBSTANTIAL PERFORMANCE, SUBMIT ALL REQUIRED ITEMS AND DOCUMENTATION SPECIFIED, INCLUDING THE FOLLOWING:

1. ALL EQUIPMENT MANUALS & SPECIFICATION SHEETS REQUIRED FOR PROPER MAINTAINING & SERVICING OF THE EQUIPMENT

2. RECORD "AS-BUILT" DRAWINGS: AS-BUILT DRAWINGS SHALL BE CLEARLY MARKED IN RED INCLUDING ALL CHANGES TO THE ORIGINAL TENDER DRAWINGS COVERED BY ADDENDA, CHANGE ORDERS, FIELD CHANGES, JOB CONDITIONS, ETC.

3. ESA (ELECTRICAL SAFETY AUTHORITY) INSPECTION CERTIFICATE.

4. EMERGENCY & DETECTION TEST CERTIFICATE FROM THE DIV. 26 CONTRACTOR AS APPLICABLE. (REFER TO SPECIFIC REQUIREMENTS ON DWG.)

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

26 05 19 ELECTRICAL POWER CONDUCTORS & CABLES (0 - 600V)

26 05 19 - 1.0 DISTRIBUTION & BRANCH CIRCUIT CONDUCTORS

1. CONDUCTORS TO BE SIZED IN ACCORDANCE WITH THE CANADIAN ELECTRICAL CODE. CONDUCTOR SIZES INDICATED ON THE DRAWINGS ARE MINIMUM SIZES & MUST BE INCREASED, WHERE REQUIRED, TO SUIT LENGTH OF RUN AND VOLTAGE DROP IN ACCORDANCE WITH THE VOLTAGE DROP SCHEDULE.

2. NO WIRE SMALLER THAN NO. 12 AWG GAUGE SHALL BE USED FOR BRANCH CIRCUIT WIRING. ALL LINE VOLTAGE WIRING TO BE INSTALLED IN EMT CONDUIT.

3. ALUMINUM CONDUCTORS WILL NOT BE ACCEPTED WITH THE EXCEPTION OF MAIN SERVICE ENTRANCE CONDUCTORS. CONSULT ENGINEER FOR ADDITIONAL INFORMATION.

4. CONDUCTORS TO & INCLUDING NO. 10 AWG ARE TO BE SOLID. CONDUCTORS LARGER THAN NO. 10 AWG ARE TO BE STRANDED. ALL CONDUCTORS ARE TO BE CONSTRUCTED FROM 98% CONDUCTIVE COPPER & ARE TO BE APPROVED FOR 600 VOLTS. CONDUCTORS ARE TO BE COLOUR CODED, FACTORY IDENTIFIED ON THE INSULATION WITH THE MANUFACTURER'S NAME, CONDUCTOR SIZE & METAL, VOLTAGE RATING, CSA TYPE & DESIGNATION. CONDUCTORS ARE TO BE AS FOLLOWS UNLESS INDICATED OTHERWISE ON DRAWINGS:

- RW-90, RW-U90 (XLPE) IN ACCORDANCE WITH CAN/CSA C22.2 NO.38
- TW75, TWU IN ACCORDANCE WITH CSA C22.2 NO. 75.
- MI ULC 2 HOUR FIRE RATED CONDUCTOR IN ACCORDANCE WITH CSA C22.2 NO. 124,
- RHW CABLE IN ACCORDANCE WITH REQUIREMENTS OF CSA C22.2 NO. 38.
- CI CABLE IN ACCORDANCE WITH REQUIREMENTS OF CSA C22.2 NO. 208
- BX (ARMOURED CABLE) IS ONLY PERMITTED FOR LIGHT FIXTURE DROPS IN ACOUSTIC CEILINGS (MAX. LENGTH 5') & MAY BE USED IN HOLLOW PARTITIONS FOR SWITCH OR SUSPENDED CEILING FOR FIXTURE DROPS ONLY. ANY DROPS SHALL NOT EXCEED 10' (3M). AC-90 (BX ARMOURED CABLE) IS NOT TO BE INSTALLED IN OPEN CEILINGS OR ANY OTHER EXPOSED APPLICATION. ALL CABLES ARE TO BE PROPERLY FASTENED TO BUILDING STRUCTURE IN A NEAT & PROFESSIONAL MANNER. EXCESSIVE USE OF BX CABLE IS NOT PERMITTED & RESULT THE ELECTRICAL CONTRACTOR TO REPLACE ALL NEW WIRING WITH PROPER WIRING & CONDUIT AT CONTRACTORS EXPENSE.

26 05 19 - 2.0 LOW VOLTAGE (50 VOLT & UNDER) CONDUCTORS

1. GENERAL PURPOSE LOW VOLTAGE WIRING IN CONDUIT: "T-90" OR "RW90" STRANDED COPPER CONDUCTORS AS SPECIFIED ABOVE.

2. LOW VOLTAGE WIRING IN CONDUIT FOR FIRE ALARM SYSTEMS: EQUAL TO NEXANS CANADA "SECUREX II" FAS/LVT/FT1300 VOLT WIRE TO CSA C22.2 NO. 208, FIRE /ALARM AND SIGNAL WIRE, 105° C (220° F) RATED, CONSISTING OF SOLID COPPER CONDUCTORS (STRANDED FOR CONTROL WIRING), FLAME RETARDANT PVC INSULATION, AN ALUMINUM/MYLAR OPTIONAL SHIELD WITH A #22 AWG TINNED COPPER INSULATION AND A DRAIN WIRE, AND, IF REQUIRED FOR THE APPLICATION, INTERLOCKING ALUMINUM ARMOUR WITH OR WITHOUT AN OVERALL JACKET.

26 05 19 - 3.0 CONDUCTOR COLOUR CODING:

1. UNLESS OTHERWISE SPECIFIED, COLOUR CODE CONDUCTORS TO IDENTIFY PHASES, NEUTRAL, & GROUND BY MEANS OF SELF-LAMINATING COLOURED VINYL TAPE, COLOURED CONDUCTOR INSULATION, OR PROPERLY COLOURED PLASTIC DISCS. COLOURS ARE TO BE AS FOLLOWS:

- PHASE A – RED
- PHASE B – BLACK
- PHASE C – BLUE
- NEUTRAL – WHITE
- CONTROL – ORANGE

26 05 19 - 4.0 INSTALLATION OF CONDUCTOR

1. ALL EQUIPMENT, JUNCTION BOXES, PULL BOXES, LIQUID TIGHT FLEX, ETC. TO BE BONDED TO GROUND THROUGH INSULATED GREEN BONDING WIRES TO THE REQUIREMENT OF THE ELECTRICAL SAFETY CODE AND INSPECTION AUTHORITIES.

2. PROVIDE PULL BOXES FOR CONDUIT RUNS GREATER THAN 35 METERS

3. ALL EMT CONDUIT TO BE CONCEALED UNLESS APPROVED BY THE OWNER. WHERE EMT RUNS HORIZONTALLY ACROSS WALL STUDS, NOTCHES SHOULD BE CUT TO RECESS CONDUIT. NOTCHES TO BE PROTECTED BY STEEL PLATES.

4. NON-FIRE RATED CONDUCTORS: UNLESS OTHERWISE SPECIFIED HEREIN OR ON THE DRAWINGS, NON-FIRED RATED CONDUCTORS ARE TO BE USED AS FOLLOWS:

- CONDUCTORS UNDERGROUND INSIDE OR OUTSIDE THE BUILDING, AND IN NON-CLIMATE CONTROLLED AREAS – TWU
- UNLESS OTHERWISE SPECIFIED, CONDUCTORS IN ACCESSIBLE CEILING SPACES, WITHIN STUD WALL CONSTRUCTION, AND IN FURNITURE SYSTEMS TO LUMINARIES AND WIRING DEVICES – AC90 (BX) FLEXIBLE ARMOURED CABLE. MAXIMUM 6 M (20') RUN PERMITTED FOR ISOLATED POWER SYSTEM WIRING – RW90
- FOR CONDUCTORS EXCEPT AS SPECIFIED ABOVE OR ELSEWHERE IN THE SPECIFICATION OR ON THE DRAWINGS – T90 NYLON OR RW90

1. FIRE RATED CONDUCTORS: UNLESS OTHERWISE SPECIFIED HEREIN OR ON THE DRAWINGS, FIRE RATED CONDUCTORS ARE TO BE ULC 2 HOUR RATED BARE MI CABLE, OR "RHW" OR "CI" CONDUCTORS IN STEEL CONDUIT.

26 05 19 - 5.0 VOLTAGE DROP

VOLTAGE DROP FOR WIRING SHALL MEET REQUIREMENTS AS LAID OUT IN THE CANADIAN ELECTRICAL CODE. GENERALLY MAXIMUM BRANCH CIRCUIT CONDUCTOR DISTANCES (120VAC) TO MAINTAIN MAX. 3% VOLTAGE DROP ARE AS FOLLOWS:

- 15A-1P BREAKER - #12AWG WIRING - 80 FEET (24 METRES)
- 15A-1P BREAKER - #10AWG WIRING - 125 FEET (39 METRES)
- 20A-1P BREAKER - #12AWG WIRING - 60 FEET (18 METRES)
- 20A-1P BREAKER - #10AWG WIRING - 95 FEET (29 METRES)

26 05 26 GROUNDING & BONDING

1. GROUNDING & BONDING WORK IS TO BE IN ACCORDANCE WITH REQUIREMENTS OF THE FOLLOWING:

- CSA C22.2 NO. 41, GROUNDING AND BONDING EQUIPMENT (TRI-NATIONAL STANDARD WITH UL 467)
- CSA C22.2 NO. 0.4, GROUNDING AND BONDING OF ELECTRICAL EQUIPMENT
- REQUIREMENTS OF THE ELECTRICAL SAFETY AUTHORITY AND ANY OTHER GOVERNING AUTHORITY
- CAN/CSA Z32, ELECTRICAL SAFETY AND ESSENTIAL ELECTRICAL SYSTEMS IN HEALTH CARE FACILITIES

1. PROVIDE GROUNDING ELECTRODES, CONDUCTORS, CONNECTIONS & EQUIPMENT TO ENSURE A SOLIDLY GROUNDED ELECTRICAL SYSTEM.

2. SEPARATE GROUND & BONDING CONDUCTORS SHALL BE PROVIDED IN EACH CONDUIT. ALL EXPOSED METAL PARTS & NON CURRENT CARRYING EQUIPMENT, BASES, ETC. SHALL BE GROUNDED.

3. MAKE GROUNDING CONNECTIONS SO AS TO TERMINATE AT SINGLE GROUNDING POINT.

4. INSTALL SEPARATE GROUND CONDUCTOR TO OUTDOOR LIGHTING STANDARDS.

5. MECHANICAL EQUIPMENT SHALL BE BONDED TO THE EQUIPMENT GROUNDING SYSTEM, THIS INCLUDES BUT NOT LIMITED TO FANS, PUMPS, CHILLERS, ETC.

6. RECEPTACLES SHALL BE GROUNDED TO OUTLET BOX BY MEANS OF A BONDING JUMPER, AND SHALL PROVIDE GROUNDING CLIP ON EACH TOGGLE SWITCH, SUCH THAT CONTACT IS MADE BETWEEN MOUNTING STRAP, SCREW, FACEPLATE AND OUTLET BOX.

26 05 29 HANGERS & SUPPORTS

1. SUPPORT EQUIPMENT, CONDUIT OR CABLES USING CLIPS, SPRING-LOADED BOLTS, CABLE CLAMPS DESIGNED AS ACCESSORIES TO BASIC CHANNEL MEMBERS.

2. INSTALL FASTENINGS & SUPPORTS AS REQUIRED FOR EACH TYPE OF EQUIPMENT CABLES & CONDUIT & IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION.

26 05 36 CABLE TRAYS

1. CABLE TRAYS SHALL BE IN ACCORDANCE WITH CSA-C22.1 CANADIAN ELECTRICAL CODE & ANSI/NFPA 70 – NATIONAL ELECTRICAL CODE REQUIREMENTS.

26 05 53 IDENTIFICATION FOR ELECTRICAL SYSTEMS

1. IDENTIFY ALL EQUIPMENT WITH ENGRAVED LAMACOID NAMEPLATES.

2. ALL PANELS WITH CIRCUITS ADDED OR REMOVED SHALL HAVE NEW COMPUTER GENERATED PANEL SCHEDULES PLACE IN THEM. SCHEDULE SHALL INDICATE PANEL DESIGNATION, WHERE PANEL IS FED FROM, VOLTAGE, PHASE, BRANCH CIRCUIT NUMBERS, BREAKER AMPERAGE & CIRCUIT DESCRIPTION.

26 22 00 TRANSFORMERS

1. TRANSFORMERS SHALL BE COMPLETE WITH COPPER WINDINGS & MEET THE REQUIREMENTS OF CSA 802.2 - CURRENT EDITION FOR ENERGY EFFICIENC

26 05 33.16 OUTLET BOXES

1. UNLESS OTHERWISE SPECIFIED, EACH BOX IS TO BE CSA CERTIFIED, SUITABLE IN ALL RESPECTS FOR THE APPLICATION, SINGLE OR MULTI-GANG AS REQUIRED, & COMPLETE WITH SUITABLE SECURING LUGS, CONNECTORS SUITABLE FOR THE CONNECTED CONDUIT, KNOCKOUTS, &, WHERE NECESSARY, SUITABLE PLASTER RINGS, CONCRETE RINGS, COVERS AND ANY OTHER REQUIRED ACCESSORY.

2. ALL LIGHTING FIXTURES, RECEPTACLES & OTHER WIRING DEVICES FOR ANY CONDUIT SYSTEM SHOWN SHALL BE PROVIDED WITH AN OUTLET BOX.

3. 4" (100 MM) OCTAGON OR SQUARE OUTLET BOXES OR LARGER, C/W FITTINGS FOR LIGHTING FIXTURES & AS REQUIRED FOR SPECIAL DEVICES.

4. WALL OUTLET BOXES SHALL BE:

- NO. 1104 SERIES, FLUSH MOUNTED IN DRYWALL PARTITIONS
- MBS SERIES MASONRY BOXES (GALVANIZED STEEL) FLUSH MOUNTED IN MASONRY WALLS (BLOCK WALLS).
- GANG BOXES SHALL BE USED AT LOCATIONS WHERE DEVICES ARE GROUPED. PROVIDE BARRIERS AS REQUIRED.
- BLANK COVER PLATES FOR BOXES WITHOUT WIRING DEVICES.

26 27 26 WIRING DEVICES

1. ALL WIRING DEVICES ARE TO BE CSA CERTIFIED AS A MINIMUM, IN ACCORDANCE WITH THE FOLLOWING STANDARDS, AS APPLICABLE:

- CAN/CSA C22.2 NO. 42, GENERAL USE RECEPTACLE, ATTACHMENT PLUGS & SIMILAR WIRING DEVICES
- CAN/CSA C22.2 NO. 42.1, COVER PLATES FOR FLUSH MOUNTED DEVICES
- CSA C22.2 NO. 111, GENERAL USE SNAP SWITCHES

2. ALL WIRING DEVICES ARE TO BE SUPPLIED BY THE SAME MANUFACTURER.

3. SWITCHES: SPECIFICATION GRADE, PREMIUM QUALITY, BACK AND SIDE WIRED, 20 AMPERE, 120-277 VOLT A.C. QUIET ACTION WHITE DECORATIVE ROCKER TYPE TOGGLE SWITCHES, SINGLE POLE, 2-POLE, 3-WAY, OR KEY TYPE AS INDICATED ON THE DRAWINGS.

4. HAZARDOUS LOCATION SWITCH: EXPLOSION-PROOF, SURFACE MOUNTING, FRONT OPERATED SWITCHES SUITABLE FOR USE IN CLASS 1 DIVISION 2 LOCATIONS

5. OCCUPANCY SENSOR SWITCH: DIGITAL ULTRASONIC SENSOR TYPE, 120-277 VOLT A.C. WITH INTEGRAL PHOTO SENSOR AND SELECTED TO SUIT THE AREA AND OCCUPANCY OF THE ROOM SERVED.

6. STANDARD RECEPTACLES: BACK OR SIDE WIRED, U-GROUND, 2 POLE RECEPTACLES AS FOLLOWS:

- 15 AMP. 125 VOLT DUPLEX RECEPTACLE: 3-WIRE, NEMA 5-15R
- 15 AMP. 250 VOLT DUPLEX RECEPTACLE: 3-WIRE , NEMA 6-15R
- 20 AMP. 125 VOLT DUPLEX RECEPTACLE: 3-WIRE, NEMA 5-20R
- 20 AMP. 250 VOLT DUPLEX RECEPTACLE: 3-WIRE, NEMA 6-20R
- 30 AMP. 250 VOLT SIMPLEX RECEPTACLE: 3-WIRE, NEMA 6-30R
- 30 AMP. 125/250 VOLT SIMPLEX RECEPTACLE: 3-WIRE, NEMA 14-30R
- 50 AMP. 250 VOLT SIMPLEX RECEPTACLE: 3-WIRE, NEMA 6-50R
- 50 AMP. 125/250 VOLT SIMPLEX RECEPTACLE: 4-WIRE, NEMA 14-50R

7. GROUND FAULT RECEPTACLES: HEAVY-DUTY, 15/20 AMPERE, 125 VOLT, ULC CLASS A, GROUP 1. AUTOMATIC GROUND FAULT CIRCUIT INTERRUPTING DUPLEX RECEPTACLES WITH A 10 KA SHORT CIRCUIT CURRENT RATING AUTOMATIC SELF-TEST DIAGNOSTICS, GREEN POWER ON LED, AND RED GROUND FAULT LED. GROUND FAULT RECEPTACLES FOR INDOOR CLIMATE CONTROLLED & OUTDOOR OR NON-CLIMATE CONTROLLED AREAS ARE TO BE AS FOLLOWS:

- INDOOR CLIMATE CONTROLLED AREAS: EQUAL TO HUBBELL CANADA NO. GFST15/GFSTT20 "AUTOGUARD"
- OUTDOOR AREAS AND INDOOR NON-CLIMATE AREAS: EQUAL TO HUBBELL CANADA NO. GFR5262TR/GFR 4362TR "AUTOGUARD"

8. TAMPER-RESISTANT DUPLEX RECEPTACLES: SPECIFICATION GRADE, BACK OR SIDE WIRED, U-GROUND, 2-POLE, 3-WIRE TAMPER-RESISTANT DUPLEX RECEPTACLES AS SPECIFIED ABOVE, 15 AMPERE OR 20 AMPERE, 125 VOLT AS INDICATED ON THE DRAWINGS, EACH WITH THERMOPLASTIC SHUTTERS TO LIMIT ACCESS TO ENERGIZED CONTACTS.

26 28 00 CIRCUIT BREAKERS

1. BREAKERS ARE TO BE MOULDED CASE, BOLT-ON BREAKERS IN ACCORDANCE WITH CSA/C22.2 NO. 5, MOLDED-CASE CIRCUIT BREAKERS, MOLDED-CASE SWITCHES, & CIRCUIT BREAKER ENCLOSURES, CALIBRATED FOR OPERATION IN A 40°C (105°F) AMBIENT TEMPERATURE.

2. BRANCH CIRCUIT BREAKER INTERRUPTING CAPACITY IS TO SUIT THE PANELBOARD VOLTAGE & BE AS SCHEDULED, OR IN ACCORDANCE WITH CODE REQUIREMENTS TO SUIT THE APPLICATION.

3. FOR GROUND FAULT BREAKERS, CSA CLASS A, GROUP 1 COMBINATION THERMAL MAGNETIC TRIP BREAKERS WITH SOLID-STATE GROUND DEFAULT INTERRUPTERS.

4. PROVIDE SPARE BREAKERS OR SPACE FOR FUTURE BREAKERS.

26 51 00 INTERIOR LIGHTING

1. ALL LIGHTING FIXTURES ARE TO BE ULC LISTED, CSA CERTIFIED & LABELED.

2. LIGHTING FIXTURES & LAMPS ARE SCHEDULED ON THE DRAWINGS. PROVIDE LIGHTING FIXTURES & LAMPS WHERE SHOWN. INCLUDE FOR ALL REQUIRED SITE ASSEMBLY, & PROVIDE ALL REQUIRED INSTALLATION & SUPPORT HARDWARE.

3. THE LIGHTING EQUIPMENT FOR THIS PROJECT AND SPECIFIED HEREIN HAS BEEN CAREFULLY SELECTED FOR ITS ABILITY TO MEET THE PROJECT'S LUMINOUS ENVIRONMENT REQUIREMENTS. MANUAL & COMPUTER CALCULATIONS HAVE BEEN PERFORMED TO ENSURE THAT THE LIGHTING EQUIPMENT THAT HAS BEEN SPECIFIED COMPLIES WITH ESTABLISHED CRITERIA. THE ENGINEER RESERVES THE RIGHT NOT TO ACCEPT ANY ALTERNATES OR SUBSTITUTIONS. IF ALTERNATES OR SUBSTITUTIONS ARE ENTERTAINED, THEN IT IS THE RESPONSIBILITY OF THE CONTRACTOR/SUPPLIER TO PROVIDE ALL INFORMATION REQUIRED HEREIN & DETAILED LAYOUTS & LIGHTING CALCULATIONS DEMONSTRATING THE PERFORMANCE OF THE ALTERNATE LUMINAIRE MEETS OR EXCEEDS THE ORIGINAL LIGHTING DESIGN WHILE NOT CONSUMING ANY ADDITIONAL ENERGY. THE CONTRACTOR/ SUPPLIER IS RESPONSIBLE TO ENSURE THE LIGHT LEVELS PROVIDED IN THE ALTERNATE SUBMITTAL PACKAGE ARE ACHIEVED.

4. COORDINATE WITH THE ARCHITECTURAL DRAWINGS (REFLECTED CEILING PLANS, SECTIONS, ELEVATION, DETAILS,...) FOR ALL LIGHTING FIXTURE LOCATIONS. THE MOUNTING HEIGHTS OF THE LIGHTING FIXTURES SHALL BE CONFIRMED PRIOR TO ROUGH-IN. NOTIFY THE ENGINEER OF ANY DISCREPANCIES.

5. PRIOR TO ROUGH-IN FOR LIGHTING FIXTURE INSTALLATIONS, EXAMINE DRAWINGS & SITE CONDITIONS TO DETERMINE THAT SUITABLE SPACE IS AVAILABLE FOR THE FIXTURE INSTALLATION AS SHOWN. IF SUFFICIENT SPACE IS NOT AVAILABLE, NOTIFY THE CONSULTANT IMMEDIATELY &, IF REQUIRED, RELOCATE THE FIXTURES WITHIN REASONABLE DISTANCES WITHOUT ADDITIONAL COST.

6. INSTALLATION OF ALL LIGHTING EQUIPMENT SHALL COMPLY WITH THE CURRENT EDITION OF APPLICABLE ELECTRICAL SAFETY CODE.

7. SUPPORT ALL LIGHTING FIXTURES IN SUSPENDED CEILINGS FROM THE SLAB OR BUILDING CONSTRUCTION ABOVE, INDEPENDENT OF THE SUSPENDED CEILING CONSTRUCTION USING #12 JACK CHAIN HANGERS. SUPPORT CONTINUOUS ROWS OF FIXTURES AT MINIMUM 1.2 M (48") CENTRES.

8. LEVEL & PLUMB ALL LIGHTING FIXTURES WITH THE STRUCTURE & OTHER EQUIPMENT, & IN A HORIZONTAL OR VERTICAL POSITION AS INTENDED.

9. WALL OR SIDE BRACKET MOUNTED FIXTURE HOUSING SHALL BE RIGIDLY INSTALLED & ADJUSTED TO GIVE A NEAT FLUSH FIT TO THE SURFACE ON WHICH IT IS MOUNTED.

10. WHERE LIGHTING FIXTURES PENETRATE A FIRE RATED CEILING THEY ARE TO BE ENCLOSED IN AN ENCLOSURE WITH A RATING TO MATCH THAT OF THE CEILING. THE ENCLOSURE IS TO BE CONSTRUCTED BY THE TRADE CONSTRUCTING THE CEILING. ENSURE THAT CONDUCTORS CONNECTING THE FIXTURES ARE FIRE RATED TYPE AND THAT CEILING PENETRATIONS FOR CONDUCTORS ARE PROPERLY SEALED WITH FIRE STOPPING AND SMOKE SEAL MATERIAL. FIXTURES INSTALLED IN THE FIRE RATED ENCLOSURES ARE TO BE EQUIPPED WITH THERMAL OVERLOAD PROTECTION.

11. AT THE COMPLETION OF CONSTRUCTION & ACCEPTANCE OF WORK, ALL LIGHTING FIXTURES SHALL BE CLEAN, COMPLETE WITH ALL NECESSARY ACCESSORIES & PROVIDED WITH THE REQUIRED OPERATING LAMP(S).

26 52 13.13 EMERGENCY LIGHTING

1. ALL EMERGENCY LIGHTING IS TO BE CSA CERTIFIED IN ACCORDANCE WITH:

- CSA C22.2 NO. 141, UNIT EQUIPMENT FOR EMERGENCY LIGHTING
- UL 924, STANDARD FOR EMERGENCY LIGHTING & POWER EQUIPMENT
- CAN/CSA- C860, PERFORMANCE OF INTERNALLY-LIGHTED EXIT SIGNS
- CAN/ULC-S572, PHOTOLUMINESCENCE & SELF-LUMINOUS SIGNS AND PATH MARKING SYSTEMS, INCLUDING APPENDIX A AS APPLICABLE
- CSA C22.2 NO. 107.2, BATTERY CHARGERS

2. WHERE REMOTE LAMP HEADS ARE INDICATED, INSTALL & CONNECT TO THE BATTERY UNIT WITH 12/24 VDC WIRING IN CONDUIT AS INDICATED.

3. AIM ALL ADJUSTABLE LAMP HEADS TO PROVIDE MAXIMUM COVERAGE TO EGRESS ROUTES.

4. PROVIDE SELF-CONTAINED EMERGENCY LIGHTING UNITS WHERE SHOWN. INCLUDE FOR ALL REQUIRED SITE ASSEMBLY, PROVIDE ALL REQUIRED INSTALLATION & SUPPORT HARDWARE, & PLUG THE ASSEMBLIES INTO ADJACENT RECEPTACLES. CIRCUIT TO BE IDENTIFIED IN PANELS c/w LOCK ON BREAKER. Confirm EXACT LOCATIONS & MOUNTING HEIGHTS PRIOR TO INSTALLATION.

5. THE SELF-CONTAINED EMERGENCY LIGHTING UNITS SHALL BE CAPABLE OF SUPPLYING THE WATTAGE AS INDICATED.

6. CONTRACTOR TO COMMISSION & TEST COMPLETED SYSTEM. PROVIDE A CERTIFICATE OF PROPER OPERATION FOR COMPLETE SYSTEM.

7. TEST TO INCLUDE BATTERY MINIMUM DURATION AT FULL LIGHTING LEVEL:

- HIGH BUILDINGS - AS A MINIMUM 2 HR.
- GROUP B - AS A MINIMUM 1 HR.
- ALL OTHER - AS A MINIMUM 1/2 HR.

26 52 13.16 EXIT SIGNS

1. ALL EXIT SIGNS TO BE CSA CERTIFIED SAME AS EMERGENCY LIGHTING - REFER TO SECTION 26 52 13.13.

2. PROVIDE EXIT SIGNS WHERE SHOWN. INCLUDE FOR ALL REQUIRED SITE ASSEMBLY, & PROVIDE ALL REQUIRED INSTALLATION & SUPPORT HARDWARE.

3. CONFIRM EXACT EXIT SIGN LOCATIONS PRIOR TO ROUGHING-IN, & IN ANY CASE, ENSURE THAT EXIT SIGNS ARE NOT LESS THAN 2 M (6-1/2') FROM THE UNDERSIDE OF THE FIXTURE TO THE FINISHED FLOOR.

4. EXIT LIGHTS TO BE CIRCUITED TO LOCAL ROOM'S LIGHTING AS INDICATED WITH LOW VOLTAGE DC WIRING CONNECTED TO EMERGENCY BATTERY PACK. INSTALL WIRING IN CONDUIT. CIRCUIT TO BE IDENTIFIED IN PANELS C/W LOCK ON BREAKER.

26 56 00 EXTERIOR LIGHTING

1. ALL LIGHTING FIXTURES ARE TO BE ULC LISTED, CSA CERTIFIED & LABELED.

2. LIGHTING FIXTURES & LAMPS ARE SCHEDULED ON THE DRAWINGS. PROVIDE EXTERIOR LIGHTING FIXTURES WHERE SHOWN & IN ACCORDANCE WITH THE LIGHTING SCHEDULES. INCLUDE FOR ALL REQUIRED SITE ASSEMBLY, & PROVIDE ALL REQUIRED INSTALLATION & SUPPORT HARDWARE.

3. THE LIGHTING EQUIPMENT FOR THIS PROJECT AND SPECIFIED HEREIN HAS BEEN CAREFULLY SELECTED FOR ITS ABILITY TO MEET THE PROJECT'S LUMINOUS ENVIRONMENT REQUIREMENTS. MANUAL & COMPUTER CALCULATIONS HAVE BEEN PERFORMED TO ENSURE THAT THE LIGHTING EQUIPMENT THAT HAS BEEN SPECIFIED COMPLIES WITH ESTABLISHED CRITERIA. THE ENGINEER RESERVES THE RIGHT NOT TO ACCEPT ANY ALTERNATES OR SUBSTITUTIONS. IF ALTERNATES OR SUBSTITUTIONS ARE ENTERTAINED, THEN IT IS THE RESPONSIBILITY OF THE CONTRACTOR/SUPPLIER TO PROVIDE ALL INFORMATION REQUIRED HEREIN & DETAILED LAYOUTS & LIGHTING CALCULATIONS DEMONSTRATING THE PERFORMANCE OF THE ALTERNATE LUMINAIRE MEETS OR EXCEEDS THE ORIGINAL LIGHTING DESIGN WHILE NOT CONSUMING ANY ADDITIONAL ENERGY. THE CONTRACTOR/ SUPPLIER IS RESPONSIBLE TO ENSURE THE LIGHT LEVELS PROVIDED IN THE ALTERNATE SUBMITTAL PACKAGE ARE ACHIEVED.

4. CONFIRM EXACT LIGHTING FIXTURES LOCATIONS PRIOR TO ROUGHING-IN.

5. SECURE GRADE MOUNTED BUILDING FLOODLIGHTING FIXTURES TO CONCRETE PADS SET FLUSH WITH FINISHED GRADE.

6. PROVIDE POLES WITH MOUNTING BRACKETS FOR POLE MOUNTED LIGHTING FIXTURES. FOR DIRECT BURY CONCRETE POLES, BACKFILL THE EXCAVATION AROUND THE POLE WITH CONCRETE.

7. SECURE METAL POLES TO REINFORCED CONCRETE BASES. INSTALL POLE ANCHOR BOLT SUPPORT HARDWARE IN THE BASE CONCRETE DURING THE POUR, & ENSURE THAT THE HARDWARE IS PROPERLY POSITIONED & REMAINS PROPERLY POSITIONED UNTIL CONCRETE HAS SET. PROVIDE VANDAL-PROOF ANCHOR BOLT COVERS.

8. ENSURE THAT ALL POLES ARE TRUE AND PLUMB.

27 05 00 COMMON WORK RESULTS FOR COMMUNICATION SYSTEM

1. PROVIDE EMPTY PATHWAYS, FISH WIRES, BOXES, COVER PLATES, CONDUIT, BACKBOARDS, MISCELLANEOUS & POSITIONING MATERIAL FOR A COMPLETE SYSTEM FOR COMMUNICATIONS SYSTEMS WIRING, ALL AS INDICATED ON THE DRAWINGS.

2. PERFORM ALL REQUIRED COMMUNICATION SYSTEMS GROUNDING & BONDING COMPLETE WITH BUS, BONDING BACKBONES, & BONDING CONDUCTORS. UNLESS OTHERWISE SPECIFIED, GROUNDING AND BONDING WORK IS TO BE IN ACCORDANCE WITH REQUIREMENTS OF ANSI J-STD-607-A, & THE REQUIREMENTS OF ALL OTHER GOVERNING AUTHORITIES.

3. BOND METALLIC CONDUITS, BOXES, CABLE TRAYS, DUCTS, & NON-CURRENT CARRYING METAL PARTS OF EQUIPMENT TOGETHER TO THE COMMUNICATIONS GROUNDING & BONDING SYSTEM.

4. INCLUDE FOR GROUND CONNECTIONS TO ALL COMMUNICATION SYSTEM RACKS.

28 46 00 FIRE DETECTION & ALARM

1. PROVIDE A COMPLETE FIRE ALARM SYSTEM. FIRE ALARM SYSTEM INSTALLATION & TESTING IS TO BE IN ACCORDANCE WITH REQUIREMENTS OF THE FOLLOWING:

- CAN/ULC-S524-14, INSTALLATION OF FIRE ALARM SYSTEMS.
- CAN/ULC-S536-04, INSPECTION & TESTING OF FIRE ALARM SYSTEMS.
- CAN/ULC-S537-13, VERIFICATION OF FIRE ALARM SYSTEMS.
- CAN/ULS-S573-2018 STANDARD FOR INSTALLATION OF ANCILLARY DEVICES.
- CURRENT EDITION OF APPLICABLE BUILDING CODE.

2. SYSTEM COMPONENTS SHALL BE LISTED BY ULC/CSA & COMPLY WITH APPLICABLE PROVISIONS OF THE NATIONAL BUILDING CODE, THE LOCAL/PROVINCIAL BUILDING CODE, & MEET REQUIREMENTS OF LOCAL AUTHORITY HAVING JURISDICTION.

3. PROVIDE AN ADDRESSABLE SINGLE STAGE FULLY SUPERVISED, ADDRESSABLE, MICROPROCESSOR-BASED, FIRE ALARM SYSTEM, UTILIZING DIGITAL TECHNIQUES FOR DATA CONTROL & DIGITAL, & MULTIPLEXING TECHNIQUES FOR DATA TRANSMISSION.

4. SYSTEM TO CARRY OUT FIRE ALARM & PROTECTION FUNCTIONS; INCLUDING RECEIVING ALARM SIGNALS; INITIATING GENERAL & TWO-STAGE ALARM; SUPERVISING COMPONENTS & WIRING; ACTUATING ANNUNCIATORS & AUXILIARY FUNCTIONS; INITIATING TROUBLE SIGNALS & SIGNALLING TO MONITORING AGENCY.

5. INSTALL CENTRAL CONTROL UNIT & CONNECT TO AC POWER SUPPLY.

6. INSTALL MANUAL ALARM STATIONS & CONNECT TO ALARM CIRCUIT WIRING.

7. LOCATE & INSTALL DETECTORS & CONNECT TO ALARM CIRCUIT WIRING. DO NOT MOUNT DETECTORS WITHIN 1 M (3 FT. 3-3/8 IN.) OF AIR OUTLETS. MAINTAIN AT LEAST 600 MM (2 FT.) RADIUS CLEAR SPACE ON CEILING, BELOW & AROUND DETECTORS. LOCATE DUCT TYPE DETECTORS IN STRAIGHT PORTIONS OF DUCTS INSTALLATION WILL BE COMPLETE WITH SAMPLING TUBES.

8. CONNECT ALARM CIRCUITS TO MAIN CONTROL PANEL.

9. INSTALL BELLS, HORNS & VISUAL SIGNAL DEVICES & CONNECT TO SIGNALLING CIRCUITS.

10. CONNECT SIGNALLING CIRCUITS TO MAIN CONTROL PANEL.

11. INSTALL END-OF-LINE DEVICES.

12. INSTALL REMOTE ANNUNCIATOR PANELS AND CONNECT TO ANNUNCIATOR CIRCUIT WIRING.

13. INSTALL DOOR RELEASING DEVICES.

14. INSTALL REMOTE RELAY UNITS TO CONTROL FAN SHUT DOWN.

15. COORDINATE WITH SPRINKLER DRAWINGS & SPRINKLER CONTRACTOR. REVIEW & COORDINATE WITH ALL SPRINKLER DEVICE LOCATIONS. SPRINKLER DEVICES SHOULD BE WIRED SUCH THAT OPENING OF A DEVICE WILL CAUSE A TROUBLE ON AN ALARMING DEVICE OR A SUPERVISORY ON A SUPERVISING DEVICE.

16. CONTRACTOR SHALL ENSURE THE VERIFICATION OF THE FIRE ALARM INCLUDES ANY SECURITY DOORS.

17. ALL FIRE ALARM TEST & VERIFICATION REPORTS ARE TO BE SUBMITTED WITH A COVERING LETTER FROM THE MANUFACTURER CLEARLY STATING THAT THERE ARE NO DEFICIENCIES WITH THE INSTALLATION PRIOR TO RELEASING THE RESPECTIVE AREA FOR OCCUPANCY.

ELECTRICAL REPORTS REQUIRED FOR SIGN-OFF

THE FOLLOWING REPORTS MUST BE SUBMITED TO THE ENGINEER PRIOR TO FINAL APPROVAL OF THE COMPLETED SYSTEM.

1. ESA (ONTARIO ELECTRICAL SAFETY AUTHORITY) - CERTIFICATE OF ACCEPTANCE.
2. EMERGENCY LIGHTING DURATION TEST - SUCCESSFUL CERTIFICATON LETTER
3. SMOKE ALARM VERIFICATION REPORT
4. CONTRACTOR COMPLETION & WARRANTY LETTER

DIV. 23, DIV. 26 RESPONSIBILITIES

DIV. 26 TO SUPPLY:
ELECTRICAL RESISTANCE HEATERS,
ALL CONTROL AND ELECTRICAL POWER DEVICES OVER 50 VOLTS
(ALSO TO BE INSTALLED, WIRED, & TESTED BY DIV. 26 CONT.)

DIV. 23 TO SUPPLY:
HEATING / COOLING UNITS, GAS FIRED HVAC EQUIPMENT, EXHAUST FANS, HVAC ELECTRICAL CONTROL DEVICES UNDER 50 VOLTS
(ALSO TO BE INSTALLED, WIRED & TESTED BY DIV. 23 CONT.)

(04322) PROJECT DRAWING REGISTER

Sheet #	Sheet Name
E1/M1/P1	Project Cover
E2/M2/P2	Project Cover
M-3	HVAC - Specifications
M-4	HVAC - Specifications
M-5	HVAC - Scope of Work
M-6	HVAC - Scope of Work
M-7	HVAC - Bldg.1
M-8	HVAC - Bldg. 2
M-9	HVAC - Bldg. 3
M-10	HVAC - Bldg.4
M-11	HVAC - Bldg. 5
M-12	HVAC - Bldg.6
M-13	HVAC - Isometric & Elevation Views
M-14	HVAC Details
P-3	Plumbing - Specifications
P-4	Plumbing - Specifications
P-5	Plumbing - Site Plan
P-6	Plumbing - Bldg. 1
P-7	Plumbing - Bldg. 2
P-8	Plumbing - Bldg. 3
P-9	Plumbing - Bldg. 4
P-10	Plumbing -Bldg. 5
P-11	Plumbing - Bldg. 6
P-12	Plumbing -Typical Building
P-13	Plumbing - Details
P-14	Plumbing - Water Schematic
P-15	Plumbing - Sanitary Schematic
E-3	Elec. Power - Specifications
E-4	Elec. Power - Specifications
E-5	Elec. Power - Scope of Work
E-6	Electrical Site Plan
E-7	Elec. - SLD
E-8	Power/Comm - Bldg. 1
E-9	Elec. Lighting - Bldg 1
E-10	Power/Comm - Bldg. 2
E-11	Elec. Lighting - Bldg 2
E-12	Power/Comm - Bldg. 3
E-13	Elec. Lighting - Bldg 3
E-14	Power/Comm - Bldg. 4
E-15	Elec. Lighting - Bldg 4
E-16	Power/Comm. - Bldg. 5
E-17	Elec. Lighting - Bldg. 5
E-18	Power/Comm - Bldg. 6
E-19	Elec. Lighting - Bldg 6
E-20	Elec. Typical Building
E-21	Electrical Schedules
E-22	Electrical Details

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GENERAL DRAWING / DESIGNER NOTES:

[1] ALL CONSTRUCTION METHODS AND MATERIALS TO CONFORM TO THE LATEST EDITION OF THE PROVINCE OF ONTARIOS "BUILDING CODE", LOCAL REGULATIONS AND AUTHORITIES HAVING JURISDICTION.

[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 CONTRACTOR.

[3] DRAWINGS ONLY SHOW GENERAL INTENT AND SCOPE OF WORK. EXACT DETAILS OF INSTALLATIONS ARE TO BE PROVIDED BY CONTRACTOR(S). DO NOT SCALE DRAWINGS.

[4] CONTRACTOR/AGENT/OWNER TO REPORT ALL DISCOVERIES OF ERRORS, OMISSIONS OR DISCREPANCIES TO THE DESIGNER.

[5] PROCEED WITH CONSTRUCTION ONLY USING THE LATEST REVISED DRAWINGS MARKED "ISSUED FOR CONSTRUCTION".

[6] THIS DRAWING IS SPECIFIC TO THIS PROJECT AND CANNOT BE USED FOR OTHER "SIMILAR" PROJECTS.

[7] THIS DRAWING IS THE PROPERTY OF NORTHSTAR ENGINEERING & TECHNOLOGIES LTD. UN-AUTHORIZED RE-PRODUCTION OR USE IS PROHIBITED.

[8] SHOP DRAWINGS:
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. THE SHOP DWG REVIEW WILL NOT RELEASE THE CONTRACTOR FROM ESPONSIBILITY TO MAKE A FEASIBLE WORKING SYSTEM. THESE SHOP DRAWINGS SHALL CONSIST OF PLUMBING FIXTURES, HVAC EQUIPMENT, HVAC DIFFUSERS.
ALLOW MINIMUM 1-2 WEEKS FOR COMPLETION (BASED ON COMPLEXITY).

[9] THE DESIGNER DOES NOT ACCEPT RESPONSIBILITY FOR OTHER DESIGNER'S WORK IN ASSOCIATION WITH THIS PROJECT.

[10] RESPONSIBILITY FOR ANY FINAL ASSEMBLY(S) THAT VIOLATE APPLICABLE BUILDING CODES IS NOT ACCEPTED BY THE DESIGNER.

[11] REQUESTS FOR CHANGES OR SUBSTITUTIONS TO EQUIPMENT, PLANS AND / OR SPECIFICATIONS WILL BE SUBJECT TO ADDITIONAL FEES CHARGED BY THE CONSULTANT.

[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 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 DRAWINGS TO BE BASED ON DWGS MARKED "ISSUED FOR TENDER" OR "ISSUED FOR CONSTRUCTION" ONLY.

[16] ALL REQUESTS FOR DESIGN CHANGES / SUBSTITUTIONS TO BE MADE IN WRITING. ADDITIONAL FEES MAY APPLY. ALLOW MINIMUM (1) ONE WEEK TO REVIEW AND RESPOND TO CHANGE REQUESTS.

DRAWING REVISIONS

No.	Description	Date
2	Issued for Review	Apr. 22/22
3	Preliminary for Review	Sep. 09/22
4	Issued for Permit	Oct. 05/22
5	Issued for Tender	May 18/23
6	Re-Issued for Tender	Dec. 20/24

Engineer's Seal:

LICENSED PROFESSIONAL ENGINEER
J. D. LONG
Dec. 20/24
PROVINCE OF ONTARIO

Client: WW Inc.

Address: Minden, ON

Project Name: Gull River Affordable Housing

Dwg. Name: Elec. Power - Specifications

NSET Project #: 04322

Drawn by: Northstar Eng. | Checked by: J.D.L.

Scale: 12" = 1'-0" | Revision #: 6.0

Drawing #: E-4

Project Date: Jan. 14/22 | Arch-D (24" x 36")

ELECTRICAL - SCOPE OF WORK

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

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

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

TENDER - PHASE - ELECTRICAL

E 1.0. ALL CONTRACT DOCUMENTS WHERE THE WORD "NORTHSTAR" APPEARS, REFERS TO THE ENGINEERING CONSULTANT, NORTHSTAR ENGINEERING & TECHNOLOGIES LTD.

E 1.1. THE CONTRACT SHALL BE GOVERNED BY THE LAWS OF THE CANADIAN PROVINCE BASED ON THE PROVINCIAL ADDRESS OF THE PROJECT.

E 1.2. CONTRACTOR TO BE FAMILIAR WITH AND FULLY ABIDE BY ALL CLIENT / SITE SAFETY & CONFIDENTIALITY REQUIREMENTS FOR ACCESSING THE SITE STIPULATED IN THE CLIENT'S SAFETY REGULATIONS, RULES, POLICIES & PROTOCOLS. ALL VISITS TO BE ARRANGED WITH THE LISTED CLIENT REPRESENTATIVE IN WRITING IN ADVANCE OF THE VISIT. ENTRANCE TO THE SITE IS NOT PERMITTED WITHOUT A PRE-ARRANGED APPOINTMENT. CONTRACTOR TO CARBON COPY (CC) THE ENGINEER TO NOTIFY OF AN IMPENDING SITE VISIT IN WRITING.

E 1.3. CONTRACTOR SHALL COMPLETE ALL REQUIRED TRAINING SUCCESSFULLY IN FULL ACCORDANCE WITH THE CLIENT'S SPECIFIC TRAINING PROGRAM / REQUIREMENTS. WRITTEN PROOF TO BE PROVIDED TO THE ENGINEER PRIOR TO ENTERING THE SITE.

E 1.4. CONTRACTOR TO BE FAMILIAR WITH AND FULLY ABIDE BY ALL PROVINCIAL AND CLIENT / SITE SAFETY PPE REQUIREMENTS WHILE AT THE CLIENT'S SITE.

E 1.5. CONTRACTOR TO VISIT THE SITE AND FAMILIARIZE THEMSELVES WITH ALL OF THE REQUIREMENTS OF THIS PROJECT PRIOR TO THE TENDER PHASE TO REVIEW THE EXISTING CONDITIONS AND THE RELATIONSHIP TO THE NEWLY PROPOSED DESIGN. PARTICULAR ATTENTION TO BE PAID TO MODIFICATIONS TO EXISTING SERVICES (IF APPLICABLE).

E 1.6. CONTRACTOR TO VISIT THE SITE AND FAMILIARIZE THEMSELVES WITH ALL OF THE REQUIREMENTS OF THIS PROJECT.

E 1.7. THE SPECIFICATIONS TEXT LISTED IN THE TENDER DOCUMENTS SHALL HAVE PRIORITY OVER THE DRAWINGS AND PLANS. THIS MAY IN "SHEET" FORMAT OR "BOOK" FORMAT.

E 1.8. SHOULD THERE BE A CONFLICT OR INCONSISTENCY WITHIN THE DRAWINGS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN A TIMELY MANNER WITHIN THE TENDER PERIOD.

E 1.9. THE DESIGN DRAWINGS PROVIDED BY NORTHSTAR ARE GENERAL LAYOUTS ONLY. THE CONTRACTOR SHALL PROVIDE A COMPLETE WORKING INSTALLATION BASED ON THE GENERAL LAYOUTS PROVIDED BY NORTHSTAR. SHOULD COORDINATION OF THE ACTUAL INSTALLATION REQUIRE ADDITIONAL CONDUIT, MATERIAL, FITTINGS THAN SHOWN, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF PROCUREMENT AND INSTALLATION. EXTRAS FOR OFFSETS AND ROUTING CHANGES WILL NOT BE APPROVED.

E 1.10. EVERY EFFORT HAS BEEN MADE BY NORTHSTAR TO PROVIDE A WORKABLE CONCEPT FOR THIS PROJECT. THE CONTRACTOR IS REQUESTED TO REVIEW THE VIABILITY OF THE DESIGN CONCEPT AND LIST ANY CONCERNS OR OBSTACLES TO THE SUCCESS OF THE PROPOSED PLAN BEFORE ORDERING OF MATERIALS OR PLANNING IS BEGUN.

E 1.11. THERE MAY BE ADDITIONAL SCOPES OF WORK THAT THE OWNER MAY REQUIRE RELATED TO OUR CONSTRUCTION DOCUMENTS CONTAINED IN THE TENDER. THE CONTRACTOR IS ENCOURAGED TO CONTACT TO CONTACT THE OWNER OR OWNER'S REPRESENTATIVE TO ENQUIRE ABOUT ADDITIONAL WORK RELATED TO - BUT NOT CONTAINED IN THIS TENDER.

