#### GENERAL NOTES

- 1 ALL WORK AND NEW EQUIPMENT INSTALLATION TO MEET SMACNA AND ASHRAE STANDARDS, O.B.C., PLUMBING AND WATER STANDARDS, AS WELL AS MANUFACTURERS INSTRUCTIONS. ALL NEW HVAC EQUIPMENT TO MEET OR EXCEED ASHRAE 90.1 FOR ENERGY EFFICIENCY.
- REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONS, ROOM LAYOUT, AND GENERAL CEILING INFORMATION.
- 3 ANY DISCREPANCIES WITH THE DESIGN, OBSTRUCTIONS TO EQUIPMENT OR DUCT INSTALLATION, OR INCOMPATIBILITY WITH EQUIPMENT MUST BE BROUGHT UP WITH THE ENGINEER FOR CONSIDERATION AND ALTERNATE SOLUTIONS. THIS DESIGN IS BASED ON THE INFORMATION AVAILABLE AT THE TIME AND EQUIPMENT SPECIFIED.
- 4 SHOP DRAWINGS REQUIRED FOR ALL EQUIPMENT. SUBMIT TO ENGINEER FOR APPROVAL.
- 5 DOORS FOR WASHROOMS, AND ROOMS WITH EXHAUST VENTS REQUIRE PROVISIONS FOR RETURN AIR. GRILLES IN DOORS RECOMMENDED AS SHOWN. PROVIDE FIRE DAMPER IF FIRE-RATED DOOR. IF UNDERCUTING, 1" MINIMUM SPACE REQUIRED.
- PROVISIONS FOR RETURN AIR FROM ROOMS AND SPACES WHERE CEILING PLENUM IS BLOCKED BY WALLS THAT GO TO BOTTOM OF ROOF DECK. OPENING WILL BE REQUIRED THROUGH WALLS INTO OPEN SPACES ABOVE CEILING TILES. TYPICAL SIZE: 16"X16".

### EQUIPMENT

- THIS DESIGN IS INTENDED TO HAVE A HEATING AND COOLING SYSTEMS AS SPECIFIED AND OPTIONS REQUIRED. DEHUMIDIFICATION IS REQUIRED WHERE LISTED AND ARE TO PROVIDE HEAT RECOVERY THROUGH THE USE OF BUILT-IN FACTOR RE-HEAT COILS. OR WITH THE USE OF ADD-ON HYDRONIC COILS. THE OVERALL SYSTEM SHALL HAVE THE ABILITY TO PROVIDE SIMULTANEOUS HEATING AND COOLING BETWEEN ALL UNITS. ADDITIONAL HEAT RECOVERY MAY BE PROVIDED BY HYDRONIC HEAT EXCHANGERS AND/OR HYDRONIC COILS WITHIN AIR HANDLERS.
- HYDRONIC AIR HANDLERS LISTED MAY BE CARRIER, FIRSTCO, MITSUBISHI, OR OTHER. COOLING TO BE DX COOLING WITH EXTERIOR CONDENSORS MOUNTED AS SHOWN. CHILLED WATER SYSTEMS MAY BE USED AND WILL REQUIRE COORDINATION. HEATING TO BE PROVIDED BY HOT WATER BOILER SYSTEM AS SHOWN.
- 3 EQUIPMENT TO BE AS SPECIFIED, OR ACCEPTABLE EQUAL. ALTERNATE UNITS REQUIRE COORDINATION AND APPROVAL.
- USE LINEAR EXPANSION VALVE KIT FOR ANY AIR HANDLERS BY OTHER MANUFACTURERS AND CONNECT TO COMMON R410A NETWORK, IF USING MULTI-CITY SYSTEM OR EQUAL.
- ALL EQUIPMENT TO BE INSTALLED AS PER MANUFACTURERS INSTRUCTIONS AND TO UTILIZE FITTINGS, VALVES, UNIONS, AND OTHER METHODS TO ENSURE FUTURE SERVICEABILITY AND REPLACEMENT WITH MINIMAL DOWNTIME TO OTHER EQUIPMENT AND SYSTEMS.
- RELAYS/POWER MODULES FOR ALL ZONE EQUIPMENT, THERMOSTATS, ETC. THAT REQUIRE 24VAC ARE TO BE SUPPLIED BY MECHANICAL CONTRACTOR. THIS EQUIPMENT IS NOT SHOWN.

#### DUCT WORK

- ALL DUCTWORK TO BE GALVANIZED AND TO HAVE ALL JOINTS SEALED
- INSULATE ALL DUCTS FOR OFFICE AREAS, INCLUDING SUPPLY, HRV, AND EXHAUST DUCTS, WITH 1" FOIL BACKED INSULATION (R5). INSULATION TO BE ON EXTERIOR OF DUCT WORK WHEREVER POSSIBLE. INSULATION ON INTERIOR OF DUCTS REQUIRE DIMENSIONS SHOWN TO BE INCREASED TO ACCOUNT FOR INSULATION.
- EXTERIOR DUCTS TO BE FULLY INSULATED WITH 1.5" (R8) INSULATION. INCLUDE SURFACE PROTECTION WRAP SUCH AS ALUMINUM, STEEL, OR OTHER SUITABLE FOR WEATHER AND SUN
- 4 ALL INTERIOR AIR HANDLERS TO HAVE CANVAS FITTING FOR DUCT ISOLATION BETWEEN UNITS AND MAIN DUCT.
- 5 INSTALL SOUND DEADENING INSULATION WHERE REQUIRED.
- 6 DUCTS SHOWN AS ROUND SIZES MAY BE CONVERTED TO EQUIVALENT BOX SECTIONS, AND VICE VERSA.
- 7 SUPPORT OF ALL MECHANICAL WORK TO BE FROM STRUCTURAL SUPPORTS AND NOT THE ROOF DECK. STRUCTURAL APPROVAL BY
- 8 BALANCING DAMPERS TO BE INSTALLED AS SHOWN AND TO HAVE LOCKING HAND QUADRANTS.

### CONTROLS

- PROGRAMMABLE THERMOSTATS TO BE SETUP WITH TEMPERATURES OF 72F(22C) OCCUPIED, AND 65F(18C) UN-OCCUPIED FOR WINTER; AND 72F(22C) OCCUPIED & 80F(26C) UN-OCCUPIED FOR SUMMER. FAN OPERATION TO BE CONTINUOUS DURING BUSINESS HOURS FOR VENTILATION.
- 2. DCV CONTROL LISTED FOR HVAC UNITS TO OPERATE WITH THIRD PARTY CONTROL SYSTEM AND TO BE SET TO FULLY CLOSED WHEN NOT IN USE, AND TO OPEN OUTSIDE AIR DAMPER TO 100% AND ACTIVATE POWER EXHAUST ON ALARM FROM CO2 GAS SENSOR SYSTEM OR WITH MANUAL SWITCH/ACTIVATION.
- 3. CO2 GAS DETECTION SYSTEM TO OPERATE A HIGH ALARM SEQUENCE AND RELATIVE TO EACH ROOM THAT ACTIVATE PURGING OF ROOM AIR WITH OUTSIDE AIR DAMPERS AND POWER EXHAUST EQUIPMENT. WARNING INDICATION OUTSIDE ROOM TO BE ILLUMINACTED LIGHT BEACON. ACTIVATION LEVELS AS PER #4 BELOW.
- 4. ALL GROW ROOMS WILL HAVE CO2 INJECTION SYSTEMS TO MAINTAIN ELEVATED LEVELS AS REQUIRED. GAS DETECTION SYSTEMS SPECIFIED AND SHOWN FOR EACH ROOM AND ARE REQUIRED TO SOUND ALARM IF CO2 LEVELS RAISE ABOVE ACCEPTABLE LEVELS. RECOMMENDED NAUSEA AT TLV-TWA: 5,000 PPM (RECOMMENDED DETECTION LEVEL) TWA LIMIT PER 8-hr = 10,000 PPM (ALTERNATE DETECTION LEVEL) ASPHYXIATION AT 40,000 PPM.
- BACNET AUTOMATION CONTROL REQUIRED FOR ALL GROW ROOMS. CONTROL TO BE THIRD PARTY SYSTEM BY OTHERS AND TO HAVE WALL CONTROLLER WITH TEMPERATURE AND HUMIDITY CONTROL. DEHUMIDIFICATION CALL TO ENERGIZE COOLING COIL WHEN NO HEAT REQUIRED, OR COOLING AND RE-HEAT COILS WHEN HEAT REQUIRED.
- 3. HRV UNITS TO OPERATE CONTINUOUSLY. REQURIES MAIN CENTRAL CONTROL FOR MONITORING OF RUNNING CONDITIONS AND SYSTEM

## HYDRONIC & PIPING NOTES

- CONTRACTOR SHALL CONFORM TO GENERAL SPECIFICATION, PLUMBING
- CODES AND LOCAL CODES HAVING JURISDICTION. ALL PIPING LINES TO BE SECURED IN REGULAR INTERVALS TO PREVENT
- SAGGING, VIBRATION, AND NOISE FROM THERMAL EXPANSION. INSULATE ALL PIPING THROUGHOUT. INSULATION TO INCLUDE SERVICE JACKET WITH PVC FITTINGS. FOR HEATING SYSTEMS, USE 1" FOR PIPING UP TO 1-1/4" AND 1.5" FOR PIPING 1-1/2" AND LARGER. FOR COOLING SYSTEMS, ALL INSULATION TO BE 1"
- SEAL ALL PENETRATIONS THROUGH FIRE—RATED ASSEMBLIES AS REQUIRED AND AS PER THE ONTARIO BUILDING CODE WITH APPROVED FIRE STOPPING SYSTEM.
- ALL DRAINAGE PIPES TO BE 2% SLOPE (1/4" PER FOOT) MINIMUM. ROUTE TO APPROPRIATE DRAIN OUTLET, OR USE CONDENDATE PUMPS AS REQUIRED.
- CEILING SPACE IS A RETURN AIR PLENUM, ALL PIPES ABOVE SUSPENDED CEILING ARE REQUIRED TO HAVE A FLAME SPREAD RATING OF <25 AND SMOKE DEVELOPED CLASSIFICATION OF <50, USE NON-COMBUSTIBLE PIPING, XFR, OR APPROVED EQUAL.
- ZONE CIRCULATORS AND/OR VALVES TO BE CONTROLLED AS REQUIRED WITH ROOM THERMOSTATS SHOWN ON DRAWINGS.
- 8 ZONE CONTROL MAY BE PERFORMED THROUGH DIRECT CONNECTION WITH BOILER. SUGGESTED ALTERNATE CONTROLLER(S), TACO ZVC406,
- CONTROL TO BE WALL THERMOSTATS CONTROLLING ZONE PUMPS. SIGNAL TO BOILER WITH BOILER PUMP CONTROL AS PER BOILER

# AIR BALANCE AND COMMISSIONING

OF THE ENGINEER.

- AIR BALANCE AND ADJUSTMENT TO BE PERFORMED BY CERTIFIED MEMBERS OF AABC, NEBB, OR NBCTA. COMMISSIONING OF SYSTEMS TO BE PERFORMED AT THAT TIME. COPIES OF THE REPORT MUST BE SUBMITTED TO THE MECHANICAL ENGINEER.
- AIR BALANCING TO BE COMPLETED PRIOR TO INSTALLATION AND CLOSING IN OF CEILING SPACES. CONTRACTOR MUST BE PREPARED TO PROVIDE A SPOT TESTING OF ANY DIFFUSERS AT THE REQUEST
- ALL MECHANICAL SYSTEMS REQUIRE PROPER COMMISSIONING AND SETUP AS PER MANUFACTURERS INSTRUCTIONS INCLUDING ANY OPERATING NOTES AND SETTING STATED ON THESE DRAWINGS. FINAL REPORTS W/ SETPOINT LISTING REQUIED TO BE SUBMITTED TO OWNER AND ENGINEER.
- GAS MONITOR REQUIRES FINAL SETUP AND COMMISSIONING OF GAS SENSORS. FINAL COMMISSIONING REPORT REQUIRED FOR FINAL OCCUPANCY.