E 1.12. CONTRACTOR TO PROVIDE THE PRICE FOR THE WORK WITH REASONABLE DETAILED CONSIDERATION OF ALL OF THE CONSTRUCTION DOCUMENTS PROVIDED BY ALL CONSULTANTS ON THIS PROJECT. THIS INCLUDES CIVIL, SITE SERVICING, PLANNING, ARCHITECTURAL, STRUCTURAL, MECHANICAL & ALL ASSOCIATED CONTROLS CONTRACTORS.

E 1.13. CONTRACTOR TO INCLUDE COORDINATING, SUPPLYING AND INSTALLING NECESSARY ELECTRICAL CONTROLS CONDUITS TO SERVICE MECHANICAL EQUIPMENT FOR LOW-VOLTAGE (UNDER 30VAC) FOR ALL REQUIRED MECHANICAL CONTROLS.

E 1.14. NORTHSTAR WILL NOT PROVIDE VERBAL OR WRITTEN PERMISSION TO DEVIATE FROM THE CONTRACT DOCUMENTS DURING THE TENDER PERIOD UNLESS THROUGH A FORMAL ADDENDUM ISSUED BY NORTHSTAR AND-OR THE PRIME CONSULTANT.

E 1.15. CONTRACTOR TO FULLY REVIEW AND CONSIDER LISTED AND SPECIFIED TECHNICAL REPORTS PRIOR TO SUBMITTING THEIR BID.

E 1.16. IT SHALL BE ASSUMED THAT ANY FINAL BID SUBMITTED ON OR BEFORE THE OFFICIAL TENDER DATE SHALL BE DEEMED TO CONTAIN AND INCLUDE COSTING FOR ALL OFFICIAL CHANGES AND ADDENDUMS ISSUED BY NORTHSTAR AND OR THE CONSULTANT TEAM.

E 1.17. NORTHSTAR RESERVES THE RIGHT TO APPROVE AND/OR DENY ANY CONTRACTOR SELECTED EQUIPMENT / MATERIALS / METHODS - INCLUDING SHOP DRAWINGS THAT DEVIATE FROM THE DESIGN PRESENTED.

E 1.18. CONTRACTOR SHALL FULLY DISCLOSE IN THEIR BID A LIST OF SUB-CONTRACTORS CARRIED AND PLANNED TO BE EMPLOYED FOR THIS PROJECT BY THE CONTRACTOR.

E 1.19. CONTRACTOR SHALL IDENTIFY LONG-LEAD ITEMS IN THEIR BID SUBMISSION.

E 1.20. CONTRACTOR MAY IDENTIFY AN ALTERNATE SOLUTION FROM THE CONTRACT DOCUMENTS FOR NORTHSTAR'S REVIEW - AS AN OPTIONAL PRICE.

E 1.21. CONTRACTOR SHALL BE RESPONSIBLE FOR PRICING ALL MATERIALS CONTAINED WITHIN THE CONTRACT DOCUMENTS. FAILURE OF THE CONTRACTOR TO ORDER AND PROCURE THE SPECIFIED OR APPROVED ALTERNATE MATERIALS TO MEET THE PROJECT SCHEDULE IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

E 1.22. EVERY EFFORT HAS BEEN MADE BY NORTHSTAR TO PROVIDE A WORKABLE CONCEPT FOR THIS PROJECT. THE CONTRACTOR IS REQUESTED TO REVIEW THE VIABILITY OF THE DESIGN CONCEPT AND LIST ANY CONCERNS OR OBSTACLES TO THE SUCCESS OF THE PROPOSED PLAN ALONG WITH THE TENDER SUBMISSION.

E 1.23. ANY DEVICES THAT REQUIRE ELECTRICAL POWER OVER 50VAC ARE TO BE WIRED ENERGIZED AND COMMISSIONED BY THE ELECTRICAL CONTRACTOR.

E 1.24. CONTRACTOR TO OBTAIN PRICING AND CARRY THE COSTS OF ANY REQUIRED (QUALIFIED) COMPANIES TO PERFORM ANY LISTED TESTING AND OR INVESTIGATIONS PRIOR TO CONSTRUCTION. FEES FOR ALL LISTED REPORTS TO BE INCLUDED IN THE TENDER.

E 1.25. THE ENTIRE INSTALLATION IS TO BE WARRANTIED FOR A PERIOD OF NOT LESS THAN 1-YEAR INCLUDING PARTS AND LABOUR. THE WARRANTY PERIOD SHALL COMMENCE AT THE DATE OF SUBSTANTIAL COMPLETION GRANTED BY THE CONSULTANT.

E 1.26. CONTRACTOR TO PROVIDE PRICING ON ALL NORTHSTAR ISSUED OFFICIAL CHANGE ORDERS IN THE FORMAT REQUESTED BASED ON THE SPECIFIC ITEM NUMBERS LISTED ON THE NORTHSTAR CHANGE REQUEST DOCUMENT. ONE PRICE FOR EACH ITEM LISTED. PRICING TO INCLUDE ALL LABOUR AND MATERIALS REQUIRED FOR THE SCOPE REQUESTED. NORTHSTAR WILL NOT NECESSARILY APPROVE PRICING BASED UPON INDUSTRY PRICE GUIDES SUCH AS "ALLPRISER" OR SIMILAR METHOD. PRICING WILL BE REVIEWED BASED ON FAIR MARKET CONDITIONS. CONTRACTOR TO PROVIDE CHANGE ORDER PRICING IN A TIMELY MANNER FOR NORTHSTAR'S REVIEW. NO WORK SHALL PROCEED UNTIL OFFICIAL WRITTEN ACCEPTANCE IS ISSUED BY NORTHSTAR.

E 1.27. NORTHSTAR OFFICIAL ISSUED SITE INSTRUCTIONS (OR SIS) ARE DIRECTIVES TO CHANGE THE INSTALLATION AND ARE NOT SUBJECT TO PRICING FROM THE CONTRACTOR. IF THE CONTRACTOR FEELS THAT THE ITEM WARRANTS AN ADDITIONAL COST TO THE PROJECT, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING PRIOR TO PRICING THE ITEM.

E 1.28. FIRE ALARM THIRD PARTY MONITORING IS TO BE INCLUDED IN FULL ACCORDANCE TO CAN/ULC S561.

E 1.29. ABIDE BY THE CONTRACT DOCUMENTS AS DETAILED IN THE "BID FORM" & "VENDOR POLICY" PROVIDED BY THE CLIENT.

PRE-CONSTRUCTION - PHASE - ELECTRICAL

E 2.0. CONTRACTOR SHALL BE RESPONSIBLE FOR PRICING ALL MATERIALS CONTAINED WITHIN THE CONTRACT DOCUMENTS. FAILURE OF THE CONTRACTOR TO ORDER AND PROCURE THE SPECIFIED OR APPROVED ALTERNATE MATERIALS TO MEET THE PROJECT SCHEDULE IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR. NORTHSTAR WILL NOT APPROVE EXTRA COSTS FOR THE CONTRACTOR'S FAILURE TO ORDER THE REQUIRED MATERIALS & EQUIPMENT IN A TIMELY MANNER IN ORDER TO MAINTAIN THE PROJECT SCHEDULE.

E 2.1. EVERY EFFORT HAS BEEN MADE BY NORTHSTAR TO PROVIDE A WORKABLE CONCEPT FOR THIS PROJECT. THE CONTRACTOR IS REQUESTED TO REVIEW THE VIABILITY OF THE DESIGN CONCEPT AND LIST ANY CONCERNS OR OBSTACLES TO THE SUCCESS OF THE PROPOSED PLAN BEFORE ORDERING OF MATERIALS OR PLANNING IS BEGUN.

E 2.2. EVERY EFFORT HAS BEEN MADE BY NORTHSTAR TO PROVIDE A WORKABLE DESIGN CONCEPT FOR THIS PROJECT. THE CONTRACTOR IS TO REVIEW THE VIABILITY OF THE DESIGN CONCEPT AND REPORT ANY CONFLICTS OR CONSTRUCTABILITY ISSUES CONCERNS OR OBSTACLES TO THE TO THE ENGINEER BEFORE ORDERING OF MATERIALS OR DETAILED PLANNING IS BEGUN.

E 2.3. CONTRACTOR IS TO APPLY FOR AND PAY FOR ANY AND ALL NECESSARY PERMITS REQUIRED TO PERFORM THE WORK LISTED.

E 2.4. CONTRACTOR AS WELL AS SUBCONTRACTORS ARE TO PERFORM A DETAILED CONSIDERATION OF ALL OF THE CONSTRUCTION DOCUMENTS PROVIDED BY ALL CONSULTANTS ON THIS PROJECT. THIS INCLUDES CIVIL, SITE SERVICING, PLANNING, ARCHITECTURAL, STRUCTURAL, MECHANICAL & ALL ASSOCIATED CONTROLS CONTRACTORS. ANY DISCREPANCIES OR CONFLICTS ARE TO BE REPORTED IN A TIMELY MANNER IN WRITING TO THE PRIME CONSULTANT AS WELL AS NORTHSTAR.

E 2.5. CONTRACTOR TO REGULARLY (AND AT PROJECT MILESTONES), REQUEST ELECTRICAL SAFETY INSPECTIONS AND PROVIDE TO THE ENGINEER THE INSPECTOR'S REPORT IN A TIMELY MANNER.

E 2.6. CONTRACTOR TO CONTACT AND COORDINATE THE LOCATING AND DISCOVERY OF ALL UNDERGROUND SERVICES RELATED TO THE PROJECT (IN THE VICINITY OF THE WORK). PAYMENT FOR ALL SERVICES ARE TO BE MADE BY THE CONTRACTOR. ALL RECEIVED REPORTS & LOCATES ARE TO BE ISSUED TO THE ENGINEER IN A TIMELY MANNER.

E 2.7. CONTRACTOR TO CONTACT, COORDINATE, AND MEET WITH ALL LOCAL SERVICE UTILITY REPRESENTATIVES AS PART OF THE PROJECT ACTIVITIES. ANY INFORMATION PROVIDED TO THE CONTRACTOR TO BE SHARED WITH THE PRIME CONSULTANT AS WELL AS NORTHSTAR.

E 2.8. CONTRACTOR TO RETAIN QUALIFIED COMPANIES TO PERFORM ANY LISTED TESTING AND OR INVESTIGATIONS PRIOR TO CONSTRUCTION. ALL REPORTS TO BE ISSUED TO THE ENGINEER IN A TIMELY MANNER. FEES FOR ALL LISTED REPORTS TO BE INCLUDED IN THE TENDER.

E 2.9. CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR ALL LISTED ITEMS WITHIN DRAWING SCHEDULES CONTAINED IN THE PLANS. IN ADDITION, NORTHSTAR MAY PROVIDE A SPECIFIC LIST OF REQUIRED SHOP DRAWINGS. ALTERNATES MAY OR MAY NOT BE ACCEPTABLE. IT IS RECOMMENDED THAT THE CONTRACTOR PRE-APPROVE THE SHOP DRAWINGS WITH NORTHSTAR IN ORDER TO EXPEDITE AND TO CONSERVE SCHEDULE TIME. NOTE: REVIEW OF SHOP DRAWINGS BY NORTHSTAR DOES NOT IMPLY RESPONSIBILITY FOR THE PRODUCTS SELECTED. NORTHSTAR'S REVIEW ID TO DETERMINE "GENERAL CONFORMANCE" WITH OUR DESIGN. THE CONTRACTOR SHALL ENSURE THAT ALL PRESENTED SHOP DRAWINGS ARE VIABLE AND SUITABLE PRODUCTS FOR THE INSTALLATION AND THEREFORE BARE THE RESPONSIBILITY FOR THE SELECTION OF THE PRODUCTS CONTAINED THEREIN. NORTHSTAR DOES NOT WARRANT QUANTITIES. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ASSESS AND ORDER THE REQUIRED QTY. OF PRODUCTS AND MATERIALS. COMPLEX ALTERNATES PRESENTED MAY INVOLVE SIGNIFICANT WORK BY NORTHSTAR IN ORDER TO APPROVE WHICH MAY RESULT IN AN ADDITIONAL CHARGE TO THE OWNER. IF THE OWNER IS NOT AGREEABLE, THE ADDITIONAL COST OF REVIEWING THE DESIGN MAY BE CHARGEABLE TO THE CONTRACTOR.

E 2.10. CONTRACTOR SHALL RETAIN AND PAY FOR THE SERVICES OF A PROFESSIONAL STRUCTURAL ENGINEER TO DESIGN & COORDINATE ALL REQUIRED STRUCTURAL MOUNTS, BRACKETS, ROOF INSTALLATIONS, STAGING ACTIONS, LIFTS AND SUPPORTS. NO STRUCTURAL MEMBER SHALL BE CUT WITHOUT THE KNOWLEDGE AND CONSENT OF THE PROJECT STRUCTURAL ENGINEER OF RECORD.

E 2.11. CONTRACTOR TO INITIATE DISCUSSIONS WITH THE UTILITY TO ORGANIZE CONSTRUCTION POWER FOR THE SITE.

E 2.12. PROVIDE SIGNAGE TO THE SITE WITH AN INDICATION OF THE CONTRACTING TEAM.

E 2.13. ELECTRICAL CONTRACTOR TO WORK CLOSELY WITH GENERAL CONTRACTORS, ARCHITECTS, & ENGINEERS TO PROVIDE SAFE, COMPLIANT, & RELIABLE ELECTRICAL SYSTEMS.

CONSTRUCTION - PHASE - ELECTRICAL

E 3.0. THIS CONTRACTOR IS TO SUPPLY AND INSTALL ALL ELECTRICAL COMPONENTS AND COMMISSION ALL SYSTEMS CONTAINED IN THE CONSTRUCTION DOCUMENTATION PROVIDED BY NORTHSTAR SO AS TO PROVIDE TO THE OWNER A COMPLETE, WORKING INSTALLATION THAT FUNCTIONS AS INTENDED BY THE ENGINEERS. THE WORK IS TO BE COMPLETED TO THE SATISFACTION OF THE OWNER AS WELL AS NORTHSTAR.

E 3.1. ALL INSTALLATION METHODS AND WORK SHALL COMPLY WITH ALL CURRENT APPLICABLE STANDARDS, CODES, BY-LAWS AND REGULATIONS - AS WELL AS THE LATEST EDITION OF THE PROVINCIAL BUILDING CODE.

E 3.2. THE DESIGN DRAWINGS PROVIDED BY NORTHSTAR ARE "DIAGRAMMATIC" AND GENERAL IN NATURE. LOCATIONS SHOWN ARE APPROXIMATE. ALL DIMENSIONS ARE TO BE VERIFIED BY THE CONTRACTOR. THE CONTRACTOR SHALL PROVIDE A COMPLETE, WORKING INSTALLATION BASED ON THE GENERAL LAYOUTS PROVIDED BY NORTHSTAR. SHOULD COORDINATION OF THE ACTUAL INSTALLATION REQUIRE ADDITIONAL CONDUIT, MATERIAL, FITTINGS THAN SHOWN, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF PROCUREMENT AND INSTALLATION. EXTRAS FOR OFFSETS AND ROUTING CHANGES WILL NOT BE APPROVED.

E 3.3. CONTRACTOR TO READ THE INSTALLATION MANUAL OF ANY COMPONENT PRIOR TO INSTALLATION. ALL EQUIPMENT AND PURCHASED PRODUCTS USED IN THE INSTALLATION SHALL BE CONSTRUCTED IN STRICT ACCORDANCE WITH THE RELEVANT MANUFACTURER'S INSTRUCTION INSTALLATION MANUAL FOR THE RESPECTIVE PRODUCT. MFG. WARRANTIES ARE TO BE PRESERVED IN PREPARATION FOR HANDING THE COMPLETED PROJECT OVER TO THE OWNER ONCE SUBSTANTIAL COMPLETION IS DETERMINED BY NORTHSTAR.

E 3.4. THE CONTRACTOR SHALL REVIEW THE PLANS IN CONJUNCTION WITH THIS PROJECT SPECIFICATION TO PROVIDE A COMPLETED PROJECT. ANY DISCREPANCIES SHALL BE REPORTED TO NORTHSTAR IN WRITING IN A TIMELY MANNER SO AS TO NOT DELAY THE SCHEDULE. THE NORTHSTAR PROJECT SPECIFICATION SHALL TAKE PRECEDENCE OVER THE NORTHSTAR PLANS.

E 3.5. THE CONTRACTOR SHALL ORGANIZE AND CREATE AGREEMENTS WITH ALL NECESSARY SUB-TRADES REQUIRED TO COMPLETE THE WORK. NORTHSTAR IS NOT RESPONSIBLE FOR "GAPS" OR UNCLEAR CONTRACT REQUIREMENTS BETWEEN THE GENERAL CONTRACTOR, ELECTRICAL CONTRACTOR OR ANY OTHER CONTRACTS RELATED TO THIS PROJECT.

E 3.6. COPIES OF ALL CONSTRUCTION DOCUMENTS PLANS AND SPECIFICATIONS ISSUED AND STAMPED BY AHJ ARE TO BE PRINTED AND AVAILABLE ONSITE AT ALL TIMES.

E 3.7. PRIOR TO COMMENCING CONSTRUCTION, A WORKING SECURITY CAMERA MONITORING SYSTEM IS TO BE INSTALLED AND TESTED FOR THE SITE AND STORAGE AND HOARDING AREAS OF THE CONSTRUCTION SITE.

E 3.8. PRIOR TO MOBILIZING, THE CONTRACTOR IS TO HAVE IN PLACE A SUITABLE INSURANCE POLICY TO COVER THE ACTIVITIES ON THE SITE.

E 3.9. CONTRACTOR TO HAVE A VALID CLEARANCE CERTIFICATE FOR ALL STAFF AND SUB-TRADES WORKING ON THE SITE AT ALL PHASES OF CONSTRUCTION.

E 3.10. CONTRACTOR TO POSITIVELY IDENTIFY ALL ITEMS TO BE DEMOLISHED AND VERIFY WITH THE OWNER AND ENGINEER PRIOR TO DEMOLITION.

E 3.11. PRIOR TO COMMENCING CONSTRUCTION, A WORKING SECURITY CAMERA MONITORING SYSTEM IS TO BE INSTALLED AND TESTED FOR THE SITE AND STORAGE AND HOARDING AREAS OF THE CONSTRUCTION SITE.

E 3.12. PRIOR TO MOBILIZING, THE CONTRACTOR IS TO HAVE IN PLACE A SUITABLE INSURANCE POLICY TO COVER THE ACTIVITIES ON THE SITE.

E 3.13. CONTRACTOR TO HAVE A VALID CLEARANCE CERTIFICATE FOR ALL STAFF AND SUB-TRADES WORKING ON THE SITE AT ALL PHASES OF CONSTRUCTION.

E 3.14. CONTRACTOR TO POSITIVELY IDENTIFY ALL ITEMS TO BE DEMOLISHED AND VERIFY WITH THE OWNER AND ENGINEER PRIOR TO DEMOLITION.

E 3.16. CONTRACTOR TO NOTIFY IN WRITING ALL AFFECTED OWNER'S AND/OR TENANTS OF IMPENDING WORK THAT COULD AFFECT THEIR OPERATIONS WITH SUFFICIENT WARNING TIME (MIN. 48 HOURS). THIS INCLUDES POWER OUTAGES, FIRE ALARM TESTING, SERVICE INTERRUPTIONS OF ANY KIND. THE CONTRACTOR IS TO SIMULTANEOUSLY NOTIFY THE OWNER OR OWNER'S REPRESENTATIVE OF ANY SUCH EVENT IN A TIMELY MANNER WITH ADEQUATE WARNING.

E 3.15. ALL EQUIPMENT, FIXTURES AND ELEMENTS NOT REQUIRED TO BE DEMOLISHED IN THE PLANS ARE TO BE PROTECTED FROM DAMAGE DURING CONSTRUCTION.

E 3.17. CONTRACTOR TO PROVIDE ALL REQUIRED FIRE WATCHES FOR ANY HOT WORK PLANNED.

E 3.18. CONTRACTOR TO COORDINATE THE DE-ENERGIZATION OF ALL MECHANICAL EQUIPMENT LISTED TO BE DEMOLISHED WITH THE OWNER AND MECHANICAL CONTRACTOR.

E 3.19. CONTRACTOR TO SAFELY REMOVE FROM THE SITE AND DISPOSE OF (IN A LEGAL RESPONSIBLE MANNER) OF ANY ELECTRICAL MATERIALS FROM THE SITE.

E 3.20. CONTRACTOR TO PROVIDE COMPANY AND PERSONAL LOCKS AND TAGS ON ALL ELECTRICAL DISTRIBUTION EQUIPMENT REQUIRED TO BE DE-ENERGIZED DURING CONSTRUCTION.

E 3.21. CONTRACTOR TO INCLUDE THE COST OF DELIVERY OF ALL REQUIRED EQUIPMENT AND MATERIALS TO THE SITE.

E 3.22. CONTRACTOR TO INCLUDE THE COST OF ALL REQUIRED LIFTING AND CRANE OPERATIONS FOR THE PROJECT. THIS INCLUDES AND SUBSEQUENT LIFTS NECESSARY DUE TO ANY ERROR OR OMISSION MADE BY THE CONTRACTOR DURING THE PROJECT.THIS INCLUDES ALL NECESSARY RIGGING, LIFTING AIDS, SLINGS AND PAY DUTIES OF POLICE DEPARTMENTS FOR ROAD SHUTDOWNS.

E 3.23. CONTRACTOR TO OBTAIN, LIAISON, AND COORDINATE THE DETAILED ENGINEERING, APPROVAL, AND PROCUREMENT OF ALL FIRE STOPPING PROVISIONS FOR THE PROJECT.

E 3.24. CONTRACTOR TO SUPPLY & INSTALL ALL REQUIRED FIRESTOPPING IN ACCORDANCE WITH THE ARCHITECT'S LISTED FIRE RESISTANCE RATED ASSEMBLIES. REFER TO THE ARCHITECTURAL PLANS FOR A COMPLETE LIST. NORTHSTAR PLANS CAN ALSO BE OF ASSISTANCE FOR THIS. ALL SERVICE ROOMS SHALL BE FIRESTOPPED.

E 3.25. CONTRACTOR TO OBTAIN, LIAISON, AND COORDINATE THE DETAILED ENGINEERING AND APPROVAL OF ANY LISTED SEISMIC SUPPORT PROVISIONS FOR THE PROJECT.

E 3.26. CONTRACTOR TO HOLD REGULAR TRADES COORDINATION MEETINGS ONSITE TO ENSURE SERVICES ARE INSTALLED IN AN ORDER THAT IS REQUIRED FOR ALL THE SERVICES. CHARGES FOR ANY OUT-OF-ORDER INSTALLATION WORK WILL NOT BE APPROVED BY THE ENGINEER.

E 3.27. ALL EQUIPMENT AND FIXTURES ARE TO BE INSTALLED SO AS TO BE EASILY SERVICEABLE AND NOT OBSTRUCTED. ADEQUATE SERVICE CLEARANCE AS PER INDUSTRY STANDARDS AND MANUFACTURER'S INSTALLATION MANUALS IS TO BE STRICTLY ADHERED TO FOR ALL INSTALLATION WORK.

E 3.28. CONTRACTOR TO CONFIRM THE STRUCTURAL INTEGRITY OF THE ROOF OR FLOOR PRIOR TO STAGING AND STORING EQUIPMENT ONSITE. THIS MAY REQUIRE THE SERVICES OF A PROFESSIONAL STRUCTURAL ENGINEER TO BE RETAINED AT THE EXPENSE OF THE CONTRACTOR. ANY TEMPORARY STAGING THAT IS REQUIRED FOR EQUIPMENT ON THE ROOF SURFACE, OR SITE NECESSARY LOAD SPREADING RAILS TO PREVENT DAMAGE TO THE ROOF STRUCTURE IS TO BE PROVIDED. PROVIDE NECESSARY WEATHER TARPS SECURELY FIXED TO PREVENT WIND/RAIN DAMAGE.

E 3.29. CONTRACTOR TO PROVIDE A WEATHER-PROOF DURABLE SEAL TO ALL SERVICE PENETRATIONS ON THE ROOF. COORDINATE ALL ROOF CONES WITH THE DESIGN REQUIREMENTS. COORDINATE ALL ROOF CONE INSTALLATIONS WITH THE GENERAL CONTRACTOR AND/OR THE ROOFING CONTRACTOR.

E 3.30. CONTRACTOR TO PROVIDE A WEATHER-PROOF DURABLE SEAL TO ALL SERVICE PENETRATIONS THROUGH ANY EXTERIOR WALL. COORDINATE ALL WALL PENETRATIONS WITH THE DESIGN REQUIREMENTS. COORDINATE ALL CORING WITH THE GENERAL CONTRACTOR. PROVIDE ALL NECESSARY MEASURE TO PREVENT GROUNDWATER FROM ENTERING THE BUILDING THROUGH FOUNDATION PENETRATIONS AND ELECTRICAL CONDUITS.

E 3.31. CONTRACTOR TO PROVIDE PRICING ON ALL NORTHSTAR ISSUED OFFICIAL CHANGE ORDERS IN THE FORMAT REQUESTED BASED ON THE SPECIFIC ITEM NUMBERS LISTED ON THE NORTHSTAR CHANGE REQUEST DOCUMENT. ONE PRICE FOR EACH ITEM LISTED. PRICING TO INCLUDE ALL LABOUR AND MATERIALS REQUIRED FOR THE SCOPE REQUESTED. NORTHSTAR WILL NOT NECESSARILY APPROVE PRICING BASED UPON INDUSTRY PRICE GUIDES SUCH AS "ALLPRISER" OR SIMILAR METHOD. PRICING WILL BE REVIEWED BASED ON FAIR MARKET CONDITIONS. CONTRACTOR TO PROVIDE CHANGE ORDER PRICING IN A TIMELY MANNER FOR NORTHSTAR'S REVIEW. NO WORK SHALL PROCEED UNTIL OFFICIAL WRITTEN ACCEPTANCE IS ISSUED BY NORTHSTAR. ALL SUBMITTED PRICING SHALL INCLUDE A FULL BREAKDOWN OF COSTS.

E 3.32. NORTHSTAR OFFICIAL ISSUED SITE INSTRUCTIONS (OR SIS) ARE DIRECTIVES TO CHANGE THE INSTALLATION AND ARE NOT SUBJECT TO PRICING FROM THE CONTRACTOR. IF THE CONTRACTOR FEELS THAT THE ITEM WARRANTS AN ADDITIONAL COST TO THE PROJECT, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING PRIOR TO PRICING THE ITEM.

E 3.33. CONTRACTOR TO REGULARLY (AND AT PROJECT MILESTONES), REQUEST ELECTRICAL SAFETY INSPECTIONS AND PROVIDE TO THE ENGINEER THE INSPECTOR'S REPORT IN A TIMELY MANNER.

E 3.34. CONTRACTOR TO CONTACT, COORDINATE, AND MEET WITH ALL LOCAL SERVICE UTILITY REPRESENTATIVES AS PART OF THE PROJECT ACTIVITIES. ANY INFORMATION PROVIDED TO THE CONTRACTOR TO BE SHARED WITH THE PRIME CONSULTANT AS WELL AS NORTHSTAR.

E 3.35. NORTHSTAR WILL ONLY ATTEND MEETINGS ONSITE FOR CONTRACTOR COORDINATION ON AN AS-REQUESTED BASIS UNLESS SPECIFIED OTHERWISE IN THE CONTRACT WITH THE OWNER. OPPORTUNITIES TO DISCUSS COORDINATION OF THE INSTALLATION IS BEST HANDLED AND SCHEDULED BASED ON NORTHSTAR GENERAL REVIEW (GR) SCHEDULE.

E 3.36. GRR REFERS TO "GENERAL REVIEW REPORT". NORTHSTAR WILL VISIT THE SITE BASED ON THE CONTRACT AGREEMENT WITH THE OWNER. ADDITIONAL SITE VISITS ARE CHARGEABLE. THE CONTRACTOR MAY RETAIN NORTHSTAR AT THEIR DISCRETION FOR ADDITIONAL SITE REVIEWS. OPPORTUNITIES TO DISCUSS COORDINATION OF THE INSTALLATION IS BEST HANDLED AND SCHEDULED BASED ON NORTHSTAR GENERAL REVIEW (GR) SCHEDULE. THE CONTRACTOR IS TO PROVIDE A MINIMUM WRITTEN WARNING OF IMPENDING SITE REVIEWS OF 48 HOURS.

E 3.37. NORTHSTAR WILL MAKE EVERY EFFORT TO PUBLISH THEIR SITE VISIT REPORTS IN A TIMELY MANNER. THE REPORT WILL BE ISSUED TO THE PRIME CONSULTANT FOR REVIEW BEFORE ISSUING IT TO THE CONTRACTOR. NORTHSTAR SHALL NOT BE RESPONSIBLE FOR RE-WORK OR COSTS ASSOCIATED WITH A DELAY OF THE PROJECT DUE TO UNTIMELY RESPONSE OF THE PRIME CONSULTANT IN DELAY OF ISSUING NORTHSTAR REPORTS.

E 3.38. SHOULD THE CONTRACTOR WISH TO DEVIATE FROM THE LAYOUT PROVIDED BY NORTHSTAR, THE CONTRACTOR SHALL PROVIDE A DETAILED RATIONALE AND PLAN (IN A SKETCH AS MINIMUM) FOR DISCUSSION AND APPROVAL BY NORTHSTAR.

E 3.39. CONTRACTOR SHALL SUPPLY & INSTALL ALL ELECTRICAL DISTRIBUTION INCLUDING SWITCHBOARDS, DISTRIBUTION PANELS, DISCONNECTS, CONDUIT & WIRING AND CONTROL DEVICES AS PER THE PLANS AND SPECIFICATIONS. ALL MATERIALS AND EQUIPMENT SHALL BE "NEW" AND SHALL COMPLY WITH CSA STANDARDS AND BE APPROVED FOR INSTALLATION IN CANADA.

E 3.40. CONTRACTOR SHALL SUPPLY & INSTALL ALL ELECTRICAL LIGHTING SYSTEMS INCLUDING FIXTURES, CONDUIT, WIRING, SWITCHING, AND CONTROLS AS PER THE PLANS AND SPECIFICATIONS. ALL MATERIALS AND EQUIPMENT SHALL BE "NEW" AND SHALL COMPLY WITH CSA STANDARDS AND BE APPROVED FOR INSTALLATION IN CANADA.

E 3.41. SUPPLY & INSTALL LIGHTING CONTROL SYSTEM AS INDICATED ON DRAWING AND IN SPECIFICATIONS. PROVIDE INTERCONNECTIONS BETWEEN LOCAL LIGHTING ROOM CONTROLLER AND DEVICES AS WELL AS CONNECTIONS BACK TO MAIN LIGHTING CONTROLLER AS PER MANUFACTURER'S SPECIFICATIONS. ACCESS TO ROOM CONTROLS AND NETWORK BRIDGES ARE TO BE CONFIRMED AND COORDINATED ON SITE. BACNET CONTROLS TO BE COORDINATED WITH DIV. 23 BACNET CONTROL SUPPLIER, CONTROL POINTS AS PER SPECIFICATIONS.

E 3.42. CONTRACTOR SHALL SUPPLY & INSTALL ALL LIFE SAFETY SYSTEMS INCLUDING FIXTURES, CONDUIT, WIRING, SWITCHING, AND CONTROLS AS PER THE PLANS AND SPECIFICATIONS. ALL MATERIALS AND EQUIPMENT SHALL BE "NEW" AND SHALL COMPLY WITH CSA STANDARDS AND BE APPROVED FOR INSTALLATION IN CANADA. THIS IS TO INCLUDE A THE SUPPLY AND INSTALLATION OF A NEW ADDRESSABLE FIRE ALARM SYSTEM INCLUDING TESTING AND CERTIFICATION. INSTALLATION SHALL CONFORM TO THE LATEST EDITION OF CAN/CSA S524. VERIFICATION SHALL BE PROVIDED IN ACCORDANCE WITH THE LATEST EDITION OF CAN/CSA S537.

E 3.43. CONTRACTOR TO SUPPLY AND INSTALL A COMPLETE SYSTEM FOR EXIT AND EMERGENCY LIGHTING WITHIN THE SCOPE OF THE PROJECT. ALL EMERGENCY EXIT SIGNS ARE TO BE GREEN RUNNING MAN TYPE, CSA APPROVED, AND MOUNTED IN LOCATIONS SHOWN ON THE PLANS. THE CONTRACTOR IS TO REVIEW ALL ASSOCIATED NORTHSTAR LAYOUTS IN ORDER TO ENSURE FULL COVERAGE IS PROVIDED BY THE SIGNAGE / LIGHTING AND THAT IT IS ACCEPTABLE TO THE LOCAL BUILDING INSPECTOR. EMERGENCY LIGHTING SHALL PROVIDE THE NECESSARY LIGHTING LEVELS OUTLINED IN THE NATIONAL BUILDING CODE OF CANADA AS WELL AS THE PROVINCIAL BUILDING CODE RELEVANT TO THE PROJECT.

E 3.44. NORTHST

2 / E-6 Concrete Encased Duct Bank - 2 Duct
N.T.S.

3 / E-6 Concrete Encased Duct Bank - 4 Duct
N.T.S.

4 / E-6 Concrete Encased Duct Bank - 6 Duct
N.T.S.

5 / E-6 Concrete Encased Duct Bank - 8 Duct
N.T.S.

1. ALL DUCTS SHALL BE CSA TYPE DB2/ES2 PVC WITH I.D. OF 102mm DUCTS SHALL COMPLY WITH CSA C22.2 NO. 211.1 (LATEST EDITION).
2. APPROVED PRE-FABRICATED DUCT SPACER & HOLDERS.
3. THE DUCT RUN TO BE REINFORCED. 15 mm (1/2") REINFORCING RODS TO BE PLACED MIN. 50 mm ABOVE BOTTOM OF SPACERS.
4. EACH DUCT TO BE CLEANED & c/w 6mm POLYPROPYLENE ROPE INSTALLED .
5. PROVIDE ADEQUATE DRAINAGE TO MEET OESC RULE 6-312.
6. THE DUCTS SHALL BE ENCASED WITH 20MPA GRADE CONCRETE WITH MIN. COVER OF 75mm FROM EXTERIOR WALLS OF DUCTS ON ALL SIDES.
7. DUCT BANK TO HAVE A 1m OF COVER & TO BE GRADED TOWARDS THE CURB.
8. RED WARNING TAPE TO BE FULL LENGTH & WIDTH OF DUCT BANK.
9. SUITE 102mm COMM. DUCT (AS REQUIRED)
10. INCOMING 102mm COMM. DUCT (AS REQUIRED)
11. TRENCHING & BACK FILL BY GENERAL TRADES CONTRACTOR.
12. EXACT CONSTRUCTION DETAILS TO CONFORM TO LOCAL UTILITIES REQUIREMENTS & DETAILS.

(04322) PROJECT DRAWING REGISTER

Sheet #	Sheet Name
E1/M1/P1	Project Cover
E2/M2/P2	Project Cover
M-3	HVAC - Specifications
M-4	HVAC - Specifications
M-5	HVAC - Scope of Work
M-6	HVAC - Scope of Work
M-7	HVAC - Bldg.1
M-8	HVAC - Bldg. 2
M-9	HVAC - Bldg. 3
M-10	HVAC - Bldg.4
M-11	HVAC - Bldg. 5
M-12	HVAC - Bldg.6
M-13	HVAC - Isometric & Elevation Views
M-14	HVAC Details
P-3	Plumbing - Specifications
P-4	Plumbing - Specifications
P-5	Plumbing - Site Plan
P-6	Plumbing - Bldg. 1
P-7	Plumbing - Bldg. 2
P-8	Plumbing - Bldg. 3
P-9	Plumbing - Bldg. 4
P-10	Plumbing -Bldg. 5
P-11	Plumbing - Bldg. 6
P-12	Plumbing -Typical Building
P-13	Plumbing - Details
P-14	Plumbing - Water Schematic
P-15	Plumbing - Sanitary Schematic
E-3	Elec. Power - Specifications
E-4	Elec. Power - Specifications
E-5	Elec. Power - Scope of Work
E-6	Electrical Site Plan
E-7	Elec. - SLD
E-8	Power/Comm - Bldg. 1
E-9	Elec. Lighting - Bldg 1
E-10	Power/Comm - Bldg. 2
E-11	Elec. Lighting - Bldg 2
E-12	Power/Comm - Bldg. 3
E-13	Elec. Lighting - Bldg 3
E-14	Power/Comm - Bldg. 4
E-15	Elec. Lighting - Bldg 4
E-16	Power/Comm. - Bldg. 5
E-17	Elec. Lighting - Bldg. 5
E-18	Power/Comm - Bldg. 6
E-19	Elec. Lighting - Bldg 6
E-20	Elec. Typical Building
E-21	Electrical Schedules
E-22	Electrical Details

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8 / E-6 Pole Bases / Light Pole Standard
N.T.S.

1. ALL DUCTS SHALL BE CSA TYPE DB2/ES2 PVC WITH I.D. OF 50mm OR NOTED ON DRAWINGS DUCTS SHALL COMPLY WITH CSA C22.2 NO. 211.1 (LATEST EDITION).
2. UNDERGROUND WIRE SHALL BE 2#8RWU-90 + GROUND WIRE OR NOTED ON THE DRAWINGS.
3. EACH DUCT TO BE CLEANED & c/w 6mm POLYPROPYLENE ROPE INSTALLED .
4. DUCT BANK TO HAVE A MINIMUM 450mm OF COVER IN NON-VEHICULAR AREAS & 600mm OF COVER IN VEHICULAR AREAS & SHALL BE GRADED TOWARDS THE BUILDING.
5. DUCTS SHALL BE BEDDED WITH MIN. 75mm SAND ON ALL SIDES INCLUDING UNDERNEATH.
6. RED WARNING TAPE TO BE FULL LENGTH OF DUCT BANK c/w PRESSURE TREATED PLYWOOD FOR VEHICLE AREAS.

6 / E-6 Direct Burried Conduit - Typical
N.T.S.

NOTES:
- 3 POSITION SELECTOR SWITCH, COIL & CONTACTORS LOCATE IN ELECTRICAL ROOM
- REFER TO PANEL SCHEDULES FOR ALL EXTERIOR LIGHTING/ SIGNAGE CIRCUIT

7 / E-6 Exterior Lighting Control - Astronomic Timer
N.T.S.

(MASTER-E) Lighting Fixture Schedule - Exterior Only

Level	Type	Qty.	Description	Fixture Finish	Color Temperature	Lumens	Voltage	VA	Manufacturer	Part #	Elevation of Light Source	Mounting Comments	Accessory 1	Lamping	Supplied By	Approved Alternate
FFE Lower Level	LW1	12	LUMINAIRE / OUTDOOR / WALL PACK / WALL / LED DIRECT	BLACK	3000 K	1164 lm	120 V	10 VA	LITHONIA LIGHTING	WDGE1-P1-10W-80CRI-VF-PE	94 1/2"	WALL	PHOTOCELL	LED 10W	DIV. 26	APPROVED EQUAL
FFE Ground Floor	LP1	7	LUMINAIRE / OUTDOOR / POLE LIGHT / SINGLE / RECT. HEAD / LED DIRECT	BLACK	3000 K	5022 lm	120 V	115 VA	LUMENPULSE	BLDM-SD-X-CSL-M100-30K-CRI80-4BLS-X-DIM-X-X	177 1/8"		PHOTOCELL	LED 115W	DIV. 26	APPROVED EQUAL
FFE Ground Floor	LP2	2	LUMINAIRE / OUTDOOR / POLE LIGHT / SINGLE / RECT. HEAD / LED DIRECT	BLACK	3000 K	5803 lm	120 V	80 VA	LUMENPULSE	BLDM-SD-X-CSL-M80-30K-CRI80-4-X-DIM-X-X	177 1/8"		PHOTOCELL	LED 80W	DIV. 26	APPROVED EQUAL
FFE Ground Floor	LP3	14	LUMINAIRE / OUTDOOR / BOLLARD / 4 - WAY / LED DIRECT	BLACK	3000 K	850 lm	120 V	11 VA	LUMENPULSE	LIB-X-CSL-SO-30K-CRI80-2-X-X-NO-X				LED 11W	DIV. 26	APPROVED EQUAL
FFE Ground Floor	LW1	12	LUMINAIRE / OUTDOOR / WALL PACK / WALL / LED DIRECT	BLACK	3000 K	1164 lm	120 V	10 VA	LITHONIA LIGHTING	WDGE1-P1-10W-80CRI-VF-PE	94 1/2"	WALL	PHOTOCELL	LED 10W	DIV. 26	APPROVED EQUAL
FFE Ground Floor	LW2	3	LUMINAIRE / OUTDOOR / WALL PACK / WALL / LED DIRECT	BLACK	3000 K	800 lm	120 V	8 VA	LITHONIA LIGHTING	LIL LED-30K-MVOLT-PE-BB-X	82 5/8"	WALL	PHOTOCELL	LED 8.4W	DIV. 26	APPROVED EQUAL
		50														

EXTERIOR LIGHTING LEGEND

	LUMINAIRE - EXTERIOR WALL PACK - WALL MOUNTED - LED
	LUMINAIRE - EXTERIOR POLE LIGHT - SINGLE HEAD - RECTANGULAR HEAD - LED
	LUMINAIRE - EXTERIOR BOLLARD - LED

SECURITY LEGEND

SC	SECURITY CAMERA
ES	ELECTRIC LOCK
KP	KEYPAD ACCESS
CR	CARD READER
MS	MOTION SENSOR
DC	DOOR CONTACT
PE	PUSH TO EXIT
SP	SECURITY PANEL
S-LOCK	MAG - LOCK DOOR
ADC	AUTOMATIC DOOR CONTROL

NOT ALL SYMBOLS APPLY TO FLOOR PLANS / DRAWINGS SEE SPECIFICATIONS FOR ALL CABLE TYPES

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DRAWING REVISIONS

No.	Description	Date
2	Issued for Review	Apr. 22/22
3	Preliminary for Review	Sep. 09/22
4	Issued for Permit	Oct. 05/22
5	Issued for Tender	May 18/23
6	Re-Issued for Tender	Dec. 20/24

Engineer's Seal:

1 / E-6 (04322) Site - Electrical Plan - New
1 : 300

(04322) Google Map for Project

Client: WW Inc.

Address: Minden, ON

Project Name: Gull River Affordable Housing

Dwg. Name: Electrical Site Plan

NSET Project #: 04322

Drawn by: Northstar Eng. | Checked by: D.B.D.

Scale: As indicated | Revision #: 6.0

Drawing #: E-6

Project Date: Jan. 14/22 | Arch-D (24" x 36")

NOTES:

1. CONTRACTOR TO SUPPLY & INSTALL CONCRETE ENCASED PRIMARY DUCTBANK TO DEMARCATION POINT (COORDINATE WITH UTILITY SERVICE LAYOUT). SECONDARY CONCRETE ENCASED DUCTBANK, TRANSFORMER PAD/ VAULT, BOLLARDS & GROUNDING TO MEET THE REQUIREMENTS OF ESA & UTILITY STANDARDS.
2. UTILITY TO SUPPLY & INSTALL TRANSFORMER. ALL PRIMARY & SECONDARY CONDUCTORS TO BE TERMINATED & CONNECTED BY UTILITIES.
3. TRANSFORMER VAULT TO BE INSTALLED AS PER UTILITY STANDARDS.
4. REFER & COMPLY WITH UTILITIES INSTALLATION STANDARDS FOR CONSTRUCTION DETAILS, METHODS & APPROVED EQUIPMENT VENDORS.
5. PROVIDE SERVICES FOR ARC-FLASH, BREAKER COORDINATION & SHORT-CIRCUIT STUDY PRIOR TO SHOP DRAWINGS RELEASE OF PANELBOARD. ACCEPTABLE AGENTS ARE AS FOLLOWS:

- EATON
- SCHEIDER
- SIEMENS

COPPER FEEDER SCHEDULE - MAXIMUM CIRCUIT CAPACITY (PER 75°C COLUMN) 1 RUN - COPPER

FEEDER AMPACITY FOR 3 & 4 WIRE SYSTEMS	CONDUCTOR SIZE (AWG OR KCMIL) PER RUN	3 WIRE CONDUIT SIZE PER RUN	4 WIRE CONDUIT SIZE PER RUN
25 A	#12 AWG	21 (3/4")	21 (3/4")
35 A	#10 AWG	21 (3/4")	21 (3/4")
50 A	#8 AWG	27 (1")	27 (1")
65 A	#6 AWG	27 (1")	35 (1-1/4")
85 A	#4 AWG	35 (1-1/4")	35 (1-1/4")
100 A	#3 AWG	35 (1-1/4")	41 (1-1/2")
115 A	#2 AWG	35 (1-1/4")	41 (1-1/2")
130 A	#1 AWG	41 (1-1/2")	53 (2")
150 A	#1/0 AWG	53 (2")	53 (2")
175 A	#2/0 AWG	53 (2")	53 (2")
200 A	#3/0 AWG	53 (2")	63 (2-1/2")
230 A	#4/0 AWG	63 (2-1/2")	63 (2-1/2")
255 A	250 KCMIL	63 (2-1/2")	78 (3")
285 A	300 KCMIL	78 (3")	78 (3")
310 A	350 KCMIL	78 (3")	78 (3")
335 A	400 KCMIL	78 (3")	91 (3-1/2")
380 A	500 KCMIL	78 (3")	91 (3-1/2")

1 / E-7 (04322) Electrical SLD
N.T.S.

(04322) PROJECT DRAWING REGISTER

Sheet #	Sheet Name
E1/M1/P1	Project Cover
E2/M2/P2	Project Cover
M-3	HVAC - Specifications
M-4	HVAC - Specifications
M-5	HVAC - Scope of Work
M-6	HVAC - Scope of Work
M-7	HVAC - Bldg.1
M-8	HVAC - Bldg. 2
M-9	HVAC - Bldg. 3
M-10	HVAC - Bldg.4
M-11	HVAC - Bldg. 5
M-12	HVAC - Bldg.6
M-13	HVAC - Isometric & Elevation Views
M-14	HVAC Details
P-3	Plumbing - Specifications
P-4	Plumbing - Specifications
P-5	Plumbing - Site Plan
P-6	Plumbing - Bldg. 1
P-7	Plumbing - Bldg. 2
P-8	Plumbing - Bldg. 3
P-9	Plumbing - Bldg. 4
P-10	Plumbing -Bldg. 5
P-11	Plumbing - Bldg. 6
P-12	Plumbing - Typical Building
P-13	Plumbing - Details
P-14	Plumbing - Water Schematic
P-15	Plumbing - Sanitary Schematic
E-3	Elec. Power - Specifications
E-4	Elec. Power - Specifications
E-5	Elec. Power - Scope of Work
E-6	Electrical Site Plan
E-7	Elec. - SLD
E-8	Power/Comm - Bldg. 1
E-9	Elec. Lighting - Bldg 1
E-10	Power/Comm - Bldg. 2
E-11	Elec. Lighting - Bldg 2
E-12	Powerb/Comm - Bldg. 3
E-13	Elec. Lighting - Bldg 3
E-14	Power/Comm - Bldg. 4
E-15	Elec. Lighting - Bldg 4
E-16	Power/Comm. - Bldg. 5
E-17	Elec. Lighting - Bldg. 5
E-18	Power/Comm - Bldg. 6
E-19	Elec. Lighting - Bldg 6
E-20	Elec. Typical Building
E-21	Electrical Schedules
E-22	Electrical Details

NORTHSTAR ENGINEERING & TECHNOLOGIES LTD.
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Barrie, Ontario L4N 9J2
Tel. (705) 719-1003 Fax (705) 719-0490
dlong@nset.ca www.nset.ca

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6	Re-Issued for Tender	Dec. 20/24

Engineer's Seal:

LICENSED PROFESSIONAL ENGINEER
D. B. D. LONG
Dec. 20/24
PROVINCE OF ONTARIO

Client: WW Inc.

Address: Minden, ON

Project Name: Gull River Affordable Housing

Dwg. Name: Elec. - SLD

NSET Project #: 04322

Drawn by: Northstar Eng. | Checked by: D.B.D.