	MECHANICAL EQUIPMENT LIST											
	ITEM (SYM)	DESCRIPTION	TONS		EX. STATIC	COOLING BTUH	HEATING BTUH <sup>1</sup>	HP	ELECTRIC 2	FRESH AIR	REMARKS	
	RTU1	CARRIER HIGH EFF. 48GC 05	4	1500	0.5	47,000	110,000 88,000	1	575/3PH 10A MCA	160 cfm 10% MIN.	CO2 CONTROL ECONOMIZER, BAROMETRIC RELIEF, PROGRAMMABLE THERMOSTAT, ROOF CURB, CONDENSATE TRAPS, R410A.	
	RTU2	CARRIER HIGH EFF. 48GC 04	3	1160	0.4	36,000	110,000 88,000	1	575/3PH 10A MCA	160 cfm 10% MIN.	DIFF. ENTHALPY ECONOMIZER, BAROMETRIC RELIEF, PROGRAMMABLE THERMOSTAT, ROOF CURB, CONDENSATE TRAPS, R410A.	
	RTU3	CARRIER HIGH EFF. 48GC 05	4	1800	0.5	47,000	110,000 88,000	1	575/3PH 10A MCA	NONE CLOSED	DCV CONTROL ECONOMIZER, POWER EXHAUST, HUMIDI—MIZER, ROOF MOUNTED W/ CURB. BACNET AUTOMATION CONTROL. R410A.	
	RTUW	CARRIER HIGH EFF. 48HC 07	6	2700	0.5	72,000	125,000 103,000	1	575/3PH 17A MCA	NONE CLOSED	DCV CONTROL ECONOMIZER, POWER EXHAUST, HUMIDI—MIZER, HORIZINTAL DUCT GROUND MOUNT. BACNET AUTOMATION CONTROL. R410A.	
4 UNITS	RTUX	CARRIER HIGH EFF. 48GC 05	4	1800	0.5	47,000	110,000 88,000	1	575/3PH 10A MCA	NONE CLOSED	DCV CONTROL ECONOMIZER, POWER EXHAUST, HUMIDI-MIZER, HORIZINTAL DUCT GROUND MOUNT. BACNET AUTOMATION CONTROL. R410A.	
4 UNITS	RTUY	CARRIER HIGH EFF. 48GC 05	4	1800	0.5	47,000	110,000 88,000	1	575/3PH 10A MCA	NONE CLOSED	DCV CONTROL ECONOMIZER, POWER EXHAUST, HUMIDI-MIZER, ROOF MOUNTED W/ CURB. BACNET AUTOMATION CONTROL. R410A.	
	AH1	HYDRONIC AIR HANDLER W/ RE-HEAT	2	900	0.6	24,000	24,000	_	120V/1PH 2A MCA		CASED FAN COIL W/ DX COOLING AND HYDRONIC HEATING. CEILING MOUNT SLIM UNIT. BACNET AUTOMATION CONTROL.	
	AH2	HYDRONIC AIR HANDLER	2	840	0.25	24,000	24,000	-	120V/1PH 2A MCA		CASED FAN COIL W/ DX COOLING AND HYDRONIC HEATING. CEILING MOUNT SLIM UNIT. BACNET AUTOMATION CONTROL.	
	АНЗ	HYDRONIC AIR HANDLER	2	780	0.2	24,000	24,000	-	120V/1PH 2A MCA		CASED FAN COIL W/ DX COOLING AND HYDRONIC HEATING. CEILING MOUNT SLIM UNIT. PROGRAMMABLE THERMOSTAT.	
	AH4	HYDRONIC AIR HANDLER	3	1080	0.25	36,000	36,000	_	120V/1PH 2A MCA		CASED FAN COIL W/ DX COOLING AND HYDRONIC HEATING. CEILING MOUNT SLIM UNIT. PROGRAMMABLE THERMOSTAT.	
	AH5	HYDRONIC AIR HANDLER	4	1630	0.25	48,000	48,000	-	120V/1PH 2A MCA		CASED FAN COIL W/ DX COOLING AND HYDRONIC HEATING. CEILING MOUNT SLIM UNIT. PROGRAMMABLE THERMOSTAT.	
MULTIPLE UNITS	AC	EXTERIOR AC CONDENSER	1-4			48,000	12,000		208V/1PH 16.7 MCA		WALL MOUNTED AC UNIT AS REQUIRED FOR DX COOLING OF AIR H ANDLERS AND HEAT PUMPS.	
	HP1	MITSUBISHI WALL AC PKFY-P08	0.6	190		8,000	9,000	-	208V/1PH 30W		WALL MOUNT CITY MULTI SYSTEM. PANEL CONTROLLER. REQUIRED CONDENSATE DRAIN PUMP.	
X2 UNITS	HP2	MITSUBISHI CEILING AC PMFY-P08	0.6	280		8,000	9,000	-	208V/1PH 40W		CEILING CASSETTE 1-WAY FLOW CITY MULTI SYSTEM.WALL CONTROLLER. REQUIRES CONDENSATE DRAIN.	
X2 UNITS	DEH	HONEYWELL DR656A- 3000 DEHUMIDIFIER	0.2	150					120V/1PH 5.2A		DUCTED UNIT MOUNTED ABOVE CEILING. REQUIRES CONDENSATE DRAIN.	
	EF1	BATHROOM FAN AIR-KING BFQ110		90	0.25				120V/1PH 70W		VENT TO EXTERIOR. INCLUDE WEATHER HOOD W/ BACKDRAFT DAMPER. (EXCEPT ELEVATOR FAN).	
	EF2	PENNBARRY P16SA WALL FAN		3000	0.1			1/2	120V/1PH 5A		INCLUDE WALL SLEEVE, BACKDRAFT SHUTTER, WEATHER HOOD W/ SCREEN, DISCONNECT SWITCH. INTERLOCK WITH GAS DETECTOR.	
	HRV1	NU-AIR NU0820		850	1.0			2X 1/2	208V/3PH 9.2A		EXHAUST ONLY DEFROST, BOTTOM SUPPLY & RETURN (VERTICAL), MERV 13 FILTERS. OPERATION TO BE CONTINUOUS.	
	HRV2	ALDES H650-FI		600	0.3				120V/1PH 5.5A		EXHAUST ONLY DEFROST, REQUIRES DRAIN, MERV 13 FILTERS. OPERATION TO BE CONTINUOUS.	
	co 3	CET PDC-DXX GAS DETECTOR CONTROLLER							120V/1PH 200W		INCLUDE SENSOR(S) FOR CO2 MOUNTED THROUGHOUT AS PER MFRS INSTRUCTIONS. SET LIMIT = 5000-10,000 PPM. NOTE: MAY BE OPTION WITH ROOFTOP UNIT.	

1 GAS INPUT/OUTPUT RATINGS. 2ND STAGE ONLY WHERE APPLICABLE.

2 CONFIRM ÉLECTRICAL SUPPLY BEFORE ORDERING 3 CO2 DETECTION AND CONTROL MAY BE PROVIDED BY HVAC UNIT ACCESSORIES, OR BUILDING AUTOMATION CONTROL SYSTEM. ENSURE ADJUSTABLE LIMIT WILL MEET TARGETS LISTED.

HYDRONIC EQUIPMENT SCHEDULE NOT COMPLETED.									
ITEM (SYM)	DESCRIPTION	NO. REQ'D.	DESCRIPTION, MANUFACTURER, OR APPROVED EQUAL	CONNEC SUPPLY			FURN. BY	REMARKS	
BOIL	WATER BOILER	2	150 MBH HIGH TURN-DOWN RATIO BOILER. INCLUDE PRESSURE RELIEF, AIR VENT, GUAGES, LOW-WATER CUT-OFF & VALVE PACKAGE.	1-1/4"	3/4"	3"	CONTR.	1	
AS-1	AIR SEPARATOR	1	TACO 490XXXX-XXX HIGH EFFICIENCY AIR AND DIRT SEPARATOR. $1-1/2$ " NPT CONNECTIONS AND AUTO AIR VENT.	1-1/2"	_	_	CONTR.		
ET-1	EXPANSION TANK	1	WATTS PLT-20 BLADDER TANK W/ $5.8-$ GAL CAPACITY ( $5.8-$ GAL ACCEPTANCE VOLUME).	3/4"	_	_	CONTR.		
P1	PUMP	2	BOILER CIRCULATOR, AS PER MANUFACTURER.	1" F	_	_	CONTR.		
P2	PUMP	6	TACO 007 PUMP. 3/4" FLANGES, 0.54A 5-GPM 9-FT HEAD.	3/4" F	_	_	CONTR.		
P7	PUMP	5	TACO 0011 PUMP. 1" FLANGES, 1.76A 10-GPM 19-FT HEAD.	1" F	_	_	CONTR.		
BFV	BOILER FEED VALVE	1	TACO 329 BACKFLOW & PRERSSURE DEVICE. 1/2" SWEAT/UNION INLET, NPT OUTLET.	1/2"	_	-	CONTR.		