Scale: 12" = 1'-0" | Revision #: 6.0

Drawing #: E-7

Project Date: Jan. 14/22 | Arch-D (24" x 36")

ELECTRICAL LEGEND

(OFFICES) A - 20,22 @450mm A.F.F.	ELECTRICAL CIRCUIT TAG: COMMENT; PANEL NAME; CIRCUIT#; JB ROUGH IN HEIGHT (CENTER LINE OF BOX) ABOVE FINISHED FLOOR - FOR WALL MOUNTED - IN mm
(OFFICES) FC-1-07 A - 20	MECHANICAL EQUIPMENT CIRCUIT TAG: AIR SYSTEM / COMMENT; MECHANICAL EQUIP. MARK / TYPE MARK; PANEL NAME; CIRCUIT #
(OFFICES) PB-1	ELECTRICAL EQUIPMENT TAG: COMMENTS; PANEL NAME. SEE SLD, SCHEDULES & PLAN VIEWS.
JB	JUNCTION BOX - WALL MOUNTED
JB	JUNCTION BOX - FLOOR MOUNTED
JB	JUNCTION BOX - CEILING MOUNTED
	DIRECT CONNECTION - SINGLE PHASE
	DIRECT CONNECTION - THREE PHASE
	DISCONNECT
	DIRECT CONNECTION c/w DISCONNECT
XXX	DUPLEX RECEPTACLE (REFER TO SCHEDULES FOR NEMA TYPE & AMPERAGE) x 1 - WALL MOUNTED. 'XXX' DENOTES: EX. - EXISTING; GFCI - GROUND FAULT CIRCUIT INTERRUPTER; AFCI - ARC FAULT CIRCUIT INTERRUPTER; ISO GD - ISOLATED GROUND; O/C - OVER COUNTER; U/C - UNDER COUNTER; W/P - WEATHER PROOF; TR - TAMPER RESISTANT; USB - CONTAINS USB PORTS
	DUPLEX RECEPTACLE SPLIT (INDIV. CIRCUITS) - WALL MOUNTED
	DUPLEX RECEPTACLE (120V, STD.) x 1 - FLOOR MOUNTED
	DUPLEX RECEPTACLE (120V, STD.) x 1 - CEILING MOUNTED
	DUPLEX RECEPTACLE (120V, STD.) x 1 CAB TIRE c/w STRAIN RELIEF - SUSPENDED MOUNT
	QUADPLEX RECEPTACLE (120V , STD.) x 1 - WALL MOUNTED
	QUADPLEX RECEPTACLE (120V, STD.) x 1 - FLOOR MOUNTED
	QUADPLEX RECEPTACLE (120V, STD.) x 1 - CEILING MOUNTED
XXX	SINGLE RECEPTACLE x 1 (WALL MOUNTED). 'XXX' DENOTES: OUTLET PURPOSE; VOLTAGE; AMPERAGE; SEE SYMBOL ON PLANS (REFER TO SCHEDULES FOR NEMA TYPE)
H	HANDICAP PUSH BUTTON - WALL MOUNTED
L	LOCK PUSH BUTTON - WALL MOUNTED
E	EMERGENCY CALL PUSH BUTTON - WALL MOUNTED
	DOME LIGHT (STROBE) WITH SOUNDER - WALL MOUNTED
TS	THERMOSTAT - SUPPLIED & INSTALLED BY DIV. 23; WIRE > 30V - CONNECTION BY DIV. 26; WIRE ≤ 30V - CONNECTION BY DIV. 23

COMMUNICATIONS LEGEND

	TELEPHONE & DATA COMBINATION OUTLET - QUANTITY AS INDICATED - WALL MOUNTED
	TELEPHONE & DATA COMBINATION OUTLET - QUANTITY AS INDICATED - CEILING MOUNTED
	TELEPHONE & DATA COMBINATION OUTLET - QUANTITY AS INDICATED - FLOOR MOUNTED
	DATA OUTLET - QUANTITY AS INDICATED - CEILING MOUNTED
WAP	WIRELESS ACCESS POINT DATA OUTLET - QUANTITY AS INDICATED - CEILING MOUNTED
TV	COAX CABLE TV OUTLET - QUANTITY AS INDICATED - ROVIDE RG6 CABLE - WALL MOUNTED
TV	COAX CABLE TV OUTLET - QUANTITY AS INDICATED - ROVIDE RG6 CABLE - FLOOR MOUNTED
TV	COAX CABLE TV OUTLET - QUANTITY AS INDICATED - ROVIDE RG6 CABLE - CEILING MOUNTED
D/TV	DATA & COAX COMBINATION OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - WALL MOUNTED
D/TV	DATA & COAX COMBINATION OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - FLOOR MOUNTED
D/TV	DATA & COAX COMBINATION OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - CEILING MOUNTED

NOT ALL SYMBOLS APPLY TO FLOOR PLANS / DRAWINGS SEE SPECIFICATIONS FOR ALL CABLE TYPES

LIGHTING LEGEND

	LUMINAIRE - INTERIOR DOWNLIGHT - RECESSED - LED
	LUMINAIRE - INTERIOR DOWNLIGHT - SURFACE MOUNTED - LED
	LUMINAIRE - INTERIOR DOME - SURFACE MOUNTED - LED
	LUMINAIRE - INTERIOR LINEAR - SURFACE MOUNTED - LED
	LUMINAIRE - INTERIOR LINEAR - WALL MOUNTED - LED
	LUMINAIRE - INTERIOR LINEAR PENDANT - SUSPENDED - LED
	LUMINAIRE - INTERIOR TAPE - SURFACE MOUNTED - LED

EXTERIOR LIGHTING LEGEND

	LUMINAIRE - EXTERIOR WALL PACK - WALL MOUNTED - LED
	LUMINAIRE - EXTERIOR BOLLARD - LED
	LUMINAIRE - EXTERIOR POLE LIGHT - SINGLE HEAD - RECTANGULAR HEAD - LED

EXIT & EMERGENCY LIGHTING LEGEND

BATT.	EXIT SIGN - CEILING MOUNTED; DIRECTIONAL ARROW; INDICATES NUMBER OF EMERGENCEY LIGHTS c/w BATTERY; HATCH INDICATES NUMBER OF SIDES/ FACES
BATT.	EXIT SIGN - WALL MOUNTED c/w BATTERY; DIRECTIONAL ARROW; INDICATES NUMBER OF EMERGENCY LIGHTS; HATCH INDICATES NUMBER OF SIDES/ FACES
	BATTERY UNIT - PLUG-IN c/w DUPLEX RECEPTACLE - WALL MOUNTED
	BATTERY UNIT c/w 2x EMERGENCY LIGHTS - PLUG-IN c/w DUPLEX RECEPTACLE - WALL MOUNTED
	EMERGERGENCY LIGHT - REMOTE DOUBLE HEADS - CEILING MOUNTED
	EMERGERGENCY LIGHT - REMOTE DOUBLE HEADS - WALL MOUNTED
	EMERGERGENCY LIGHT - REMOTE SINGLE HEAD - CEILING MOUNTED
	EMERGERGENCY LIGHT - REMOTE SINGLE HEAD - WALL MOUNTED

LIGHTING CONTROLS LEGEND

SW# 1 A B-30 @ 2100 mm AFF	LIGHTING CIRCUIT TAG: SWITCH GROUP; FIXTURE TYPE; PANEL NAME; CIRCUIT #; JB ROUGH IN HEIGHT (CENTER LINE OF BOX) ABOVE FINISHED FLOOR - WALL MOUNTED - IN mm
NL	TYP. LIGHT; INDICATES "NIGHT LIGHT" TO REMAIN ACTIVE AT ALL TIMES
SW# 1	SWITCH TAG (#1 SWITCH GROUP - LIGHTS ASSOCIATED WILL ACTIVATE ON THIS SWITCH)
	EXTRA LOW VOLTAGE WIRE (ELV) <30V
	LOW VOLTAGE SWITCH WIRE ≥30 TO 750V
$	LINE VOLTAGE SWITCH - SINGLE POLE
3 $	LINE VOLTAGE SWITCH - 3 WAY
D $	LINE VOLTAGE SWITCH - DIMMER
TO FAN $	LINE VOLTAGE SWITCH - SINGLE POLE - TO FAN
OC $	LINE VOLTAGE SWITCH - OCCUPANCY SENSOR
OCT	LINE VOLTAGE OCCUPANCY SENSOR & TIMER - CEILING MOUNTED
	PHOTOCELL
TC	ASTRONOMIC TIME SWITCH
SD SD-D SD-B SA SA/CO SB C NL WG	CEILING MOUNT; SD: SMOKE DETECTOR - PHOTOELECTRIC; SD-D: DUCT TYPE PHOTOELECTRIC SMOKE DETECTOR; SD-B: BEAM TYPE SMOKE DETECTOR; SB: SMOKE DETECTOR c/w LOCAL SOUNDERBASE; SA: SMOKE ALARM; SA/CO: COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR; C: CONVENTIONAL; BLANK: ADDRESSABLE; WG: C/W WIRE GUARD
WP	WEATHER PROOF - OUTDOOR RATED

NOT ALL SYMBOLS APPLY TO FLOOR PLANS / DRAWINGS SEE SPECIFICATIONS FOR ALL CABLE TYPES

(04322) Data Device Schedule - Typical Suite Only

Level	Rm. #	Description	Pin Config.	Qty.
FFE Lower Level	106	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1
FFE Lower Level	108	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1
				2
FFE Ground Floor		OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1
FFE Ground Floor	112	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1
FFE Ground Floor	113	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1
FFE Ground Floor	114	OUTLET - TELEPHONE & DATA COMBINATION - WALL MOUNTED - ELEVATED		1
				4
2 - Floor		OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1
2 - Floor	224	OUTLET - TELEPHONE & DATA COMBINATION - WALL MOUNTED - ELEVATED		1
2 - Floor	225	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1
2 - Floor	228	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1
				4
Grand total				10

NOTES:
DATA DEVICE SCHEDULE ABOVE IS FOR TYPICAL SUITE TYPE AND DOES NOT REFLECT THE TOTAL QUANTITY OF DATA DEVICES REQUIRED
TOTAL NUMBER OF SUITES: 35

(04322) Electrical Receptacle Schedule - Typical Suite Only

Level	Rm. #	Qty.	Description	Pin Config.
FFE Lower Level		1	ELECTRIC DOOR BUZZER	ELECTRIC DOOR BUZZER
FFE Lower Level		1	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - GFCI - WEATHERPROOF c/w NEMA 4 ENCLOSURE	NEMA 5-15R
FFE Lower Level	106	5	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
FFE Lower Level	107	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A / GFCI	NEMA 5-15R
FFE Lower Level	108	1	ELECTRIC DOOR BELL	ELECTRIC DOOR BELL
FFE Lower Level	108	5	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
FFE Lower Level	108	1	RECEPTACLE - SINGLE - WALL MOUNTED - 208V 50A - COOKING RANGE	NEMA 14-50R
FFE Lower Level	108	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A / FRIDGE	NEMA 5-15R
FFE Lower Level	108	2	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 20A / GFCI / OVER COUNTER	NEMA 5-20R
		18		
FFE Ground Floor		2	ELECTRIC DOOR BUZZER	ELECTRIC DOOR BUZZER
FFE Ground Floor		1	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - GFCI - WEATHERPROOF c/w NEMA 4 ENCLOSURE	NEMA 5-15R
FFE Ground Floor		1	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
FFE Ground Floor	112	3	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
FFE Ground Floor	113	4	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
FFE Ground Floor	114	1	ELECTRIC DOOR BELL	ELECTRIC DOOR BELL
FFE Ground Floor	114	3	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
FFE Ground Floor	114	1	RECEPTACLE - SINGLE - WALL MOUNTED - 208V 50A - COOKING RANGE	NEMA 14-50R
FFE Ground Floor	114	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A / FRIDGE	NEMA 5-15R
FFE Ground Floor	114	2	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 20A / GFCI / OVER COUNTER	NEMA 5-20R
FFE Ground Floor	114	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 20A / OVER COUNTER	NEMA 5-20R
FFE Ground Floor	115	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A / GFCI	NEMA 5-15R
FFE Ground Floor	116	4	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
		25		
2 - Floor		1	ELECTRIC DOOR BELL	ELECTRIC DOOR BELL
2 - Floor		1	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
2 - Floor	223	2	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
2 - Floor	224	2	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
2 - Floor	224	1	RECEPTACLE - SINGLE - WALL MOUNTED - 208V 50A - COOKING RANGE	NEMA 14-50R
2 - Floor	224	1	RECEPTACLE / DUPLEX / UNDER COUNTER MNT. / 120V / 15A	NEMA 5-15R
2 - Floor	224	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A / FRIDGE	NEMA 5-15R
2 - Floor	224	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 20A / GFCI / OVER COUNTER	NEMA 5-20R
2 - Floor	224	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 20A / OVER COUNTER	NEMA 5-20R
2 - Floor	225	2	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
2 - Floor	226	4	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
2 - Floor	227	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A / GFCI	NEMA 5-15R
2 - Floor	228	4	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
		22		
Grand total		65		

NOTES:
RECEPTACLE SCHEDULE ABOVE IS FOR TYPICAL SUITE TYPE AND DOES NOT REFLECT THE TOTAL QUANTITY OF RECEPTACLES REQUIRED
TOTAL NUMBER OF SUITES: 35

3 / E-8 (04322) Building 1- Level 2 - Power Plan - New
1 : 75

1 / E-8 (04322) Building 1- Basement - Power Plan - New
1 : 75

2 / E-8 (04322) Building 1- Level 1 - Power Plan - New
1 : 75

(04322) PROJECT DRAWING REGISTER

Sheet #	Sheet Name
E1/M1/P1	Project Cover
E2/M2/P2	Project Cover
M-3	HVAC - Specifications
M-4	HVAC - Specifications
M-5	HVAC - Scope of Work
M-6	HVAC - Scope of Work
M-7	HVAC - Bldg.1
M-8	HVAC - Bldg. 2
M-9	HVAC - Bldg. 3
M-10	HVAC - Bldg.4
M-11	HVAC - Bldg. 5
M-12	HVAC - Bldg.6
M-13	HVAC - Isometric & Elevation Views
M-14	HVAC Details
P-3	Plumbing - Specifications
P-4	Plumbing - Specifications
P-5	Plumbing - Site Plan
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P-7	Plumbing - Bldg. 2
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E-4	Elec. Power - Specifications
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E-6	Electrical Site Plan
E-7	Elec. - SLD
E-8	Power/Comm - Bldg. 1
E-9	Elec. Lighting - Bldg 1
E-10	Power/Comm - Bldg. 2
E-11	Elec. Lighting - Bldg 2
E-12	Power/Comm - Bldg. 3
E-13	Elec. Lighting - Bldg 3
E-14	Power/Comm - Bldg. 4
E-15	Elec. Lighting - Bldg 4
E-16	Power/Comm. - Bldg. 5
E-17	Elec. Lighting - Bldg. 5
E-18	Power/Comm - Bldg. 6
E-19	Elec. Lighting - Bldg 6
E-20	Elec. Typical Building
E-21	Electrical Schedules
E-22	Electrical Details

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Tel. (705) 719-1003 Fax (705) 719-0490
dlong@nset.ca www.nset.ca

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ALLOW MINIMUM 1-2 WEEKS FOR COMPLETION (BASED ON COMPLEXITY).

[9] THE DESIGNER DOES NOT ACCEPT RESPONSIBILITY FOR OTHER DESIGNER'S WORK IN ASSOCIATION WITH THIS PROJECT.

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[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 DRAWINGS TO BE BASED ON DWGS MARKED "ISSUED FOR TENDER" OR "ISSUED FOR CONSTRUCTION" ONLY.

[16] ALL REQUESTS FOR DESIGN CHANGES / SUBSTITUTIONS TO BE MADE IN WRITING. ADDITIONAL FEES MAY APPLY. ALLOW MINIMUM (1) ONE WEEK TO REVIEW AND RESPOND TO CHANGE REQUESTS.

DRAWING REVISIONS

No.	Description	Date
2	Issued for Review	Apr. 22/22
3	Preliminary for Review	Sep. 09/22
4	Issued for Permit	Oct. 05/22
5	Issued for Tender	May 18/23
6	Re-Issued for Tender	Dec. 20/24

Engineer's Seal:
LICENSED PROFESSIONAL ENGINEER D. LONG Dec. 20/24 PROVINCE OF ONTARIO

Client: WW Inc.

Address: Minden, ON

Project Name: Gull River Affordable Housing

Dwg. Name: Power/Comm - Bldg. 1

NSET Project #: 04322

Drawn by: Northstar Eng. | Checked by: D.B.D.

Scale: As indicated | Revision #: 6.0

Drawing #: E-8

Project Date: Jan. 14/22 | Arch-D (24" x 36")

(04322) Lighting Fixture Schedule - Interior - Typical Suite Only

Level	Type	Qty.	Description	Fixture Finish	Color Temperature	Lumens	Voltage	VA	Manufacturer	Part #	Elevation of Light Source	Mounting Comments	Accessory 1	Lamping	Supplied By	Approved Alternate
FFE Lower Level	B	1	LUMINAIRE / INDOOR / VANITY / WALL / 24" LENGTH / LED DIRECT	BRUSHED NICKEL	3000 K	1300 lm	120 V	18 VA	LITHONIA LIGHTING	FMVCSL 24IN MVOLT 30K 90CRI BN M6	84"	WALL		LED 18W	DIV. 26	APPROVED EQUAL
B1 - U/S Cabinet	K	3	LUMINAIRE / INDOOR / TAPE / SURFACE / 18" LENGTH / LED DIRECT	WHITE	3500 K	400 lm	120 V	9 VA	LITHONIA LIGHTING	UCES 18IN SWW6 90CRI WH M6		CEILING / SURFACE		LED 8.4W	DIV. 26	APPROVED EQUAL
B1 - Ceiling	A1	1	LUMINAIRE / INDOOR / LINEAR / SURFACE / 24" LENGTH / LED DIRECT	WHITE	3500 K	940 lm	120 V	9 VA	LITHONIA LIGHTING	RLNK L24 120 35K 80 CRI M4		CEILING / SURFACE		LED 8.9W	DIV. 26	APPROVED EQUAL
B1 - Ceiling	L1	1	LUMINAIRE / INDOOR / DOME / SURFACE / 11" / LED DIRECT	WHITE	4000 K	1100 lm	120 V	16 VA	LITHONIA LIGHTING	FMLRL 11 14840 M4		CEILING / SURFACE		LED 16W	DIV. 26	APPROVED EQUAL
B1 - Ceiling	L2	3	LUMINAIRE / INDOOR / DOME / SURFACE / 14" / LED DIRECT	WHITE	4000 K	1600 lm	120 V	24 VA	LITHONIA LIGHTING	FMLRL 14 20840 M4		CEILING / SURFACE		LED 24W	DIV. 26	APPROVED EQUAL
FFE Ground Floor	B	1	LUMINAIRE / INDOOR / VANITY / WALL / 24" LENGTH / LED DIRECT	BRUSHED NICKEL	3000 K	1300 lm	120 V	18 VA	LITHONIA LIGHTING	FMVCSL 24IN MVOLT 30K 90CRI BN M6	84"	WALL		LED 18W	DIV. 26	APPROVED EQUAL
1 - U/S Cabinet	K	4	LUMINAIRE / INDOOR / TAPE / SURFACE / 18" LENGTH / LED DIRECT	WHITE	3500 K	400 lm	120 V	9 VA	LITHONIA LIGHTING	UCES 18IN SWW6 90CRI WH M6		CEILING / SURFACE		LED 8.4W	DIV. 26	APPROVED EQUAL
1 - Finished Ceiling	A1	2	LUMINAIRE / INDOOR / LINEAR / SURFACE / 24" LENGTH / LED DIRECT	WHITE	3500 K	940 lm	120 V	9 VA	LITHONIA LIGHTING	RLNK L24 120 35K 80 CRI M4		CEILING / SURFACE		LED 8.9W	DIV. 26	APPROVED EQUAL
1 - Finished Ceiling	L1	1	LUMINAIRE / INDOOR / DOME / SURFACE / 11" / LED DIRECT	WHITE	4000 K	1100 lm	120 V	16 VA	LITHONIA LIGHTING	FMLRL 11 14840 M4		CEILING / SURFACE		LED 16W	DIV. 26	APPROVED EQUAL
1 - Finished Ceiling	L2	6	LUMINAIRE / INDOOR / DOME / SURFACE / 14" / LED DIRECT	WHITE	4000 K	1600 lm	120 V	24 VA	LITHONIA LIGHTING	FMLRL 14 20840 M4		CEILING / SURFACE		LED 24W	DIV. 26	APPROVED EQUAL
2 - Floor	B	1	LUMINAIRE / INDOOR / VANITY / WALL / 24" LENGTH / LED DIRECT	BRUSHED NICKEL	3000 K	1300 lm	120 V	18 VA	LITHONIA LIGHTING	FMVCSL 24IN MVOLT 30K 90CRI BN M6	84"	WALL		LED 18W	DIV. 26	APPROVED EQUAL
2 - Floor	P	4	LUMINAIRE / INDOOR / PENDANT / SUSPENDED / LED DIRECT	WHITE	4000 K	4800 lm	120 V	34 VA	LITHONIA LIGHTING	VCVLLED-V4-P2-40K-80CRI-T5W-120-PM-DWHXD	108"	SUSPENDED		LED 34W	DIV. 26	APPROVED EQUAL
2 - U/S Cabinet	K	3	LUMINAIRE / INDOOR / TAPE / SURFACE / 18" LENGTH / LED DIRECT	WHITE	3500 K	400 lm	120 V	9 VA	LITHONIA LIGHTING	UCES 18IN SWW6 90CRI WH M6		CEILING / SURFACE		LED 8.4W	DIV. 26	APPROVED EQUAL
2 - Finished Ceiling	A1	1	LUMINAIRE / INDOOR / LINEAR / SURFACE / 24" LENGTH / LED DIRECT	WHITE	3500 K	940 lm	120 V	9 VA	LITHONIA LIGHTING	RLNK L24 120 35K 80 CRI M4		CEILING / SURFACE		LED 8.9W	DIV. 26	APPROVED EQUAL
2 - Finished Ceiling	L2	4	LUMINAIRE / INDOOR / DOME / SURFACE / 14" / LED DIRECT	WHITE	4000 K	1600 lm	120 V	24 VA	LITHONIA LIGHTING	FMLRL 14 20840 M4		CEILING / SURFACE		LED 24W	DIV. 26	APPROVED EQUAL
		36														

NOTES:
LIGHTING SCHEDULE ABOVE IS FOR TYPICAL SUITE TYPE AND DOES NOT REFLECT THE TOTAL QUANTITY OF LIGHTING FIXTURES REQUIRED
TOTAL NUMBER OF SUITES: 35

(MASTER-E) Fire Alarm Device Schedule

Level	Type Mark	Description	Circuit #	Qty.
2 - Finished Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1
2 - Finished Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1
2 - Finished Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1
1 - Finished Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	7	1
1 - Finished Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	7	1
1 - Finished Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	7	1
B1 - Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1
B1 - Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1
				8

NOTES:
FIRE ALARM SCHEDULE ABOVE IS FOR TYPICAL SUITE TYPE AND DOES NOT REFLECT THE TOTAL QUANTITY OF DEVICES REQUIRED
TOTAL NUMBER OF SUITES: 35

2 / E-9 (04322) Building 1 - Level 2 - RCP Lighting - New
1 : 75

1 / E-9 (04322) Building 1 - Basement - RCP Lighting - New
1 : 75

5 / E-9 (04322) Building 1 - Level 1 - RCP Lighting - New
1 : 75

(04322) PROJECT DRAWING REGISTER

Sheet #	Sheet Name
E1/M1/P1	Project Cover
E2/M2/P2	Project Cover
M-3	HVAC - Specifications
M-4	HVAC - Specifications
M-5	HVAC - Scope of Work
M-6	HVAC - Scope of Work
M-7	HVAC - Bldg.1
M-8	HVAC - Bldg. 2
M-9	HVAC - Bldg. 3
M-10	HVAC - Bldg.4
M-11	HVAC - Bldg. 5
M-12	HVAC - Bldg.6
M-13	HVAC - Isometric & Elevation Views
M-14	HVAC Details
P-3	Plumbing - Specifications
P-4	Plumbing - Specifications
P-5	Plumbing - Site Plan
P-6	Plumbing - Bldg. 1
P-7	Plumbing - Bldg. 2
P-8	Plumbing - Bldg. 3
P-9	Plumbing - Bldg. 4
P-10	Plumbing -Bldg. 5
P-11	Plumbing - Bldg. 6
P-12	Plumbing -Typical Building
P-13	Plumbing - Details
P-14	Plumbing - Water Schematic
P-15	Plumbing - Sanitary Schematic
E-3	Elec. Power - Specifications
E-4	Elec. Power - Specifications
E-5	Elec. Power - Scope of Work
E-6	Electrical Site Plan
E-7	Elec. - SLD
E-8	Power/Comm - Bldg. 1
E-9	Elec. Lighting - Bldg 1
E-10	Power/Comm - Bldg. 2
E-11	Elec. Lighting - Bldg 2
E-12	Power/Comm - Bldg. 3
E-13	Elec. Lighting - Bldg 3
E-14	Power/Comm - Bldg. 4
E-15	Elec. Lighting - Bldg 4
E-16	Power/Comm. - Bldg. 5
E-17	Elec. Lighting - Bldg. 5
E-18	Power/Comm - Bldg. 6
E-19	Elec. Lighting - Bldg 6
E-20	Elec. Typical Building
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6	Re-Issued for Tender	Dec. 20/24

Engineer's Seal:
LICENSED PROFESSIONAL ENGINEER
D. LONG
Dec. 20/24
PROVINCE OF ONTARIO

Client: WW Inc.

Address: Minden, ON

Project Name: Gull River Affordable Housing

Dwg. Name: Elec. Lighting - Bldg 1

NSET Project #: 04322

Drawn by: Northstar Eng. | Checked by: D.B.D.

Scale: As indicated | Revision #: 6.0

Drawing #: E-9

Project Date: Jan. 14/22 | Arch-D (24" x 36")

ELECTRICAL LEGEND

(OFFICES) A - 20,22 @450mm A.F.F.	ELECTRICAL CIRCUIT TAG: COMMENT; PANEL NAME; CIRCUIT#; JB ROUGH IN HEIGHT (CENTER LINE OF BOX) ABOVE FINISHED FLOOR - FOR WALL MOUNTED - IN mm
(OFFICES) FC-1-07 A - 20	MECHANICAL EQUIPMENT CIRCUIT TAG: AIR SYSTEM / COMMENT; MECHANICAL EQUIP. MARK / TYPE MARK; PANEL NAME; CIRCUIT #
(OFFICES) PB-1	ELECTRICAL EQUIPMENT TAG: COMMENTS; PANEL NAME. SEE SLD, SCHEDULES & PLAN VIEWS.
JB	JUNCTION BOX - WALL MOUNTED
JB	JUNCTION BOX - FLOOR MOUNTED
JB	JUNCTION BOX - CEILING MOUNTED
	DIRECT CONNECTION - SINGLE PHASE
	DIRECT CONNECTION - THREE PHASE
	DISCONNECT
	DIRECT CONNECTION c/w DISCONNECT
xxx	DUPLEX RECEPTACLE (REFER TO SCHEDULES FOR NEMA TYPE & AMPERAGE) x 1 - WALL MOUNTED. 'XXX' DENOTES: EX. - EXISTING; GFCI - GROUND FAULT CIRCUIT INTERRUPTER; AFCI - ARC FAULT CIRCUIT INTERRUPTER; ISO GD - ISOLATED GROUND; O/C - OVER COUNTER; U/C - UNDER COUNTER; W/P - WEATHER PROOF; TR - TAMPER RESISTANT; USB - CONTAINS USB PORTS
	DUPLEX RECEPTACLE SPLIT (INDIV. CIRCUITS) - WALL MOUNTED
	DUPLEX RECEPTACLE (120V, STD.) x 1 - FLOOR MOUNTED
	DUPLEX RECEPTACLE (120V, STD.) x 1 - CEILING MOUNTED
	DUPLEX RECEPTACLE (120V, STD.) x 1 CAB TIRE c/w STRAIN RELIEF - SUSPENDED MOUNT
	QUADPLEX RECEPTACLE (120V , STD.) x 1 - WALL MOUNTED
	QUADPLEX RECEPTACLE (120V, STD.) x 1 - FLOOR MOUNTED
	QUADPLEX RECEPTACLE (120V, STD.) x 1 - CEILING MOUNTED
xxx	SINGLE RECEPTACLE x 1 (WALL MOUNTED). 'XXX' DENOTES: OUTLET PURPOSE; VOLTAGE; AMPERAGE; SEE SYMBOL ON PLANS (REFER TO SCHEDULES FOR NEMA TYPE)
H	HANDICAP PUSH BUTTON - WALL MOUNTED
L	LOCK PUSH BUTTON - WALL MOUNTED
E	EMERGENCY CALL PUSH BUTTON - WALL MOUNTED
	DOME LIGHT (STROBE) WITH SOUNDER - WALL MOUNTED
TS	THERMOSTAT - SUPPLIED & INSTALLED BY DIV. 23; WIRE > 30V - CONNECTION BY DIV. 26; WIRE ≤ 30V - CONNECTION BY DIV. 23

COMMUNICATIONS LEGEND

	TELEPHONE & DATA COMBINATION OUTLET - QUANTITY AS INDICATED - WALL MOUNTED
	TELEPHONE & DATA COMBINATION OUTLET - QUANTITY AS INDICATED - CEILING MOUNTED
	TELEPHONE & DATA COMBINATION OUTLET - QUANTITY AS INDICATED - FLOOR MOUNTED
	DATA OUTLET - QUANTITY AS INDICATED - CEILING MOUNTED
WAP	WIRELESS ACCESS POINT DATA OUTLET - QUANTITY AS INDICATED - CEILING MOUNTED
TV	COAX CABLE TV OUTLET - QUANTITY AS INDICATED - ROVIDE RG6 CABLE - WALL MOUNTED
TV	COAX CABLE TV OUTLET - QUANTITY AS INDICATED - ROVIDE RG6 CABLE - FLOOR MOUNTED
TV	COAX CABLE TV OUTLET - QUANTITY AS INDICATED - ROVIDE RG6 CABLE - CEILING MOUNTED
D/TV	DATA & COAX COMBINATION OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - WALL MOUNTED
D/TV	DATA & COAX COMBINATION OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - FLOOR MOUNTED
D/TV	DATA & COAX COMBINATION OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - CEILING MOUNTED

NOT ALL SYMBOLS APPLY TO FLOOR PLANS / DRAWINGS SEE SPECIFICATIONS FOR ALL CABLE TYPES

LIGHTING LEGEND

	LUMINAIRE - INTERIOR DOWNLIGHT - RECESSED - LED
	LUMINAIRE - INTERIOR DOWNLIGHT - SURFACE MOUNTED - LED
	LUMINAIRE - INTERIOR DOME - SURFACE MOUNTED - LED
	LUMINAIRE - INTERIOR LINEAR - SURFACE MOUNTED - LED
	LUMINAIRE - INTERIOR LINEAR - WALL MOUNTED - LED
	LUMINAIRE - INTERIOR LINEAR PENDANT - SUSPENDED - LED
	LUMINAIRE - INTERIOR TAPE - SURFACE MOUNTED - LED

EXTERIOR LIGHTING LEGEND

	LUMINAIRE - EXTERIOR WALL PACK - WALL MOUNTED - LED
	LUMINAIRE - EXTERIOR BOLLARD - LED
	LUMINAIRE - EXTERIOR POLE LIGHT - SINGLE HEAD - RECTANGULAR HEAD - LED

EXIT & EMERGENCY LIGHTING LEGEND

BATT.	EXIT SIGN - CEILING MOUNTED; DIRECTIONAL ARROW INDICATES NUMBER OF EMERGERGENCY LIGHTS; c/w BATTERY; HATCH INDICATES NUMBER OF SIDES/ FACES
BATT.	EXIT SIGN - WALL MOUNTED; c/w BATTERY; DIRECTIONAL ARROW INDICATES NUMBER OF EMERGENCY LIGHTS; HATCH INDICATES NUMBER OF SIDES/ FACES
	BATTERY UNIT - PLUG-IN c/w DUPLEX RECEPTACLE - WALL MOUNTED
	BATTERY UNIT c/w 2x EMERGENCY LIGHTS - PLUG-IN c/w DUPLEX RECEPTACLE - WALL MOUNTED
	EMERGERGENCY LIGHT - REMOTE DOUBLE HEADS - CEILING MOUNTED
	EMERGERGENCY LIGHT - REMOTE DOUBLE HEADS - WALL MOUNTED
	EMERGERGENCY LIGHT - REMOTE SINGLE HEAD - CEILING MOUNTED
	EMERGERGENCY LIGHT - REMOTE SINGLE HEAD - WALL MOUNTED

LIGHTING CONTROLS LEGEND

SW# 1 A B-30 @ 2100 mm AFF	LIGHTING CIRCUIT TAG: SWITCH GROUP; FIXTURE TYPE; PANEL NAME; CIRCUIT #; JB ROUGH IN HEIGHT (CENTER LINE OF BOX) ABOVE FINISHED FLOOR - WALL MOUNTED - IN mm
NL	TYP. LIGHT INDICATES "NIGHT LIGHT" TO REMAIN ACTIVE AT ALL TIMES
SW# 1	SWITCH TAG (#1 SWITCH GROUP - LIGHTS ASSOCIATED WILL ACTIVATE ON THIS SWITCH)
	EXTRA LOW VOLTAGE WIRE (ELV) <30V
	LOW VOLTAGE SWITCH WIRE ≥30 TO 750V
$	LINE VOLTAGE SWITCH - SINGLE POLE
3 $	LINE VOLTAGE SWITCH - 3 WAY
D $	LINE VOLTAGE SWITCH - DIMMER
FAN $	LINE VOLTAGE SWITCH - SINGLE POLE - TO FAN
OC $	LINE VOLTAGE SWITCH - OCCUPANCY SENSOR
OCT	LINE VOLTAGE OCCUPANCY SENSOR & TIMER - CEILING MOUNTED
	PHOTOCELL
TC	ASTRONOMIC TIME SWITCH
SD SD-D SD-B SB SA SA/CO WG	CEILING MOUNT; SD: SMOKE DETECTOR - PHOTOELECTRIC; SD-D: DUCT TYPE PHOTOELECTRIC SMOKE DETECTOR; SD-B: BEAM TYPE SMOKE DETECTOR; SB: SMOKE DETECTOR c/w LOCAL SOUNDERBASE; SA: SMOKE ALARM; SA/CO: COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR; C: CONVENTIONAL; BLANK: ADDRESSABLE; WG: C/W WIRE GUARD
WP	WEATHER PROOF - OUTDOOR RATED

NOT ALL SYMBOLS APPLY TO FLOOR PLANS / DRAWINGS SEE SPECIFICATIONS FOR ALL CABLE TYPES

(04322) Data Device Schedule - Typical Suite Only

Level	Rm. #	Description	Pin Config.	Qty.
FFE Lower Level	106	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1
FFE Lower Level	108	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1
				2
FFE Ground Floor		OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1
FFE Ground Floor	112	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1
FFE Ground Floor	113	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1
FFE Ground Floor	114	OUTLET - TELEPHONE & DATA COMBINATION - WALL MOUNTED - ELEVATED		1
				4
2 - Floor		OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1
2 - Floor	224	OUTLET - TELEPHONE & DATA COMBINATION - WALL MOUNTED - ELEVATED		1
2 - Floor	225	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1
2 - Floor	228	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1
				4
Grand total				10

NOTES:
DATA DEVICE SCHEDULE ABOVE IS FOR TYPICAL SUITE TYPE AND DOES NOT REFLECT THE TOTAL QUANTITY OF DATA DEVICES REQUIRED
TOTAL NUMBER OF SUITES: 35

(04322) Electrical Receptacle Schedule - Typical Suite Only

Level	Rm. #	Qty.	Description	Pin Config.
FFE Lower Level		1	ELECTRIC DOOR BUZZER	ELECTRIC DOOR BUZZER
FFE Lower Level		1	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - GFCI - WEATHERPROOF c/w NEMA 4 ENCLOSURE	NEMA 5-15R
FFE Lower Level	106	5	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
FFE Lower Level	107	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A / GFCI	NEMA 5-15R
FFE Lower Level	108	1	ELECTRIC DOOR BELL	ELECTRIC DOOR BELL
FFE Lower Level	108	5	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
FFE Lower Level	108	1	RECEPTACLE - SINGLE - WALL MOUNTED - 208V 50A - COOKING RANGE	NEMA 14-50R
FFE Lower Level	108	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A / FRIDGE	NEMA 5-15R
FFE Lower Level	108	2	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 20A / GFCI / OVER COUNTER	NEMA 5-20R
		18		
FFE Ground Floor		2	ELECTRIC DOOR BUZZER	ELECTRIC DOOR BUZZER
FFE Ground Floor		1	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - GFCI - WEATHERPROOF c/w NEMA 4 ENCLOSURE	NEMA 5-15R
FFE Ground Floor		1	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
FFE Ground Floor	112	3	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
FFE Ground Floor	113	4	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
FFE Ground Floor	114	1	ELECTRIC DOOR BELL	ELECTRIC DOOR BELL
FFE Ground Floor	114	3	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
FFE Ground Floor	114	1	RECEPTACLE - SINGLE - WALL MOUNTED - 208V 50A - COOKING RANGE	NEMA 14-50R
FFE Ground Floor	114	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A / FRIDGE	NEMA 5-15R
FFE Ground Floor	114	2	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 20A / GFCI / OVER COUNTER	NEMA 5-20R
FFE Ground Floor	114	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 20A / OVER COUNTER	NEMA 5-20R
FFE Ground Floor	115	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A / GFCI	NEMA 5-15R
FFE Ground Floor	116	4	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
		25		
2 - Floor		1	ELECTRIC DOOR BELL	ELECTRIC DOOR BELL
2 - Floor		1	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
2 - Floor	223	2	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
2 - Floor	224	2	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
2 - Floor	224	1	RECEPTACLE - SINGLE - WALL MOUNTED - 208V 50A - COOKING RANGE	NEMA 14-50R
2 - Floor	224	1	RECEPTACLE / DUPLEX / UNDER COUNTER MNT. / 120V / 15A	NEMA 5-15R
2 - Floor	224	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A / FRIDGE	NEMA 5-15R
2 - Floor	224	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 20A / GFCI / OVER COUNTER	NEMA 5-20R
2 - Floor	224	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 20A / OVER COUNTER	NEMA 5-20R
2 - Floor	225	2	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
2 - Floor	226	4	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
2 - Floor	227	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A / GFCI	NEMA 5-15R
2 - Floor	228	4	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
		22		
Grand total		65		

NOTES:
RECEPTACLE SCHEDULE ABOVE IS FOR TYPICAL SUITE TYPE AND DOES NOT REFLECT THE TOTAL QUANTITY OF RECEPTACLES REQUIRED
TOTAL NUMBER OF SUITES: 35

3 E-10 (04322) Building 2 - Level 2 - Power Plan - New
1 : 75

1 E-10 (04322) Building 2 - Basement - Power Plan - New
1 : 75

2 E-10 (04322) Building 2- Level 1 - Power Plan - New
1 : 75

(04322) PROJECT DRAWING REGISTER

Sheet #	Sheet Name
E1/M1/P1	Project Cover
E2/M2/P2	Project Cover
M-3	HVAC - Specifications
M-4	HVAC - Specifications
M-5	HVAC - Scope of Work
M-6	HVAC - Scope of Work
M-7	HVAC - Bldg.1
M-8	HVAC - Bldg. 2
M-9	HVAC - Bldg. 3
M-10	HVAC - Bldg.4
M-11	HVAC - Bldg. 5
M-12	HVAC - Bldg.6
M-13	HVAC - Isometric & Elevation Views
M-14	HVAC Details
P-3	Plumbing - Specifications
P-4	Plumbing - Specifications
P-5	Plumbing - Site Plan
P-6	Plumbing - Bldg. 1
P-7	Plumbing - Bldg. 2
P-8	Plumbing - Bldg. 3
P-9	Plumbing - Bldg. 4
P-10	Plumbing -Bldg. 5
P-11	Plumbing - Bldg. 6
P-12	Plumbing -Typical Building
P-13	Plumbing - Details
P-14	Plumbing - Water Schematic
P-15	Plumbing - Sanitary Schematic
E-3	Elec. Power - Specifications
E-4	Elec. Power - Specifications
E-5	Elec. Power - Scope of Work
E-6	Electrical Site Plan
E-7	Elec. - SLD
E-8	Power/Comm - Bldg. 1
E-9	Elec. Lighting - Bldg 1
E-10	Power/Comm - Bldg. 2
E-11	Elec. Lighting - Bldg 2
E-12	Power/Comm - Bldg. 3
E-13	Elec. Lighting - Bldg 3
E-14	Power/Comm - Bldg. 4
E-15	Elec. Lighting - Bldg 4
E-16	Power/Comm. - Bldg. 5
E-17	Elec. Lighting - Bldg. 5
E-18	Power/Comm - Bldg. 6
E-19	Elec. Lighting - Bldg 6
E-20	Elec. Typical Building
E-21	Electrical Schedules
E-22	Electrical Details

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[8] SHOP DRAWINGS:
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. THE SHOP DWG REVIEW WILL NOT RELEASE THE CONTRACTOR FROM ESPONSIBILITY TO MAKE A FEASIBLE WORKING SYSTEM. THESE SHOP DRAWINGS SHALL CONSIST OF PLUMBING FIXTURES, HVAC EQUIPMENT, HVAC DIFFUSERS.
ALLOW MINIMUM 1-2 WEEKS FOR COMPLETION (BASED ON COMPLEXITY).

[9] THE DESIGNER DOES NOT ACCEPT RESPONSIBILITY FOR OTHER DESIGNER'S WORK IN ASSOCIATION WITH THIS PROJECT.

[10] RESPONSIBILITY FOR ANY FINAL ASSEMBLY(S) THAT VIOLATE APPLICABLE BUILDING CODES IS NOT ACCEPTED BY THE DESIGNER.

[11] REQUESTS FOR CHANGES OR SUBSTITUTIONS TO EQUIPMENT, PLANS AND / OR SPECIFICATIONS WILL BE SUBJECT TO ADDITIONAL FEES CHARGED BY THE CONSULTANT.

[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 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 DRAWINGS TO BE BASED ON DWGS MARKED "ISSUED FOR TENDER" OR "ISSUED FOR CONSTRUCTION" ONLY.

[16] ALL REQUESTS FOR DESIGN CHANGES / SUBSTITUTIONS TO BE MADE IN WRITING. ADDITIONAL FEES MAY APPLY. ALLOW MINIMUM (1) ONE WEEK TO REVIEW AND RESPOND TO CHANGE REQUESTS.

DRAWING REVISIONS

No.	Description	Date
2	Issued for Review	Apr. 22/22
3	Preliminary for Review	Sep. 09/22
4	Issued for Permit	Oct. 05/22
5	Issued for Tender	May 18/23
6	Re-Issued for Tender	Dec. 20/24

Engineer's Seal:
LICENSED PROFESSIONAL ENGINEER D. LONG Dec. 20/24 PROVINCE OF ONTARIO

Client: WW Inc.

Address: Minden, ON

Project Name: Gull River Affordable Housing

Dwg. Name: Power/Comm - Bldg. 2

NSET Project #: 04322

Drawn by: Northstar Eng. | Checked by: D.B.D.

Scale: As indicated | Revision #: 6.0

Drawing #: E-10

Project Date: Jan. 14/22 | Arch-D (24" x 36")

(04322) Lighting Fixture Schedule - Interior - Typical Suite Only

Level	Type	Qty.	Description	Fixture Finish	Color Temperature	Lumens	Voltage	VA	Manufacturer	Part #	Elevation of Light Source	Mounting Comments	Accessory 1	Lamping	Supplied By	Approved Alternate
FFE Lower Level	B	1	LUMINAIRE / INDOOR / VANITY / WALL / 24" LENGTH / LED DIRECT	BRUSHED NICKEL	3000 K	1300 lm	120 V	18 VA	LITHONIA LIGHTING	FMVCSL 24IN MVOLT 30K 90CRI BN M6	84"	WALL		LED 18W	DIV. 26	APPROVED EQUAL
B1 - U/S Cabinet	K	3	LUMINAIRE / INDOOR / TAPE / SURFACE / 18" LENGTH / LED DIRECT	WHITE	3500 K	400 lm	120 V	9 VA	LITHONIA LIGHTING	UCES 18IN SWW6 90CRI WH M6		CEILING / SURFACE		LED 8.4W	DIV. 26	APPROVED EQUAL
B1 - Ceiling	A1	1	LUMINAIRE / INDOOR / LINEAR / SURFACE / 24" LENGTH / LED DIRECT	WHITE	3500 K	940 lm	120 V	9 VA	LITHONIA LIGHTING	RLNK L24 120 35K 80 CRI M4		CEILING / SURFACE		LED 8.9W	DIV. 26	APPROVED EQUAL
B1 - Ceiling	L1	1	LUMINAIRE / INDOOR / DOME / SURFACE / 11" / LED DIRECT	WHITE	4000 K	1100 lm	120 V	16 VA	LITHONIA LIGHTING	FMLRL 11 14840 M4		CEILING / SURFACE		LED 16W	DIV. 26	APPROVED EQUAL
B1 - Ceiling	L2	3	LUMINAIRE / INDOOR / DOME / SURFACE / 14" / LED DIRECT	WHITE	4000 K	1600 lm	120 V	24 VA	LITHONIA LIGHTING	FMLRL 14 20840 M4		CEILING / SURFACE		LED 24W	DIV. 26	APPROVED EQUAL
FFE Ground Floor	B	1	LUMINAIRE / INDOOR / VANITY / WALL / 24" LENGTH / LED DIRECT	BRUSHED NICKEL	3000 K	1300 lm	120 V	18 VA	LITHONIA LIGHTING	FMVCSL 24IN MVOLT 30K 90CRI BN M6	84"	WALL		LED 18W	DIV. 26	APPROVED EQUAL
1 - U/S Cabinet	K	4	LUMINAIRE / INDOOR / TAPE / SURFACE / 18" LENGTH / LED DIRECT	WHITE	3500 K	400 lm	120 V	9 VA	LITHONIA LIGHTING	UCES 18IN SWW6 90CRI WH M6		CEILING / SURFACE		LED 8.4W	DIV. 26	APPROVED EQUAL
1 - Finished Ceiling	A1	2	LUMINAIRE / INDOOR / LINEAR / SURFACE / 24" LENGTH / LED DIRECT	WHITE	3500 K	940 lm	120 V	9 VA	LITHONIA LIGHTING	RLNK L24 120 35K 80 CRI M4		CEILING / SURFACE		LED 8.9W	DIV. 26	APPROVED EQUAL
1 - Finished Ceiling	L1	1	LUMINAIRE / INDOOR / DOME / SURFACE / 11" / LED DIRECT	WHITE	4000 K	1100 lm	120 V	16 VA	LITHONIA LIGHTING	FMLRL 11 14840 M4		CEILING / SURFACE		LED 16W	DIV. 26	APPROVED EQUAL
1 - Finished Ceiling	L2	6	LUMINAIRE / INDOOR / DOME / SURFACE / 14" / LED DIRECT	WHITE	4000 K	1600 lm	120 V	24 VA	LITHONIA LIGHTING	FMLRL 14 20840 M4		CEILING / SURFACE		LED 24W	DIV. 26	APPROVED EQUAL
2 - Floor	B	1	LUMINAIRE / INDOOR / VANITY / WALL / 24" LENGTH / LED DIRECT	BRUSHED NICKEL	3000 K	1300 lm	120 V	18 VA	LITHONIA LIGHTING	FMVCSL 24IN MVOLT 30K 90CRI BN M6	84"	WALL		LED 18W	DIV. 26	APPROVED EQUAL
2 - Floor	P	4	LUMINAIRE / INDOOR / PENDANT / SUSPENDED / LED DIRECT	WHITE	4000 K	4800 lm	120 V	34 VA	LITHONIA LIGHTING	VCVLLED-V4-P2-40K-80CRI-T5W-120-PM-DWHXD	108"	SUSPENDED		LED 34W	DIV. 26	APPROVED EQUAL
2 - U/S Cabinet	K	3	LUMINAIRE / INDOOR / TAPE / SURFACE / 18" LENGTH / LED DIRECT	WHITE	3500 K	400 lm	120 V	9 VA	LITHONIA LIGHTING	UCES 18IN SWW6 90CRI WH M6		CEILING / SURFACE		LED 8.4W	DIV. 26	APPROVED EQUAL
2 - Finished Ceiling	A1	1	LUMINAIRE / INDOOR / LINEAR / SURFACE / 24" LENGTH / LED DIRECT	WHITE	3500 K	940 lm	120 V	9 VA	LITHONIA LIGHTING	RLNK L24 120 35K 80 CRI M4		CEILING / SURFACE		LED 8.9W	DIV. 26	APPROVED EQUAL
2 - Finished Ceiling	L2	4	LUMINAIRE / INDOOR / DOME / SURFACE / 14" / LED DIRECT	WHITE	4000 K	1600 lm	120 V	24 VA	LITHONIA LIGHTING	FMLRL 14 20840 M4		CEILING / SURFACE		LED 24W	DIV. 26	APPROVED EQUAL
		36														

NOTES:
LIGHTING SCHEDULE ABOVE IS FOR TYPICAL SUITE TYPE AND DOES NOT REFLECT THE TOTAL QUANTITY OF LIGHTING FIXTURES REQUIRED
TOTAL NUMBER OF SUITES: 35

(MASTER-E) Fire Alarm Device Schedule

Level	Type Mark	Description	Circuit #	Qty.
2 - Finished Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1
2 - Finished Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1
2 - Finished Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1
1 - Finished Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	7	1
1 - Finished Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	7	1
1 - Finished Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	7	1
B1 - Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1
B1 - Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1
				8

NOTES:
FIRE ALARM SCHEDULE ABOVE IS FOR TYPICAL SUITE TYPE AND DOES NOT REFLECT THE TOTAL QUANTITY OF DEVICES REQUIRED
TOTAL NUMBER OF SUITES: 35

2 / E-11 (04322) Building 2 - Level 2 - RCP Lighting - New
1 : 75

1 / E-11 (04322) Building 2 - Basement - RCP Lighting - New
1 : 75

5 / E-11 (04322) Building 2 - Level 1 - RCP Lighting - New
1 : 75

(04322) PROJECT DRAWING REGISTER

Sheet #	Sheet Name
E1/M1/P1	Project Cover
E2/M2/P2	Project Cover
M-3	HVAC - Specifications
M-4	HVAC - Specifications
M-5	HVAC - Scope of Work
M-6	HVAC - Scope of Work
M-7	HVAC - Bldg.1
M-8	HVAC - Bldg. 2
M-9	HVAC - Bldg. 3
M-10	HVAC - Bldg.4
M-11	HVAC - Bldg. 5
M-12	HVAC - Bldg.6
M-13	HVAC - Isometric & Elevation Views
M-14	HVAC Details
P-3	Plumbing - Specifications
P-4	Plumbing - Specifications
P-5	Plumbing - Site Plan
P-6	Plumbing - Bldg. 1
P-7	Plumbing - Bldg. 2
P-8	Plumbing - Bldg. 3
P-9	Plumbing - Bldg. 4
P-10	Plumbing -Bldg. 5
P-11	Plumbing - Bldg. 6
P-12	Plumbing -Typical Building
P-13	Plumbing - Details
P-14	Plumbing - Water Schematic
P-15	Plumbing - Sanitary Schematic
E-3	Elec. Power - Specifications
E-4	Elec. Power - Specifications
E-5	Elec. Power - Scope of Work
E-6	Electrical Site Plan
E-7	Elec. - SLD
E-8	Power/Comm - Bldg. 1
E-9	Elec. Lighting - Bldg 1
E-10	Power/Comm - Bldg. 2
E-11	Elec. Lighting - Bldg 2
E-12	Power/Comm - Bldg. 3
E-13	Elec. Lighting - Bldg 3
E-14	Power/Comm - Bldg. 4
E-15	Elec. Lighting - Bldg 4
E-16	Power/Comm. - Bldg. 5
E-17	Elec. Lighting - Bldg. 5
E-18	Power/Comm - Bldg. 6
E-19	Elec. Lighting - Bldg 6
E-20	Elec. Typical Building
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DRAWING REVISIONS

No.	Description	Date
2	Issued for Review	Apr. 22/22
3	Preliminary for Review	Sep. 09/22
4	Issued for Permit	Oct. 05/22
5	Issued for Tender	May 18/23
6	Re-Issued for Tender	Dec. 20/24

Engineer's Seal:

LICENSED PROFESSIONAL ENGINEER
D. LONG
Dec. 20/24
PROVINCE OF ONTARIO

Client: WW Inc.