1 CONNECT GAS SUPPLY & VENT TO EXTERIOR AS PER MANUFACTERER'S INSTRUCTIONS.

HOT WATER RADIATOR SCHEDULE								
ITEM (SYM)	DESCRIPTION	PIPE SIZE	FLOW (gpm)	REMARKS				
С	EMBASSY PANEL-TRACK BASEBOARD. LENGH AS SHOWN (4' SECTIONS).	3/4"	1.0	WALL MOUNTED. INCLUDE END CAPS, SPLICERS AS REQUIRED FOR ARRANGEMENTS SHOWN. INCLUDE LOCKSHIELD BALANCING VALVES FOR EACH ZONE.				
K	SLANT/FIN KICKER TK-90 FORCED AIR HEATER	1/2"	2.0	CONFIRM MOUNTING OPTIONS, SURFACE W/ SMK KIT, OR RECESSED WITH RMK KIT.				

	> GRIL	LE AND	DIFFUSOR SCHEDULE		
ITEM SYM)		MAKE	DESCRIPTION, MANUFACTURER OR APPROVED EQUAL	FURN. BY	REMARKS
А	24X24 CEILING DIFFUSER	KRUEGER	PLQ 24X24 DROP-IN CEILING DIFFUSER W/ T-BAR CEILING FRAME.	CONTR.	1
В	ROUND CEILING DIFFUSER	KRUEGER	RM2PLQ ADJUSTABLE DUCT MOUNTED GRILLE.	CONTR.	1
С	ALUMINUM LONG BLADE SUPPLY GRILLE	KRUEGER	5880 DOUBLE DEFLECTION GRILLE, 3/4" SPACING.	CONTR.	2
D	DOOR TRANSFER GRILLE	KRUEGER	5600A ALUMINUM SIGHT-PROOF GRILL W/ REAR FRAME, MIL FINISH. 24"X12".	CONTR.	_
Е	RETURN GRILLE	KRUEGER	EG5 EGGCRATE DROP—IN STYLE. 24X24, OR CUT TO SHAPE AS SHOWN.	CONTR.	_
F	RETURN GRILLE W/ FRAME	KRUEGER	EG5 EGGCRATE WITH MOUNTING FRAME.	CONTR.	2
G	RETURN GRILLE W/ 1" FILTER 24X16	KRUEGER	S580 ALUMINUM SHORT BLADE GRILLE, 3/4 SPACING ZERO DEFLECTION. C/W FILTER FRAME AND KNERLED KNOB.	CONTR.	24"X16"
Н	RETURN/HRV CONE GRILLE	_	TYPICAL ROUND HRV ADJUSTABLE CONE DUCT GRILLE	CONTR.	1
İ	CEILING REGISTER	IMPERIAL	RG0133 STEEL WHITE 4X10 REGISTER W/ MOUNTING HOLES.	CONTR.	
J	RETURN GRILLE	KRUEGER	S580 ALUMINUM SHORT BLADE GRILLE, 3/4 SPACING ZERO DEFLECTION.	CONTR.	2
K	24X24 CEILING DIFFUSER	KRUEGER	5SHR/CAD DROP-IN CEILING DIFFUSER W/ CENTRE DISCHARGE.	CONTR.	1
S	HEAVY DUTY WEATHERPROOF GRILLE	VENTEX	2415 ALUMINUM FLANGE MOUNT GRILLE FOR EXTERIOR WALL, INCLUDE INSECT SCREEN.	CONTR.	2

1 NECK SIZES AS NOTED ON DRAWING.

3 REQUIRES SPECIAL FRAMING AND PLENUM BOXES. CONSULT WITH GENERAL CONTRACTOR FOR INSTALLATION.  LEGEND									
HVAC	SYMBOLS	PLUMBIN	IG SYMBOLS						
		<u> </u>	BALL VALVE						
① ⊕	THERMOSTAT HUMIDISTAT	BV	MANUAL BALANCING VALVE WATTS ACCU-FLO ACUF						
$\mathbb{X}$	EXHAUST FAN DUCTED TO OUTSIDE	区	SOLENOID VALVE (24VAC) ZONE THERMOSTAT CONTROLLED						
	SEE EF1 IN SCHEDULE	×	PRESSURE REDUCING VALVE						
	SUPPLY DIFFUSER	2 0	CHECK VALVE						
$\boxtimes$	SUPPLY REGISTER TYPE I		AIR VENT						
	RETURN GRILLE (TYPE E) (SIZE SHOWN MAY VARY)	₩ FD	FLOOR DRAIN (3" MINIMUM W/ TRAP)						
DIMEN. A	DIFFUSER & GRILLE SYMBOL A= TYPE LISTED IN SCHEDULE	◯ <sub>FFD</sub>	FUNNEL FLOOR DRAIN (3" MINIMUM W/ TRAP)						
SIZE HEAT RATING C	RADIATOR SPECIFICATION C = TYPE LISTED IN SCHEDULE	$\Box_{\mathrm{co}}$	FLOOR CLEAN OUT						
P*************************************	RADIATOR SPECIFICATION	⊢ co	WALL CLEAN OUT						
			TRAP						
	AIR FLOW THRU OPENING/VENT/ OR GRILLE DOOR GRILLES TO BE 14"X10" TYPE D	O	ELBOW TURNED UP						
└──	RIGID TO ROUND FLEXABLE DUCT	<u>C</u>	ELBOW TURNED DOWN						
	(SHOWING 6" MANUAL DAMPER)	*O	HOSE BIB, 1/2" WITH VAC. BREAK						
FD FD	FIRE DAMPERS (LARGE & SMALL)	[]1	UNION						
	DACKDDAFT DAMDED		SANITARY DRAIN BELOW FLOOR						
BD	BACKDRAFT DAMPER		SANITARY DRAIN ABOVE FLOOR						
12"X20"	PROPOSED DUCTWORK		STORM DRAIN BELOW FLOOR STORM DRAIN ALONG CEILING						
12 X20	(FIRST DIM. LISTED IS THE DIMENSION IN VIEW)	<u></u>	INSULATION ON STORM DRAIN						
DD a		<del></del>	COLD WATER LINE						
PD a	POWERED (MOTORIZED) DAMPER a = CONTROLLING ZONE T—STAT	<del></del>	HOT WATER LINE						
	(IF OTHER THAN ROOM T-STAT)	·	GAS LINE						
FD	FIRE DAMPER		HYDRONIC HOT WATER SUPPLY HYRDONIC HOT WATER RETURN						
	DUCT INSULATION		PUMP						
$\boxtimes$	VERTICAL SUPPLY DUCT OR OPENING	M	WATER METER						
	VERTICAL RETURN DUCT OR OPENING	G	GAS METER						

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## HVAC DESIGN INFORMATION

HEAT LOSS WAS DETERMINED WITH:

INDOOR WINTER TEMPERATURE OF 22C (72F) OUTDOOR WINTER TEMPERATURE OF -20C(-5F)WIND SPEED OF 29KPH (18MPH) FROM NNW SUPPLY AIR TEMPERATURE: 40°C (104°F). NO OTHER HEAT LOADS INCLUDED.