Address: Minden, ON

Project Name: Gull River Affordable Housing

Dwg. Name: Elec. Lighting - Bldg 2

NSET Project #: 04322

Drawn by: Northstar Eng. | Checked by: D.B.D.

Scale: As indicated | Revision #: 6.0

Drawing #: E-11

Project Date: Jan. 14/22 | Arch-D (24" x 36")

ELECTRICAL LEGEND

(OFFICES) A - 20,22 @450mm A.F.F.	ELECTRICAL CIRCUIT TAG: COMMENT; PANEL NAME; CIRCUIT#; JB ROUGH IN HEIGHT (CENTER LINE OF BOX) ABOVE FINISHED FLOOR - FOR WALL MOUNTED - IN mm
(OFFICES) FC-1-07 A - 20	MECHANICAL EQUIPMENT CIRCUIT TAG: AIR SYSTEM / COMMENT; MECHANICAL EQUIP. MARK / TYPE MARK; PANEL NAME; CIRCUIT #
(OFFICES) PB-1	ELECTRICAL EQUIPMENT TAG: COMMENTS; PANEL NAME. SEE SLD, SCHEDULES & PLAN VIEWS.
JB	JUNCTION BOX - WALL MOUNTED
JB	JUNCTION BOX - FLOOR MOUNTED
JB	JUNCTION BOX - CEILING MOUNTED
	DIRECT CONNECTION - SINGLE PHASE
	DIRECT CONNECTION - THREE PHASE
	DISCONNECT
	DIRECT CONNECTION c/w DISCONNECT
XXX	DUPLEX RECEPTACLE (REFER TO SCHEDULES FOR NEMA TYPE & AMPERAGE) x 1 - WALL MOUNTED. 'XXX' DENOTES: EX. - EXISTING; GFCI - GROUND FAULT CIRCUIT INTERRUPTER; AFCI - ARC FAULT CIRCUIT INTERRUPTER; ISO GD - ISOLATED GROUND; O/C - OVER COUNTER; U/C - UNDER COUNTER; W/P - WEATHER PROOF; TR - TAMPER RESISTANT; USB - CONTAINS USB PORTS
	DUPLEX RECEPTACLE SPLIT (INDIV. CIRCUITS) - WALL MOUNTED
	DUPLEX RECEPTACLE (120V, STD.) x 1 - FLOOR MOUNTED
	DUPLEX RECEPTACLE (120V, STD.) x 1 - CEILING MOUNTED
	DUPLEX RECEPTACLE (120V, STD.) x 1 CAB TIRE c/w STRAIN RELIEF - SUSPENDED MOUNT
	QUADPLEX RECEPTACLE (120V , STD.) x 1 - WALL MOUNTED
	QUADPLEX RECEPTACLE (120V, STD.) x 1 - FLOOR MOUNTED
	QUADPLEX RECEPTACLE (120V, STD.) x 1 - CEILING MOUNTED
XXX	SINGLE RECEPTACLE x 1 (WALL MOUNTED). 'XXX' DENOTES: OUTLET PURPOSE; VOLTAGE; AMPERAGE; SEE SYMBOL ON PLANS (REFER TO SCHEDULES FOR NEMA TYPE)
H	HANDICAP PUSH BUTTON - WALL MOUNTED
L	LOCK PUSH BUTTON - WALL MOUNTED
E	EMERGENCY CALL PUSH BUTTON - WALL MOUNTED
	DOME LIGHT (STROBE) WITH SOUNDER - WALL MOUNTED
TS	THERMOSTAT - SUPPLIED & INSTALLED BY DIV. 23. WIRE > 30V - CONNECTION BY DIV. 26. WIRE ≤ 30V - CONNECTION BY DIV. 23

COMMUNICATIONS LEGEND

	TELEPHONE & DATA COMBINATION OUTLET - QUANTITY AS INDICATED - WALL MOUNTED
	TELEPHONE & DATA COMBINATION OUTLET - QUANTITY AS INDICATED - CEILING MOUNTED
	TELEPHONE & DATA COMBINATION OUTLET - QUANTITY AS INDICATED - FLOOR MOUNTED
	DATA OUTLET - QUANTITY AS INDICATED - CEILING MOUNTED
WAP	WIRELESS ACCESS POINT DATA OUTLET - QUANTITY AS INDICATED - CEILING MOUNTED
TV	COAX CABLE TV OUTLET - QUANTITY AS INDICATED - ROVIDE RG6 CABLE - WALL MOUNTED
TV	COAX CABLE TV OUTLET - QUANTITY AS INDICATED - ROVIDE RG6 CABLE - FLOOR MOUNTED
TV	COAX CABLE TV OUTLET - QUANTITY AS INDICATED - ROVIDE RG6 CABLE - CEILING MOUNTED
D/TV	DATA & COAX COMBINATION OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - WALL MOUNTED
D/TV	DATA & COAX COMBINATION OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - FLOOR MOUNTED
D/TV	DATA & COAX COMBINATION OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - CEILING MOUNTED

NOT ALL SYMBOLS APPLY TO FLOOR PLANS / DRAWINGS SEE SPECIFICATIONS FOR ALL CABLE TYPES

LIGHTING LEGEND

	LUMINAIRE - INTERIOR DOWNLIGHT - RECESSED - LED
	LUMINAIRE - INTERIOR DOWNLIGHT - SURFACE MOUNTED - LED
	LUMINAIRE - INTERIOR DOME - SURFACE MOUNTED - LED
	LUMINAIRE - INTERIOR LINEAR - SURFACE MOUNTED - LED
	LUMINAIRE - INTERIOR LINEAR - WALL MOUNTED - LED
	LUMINAIRE - INTERIOR LINEAR PENDANT - SUSPENDED - LED
	LUMINAIRE - INTERIOR TAPE - SURFACE MOUNTED - LED

EXTERIOR LIGHTING LEGEND

	LUMINAIRE - EXTERIOR WALL PACK - WALL MOUNTED - LED
	LUMINAIRE - EXTERIOR BOLLARD - LED
	LUMINAIRE - EXTERIOR POLE LIGHT - SINGLE HEAD - RECTANGULAR HEAD - LED

EXIT & EMERGENCY LIGHTING LEGEND

BATT.	EXIT SIGN - CEILING MOUNTED; DIRECTIONAL ARROW INDICATES NUMBER OF EMERGERGENCY LIGHTS; c/w BATTERY; HATCH INDICATES NUMBER OF SIDES/ FACES
BATT.	EXIT SIGN - WALL MOUNTED; c/w BATTERY; DIRECTIONAL ARROW INDICATES NUMBER OF EMERGENCY LIGHTS; HATCH INDICATES NUMBER OF SIDES/ FACES
	BATTERY UNIT - PLUG-IN c/w DUPLEX RECEPTACLE - WALL MOUNTED
	BATTERY UNIT c/w 2x EMERGENCY LIGHTS - PLUG-IN c/w DUPLEX RECEPTACLE - WALL MOUNTED
	EMERGERGENCY LIGHT - REMOTE DOUBLE HEADS - CEILING MOUNTED
	EMERGERGENCY LIGHT - REMOTE DOUBLE HEADS - WALL MOUNTED
	EMERGERGENCY LIGHT - REMOTE SINGLE HEAD - CEILING MOUNTED
	EMERGERGENCY LIGHT - REMOTE SINGLE HEAD - WALL MOUNTED

LIGHTING CONTROLS LEGEND

SW# 1 A B-30 @ 2100 mm AFF	LIGHTING CIRCUIT TAG: SWITCH GROUP; FIXTURE TYPE; PANEL NAME; CIRCUIT #; JB ROUGH IN HEIGHT (CENTER LINE OF BOX) ABOVE FINISHED FLOOR - WALL MOUNTED - IN mm
NL	TYP. LIGHT; INDICATES "NIGHT LIGHT" TO REMAIN ACTIVE AT ALL TIMES
SW# 1	SWITCH TAG (#1 SWITCH GROUP - LIGHTS ASSOCIATED WILL ACTIVATE ON THIS SWITCH)
	EXTRA LOW VOLTAGE WIRE (ELV) <30V
	LOW VOLTAGE SWITCH WIRE ≥30 TO 750V
$	LINE VOLTAGE SWITCH - SINGLE POLE
3 $	LINE VOLTAGE SWITCH - 3 WAY
D $	LINE VOLTAGE SWITCH - DIMMER
TO FAN $	LINE VOLTAGE SWITCH - SINGLE POLE - TO FAN
OC $	LINE VOLTAGE SWITCH - OCCUPANCY SENSOR
OCT	LINE VOLTAGE OCCUPANCY SENSOR & TIMER - CEILING MOUNTED
	PHOTOCELL
TC	ASTRONOMIC TIME SWITCH
SD SD WG	CEILING MOUNT; SD: SMOKE DETECTOR - PHOTOELECTRIC; SD D: DUCT TYPE PHOTOELECTRIC SMOKE DETECTOR; SD B: BEAM TYPE SMOKE DETECTOR; SB: SMOKE DETECTOR c/w LOCAL SOUNDERBASE; SA: SMOKE ALARM; SA/CO: COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR; C: CONVENTIONAL; BLANK: ADDRESSABLE; WG: C/W WIRE GUARD
WP	WEATHER PROOF - OUTDOOR RATED

NOT ALL SYMBOLS APPLY TO FLOOR PLANS / DRAWINGS SEE SPECIFICATIONS FOR ALL CABLE TYPES

(04322) Data Device Schedule - Typical Suite Only

Level	Rm. #	Description	Pin Config.	Qty.
FFE Lower Level	106	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1
FFE Lower Level	108	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1
				2
FFE Ground Floor		OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1
FFE Ground Floor	112	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1
FFE Ground Floor	113	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1
FFE Ground Floor	114	OUTLET - TELEPHONE & DATA COMBINATION - WALL MOUNTED - ELEVATED		1
				4
2 - Floor		OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1
2 - Floor	224	OUTLET - TELEPHONE & DATA COMBINATION - WALL MOUNTED - ELEVATED		1
2 - Floor	225	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1
2 - Floor	228	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1
				4
Grand total				10

NOTES:
DATA DEVICE SCHEDULE ABOVE IS FOR TYPICAL SUITE TYPE AND DOES NOT REFLECT THE TOTAL QUANTITY OF DATA DEVICES REQUIRED
TOTAL NUMBER OF SUITES: 35

(04322) Electrical Receptacle Schedule - Typical Suite Only

Level	Rm. #	Qty.	Description	Pin Config.
FFE Lower Level		1	ELECTRIC DOOR BUZZER	ELECTRIC DOOR BUZZER
FFE Lower Level		1	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - GFCI - WEATHERPROOF c/w NEMA 4 ENCLOSURE	NEMA 5-15R
FFE Lower Level	106	5	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
FFE Lower Level	107	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A / GFCI	NEMA 5-15R
FFE Lower Level	108	1	ELECTRIC DOOR BELL	ELECTRIC DOOR BELL
FFE Lower Level	108	5	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
FFE Lower Level	108	1	RECEPTACLE - SINGLE - WALL MOUNTED - 208V 50A - COOKING RANGE	NEMA 14-50R
FFE Lower Level	108	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A / FRIDGE	NEMA 5-15R
FFE Lower Level	108	2	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 20A / GFCI / OVER COUNTER	NEMA 5-20R
		18		
FFE Ground Floor		2	ELECTRIC DOOR BUZZER	ELECTRIC DOOR BUZZER
FFE Ground Floor		1	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - GFCI - WEATHERPROOF c/w NEMA 4 ENCLOSURE	NEMA 5-15R
FFE Ground Floor		1	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
FFE Ground Floor	112	3	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
FFE Ground Floor	113	4	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
FFE Ground Floor	114	1	ELECTRIC DOOR BELL	ELECTRIC DOOR BELL
FFE Ground Floor	114	3	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
FFE Ground Floor	114	1	RECEPTACLE - SINGLE - WALL MOUNTED - 208V 50A - COOKING RANGE	NEMA 14-50R
FFE Ground Floor	114	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A / FRIDGE	NEMA 5-15R
FFE Ground Floor	114	2	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 20A / GFCI / OVER COUNTER	NEMA 5-20R
FFE Ground Floor	114	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 20A / OVER COUNTER	NEMA 5-20R
FFE Ground Floor	115	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A / GFCI	NEMA 5-15R
FFE Ground Floor	116	4	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
		25		
2 - Floor		1	ELECTRIC DOOR BELL	ELECTRIC DOOR BELL
2 - Floor		1	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
2 - Floor	223	2	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
2 - Floor	224	2	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
2 - Floor	224	1	RECEPTACLE - SINGLE - WALL MOUNTED - 208V 50A - COOKING RANGE	NEMA 14-50R
2 - Floor	224	1	RECEPTACLE / DUPLEX / UNDER COUNTER MNT. / 120V / 15A	NEMA 5-15R
2 - Floor	224	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A / FRIDGE	NEMA 5-15R
2 - Floor	224	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 20A / GFCI / OVER COUNTER	NEMA 5-20R
2 - Floor	224	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 20A / OVER COUNTER	NEMA 5-20R
2 - Floor	225	2	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
2 - Floor	226	4	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
2 - Floor	227	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A / GFCI	NEMA 5-15R
2 - Floor	228	4	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
		22		
Grand total		65		

NOTES:
RECEPTACLE SCHEDULE ABOVE IS FOR TYPICAL SUITE TYPE AND DOES NOT REFLECT THE TOTAL QUANTITY OF RECEPTACLES REQUIRED
TOTAL NUMBER OF SUITES: 35

3 E-12 (04322) Building 3 - Level 2 - Power Plan - New
1 : 75

1 E-12 (04322) Building 3 - Basement - Power Plan - New
1 : 75

2 E-12 (04322) Building 3 - Level 1 - Power Plan - New
1 : 75

(04322) PROJECT DRAWING REGISTER

Sheet #	Sheet Name
E1/M1/P1	Project Cover
E2/M2/P2	Project Cover
M-3	HVAC - Specifications
M-4	HVAC - Specifications
M-5	HVAC - Scope of Work
M-6	HVAC - Scope of Work
M-7	HVAC - Bldg.1
M-8	HVAC - Bldg. 2
M-9	HVAC - Bldg. 3
M-10	HVAC - Bldg.4
M-11	HVAC - Bldg. 5
M-12	HVAC - Bldg.6
M-13	HVAC - Isometric & Elevation Views
M-14	HVAC Details
P-3	Plumbing - Specifications
P-4	Plumbing - Specifications
P-5	Plumbing - Site Plan
P-6	Plumbing - Bldg. 1
P-7	Plumbing - Bldg. 2
P-8	Plumbing - Bldg. 3
P-9	Plumbing - Bldg. 4
P-10	Plumbing -Bldg. 5
P-11	Plumbing - Bldg. 6
P-12	Plumbing -Typical Building
P-13	Plumbing - Details
P-14	Plumbing - Water Schematic
P-15	Plumbing - Sanitary Schematic
E-3	Elec. Power - Specifications
E-4	Elec. Power - Specifications
E-5	Elec. Power - Scope of Work
E-6	Electrical Site Plan
E-7	Elec. - SLD
E-8	Power/Comm - Bldg. 1
E-9	Elec. Lighting - Bldg 1
E-10	Power/Comm - Bldg. 2
E-11	Elec. Lighting - Bldg 2
E-12	Power/Comm - Bldg. 3
E-13	Elec. Lighting - Bldg 3
E-14	Power/Comm - Bldg. 4
E-15	Elec. Lighting - Bldg 4
E-16	Power/Comm. - Bldg. 5
E-17	Elec. Lighting - Bldg. 5
E-18	Power/Comm - Bldg. 6
E-19	Elec. Lighting - Bldg 6
E-20	Elec. Typical Building
E-21	Electrical Schedules
E-22	Electrical Details

NORTHSTAR ENGINEERING & TECHNOLOGIES LTD.
92 Caplan Ave. Suite #517
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dlong@nset.ca www.nset.ca

GENERAL DRAWING / DESIGNER NOTES:

[1] ALL CONSTRUCTION METHODS AND MATERIALS TO CONFORM TO THE LATEST EDITION OF THE PROVINCE OF ONTARIO'S "BUILDING CODE", LOCAL REGULATIONS AND AUTHORITIES HAVING JURISDICTION.

[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 CONTRACTOR.

[3] DRAWINGS ONLY SHOW GENERAL INTENT AND SCOPE OF WORK. EXACT DETAILS OF INSTALLATIONS ARE TO BE PROVIDED BY CONTRACTOR(S). DO NOT SCALE DRAWINGS.

[4] CONTRACTOR/AGENT/OWNER TO REPORT ALL DISCOVERIES OF ERRORS, OMISSIONS OR DISCREPANCIES TO THE DESIGNER.

[5] PROCEED WITH CONSTRUCTION ONLY USING THE LATEST REVISED DRAWINGS MARKED "ISSUED FOR CONSTRUCTION".

[6] THIS DRAWING IS SPECIFIC TO THIS PROJECT AND CANNOT BE USED FOR OTHER "SIMILAR" PROJECTS.

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Engineer's Seal:
LICENSED PROFESSIONAL ENGINEER D. LONG Dec. 20/24 PROVINCE OF ONTARIO

Client: WW Inc.

Address: Minden, ON

Project Name: Gull River Affordable Housing

Dwg. Name: Power/Comm - Bldg. 3

NSET Project #: 04322

Drawn by: Northstar Eng. | Checked by: D.B.D.

Scale: As indicated | Revision #: 6.0

Drawing #: E-12

Project Date: Jan. 14/22 | Arch-D (24" x 36")

(04322) Lighting Fixture Schedule - Interior - Typical Suite Only

Level	Type	Qty.	Description	Fixture Finish	Color Temperature	Lumens	Voltage	VA	Manufacturer	Part #	Elevation of Light Source	Mounting Comments	Accessory 1	Lamping	Supplied By	Approved Alternate
FFE Lower Level	B	1	LUMINAIRE / INDOOR / VANITY / WALL / 24" LENGTH / LED DIRECT	BRUSHED NICKEL	3000 K	1300 lm	120 V	18 VA	LITHONIA LIGHTING	FMVCSL 24IN MVOLT 30K 90CRI BN M6	84"	WALL		LED 18W	DIV. 26	APPROVED EQUAL
B1 - U/S Cabinet	K	3	LUMINAIRE / INDOOR / TAPE / SURFACE / 18" LENGTH / LED DIRECT	WHITE	3500 K	400 lm	120 V	9 VA	LITHONIA LIGHTING	UCES 18IN SWW6 90CRI WH M6		CEILING / SURFACE		LED 8.4W	DIV. 26	APPROVED EQUAL
B1 - Ceiling	A1	1	LUMINAIRE / INDOOR / LINEAR / SURFACE / 24" LENGTH / LED DIRECT	WHITE	3500 K	940 lm	120 V	9 VA	LITHONIA LIGHTING	RLNK L24 120 35K 80 CRI M4		CEILING / SURFACE		LED 8.9W	DIV. 26	APPROVED EQUAL
B1 - Ceiling	L1	1	LUMINAIRE / INDOOR / DOME / SURFACE / 11" / LED DIRECT	WHITE	4000 K	1100 lm	120 V	16 VA	LITHONIA LIGHTING	FMLRL 11 14840 M4		CEILING / SURFACE		LED 16W	DIV. 26	APPROVED EQUAL
B1 - Ceiling	L2	3	LUMINAIRE / INDOOR / DOME / SURFACE / 14" / LED DIRECT	WHITE	4000 K	1600 lm	120 V	24 VA	LITHONIA LIGHTING	FMLRL 14 20840 M4		CEILING / SURFACE		LED 24W	DIV. 26	APPROVED EQUAL
FFE Ground Floor	B	1	LUMINAIRE / INDOOR / VANITY / WALL / 24" LENGTH / LED DIRECT	BRUSHED NICKEL	3000 K	1300 lm	120 V	18 VA	LITHONIA LIGHTING	FMVCSL 24IN MVOLT 30K 90CRI BN M6	84"	WALL		LED 18W	DIV. 26	APPROVED EQUAL
1 - U/S Cabinet	K	4	LUMINAIRE / INDOOR / TAPE / SURFACE / 18" LENGTH / LED DIRECT	WHITE	3500 K	400 lm	120 V	9 VA	LITHONIA LIGHTING	UCES 18IN SWW6 90CRI WH M6		CEILING / SURFACE		LED 8.4W	DIV. 26	APPROVED EQUAL
1 - Finished Ceiling	A1	2	LUMINAIRE / INDOOR / LINEAR / SURFACE / 24" LENGTH / LED DIRECT	WHITE	3500 K	940 lm	120 V	9 VA	LITHONIA LIGHTING	RLNK L24 120 35K 80 CRI M4		CEILING / SURFACE		LED 8.9W	DIV. 26	APPROVED EQUAL
1 - Finished Ceiling	L1	1	LUMINAIRE / INDOOR / DOME / SURFACE / 11" / LED DIRECT	WHITE	4000 K	1100 lm	120 V	16 VA	LITHONIA LIGHTING	FMLRL 11 14840 M4		CEILING / SURFACE		LED 16W	DIV. 26	APPROVED EQUAL
1 - Finished Ceiling	L2	6	LUMINAIRE / INDOOR / DOME / SURFACE / 14" / LED DIRECT	WHITE	4000 K	1600 lm	120 V	24 VA	LITHONIA LIGHTING	FMLRL 14 20840 M4		CEILING / SURFACE		LED 24W	DIV. 26	APPROVED EQUAL
2 - Floor	B	1	LUMINAIRE / INDOOR / VANITY / WALL / 24" LENGTH / LED DIRECT	BRUSHED NICKEL	3000 K	1300 lm	120 V	18 VA	LITHONIA LIGHTING	FMVCSL 24IN MVOLT 30K 90CRI BN M6	84"	WALL		LED 18W	DIV. 26	APPROVED EQUAL
2 - Floor	P	4	LUMINAIRE / INDOOR / PENDANT / SUSPENDED / LED DIRECT	WHITE	4000 K	4800 lm	120 V	34 VA	LITHONIA LIGHTING	VCVLLED-V4-P2-40K-80CRI-T5W-120-PM-DWHXD	108"	SUSPENDED		LED 34W	DIV. 26	APPROVED EQUAL
2 - U/S Cabinet	K	3	LUMINAIRE / INDOOR / TAPE / SURFACE / 18" LENGTH / LED DIRECT	WHITE	3500 K	400 lm	120 V	9 VA	LITHONIA LIGHTING	UCES 18IN SWW6 90CRI WH M6		CEILING / SURFACE		LED 8.4W	DIV. 26	APPROVED EQUAL
2 - Finished Ceiling	A1	1	LUMINAIRE / INDOOR / LINEAR / SURFACE / 24" LENGTH / LED DIRECT	WHITE	3500 K	940 lm	120 V	9 VA	LITHONIA LIGHTING	RLNK L24 120 35K 80 CRI M4		CEILING / SURFACE		LED 8.9W	DIV. 26	APPROVED EQUAL
2 - Finished Ceiling	L2	4	LUMINAIRE / INDOOR / DOME / SURFACE / 14" / LED DIRECT	WHITE	4000 K	1600 lm	120 V	24 VA	LITHONIA LIGHTING	FMLRL 14 20840 M4		CEILING / SURFACE		LED 24W	DIV. 26	APPROVED EQUAL
		36														

NOTES:
LIGHTING SCHEDULE ABOVE IS FOR TYPICAL SUITE TYPE AND DOES NOT REFLECT THE TOTAL QUANTITY OF LIGHTING FIXTURES REQUIRED
TOTAL NUMBER OF SUITES: 35

(MASTER-E) Fire Alarm Device Schedule

Level	Type Mark	Description	Circuit #	Qty.
2 - Finished Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1
2 - Finished Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1
2 - Finished Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1
1 - Finished Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	7	1
1 - Finished Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	7	1
1 - Finished Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	7	1
B1 - Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1
B1 - Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1
				8

NOTES:
FIRE ALARM SCHEDULE ABOVE IS FOR TYPICAL SUITE TYPE AND DOES NOT REFLECT THE TOTAL QUANTITY OF DEVICES REQUIRED
TOTAL NUMBER OF SUITES: 35

2 / E-13 (04322) Building 3 - Level 2 - RCP Lighting - New
1 : 75

1 / E-13 (04322) Building 3 - Basement - RCP Lighting - New
1 : 75

5 / E-13 (04322) Building 3 - Level 1 - RCP Lighting - New
1 : 75

(04322) PROJECT DRAWING REGISTER

Sheet #	Sheet Name
E1/M1/P1	Project Cover
E2/M2/P2	Project Cover
M-3	HVAC - Specifications
M-4	HVAC - Specifications
M-5	HVAC - Scope of Work
M-6	HVAC - Scope of Work
M-7	HVAC - Bldg.1
M-8	HVAC - Bldg. 2
M-9	HVAC - Bldg. 3
M-10	HVAC - Bldg.4
M-11	HVAC - Bldg. 5
M-12	HVAC - Bldg.6
M-13	HVAC - Isometric & Elevation Views
M-14	HVAC Details
P-3	Plumbing - Specifications
P-4	Plumbing - Specifications
P-5	Plumbing - Site Plan
P-6	Plumbing - Bldg. 1
P-7	Plumbing - Bldg. 2
P-8	Plumbing - Bldg. 3
P-9	Plumbing - Bldg. 4
P-10	Plumbing -Bldg. 5
P-11	Plumbing - Bldg. 6
P-12	Plumbing -Typical Building
P-13	Plumbing - Details
P-14	Plumbing - Water Schematic
P-15	Plumbing - Sanitary Schematic
E-3	Elec. Power - Specifications
E-4	Elec. Power - Specifications
E-5	Elec. Power - Scope of Work
E-6	Electrical Site Plan
E-7	Elec. - SLD
E-8	Power/Comm - Bldg. 1
E-9	Elec. Lighting - Bldg 1
E-10	Power/Comm - Bldg. 2
E-11	Elec. Lighting - Bldg 2
E-12	Power/Comm - Bldg. 3
E-13	Elec. Lighting - Bldg 3
E-14	Power/Comm - Bldg. 4
E-15	Elec. Lighting - Bldg 4
E-16	Power/Comm. - Bldg. 5
E-17	Elec. Lighting - Bldg. 5
E-18	Power/Comm - Bldg. 6
E-19	Elec. Lighting - Bldg 6
E-20	Elec. Typical Building
E-21	Electrical Schedules
E-22	Electrical Details

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GENERAL DRAWING / DESIGNER NOTES:

[1] ALL CONSTRUCTION METHODS AND MATERIALS TO CONFORM TO THE LATEST EDITION OF THE PROVINCE OF ONTARIO'S "BUILDING CODE", LOCAL REGULATIONS AND AUTHORITIES HAVING JURISDICTION.

[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 CONTRACTOR.

[3] DRAWINGS ONLY SHOW GENERAL INTENT AND SCOPE OF WORK. EXACT DETAILS OF INSTALLATIONS ARE TO BE PROVIDED BY CONTRACTOR(S). DO NOT SCALE DRAWINGS.

[4] CONTRACTOR/AGENT/OWNER TO REPORT ALL DISCOVERIES OF ERRORS, OMISSIONS OR DISCREPANCIES TO THE DESIGNER.

[5] PROCEED WITH CONSTRUCTION ONLY USING THE LATEST REVISED DRAWINGS MARKED "ISSUED FOR CONSTRUCTION".

[6] THIS DRAWING IS SPECIFIC TO THIS PROJECT AND CANNOT BE USED FOR OTHER "SIMILAR" PROJECTS.

[7] THIS DRAWING IS THE PROPERTY OF NORTHSTAR ENGINEERING & TECHNOLOGIES LTD. UN-AUTHORIZED RE-PRODUCTION OR USE IS PROHIBITED.

[8] SHOP DRAWINGS:
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. THE SHOP DWG REVIEW WILL NOT RELEASE THE CONTRACTOR FROM ESPONSIBILITY TO MAKE A FEASIBLE WORKING SYSTEM. THESE SHOP DRAWINGS SHALL CONSIST OF PLUMBING FIXTURES, HVAC EQUIPMENT, HVAC DIFFUSERS.
ALLOW MINIMUM 1-2 WEEKS FOR COMPLETION (BASED ON COMPLEXITY).

[9] THE DESIGNER DOES NOT ACCEPT RESPONSIBILITY FOR OTHER DESIGNER'S WORK IN ASSOCIATION WITH THIS PROJECT.

[10] RESPONSIBILITY FOR ANY FINAL ASSEMBLY(S) THAT VIOLATE APPLICABLE BUILDING CODES IS NOT ACCEPTED BY THE DESIGNER.

[11] REQUESTS FOR CHANGES OR SUBSTITUTIONS TO EQUIPMENT, PLANS AND / OR SPECIFICATIONS WILL BE SUBJECT TO ADDITIONAL FEES CHARGED BY THE CONSULTANT.

[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 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 DRAWINGS TO BE BASED ON DWGS MARKED "ISSUED FOR TENDER" OR "ISSUED FOR CONSTRUCTION" ONLY.

[16] ALL REQUESTS FOR DESIGN CHANGES / SUBSTITUTIONS TO BE MADE IN WRITING. ADDITIONAL FEES MAY APPLY. ALLOW MINIMUM (1) ONE WEEK TO REVIEW AND RESPOND TO CHANGE REQUESTS.

DRAWING REVISIONS

No.	Description	Date
2	Issued for Review	Apr. 22/22
3	Preliminary for Review	Sep. 09/22
4	Issued for Permit	Oct. 05/22
5	Issued for Tender	May 18/23
6	Re-Issued for Tender	Dec. 20/24

Engineer's Seal:

LICENSED PROFESSIONAL ENGINEER
D. LONG
Dec. 20/24
PROVINCE OF ONTARIO

Client: WW Inc.

Address: Minden, ON

Project Name: Gull River Affordable Housing

Dwg. Name: Elec. Lighting - Bldg 3

NSET Project #: 04322

Drawn by: Northstar Eng. | Checked by: D.B.D.

Scale: As indicated | Revision #: 6.0

Drawing #: E-13

Project Date: Jan. 14/22 | Arch-D (24" x 36")

ELECTRICAL LEGEND

(OFFICES) A - 20,22 @450mm A.F.F.	ELECTRICAL CIRCUIT TAG: COMMENT; PANEL NAME; CIRCUIT#; JB ROUGH IN HEIGHT (CENTER LINE OF BOX) ABOVE FINISHED FLOOR - FOR WALL MOUNTED - IN mm
(OFFICES) FC-1-07 A - 20	MECHANICAL EQUIPMENT CIRCUIT TAG: AIR SYSTEM / COMMENT; MECHANICAL EQUIP. MARK / TYPE MARK; PANEL NAME; CIRCUIT #
(OFFICES) PB-1	ELECTRICAL EQUIPMENT TAG: COMMENTS; PANEL NAME. SEE SLD, SCHEDULES & PLAN VIEWS.
JB	JUNCTION BOX - WALL MOUNTED
JB	JUNCTION BOX - FLOOR MOUNTED
JB	JUNCTION BOX - CEILING MOUNTED
	DIRECT CONNECTION - SINGLE PHASE
	DIRECT CONNECTION - THREE PHASE
	DISCONNECT
	DIRECT CONNECTION c/w DISCONNECT
xxx	DUPLEX RECEPTACLE (REFER TO SCHEDULES FOR NEMA TYPE & AMPERAGE) x 1 - WALL MOUNTED. 'XXX' DENOTES: EX. - EXISTING; GFCI - GROUND FAULT CIRCUIT INTERRUPTER; AFCI - ARC FAULT CIRCUIT INTERRUPTER; ISO GD - ISOLATED GROUND; O/C - OVER COUNTER; U/C - UNDER COUNTER; W/P - WEATHER PROOF; TR - TAMPER RESISTANT; USB - CONTAINS USB PORTS
	DUPLEX RECEPTACLE SPLIT (INDIV. CIRCUITS) - WALL MOUNTED
	DUPLEX RECEPTACLE (120V, STD.) x 1 - FLOOR MOUNTED
	DUPLEX RECEPTACLE (120V, STD.) x 1 - CEILING MOUNTED
	DUPLEX RECEPTACLE (120V, STD.) x 1 CAB TIRE c/w STRAIN RELIEF - SUSPENDED MOUNT
	QUADPLEX RECEPTACLE (120V , STD.) x 1 - WALL MOUNTED
	QUADPLEX RECEPTACLE (120V, STD.) x 1 - FLOOR MOUNTED
	QUADPLEX RECEPTACLE (120V, STD.) x 1 - CEILING MOUNTED
xxx	SINGLE RECEPTACLE x 1 (WALL MOUNTED). 'XXX' DENOTES: OUTLET PURPOSE; VOLTAGE; AMPERAGE; SEE SYMBOL ON PLANS (REFER TO SCHEDULES FOR NEMA TYPE)
H	HANDICAP PUSH BUTTON - WALL MOUNTED
L	LOCK PUSH BUTTON - WALL MOUNTED
E	EMERGENCY CALL PUSH BUTTON - WALL MOUNTED
	DOME LIGHT (STROBE) WITH SOUNDER - WALL MOUNTED
TS	THERMOSTAT - SUPPLIED & INSTALLED BY DIV. 23; WIRE > 30V - CONNECTION BY DIV. 26; WIRE ≤ 30V - CONNECTION BY DIV. 23

COMMUNICATIONS LEGEND

	TELEPHONE & DATA COMBINATION OUTLET - QUANTITY AS INDICATED - WALL MOUNTED
	TELEPHONE & DATA COMBINATION OUTLET - QUANTITY AS INDICATED - CEILING MOUNTED
	TELEPHONE & DATA COMBINATION OUTLET - QUANTITY AS INDICATED - FLOOR MOUNTED
	DATA OUTLET - QUANTITY AS INDICATED - CEILING MOUNTED
WAP	WIRELESS ACCESS POINT DATA OUTLET - QUANTITY AS INDICATED - CEILING MOUNTED
TV	COAX CABLE TV OUTLET - QUANTITY AS INDICATED - ROVIDE RG6 CABLE - WALL MOUNTED
TV	COAX CABLE TV OUTLET - QUANTITY AS INDICATED - ROVIDE RG6 CABLE - FLOOR MOUNTED
TV	COAX CABLE TV OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - CEILING MOUNTED
D/TV	DATA & COAX COMBINATION OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - WALL MOUNTED
D/TV	DATA & COAX COMBINATION OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - FLOOR MOUNTED
D/TV	DATA & COAX COMBINATION OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - CEILING MOUNTED

NOT ALL SYMBOLS APPLY TO FLOOR PLANS / DRAWINGS SEE SPECIFICATIONS FOR ALL CABLE TYPES

LIGHTING LEGEND

	LUMINAIRE - INTERIOR DOWNLIGHT - RECESSED - LED
	LUMINAIRE - INTERIOR DOWNLIGHT - SURFACE MOUNTED - LED
	LUMINAIRE - INTERIOR DOME - SURFACE MOUNTED - LED
	LUMINAIRE - INTERIOR LINEAR - SURFACE MOUNTED - LED
	LUMINAIRE - INTERIOR LINEAR - WALL MOUNTED - LED
	LUMINAIRE - INTERIOR LINEAR PENDANT - SUSPENDED - LED
	LUMINAIRE - INTERIOR TAPE - SURFACE MOUNTED - LED

EXTERIOR LIGHTING LEGEND

	LUMINAIRE - EXTERIOR WALL PACK - WALL MOUNTED - LED
	LUMINAIRE - EXTERIOR BOLLARD - LED
	LUMINAIRE - EXTERIOR POLE LIGHT - SINGLE HEAD - RECTANGULAR HEAD - LED

EXIT & EMERGENCY LIGHTING LEGEND

BATT.	EXIT SIGN - CEILING MOUNTED; DIRECTIONAL ARROW INDICATES NUMBER OF EMERGENCY LIGHTS c/w BATTERY; HATCH INDICATES NUMBER OF SIDES/ FACES
BATT.	EXIT SIGN - WALL MOUNTED c/w BATTERY; DIRECTIONAL ARROW INDICATES NUMBER OF EMERGENCY LIGHTS; HATCH INDICATES NUMBER OF SIDES/ FACES
	BATTERY UNIT - PLUG-IN c/w DUPLEX RECEPTACLE - WALL MOUNTED
	BATTERY UNIT c/w 2x EMERGENCY LIGHTS - PLUG-IN c/w DUPLEX RECEPTACLE - WALL MOUNTED
	EMERGERGENCY LIGHT - REMOTE DOUBLE HEADS - CEILING MOUNTED
	EMERGERGENCY LIGHT - REMOTE DOUBLE HEADS - WALL MOUNTED
	EMERGERGENCY LIGHT - REMOTE SINGLE HEAD - CEILING MOUNTED
	EMERGERGENCY LIGHT - REMOTE SINGLE HEAD - WALL MOUNTED

LIGHTING CONTROLS LEGEND

SW# 1 A B-30 @ 2100 mm AFF	LIGHTING CIRCUIT TAG: SWITCH GROUP; FIXTURE TYPE; PANEL NAME; CIRCUIT #; JB ROUGH IN HEIGHT (CENTER LINE OF BOX) ABOVE FINISHED FLOOR - WALL MOUNTED - IN mm
NL	TYP. LIGHT; INDICATES "NIGHT LIGHT" TO REMAIN ACTIVE AT ALL TIMES
SW# 1	SWITCH TAG (#1 SWITCH GROUP - LIGHTS ASSOCIATED WILL ACTIVATE ON THIS SWITCH)
	EXTRA LOW VOLTAGE WIRE (ELV) <30V
	LOW VOLTAGE SWITCH WIRE ≥30 TO 750V
$	LINE VOLTAGE SWITCH - SINGLE POLE
3 $	LINE VOLTAGE SWITCH - 3 WAY
D $	LINE VOLTAGE SWITCH - DIMMER
TO FAN $	LINE VOLTAGE SWITCH - SINGLE POLE - TO FAN
OC $	LINE VOLTAGE SWITCH - OCCUPANCY SENSOR
OCT	LINE VOLTAGE OCCUPANCY SENSOR & TIMER - CEILING MOUNTED
	PHOTOCELL
TC	ASTRONOMIC TIME SWITCH
SD SD-D SD-B SA SA/CO WG	CEILING MOUNT; SD: SMOKE DETECTOR - PHOTOELECTRIC; SD-D: DUCT TYPE PHOTOELECTRIC SMOKE DETECTOR; SD-B: BEAM TYPE SMOKE DETECTOR; SB: SMOKE DETECTOR c/w LOCAL SOUNDERBASE; SA: SMOKE ALARM; SA/CO: COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR; C: CONVENTIONAL; BLANK: ADDRESSABLE; WG: C/W WIRE GUARD
WP	WEATHER PROOF - OUTDOOR RATED

NOT ALL SYMBOLS APPLY TO FLOOR PLANS / DRAWINGS SEE SPECIFICATIONS FOR ALL CABLE TYPES

(04322) Data Device Schedule - Typical Suite Only

Level	Rm. #	Description	Pin Config.	Qty.
FFE Lower Level	106	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1
FFE Lower Level	108	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1
				2
FFE Ground Floor		OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1
FFE Ground Floor	112	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1
FFE Ground Floor	113	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1
FFE Ground Floor	114	OUTLET - TELEPHONE & DATA COMBINATION - WALL MOUNTED - ELEVATED		1
				4
2 - Floor		OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1
2 - Floor	224	OUTLET - TELEPHONE & DATA COMBINATION - WALL MOUNTED - ELEVATED		1
2 - Floor	225	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1
2 - Floor	228	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1
				4
Grand total				10

NOTES:
DATA DEVICE SCHEDULE ABOVE IS FOR TYPICAL SUITE TYPE AND DOES NOT REFLECT THE TOTAL QUANTITY OF DATA DEVICES REQUIRED
TOTAL NUMBER OF SUITES: 35

(04322) Electrical Receptacle Schedule - Typical Suite Only

Level	Rm. #	Qty.	Description	Pin Config.
FFE Lower Level		1	ELECTRIC DOOR BUZZER	ELECTRIC DOOR BUZZER
FFE Lower Level		1	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - GFCI - WEATHERPROOF c/w NEMA 4 ENCLOSURE	NEMA 5-15R
FFE Lower Level	106	5	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
FFE Lower Level	107	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A / GFCI	NEMA 5-15R
FFE Lower Level	108	1	ELECTRIC DOOR BELL	ELECTRIC DOOR BELL
FFE Lower Level	108	5	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
FFE Lower Level	108	1	RECEPTACLE - SINGLE - WALL MOUNTED - 208V 50A - COOKING RANGE	NEMA 14-50R
FFE Lower Level	108	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A / FRIDGE	NEMA 5-15R
FFE Lower Level	108	2	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 20A / GFCI / OVER COUNTER	NEMA 5-20R
		18		
FFE Ground Floor		2	ELECTRIC DOOR BUZZER	ELECTRIC DOOR BUZZER
FFE Ground Floor		1	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - GFCI - WEATHERPROOF c/w NEMA 4 ENCLOSURE	NEMA 5-15R
FFE Ground Floor		1	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
FFE Ground Floor	112	3	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
FFE Ground Floor	113	4	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
FFE Ground Floor	114	1	ELECTRIC DOOR BELL	ELECTRIC DOOR BELL
FFE Ground Floor	114	3	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
FFE Ground Floor	114	1	RECEPTACLE - SINGLE - WALL MOUNTED - 208V 50A - COOKING RANGE	NEMA 14-50R
FFE Ground Floor	114	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A / FRIDGE	NEMA 5-15R
FFE Ground Floor	114	2	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 20A / GFCI / OVER COUNTER	NEMA 5-20R
FFE Ground Floor	114	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 20A / OVER COUNTER	NEMA 5-20R
FFE Ground Floor	115	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A / GFCI	NEMA 5-15R
FFE Ground Floor	116	4	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
		25		
2 - Floor		1	ELECTRIC DOOR BELL	ELECTRIC DOOR BELL
2 - Floor		1	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
2 - Floor	223	2	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
2 - Floor	224	2	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
2 - Floor	224	1	RECEPTACLE - SINGLE - WALL MOUNTED - 208V 50A - COOKING RANGE	NEMA 14-50R
2 - Floor	224	1	RECEPTACLE / DUPLEX / UNDER COUNTER MNT. / 120V / 15A	NEMA 5-15R
2 - Floor	224	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A / FRIDGE	NEMA 5-15R
2 - Floor	224	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 20A / GFCI / OVER COUNTER	NEMA 5-20R
2 - Floor	224	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 20A / OVER COUNTER	NEMA 5-20R
2 - Floor	225	2	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
2 - Floor	226	4	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
2 - Floor	227	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A / GFCI	NEMA 5-15R
2 - Floor	228	4	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
		22		
Grand total		65		

NOTES:
RECEPTACLE SCHEDULE ABOVE IS FOR TYPICAL SUITE TYPE AND DOES NOT REFLECT THE TOTAL QUANTITY OF RECEPTACLES REQUIRED
TOTAL NUMBER OF SUITES: 35

3 / E-14 (04322) Building 4 - Level 2 - Power Plan - New
1 : 75

1 / E-14 (04322) Building 4 - Basement - Power Plan - New
1 : 75

2 / E-14 (04322) Building 4 - Level 1 - Power Plan - New
1 : 75

(04322) PROJECT DRAWING REGISTER

Sheet #	Sheet Name
E1/M1/P1	Project Cover
E2/M2/P2	Project Cover
M-3	HVAC - Specifications
M-4	HVAC - Specifications
M-5	HVAC - Scope of Work
M-6	HVAC - Scope of Work
M-7	HVAC - Bldg.1
M-8	HVAC - Bldg. 2
M-9	HVAC - Bldg. 3
M-10	HVAC - Bldg.4
M-11	HVAC - Bldg. 5
M-12	HVAC - Bldg.6
M-13	HVAC - Isometric & Elevation Views
M-14	HVAC Details
P-3	Plumbing - Specifications
P-4	Plumbing - Specifications
P-5	Plumbing - Site Plan
P-6	Plumbing - Bldg. 1
P-7	Plumbing - Bldg. 2
P-8	Plumbing - Bldg. 3
P-9	Plumbing - Bldg. 4
P-10	Plumbing -Bldg. 5
P-11	Plumbing - Bldg. 6
P-12	Plumbing -Typical Building
P-13	Plumbing - Details
P-14	Plumbing - Water Schematic
P-15	Plumbing - Sanitary Schematic
E-3	Elec. Power - Specifications
E-4	Elec. Power - Specifications
E-5	Elec. Power - Scope of Work
E-6	Electrical Site Plan
E-7	Elec. - SLD
E-8	Power/Comm - Bldg. 1
E-9	Elec. Lighting - Bldg 1
E-10	Power/Comm - Bldg. 2
E-11	Elec. Lighting - Bldg 2
E-12	Power/Comm - Bldg. 3
E-13	Elec. Lighting - Bldg 3
E-14	Power/Comm - Bldg. 4
E-15	Elec. Lighting - Bldg 4
E-16	Power/Comm. - Bldg. 5
E-17	Elec. Lighting - Bldg. 5
E-18	Power/Comm - Bldg. 6
E-19	Elec. Lighting - Bldg 6
E-20	Elec. Typical Building
E-21	Electrical Schedules
E-22	Electrical Details

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GENERAL DRAWING / DESIGNER NOTES:

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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. THE SHOP DWG REVIEW WILL NOT RELEASE THE CONTRACTOR FROM ESPONSIBILITY TO MAKE A FEASIBLE WORKING SYSTEM. THESE SHOP DRAWINGS SHALL CONSIST OF PLUMBING FIXTURES, HVAC EQUIPMENT, HVAC DIFFUSERS.
ALLOW MINIMUM 1-2 WEEKS FOR COMPLETION (BASED ON COMPLEXITY).

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DRAWING REVISIONS

No.	Description	Date
2	Issued for Review	Apr. 22/22
3	Preliminary for Review	Sep. 09/22
4	Issued for Permit	Oct. 05/22
5	Issued for Tender	May 18/23
6	Re-Issued for Tender	Dec. 20/24

Engineer's Seal:
LICENSED PROFESSIONAL ENGINEER
D. LONG
Dec. 20/24
PROVINCE OF ONTARIO

Client: WW Inc.

Address: Minden, ON

Project Name: Gull River Affordable Housing

Dwg. Name: Power/Comm - Bldg. 4

NSET Project #: 04322

Drawn by: Northstar Eng.	Checked by: D.B.D.
Scale: As indicated	Revision #: 6.0

Drawing #: E-14

Project Date: Jan. 14/22 Arch-D (24" x 36")

(04322) Lighting Fixture Schedule - Interior - Typical Suite Only

Level	Type	Qty.	Description	Fixture Finish	Color Temperature	Lumens	Voltage	VA	Manufacturer	Part #	Elevation of Light Source	Mounting Comments	Accessory 1	Lamping	Supplied By	Approved Alternate
FFE Lower Level	B	1	LUMINAIRE / INDOOR / VANITY / WALL / 24" LENGTH / LED DIRECT	BRUSHED NICKEL	3000 K	1300 lm	120 V	18 VA	LITHONIA LIGHTING	FMVCSL 24IN MVOLT 30K 90CRI BN M6	84"	WALL		LED 18W	DIV. 26	APPROVED EQUAL
B1 - U/S Cabinet	K	3	LUMINAIRE / INDOOR / TAPE / SURFACE / 18" LENGTH / LED DIRECT	WHITE	3500 K	400 lm	120 V	9 VA	LITHONIA LIGHTING	UCES 18IN SWW6 90CRI WH M6		CEILING / SURFACE		LED 8.4W	DIV. 26	APPROVED EQUAL
B1 - Ceiling	A1	1	LUMINAIRE / INDOOR / LINEAR / SURFACE / 24" LENGTH / LED DIRECT	WHITE	3500 K	940 lm	120 V	9 VA	LITHONIA LIGHTING	RLNK L24 120 35K 80 CRI M4		CEILING / SURFACE		LED 8.9W	DIV. 26	APPROVED EQUAL
B1 - Ceiling	L1	1	LUMINAIRE / INDOOR / DOME / SURFACE / 11" / LED DIRECT	WHITE	4000 K	1100 lm	120 V	16 VA	LITHONIA LIGHTING	FMLRL 11 14840 M4		CEILING / SURFACE		LED 16W	DIV. 26	APPROVED EQUAL
B1 - Ceiling	L2	3	LUMINAIRE / INDOOR / DOME / SURFACE / 14" / LED DIRECT	WHITE	4000 K	1600 lm	120 V	24 VA	LITHONIA LIGHTING	FMLRL 14 20840 M4		CEILING / SURFACE		LED 24W	DIV. 26	APPROVED EQUAL
FFE Ground Floor	B	1	LUMINAIRE / INDOOR / VANITY / WALL / 24" LENGTH / LED DIRECT	BRUSHED NICKEL	3000 K	1300 lm	120 V	18 VA	LITHONIA LIGHTING	FMVCSL 24IN MVOLT 30K 90CRI BN M6	84"	WALL		LED 18W	DIV. 26	APPROVED EQUAL
1 - U/S Cabinet	K	4	LUMINAIRE / INDOOR / TAPE / SURFACE / 18" LENGTH / LED DIRECT	WHITE	3500 K	400 lm	120 V	9 VA	LITHONIA LIGHTING	UCES 18IN SWW6 90CRI WH M6		CEILING / SURFACE		LED 8.4W	DIV. 26	APPROVED EQUAL
1 - Finished Ceiling	A1	2	LUMINAIRE / INDOOR / LINEAR / SURFACE / 24" LENGTH / LED DIRECT	WHITE	3500 K	940 lm	120 V	9 VA	LITHONIA LIGHTING	RLNK L24 120 35K 80 CRI M4		CEILING / SURFACE		LED 8.9W	DIV. 26	APPROVED EQUAL
1 - Finished Ceiling	L1	1	LUMINAIRE / INDOOR / DOME / SURFACE / 11" / LED DIRECT	WHITE	4000 K	1100 lm	120 V	16 VA	LITHONIA LIGHTING	FMLRL 11 14840 M4		CEILING / SURFACE		LED 16W	DIV. 26	APPROVED EQUAL
1 - Finished Ceiling	L2	6	LUMINAIRE / INDOOR / DOME / SURFACE / 14" / LED DIRECT	WHITE	4000 K	1600 lm	120 V	24 VA	LITHONIA LIGHTING	FMLRL 14 20840 M4		CEILING / SURFACE		LED 24W	DIV. 26	APPROVED EQUAL
2 - Floor	B	1	LUMINAIRE / INDOOR / VANITY / WALL / 24" LENGTH / LED DIRECT	BRUSHED NICKEL	3000 K	1300 lm	120 V	18 VA	LITHONIA LIGHTING	FMVCSL 24IN MVOLT 30K 90CRI BN M6	84"	WALL		LED 18W	DIV. 26	APPROVED EQUAL
2 - Floor	P	4	LUMINAIRE / INDOOR / PENDANT / SUSPENDED / LED DIRECT	WHITE	4000 K	4800 lm	120 V	34 VA	LITHONIA LIGHTING	VCVLLED-V4-P2-40K-80CRI-T5W-120-PM-DWHXD	108"	SUSPENDED		LED 34W	DIV. 26	APPROVED EQUAL
2 - U/S Cabinet	K	3	LUMINAIRE / INDOOR / TAPE / SURFACE / 18" LENGTH / LED DIRECT	WHITE	3500 K	400 lm	120 V	9 VA	LITHONIA LIGHTING	UCES 18IN SWW6 90CRI WH M6		CEILING / SURFACE		LED 8.4W	DIV. 26	APPROVED EQUAL
2 - Finished Ceiling	A1	1	LUMINAIRE / INDOOR / LINEAR / SURFACE / 24" LENGTH / LED DIRECT	WHITE	3500 K	940 lm	120 V	9 VA	LITHONIA LIGHTING	RLNK L24 120 35K 80 CRI M4		CEILING / SURFACE		LED 8.9W	DIV. 26	APPROVED EQUAL
2 - Finished Ceiling	L2	4	LUMINAIRE / INDOOR / DOME / SURFACE / 14" / LED DIRECT	WHITE	4000 K	1600 lm	120 V	24 VA	LITHONIA LIGHTING	FMLRL 14 20840 M4		CEILING / SURFACE		LED 24W	DIV. 26	APPROVED EQUAL
		36														

NOTES:
LIGHTING SCHEDULE ABOVE IS FOR TYPICAL SUITE TYPE AND DOES NOT REFLECT THE TOTAL QUANTITY OF LIGHTING FIXTURES REQUIRED
TOTAL NUMBER OF SUITES: 35

(MASTER-E) Fire Alarm Device Schedule

Level	Type Mark	Description	Circuit #	Qty.
2 - Finished Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1
2 - Finished Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1
2 - Finished Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1
1 - Finished Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	7	1
1 - Finished Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	7	1
1 - Finished Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	7	1
B1 - Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1
B1 - Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1
				8

NOTES:
FIRE ALARM SCHEDULE ABOVE IS FOR TYPICAL SUITE TYPE AND DOES NOT REFLECT THE TOTAL QUANTITY OF DEVICES REQUIRED
TOTAL NUMBER OF SUITES: 35

2 / E-15 (04322) Building 4 - Level 2 - RCP Lighting - New
1 : 75

1 / E-15 (04322) Building 4 - Basement - RCP Lighting - New
1 : 75

5 / E-15 (04322) Building 4 - Level 1 - RCP Lighting - New
1 : 75

(04322) PROJECT DRAWING REGISTER

Sheet #	Sheet Name
E1/M1/P1	Project Cover
E2/M2/P2	Project Cover
M-3	HVAC - Specifications
M-4	HVAC - Specifications
M-5	HVAC - Scope of Work
M-6	HVAC - Scope of Work
M-7	HVAC - Bldg.1
M-8	HVAC - Bldg. 2
M-9	HVAC - Bldg. 3
M-10	HVAC - Bldg.4
M-11	HVAC - Bldg. 5
M-12	HVAC - Bldg.6
M-13	HVAC - Isometric & Elevation Views
M-14	HVAC Details
P-3	Plumbing - Specifications
P-4	Plumbing - Specifications
P-5	Plumbing - Site Plan
P-6	Plumbing - Bldg. 1
P-7	Plumbing - Bldg. 2
P-8	Plumbing - Bldg. 3
P-9	Plumbing - Bldg. 4
P-10	Plumbing -Bldg. 5
P-11	Plumbing - Bldg. 6
P-12	Plumbing -Typical Building
P-13	Plumbing - Details
P-14	Plumbing - Water Schematic
P-15	Plumbing - Sanitary Schematic
E-3	Elec. Power - Specifications
E-4	Elec. Power - Specifications
E-5	Elec. Power - Scope of Work
E-6	Electrical Site Plan
E-7	Elec. - SLD
E-8	Power/Comm - Bldg. 1
E-9	Elec. Lighting - Bldg 1
E-10	Power/Comm - Bldg. 2
E-11	Elec. Lighting - Bldg 2
E-12	Power/Comm - Bldg. 3
E-13	Elec. Lighting - Bldg 3
E-14	Power/Comm - Bldg. 4
E-15	Elec. Lighting - Bldg 4
E-16	Power/Comm. - Bldg. 5
E-17	Elec. Lighting - Bldg. 5
E-18	Power/Comm - Bldg. 6
E-19	Elec. Lighting - Bldg 6
E-20	Elec. Typical Building
E-21	Electrical Schedules
E-22	Electrical Details

NORTHSTAR ENGINEERING & TECHNOLOGIES LTD.
92 Caplan Ave. Suite #517
Barrie, Ontario L4N 9J2
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Engineer's Seal:

LICENSED PROFESSIONAL ENGINEER
D. LONG
Dec. 20/24
PROVINCE OF ONTARIO

Client: WW Inc.

Address: Minden, ON

Project Name: Gull River Affordable Housing

Dwg. Name: Elec. Lighting - Bldg 4

NSET Project #: 04322

Drawn by: Northstar Eng. | Checked by: D.B.D.

Scale: As indicated | Revision #: 6.0

Drawing #: E-15

Project Date: Jan. 14/22 | Arch-D (24" x 36")

ELECTRICAL LEGEND

(OFFICES) A - 20,22 @450mm A.F.F.	ELECTRICAL CIRCUIT TAG: COMMENT; PANEL NAME; CIRCUIT#; JB ROUGH IN HEIGHT (CENTER LINE OF BOX) ABOVE FINISHED FLOOR - FOR WALL MOUNTED - IN mm
(OFFICES) FC-1-07 A - 20	MECHANICAL EQUIPMENT CIRCUIT TAG: AIR SYSTEM / COMMENT; MECHANICAL EQUIP. MARK / TYPE MARK; PANEL NAME; CIRCUIT #
(OFFICES) PB-1	ELECTRICAL EQUIPMENT TAG: COMMENTS; PANEL NAME. SEE SLD, SCHEDULES & PLAN VIEWS.
JB	JUNCTION BOX - WALL MOUNTED
JB	JUNCTION BOX - FLOOR MOUNTED
JB	JUNCTION BOX - CEILING MOUNTED
	DIRECT CONNECTION - SINGLE PHASE
	DIRECT CONNECTION - THREE PHASE
	DISCONNECT
	DIRECT CONNECTION c/w DISCONNECT
xxx	DUPLEX RECEPTACLE (REFER TO SCHEDULES FOR NEMA TYPE & AMPERAGE) x 1 - WALL MOUNTED. 'XXX' DENOTES: EX. - EXISTING; GFCI - GROUND FAULT CIRCUIT INTERRUPTER; AFCI - ARC FAULT CIRCUIT INTERRUPTER; ISO GD - ISOLATED GROUND; O/C - OVER COUNTER; U/C - UNDER COUNTER; W/P - WEATHER PROOF; TR - TAMPER RESISTANT; USB - CONTAINS USB PORTS
	DUPLEX RECEPTACLE SPLIT (INDIV. CIRCUITS) - WALL MOUNTED
	DUPLEX RECEPTACLE (120V, STD.) x 1 - FLOOR MOUNTED
	DUPLEX RECEPTACLE (120V, STD.) x 1 - CEILING MOUNTED
	DUPLEX RECEPTACLE (120V, STD.) x 1 CAB TIRE c/w STRAIN RELIEF - SUSPENDED MOUNT
	QUADPLEX RECEPTACLE (120V , STD.) x 1 - WALL MOUNTED
	QUADPLEX RECEPTACLE (120V, STD.) x 1 - FLOOR MOUNTED
	QUADPLEX RECEPTACLE (120V, STD.) x 1 - CEILING MOUNTED
xxx	SINGLE RECEPTACLE x 1 (WALL MOUNTED). 'XXX' DENOTES: OUTLET PURPOSE; VOLTAGE; AMPERAGE; SEE SYMBOL ON PLANS (REFER TO SCHEDULES FOR NEMA TYPE)
H	HANDICAP PUSH BUTTON - WALL MOUNTED
L	LOCK PUSH BUTTON - WALL MOUNTED
E	EMERGENCY CALL PUSH BUTTON - WALL MOUNTED
	DOME LIGHT (STROBE) WITH SOUNDER - WALL MOUNTED
TS	THERMOSTAT - SUPPLIED & INSTALLED BY DIV. 23; WIRE ≥ 30V - CONNECTION BY DIV. 26; WIRE ≤ 30V - CONNECTION BY DIV. 23

COMMUNICATIONS LEGEND

	TELEPHONE & DATA COMBINATION OUTLET - QUANTITY AS INDICATED - WALL MOUNTED
	TELEPHONE & DATA COMBINATION OUTLET - QUANTITY AS INDICATED - CEILING MOUNTED
	TELEPHONE & DATA COMBINATION OUTLET - QUANTITY AS INDICATED - FLOOR MOUNTED
	DATA OUTLET - QUANTITY AS INDICATED - CEILING MOUNTED
WAP	WIRELESS ACCESS POINT DATA OUTLET - QUANTITY AS INDICATED - CEILING MOUNTED
TV	COAX CABLE TV OUTLET - QUANTITY AS INDICATED - ROVIDE RG6 CABLE - WALL MOUNTED
TV	COAX CABLE TV OUTLET - QUANTITY AS INDICATED - ROVIDE RG6 CABLE - FLOOR MOUNTED
TV	COAX CABLE TV OUTLET - QUANTITY AS INDICATED - ROVIDE RG6 CABLE - CEILING MOUNTED
D/TV	DATA & COAX COMBINATION OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - WALL MOUNTED
D/TV	DATA & COAX COMBINATION OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - FLOOR MOUNTED
D/TV	DATA & COAX COMBINATION OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - CEILING MOUNTED

NOT ALL SYMBOLS APPLY TO FLOOR PLANS / DRAWINGS SEE SPECIFICATIONS FOR ALL CABLE TYPES

LIGHTING LEGEND

	LUMINAIRE - INTERIOR DOWNLIGHT - RECESSED - LED
	LUMINAIRE - INTERIOR DOWNLIGHT - SURFACE MOUNTED - LED
	LUMINAIRE - INTERIOR DOME - SURFACE MOUNTED - LED
	LUMINAIRE - INTERIOR LINEAR - SURFACE MOUNTED - LED
	LUMINAIRE - INTERIOR LINEAR - WALL MOUNTED - LED
	LUMINAIRE - INTERIOR LINEAR PENDANT - SUSPENDED - LED
	LUMINAIRE - INTERIOR TAPE - SURFACE MOUNTED - LED

EXTERIOR LIGHTING LEGEND

	LUMINAIRE - EXTERIOR WALL PACK - WALL MOUNTED - LED
	LUMINAIRE - EXTERIOR BOLLARD - LED
	LUMINAIRE - EXTERIOR POLE LIGHT - SINGLE HEAD - RECTANGULAR HEAD - LED

EXIT & EMERGENCY LIGHTING LEGEND

BATT.	EXIT SIGN - CEILING MOUNTED c/w BATTERY; DIRECTIONAL ARROW; INDICATES NUMBER OF EMERGENCY LIGHTS; HATCH INDICATES NUMBER OF SIDES/ FACES
BATT.	EXIT SIGN - WALL MOUNTED c/w BATTERY; DIRECTIONAL ARROW; INDICATES NUMBER OF EMERGENCY LIGHTS; HATCH INDICATES NUMBER OF SIDES/ FACES
	BATTERY UNIT - PLUG-IN c/w DUPLEX RECEPTACLE - WALL MOUNTED
	BATTERY UNIT c/w 2x EMERGENCY LIGHTS - PLUG-IN c/w DUPLEX RECEPTACLE - WALL MOUNTED
	EMERGENCY LIGHT - REMOTE DOUBLE HEADS - CEILING MOUNTED
	EMERGENCY LIGHT - REMOTE DOUBLE HEADS - WALL MOUNTED
	EMERGENCY LIGHT - REMOTE SINGLE HEAD - CEILING MOUNTED
	EMERGENCY LIGHT - REMOTE SINGLE HEAD - WALL MOUNTED

LIGHTING CONTROLS LEGEND

SW# 1 A B-30 @ 2100 mm AFF	LIGHTING CIRCUIT TAG: SWITCH GROUP; FIXTURE TYPE; PANEL NAME; CIRCUIT #; JB ROUGH IN HEIGHT (CENTER LINE OF BOX) ABOVE FINISHED FLOOR - WALL MOUNTED - IN mm
NL	TYP. LIGHT INDICATES "NIGHT LIGHT" TO REMAIN ACTIVE AT ALL TIMES
SW# 1	SWITCH TAG (#1 SWITCH GROUP - LIGHTS ASSOCIATED WILL ACTIVATE ON THIS SWITCH)
	EXTRA LOW VOLTAGE WIRE (ELV) <30V
	LOW VOLTAGE SWITCH WIRE ≥30 TO 750V
$	LINE VOLTAGE SWITCH - SINGLE POLE
3 $	LINE VOLTAGE SWITCH - 3 WAY
D $	LINE VOLTAGE SWITCH - DIMMER
SP/F $	LINE VOLTAGE SWITCH - SINGLE POLE - TO FAN
OC $	LINE VOLTAGE SWITCH - OCCUPANCY SENSOR
OCT	LINE VOLTAGE OCCUPANCY SENSOR & TIMER - CEILING MOUNTED
	PHOTOCELL
TC	ASTRONOMIC TIME SWITCH
SD SC BG	CEILING MOUNT: SD: SMOKE DETECTOR - PHOTOELECTRIC; SD-D: DUCT TYPE PHOTOELECTRIC SMOKE DETECTOR; SD-B: BEAM TYPE SMOKE DETECTOR; SB: SMOKE DETECTOR c/w LOCAL SOUNDERBASE; SA: SMOKE ALARM; SA/CO: COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR; C: CONVENTIONAL; BLANK: ADDRESSABLE; WG: C/W WIRE GUARD
WP	WEATHER PROOF - OUTDOOR RATED

NOT ALL SYMBOLS APPLY TO FLOOR PLANS / DRAWINGS SEE SPECIFICATIONS FOR ALL CABLE TYPES

SECURITY LEGEND

SC	SECURITY CAMERA
ES	ELECTRIC LOCK
KP	KEYPAD ACCESS
CR	CARD READER
MS	MOTION SENSOR
DC	DOOR CONTACT
PE	PUSH TO EXIT
SP	SECURITY PANEL
S-LOCK	MAG - LOCK DOOR
ADC	AUTOMATIC DOOR CONTROL

NOT ALL SYMBOLS APPLY TO FLOOR PLANS / DRAWINGS SEE SPECIFICATIONS FOR ALL CABLE TYPES

(04322) Electrical Receptacle Schedule - Service & Common Araes

Level	Rm. #	Qty.	Description	Pin Config.
FFE Lower Level		3	ELECTRICAL DISCONNECT	
FFE Lower Level	137	3	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A	NEMA 5-15R
FFE Lower Level	138	4	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A	NEMA 5-15R
		10		
FFE Ground Floor		1	DIRECT CONNECTION - 208V 3Ø	DIRECT CONNECTION
FFE Ground Floor		1	HANDICAP DOOR PUSH BUTTON	HANDICAP DOOR PUSH BUTTON
FFE Ground Floor		1	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - GFCI - WEATHERPROOF c/w NEMA 4 ENCLOSURE	NEMA 5-15R
FFE Ground Floor	142	1	AUTOMATIC DOOR OPERATOR	BY OTHERS
FFE Ground Floor	142	1	HANDICAP DOOR PUSH BUTTON	HANDICAP DOOR PUSH BUTTON
FFE Ground Floor	142	1	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A	NEMA 5-15R
FFE Ground Floor	142	4	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - CLOTHES WASHER	NEMA 5-15R
FFE Ground Floor	142	4	RECEPTACLE - SINGLE - WALL MOUNTED - 208V 30A	NEMA 14-30R
FFE Ground Floor	143	1	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A	NEMA 5-15R
FFE Ground Floor	143	2	RECEPTACLE - QUADPLEX - WALL MOUNTED - 120V 15A - ELEVATED	NEMA 5-15R
FFE Ground Floor	144	1	AUTOMATIC DOOR OPERATOR	BY OTHERS
FFE Ground Floor	144	1	DOOR LOCK PUSH BUTTON	DOOR LOCK PUSH BUTTON
FFE Ground Floor	144	1	EMERGENCY CALL PUSH BUTTON	EMERGENCY CALL PUSH BUTTON
FFE Ground Floor	144	1	HANDICAP DOOR PUSH BUTTON	HANDICAP DOOR PUSH BUTTON
FFE Ground Floor	144	2	JUNCTION BOX - WALL MOUNTED - 120V 1Ø	JUNCTION BOX
FFE Ground Floor	144	1	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - GFCI	NEMA 5-15R
FFE Ground Floor	144	1	UNIVERSAL WASHROOM - DOME LIGHT WITH SOUNDER	DOME LIGHT WITH SOUNDER
FFE Ground Floor	145	1	HANDICAP DOOR PUSH BUTTON	HANDICAP DOOR PUSH BUTTON
FFE Ground Floor	145	2	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A	NEMA 5-15R
FFE Ground Floor	145	1	UNIVERSAL WASHROOM - DOME LIGHT WITH SOUNDER	DOME LIGHT WITH SOUNDER
		29		
Grand total		39		

NOTES:
RECEPTACLE SCHEDULE ABOVE IS FOR SERVICE & COMMON AREAS ONLY

(04322) PROJECT DRAWING REGISTER

Sheet #	Sheet Name
E1/M1/P1	Project Cover
E2/M2/P2	Project Cover
M-3	HVAC - Specifications
M-4	HVAC - Specifications
M-5	HVAC - Scope of Work
M-6	HVAC - Scope of Work
M-7	HVAC - Bldg.1
M-8	HVAC - Bldg. 2
M-9	HVAC - Bldg. 3
M-10	HVAC - Bldg.4
M-11	HVAC - Bldg. 5
M-12	HVAC - Bldg.6
M-13	HVAC - Isometric & Elevation Views
M-14	HVAC Details
P-3	Plumbing - Specifications
P-4	Plumbing - Specifications
P-5	Plumbing - Site Plan
P-6	Plumbing - Bldg. 1
P-7	Plumbing - Bldg. 2
P-8	Plumbing - Bldg. 3
P-9	Plumbing - Bldg. 4
P-10	Plumbing -Bldg. 5
P-11	Plumbing - Bldg. 6
P-12	Plumbing -Typical Building
P-13	Plumbing - Details
P-14	Plumbing - Water Schematic
P-15	Plumbing - Sanitary Schematic
E-3	Elec. Power - Specifications
E-4	Elec. Power - Specifications
E-5	Elec. Power - Scope of Work
E-6	Electrical Site Plan
E-7	Elec. - SLD
E-8	Power/Comm - Bldg. 1
E-9	Elec. Lighting - Bldg 1
E-10	Power/Comm - Bldg. 2
E-11	Elec. Lighting - Bldg 2
E-12	Power/Comm - Bldg. 3
E-13	Elec. Lighting - Bldg 3
E-14	Power/Comm - Bldg. 4
E-15	Elec. Lighting - Bldg 4
E-16	Power/Comm. - Bldg. 5
E-17	Elec. Lighting - Bldg. 5
E-18	Power/Comm - Bldg. 6
E-19	Elec. Lighting - Bldg 6
E-20	Elec. Typical Building
E-21	Electrical Schedules
E-22	Electrical Details

3 / E-16 (04322) Building 5 - Level 2 - Power Plan - New
1 : 75

4 / E-16 (04322) Unit 5 Main Floor - Power Plan - New - Elec. Room Callout
1 : 37

1 / E-16 (04322) Building 5 - Basement - Power Plan - New
1 : 75

2 / E-16 (04322) Building 5 - Level 1 - Power Plan - New
1 : 75

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ALLOW MINIMUM 1-2 WEEKS FOR COMPLETION (BASED ON COMPLEXITY).

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[15] TENDER PRICING BY CONTRACTORS OF DRAWINGS TO BE BASED ON DWGS MARKED "ISSUED FOR TENDER" OR "ISSUED FOR CONSTRUCTION" ONLY.

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DRAWING REVISIONS

No.	Description	Date
2	Issued for Review	Apr. 22/22
3	Preliminary for Review	Sep. 09/22
4	Issued for Permit	Oct. 05/22
5	Issued for Tender	May 18/23
6	Re-Issued for Tender	Dec. 20/24

Engineer's Seal:
PROFESSIONAL ENGINEER D. LONG Dec. 20/24 PROVINCE OF ONTARIO

Client: WW Inc.

Address: Minden, ON

Project Name: Gull River Affordable Housing

Dwg. Name: Power/Comm. - Bldg. 5

NSET Project #: 04322

Drawn by: Northstar Eng. | Checked by: D.B.D.
Scale: As indicated | Revision #: 6.0

Drawing #: E-16

Project Date: Jan. 14/22 | Arch-D (24" x 36")

(04322) Lighting Fixture Schedule - Interior - Service & Common Araes

Level	Type	Qty.	Description	Fixture Finish	Color Temperature	Lumens	Voltage	VA	Manufacturer	Part #	Elevation of Light Source	Mounting Comments	Accessory 1	Lamping	Supplied By	Approved Alternate
FFE Lower Level	C	2	LUMINAIRE / INDOOR / LINEAR / WALL / 48" LENGTH / LED DIRECT	WHITE	3500 K	1950 lm	120 V	20 VA	LITHONIA LIGHTING	RLNK L48 120 35K 80 CRI M4	<varies>	WALL		LED 20W	DIV. 26	APPROVED EQUAL
B1 - Ceiling	E1	2	EXIT SIGN COMBO / cw BATT. & DBL. EMERG. LIGHT / CEILING / GREEN PICTOGRAM / SINGLE FACE / STRAIGHT-THRU / 120V / 12V-80W BATTERY / 12V-6W LED / WHITE				120 V	30 VA	LUMACELL	LSC1280W2LD10				2xMR16 LED 12V-6W	DIV. 26	
B1 - Finished Ceiling	A2	5	LUMINAIRE / INDOOR / LINEAR / SURFACE / 48" LENGTH / LED DIRECT	WHITE	3500 K	1950 lm	120 V	20 VA	LITHONIA LIGHTING	RLNK L48 120 35K 80 CRI M4		CEILING / SURFACE		LED 20W	DIV. 26	APPROVED EQUAL
1 - U/S Landing	E4	1	EXIT SIGN COMBO / cw BATT. & DBL. EMERG. LIGHT / CEILING / GREEN PICTOGRAM / DOUBLE FACE / RIGHT ARROW / 120V / 12V-80W BATTERY / 12V-6W LED / WHITE				120 V	30 VA	LUMACELL	LSC1280W2LD10DF				2xMR16 LED 12V-6W	DIV. 26	
FFE Ground Floor	B	1	LUMINAIRE / INDOOR / VANITY / WALL / 24" LENGTH / LED DIRECT	BRUSHED NICKEL	3000 K	1300 lm	120 V	18 VA	LITHONIA LIGHTING	FMVCSL 24IN MVOLT 30K 90CRI BN M6	96"	WALL		LED 18W	DIV. 26	APPROVED EQUAL
FFE Ground Floor	C	1	LUMINAIRE / INDOOR / LINEAR / WALL / 48" LENGTH / LED DIRECT	WHITE	3500 K	1950 lm	120 V	20 VA	LITHONIA LIGHTING	RLNK L48 120 35K 80 CRI M4	86 5/8"	WALL		LED 20W	DIV. 26	APPROVED EQUAL
FFE Ground Floor	E2	1	EMERG. LIGHT / WALL / REMOTE DOUBLE HEAD / 12V / WHITE				12 V	12 VA	LUMACELL	MQM2LD10				2xMR16 LED	DIV. 26	
FFE Ground Floor	E3	1	EMERG. LIGHT / WALL / REMOTE SINGLE HEAD / 12V / WHITE				12 V	6 VA	LUMACELL	MQM1LD10				1xMR16 LED	DIV. 26	
1 - Finished Ceiling	A2	1	LUMINAIRE / INDOOR / LINEAR / SURFACE / 48" LENGTH / LED DIRECT	WHITE	3500 K	1950 lm	120 V	20 VA	LITHONIA LIGHTING	RLNK L48 120 35K 80 CRI M4		CEILING / SURFACE		LED 20W	DIV. 26	APPROVED EQUAL
1 - Finished Ceiling	E1	2	EXIT SIGN COMBO / cw BATT. & DBL. EMERG. LIGHT / CEILING / GREEN PICTOGRAM / SINGLE FACE / STRAIGHT-THRU / 120V / 12V-80W BATTERY / 12V-6W LED / WHITE				120 V	30 VA	LUMACELL	LSC1280W2LD10				2xMR16 LED 12V-6W	DIV. 26	
1 - Finished Ceiling	L2	5	LUMINAIRE / INDOOR / DOME / SURFACE / 14" / LED DIRECT	WHITE	4000 K	1600 lm	120 V	24 VA	LITHONIA LIGHTING	FMLRL 14 20840 M4		CEILING / SURFACE		LED 24W	DIV. 26	APPROVED EQUAL
1 - Finished Ceiling	TC	1	ASTRONOMIC TIME SWITCH				120 V	3,600 VA	INTERMATIC	ET8000 SERIES					DIV. 26	
		23														

(MASTER-E) Fire Alarm Device Schedule

Level	Type Mark	Description	Circuit #	Qty.
1 - Finished Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1
1 - Finished Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1
1 - Finished Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1
1 - Finished Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1
				4

3 E-17 (04322) Building 5 - Level 2 - RCP Lighting - New
1 : 75

NOTES:
CONCEPTUAL CONTROL CIRCUIT FOR DELAY-OFF EXHAUST FANS.

SEE PLANS FOR QUANTITY, LOCATIONS, & CIRCUITS FOR LIGHTS & FANS.

IF LOADS EXCEED CONTACT CURRENT RATING; ADD ADDITIONAL CONTACTORS ON LIGHT/FAN POWER SUPPLIES.

OMRON SOLID-STATE MULTI-FUNCTIONAL TIMER
H3CR-AP (MODE 'D')
100 to 240 VAC (50/60 Hz)/100 to 125 VDC
TIME LIMIT CONTACTS:
5 A @ 250 VAC/30 VDC,
0.15 A @ 125 VDC, RESISTIVE LOAD

OCCUPANCY SENSOR
MFG: WATTSTOPPER
MODEL: DT-355

5 E-17 Fan Control / Occ Sensor Light Control c/w Delay-Off Fan
N.T.S.

1 E-17 (04322) Building 5 - Basement - RCP Lighting - New
1 : 75

4 E-17 (04322) Unit 5 - Staiwell Section
1 : 75

2 E-17 (04322) Building 5 - Level 1 - RCP Lighting - New
1 : 75

(04322) PROJECT DRAWING REGISTER

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M-14	HVAC Details
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E-12	Power/Comm - Bldg. 3
E-13	Elec. Lighting - Bldg 3
E-14	Power/Comm - Bldg. 4
E-15	Elec. Lighting - Bldg 4
E-16	Power/Comm. - Bldg. 5
E-17	Elec. Lighting - Bldg. 5
E-18	Power/Comm - Bldg. 6
E-19	Elec. Lighting - Bldg 6
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E-22	Electrical Details

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3	Preliminary for Review	Sep. 09/22
4	Issued for Permit	Oct. 05/22
5	Issued for Tender	May 18/23
6	Re-Issued for Tender	Dec. 20/24

Engineer's Seal:

Client: WW Inc.

Address: Minden, ON

Project Name: Gull River Affordable Housing

Dwg. Name: Elec. Lighting - Bldg. 5

NSET Project #: 04322

Drawn by:	Northstar Eng.	Checked by:	J.D.L.
Scale:	As indicated	Revision #:	6.0

Drawing #: E-17

Project Date: Jan. 14/22 Arch-D (24" x 36")

ELECTRICAL LEGEND

(OFFICES) A - 20,22 @450mm A.F.F.	ELECTRICAL CIRCUIT TAG: COMMENT; PANEL NAME; CIRCUIT#; JB ROUGH IN HEIGHT (CENTER LINE OF BOX) ABOVE FINISHED FLOOR - FOR WALL MOUNTED - IN mm
(OFFICES) FC-1-07 A - 20	MECHANICAL EQUIPMENT CIRCUIT TAG: AIR SYSTEM / COMMENT; MECHANICAL EQUIP. MARK / TYPE MARK; PANEL NAME; CIRCUIT #
(OFFICES) PB-1	ELECTRICAL EQUIPMENT TAG: COMMENTS; PANEL NAME. SEE SLD, SCHEDULES & PLAN VIEWS.
JB	JUNCTION BOX - WALL MOUNTED
JB	JUNCTION BOX - FLOOR MOUNTED
JB	JUNCTION BOX - CEILING MOUNTED
	DIRECT CONNECTION - SINGLE PHASE
	DIRECT CONNECTION - THREE PHASE
	DISCONNECT
	DIRECT CONNECTION c/w DISCONNECT
xxx	DUPLEX RECEPTACLE (REFER TO SCHEDULES FOR NEMA TYPE & AMPERAGE) x 1 - WALL MOUNTED. 'XXX' DENOTES: EX. - EXISTING; GFCI - GROUND FAULT CIRCUIT INTERRUPTER; AFCI - ARC FAULT CIRCUIT INTERRUPTER; ISO GD - ISOLATED GROUND; O/C - OVER COUNTER; U/C - UNDER COUNTER; W/P - WEATHER PROOF; TR - TAMPER RESISTANT; USB - CONTAINS USB PORTS
	DUPLEX RECEPTACLE SPLIT (INDIV. CIRCUITS) - WALL MOUNTED
	DUPLEX RECEPTACLE (120V, STD.) x 1 - FLOOR MOUNTED
	DUPLEX RECEPTACLE (120V, STD.) x 1 - CEILING MOUNTED
	DUPLEX RECEPTACLE (120V, STD.) x 1 CAB TIRE c/w STRAIN RELIEF - SUSPENDED MOUNT
	QUADPLEX RECEPTACLE (120V , STD.) x 1 - WALL MOUNTED
	QUADPLEX RECEPTACLE (120V, STD.) x 1 - FLOOR MOUNTED
	QUADPLEX RECEPTACLE (120V, STD.) x 1 - CEILING MOUNTED
xxx	SINGLE RECEPTACLE x 1 (WALL MOUNTED). 'XXX' DENOTES: OUTLET PURPOSE; VOLTAGE; AMPERAGE; SEE SYMBOL ON PLANS (REFER TO SCHEDULES FOR NEMA TYPE)
H	HANDICAP PUSH BUTTON - WALL MOUNTED
L	LOCK PUSH BUTTON - WALL MOUNTED
E	EMERGENCY CALL PUSH BUTTON - WALL MOUNTED
	DOME LIGHT (STROBE) WITH SOUNDER - WALL MOUNTED
TS	THERMOSTAT - SUPPLIED & INSTALLED BY DIV. 23. WIRE > 30V - CONNECTION BY DIV. 26. WIRE ≤ 30V - CONNECTION BY DIV. 23

COMMUNICATIONS LEGEND

	TELEPHONE & DATA COMBINATION OUTLET - QUANTITY AS INDICATED - WALL MOUNTED
	TELEPHONE & DATA COMBINATION OUTLET - QUANTITY AS INDICATED - CEILING MOUNTED
	TELEPHONE & DATA COMBINATION OUTLET - QUANTITY AS INDICATED - FLOOR MOUNTED
	DATA OUTLET - QUANTITY AS INDICATED - CEILING MOUNTED
WAP	WIRELESS ACCESS POINT DATA OUTLET - QUANTITY AS INDICATED - CEILING MOUNTED
TV	COAX CABLE TV OUTLET - QUANTITY AS INDICATED - ROVIDE RG6 CABLE - WALL MOUNTED
TV	COAX CABLE TV OUTLET - QUANTITY AS INDICATED - ROVIDE RG6 CABLE - FLOOR MOUNTED
TV	COAX CABLE TV OUTLET - QUANTITY AS INDICATED - ROVIDE RG6 CABLE - CEILING MOUNTED
D/TV	DATA & COAX COMBINATION OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - WALL MOUNTED
D/TV	DATA & COAX COMBINATION OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - FLOOR MOUNTED
D/TV	DATA & COAX COMBINATION OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - CEILING MOUNTED

NOT ALL SYMBOLS APPLY TO FLOOR PLANS / DRAWINGS SEE SPECIFICATIONS FOR ALL CABLE TYPES

LIGHTING LEGEND

	LUMINAIRE - INTERIOR DOWNLIGHT - RECESSED - LED
	LUMINAIRE - INTERIOR DOWNLIGHT - SURFACE MOUNTED - LED
	LUMINAIRE - INTERIOR DOME - SURFACE MOUNTED - LED
	LUMINAIRE - INTERIOR LINEAR - SURFACE MOUNTED - LED
	LUMINAIRE - INTERIOR LINEAR - WALL MOUNTED - LED
	LUMINAIRE - INTERIOR LINEAR PENDANT - SUSPENDED - LED
	LUMINAIRE - INTERIOR TAPE - SURFACE MOUNTED - LED

EXTERIOR LIGHTING LEGEND

	LUMINAIRE - EXTERIOR WALL PACK - WALL MOUNTED - LED
	LUMINAIRE - EXTERIOR BOLLARD - LED
	LUMINAIRE - EXTERIOR POLE LIGHT - SINGLE HEAD - RECTANGULAR HEAD - LED

EXIT & EMERGENCY LIGHTING LEGEND

BATT.	EXIT SIGN - CEILING MOUNTED; DIRECTIONAL ARROW; INDICATES NUMBER OF EMERGENCEY LIGHTS c/w BATTERY; HATCH INDICATES NUMBER OF SIDES/ FACES
BATT.	EXIT SIGN - WALL MOUNTED c/w BATTERY; DIRECTIONAL ARROW; INDICATES NUMBER OF EMERGENCY LIGHTS; HATCH INDICATES NUMBER OF SIDES/ FACES
	BATTERY UNIT - PLUG-IN c/w DUPLEX RECEPTACLE - WALL MOUNTED
	BATTERY UNIT c/w 2x EMERGENCY LIGHTS - PLUG-IN c/w DUPLEX RECEPTACLE - WALL MOUNTED
	EMERGERGENCY LIGHT - REMOTE DOUBLE HEADS - CEILING MOUNTED
	EMERGERGENCY LIGHT - REMOTE DOUBLE HEADS - WALL MOUNTED
	EMERGERGENCY LIGHT - REMOTE SINGLE HEAD - CEILING MOUNTED
	EMERGERGENCY LIGHT - REMOTE SINGLE HEAD - WALL MOUNTED

LIGHTING CONTROLS LEGEND

SW# 1 "A" B-30 @ 2100 mm AFF	LIGHTING CIRCUIT TAG: SWITCH GROUP; FIXTURE TYPE; PANEL NAME; CIRCUIT #; JB ROUGH IN HEIGHT (CENTER LINE OF BOX) ABOVE FINISHED FLOOR - WALL MOUNTED - IN mm
NL	TYP. LIGHT; INDICATES "NIGHT LIGHT" TO REMAIN ACTIVE AT ALL TIMES
SW# 1	SWITCH TAG (#1 SWITCH GROUP - LIGHTS ASSOCIATED WILL ACTIVATE ON THIS SWITCH)
	EXTRA LOW VOLTAGE WIRE (ELV) <30V
	LOW VOLTAGE SWITCH WIRE ≥30 TO 750V
$	LINE VOLTAGE SWITCH - SINGLE POLE
3 $	LINE VOLTAGE SWITCH - 3 WAY
D $	LINE VOLTAGE SWITCH - DIMMER
TO FAN $	LINE VOLTAGE SWITCH - SINGLE POLE - TO FAN
OC $	LINE VOLTAGE SWITCH - OCCUPANCY SENSOR
OCT	LINE VOLTAGE OCCUPANCY SENSOR & TIMER - CEILING MOUNTED
	PHOTOCELL
TC	ASTRONOMIC TIME SWITCH
SD SD SA SA SA/CO SB SB SB WG	CEILING MOUNT; SD: SMOKE DETECTOR - PHOTOELECTRIC; SD D: DUCT TYPE PHOTOELECTRIC SMOKE DETECTOR; SD B: BEAM TYPE SMOKE DETECTOR; SB: SMOKE DETECTOR c/w LOCAL SOUNDERBASE; SA: SMOKE ALARM; SA/CO: COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR; C: CONVENTIONAL; BLANK: ADDRESSABLE; WG: C/W WIRE GUARD
WP	WEATHER PROOF - OUTDOOR RATED

NOT ALL SYMBOLS APPLY TO FLOOR PLANS / DRAWINGS SEE SPECIFICATIONS FOR ALL CABLE TYPES

(04322) Data Device Schedule - Typical Suite Only

Level	Rm. #	Description	Pin Config.	Qty.
FFE Lower Level	106	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1
FFE Lower Level	108	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1
				2
FFE Ground Floor		OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1
FFE Ground Floor	112	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1
FFE Ground Floor	113	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1
FFE Ground Floor	114	OUTLET - TELEPHONE & DATA COMBINATION - WALL MOUNTED - ELEVATED		1
				4
2 - Floor		OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1
2 - Floor	224	OUTLET - TELEPHONE & DATA COMBINATION - WALL MOUNTED - ELEVATED		1
2 - Floor	225	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1
2 - Floor	228	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1
				4
Grand total				10

NOTES:
DATA DEVICE SCHEDULE ABOVE IS FOR TYPICAL SUITE TYPE AND DOES NOT REFLECT THE TOTAL QUANTITY OF DATA DEVICES REQUIRED
TOTAL NUMBER OF SUITES: 35

(04322) Electrical Receptacle Schedule - Typical Suite Only

Level	Rm. #	Qty.	Description	Pin Config.
FFE Lower Level		1	ELECTRIC DOOR BUZZER	ELECTRIC DOOR BUZZER
FFE Lower Level		1	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - GFCI - WEATHERPROOF c/w NEMA 4 ENCLOSURE	NEMA 5-15R
FFE Lower Level	106	5	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A - TAMPER RESISTANT	NEMA 5-15R
FFE Lower Level	107	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A / GFCI	NEMA 5-15R
FFE Lower Level	108	1	ELECTRIC DOOR BELL	ELECTRIC DOOR BELL
FFE Lower Level	108	5	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
FFE Lower Level	108	1	RECEPTACLE - SINGLE - WALL MOUNTED - 208V 50A - COOKING RANGE	NEMA 14-50R
FFE Lower Level	108	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A / FRIDGE	NEMA 5-15R
FFE Lower Level	108	2	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 20A / GFCI / OVER COUNTER	NEMA 5-20R
		18		
FFE Ground Floor		2	ELECTRIC DOOR BUZZER	ELECTRIC DOOR BUZZER
FFE Ground Floor		1	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - GFCI - WEATHERPROOF c/w NEMA 4 ENCLOSURE	NEMA 5-15R
FFE Ground Floor		1	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
FFE Ground Floor	112	3	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
FFE Ground Floor	113	4	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
FFE Ground Floor	114	1	ELECTRIC DOOR BELL	ELECTRIC DOOR BELL
FFE Ground Floor	114	3	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
FFE Ground Floor	114	1	RECEPTACLE - SINGLE - WALL MOUNTED - 208V 50A - COOKING RANGE	NEMA 14-50R
FFE Ground Floor	114	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A / FRIDGE	NEMA 5-15R
FFE Ground Floor	114	2	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 20A / GFCI / OVER COUNTER	NEMA 5-20R
FFE Ground Floor	114	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 20A / OVER COUNTER	NEMA 5-20R
FFE Ground Floor	115	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A / GFCI	NEMA 5-15R
FFE Ground Floor	116	4	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
		25		
2 - Floor		1	ELECTRIC DOOR BELL	ELECTRIC DOOR BELL
2 - Floor		1	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
2 - Floor	223	2	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
2 - Floor	224	2	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
2 - Floor	224	1	RECEPTACLE - SINGLE - WALL MOUNTED - 208V 50A - COOKING RANGE	NEMA 14-50R
2 - Floor	224	1	RECEPTACLE / DUPLEX / UNDER COUNTER MNT. / 120V / 15A	NEMA 5-15R
2 - Floor	224	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A / FRIDGE	NEMA 5-15R
2 - Floor	224	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 20A / GFCI / OVER COUNTER	NEMA 5-20R
2 - Floor	224	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 20A / OVER COUNTER	NEMA 5-20R
2 - Floor	225	2	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
2 - Floor	226	4	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
2 - Floor	227	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A / GFCI	NEMA 5-15R
2 - Floor	228	4	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R
		22		
Grand total		65		

NOTES:
RECEPTACLE SCHEDULE ABOVE IS FOR TYPICAL SUITE TYPE AND DOES NOT REFLECT THE TOTAL QUANTITY OF RECEPTACLES REQUIRED
TOTAL NUMBER OF SUITES: 35

1 E-18 (04322) Building 6 - Basement - Power Plan - New
1 : 75

3 E-18 (04322) Building 6 - Level 2 - Power Plan - New
1 : 75

2 E-18 (04322) Building 6 - Level 1 - Power Plan - New
1 : 75

(04322) PROJECT DRAWING REGISTER

Sheet #	Sheet Name
E1/M1/P1	Project Cover
E2/M2/P2	Project Cover
M-3	HVAC - Specifications
M-4	HVAC - Specifications
M-5	HVAC - Scope of Work
M-6	HVAC - Scope of Work
M-7	HVAC - Bldg.1
M-8	HVAC - Bldg. 2
M-9	HVAC - Bldg. 3
M-10	HVAC - Bldg.4
M-11	HVAC - Bldg. 5
M-12	HVAC - Bldg.6
M-13	HVAC - Isometric & Elevation Views
M-14	HVAC Details
P-3	Plumbing - Specifications
P-4	Plumbing - Specifications
P-5	Plumbing - Site Plan
P-6	Plumbing - Bldg. 1
P-7	Plumbing - Bldg. 2
P-8	Plumbing - Bldg. 3
P-9	Plumbing - Bldg. 4
P-10	Plumbing -Bldg. 5
P-11	Plumbing - Bldg. 6
P-12	Plumbing -Typical Building
P-13	Plumbing - Details
P-14	Plumbing - Water Schematic
P-15	Plumbing - Sanitary Schematic
E-3	Elec. Power - Specifications
E-4	Elec. Power - Specifications
E-5	Elec. Power - Scope of Work
E-6	Electrical Site Plan
E-7	Elec. - SLD
E-8	Power/Comm - Bldg. 1
E-9	Elec. Lighting - Bldg 1
E-10	Power/Comm - Bldg. 2
E-11	Elec. Lighting - Bldg 2
E-12	Power/Comm - Bldg. 3
E-13	Elec. Lighting - Bldg 3
E-14	Power/Comm - Bldg. 4
E-15	Elec. Lighting - Bldg 4
E-16	Power/Comm. - Bldg. 5
E-17	Elec. Lighting - Bldg 5
E-18	Power/Comm - Bldg. 6
E-19	Elec. Lighting - Bldg 6
E-20	Elec. Typical Building
E-21	Electrical Schedules
E-22	Electrical Details

NORTHSTAR ENGINEERING & TECHNOLOGIES LTD.
92 Caplan Ave. Suite #517
Barrie, Ontario L4N 9J2
Tel. (705) 719-1003 Fax (705) 719-0490
dlong@nset.ca www.nset.ca

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ALLOW MINIMUM 1-2 WEEKS FOR COMPLETION (BASED ON COMPLEXITY).