2-STOREY AREA: MAIN FLOOR = 32,500 BTH/hr SECOND FLOOR = 41,200 BTH/hrREAR AREA = 87,300 BTH/hr

HEAT GAIN CALCULATIONS WERE DETERMINED WITH:

INDOOR SUMMER TEMPERATURE OF 22C (72F) OUTDOOR SUMMER TEMPERATURE OF 29C (84F) WIND SPEED OF 16KPH (10MPH) FROM SW SUPPLY AIR TEMPERATURE: 16°C (62°F) DESIGN PARAMETERS AS FOLLOWS: 18 PEOPLE & 1400 cfm O.A. LIGHTING = 1W/sq-ft. EQUIPMENT = 1W/sq-ft.

2-STOREY AREA: MAIN FLOOR = 25,500 BTH/hr SECOND FLOOR = 44,000 BTH/hr

## MECHANICAL DRAWING LIST DWG DRAWING TITLE

M1 MECHANICAL NOTES AND SCHEDULES M2 | MECHANICAL LAYOUT - MAIN FLOOR M3 MECHANICAL LAYOUT - SECOND FLOOR M4 HYDRONIC LAYOUT P1 PLUMBING STORM DRAINAGE SYSTEM P2 PLUMBING LAYOUT - MAIN FLOOR

P3 PLUMBING - 2ND FLOOR NOTES

& SCHEDULE

ISSUED FOR PRICING ISSUED FOR REVIEW

7-182 KING STREET STRATFORD, ON N5A 4S1 PH: 519.271.0808 ENGINEERING nfrengineering.ca