[9] THE DESIGNER DOES NOT ACCEPT RESPONSIBILITY FOR OTHER DESIGNER'S WORK IN ASSOCIATION WITH THIS PROJECT.

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[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 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 DRAWINGS TO BE BASED ON DWGS MARKED "ISSUED FOR TENDER" OR "ISSUED FOR CONSTRUCTION" ONLY.

[16] ALL REQUESTS FOR DESIGN CHANGES / SUBSTITUTIONS TO BE MADE IN WRITING. ADDITIONAL FEES MAY APPLY. ALLOW MINIMUM (1) ONE WEEK TO REVIEW AND RESPOND TO CHANGE REQUESTS.

DRAWING REVISIONS

No.	Description	Date
2	Issued for Review	Apr. 22/22
3	Preliminary for Review	Sep. 09/22
4	Issued for Permit	Oct. 05/22
5	Issued for Tender	May 18/23
6	Re-Issued for Tender	Dec. 20/24

Engineer's Seal:
LICENSED PROFESSIONAL ENGINEER D. LONG Dec. 20/24 PROVINCE OF ONTARIO

Client: WW Inc.

Address: Minden, ON

Project Name: Gull River Affordable Housing

Dwg. Name: Power/Comm - Bldg. 6

NSET Project #: 04322

Drawn by: Northstar Eng. | Checked by: D.B.D.

Scale: As indicated | Revision #: 6.0

Drawing #: E-18

Project Date: Jan. 14/22 | Arch-D (24" x 36")

(04322) Lighting Fixture Schedule - Interior - Typical Suite Only

Level	Type	Qty.	Description	Fixture Finish	Color Temperature	Lumens	Voltage	VA	Manufacturer	Part #	Elevation of Light Source	Mounting Comments	Accessory 1	Lamping	Supplied By	Approved Alternate
FFE Lower Level	B	1	LUMINAIRE / INDOOR / VANITY / WALL / 24" LENGTH / LED DIRECT	BRUSHED NICKEL	3000 K	1300 lm	120 V	18 VA	LITHONIA LIGHTING	FMVCSL 24IN MVOLT 30K 90CRI BN M6	84"	WALL		LED 18W	DIV. 26	APPROVED EQUAL
B1 - U/S Cabinet	K	3	LUMINAIRE / INDOOR / TAPE / SURFACE / 18" LENGTH / LED DIRECT	WHITE	3500 K	400 lm	120 V	9 VA	LITHONIA LIGHTING	UCES 18IN SWW6 90CRI WH M6		CEILING / SURFACE		LED 8.4W	DIV. 26	APPROVED EQUAL
B1 - Ceiling	A1	1	LUMINAIRE / INDOOR / LINEAR / SURFACE / 24" LENGTH / LED DIRECT	WHITE	3500 K	940 lm	120 V	9 VA	LITHONIA LIGHTING	RLNK L24 120 35K 80 CRI M4		CEILING / SURFACE		LED 8.9W	DIV. 26	APPROVED EQUAL
B1 - Ceiling	L1	1	LUMINAIRE / INDOOR / DOME / SURFACE / 11" / LED DIRECT	WHITE	4000 K	1100 lm	120 V	16 VA	LITHONIA LIGHTING	FMLRL 11 14840 M4		CEILING / SURFACE		LED 16W	DIV. 26	APPROVED EQUAL
B1 - Ceiling	L2	3	LUMINAIRE / INDOOR / DOME / SURFACE / 14" / LED DIRECT	WHITE	4000 K	1600 lm	120 V	24 VA	LITHONIA LIGHTING	FMLRL 14 20840 M4		CEILING / SURFACE		LED 24W	DIV. 26	APPROVED EQUAL
FFE Ground Floor	B	1	LUMINAIRE / INDOOR / VANITY / WALL / 24" LENGTH / LED DIRECT	BRUSHED NICKEL	3000 K	1300 lm	120 V	18 VA	LITHONIA LIGHTING	FMVCSL 24IN MVOLT 30K 90CRI BN M6	84"	WALL		LED 18W	DIV. 26	APPROVED EQUAL
1 - U/S Cabinet	K	4	LUMINAIRE / INDOOR / TAPE / SURFACE / 18" LENGTH / LED DIRECT	WHITE	3500 K	400 lm	120 V	9 VA	LITHONIA LIGHTING	UCES 18IN SWW6 90CRI WH M6		CEILING / SURFACE		LED 8.4W	DIV. 26	APPROVED EQUAL
1 - Finished Ceiling	A1	2	LUMINAIRE / INDOOR / LINEAR / SURFACE / 24" LENGTH / LED DIRECT	WHITE	3500 K	940 lm	120 V	9 VA	LITHONIA LIGHTING	RLNK L24 120 35K 80 CRI M4		CEILING / SURFACE		LED 8.9W	DIV. 26	APPROVED EQUAL
1 - Finished Ceiling	L1	1	LUMINAIRE / INDOOR / DOME / SURFACE / 11" / LED DIRECT	WHITE	4000 K	1100 lm	120 V	16 VA	LITHONIA LIGHTING	FMLRL 11 14840 M4		CEILING / SURFACE		LED 16W	DIV. 26	APPROVED EQUAL
1 - Finished Ceiling	L2	6	LUMINAIRE / INDOOR / DOME / SURFACE / 14" / LED DIRECT	WHITE	4000 K	1600 lm	120 V	24 VA	LITHONIA LIGHTING	FMLRL 14 20840 M4		CEILING / SURFACE		LED 24W	DIV. 26	APPROVED EQUAL
2 - Floor	B	1	LUMINAIRE / INDOOR / VANITY / WALL / 24" LENGTH / LED DIRECT	BRUSHED NICKEL	3000 K	1300 lm	120 V	18 VA	LITHONIA LIGHTING	FMVCSL 24IN MVOLT 30K 90CRI BN M6	84"	WALL		LED 18W	DIV. 26	APPROVED EQUAL
2 - Floor	P	4	LUMINAIRE / INDOOR / PENDANT / SUSPENDED / LED DIRECT	WHITE	4000 K	4800 lm	120 V	34 VA	LITHONIA LIGHTING	VCVLLED-V4-P2-40K-80CRI-T5W-120-PM-DWHXD	108"	SUSPENDED		LED 34W	DIV. 26	APPROVED EQUAL
2 - U/S Cabinet	K	3	LUMINAIRE / INDOOR / TAPE / SURFACE / 18" LENGTH / LED DIRECT	WHITE	3500 K	400 lm	120 V	9 VA	LITHONIA LIGHTING	UCES 18IN SWW6 90CRI WH M6		CEILING / SURFACE		LED 8.4W	DIV. 26	APPROVED EQUAL
2 - Finished Ceiling	A1	1	LUMINAIRE / INDOOR / LINEAR / SURFACE / 24" LENGTH / LED DIRECT	WHITE	3500 K	940 lm	120 V	9 VA	LITHONIA LIGHTING	RLNK L24 120 35K 80 CRI M4		CEILING / SURFACE		LED 8.9W	DIV. 26	APPROVED EQUAL
2 - Finished Ceiling	L2	4	LUMINAIRE / INDOOR / DOME / SURFACE / 14" / LED DIRECT	WHITE	4000 K	1600 lm	120 V	24 VA	LITHONIA LIGHTING	FMLRL 14 20840 M4		CEILING / SURFACE		LED 24W	DIV. 26	APPROVED EQUAL
		36														

NOTES:
LIGHTING SCHEDULE ABOVE IS FOR TYPICAL SUITE TYPE AND DOES NOT REFLECT THE TOTAL QUANTITY OF LIGHTING FIXTURES REQUIRED
TOTAL NUMBER OF SUITES: 35

(MASTER-E) Fire Alarm Device Schedule

Level	Type Mark	Description	Circuit #	Qty.
2 - Finished Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1
2 - Finished Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1
2 - Finished Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1
1 - Finished Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	7	1
1 - Finished Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	7	1
1 - Finished Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	7	1
B1 - Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1
B1 - Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1
				8

NOTES:
FIRE ALARM SCHEDULE ABOVE IS FOR TYPICAL SUITE TYPE AND DOES NOT REFLECT THE TOTAL QUANTITY OF DEVICES REQUIRED
TOTAL NUMBER OF SUITES: 35

2 / E-19 (04322) Building 6 - Level 2 - RCP Lighting - New
1 : 75

1 / E-19 (04322) Building 6 - Basement - RCP Lighting - New
1 : 75

5 / E-19 (04322) Building 6 - Level 1 - RCP Lighting - New
1 : 75

(04322) PROJECT DRAWING REGISTER

Sheet #	Sheet Name
E1/M1/P1	Project Cover
E2/M2/P2	Project Cover
M-3	HVAC - Specifications
M-4	HVAC - Specifications
M-5	HVAC - Scope of Work
M-6	HVAC - Scope of Work
M-7	HVAC - Bldg.1
M-8	HVAC - Bldg. 2
M-9	HVAC - Bldg. 3
M-10	HVAC - Bldg.4
M-11	HVAC - Bldg. 5
M-12	HVAC - Bldg.6
M-13	HVAC - Isometric & Elevation Views
M-14	HVAC Details
P-3	Plumbing - Specifications
P-4	Plumbing - Specifications
P-5	Plumbing - Site Plan
P-6	Plumbing - Bldg. 1
P-7	Plumbing - Bldg. 2
P-8	Plumbing - Bldg. 3
P-9	Plumbing - Bldg. 4
P-10	Plumbing -Bldg. 5
P-11	Plumbing - Bldg. 6
P-12	Plumbing -Typical Building
P-13	Plumbing - Details
P-14	Plumbing - Water Schematic
P-15	Plumbing - Sanitary Schematic
E-3	Elec. Power - Specifications
E-4	Elec. Power - Specifications
E-5	Elec. Power - Scope of Work
E-6	Electrical Site Plan
E-7	Elec. - SLD
E-8	Power/Comm - Bldg. 1
E-9	Elec. Lighting - Bldg 1
E-10	Power/Comm - Bldg. 2
E-11	Elec. Lighting - Bldg 2
E-12	Power/Comm - Bldg. 3
E-13	Elec. Lighting - Bldg 3
E-14	Power/Comm - Bldg. 4
E-15	Elec. Lighting - Bldg 4
E-16	Power/Comm. - Bldg. 5
E-17	Elec. Lighting - Bldg. 5
E-18	Power/Comm - Bldg. 6
E-19	Elec. Lighting - Bldg 6
E-20	Elec. Typical Building
E-21	Electrical Schedules
E-22	Electrical Details

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4	Issued for Permit	Oct. 05/22
5	Issued for Tender	May 18/23
6	Re-Issued for Tender	Dec. 20/24

Engineer's Seal:
LICENSED PROFESSIONAL ENGINEER
D. D. DONG
Dec. 20/24
PROVINCE OF ONTARIO

Client: WW Inc.

Address: Minden, ON

Project Name: Gull River Affordable Housing

Dwg. Name: Elec. Lighting - Bldg 6

NSET Project #: 04322

Drawn by: Northstar Eng. | Checked by: D.B.D.

Scale: As indicated | Revision #: 6.0

Drawing #: E-19

Project Date: Jan. 14/22 | Arch-D (24" x 36")

ELECTRICAL LEGEND

(OFFICES) A - 20,22 @450mm A.F.F.	ELECTRICAL CIRCUIT TAG: COMMENT; PANEL NAME; CIRCUIT#; JB ROUGH IN HEIGHT (CENTER LINE OF BOX) ABOVE FINISHED FLOOR - FOR WALL MOUNTED - IN mm
(OFFICES) FC-1-07 A - 20	MECHANICAL EQUIPMENT CIRCUIT TAG: AIR SYSTEM / COMMENT; MECHANICAL EQUIP. MARK / TYPE MARK; PANEL NAME; CIRCUIT #
(OFFICES) PB-1	ELECTRICAL EQUIPMENT TAG: COMMENTS; PANEL NAME. SEE SLD, SCHEDULES & PLAN VIEWS.
JB	JUNCTION BOX - WALL MOUNTED
JB	JUNCTION BOX - FLOOR MOUNTED
JB	JUNCTION BOX - CEILING MOUNTED
	DIRECT CONNECTION - SINGLE PHASE
	DIRECT CONNECTION - THREE PHASE
	DISCONNECT
	DIRECT CONNECTION c/w DISCONNECT
XXX	DUPLEX RECEPTACLE (REFER TO SCHEDULES FOR NEMA TYPE & AMPERAGE) x 1 - WALL MOUNTED. 'XXX' DENOTES: EX. - EXISTING; GFCI - GROUND FAULT CIRCUIT INTERRUPTER; AFCI - ARC FAULT CIRCUIT INTERRUPTER; ISO GD - ISOLATED GROUND; O/C - OVER COUNTER; U/C - UNDER COUNTER; W/P - WEATHER PROOF; TR - TAMPER RESISTANT; USB - CONTAINS USB PORTS
	DUPLEX RECEPTACLE SPLIT (INDIV. CIRCUITS) - WALL MOUNTED
	DUPLEX RECEPTACLE (120V, STD.) x 1 - FLOOR MOUNTED
	DUPLEX RECEPTACLE (120V, STD.) x 1 - CEILING MOUNTED
	DUPLEX RECEPTACLE (120V, STD.) x 1 CAB TIRE c/w STRAIN RELIEF - SUSPENDED MOUNT
	QUADPLEX RECEPTACLE (120V , STD.) x 1 - WALL MOUNTED
	QUADPLEX RECEPTACLE (120V, STD.) x 1 - FLOOR MOUNTED
	QUADPLEX RECEPTACLE (120V, STD.) x 1 - CEILING MOUNTED
XXX	SINGLE RECEPTACLE x 1 (WALL MOUNTED). 'XXX' DENOTES: OUTLET PURPOSE; VOLTAGE; AMPERAGE; SEE SYMBOL ON PLANS (REFER TO SCHEDULES FOR NEMA TYPE)
H	HANDICAP PUSH BUTTON - WALL MOUNTED
L	LOCK PUSH BUTTON - WALL MOUNTED
E	EMERGENCY CALL PUSH BUTTON - WALL MOUNTED
	DOME LIGHT (STROBE) WITH SOUNDER - WALL MOUNTED
TS	THERMOSTAT - SUPPLIED & INSTALLED BY DIV. 23; WIRE > 30V - CONNECTION BY DIV. 26; WIRE ≤ 30V - CONNECTION BY DIV. 23

COMMUNICATIONS LEGEND

	TELEPHONE & DATA COMBINATION OUTLET - QUANTITY AS INDICATED - WALL MOUNTED
	TELEPHONE & DATA COMBINATION OUTLET - QUANTITY AS INDICATED - CEILING MOUNTED
	TELEPHONE & DATA COMBINATION OUTLET - QUANTITY AS INDICATED - FLOOR MOUNTED
	DATA OUTLET - QUANTITY AS INDICATED - CEILING MOUNTED
WAP	WIRELESS ACCESS POINT DATA OUTLET - QUANTITY AS INDICATED - CEILING MOUNTED
TV	COAX CABLE TV OUTLET - QUANTITY AS INDICATED - ROVIDE RG6 CABLE - WALL MOUNTED
TV	COAX CABLE TV OUTLET - QUANTITY AS INDICATED - ROVIDE RG6 CABLE - FLOOR MOUNTED
TV	COAX CABLE TV OUTLET - QUANTITY AS INDICATED - ROVIDE RG6 CABLE - CEILING MOUNTED
D/TV	DATA & COAX COMBINATION OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - WALL MOUNTED
D/TV	DATA & COAX COMBINATION OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - FLOOR MOUNTED
D/TV	DATA & COAX COMBINATION OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - CEILING MOUNTED

NOT ALL SYMBOLS APPLY TO FLOOR PLANS / DRAWINGS SEE SPECIFICATIONS FOR ALL CABLE TYPES

LIGHTING LEGEND

	LUMINAIRE - INTERIOR DOWNLIGHT - RECESSED - LED
	LUMINAIRE - INTERIOR DOWNLIGHT - SURFACE MOUNTED - LED
	LUMINAIRE - INTERIOR DOME - SURFACE MOUNTED - LED
	LUMINAIRE - INTERIOR LINEAR - SURFACE MOUNTED - LED
	LUMINAIRE - INTERIOR LINEAR - WALL MOUNTED - LED
	LUMINAIRE - INTERIOR LINEAR PENDANT - SUSPENDED - LED
	LUMINAIRE - INTERIOR TAPE - SURFACE MOUNTED - LED

EXTERIOR LIGHTING LEGEND

	LUMINAIRE - EXTERIOR WALL PACK - WALL MOUNTED - LED
	LUMINAIRE - EXTERIOR BOLLARD - LED
	LUMINAIRE - EXTERIOR POLE LIGHT - SINGLE HEAD - RECTANGULAR HEAD - LED

EXIT & EMERGENCY LIGHTING LEGEND

BATT.	EXIT SIGN - CEILING MOUNTED: DIRECTIONAL ARROW INDICATES NUMBER OF EMERGENCY LIGHTS; c/w BATTERY; HATCH INDICATES NUMBER OF SIDES/ FACES
BATT.	EXIT SIGN - WALL MOUNTED: c/w BATTERY; DIRECTIONAL ARROW INDICATES NUMBER OF EMERGENCY LIGHTS; HATCH INDICATES NUMBER OF SIDES/ FACES
	BATTERY UNIT - PLUG-IN c/w DUPLEX RECEPTACLE - WALL MOUNTED
	BATTERY UNIT c/w 2x EMERGENCY LIGHTS - PLUG-IN c/w DUPLEX RECEPTACLE - WALL MOUNTED
	EMERGERGENCY LIGHT - REMOTE DOUBLE HEADS - CEILING MOUNTED
	EMERGERGENCY LIGHT - REMOTE DOUBLE HEADS - WALL MOUNTED
	EMERGERGENCY LIGHT - REMOTE SINGLE HEAD - CEILING MOUNTED
	EMERGERGENCY LIGHT - REMOTE SINGLE HEAD - WALL MOUNTED

LIGHTING CONTROLS LEGEND

SW# 1 A B-30 @ 2100 mm AFF	LIGHTING CIRCUIT TAG: SWITCH GROUP; FIXTURE TYPE; PANEL NAME; CIRCUIT #; JB ROUGH IN HEIGHT (CENTER LINE OF BOX) ABOVE FINISHED FLOOR - WALL MOUNTED - IN mm
NL	TYP. LIGHT INDICATES "NIGHT LIGHT" TO REMAIN ACTIVE AT ALL TIMES
SW# 1	SWITCH TAG (#1 SWITCH GROUP - LIGHTS ASSOCIATED WILL ACTIVATE ON THIS SWITCH)
	EXTRA LOW VOLTAGE WIRE (ELV) <30V
	LOW VOLTAGE SWITCH WIRE ≥30 TO 750V
$	LINE VOLTAGE SWITCH - SINGLE POLE
3 $	LINE VOLTAGE SWITCH - 3 WAY
D $	LINE VOLTAGE SWITCH - DIMMER
FAN $	LINE VOLTAGE SWITCH - SINGLE POLE - TO FAN
OC $	LINE VOLTAGE SWITCH - OCCUPANCY SENSOR
OCT	LINE VOLTAGE OCCUPANCY SENSOR & TIMER - CEILING MOUNTED
	PHOTOCELL
TC	ASTRONOMIC TIME SWITCH
SD SD WG	CEILING MOUNT: SD: SMOKE DETECTOR - PHOTOELECTRIC; SD-D: DUCT TYPE PHOTOELECTRIC SMOKE DETECTOR; SD-B: BEAM TYPE SMOKE DETECTOR; SB: SMOKE DETECTOR c/w LOCAL SOUNDERBASE; SA: SMOKE ALARM; SA/CO: COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR; C: CONVENTIONAL; BLANK: ADDRESSABLE; WG: C/W WIRE GUARD
WP	WEATHER PROOF - OUTDOOR RATED

NOT ALL SYMBOLS APPLY TO FLOOR PLANS / DRAWINGS SEE SPECIFICATIONS FOR ALL CABLE TYPES

3 / E-20 (04322) Level 2 - Power Plan - New - Callout 1
1 : 50

1 / E-20 (04322) Basement - Electrical - Typical Suite Layout
1 : 50

2 / E-20 (04322) Level 1 - Power Plan - New - Callout 1
1 : 50

(04322) PROJECT DRAWING REGISTER

Sheet #	Sheet Name
E1/M1/P1	Project Cover
E2/M2/P2	Project Cover
M-3	HVAC - Specifications
M-4	HVAC - Specifications
M-5	HVAC - Scope of Work
M-6	HVAC - Scope of Work
M-7	HVAC - Bldg.1
M-8	HVAC - Bldg. 2
M-9	HVAC - Bldg. 3
M-10	HVAC - Bldg.4
M-11	HVAC - Bldg. 5
M-12	HVAC - Bldg.6
M-13	HVAC - Isometric & Elevation Views
M-14	HVAC Details
P-3	Plumbing - Specifications
P-4	Plumbing - Specifications
P-5	Plumbing - Site Plan
P-6	Plumbing - Bldg. 1
P-7	Plumbing - Bldg. 2
P-8	Plumbing - Bldg. 3
P-9	Plumbing - Bldg. 4
P-10	Plumbing -Bldg. 5
P-11	Plumbing - Bldg. 6
P-12	Plumbing -Typical Building
P-13	Plumbing - Details
P-14	Plumbing - Water Schematic
P-15	Plumbing - Sanitary Schematic
E-3	Elec. Power - Specifications
E-4	Elec. Power - Specifications
E-5	Elec. Power - Scope of Work
E-6	Electrical Site Plan
E-7	Elec. - SLD
E-8	Power/Comm - Bldg. 1
E-9	Elec. Lighting - Bldg 1
E-10	Power/Comm - Bldg. 2
E-11	Elec. Lighting - Bldg 2
E-12	Power/Comm - Bldg. 3
E-13	Elec. Lighting - Bldg 3
E-14	Power/Comm - Bldg. 4
E-15	Elec. Lighting - Bldg 4
E-16	Power/Comm. - Bldg. 5
E-17	Elec. Lighting - Bldg. 5
E-18	Power/Comm - Bldg. 6
E-19	Elec. Lighting - Bldg 6
E-20	Elec. Typical Building
E-21	Electrical Schedules
E-22	Electrical Details

NORTHSTAR ENGINEERING & TECHNOLOGIES LTD.
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DRAWING REVISIONS

No.	Description	Date
2	Issued for Review	Apr. 22/22
3	Preliminary for Review	Sep. 09/22
4	Issued for Permit	Oct. 05/22
5	Issued for Tender	May 18/23
6	Re-Issued for Tender	Dec. 20/24

Engineer's Seal:

LICENSED PROFESSIONAL ENGINEER
D. LONG
Dec. 20/24
PROVINCE OF ONTARIO

Client: WW Inc.

Address: Minden, ON

Project Name: Gull River Affordable Housing

Dwg. Name: Elec. Typical Building

NSET Project #: 04322

Drawn by: Northstar Eng.	Checked by: D.B.D.
Scale: As indicated	Revision #: 6.0

Drawing #: E-20

Project Date: Jan. 14/22 Arch-D (24" x 36")

(MASTER-E) Electric Heat Schedule - (New)

Type Mark	Description	Mfg.	Model	Fuel Type	Voltage	Phase	Heating Capacity	Supplied By
BBH-1	BASEBOARD HEATER / 750W / 208V 1P	OUELLET	OFM0758BL	ELEC.	208 V	1	2,559 Btu/h	DIV. 23
BBH-1	BASEBOARD HEATER / 750W / 208V 1P	OUELLET	OFM0758BL	ELEC.	208 V	1	2,559 Btu/h	DIV. 23
BBH-1	BASEBOARD HEATER / 750W / 208V 1P	OUELLET	OFM0758BL	ELEC.	208 V	1	2,559 Btu/h	DIV. 23
DH-1	DUCT HEATER / 1kW / / 24V SCR MODULATING CONTROLS / 6" ROUND DUCT	THERMOLEC	TER-6-1120	ELEC.	120 V	1	3,412 Btu/h	DIV. 23
DH-1	DUCT HEATER / 1kW / / 24V SCR MODULATING CONTROLS / 6" ROUND DUCT	THERMOLEC	TER-6-1120	ELEC.	120 V	1	3,412 Btu/h	DIV. 23
DH-1	DUCT HEATER / 1kW / / 24V SCR MODULATING CONTROLS / 6" ROUND DUCT	THERMOLEC	TER-6-1120	ELEC.	120 V	1	3,412 Btu/h	DIV. 23
DH-1	DUCT HEATER / 1kW / / 24V SCR MODULATING CONTROLS / 6" ROUND DUCT	THERMOLEC	TER-6-1120	ELEC.	120 V	1	3,412 Btu/h	DIV. 23
DH-2	DUCT HEATER / 2kW / 10"x6" DUCT / 24V SCR MODULATING CONTROLS	THERMOLEC	MSC0-02LS	ELEC.	208 V	1	6,824 Btu/h	DIV. 23
DH-3	DUCT HEATER / 3kW / 14"x6" DUCT / 24V SCR MODULATING CONTROLS	THERMOLEC	MSC0-03LS	ELEC.	208 V	1	10,236 Btu/h	DIV. 23
DH-3	DUCT HEATER / 3kW / 14"x6" DUCT / 24V SCR MODULATING CONTROLS	THERMOLEC	MSC0-03LS	ELEC.	208 V	1	10,236 Btu/h	DIV. 23
DH-4	DUCT HEATER / 30kW / 16"x16" DUCT / 24V SCR MODULATING CONTROLS	THERMOLEC	MSC0-30LS	ELEC.	208 V	3	102,364 Btu/h	DIV. 23
FFH-1	HEATER / FAN FORCED / CEILING / SURFACE / 240V 1Ø / 1500W / WHITE c/w BUILT-IN THERMOSTAT	OUELLET	OACP1500-BL & KIT-OAC-BS1	ELEC.	208 V	1	5,118 Btu/h	DIV. 23
FFH-1	HEATER / FAN FORCED / CEILING / SURFACE / 240V 1Ø / 1500W / WHITE c/w BUILT-IN THERMOSTAT	OUELLET	OACP1500-BL & KIT-OAC-BS1	ELEC.	208 V	1	5,118 Btu/h	DIV. 23
FFH-1	HEATER / FAN FORCED / CEILING / SURFACE / 240V 1Ø / 1500W / WHITE c/w BUILT-IN THERMOSTAT	OUELLET	OACP1500-BL & KIT-OAC-BS1	ELEC.	208 V	1	5,118 Btu/h	DIV. 23
Grand total							166,342 Btu/h	

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Panel: H2

WIRE SIZE NOTE: ALL 15A & 20A CIRCUITS TO BE SERVED BY 12AWG MINIMUM WIRE c/w 3/4" CONDUIT UNLESS NOTED IN THE SCHEDULE.

Location: | **Volts:** 120/208 Single | **Mains Rating:** 100 A
Supply From: | **Phases:** 1 | **Serves:** SUITE PANEL
Mounting: RECESSED | **Wires:** 3
Mfg.: EATON | **Model:** POW-R-LINE PRL1a

CKT	Circuit Description	# L	# N	Item#, Wire, Cond.	Brkr.	A		B		Brkr.	Item#, Wire, Cond.	# N	# L	Circuit Description	CKT
1	DOOR BELL	1	1		15 A	10 VA	204 VA			15 A		1	1	HVAC- KH-1	2
3	HVAC - HRV-1	1	1		15 A			96 VA	339 VA	15 A		1	1	LIGHTING	4
5	HVAC- DH-1	1	1		15 A	996 VA	1,080 VA			15 A		1	1	RECEPTACLE - AFCI KITCHEN / LIVING ROOM	6
7	POWER - FRIDGE	1	1		15 A			360 VA	1,440 VA	15 A		1	1	RECEPTACLE - AFCI ENTRY WAY	8
9	HVAC - FC-3	2	0		15 A	135 VA	180 VA			50 A	3# 6AWG IN 27mm C	0	2	STOVE	10
11	--	--	--	--	--			135 VA	180 VA	--	--	--	--	--	12
13	HWT	2	0		20 A	1,500 VA	1,503 VA			20 A		0	2	HVAC - DH-3	14
15	--	--	--	--	--			1,500 VA	1,503 VA	--	--	--	--	--	16
17	HVAC - HP-2	2	0	3# 10AWG IN 21mmC	30 A	2,413 VA	360 VA			15 A		1	1	RECEPTACLE - GFCI WR	18
19	--	--	--	--	--			2,413 VA	360 VA	15 A		1	1	RECEPTACLE - SERVICE	20
21	RECEPTACLE - GFCI KITCHEN...	1	1		20 A	360 VA	1,440 VA			15 A		1	1	RECEPTACLE - BEDROOM AFCI	22
23	RECEPTACLE - GFCI KITCHEN...	1	1		20 A			360 VA							24
25	RECEPTACLE - BEDROOM AFCI	1	1		15 A	1,440 VA									26
27															28
29															30
					Total Load:	11,516 VA		8,579 VA							
					Total...	107 A		82 A							

Notes: Provide GND. wires as per CDN. Elec. Code. | Total Connected Load: 20,094 VA | Provide LOCKING CLIPS on all Life Safety Circuits.
Provide SPARE 15A, 1 PH. Brkrs in Un-used Positions.

(MASTER-E) Panel Schedule - (New)

Level	Panel Name	Description	Location
FFE Lower Level	COMM	SUITE COMM. PANEL	Kitchen / Living Room 108
FFE Lower Level	HB	ELECTRICAL PANELBOARD / 120/208V 1PH / 100A MAINS / 30 BRKS	Kitchen / Living Room 108
FFE Ground Floor	COMM	SUITE COMM. PANEL	Kitchen 114
FFE Ground Floor	COMM.	COMM. BOARD / 48"W x 96"H	Electrical Room 143
FFE Ground Floor	DP-A	ELEC. SWITCHBOARD / 120/208V / 3Ø / 1600A	
FFE Ground Floor	H1	ELECTRICAL PANELBOARD / 120/208V 1PH / 100A MAINS / 30 BRKS	
FFE Ground Floor	HP	ELEC. UTILITY POLE / 120/208V / 3Ø / 1600A	
FFE Ground Floor	M	ELECTRICAL PANELBOARD / 120/208V 3PH / 225A MAINS / 72 BRKS	
FFE Ground Floor	MC-01	METERING CABINET / 48"x12"x 48"	Electrical Room 143
FFE Ground Floor	TX-01	TRANSFORMER / PAD MOUNTED / 120/208V / 3Ø / 1600A / 500KVA	
2 - Floor	COMM	SUITE COMM. PANEL	
2 - Floor	H2	ELECTRICAL PANELBOARD / 120/208V 1PH / 100A MAINS / 30 BRKS	

Panel: H1

WIRE SIZE NOTE: ALL 15A & 20A CIRCUITS TO BE SERVED BY 12AWG MINIMUM WIRE c/w 3/4" CONDUIT UNLESS NOTED IN THE SCHEDULE.

Location: | **Volts:** 120/208 Single | **Mains Rating:** 100 A
Supply From: | **Phases:** 1 | **Serves:** SUITE PANEL
Mounting: RECESSED | **Wires:** 3
Mfg.: EATON | **Model:** POW-R-LINE PRL1a

CKT	Circuit Description	# L	# N	Item#, Wire, Cond.	Brkr.	A		B		Brkr.	Item#, Wire, Cond.	# N	# L	Circuit Description	CKT
1	DOOR BELL	1	1		15 A	10 VA	996 VA			15 A		1	1	HVAC- DH-1	2
3	HVAC - HRV-1	1	1		15 A			96 VA	204 VA	15 A		1	1	HVAC- KH-1	4
5	RECEPTACLE - AFCI KITCHEN / LIVIN...	1	1		15 A	1,080 VA	1,440 VA			15 A		1	1	RECEPTACLE - BEDROOM AFCI	6
7	LIGHTING	1	1		15 A			246 VA	1,440 VA	15 A		1	1	RECEPTACLE - AFCI KITCHEN / LIVING ROOM	8
9	HVAC - FC-2	2	0		15 A	135 VA	180 VA			50 A	3# 6AWG IN 27mm C	0	2	STOVE	10
11	--	--	--	--	--			135 VA	180 VA	--	--	--	--	--	12
13	HWT	2	0		20 A	1,500 VA	1,503 VA			20 A		0	2	HVAC - DH-3	14
15	--	--	--	--	--			1,500 VA	1,503 VA	--	--	--	--	--	16
17	HVAC - HP-2	2	0	3# 10AWG IN 21mmC	30 A	2,413 VA	360 VA			20 A		1	1	RECEPTACLE - GFCI KITCHEN COUNTER	18
19	--	--	--	--	--			2,413 VA	360 VA	15 A		1	1	RECEPTACLE - OUTDOOR	20
21							360 VA			15 A		1	1	FRIDGE	22
23	RECEPTACLE - GFCI WR	1	1		15 A			360 VA	360 VA	20 A		1	1	RECEPTACLE - GFCI KITCHEN COUNTER	24
25							1,440 VA			15 A		1	1	RECEPTACLE - BEDROOM AFCI	26
27															28
29															30
					Total Load:	11,312 VA		8,690 VA							
					Total...	105 A		84 A							

Notes: Provide GND. wires as per CDN. Elec. Code. | Total Connected Load: 20,001 VA | Provide LOCKING CLIPS on all Life Safety Circuits.
Provide SPARE 15A, 1 PH. Brkrs in Un-used Positions.

Panel: M

WIRE SIZE NOTE: ALL 15A & 20A CIRCUITS TO BE SERVED BY 12G. MINIMUM WIRE c/w 3/4" CONDUIT UNLESS NOTED IN THE SCHEDULE.

Location: | **Volts:** 120/208 Wye | **Mains Rating:** 225 A
Supply From: | **Phases:** 3 | **Serves:**
Mounting: SURFACE | **Wires:** 4
Mfg.: EATON | **Model:** POW-R-LINE PRL1X

CKT	Circuit Description	# L	# N	Item#, Wire, Cond.	Brkr.	A		B		C		Brkr.	Item#, Wire, Cond.	# N	# L	Circuit Description	CKT
1	LIGHTING - SITE	1	1		15 A	77 VA	165 VA					15 A		1	1	LIGHTING - SITE	2
3	HVAC - HRV-1	1	1		15 A			96 VA	223 VA			15 A		1	1	LIGHTING - MAIN FLOOR	4
5	LIGHTING - BASEMENT	1	1		15 A					148 VA	240 VA	15 A		1	1	DOOR OPERATOR	6
7	LIGHTING - SITE	1	1		15 A	247 VA	360 VA					15 A		1	1	WASHER	8
9	RECEPTACLE - COMM. BOARD	1	1		15 A			360 VA	655 VA			15 A		1	1	LIGHTING - SITE	10
11	RECEPTACLE - COMM. BOARD	1	1		15 A					720 VA							12
13	RECEPTACLE - GFCI WR	1	1		15 A	360 VA											14
15	HVAC- DH-1	1	1		15 A			996 VA	1,056 VA			15 A		1	1	HVAC - SF-1	16
17	WASHER	1	1		15 A					360 VA	360 VA	15 A		1	1	WASHER	18
19	UNIVERSAL WASHROOM CONTROL	1	2		15 A	960 VA	150 VA					15 A		1	1	EXIT SIGNAGE	20
21	RECEPTACLE - COMMON AREA	1	1		15 A			1,080 VA	1,080 VA			15 A		1	1	RECEPTACLE - STORAGE	22
23	HVAC - BBH-1	2	0		15 A					375 VA	750 VA	15 A		0	2	HVAC - FFH-1	24
25	--	--	--	--	--	375 VA	750 VA					--	--	--	--	--	26
27	RECEPTACLE - PUMP ROOM	1	1		15 A			1,440 VA	104 VA			15 A		0	2	HVAC - FC-4	28
29	DRYER	2	0		30 A					180 VA	104 VA	--	--	--	--	--	30
31	--	--	--	--	--	180 VA	180 VA					30 A		0	2	DRYER	32
33	HVAC - HP-3	2	0		15 A			1,040 VA	180 VA			--	--	--	--	--	34
35	--	--	--	--	--					1,040 VA							36
37																	38
39	WASHER	1	1		15 A			360 VA	360 VA			15 A		1	1	RECEPTACLE - OUTDOOR	40
41																	42
43	HVAC - BBH-1	2	0		15 A	375 VA											44
45	--	--	--	--	--			375 VA	375 VA			15 A		0	2	HVAC - BBH-1	46
47											375 VA	--	--	--	--	--	48
49	HVAC - FFH-1	2	0		15 A	750 VA											50
51	--	--	--	--	--			750 VA	750 VA			15 A		0	2	HVAC - FFH-1	52
53											750 VA	--	--	--	--	--	54
55	DRYER	2	0		30 A	180 VA											56
57	--	--	--	--	--			180 VA	180 VA			30 A		0	2	DRYER	58
59	LIFT STATION PUMP	3	0		15 A					120 VA	180 VA	--	--	--	--	--	60
61	--	--	--	--	--	120 VA	2,000 VA					35 A		0	3	HWT	62
63	--	--	--	--	--			120 VA	2,000 VA			--	--	--	--	--	64
65	HVAC - DH-4	3	0		110 A					10,003 VA	2,000 VA	--	--	--	--	--	66
67	--	--	--	--	--	10,003 VA											68
69	--	--	--	--	--			10,003 VA									70
71																	72
					Total Load:	17,055 VA		23,571 VA		17,527 VA							
					Total Amps:	142 A		197 A		147 A							

Notes: Provide GND. wires as per CDN. Elec. Code. | Total Connected Load: 58,152 VA | Provide LOCKING CLIPS on all Life Safety Circuits.
Provide SPARE 15A, 1 PH. Brkrs in Un-used Positions.

Panel: HB

WIRE SIZE NOTE: ALL 15A & 20A CIRCUITS TO BE SERVED BY 12AWG MINIMUM WIRE c/w 3/4" CONDUIT UNLESS NOTED IN THE SCHEDULE.

Location: Kitchen / Living Room 108 | **Volts:** 120/208 Single | **Mains Rating:** 100 A
Supply From: | **Phases:** 1 | **Serves:** SUITE PANEL
Mounting: RECESSED | **Wires:** 3
Mfg.: EATON | **Model:** POW-R-LINE PRL1a

CKT	Circuit Description	# L	# N	Item#, Wire, Cond.	Brkr.	A		B		Brkr.	Item#, Wire, Cond.	# N	# L	Circuit Description	CKT
1	DOOR BELL	1	1		15 A	10 VA	996 VA			15 A		1	1	HVAC- DH-1	2
3	HVAC - HRV-1	1	1		15 A			96 VA	171 VA	15 A		1	1	LIGHTING	4
5	RECEPTACLE - AFCI KITCHEN / LIVIN...	1	1		15 A	1,440 VA	360 VA			15 A		1	1	RECEPTACLE - GFCI WR	6
7	HVAC- KH-1	1	1		15 A			204 VA	1,800 VA	15 A		1	1	RECEPTACLE - BEDROOM AFCI	8
9	HVAC - FC-1	2	0		15 A	112 VA	180 VA			50 A	3# 6AWG IN 27mm C	0	2	STOVE	10
11	--	--	--	--	--			112 VA	180 VA	--	--	--	--	--	12
13	HVAC - DH-2	2	0		15 A	1,009 VA	1,040 VA			15 A		0	2	HVAC - HP-2	14
15	--	--	--	--	--			1,009 VA	1,040 VA	--	--	--	--	--	16
17	RECEPTACLE - GFCI KITCHEN...	1	1		20 A	360 VA	360 VA			20 A		1	1	RECEPTACLE - GFCI KITCHEN COUNTER	18
19									360 VA	15 A		1	1	RECEPTACLE - SERVICE	20
21							360 VA			15 A		1	1	FRIDGE	22
23	RECEPTACLE - GFCI OUTDOOR	1	1		15 A			360 VA							24
25															26
27															28
29															30
					Total Load:	6,227 VA		5,322 VA							
					Total...	59 A		51 A							

Notes: Provide GND. wires as per CDN. Elec. Code. | Total Connected Load: 11,549 VA | Provide LOCKING CLIPS on all Life Safety Circuits.
Provide SPARE 15A, 1 PH. Brkrs in Un-used Positions.

DRAWING REVISIONS

No.	Description	Date
1	Preliminary	May.19/22
3	Preliminary for Review	Sep. 09/22
4	Issued for Permit	Oct. 05/22
5	Issued for Tender	May 18/23
6	Re-Issued for Tender	Dec. 20/24

Engineer's Seal:

LICENSED PROFESSIONAL ENGINEER
DAVID LONG
Dec. 20/24
PROVINCE OF ONTARIO

Client: WW Inc.

Address: Minden, ON

Project Name: Gull River Affordable Housing

Dwg. Name: Electrical Schedules

NSET Project #: 04322

Drawn by: Northstar Eng. | Checked by: D.B.D.
Scale: 12" = 1'-0" | Revision #: 6.0
Drawing #: E-21
Project Date: Jan. 14/22 | Arch-D (24" x 36")

NOTES:
SUPPLY & INSTALL A COMPLETE UNIVERSAL ACCESSIBLE WASHROOM DOOR CONTROL, ELECTRONIC LOCKING & EMERGENCY SIGNAL KIT AS PER MANUFACTURERS RECOMMENDATIONS FOR ALL COMPONENTS, WIRING, INTERCONNECTIONS & MOUNTING. ALL WIRING & SERVICE INSTALLATIONS SHALL BE CONCEALED. FINAL WIRE SPECIFICATION TO BE CONFIRM WITH SHOP DRAWINGS. UNIVERSAL EMERGENCY CALL KIT TO BE CAMDEN CX-WC13XFM & CX-WEC10 SYSTEMS OR APPROVED EQUAL.
REFER TO ARCHITECTURAL DRAWINGS FOR EXACT DEVICE LOCATIONS.

1. 120VAC - 15A DEDICATED CIRCUIT FOR UNIVERSAL ACCESSIBLE WASHROOM CONTROL.
2. 120VAC TO 24VDC TRANSFORMER.
3. 12/24VDC LINEAR POWER SUPPLY.
4. UNIVERSAL WASHROOM DOOR CONTROL/ RELAY.
5. WALL MOUNTED HANDICAP PUSH BUTTON WITH ILLUMINATED ENCLOSURE AND SIGN - BUTTON TO OPERABLE WITH A CLOSED FIST OF NOT MORE THAN 22.2N.
   SYMBOL ON DRAWINGS: Ⓢ
6. WALL MOUNTED DOOR LOCK PUSH BUTTON WITH ILLUMINATED ENCLOSURE AND SIGN - BUTTON TO OPERABLE WITH A CLOSED FIST OF NOT MORE THAN 22.2N.
   SYMBOL ON DRAWINGS: Ⓢ
7. WALL MOUNTED EMERGENCY CALL PUSH BUTTON WITH ILLUMINATED ENCLOSURE AND SIGN - BUTTON TO OPERABLE WITH A CLOSED FIST OF NOT MORE THAN 22.2N. ELECTRIC STRIKE ON DOOR TO RELEASE WHEN EMERGENCY BUTTON IS PUSHED. DOOR OPERATOR IS NOT TO ACTIVATE.
   SYMBOL ON DRAWINGS: Ⓔ
8. "ASSISTANCE REQUESTED" LED ANNUNCIATOR WITH SOUNDER.
9. DOME LIGHT WITH SOUNDER OUTSIDE OF WASHROOM TO SIGNAL ASSISTANCE IS REQUIRED WHEN EMERGENCY CALL PUSH BUTTON IS PRESSED. SOUND LEVEL TO BE 82 DBA @ 3 METERS.
10. DOOR OPERATOR - SUPPLIED BY OTHERS
11. MAGNETIC DOOR CONTACT
12. ELECTRIC STRIKE
13. EMERGENCY ASSISTANCE LAMACOID SIGNAGE - MOUNT SIGN ON WALL ABOVE PUSHBUTTON. SIGN TO READ AS SHOWN. LETTERS ON LAMACOID MUST BE AT LEAST 25MM HIGH WITH A 5MM STROKE.
14. PROVIDE "ASSISTANCE REQUIRED" WITH WHEELCHAIR GRAPHIC SIGNAGE OUTSIDE OF THE WASHROOM.

NUMBER OF CABLES PER CONDUIT		
CONDUIT SIZE (INNER DIAMETER)	# OF COAX CABLE (RG6U)	# OF CAT6a CABLE (4 PAIR)
1/2"	1	0
3/4"	2	4
1"	4	7
1-1/4"	7	12
1-1/2"	10	16
2"	16	22
2-1/2"	28	36
3"	42	50

NOTES:

1. IN-SUITE RECESSED WALL CABINET (DEMARCATION COMMUNICATION BOX - PRIMEX MODEL P3000 - 30"H x 14"W x 3.5"D). PROVIDED BY COMMUNICATION PROVIDER.
2. MOUNTING HEIGHT IN BARRIER FREE SUITE SHALL BE 13" A.F.F. & SHALL BE 30" A.F.F. FOR OTHER SUITES.
3. COORDINATE FINAL LOCATION & MOUNTING HEIGHT WITH ARCHITECT PRIOR TO ROUGH-IN.

TELEVISION RISER:
1. ALL CABLE INSTALLATION & CONNECTIONS ARE BY OTHERS.
2. ELECTRICAL CONTRACTOR TO PROVIDE CONDUITS & COMM. PANEL AS SHOWN. WHEN DEVICES ARE LOCATED ON SUITE DEMISING WALLS, DATA BOXES ARE TO BE USED & PUTTY PADS WHEN REQUIRED TO MAINTAIN ACOUSTICAL & FIRE RATINGS.
3. MAXIMUM RUN OF CABLE FROM POINT OF SUPPLY TO FURTHEST OUTLET IS NOT TO EXCEED 50 METERS.

COMMUNICATIONS RISER:
1. ALL CABLE INSTALLATION & CONNECTIONS ARE BY OTHERS.
2. ELECTRICAL CONTRACTOR TO PROVIDE CONDUITS & COMM. PANEL AS SHOWN. WHEN DEVICES ARE LOCATED ON SUITE DEMISING WALLS, DATA BOXES ARE TO BE USED & PUTTY PADS WHEN REQUIRED TO MAINTAIN ACOUSTICAL & FIRE RATINGS.

3 / E-22 (04322) Building 5 - Level 1 - Power Plan - Universal WR
1 : 50

NOTES:
1. BONDING CONDUCTORS TO BE SIZED AS PER TABLE 16 IN THE CANADIAN ELECTRICAL CODE/ ONTARIO ELECTRICAL SAFETY CODE.
2. THE INTENT OF THIS DETAIL IS TO OUTLINE GROUNDING & BONDING REQUIREMENTS. THIS DETAIL SHALL NOT BE INTERPRETED FOR QUANTITY OF PANELS, TRANSFER SWITCHES, LIFE-SAFETY LOADS, NON-LIFE-SAFETY LOADS, UTILITY SERVICE CONFIGURATION, OR UTILITY METERING CONFIGURATION.