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DRAFT DEC 10/21

WALL HEATER - FAN FORCED

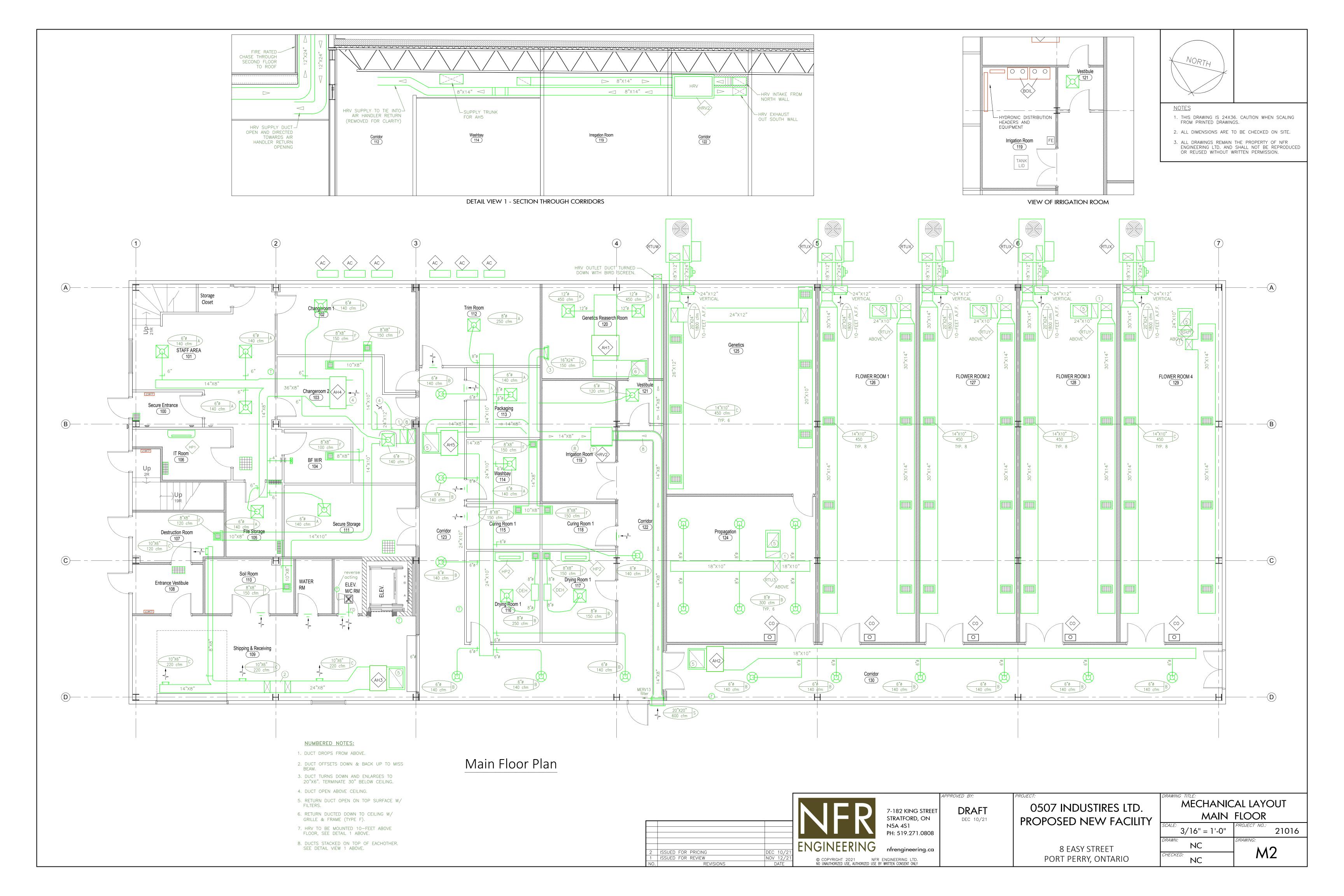
HYDRONIC RADIATOR

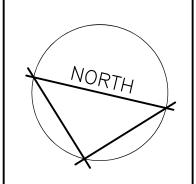
0507 INDUSTIRES LTD. PROPOSED NEW FACILITY

> 8 EASY STREET PORT PERRY, ONTARIO

MECHANICAL NOTES AND **SCHEDULES** 

21016 NC M1NC

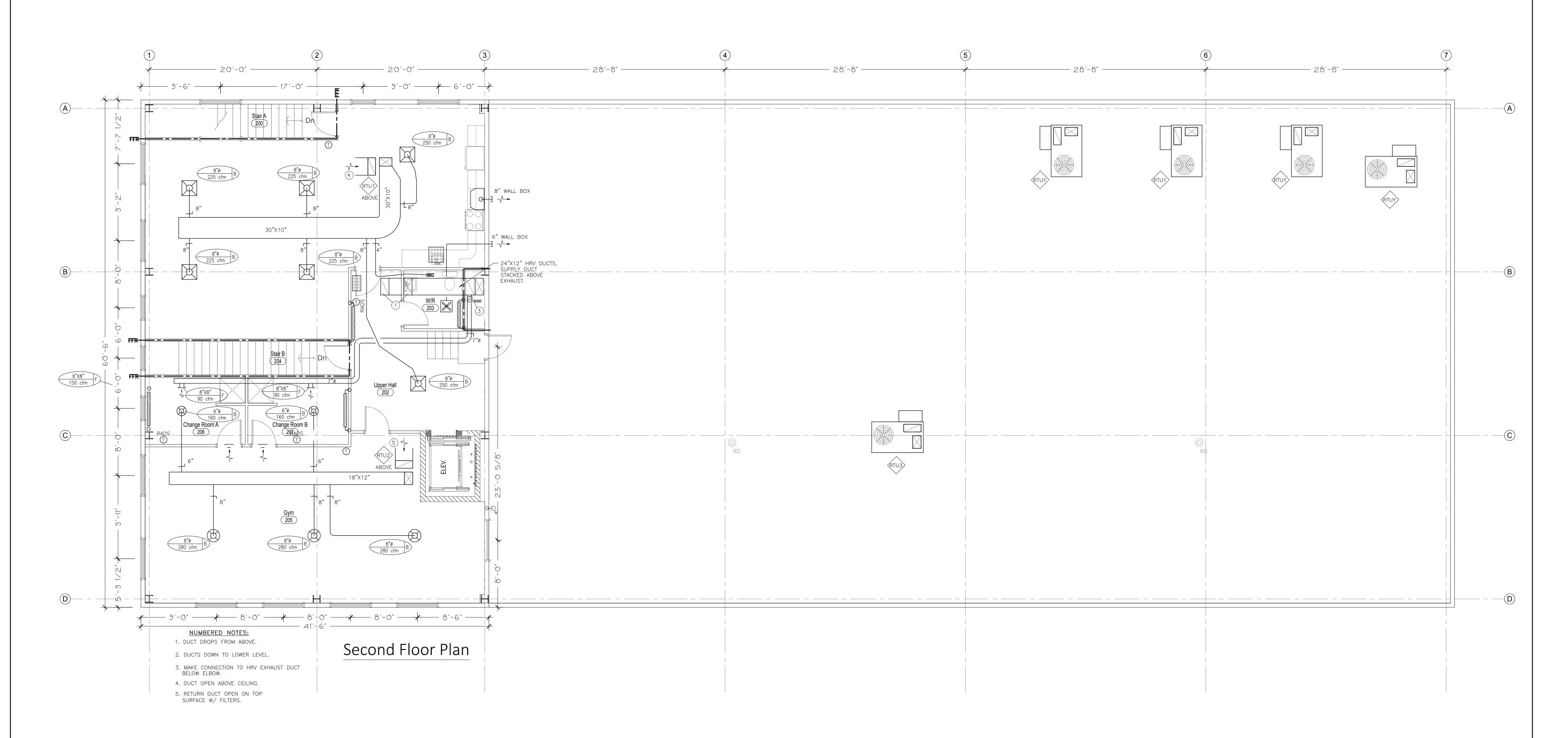




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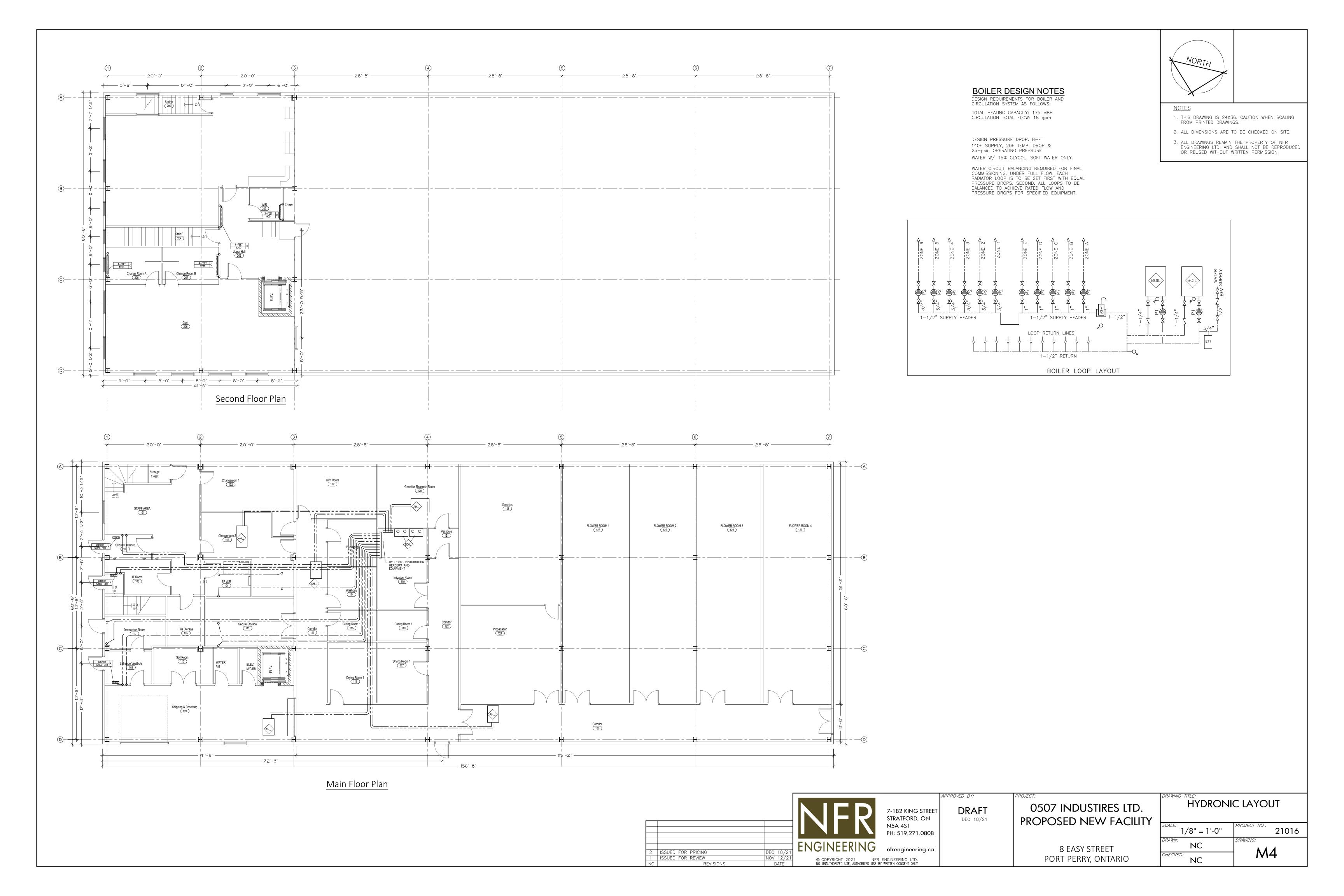
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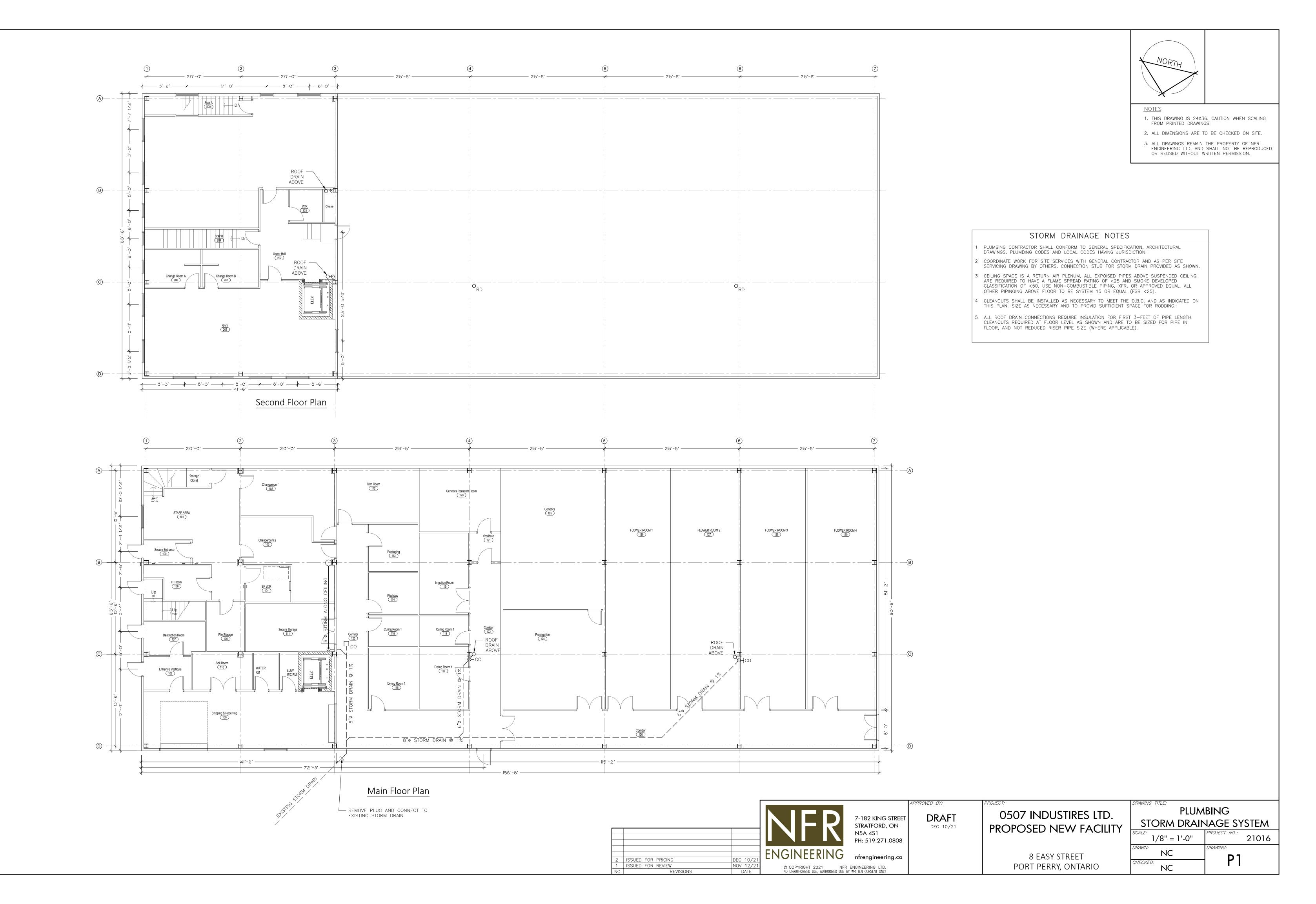
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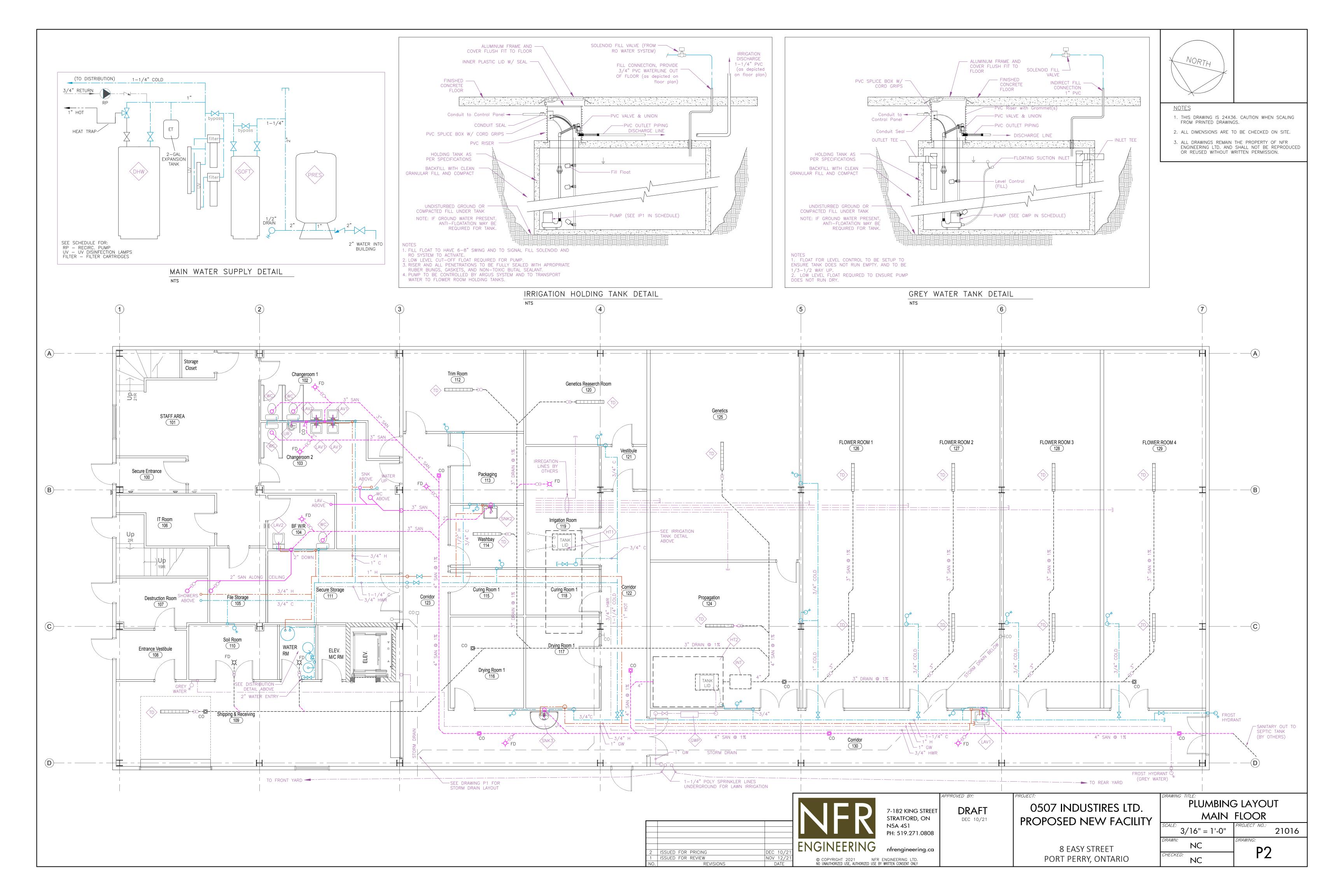
> 8 EASY STREET PORT PERRY, ONTARIO