4 / E-22 Grounding Bonding Detail
N.T.S.

TRANSFORMER VAULT SECTION

NOTES:

1. TRANSFORMER VAULT TO BE INSTALLED AS PER UTILITIES STANDARD.
2. CONTRACTOR TO SUPPLY & INSTALL CONCRETE ENCASED PRIMARY DUCT BANK TO DEMARCATION POINT (COORDINATE WITH UTILITIES), COMPLETE SECONDARY DUCT BANK & CABLES, TRANSFORMER PAD/VAULT, BOLLARDS & GROUNDING TO MEET THE REQUIREMENTS OF ESA & UTILITIES.
   & BOLLARDS
3. UTILITY TO SUPPLY & INSTALL TRANSFORMER COMPLETE WITH PRIMARY CONDUCTORS. ALL PRIMARY & SECONDARY CONDUCTORS TO BE TERMINATED BY UTILITIES.
4. REFER & COMPLY WITH UTILITIES INSTALLATION STANDARDS FOR CONSTRUCTION DETAILS, METHODS & APPROVED EQUIPMENT VENDORS.

5 / E-22 Pad Mount Transformer
N.T.S.

TOP VIEW

6 / E-22 Grounding Pit
N.T.S.

1 / E-22 Communications - Riser Diagram
N.T.S.

(04322) PROJECT DRAWING REGISTER

Sheet #	Sheet Name
E1/M1/P1	Project Cover
E2/M2/P2	Project Cover
M-3	HVAC - Specifications
M-4	HVAC - Specifications
M-5	HVAC - Scope of Work
M-6	HVAC - Scope of Work
M-7	HVAC - Bldg.1
M-8	HVAC - Bldg. 2
M-9	HVAC - Bldg. 3
M-10	HVAC - Bldg.4
M-11	HVAC - Bldg. 5
M-12	HVAC - Bldg.6
M-13	HVAC - Isometric & Elevation Views
M-14	HVAC Details
P-3	Plumbing - Specifications
P-4	Plumbing - Specifications
P-5	Plumbing - Site Plan
P-6	Plumbing - Bldg. 1
P-7	Plumbing - Bldg. 2
P-8	Plumbing - Bldg. 3
P-9	Plumbing - Bldg. 4
P-10	Plumbing -Bldg. 5
P-11	Plumbing - Bldg. 6
P-12	Plumbing -Typical Building
P-13	Plumbing - Details
P-14	Plumbing - Water Schematic
P-15	Plumbing - Sanitary Schematic
E-3	Elec. Power - Specifications
E-4	Elec. Power - Specifications
E-5	Elec. Power - Scope of Work
E-6	Electrical Site Plan
E-7	Elec. - SLD
E-8	Power/Comm - Bldg. 1
E-9	Elec. Lighting - Bldg 1
E-10	Power/Comm - Bldg. 2
E-11	Elec. Lighting - Bldg 2
E-12	Power/Comm - Bldg. 3
E-13	Elec. Lighting - Bldg 3
E-14	Power/Comm - Bldg. 4
E-15	Elec. Lighting - Bldg 4
E-16	Power/Comm. - Bldg. 5
E-17	Elec. Lighting - Bldg. 5
E-18	Power/Comm - Bldg. 6
E-19	Elec. Lighting - Bldg 6
E-20	Elec. Typical Building
E-21	Electrical Schedules
E-22	Electrical Details

NORTHSTAR ENGINEERING & TECHNOLOGIES LTD.
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dlong@nset.ca www.nset.ca

GENERAL DRAWING / DESIGNER NOTES:

[1] ALL CONSTRUCTION METHODS AND MATERIALS TO CONFORM TO THE LATEST EDITION OF THE PROVINCE OF ONTARIO'S "BUILDING CODE", LOCAL REGULATIONS AND AUTHORITIES HAVING JURISDICTION.

[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 CONTRACTOR.

[3] DRAWINGS ONLY SHOW GENERAL INTENT AND SCOPE OF WORK. EXACT DETAILS OF INSTALLATIONS ARE TO BE PROVIDED BY CONTRACTOR(S). DO NOT SCALE DRAWINGS.

[4] CONTRACTOR/AGENT/OWNER TO REPORT ALL DISCOVERIES OF ERRORS, OMISSIONS OR DISCREPANCIES TO THE DESIGNER.

[5] PROCEED WITH CONSTRUCTION ONLY USING THE LATEST REVISED DRAWINGS MARKED "ISSUED FOR CONSTRUCTION".

[6] THIS DRAWING IS SPECIFIC TO THIS PROJECT AND CANNOT BE USED FOR OTHER "SIMILAR" PROJECTS.

[7] THIS DRAWING IS THE PROPERTY OF NORTHSTAR ENGINEERING & TECHNOLOGIES LTD. UN-AUTHORIZED RE-PRODUCTION OR USE IS PROHIBITED.

[8] SHOP DRAWINGS:
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. THE SHOP DWG REVIEW WILL NOT RELEASE THE CONTRACTOR FROM ESPONSIBILITY TO MAKE A FEASIBLE WORKING SYSTEM. THESE SHOP DRAWINGS SHALL CONSIST OF PLUMBING FIXTURES, HVAC EQUIPMENT, HVAC DIFFUSERS.
ALLOW MINIMUM 1-2 WEEKS FOR COMPLETION (BASED ON COMPLEXITY).

[9] THE DESIGNER DOES NOT ACCEPT RESPONSIBILITY FOR OTHER DESIGNER'S WORK IN ASSOCIATION WITH THIS PROJECT.

[10] RESPONSIBILITY FOR ANY FINAL ASSEMBLY(S) THAT VIOLATE APPLICABLE BUILDING CODES IS NOT ACCEPTED BY THE DESIGNER.

[11] REQUESTS FOR CHANGES OR SUBSTITUTIONS TO EQUIPMENT, PLANS AND / OR SPECIFICATIONS WILL BE SUBJECT TO ADDITIONAL FEES CHARGED BY THE CONSULTANT.

[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 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 DRAWINGS TO BE BASED ON DWGS MARKED "ISSUED FOR TENDER" OR "ISSUED FOR CONSTRUCTION" ONLY.

[16] ALL REQUESTS FOR DESIGN CHANGES / SUBSTITUTIONS TO BE MADE IN WRITING. ADDITIONAL FEES MAY APPLY. ALLOW MINIMUM (1) ONE WEEK TO REVIEW AND RESPOND TO CHANGE REQUESTS.

DRAWING REVISIONS

No.	Description	Date
1	Preliminary	May.19/22
5	Issued for Tender	May 18/23
6	Re-Issued for Tender	Dec. 20/24

Engineer's Seal:

Client: WW Inc.

Address: Minden, ON

Project Name: Gull River Affordable Housing

Dwg. Name: Electrical Details

NSET Project #: 04322

Drawn by: Northstar Eng. | Checked by: D.B.D.

Scale: As indicated | Revision #: 6.0

Drawing #: E-22

Project Date: Jan. 14/22 | Arch-D (24" x 36")

23 05 00 COMMON WORK RESULTS FOR HVAC

23 05 00 - 1.0 MECHANICAL HVAC INSTALLATION

1. SUPPLY & INSTALL COMPLETE MECHANICAL HVAC SYSTEMS & INCLUDING ALL NECESSARY LABOUR, SERVICES, PRODUCTS, MATERIALS & EQUIPMENT. HVAC SYSTEMS TO BE FULLY FUNCTIONING OPERATING TO THE SATISFACTION OF THE OWNER & THE DESIGN PROVIDED.
2. CONSTRUCTION & INSTALLATION METHODS SHALL COMPLY WITH THE CURRENT EDITION OF THE APPLICABLE BUILDING CODE, THE REGIONAL MUNICIPALITY & LOCAL BUILDING & FIRE DEPARTMENT BY-LAWS. ALL WORK SHALL ALSO COMPLY WITH OTHER CODES, STANDARDS & REGULATIONS REFERRED TO IN THE MANUFACTURER'S INSTALLATION MANUALS & DOCUMENTS AND ADOPTED BY THE AUTHORITIES HAVING JURISDICTION.
3. SPECIFIED WORK IN THIS DESIGN DOES NOT IMPLY OR DETERMINE CONTRACTUAL LIMITS OR SCOPE BETWEEN SUB-CONTRACTORS, CONTRACTORS & THE OWNER.
4. THE SCOPE OF WORK IS AS DESCRIBED HEREIN & SHOWN ON THE DRAWINGS.

23 05 00 - 2.0 DRAWINGS & SPECIFICATIONS

1. DRAWINGS ARE DIAGRAMMATIC & SHOW APPROXIMATE LOCATIONS OF MECHANICAL SYSTEM INSTALLATION & CONNECTING SERVICES. ANY INFORMATION REGARDING ACCURATE MEASUREMENT OF THE BUILDING ARE TO BE TAKEN AT THE SITE. DO NOT SCALE THE DRAWINGS, & DO NOT USE THE DRAWINGS FOR PREFABRICATION WORK. CONTRACTOR TO VERIFY ALL DUCT RUNS & POSSIBLE INTERFERENCE WITH EXISTING SERVICES & STRUCTURAL FEATURES. ANY REQUIRED RELOCATION OF EXISTING SERVICES TO ACCOMMODATE HVAC SYSTEM TO BE INCLUDED IN COST ESTIMATE.
2. READ THE MECHANICAL DRAWINGS IN CONJUNCTION WITH ALL OTHER STRUCTURAL, ARCHITECTURAL, SITE CIVIL, LANDSCAPE, SPRINKLER, PLUMBING, ELECTRICAL ETC., DRAWINGS. PROPERLY PLAN, COORDINATE, & ESTABLISH THE LOCATIONS & ROUTING OF SERVICES WITH ALL SUBCONTRACTORS AFFECTED PRIOR TO INSTALLATION SUCH THAT THE SERVICES WILL CLEAR EACH OTHER AS WELL AS ANY OBSTRUCTIONS, INCLUDING STRUCTURAL COMPONENTS OF THE BUILDING.
3. THE DRAWINGS ARE INTENDED TO CONVEY THE SCOPE OF WORK & DO NOT SHOW ARCHITECTURAL & STRUCTURAL DETAILS. MECHANICAL CONTRACTOR SHALL PROVIDE, AT MECHANICAL CONTRACTOR'S COST, ALL OFFSETS, FITTINGS, & SIMILAR PRODUCTS REQUIRED AS A RESULT OF OBSTRUCTIONS & OTHER ARCHITECTURAL & STRUCTURAL DETAILS BUT NOT SHOWN ON THE DRAWINGS.
4. THE DRAWINGS & SPECIFICATIONS ARE COMPLEMENTARY & INTENDED TO BE COOPERATIVE. PERFORM ALL WORK THAT IS SHOWN, SPECIFIED, OR REASONABLY IMPLIED ON THE DRAWINGS BUT NOT MENTIONED IN THE SPECIFICATION, OR VICE-VERSA, AS THOUGH FULLY COVERED BY BOTH.
5. SHOULD ANY DISCREPANCY APPEAR BETWEEN THE DRAWINGS & SPECIFICATIONS WHICH LEAVES THE MECHANICAL CONTRACTOR IN DOUBT AS TO THE TRUE INTENT & MEANING OF THE PLANS & SPECIFICATIONS, A RULING SHALL BE OBTAINED FROM THE ENGINEER. IF THIS IS NOT DONE, IT WILL BE ASSUMED THAT THE MOST EXPENSIVE ALTERNATE HAS BEEN ALLOWED FOR.
6. 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, & OBTAIN THEIR APPROVAL BEFORE PROCEEDING WITH THE WORK.

23 05 00 - 3.0 PERMITS, FEES, & CERTIFICATES

1. CONTRACTOR TO OBTAIN ALL PERMITS REQUIRED, ARRANGE FOR INSPECTION OF THE WORK BY INSPECTION AUTHORITY & PAY ALL FEES PROVIDE FINAL CERTIFICATE TO THE OWNER.

23 05 00 - 4.0 EXAMINATION OF THE SITE

1. PRIOR TO SUBMITTING THEIR TENDER, THE MECHANICAL CONTRACTOR SHALL CAREFULLY EXAMINE THE SITE & ASCERTAIN ALL CONDITIONS, WHICH SHALL AFFECT HIS TRADE. REPORT TO THE CONSULTANT, PRIOR TO BID SUBMITTAL, ANY EXISTING SITE CONDITION THAT WILL OR MAY AFFECT PERFORMANCE OF THE WORK AS PER THE DRAWINGS & SPECIFICATIONS. FAILURE TO DO SO WILL NOT BE GROUNDS FOR ADDITIONAL COSTS.

23 05 00 - 5.0 STANDARD OF MATERIAL & WORKMANSHIP

1. ALL MATERIALS & EQUIPMENT SHALL BE NEW, CSA APPROVED, BEAR CSA STAMP & BE OF THE BEST COMMERCIAL QUALITY OBTAINABLE FOR THE PURPOSE. ALL ITEMS REQUIRED TO PROVIDE A COMPLETE WORKING SYSTEM - INCLUDING ITEMS NOT SPECIFIED OR SHOWN, SHALL BE INCLUDED.
2. ALL WORK SHALL BE EXECUTED IN A NEAT & WORKMANLIKE MANNER BY JOURNEYMAN TRADESMEN WHO PERFORM ONLY THE WORK THAT THEIR CERTIFICATES PERMIT, OR BY APPRENTICE TRADESMEN UNDER DIRECT ON SITE SUPERVISION OF AN EXPERIENCED JOURNEYMAN TRADESMAN.
3. WORKMANSHIP SHALL BE OF THE HIGHEST STANDARDS THROUGHOUT & SHALL BE MINIMUM OF THE CURRENT TRADE PRACTICES FOR MECHANICAL INSTALLATIONS IN THIS BUILDING.
4. UNLESS OTHERWISE SPECIFIED ALL EQUIPMENT TO BE INSTALLED IN ACCORDANCE WITH THE EQUIPMENT MANUFACTURER'S RECOMMENDATIONS & INSTRUCTIONS, & REQUIREMENTS OF GOVERNING CODES, STANDARDS, & REGULATIONS. GOVERNING CODES, STANDARDS, & REGULATIONS TAKE PRECEDENCE OVER MANUFACTURER'S INSTRUCTIONS.
5. 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 & 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.
6. ENSURE THAT PROPER ACCESS & SERVICE CLEARANCES ARE MAINTAINED AROUND EQUIPMENT, & WHERE APPLICABLE, ACCESS SPACE FOR FUTURE EQUIPMENT REMOVAL OR REPLACEMENT IS NOT IMPEDED. REMOVE & REPLACE ANY EQUIPMENT WHICH DOES NOT MEET THIS REQUIREMENT.
7. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECTING ALL WORK COMPLETED CONTRARY TO THE INTENT OF THE DRAWINGS & SPECIFICATIONS. PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE CAUSED TO THE OWNER OR ANY OF THE OTHER TRADES BY IMPROPER LOCATION OR CARRYING OUT OF HIS WORK.
8. 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.
9. ALL ROOF CURBS SHALL BE A PERIMETER TYPE WITH COMPLETE PERIMETER SUPPORT CAPABLE OF SUPPORTINGENTIRE UNIT WEIGHT OF THE MECHANICAL UNIT. THE CURB SHALL BE A MINIMUM OF 14 INCHES HIGH AND INCLUDE A NOMINAL 2 X 4 INCH WOOD STRIP. WEATHERPROOF GASKETING SHALL BE PROVIDED FOR FIELD MOUNTING BETWEEN THE UNIT BASE AND ROOF CURB.
10. PROVIDE NEOPRENE PAD ISOLATORS BETWEEN ALL MECHANICAL EQUIPMENT & THE BUILDING STRUCTURE.
11. 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.
12. PAINTING:
    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.
13. 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.
14. PROVIDE A CERTIFICATE OF GUARANTEE OF WORKMANSHIP & MATERIAL FOR ONE YEAR FROM DATE OF ACCEPTANCE.
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.
16. 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). THIS INCLUDES PRESSURE TESTS OF PIPING, DUCTWORK, SAFETY DEVICES ETC.

23 05 00 - 6.0 COORDINATION OF THE WORK

1. REVIEW ALL THE CONTRACT DOCUMENTS & COORDINATE THE WORK WITH THE WORK OF ALL OTHER TRADES.
2. PROPERLY PLAN, COORDINATE, & ESTABLISH THE LOCATIONS & ROUTING OF SERVICES WITH ALL SUBCONTRACTORS AFFECTED PRIOR TO INSTALLATION SUCH THAT THE SERVICES WILL CLEAR EACH OTHER AS WELL AS ANY OBSTRUCTIONS, INCLUDING STRUCTURAL COMPONENTS OF THE BUILDING.
3. COORDINATE THE LOCATIONS OF THE MECHANICAL EQUIPMENT WITH THE ARCHITECTURAL & BUILDING INTERIOR DRAWINGS. THE CONTRACTOR SHALL REVIEW THE ARCHITECTURAL DRAWINGS SECTIONS, & ELEVATIONS FOR LOCATIONS PRIOR TO ROUGH-IN. THE CONTRACTOR SHALL NOTIFY 'THE ARCHITECT/ ENGINEER OF ANY DISCREPANCIES.
4. 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.
5. CONTRACTOR SHALL CONTACT THE LOCAL GAS COMPANY AS SOON AS POSSIBLE & VERIFY THAT GAS SERVICE IS AVAILABLE AT PRESSURE & 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.
6. 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.

23 05 00 - 7.0 PENETRATIONS

1. ANY OR ALL CUTTING, CORING & 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. THIS DIVISION SHALL PREPARE SLEEVING DRAWINGS INDICATING THE SIZE & LOCATIONS OF OPENINGS REQUIRED IN CONCRETE FLOOR SLABS, ROOF SLABS/DECKS & WALLS FOR REVIEW BY THE STRUCTURAL ENGINEER & ARCHITECT.
3. CONTRACTORS SHALL NOTIFY THE OWNER OR GENERAL CONTRACTOR (& OTHER CONTRACTORS WHO ARE INVOLVED) OF ALL OPENINGS, FOUNDATION WORK, HANGERS, INSERTS, ANCHORS, OR OTHER PROVISIONS NECESSARY IN THEIR WORK FOR THE INSTALLATION OF HIS WORK, & SHALL FURNISH ALL INFORMATION & NECESSARY MATERIALS IN AMPLE TIME SO THAT PROPER PROVISIONS CAN BE MADE FOR SAME, & SHALL SUPPLY & CORRECTLY, 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 & OTHER PROVISIONS AT A LATER DATE, & THE SUBSEQUENT PATCHING, ETC., THEREBY REQUIRED.
5. NO CUTTING SHALL BE DONE WITHOUT PERMISSION. ALL SUCH WORK SHALL BE DONE BY TRADESMEN SKILLED IN & CERTIFIED FOR THIS PARTICULAR TRADE.
6. ALL PENETRATIONS TO BE APPROVED BY THE ARCHITECT OR LANDLORD IN WRITING.
7. PROVIDE SLEEVES, FLASHING AND COUNTER FLASHING WHERE MECHANICAL SERVICES PENETRATE WALLS, FLOORS & ROOFS. ANNULAR SPACE BETWEEN SLEEVES & SERVICES SHALL BE CAULKED WITH FIREPROOF MATERIAL & SEALED AIR TIGHT. EX. 2-PART FLEXIBLE POLYURETHANE GROUT - SIKAFIX PU.
8. 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.
9. 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.

23 05 00 - 8.0 ACCESS DOORS

1. SUPPLY ACCESS DOORS TO GIVE ACCESS TO ALL MECHANICAL WORK WHICH MAY NEED MAINTENANCE, REPAIR OR SHUT OFF VALVES LOCATIONS BUT WHICH IS CONCEALED IN INACCESSIBLE CONSTRUCTION, EXCEPT AS OTHERWISE SPECIFIED HEREIN OR ON THE DRAWINGS.
2. LOCATE ACCESS DOORS WHERE REQUIRED & OF SUFFICIENT SIZE FOR SERVICING VALVES, DAMPERS, CLEANOUTS, ETC. DOORS SHALL BE FLUSH MOUNTING, SCREWDRIVER ACCESS, METAL TYPES, 16 GAUGE PRIMED STEEL.
3. ACCESS DOORS IN FIRE RATED CONSTRUCTION ARE TO BE ULC LISTED & LABELED AND OF A RATING TO MAINTAIN THE FIRE SEPARATION INTEGRITY.

23 05 00 - 9.0 FIRE STOPPING

1. CONTRACTOR TO PROVIDE ULC LISTED FOR STOPPING ASSEMBLIES WHERE PIPES & DUCTS PASS THROUGH BUILDING ASSEMBLIES THAT ARE FIRE RATED. CONTRACTOR TO INSTALL AS PER MANUFACTURERS WRITTEN INSTRUCTIONS. CONTRACTOR TO PROVIDE CONSULTANT WITH ULC LISTING UPON REQUEST.
2. FIRE STOPPING TO BE TESTED IN ACCORDANCE WITH CAN-4—S115—M "STANDARD METHOD OF FIRE TESTING OF FIRE STOP SYSTEMS" AND THE LOCAL STANDARDS.
3. FIRESTOPPING & SMOKE SEAL SYSTEMS: ASBESTOS-FREE MATERIALS AND SYSTEMS CAPABLE OF MAINTAINING AN EFFECTIVE BARRIER AGAINST FLAME, SMOKE AND GASES IN COMPLIANCE WITH REQUIREMENTS OF CAN/ULC—S115—M OR ULI 1479 AND ASTM 814, AND NOT TO EXCEED OPENING SIZES FOR WHICH THEY ARE INTENDED.
4. FIRE RESISTANCE RATING OF INSTALLED FIRESTOPPING ASSEMBLY SHALL NOT BE LESS THAN THE FIRE RESISTANCE RATING OF SURROUNDING FLOOR & WALL ASSEMBLY AS INDICATED.
5. INSTALL FIRESTOPPING & SMOKE SEAL MATERIAL AND COMPONENTS THAT HAVE BEEN TESTED BY CERTIFIED TESTING AGENCIES, ULC, CUL, OR INTERTEK, & MANUFACTURER'S INSTRUCTIONS TO PROVIDE A FLAME RATED SEAL NOT LESS THAN THE FIRE RESISTANCE RATING OF THE SURROUNDING WALL OR FLOOR ASSEMBLY. TEMPERATURE RATINGS MAY BE REQUIRED IN CERTAIN INSTANCES AND SHOULD BE SPECIFIED BY THE ENGINEERING OR ARCHITECTURAL AUTHORITY.
6. FIRE STOPPING OF FIREWALL PENETRATIONS MUST PROVIDE A 2HR FT RATING. ALL PENETRATIONS OF FIRE SEPARATIONS & FIRE RATED ASSEMBLIES MUST BE SEALED WITH A FIRE STOP SYSTEM CONFORMING TO ULC-S115.

23 05 00 - 10.0 DAMPERS

1. THE LOCATION OF BALANCE DAMPERS, FIRE DAMPERS, VALVES, ETC. ABOVE CEILING PANELS SHALL HAVE THEIR LOCATION IDENTIFIED BY MEANS OF A DATA DOT. IN THE CASE OF T-BAR CEILINGS, THE DATA DOT SHALL BE PLACED ON THE METAL T—BAR RAIL, NOT ON THE CEILING TILE.

23 05 00 - 11.0 IDENTIFICATION OF HVAC SYSTEMS

1. MANUFACTURER'S NAMEPLATES: PROVIDE FACTORY SUPPLIED AND INSTALLED NAMEPLATE ON EACH PIECE OF EQUIPMENT.
2. PROVIDE REGISTRATION/APPROVAL NAMEPLATES (IE. CSA, ULC, ASME) IN ACCORDANCE WITH THE REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION.
3. PROVIDE LAMACOID OR ADHESIVE LABELS WITH BLACK LETTERING ON WHITE BACKGROUNDS ON EACH PIECE OF HVAC EQUIPMENT (RTU, BYPASS BOX, VAV BOX, FAN COIL, HEAT PUMP, CONDENSING UNIT, TERMINAL UNIT, WSHP, EXHAUST FAN, BOILER, ETC) THAT CORRESPONDS WITH THE TAGS PROVIDED ON THE PLANS AND SPECIFICATIONS IN A EASY VISIBLE LOCATION. THE CONTROL DEVICE (THERMOSTAT, SWITCH, ETC) SHALL ALSO BE PROVIDED WITH AN ADHESIVE LABEL INDICATING THE SAME TAG DESCRIPTION FOR THE PIECE OF EQUIPMENT THAT IT SERVES.
4. PROVIDE LABELS FOR ALL PIPING INDICATING FLUID FLOW DIRECTION & SERVICE DESCRIPTION.

23 05 00 - 12.0 CONSTRUCTION SCHEDULE

1. OWNER (OR OWNER'S REPRESENTATIVE) TO PROVIDE THE ENGINEER WITH ACCURATE CONSTRUCTION SCHEDULE AT THE OUTSET OF CONSTRUCTION & INCLUDE UPDATES AS APPLICABLE.
2. THIS CONTRACTOR SHALL SCHEDULE & PERFORM HIS WORK TO MEET THE COMPLETION SCHEDULE, NOTED ABOVE, AS SET OUT BY THE CLIENT.

23 05 00 - 13.0 CHANGES OR REVISIONS & 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.
3. THERE SHALL BE NO EXTRA CLAIM FOR RELOCATION OF ANY EQUIPMENT/ FIXTURES WITHIN 10 FEET FROM ORIGINAL LOCATION.
4. WHENEVER THE CONSULTANT PROPOSES IN WRITING TO MAKE A CHANGE OR REVISION TO THE DESIGN, ARRANGEMENT, QUANTITY OR TYPE OF ANY WORK FROM THAT REQUIRED BY THE CONTRACT DOCUMENTS, PREPARE AND SUBMIT TO THE CONSULTANT FOR APPROVAL, A QUOTATION BEING THE ELECTRICAL CONTRACTOR'S PROPOSED COST FOR EXECUTING THE CHANGE OR REVISION.
5. RELOCATING ANY MECHANICAL EQUIPMENT LESS THAN 10 FEET IS NOT TO BE CONSIDERED AN EXTRA IN THE PROJECT
6. CONTRACTOR TO PROVIDE PRICING ON ALL NORTHSTAR ISSUED OFFICIAL CHANGE ORDERS IN THE FORMAT REQUESTED BASED ON THE SPECIFIC ITEM NUMBERS LISTED ON THE NORTHSTAR CHANGE REQUEST DOCUMENT. ONE PRICE FOR EACH ITEM LISTED. PRICING TO INCLUDE ALL LABOUR AND MATERIALS REQUIRED FOR THE SCOPE REQUESTED. NORTHSTAR WILL NOT NECESSARILY APPROVE PRICING BASED UPON INDUSTRY PRICE GUIDES SUCH AS "ALLPRISER" OR SIMILAR METHOD. PRICING WILL BE REVIEWED BASED ON FAIR MARKET CONDITIONS. CONTRACTOR TO PROVIDE CHANGE ORDER PRICING IN A TIMELY MANNER FOR NORTHSTAR'S REVIEW. NO WORK SHALL PROCEED UNTIL OFFICIAL WRITTEN ACCEPTANCE IS ISSUED BY NORTHSTAR.

23 05 00 - 14.0 SHOP DRAWINGS:

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. THESE SHOP DRAWINGS SHALL INCLUDING BUT NOT LIMITED TO MECHANICAL EQUIPMENT, PIPING & ACCESSORIES. ALLOW MINIMUM 5 BUSINESS DAYS TO RETURN REVIEWED SHOP DRAWINGS. (BASED ON COMPLEXITY).
3. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL DIMENSIONS. THE ENGINEER'S REVIEW OF SHOP DRAWINGS SHALL BE FOR GENERAL DESIGN ONLY & SHALL NOT RELIEVE THE MECHANICAL CONTRACTOR OR SUPPLIER FROM THEIR RESPONSIBILITY FOR ERRORS, PROPER FITTING, & CONSTRUCTION OF THE WORK & FURNISHING OF MATERIALS. THE REVIEW SHALL NOT BE CONSTRUED AS APPROVING DEPARTURES FROM THE CONTRACT DOCUMENT REQUIREMENTS IF SUCH DEPARTURES ARE NOT SPECIFICALLY NOTED IN A COVERING LETTER ACCOMPANYING SUCH DRAWINGS.
4. ALTHOUGH EVERY EFFORT HAS BEEN MADE TO QUANTIFY THE NUMBER OF EQUIPMENT REQUIRED FOR THE COMPLETE INSTALLATION, THE SHOP DRAWING REVIEW DOES NOT CONSTITUTE ANY QUALIFICATION OF QTY'S REQUIRED.
5. ANY DEVIATION FROM THE DESIGN, DRAWINGS OR COMPONENT CONFIGURATION, IS TO BE COMMUNICATED CLEARLY TO THE CONSULTANT SEPARATELY, AND MUST INCLUDE A SKETCH, SYSTEM CONTEXT RATIONALE FOR THE CHANGE, BENEFIT FOR THE CHANGE FOR THE CONSULTANTS REVIEW.

23 05 00 - 15.0 SUBSTITUTIONS

1. 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, & 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.

23 05 00 - 16.0 MECHANICAL HVAC TESTING REQUIREMENTS

1. HVAC DUCTWORK, PIPING, & EQUIPMENT SHALL NOT BE CONCEALED OR COVERED UNTIL INSPECTED & APPROVED BY THE AUTHORIZED INSPECTION AGENCY & THE ENGINEER. PROVIDE WRITTEN NOTICE (TWO WORKING DAYS) TO THE CONSULTANT BEFORE TESTS.
2. SATISFACTORILY PERFORM ALL TESTING REQUIRED BY GOVERNING AUTHORITIES, CODES, REGULATION. RESULTS OF SUCH TESTS SHALL CONFORM TO THE REQUIREMENTS OF THE APPLICABLE BUILDING CODE & SHALL BE TO THE SATISFACTION OF THE AUTHORIZED INSPECTION AGENCY & THE ENGINEER.
3. ANY TEST RESULTS THAT DO NOT MEET THE MINIMUM REQUIREMENTS OF THE MANUFACTURER, APPLICABLE BUILDING CODE, AUTHORIZED INSPECTION AGENCY & THE ENGINEER SHALL BE REPAIRED IN A METHOD APPROVED BY THE ENGINEER & RETESTED AT THE EXPENSE OF THE CONTRACTOR.
4. PROVIDE BALANCING OF AIR, WATER, RETURN AND EXHAUST FAN SYSTEMS AS INDICATED BELOW.
5. PROVIDE THREE COPIES OF THE BALANCE REPORT FOR INCLUSION IN THE OPERATING AND MAINTENANCE MANUALS.
6. TESTING TO BE PERFORMED IN BOTH COOLING AND HEATING MODE.
7. AIR AND WATER FLOW RATES TO BE WITHIN 5% OF THOSE SPECIFIED.
8. ADJUST AND BALANCE MAJOR NEW OR EXISTING EQUIPMENT COMPONENTS TO PROVIDE FLOW RATES PRIOR TO ISSUING FINAL REPORT TO ENGINEER.
9. INDICATE OPERATING PERFORMANCE (DESIGN VS ACTUAL) OF ALL FANS AND AIR SYSTEMS TO BE SHOWN.
10. ALL USED MEASURING EQUIPMENT SHALL HAVE A CALIBRATION DATE NO LATER THAN ONE YEAR.
11. INDICATE IF ROOM DOORS ARE CLOSED WHEN S/A, R/A, 0/A AND E/A ARE MEASURED AND ALL SYSTEMS ARE RUNNING.
12. INDICATE OUTDOOR AIR FLOW FROM EACH FAN COIL UNIT WITH OUTDOOR AIR DAMPER AT MINIMUM AND MAXIMUM POSITION.
13. INDICATE MOTOR HP DRAW, LOCK ROTOR AMPERAGE, RUNNING LOAD AMPERAGE PER PHASE AND FAN AND MOTOR RPM OF EACH ROOF TOP UNIT.
14. BALANCING FIRM SHALL REPORT ANY DEFECTS OR DEFICIENCIES THAT AFFECT OBTAINING SPECIFIED FLOW RATES PRIOR TO ISSUING FINAL REPORT TO ENGINEER.
15. PREPARE REPORT IN ACCORDANCE WITH PROCEDURES. FORMAT AND INFORMATION REQUIRED WITHIN THE CURRENT EDITION LOCAL GUIDELINE, PROVIDE INFORMATION OF EXISTING EQUIPMENT IF REQUIRED.
16. BALANCING REPORT TO INCLUDE INLET STATIC PRESSURES AT ROOF TOP UNITS AND SUPPLY AIR TEMPERATURES AT DIFFUSERS.
17. MECHANICAL CONTRACTOR, SHEET METAL AND CONTROL SUB-TRADES SHALL COOPERATE WITH BALANCING FIRM WHEN BALANCING IN PROGRESS.
18. WHEN TENANT SPACE IS OCCUPIED PRIOR TO BALANCING, CONTINUE EXECUTION OF SUCH WORK OUTSIDE OF OCCUPIED HOURS, COORDINATE WITH TENANT.
19. IF REPORT IS REJECTED TO IMPROPER BALANCING PROCEDURES, SYSTEM SHALL BE RE-BALANCED AT NO EXTRA COST.
20. SUBMIT ALL TEST RESULTS TO THE ENGINEER FOR APPROVAL

23 05 00 - 17.0 CLEANING AND WASTE REMOVAL

1. CLEAN ALL HVAC EQUIPMENT, DUCTWORK, PIPING THAT HAS BEEN EXPOSED TO CONSTRUCTION DUST & DIRT, INSIDE & OUT, PRIOR TO TURN OVER TO OWNER. EQUIPMENT IS SUBJECT TO REVIEW BY ENGINEER'S REPRESENTATIVE &/OR OWNER.
2. CONTRACTOR IS RESPONSIBLE FOR REMOVING THEIR OWN WASTE FROM THE SITE. ALL RE-USABLE MATERIALS SHALL BE RECYCLED.

23 05 00 - 18.0 DEMONSTRATION OF THE SYSTEM

1. DEMONSTRATE THE FUNCTION & OPERATION OF EACH SYSTEM TO THE OWNER.

22 05 00 - 17.0 PROJECT CLOSEOUT SUBMITTALS

PRIOR TO APPLICATION FOR SUBSTANTIAL PERFORMANCE, SUBMIT ALL REQUIRED ITEMS AND DOCUMENTATION SPECIFIED, INCLUDING THE FOLLOWING:

1. RECORD "AS-BUILT" DRAWINGS: AS-BUILT DRAWINGS SHALL BE CLEARLY MARKED IN RED INCLUDING ALL CHANGES TO THE ORIGINAL TENDER DRAWINGS COVERED BY ADDENDA, CHANGE ORDERS, FIELD CHANGES, JOB CONDITIONS, ETC.
2. ALL TEST REPORTS REQUIRED AS DESCRIBED HEREIN.
3. A WRITTEN WARRANTY TO BE PROVIDED FOR A MIN. OF ONE YEAR FROM THE DATE OF ACCEPTANCE BY THE OWNER. PROVIDE LABOUR, MATERIAL & SERVICES TO CORRECT ALL FAULTS REPORTED DURING THE GUARANTEE PERIOD.
4. PROVIDE A SIGNED AND SEALED SCHEDULE S—/B/S—/C FROM A REGISTERED PROFESSIONAL ENGINEERING INDICATING THAT ALL MECHANICAL EQUIPMENT IS SEISMICALLY RESTRAINED IN ACCORDANCE WITH THE LOCAL JURISDICTION CODES AND BYLAWS & SMACNA 'GUIDELINES FOR SEISMIC RESTRAINTS OF MECHANICAL SYSTEMS AND PLUMBING PIPING SYSTEMS."

23 08 00 COMMISSIONING OF HVAC

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 W

10. PROVIDE THERMOMETERS IN THE FOLLOWING LOCATIONS IN PIPELINES: EACH HOT OR COLD WATER STORAGE TANK AND WHERE SPECIFICALLY SHOWN.

11. VALVES SHALL BE PROVIDED;
    a. AT BASE OF ALL WATER RISERS.
    b. AT INLET AND OUTLET OF ALL EQUIPMENT.
    c. A SHUT-OFF VALE AND BALANCING VALVES AT ALL HEAT TRANSFER EQUIPMENT.
    d. AT ALL BRANCH TAKE-OFF.
    e. AT LOWEST POINTS OF LINE HAVING DRAIN VALVE ALLOWING FOR COMPLETE DRAIN OF THE SYSTEM.

23 21 00 HYDRONIC PIPING AND PUMPS

1. SCHEDULE 40 WELDED STEEL TO ASTM A53—B. MAKE CONNECTIONS TO EQUIPMENT WITH UNIONS AND MECHANICAL COUPLINGS.

2. SCREWED FITTINGS FOR PIPING 2" AND UNDER. FLAMED, WELDED OR GROOVED MECHANICAL COUPLINGS FOR PIPING 2—1 /2" AND OVER.

3. DO NOT INSTALL HEATING WATER PIPING IN EXTERIOR WALLS OR UNHEATED AREAS OF THE BUILDING.

4. PRESSURE TESTING: TEST HEATING WATER PIPING AT A PRESSURE OF 860KPA (125PSIG). DEMONSTRATE THE TEST PRESSURE DOES NOT FLUCTUATE FOR A PERIOD OF EIGHT HOURS. HAVE TEST WITNESSED BY THE CONSULTANT OR THE OWNER'S DESIGNATED REPRESENTATIVE.

5. PROVIDE 13—MM ISOLATION VALVES FOR ALL AIR VENTS AND GAUGES. PROVIDE ISOLATION BALL VALVES ON BOTH THE HEATING WATER SUPPLY AND HEATING WATER RETURN LINES SERVING ALL HYDRONIC HEATING APPLIANCES. PROVIDE TREADED UNIONS ON ALL PIPING CONNECTIONS TO CONTROL VALVE ASSEMBLIES.

6. BALANCING VALVES: INSTALL ARMSTRONG MODEL CBV OR APPROVED EQUIVALENT CIRCUIT BALANCE VALVES WITH READ-OUTS PORTS, POSITION READ-OUT AND MEMORY AND INSULATED VALVE BODY PACKAGING.

7. CHEMICAL TREATMENT: PROVIDE AND INSTALL A CHEMICAL POT FEEDER FROM PACE CHEMICALS. THOROUGHLY FLUSH ALL HYDRONIC SYSTEM PIPING. INSTALL SOFTENERS, ANTI-OXIDENTS AND INHIBITORS TO THE RECOMMENDATIONS OF PACE CHEMICALS. INSTALL 40% ETHYLENE GLYCOL IN ALL SYSTEMS SUBJECT TO FREEZING CONDITIONS EXCEPT WHERE NOTED OTHERWISE. SUBMIT PACE CHEMICAL SYSTEM FLUID TEST REPORT PRIOR TO BUILDING OCCUPANCY.

23 23 00 REFRIGERANT PIPING:

1. COMPLY WITH PROVINCIAL REGULATIONS AND THE CURRENT EDITION OF CSA B52, MECHANICAL REFRIGERATION CODES.

2. SCOPE:
    a. LIQUID INDICATORS.
    b. STRAINERS.
    c. HOT GAS REGULATOR AND HOT GAS PIPING, FOR LAST STAGE, PIPED BETWEEN COIL AND CONDENSING UNIT.
    d. FILTER-DRYERS.
    e. SOLENOID VALVES.
    f. EXPANSION VALVES.
    g. REFRIGERANT CHARGING VALVES.
    h. FLEXIBLE CONNECTIONS.

SUCTION AND LIQUID LINES SHALL BE TYPE A,C&R 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.

23 30 00 HVAC AIR DISTRIBUTION

1. 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.

2. 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.

3. 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.

4. AIR MU EQUIPMENT TO BE FURNISHED WITH FLEXIBLE DUCT (DURADYNE NEOPRENE OR EQUIVALENT) AND SERVICE CONNECTIONS AS PER MFG. RECOMMENDATIONS. 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.

5. GALVANIZED STEEL LOCK FORMING DUCTWORK, WITH GALVANIZED COATING CONFORMING TO ASTM A525 G90, FABRICATED TO THE REQUIREMENTS OF SMACNA STANDARDS FOR THE SPECIFIED CLASSIFICATIONS. ALL DUCTWORK USED ON THIS PROJECT SHALL BE CLEAN AND FREE OF SCALE.

6. ALL DUCTWORK ON THIS PROJECT IS CLASSIFIED AS LOW PRESSURE, SHEET METAL SCREWS MAY BE USED FOR FASTENING JOINTS, WRAP ALL JOINTS WITH FIRE AND WATER RESISTIVE DUCT TAPE AND SEAL WITH WATER RESISTANT SEALANT, USE ROBSON'S DUCT SEAL OR DURO DYNE S—2 WITH FT-2 TAPE TLEXMASTER DUCT BAND.

7. DUCTS THAT PENETRATE EXTERIOR WALLS ASSEMBLIES MUST BE SEALED TO THE WEATHER BARRIER USING SELF ADHESIVE BITUMINOUS MEMBRANE AND EXPANDING FOAM SEALANT.

8. DUCT ACCESS DOORS SHALL HAVE ULC LISTING AND SHALL BE 450X450 UNLESS OTHERWISE REQUIRED BY DUCT SIZE.

9. FABRICATED BALANCING DAMPERS FROM MINIMUM 1.6 MM THICK GALVANIZED STEEL, WITH ADJUSTMENT ROD AND LOCK SCREW, PROVIDE AS INDICATED ON THE DRAWINGS.

10. INSTALL CANVAS FLEXIBLE CONNECTIONS ON INLET TO ALL EXHAUST FANS, AND INLET AND OUTLET OF ROOF MOUNTED AIR HANDLING UNITS, ENSURE THAT FLEX DOES NOT IMPEDE AIRFLOW AND ALLOWS MOVEMENT OF EQUIPMENT WITHOUT TRANSMITTING VIBRATION INTO THE DUCTWORK. INSTALL FLEXIBLE DUCT CONNECTIONS WITH A MINIMUM 40 MM (1 1/ INCHES) METAL-TO-METAL GAP.

11. MAINTAIN ALL DUCTWORK INSTALLED ON THIS PROJECT CLEAN AND FREE FROM DUST AND OTHER WORKPLACE DEBRIS, IF IN THE CONSULTANT'S OPINION ANY DUCTWORK INSTALLED HAS NOT BEEN MAINTAINED IN A CLEAN CONDITION THE CONTRACTOR SHALL RETAIN THE SERVICES OF A CERTIFIED DUCT CLEANING COMPANY TO THOROUGHLY VACUUM AND CLEAN ALL OUTDOOR, SUPPLY AND RETURN AIR DUCTWORK INSTALLED.

12. DUCTWORK LAYOUTS ARE SHOWN AS SCHEMATIC INFORMATION ONLY, PROVIDE OFFSETS AND TRANSITIONS TO ROUTE THE DUCTWORK AS REQUIRED TO SUIT THE STRUCTURE AND MAINTAIN THE DESIGN PERFORMANCE AS CLOSE AS POSSIBLE WITHOUT EXTRA COST.

13. SIZE ROUND DUCTS, INSTALLED IN PLACE OF RECTANGULAR DUCTS, FROM ASHRAE TABLE OF EQUIVALENT RECTANGULAR AND ROUND DUCTS, NO VARIATION OF DUCT CONFIGURATION OR SIZES PERMITTED EXCEPT BY PERMISSION FROM CONSULTANT.

14. INDICATE DUCT SIZE, DUCT FUNCTION (I.E.: "SUPPLY , EXHAUST") AND AIR HANDLING UNIT OR FAN (I.E.: AHP—1, EF—1) TO WHICH THE DUCT IS CONNECTED, USE ARROW TO INDICATE AIR FLOW DIRECTION.

15. IDENTIFY DUCT RUNS AT LEAST ONCE IN EVERY ROOM AND MAXIMUM 50 FT. BETWEEN MARKINGS.

16. THE NOMENCLATURE FOR IDENTIFICATION OF EQUIPMENT SHALL BE CONSISTENT WITH THE DESIGNATIONS IN THE PLANS AND SPECIFICATIONS.

23 50 00 CENTRAL HEATING EQUIPMENT

23 51 00 BREECHINGS, CHIMNEYS, AND STACKS

1. INSTALL VENTS, COMPLETE WITH ACCESSORIES AND APPURTENANCES, IN ACCORDANCE WITH LATEST EDITIONS OF (CAN 1-B149.1), (CAN 4-B149.2) PROVINCIAL BUILDING CODE, MANUFACTURER'S INSTRUCTIONS AND AS FOLLOWS:
    a. TYPE A: TO CAN 4-S604.
    b. TYPE A-2: TO CAN 4-S629.
    c. TYPE B: TO CAN 4-S605.
    d. TYPE BW: TO CAN 4-S605.
    e. TYPE L: TO ULC S609.

2. DO NOT PENETRATE FLUE GAS CHAMBER OF VENT WITH SCREWS OR MECHANICAL FASTENERS.

3. INSTALL BREECHING WITH POSITIVE SLOPE UPWARD FROM APPLIANCE, MIN. 2%.

4. SUSPEND BREECHING USING TRAPEZE HANGERS AT 1500 MM CENTERS.

5. INSTALL CLEANOUT AT BASE OF CHIMNEY.

6. PROVIDE PROPERLY SIZED BAROMETRIC DAMPER AS REQUIRED.

7. SUPPORT CHIMNEY AT BOTTOM, ROOF AND INTERMEDIATE LEVELS.

8. INSTALL THIMBLES WHERE PENETRATING ROOF, FLOOR, CEILING AND WHERE BREECHING ENTERS MASONRY CHIMNEY.

9. INSTALL FLY ASH SCREEN ON ALL CHIMNEYS SERVING SOLID FUEL FIRED APPLIANCES.

10. INSTALL RAIN CAP ON CHIMNEY OUTLET.

11. PROVIDE FOR EXPANSION AND CONTRACTION OF CHIMNEY AND BREECHING.

23 52 00 BOILERS

1. ALL ELECTRICAL COMPONENTS TO BE OF A HIGH QUALITY AND ULC RATED

2. BOILER MUST BE CSD-1 COMPLIANT WITH FACTORY REPORT FOR ASME CSD-1

3. THE BOILER SHALL BE DIRECT VENT OR DIRECT EXHAUST USING PVC, CPVC, PP OR AL29-4C APPROVED VENTING SYSTEM

4. BOILER(S) SHALL BE 95+% MINIMUM AHRI CERTIFIED THERMAL EFFICIENT AS REQUIRED BY BTS 2000

5. WATER BOILER(S) CONTROLS FURNISHED WITH:
    a. HIGH LIMIT TEMPERATURE CONTROL WITH MANUAL RESET, FIXED 200 DEGREE F OPERATING LIMIT WITH 190 DEGREES F MAXIMUM BOILER WATER TEMPERATURE SET POINT
    b. COMBINATION PRESSURE-TEMPERATURE GAUGE. GAUGE DIAL CLEARLY MARKED AND EASY TO READ
    c. ASME CERTIFIED PRESSURE RELIEF VALVE SET TO RELIEVE AT 30 (OPTIONAL 50, 80, OR 100) PSIG
    d. FLUE GAS, OUTLET WATER TEMPERATURE, AND RETURN WATER TEMPERATURE SENSORS
    e. FIELD INSTALLABLE OUTDOOR TEMPERATURE SENSOR AND SYSTEM HEADER TEMPERATURE SENSOR
    f. LOW WATER PROTECTION WITH MANUAL RESET
    g. HIGH AND LOW GAS PRESSURE SWITCHES WITH MANUAL RESET AND INDICATOR LIGHTS
    h. CIRCULATOR EXERCISING
    i. BUILT-IN FREEZE PROTECTION
    j. WARM WEATHER SHUTDOWN

6. BOILER CONTROL TO BE UL 353 LISTED WITH:
    a. 3 PUMP CONTACTS
    b. FULLY CUSTOMIZABLE OUTDOOR RESET CURVE
    c. MULTIPLE BOILER SYSTEM FUNCTIONALITY INCLUDING LEAD / LAG CAPABILITY, AS WELL AS LEAD BOILER ROTATION
    d. ABILITY TO CONTROL A TOTAL OF 8 BOILERS
    e. CENTRAL HEADING AND DOMESTIC HOT WATER PRIORITIES. LARGE LCD SCREEN TO MONITOR MULTIPLE TEMPERATURES AT ONE TIME, INCLUDING SUPPLY, RETURN, HEADER, OUTDOOR, AND FLUE GAS TEMPERATURES
    f. ALARM CONTACTS THAT SIGNIFY ALL MANUAL RESET LOCKOUTS INCLUDING FLAME FAILURE, HIGH TEMPERATURE LIMITS, GAS PRESSURE LIMITS, AIR PRESSURE LIMIT, AND LOW WATER CUT OFF LIMIT
    g. REMOTE MODULATION CAPABLE OF INTERFACING WITH BUILDING AUTOMATION SYSTEMS THROUGH MODBUS, OR AN OPTIONAL MODBUS TO BACNET TRANSLATOR

23 80 00 DECENTRALIZED HVAC EQUIPMENT

23 84 13 HUMIDIFIERS

1. INSTALL IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS REGARDING MAXIMUM PIPING DISTANCES, CONDENSATE AND DRAIN PIPING, AND STEAM DISTRIBUTION MANIFOLD LOCATION. UNITS SHALL BE UL AND CSA LISTED.
2. INSTALL THE STEAM DISTRIBUTION MANIFOLD IN A SECTION OF ALUMINIUM DUCTWORK AND RIGIDLY SECURE IN PLACE. REMOVE ACOUSTIC INSULATION 2 M DOWNSTREAM OF DISTRIBUTOR.
3. LOCATE THE STEAM GENERATOR ON A WALL AT A LEVEL BELOW THE DUCT MOUNTED STEAM DISTRIBUTION MANIFOLD.
4. PROVIDE A HIGH LEVEL HUMIDISTAT AND AN AIR PROVING SWITCH IN THE SUPPLY DUCTWORK DOWNSTREAM OF THE DISTRIBUTION MANIFOLD.
5. CONNECT THE HUMIDIFIER CABINET WITH VALVED DOMESTIC WATER PIPING WITH BACKFLOW PREVENTER, AND INDIRECT DRAINAGE PIPING TERMINATED OVER A FUNNEL AND FLOOR DRAIN UNLESS OTHERWISE SPECIFIED OR SHOWN.
6. PROVIDE TYPE "L" HARD COPPER STEAM PIPING, SLOPED 7 TO 1 MINIMUM, FROM THE HUMIDIFIER TO THE STEAM DISTRIBUTION MANIFOLD, AND TYPE "L" HARD COPPER CONDENSATE PIPING SLOPED FROM THE MANIFOLD TO THE HUMIDIFIER.
7. CONCEAL ALL PIPING WHEREVER POSSIBLE.
8. DO ALL REQUIRED 24 VOLT CONTROL WIRING FROM HUMIDISTATS AND THE AIR PROVING SWITCH TO THE HUMIDIFIER POWER AND CONTROL PANEL. INSTALL CONTROL WIRING IN CONDUIT IN ACCORDANCE WITH REQUIREMENTS SPECIFIED IN DIV 26.
9. WHEN INSTALLATION OF THE HUMIDIFIER IS COMPLETE, ARRANGE FOR THE SUPPLIER TO VISIT THE SITE TO CHECK THE INSTALLATION, TO START UP THE UNIT, TO MAKE ANY REQUIRED ADJUSTMENTS, TO ENSURE THAT THE HUMIDIFIER IS OPERATING AS INTENDED, AND WHEN THE HUMIDIFIER IS OPERATING PROPERLY, TO CERTIFY THIS FACT IN WRITING TO THE CONSULTANT.
10. CONFIRM SIZE AND NUMBER OF STEAM PIPES FROM GENERATOR TO DISTRIBUTOR WITH SUPPLIER AND PROVIDED PIPING AS REQUIRED.
11. INSULATE ALL PIPING INCLUDING WATER SUPPLY, CONDENSATE, STEAM PIPING, ETC.

MECHANICAL HVAC - CONTROLS SEQUENCE SUMMARY

- **VENTILATION:** HRV-01 TO ALWAYS BE ON LOW SPEED & TRIGGERED TO HIGH SPEED BY THE LIGHTING CIRCUIT IN MENS WASHROOM (SEE DETAIL). OPERATION OF FAN COIL FANS TO BE INTERLOCKED TO HRV. FAN COIL FANS TO BE ON WHILE HRV FAN IS ON.

- **HEATING & COOLING:** EACH FAN COIL TO BE CONTROLLED BY INDIVIDUAL THERMOSTAT (COOLING SETPOINT: 24°C, HEATING SETPOINT: 22°C). PRIMARY HEAT PROVIDED BY FAN COIL HEAT PUMP. SECONDARY HEATING PROVIDED BY ELECTRIC DUCT HEATERS. IT IS RECOMMENDED THAT ALL FAN COIL THERMOSTATS BE SET FOR "FAN ON" AT ALL TIMES.

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.

ENSURE FILTERS ARE PROPERLY INSTALLED

PROVIDE ONE EXTRA FILTER TO BE INSTALLED PRIOR TO TURNOVER.

5 / M-4 Split AC HP / Generic Ducted - Installation
N.T.S.

3 / M-4 Split AC / Indoor Condensing Unit Installation
N.T.S.

9 / M-4 Air Intake / Louver & Filter Section Detail
N.T.S.

6 / M-4 Ductwork / Spiral / Support
N.T.S.

2 / M-4 HWT Install / Drain Pan
N.T.S.

MECHANICAL REPORTS REQUIRED FOR SIGN-OFF

1. CERTIFIED THIRD PARTY AIR BALANCING REPORT
2. AHJ (AUTHORITY HAVING JURISDICTION INSPECTION REPORTS
3. SIGN & DATED CONTRACTOR COMPLETION & WARRANTY LETTER

(04322) PROJECT DRAWING REGISTER

Sheet #	Sheet Name
E1/M1/P1	Project Cover
E2/M2/P2	Project Cover
M-3	HVAC - Specifications
M-4	HVAC - Specifications
M-5	HVAC - Scope of Work
M-6	HVAC - Scope of Work
M-7	HVAC - Bldg.1
M-8	HVAC - Bldg. 2
M-9	HVAC - Bldg. 3
M-10	HVAC - Bldg.4
M-11	HVAC - Bldg. 5
M-12	HVAC - Bldg.6
M-13	HVAC - Isometric & Elevation Views
M-14	HVAC Details
P-3	Plumbing - Specifications
P-4	Plumbing - Specifications
P-5	Plumbing - Site Plan
P-6	Plumbing - Bldg. 1
P-7	Plumbing - Bldg. 2
P-8	Plumbing - Bldg. 3
P-9	Plumbing - Bldg. 4
P-10	Plumbing -Bldg. 5
P-11	Plumbing - Bldg. 6
P-12	Plumbing -Typical Building
P-13	Plumbing - Details
P-14	Plumbing - Water Schematic
P-15	Plumbing - Sanitary Schematic
E-3	Elec. Power - Specifications
E-4	Elec. Power - Specifications
E-5	Elec. Power - Scope of Work
E-6	Electrical Site Plan
E-7	Elec. - SLD
E-8	Power/Comm - Bldg. 1
E-9	Elec. Lighting - Bldg 1
E-10	Power/Comm - Bldg. 2
E-11	Elec. Lighting - Bldg 2
E-12	Power/Comm - Bldg. 3
E-13	Elec. Lighting - Bldg 3
E-14	Power/Comm - Bldg. 4
E-15	Elec. Lighting - Bldg 4
E-16	Power/Comm. - Bldg. 5
E-17	Elec. Lighting - Bldg. 5
E-18	Power/Comm - Bldg. 6
E-19	Elec. Lighting - Bldg 6
E-20	Elec. Typical Building
E-21	Electrical Schedules
E-22	Electrical Details

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GENERAL DRAWING / DESIGNER NOTES:

[1] ALL CONSTRUCTION METHODS AND MATERIALS TO CONFORM TO THE LATEST EDITION OF THE PROVINCE OF ONTARIO'S "BUILDING CODE", LOCAL REGULATIONS AND AUTHORITIES HAVING JURISDICTION.

[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 CONTRACTOR.

[3] DRAWINGS ONLY SHOW GENERAL INTENT AND SCOPE OF WORK. EXACT DETAILS OF INSTALLATIONS ARE TO BE PROVIDED BY CONTRACTOR(S). DO NOT SCALE DRAWINGS.

[4] CONTRACTOR/AGENT/OWNER TO REPORT ALL DISCOVERIES OF ERRORS, OMISSIONS OR DISCREPANCIES TO THE DESIGNER.

[5] PROCEED WITH CONSTRUCTION ONLY USING THE LATEST REVISED DRAWINGS MARKED "ISSUED FOR CONSTRUCTION".

[6] THIS DRAWING IS SPECIFIC TO THIS PROJECT AND CANNOT BE USED FOR OTHER "SIMILAR" PROJECTS.

[7] THIS DRAWING IS THE PROPERTY OF NORTHSTAR ENGINEERING & TECHNOLOGIES LTD. UN-AUTHORIZED RE-PRODUCTION OR USE IS PROHIBITED.

[8] SHOP DRAWINGS:
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. THE SHOP DWG REVIEW WILL NOT RELEASE THE CONTRACTOR FROM ESPONSIBILITY TO MAKE A FEASIBLE WORKING SYSTEM. THESE SHOP DRAWINGS SHALL CONSIST OF PLUMBING FIXTURES, HVAC EQUIPMENT, HVAC DIFFUSERS.
ALLOW MINIMUM 1-2 WEEKS FOR COMPLETION (BASED ON COMPLEXITY).

[9] THE DESIGNER DOES NOT ACCEPT RESPONSIBILITY FOR OTHER DESIGNER'S WORK IN ASSOCIATION WITH THIS PROJECT.

[10] RESPONSIBILITY FOR ANY FINAL ASSEMBLY(S) THAT VIOLATE APPLICABLE BUILDING CODES IS NOT ACCEPTED BY THE DESIGNER.

[11] REQUESTS FOR CHANGES OR SUBSTITUTIONS TO EQUIPMENT, PLANS AND / OR SPECIFICATIONS WILL BE SUBJECT TO ADDITIONAL FEES CHARGED BY THE CONSULTANT.

[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 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 DRAWINGS TO BE BASED ON DWGS MARKED "ISSUED FOR TENDER" OR "ISSUED FOR CONSTRUCTION" ONLY.

[16] ALL REQUESTS FOR DESIGN CHANGES / SUBSTITUTIONS TO BE MADE IN WRITING. ADDITIONAL FEES MAY APPLY. ALLOW MINIMUM (1) ONE WEEK TO REVIEW AND RESPOND TO CHANGE REQUESTS.

DRAWING REVISIONS

No.	Description	Date
2	Issued for Review	Apr. 22/22
3	Preliminary for Review	Sep. 09/22
4	Issued for Permit	Oct. 05/22
5	Issued for Tender	May 18/23
6	Re-Issued for Tender	Dec. 20/24

Engineer's Seal:

Client: WW Inc.

Address: Minden, ON

Project Name: Gull River Affordable Housing

Dwg. Name: HVAC - Specifications

NSET Project #: 04322

Drawn by: Northstar Eng. | Checked by: J.D.L.

Scale: As indicated | Revision #: 6.0

Drawing #: M-4

Project Date: Jan. 14/22 | Arch-D (24" x 36")

MECHANICAL HVAC - SCOPE OF WORK

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

OBTAIN ALL REQUIRED CLIENT TRAINING, HEALTH & SAFETY, ELEVATED WORK, HOT WORK TRAINING & CERTIFICATIONS.

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

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

TENDER - PHASE - MECHANICAL

M 1.0. THE CONTRACT SHALL BE GOVERNED BY THE LAWS OF THE CANADIAN PROVINCE BASED ON THE PROVINCAL ADDRESS OF THE PROJECT.

M 1.1. CONTRACTOR TO BE FAMILIAR WITH AND FULLY ABIDE BY ALL CLIENT / SITE SAFETY & CONFIDENTIALITY REQUIREMENTS FOR ACCESSING THE SITE STIPULATED IN THE CLIENT'S SAFETY REGULATIONS, RULES, POLICIES & PROTOCOLS. ALL VISITS TO BE ARRANGED WITH THE LISTED CLIENT REPRESENTATIVE IN WRITING IN ADVANCE OF THE VISIT. ENTRANCE TO THE SITE IS NOT PERMITTED WITHOUT A PRE-ARRANGED APPOINTMENT. CONTRACTOR TO CARBON COPY (CC) THE ENGINEER TO NOTIFY OF AN IMPENDING SITE VISIT IN WRITING.

M 1.2. CONTRACTOR SHALL COMPLETE ALL REQUIRED TRAINING SUCCESSFULLY IN FULL ACCORDANCE WITH THE CLIENT'S SPECIFIED TRAINING PROGRAM / REQUIREMENTS. WRITTEN PROOF TO BE PROVIDED TO THE ENGINEER PRIOR TO ENTERING THE SITE.

M 1.3. CONTRACTOR TO BE FAMILIAR WITH AND FULLY ABIDE BY ALL PROVINCIAL AND CLIENT / SITE SAFETY PPE REQUIREMENTS WHILE AT THE CLIENT'S SITE.

M 1.4. CONTRACTOR TO VISIT THE SITE AND FAMILIARIZE THEMSELVES WITH ALL OF THE REQUIREMENTS OF THIS PROJECT PRIOR TO THE TENDER PHASE TO REVIEW THE EXISTING CONDITIONS AND THE RELATIONSHIP TO THE NEWLY PROPOSED DESIGN. PARTICULAR ATTENTION TO BE PAID TO MODIFICATIONS TO EXISTING SERVICES (IF APPLICABLE).

M 1.5. CONTRACTOR TO VISIT THE SITE AND FAMILIARIZE THEMSELVES WITH ALL OF THE REQUIREMENTS OF THIS PROJECT.

M 1.6. THE SPECIFICATIONS TEXT LISTED IN THE TENDER DOCUMENTS SHALL HAVE PRIORITY OVER THE DRAWINGS AND PLANS. THIS MAY IN "SHEET" FORMAT OR "BOOK" FORMAT.

M 1.7. ANY AND ALL QUESTIONS RELATED TO THE SPECIFICATIONS AND/OR DESIGN DOCUMENTS PROVIDED BY NORTHSTAR ARE TO BE COMMUNICATED IN WRITING TO THE PRIME CONSULTANT AND CARBON COPIED TO NORTHSTAR IN A TIMELY MANNER WITHIN THE TENDER PERIOD. THE ENGINEER WILL NOT RESPOND TELEPHONE CALLS TO CLARIFY SCOPE. REASONABLE TIME SHALL BE ALLOWED FOR A WRITTEN RESPONSE FROM NORTHSTAR. NORTHSTAR WILL NOT PROVIDE INFORMATION OR SCOPE CHANGES VERBALLY / OR IN WRITING, TO ANY ONE BIDDING PARTY WITHOUT THE PROVISIONS OF A FORMAL ADDENDUM.

M 1.8. SHOULD THERE BE A CONFLICT OR INCONSISTENCY WITHIN THE DRAWINGS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN A TIMELY MANNER WITHIN THE TENDER PERIOD.

M 1.9. THE DESIGN DRAWINGS PROVIDED BY NORTHSTAR ARE GENERAL LAYOUTS ONLY. THE CONTRACTOR SHALL PROVIDE A COMPLETE, WORKING INSTALLATION BASED ON THE GENERAL LAYOUTS PROVIDED BY NORTHSTAR. SHOULD COORDINATION OF THE ACTUAL INSTALLATION REQUIRE ADDITIONAL CONDUIT, MATERIAL, FITTINGS THAN SHOWN, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF PROCUREMENT AND INSTALLATION. EXTRAS FOR OFFSETS AND ROUTING CHANGES WILL NOT BE APPROVED.

M 1.10. EVERY EFFORT HAS BEEN MADE BY NORTHSTAR TO PROVIDE A WORKABLE CONCEPT FOR THIS PROJECT. THE CONTRACTOR IS REQUESTED TO REVIEW THE VIABILITY OF THE DESIGN CONCEPT AND LIST ANY CONCERNS OR OBSTACLES TO THE SUCCESS OF THE PROPOSED PLAN BEFORE ORDERING OF MATERIALS OR PLANNING IS BEGUN.

M 1.11. CONTRACTOR TO INCLUDE COORDINATING, SUPPLYING AND INSTALLING NECESSARY ELECTRICAL CONTROLS CONDUITS TO SERVICE MECHANICAL EQUIPMENT FOR LOW-VOLTAGE (UNDER 30VAC) FOR ALL REQUIRED MECHANICAL CONTROLS.

M 1.12. NORTHSTAR WILL NOT PROVIDE VERBAL OR WRITTEN PERMISSION TO DEVIATE FROM THE CONTRACT DOCUMENTS DURING THE TENDER PERIOD UNLESS THROUGH A FORMAL ADDENDUM ISSUED BY NORTHSTAR AND-OR THE PRIME CONSULTANT.

M 1.13. CONTRACTOR TO FULLY REVIEW AND CONSIDER LISTED AND SPECIFIED TECHNICAL REPORTS PRIOR TO SUBMITTING THEIR BID.

M 1.14. IT SHALL BE ASSUMED THAT ANY FINAL BID SUBMITTED ON OR BEFORE THE OFFICIAL TENDER DATE SHALL BE DEEMED TO CONTAIN AND INCLUDE COSTING FOR ALL OFFICIAL CHANGES AND ADDENDUMS ISSUED BY NORTHSTAR AND OR THE CONSULTANT TEAM.

M 1.15. NORTHSTAR RESERVES THE RIGHT TO APPROVE AND/OR DENY ANY CONTRACTOR SELECTED EQUIPMENT / MATERILAS / METHODS - INCLUDING SHOP DRAWINGS THAT DEVIATE FORM THE DESIGN PRESENTED.

M 1.16. CONTRACTOR SHALL FULLY DISCLOSE IN THEIR BID A LIST OF SUB-CONTRACTORS CARRIED AND PLANNED TO BE EMPLOYED FOR THIS PROJECT BY THE CONTRACTOR.

M 1.17. CONTRACTOR SHALL IDENTIFY LONG-LEAD ITEMS IN THEIR BID SUBMISSION.

M 1.18. CONTRACTOR MAY IDENTIFY AN ALTERNATE SOLUTION FROM THE CONTRACT DOCUMENTS FOR NORTHSTAR'S REVIEW - AS AN OPTIONAL PRICE.

M 1.19. CONTRACTOR SHALL BE RESPONSIBLE FOR PRICING ALL MATERIALS CONTAINED WITHIN THE CONTRACT DOCUMENTS. FAILURE OF THE CONTRACTOR TO ORDER AND PROCURE THE SPECIFIED OR APPROVED ALTERNATE MATERIALS TO MEET THE PROJECT SCHEDULE IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

M 1.20. EVERY EFFORT HAS BEEN MADE BY NORTHSTAR TO PROVIDE A WORKABLE CONCEPT FOR THIS PROJECT. THE CONTRACTOR IS REQUESTED TO REVIEW THE VIABILITY OF THE DESIGN CONCEPT AND LIST ANY CONCERNS OR OBSTACLES TO THE SUCCESS OF THE PROPOSED PLAN ALONG WITH THE TENDER SUBMISSION.

M 1.21. ANY DEVICES THAT REQUIRE ELECTRICAL POWER OVER 50VAC ARE TO BE WIRED ENERGIZED AND COMMISSIONED BY THE ELECTRICAL CONTRACTOR.

M 1.22. CONTRACTOR TO OBTAIN PRICING AND CARRY THE COSTS OF ANY REQUIRED (QUALIFIED) COMPANIES TO PERFORM ANY LISTED TESTING AND OR INVESTIGATIONS PRIOR TO CONSTRUCTION. FEES FOR ALL LISTED REPORTS TO BE INCLUDED IN THE TENDER.

M 1.23. THE ENTIRE INSTALLATION IS TO BE WARRANTIED FOR A PERIOD OF NOT LESS THAN 1-YEAR INCLUDING PARTS AND LABOUR. THE WARRANTY PERIOD SHALL COMMENCE AT THE DATE OF SUBSTANTIAL COMPLETION GRANTED BY THE CONSULTANT.

M 1.24. CONTRACTOR TO PROVIDE PRICING ON ALL NORTHSTAR ISSUED OFFICIAL CHANGE ORDERS IN THE FORMAT REQUESTED BASED ON THE SPECIFIC ITEM NUMBERS LISTED ON THE NORTHSTAR CHANGE REQUEST DOCUMENT. ONE PRICE FOR EACH ITEM LISTED. PRICING TO INCLUDE ALL LABOUR AND MATERIALS REQUIRED FOR THE SCOPE REQUESTED. NORTHSTAR WILL NOT NECESSARILY APPROVE PRICING BASED UPON INDUSTRY PRICE GUIDES SUCH AS "ALLPRISER" OR SIMILAR METHOD. PRICING WILL BE REVIEWED BASED ON FAIR MARKET CONDITIONS. CONTRRACTOR TO PROVIDE CHANGE ORDER PRICING IN A TIMELY MANNER FOR NORTHSTAR'S REVIEW. NO WORK SHALL PROCEED UNTIL OFFICIAL WRITTEN ACCEPTANCE IS ISSUED BY NORTHSTAR.

M 1.25. NORTHSTAR OFFICIAL ISSUED SITE INSTRUCTIONS (OR S/S) ARE DIRECTIVES TO CHANGE THE INSTALLATION AND ARE NOT SUBJECT TO PRICING FROM THE CONTRACTOR. IF THE CONTRACTOR FEELS THAT THE ITEM WARRANTS AN ADDITIONAL COST TO THE PROJECT, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING PRIOR TO PRICING THE ITEM.

M 1.26. SPECIFICATIONS AND DRAWINGS FORM AN INTEGRAL PART OF THE CONTRACT DOCUMENTS. ANY SUBJECT OR ITEM OMITTED FROM ONE BUT WHICH IS MENTIONED OR REASONABLY IMPLIED IN THE OTHER SHALL BE CONSIDERED AS PROPERLY AND SUFFICIENTLY SPECIFIED AND SHALL BE INCLUDED AS PART OF THE WORK.

M 1.27. THE CONTRACTOR'S SUBMITTED PRICING IS TO CLEARLY LIST ALL OPTIONAL PRICING REQUESTED FOR IN THIS TENDER TO BE CONSIDERED A VALID TENDER SUBMISSION.

M 1.28. THE CONTRACTOR'S SUBMITTED PRICING IS TO INCLUDE ALL APPLICABLE TAXES.

M 1.29. THE OWNER IS TO BE RESPONSIBLE FOR ANY UTILITY FEES RELATED TO SERVICE UPGRADES.

M 1.30. SUPPLY AND INSTALL ANY APPURTENANT FITTINGS OR MATERIALS NOT EXPRESSLY LISTED WITHIN THE DRAWINGS OR SPECIFICATIONS THAT ARE NECESSARY FOR THE PROPER OPERATION OF ANY OF THE LISTED SYSTEMS. THE CONTRACT DOCUMENTS ARE NOT INTENDED TO ENUMERATE EACH AND EVERY DETAIL THAT MAY BE NECESSARY TO FURNISH AND INSTALL THE COMPLETE SYSTEM, CONNECTED AND READY FOR SERVICE OPERATION. THE TENDER PRICE SHALL INCLUDE ALL SUCH MATERIALS, AND ALL ASSOCIATED LABOUR AND MATERIALS, TO PROVIDE A COMPLETE AND WORKING SYSTEM.

M 1.31. ALL OF THE MATERIALS REQUIRED FOR THE PERFORMANCE OF THE WORK SHALL BE NEW, THE BEST QUALITY OF THEIR RESPECTIVE KIND, AND INSTALLED IN A GOOD, INDUSTRY STANDARD WORKMANSHIP.

M 1.32. CONTRACTOR SHALL CARRY THE COST OF ALL PERMIT APPLICATION FEES ASSOCAITED WITH THE WORK.

M 1.33. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CAREFULLY REVIEW THE DRAWINGS, SPECIFICATIONS, AND OTHER INSTRUCTIONS AND NOTIFY THE CONSULTANT IN WRITING OF ANY ERRORS, OMISSIONS, AND DISCREPANCIES PRIOR TO THE CLOSING OF TENDERS. THE CONTRACTOR SHALL ABIDE BY THE DECISION GIVEN IN WRITING. THE WORK AS SHOWN IS INTENDED TO BE COMPLETED IN ALL RESPECTS, AND FAILURE TO NOTIFY THE CONSULTANT OF ANY DISCREPANCIES WILL NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR COMPLETING THE WORK AS INTENDED. IN NO CASE SHALL THE CONTRACTOR PROCEED IN UNCERTAINTY

M 1.34. CONTRACTOR SHALL EXAMINE ALL SECTIONS AND DIVISIONS OF THE SPECIFICATIONS AND ALL OTHER RELATED CONTRACT DOCUMENTS IN CONTEXT OF THIS DESIGN INCLUDING THE ELECTRICAL, STRUCTURAL, CVIL AND ARCHITECTURAL DRAWINGS. THIS SPECIFICATION IS TO BE READ IN CONJUNCTION WITH AAL OTHER SECTIONS AND DIVISIONS OF THE SPECIFICATIONS. IN THE EVENT OF CONFLICT BETWEEN DOCUMENTS, THIS SPECIFICATION SHALL GOVERN.

M 1.35. ALL MECHANICAL WORK SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS, STANDARDS & REGULATIONS OF CSA, NFPA, NATIONAL BUILDING CODES, ALL MUNICIPAL BY-LAWS, REGULATIONS, AND ANY RELVENT AUTHORITIES HAVING JURISDICTION (AHJ).

M 1.36. CONTRACTOR SHALL INCLUDE LABOUR & MATERIAL THAT MAY BE REQUIRED TO RELOCATE ANY MECHANICAL UNIT UP TO 10 FEET (3M) FROM THE LOCATION INDICATED IN THE PLANS.

M 1.37. CONTRACTOR TO HOST A BI-WEEKLY SUB-TRADE MEETING ONSITE WITH THE OWNER TO UPDATE THE OWNER ON ALL ACTIVITIES. THIS IS TO BE DURING ALL CONSTRUCTION PHASES OF THE PROJECT FOR ALL UNIT REPLACEMENTS. DETAILED MEETING MINUTES ARE TO BE ISSUED TO THE OWNER AND ENGINEER. COORDINATE & REPORT TO THE BUILDING OWNER AT ALL TIMES DURING THE PROJECT.

M 1.38. ALL SHIPPING COSTS FOR ALL MATERIALS NEEDED FOR THE PROJECT ARE THE RESPONSIBILITY OF THE CONTRACTOR.

M 1.39. THE CONTRACTOR SHALL CARRY THE COST FOR A FACTORY (OR TRAINED REPRESENTATIVE OF THE MANUFACTURER) TO BE PRESENT FOR ALL EQUIPMENT START-UP'S AND PROVIDE ASSISTANCE FOR THE COMMISSIONING OF THEIR EUQUIPMENT. ALL EQUIPMENT AND SYSTEMS TO BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND MANUALS.

M 1.40. CAN/ULC S1001 COORDINATION WILL NOT BE PROVIDED BY NORTHSTAR. THE OWNER OR PRIME CONSULTANT IS TO RETAIN A CERTIFIED PROFESSIONAL TO PROVDE THIS SERVICE AND SUBSEQUENT REPORT. THIS IS TO BE COMPLETED AT THE FINAL STAGE OF THE PROJECT AND IS TO BE COORDINATED BY THE CONSULTANT RETAINED. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY LABOUR, MATERIALS & RESOURCES TO SUPPORT ALL TESTING AND COMMISSIONING OF THE INTEGRATED SYSTEMS BASED ON THE CONSUTLANT'S TESTING SCHEDULE.

M 1.41. CONTRACTOR TO CLEARLY LIST ALL ITEMS/SYSTEMS/REQUIREMENTS THAT ARE NOT SPECIFICALLY NOT QUOTED WITHIN THEIR TENDER SUBMISSION. UNLESS EXCEPTIONS ARE SPECIFICALLY NOTED AT THE TIME OF TENDER, THE SUBMISSION OF A TENDER CONFIRMS THAT THE CONTRACTOR HAS ACCEPTED ALL SPECIFICATIONS, DRAWINGS, CONTRACT DOCUMENTS, AND CONDITIONS WITHOUT QUALIFICATION. THE OWNER MAY NOT APPROVE ANY EXTRA CHARGES SUBSEQUENT TO THE ACCEPTANCE OF THE TENDER.

M 1.42. WHERE THE DRAWINGS OR SPECIFICATIONS ASSIGN WORK TO A PARTICULAR TRADE, IT IS THE INTENT THAT THIS BE USED AS A GUIDE ONLY TO ASSIST THE CONTRACTOR WITH THE PREPARATION OF THE TENDER PRICE. THE FINAL DECISION AS TO WHICH TRADE PROVIDES REQUIRED LABOUR OR MATERIALS RESTS SOLELY WITH THE CONTRACTOR. EXTRA PAYMENTS WILL NOT BE CONSIDERED BASED ON A DIFFERENCE IN INTERPRETATION OF THE CONTRACT DOCUMENTS AS TO WHICH TRADE INVOLVED PROVIDES MATERIALS OR LABOUR FOR SPECIFIC ITEMS OF WORK. WHEREVER DIFFERENCES OCCUR IN THE CONTRACT DOCUMENTS, THE MAXIMUM CONDITIONS WILL GOVERN AND SHALL BE ALLOWED FOR IN THE TENDER PRICE.

M 1.43. CONTRACTOR IS TO ALLOW FOR COSTS FOR ALL CUTTING AND PATCHING PERTAINING TO THE MECHANICAL SYSTEMS INSTALLATION UNLESS NOTED OTHERWISE. THIS SHALL INCLUDE ALL CUTTING AND PATCHING OF ROOFS, PARTITION WALLS, CEILINGS, FLOORS, AND OUTSIDE WALLS. ALL CUTTING AND PATCHING SHALL BE PERFORMED BY PERSONNEL SPECIALIZED IN THIS TYPE OF WORK AND CAPABLE OF PERFORMING TO GOOD COMMERCIAL STANDARDS. ALL PATCHING SHALL BE DONE SO AS TO MAINTAIN ANY FIRE SEPARATIONS, SOUND TRANSMISSION CLASS RATINGS, VAPOR RETARDANT PERFORMANCE, INSULATION VALUES, ETC.

M 1.44. THE OPTIONAL ITEMS LISTED BELOW ARE TO BE INDICATED IN THE CONTRACTORS BID SUBMISSION.

M 1.45. THE CONTRACTOR IS TO ABIDE BY THE CONTRACT DOCUMENTS AS DETAILED IN THE "BID FORM" & "VENDOR POLICY" PROVIDED BY THE CLIENT.

M 1.46. ALL CONTRACT DOCUMENTS WHERE THE WORD "NORTHSTAR" APPEARS, REFERS TO THE ENGINEERING CONSULTANT, NORTHSTAR ENGINEERING & TECHNOLOGIES LTD.

M 1.47. THERE MAY BE ADDITIONAL SCOPES OF WORK THAT THE OWNER MAY REQUIRE RELATED TO OUR CONSTRUCTION DOCUMENTS CONTAINED IN THE TENDER. THE CONTRACTOR IS ENCOURAGED TO CONTACT TO CONTACT THE OWNER OR OWNER'S REPRESENTATIVE TO ENQUIRE ABOUT ADDITIONAL WORK RELATED TO - BUT NOT CONTAINED IN THIS TENDER.

M 1.48. CONTRACTOR TO PROVIDE THE PRICE FOR THE WORK WITH REASONABLE DETAILED CONSIDERATION OF ALL OF THE CONSTRUCTION DOCUMENTS PROVIDED BY ALL CONSULTANTS ON THIS PROJECT. THIS INCLUDES CIVIL, SITE SERVICING, PLANNING, ARCHITECTURAL, STRUCTURAL, MECHANICAL & ALL ASSOCIATED CONTROLS CONTRACTORS.

M 1.49. CONTRACTOR TO CARRY THE COST OF ALL CRANE & RIGGING SERVICES FOR THE PROJECT COMPLETION. THE CONTRACTOR TO COORDINATE THE LIFTS AND WORK TO BE EFFICIENT AND COST EFFECTIVE. LOGISTICS TO BE ORGANIZED BY THE CONTRACTOR AND RE-SCHEDULING CRANSE SERVICES TO INCLUDE ADDITIONAL LIFTS IS TO BE THE RESPONSIBILITY OF THIS CONTRACTOR. COST TO BE INCLUDED ARE FOR ANY POLICE PAY-DUTY, MUNICIPAL TRAFFIC INTERRUPTION OR SHUT-DOWN.

M 1.50. CONTRACTOR TO PROVIDE ALL NECESSARY STANDS, BRACKETS, HANGERS, MOUNTS, SUPPORTS NECESSARY FOR A ROBUST, CODE COMPLIANT INSTALLATION. THIS INCLUDES ALL STANDS AND SUPPORTS OUTLINED (AND NOT OUTLINED) IN THE MECHANICAL DRAWINGS.

M 1.51. ALL MECHANICAL SERVICE ROOMS ARE TO BE CONSTRUCTED WITH CONCRETE PADS UNDER ALL MECHANICAL EQUIPMENT CONFORMING TO CSA STANDARDS "A3000" SERIES INCLUDING A23.1 – CONCRETE MATERIALS AND METHODS OF CONCRETE CONSTRUCTION. MINIMUM HEIGHT TO BE 4" (100MM). REFER TO PLANS FOR EQUIPMENT LOCATIONS PROPOSED.

PRE-CONSTRUCTION - PHASE - MECHANICAL

M 2.0. CONTRACTOR SHALL BE RESPONSIBLE FOR PRICING ALL MATERIALS CONTAINED WITHIN THE CONTRACT DOCUMENTS. FAILURE OF THE CONTRACTOR TO ORDER AND PROCURE THE SPECIFIED OR APPROVED ALTERNATE MATERIALS TO MEET THE PROJECT SCHEDULE IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR. NORTHSTAR WILL NOT APPROVE EXTRA COSTS FOR THE CONTRACTOR'S FAILURE TO ORDER THE REQUIRED MATERIALS & EQUIMENT IN A TIMELY MANNER IN ORDER TO MAINTAIN THE PROJECT SCHEDULE.

M 2.1. EVERY EFFORT HAS BEEN MADE BY NORTHSTAR TO PROVIDE A WORKABLE CONCEPT FOR THIS PROJECT. THE CONTRACTOR IS REQUIRED TO REVIEW THE VIABILITY OF THE DESIGN CONCEPT AND LIST ANY CONCERNS OR OBSTACLES TO THE SUCCESS OF THE PROPOSED PLAN BEFORE ORDERING OF MATERIALS OR PLANNING IS BEGUN.

M 2.2. EVERY EFFORT HAS BEEN MADE BY NORTHSTAR TO PROVIDE A WORKABLE DESIGN CONCEPT FOR THIS PROJECT. THE CONTRACTOR IS TO REVIEW THE VIABILITY OF THE DESIGN CONCEPT AND REPORT ANY CONFLICTS OR CONSTRUCTABILITY ISSUES CONCERNS OR OBSTACLES TO THE TO THE ENGINEER BEFORE ORDERING OF MATERIALS OR DETAILED PLANNING IS BEGUN.

M 2.3. CONTRACTOR IS TO APPLY FOR AND PAY FOR ANY AND ALL NECESSARY PERMITS REQUIRED TO PERFORM THE WORK LISTED.

M 2.4. CONTRACTOR AS WELL AS SUBCONTRACTORS ARE TO PERFORM A DETAILED CONSIDERATION OF ALL OF THE CONSTRUCTION DOCUMENTS PROVIDED BY ALL CONSULTANTS ON THIS PROJECT. THIS INCLUDES CIVIL, SITE SERVICING, PLANNING, ARCHITECTURAL, STRUCTURAL, MECHANICAL & ALL ASSOCIATED CONTROLS CONTRACTORS. ANY DISCREPANCIES OR CONFLICTS ARE TO BE REPORTED IN A TIMELY MANNER IN WRITING TO THE PRIMCE CONSULTANT AS WELL AS NORTHSTAR.

M 2.5. CONTRACTOR TO REGULARLY (AND AT PROJECT MILESTONES), REQUEST ELECTRICAL SAFETY INSPECTIONS AND PROVIDE TO THE ENGINEER THE INSPECTOR'S REPORT IN A TIMELY MANNER.

M 2.6. CONTRACTOR TO CONTACT AND COORDINATE THE LOCATING AND DISCOVERY OF ALL UNDERGROUND SERVICES RELATED TO THE PROJECT (IN THE VICINITY OF THE WORK). PAYMENT FOR ALL SERVICES ARE TO BE MADE BY THE CONTRACTOR. ALL RECEIVED REPORTS ON LOCATES ARE TO BE ISSUED TO THE ENGINEER IN A TIMELY MANNER.

M 2.7. CONTRACTOR TO CONTACT, COORDINATE, AND MEET WITH ALL LOCAL SERVICE UTILITY REPRESENTATIVES AS PART OF THE PROJECT ACTIVITIES. ANY INFORMATION PROVIDED TO THE CONTRACTOR TO BE SHARED WITH THE PRIME CONSULTANT AS WELL AS NORTHSTAR.

M 2.8. CONTRACTOR TO RETAIN QUALIFIED COMPANIES TO PERFORM ANY LISTED TESTING AND OR INVESTIGATIONS PRIOR TO CONSTRUCTION. ALL REPORTS TO BE ISSUED TO THE ENGINEER IN A TIMELY MANNER. FEES FOR ALL LISTED REPORTS TO BE INCLUDED IN THE TENDER.

M 2.9. REFER TO THE ARCHITECTURAL DRAWINGS FOR ALL LOCATIONS OF MECHANICAL FIXTURES. OUR DRAWINGS ARE NOT TO BE SCALED TO DETERMINE LOCATIONS OF EQUIPMENT.

M 2.10. THE CONTRACTOR IS TO WORK COOPERATIVELY WITH THE GENERAL CONTRACTOR AS WELL AS ANY OTHER SUB-TRADE ON THE PROJECT. ALL WORK IS TO BE REVIEWED WITH THE GENERAL CONTRACTOR FOR STAGING, ORDER OF OPERATIONS, ROUTING AND COORDINATION WITH OTHER SERVICES.

M 2.11. THE CONTRACTOR TO DEMOLISH ANY REQUIRED SERVICES ONLY AFTER THE STIPULATED TESTING IS COMPLETE, THE GENERAL CONTRACTOR PROVIDES THE APPROVAL AND THE OWNER & NORTHSTAR HAS BEEN NOTIFIED IN WRITING. ALL DEMOLISHED EQUIPMENT AND MATERIALS ARE TO BE DISPOSED OF IN A PROPER MANNER, COMPLETE WITH RECEIPTS. ANY CONTAMINATED FLUIDS ARE TO BE REMOVED FROM THE SITE AND DISPOSED OF BY A PROER AGENCY. A RECEIPT OF SAME IS TO BE FURNISHED UPON REQUEST OF NORTHSTAR.

M 2.12. CONTRACTOR TO SEFLY STORE ALL MATERIALS NECESSARY FOR THE PROJECT IN A SUPERVISED OF SECURE AREA UNTIL SUCH TIME AS THE MATERIALS ARE TO BE INSTALLAED. ADEQUATE INSURANCE IS TO BE PAYED FOR TO PROTECT ALL MATERIALS.

M 2.13. ANY FRAGILE OR SENSATIVE SHIPMENTS HAVING TIP-TO-TELL INDICATORS ARE TO BE MONITORED AND MAY BE INSPECTED BY THE CONTRACTOR TO ENSURE THE INTEGRITY OF THE EQUIPMENT.

M 2.14. GENERALLY, NORTHSTAR WILL ONLY REVIEW AND CERTIFIY PAYMENTS FOR EQUIPMENT AFTER IT IS INSTALLED IN POSITION IN THE BUILDING.

M 2.15. CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR ALL LISTED ITEMS WITHIN DRAWING SCHEDULES CONTAINED IN THE PLANS. IN ADDITION, NORTHSTAR MAY PROVIDE A SPECIFIC LIST OF REQUIRED SHOP DRAWINGS. ALTERNATES MAY OR MAY NOT BE ACCEPTABLE. IT IS RECOMMENDED THAT THE CONTRACTOR PRE-APPROVE THE SHOP DRAWINGS WITH NORTHSTAR IN ORDER TO EXPEDITE AND TO CONSERVE SCHEDULE TIME. NOTE: REVIEW OF SHOP DRAWINGS BY NORTHSTAR DOES NOT IMPLY RESPONSIBILITY FOR THE PRODUCTS SELECTED. NORTHSTAR'S REVIEW ID TO DETERMINE "GENERAL COMFORMANCE" WITH OUR DESIGN. THE CONTRACTOR SHALL ENSURE THAT ALL PRESENTED SHOP DRAWINGS ARE VIABLE AND SUITABLE PRODUCTS FOR THE INSTALLATION AND THEREFORE BARE THE RESPONSIBILITY FOR THE SELECTION OF THE PRODUCTS CONTAINED THERIN. NORTHSTAR DOES NOT WARRANT QUANTITIES. IT IS THE CONTRACTORS RESPONSIBILITY TO ASSESS AND ORDER THE REQUIRED QTY. OF PRODUCTS AND MATERIALS. COMPLEX ALTERNATES PRESENTED MAY INVOLVE SIGNIFICANT WORK BY NORTHSTAR IN ORDER TO APPROVE WHICH MAY RESULT IN AN ADDITIONAL CHARGE TO THE OWNER. IF THE OWNER IS NOT AGREEABLE, THE ADDITIONAL COST OF REVIEWING THE DESIGN MAY BE CHARGEABLE TO THE CONTRACTOR. THE CONTRACTOR SHALL ENSURE THAT ALL ALTERNATIVE EQUIPMENT MEETS THE MECHANICAL SPECIFICATIONS AND IS SIMILAR IN DIMENSIONS, STABILITY, QUALITY, WEIGHT, EASE OF MAINTENANCE, PERFORMANCE, AND THAT IT WILL FIT IN THE SPACE PROVIDED WITHIN THE BUILDNG. ALTERNATIVE SYSTEMS OR MATERIALS INSTALLED WITHOUT THE CONSULTANT'S WRITTEN APPROVAL WILL BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE. IT SHALL BE CLEARLY UNDERSTOOD THAT IF NO ALTERNATIVES ARE INDICATED FOR 'BASE BID' PRODUCTS AT THE TIME OF BIDDING, THE 'BASE BID' ITEM SHALL BE SUPPLIED. "PROVIDE" MEANS TO SUPPLY AND INSTALL THE PRODUCTS AND SERVICES SPECIFIED.

M 2.16. CARRY THE COST OF PROFESSIONAL LABORATORY WATER QUALITY TESTING PRIOR TO THE INSTALLATION. FURNISH THE REPORT TO THE ENGINEER & OWNER FOR REVIEW.

M 2.17. ALL PRESENTLY OPERATIONAL COMMUNICATION, ELECTRICAL, MECHANICAL, LIFE SAFETY FEATURES ARE VERIFIED AS FULLY OPERATIONAL BEFORE THE DEMOLITION WORK IS BEGUN. A DETAILED REPORT IS TO BE PROVIDED OUTLINING THE FINDINGS OF THE SITE REVIEW. THE CONTRACTOR IS TO CONFIRM THE PRESENT OPERATIONAL REQUIREMENTS WITH THE OWNER.

M 2.18. CONTRACTOR SHALL RETAIN AND PAY FOR THE SERVICES OF A PROFESSIONAL STRUCTURAL ENGINEER TO DESIGN & COORDINATE ALL REQUIRED STRUCTUAL MOUNTS, BRACKETS, ROOF INSTALLATIONS, STAGING ACTIONS, LIFTS AND SUPPORTS. NO STRUCTURAL MEMBER SHALL BE CUT WITHOUT THE KNOWLEDGE AND CONSENT OF THE PROJECT STRUCTURAL ENGINEER OF RECORD.

CONSTRUCTION - PHASE - MECHANICAL

M 3.0. CONTRACTOR IS TO SUPPLY AND INSTALL ALL MECHANICAL, EQUIPMENT, COMPONENTS AND COMMISSION ALL SYSTEMS CONTAINED IN THE CONSTRUCTION DOCUMENTATION PROVIDED BY NORTHSTAR SO AS TO PROVIDE TO THE OWNER A COMPLETE, WORKING INSTALLATION THAT FUNCTIONS AS INTENDED BY THE ENGINEERS. THE WORK IS TO BE COMPLETED TO THE SATISFACTION OF THE OWNER AS WELL AS NORTHSTAR.

M 3.1. ALL INSTALLATION METHODS AND WORK SHALL COMPLY WITH ALL CURRENT APPLICABLE STANDARDS, CODES, BY-LAWS AND REGULATIONS - AS WELL AS THE LATEST EDITION OF THE PROVINCIAL & NATIONAL BUILDING CODES.

M 3.2. THE DESIGN DRAWINGS PROVIDED BY NORTHSTAR ARE "DIAGRAMMATIC" AND GENERAL IN NATURE. LOCATIONS SHOWN ARE APPROXIMATE. ALL DIMENSIONS ARE TO BE VERIFIED BY THE CONTRACTOR. THE CONTRACTOR SHALL PROVIDE A COMPLETE, WORKING INSTALLATION BASED ON THE GENERAL LAYOUTS PROVIDED BY NORTHSTAR. SHOULD COORDINATION OF THE ACTUAL INSTALLATION REQUIRE ADDITIONAL CONDUIT, MATERIAL, FITTINGS THAN SHOWN, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF PROCUREMENT AND INSTALLATION. EXTRAS FOR OFFSETS AND ROUTING CHANGES WILL NOT BE APPROVED. CONTRACT DOCUMENTS AND DRAWINGS OF THIS DIVISION ARE DIAGRAMMATIC AND APPROXIMATELY TO SCALE UNLESS DETAILED OTHERWISE. THEY ESTABLISH SCOPE, MATERIAL AND INSTALLATION QUALITY AND ARE NOT DETAILED INSTALLATION INSTRUCTIONS.

M 3.3. CONTRACTOR TO READ THE INSTALLATION MANUAL OF ANY COMPONENT PRIOR TO INSTALLATION. ALL EQUIPMENT AND PURCHASED PRODUCTS USED IN THE INSTALLATION SHALL BE CONSTRUCTED IN STRICT ACCORDANCE WITH THE RELEVENT MANUFACTURER'S INSTRUCTION INSTALLATION MANUAL FOR THE RESPECTIVE PRODUCT. MFG. WARRANTIES ARE TO BE PRESERVED IN PREPARATION FOR HANDING THE COMPLETED PROJECT OVER TO THE OWNER ONCE SUBSTANTIAL COMPLETION IS DETERMINED BY NORTHSTAR.

M 3.4. THE CONTRACTOR SHALL REVIEW THE PLANS IN CONJUNCTION WITH THIS PROJECT SPECIFICATION TO PROVIDE A COMPLETED PROJECT. ANY DISCREPANCIES SHALL BE REPORTED TO NORTHSTAR IN WRITING IN A TIMELY MANNER SO AS TO NOT DELAY THE SCHEDULE. THE NORTHSTAR PROJECT SPECIFICATION SHALL TAKE PRECIDENCE OVER THE NORTHSTAR PLANS.

M 3.5. THE CONTRACTOR SHALL ORGANIZE AND CREATE AGREEMENTS WITH ALL NECESSARY SUB-TRADES REQUIRED TO COMPLETE THE WORK. NORTHSTAR IS NOT RESPONSIBLE FOR "GAPS" OR UNCLEAR CONTRACT REQUIREMENTS BETWEEN THE GENERAL CONTRACTOR, ELECTRICAL CONTRACTOR OR ANY OTHER CONTRACTS RELATED TO THIS PROJECT.

M 3.6. COPIES OF ALL CONSTRUCTION DOCUMENTS PLANS AND SPECIFICATIONS ISSUED AND STAMPED BY AHJ ARE TO BE PRINTED AND AVAILABLE ONSITE AT ALL TIMES.

M 3.7. PRIOR TO COMMENCING CONSTRUCTION, A WORKING SECURITY CAMERA MONITORING SYSTEM IS TO BE INSTALLED AND TESTED FOR THE SITE AND STOARAGE AND HOARDING ARES OF THE CONSTUCTION SITE.

M 3.8. PRIOR TO MOBILIZING, THE CONTRACTOR IS TO HAVE IN PLACE A SUITABLE INSURANCE POLICY TO COVER THE ACTIVITIES ON THE S