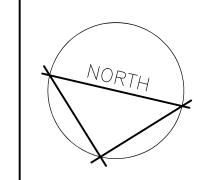
MECHANICAL LAYOUT SECOND FLOOR

3/16" = 1'-0" 21016 NC M3 NC

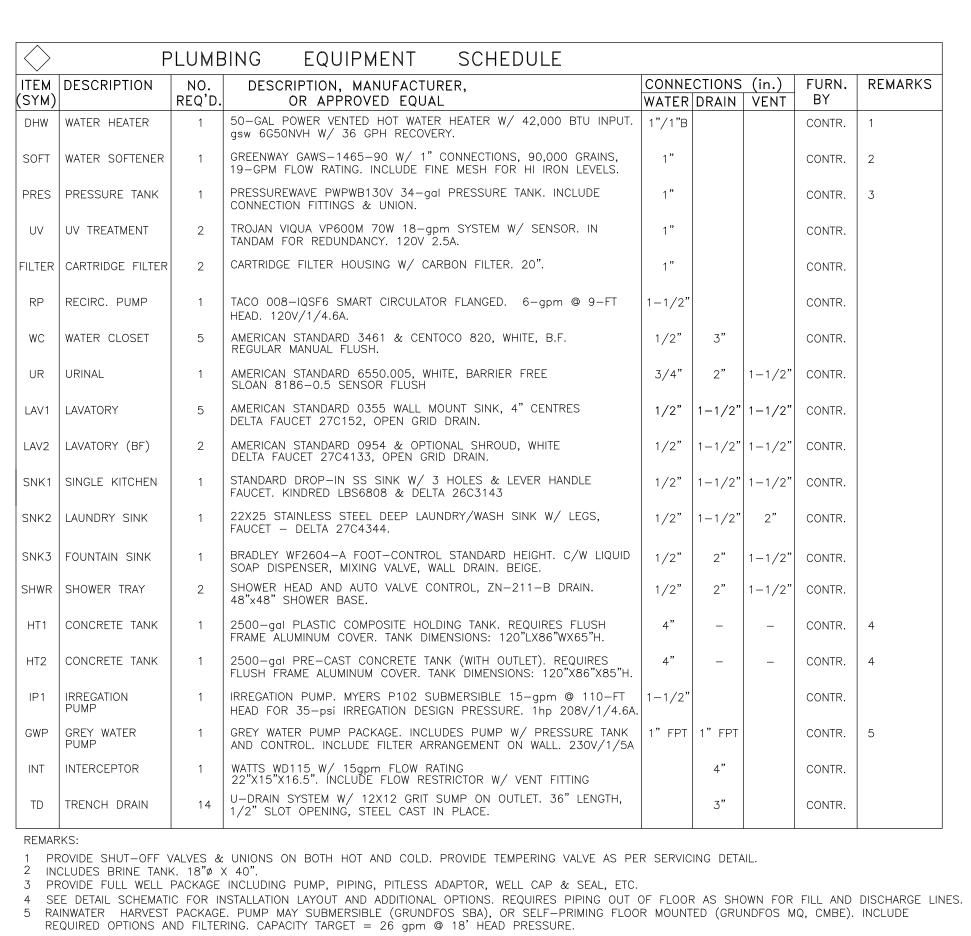








- 1. THIS DRAWING IS 24X36. CAUTION WHEN SCALING FROM PRINTED DRAWINGS.
- 2. ALL DIMENSIONS ARE TO BE CHECKED ON SITE.
- 3. ALL DRAWINGS REMAIN THE PROPERTY OF NFR ENGINEERING LTD. AND SHALL NOT BE REPRODUCED OR REUSED WITHOUT WRITTEN PERMISSION.



W/R

Second Floor Plan

TY. FROST HYDRANT

(GREY WATER)

- - ----- - ------ - ------

Stair B 204

Change Room B

Gym 205

Change Room A

- ALTERNALTE PUMP FOR HIGH IRREGATION/SPRINKLER SYSTEM: MYERS P102 SUBMERSIBLE 15-gpm @ 110-FT HEAD FOR 35-psi IRREGATION DESIGN PRESSURE. 1hp 208V/1/4.6A. WILL REQUIRE PRESSURE TANKS AND CONTROL.

## PLUMBING NOTES

PLUMBING CONTRACTOR SHALL CONFORM TO GENERAL SPECIFICATION, ARCHITECTURAL DRAWINGS, PLUMBING CODES AND LOCAL CODES HAVING JURISDICTION.

A FLAME SPREAD RATING OF <25. USE APPROPRIATE MATERIALS SUCH AS SYSTEM 15.

- PLUMBING CONTRACTOR AND GENERAL CONTRACTOR TO ENSURE THAT PUBLIC WASHROOMS MEET HANDICAP REQUIREMENTS AS REQUIRED BY BUILDING CODES.
- ALL DRAINAGE PIPES TO BE 2% SLOPE (1/4" PER FOOT) MINIMUM, OR AS LISTED. NON-COMBUSTIBLE BUILDING, ALL ABOVE FLOOR EXPOSED PIPING REQUIRED TO HAVE
- CEILING SPACE IS A RETURN AIR PLENUM, ALL PIPES ABOVE SUSPENDED CEILING ARE REQUIRED TO HAVE A FLAME SPREAD RATING OF <25 AND SMOKE DEVELOPED CLASSIFICATION OF <50, USE NON-COMBUSTIBLE PIPING, XFR, OR APPROVED EQUAL.
- SANITARY SEWER TO CONNECT TO SEPTIC SYSTEM BY OTHER. PLUMBER TO COORDINATE WITH SEPTIC INSTALLER AND SEPTIC DESIGN PLAN TO ENSURE PIPE EXITS
- BUILDING IN REQUIRED LOCATION & DEPTH FOR CONNECTION TO SEPTIC TANK. ALL FLOOR DRAIN TRAPS TO BE 3" ZURN Z-556 OR EQUAL. TRAP PRIMER FROM
- WATER LINE. CLEANOUTS SHALL BE INSTALLED AS NECESSARY TO MEET THE O.B.C. AND AS INDICATED ON THIS PLAN. SIZE AS NECESSARY AND TO PROVID SUFFICIENT SPACE FOR RODDING. URINAL CLEANOUTS TO BE ZURN Z-1666-1 2" VANDAL-PROOF OR EQUAL. FLOOR CLEANOUTS WATTS CO-200-R OR EQUAL.
- STORM DRAINS TO CONNECT TO SITE SERVICES PROVIDED. ALL ROOF DRAINS REQUIRE INSULATION FOR FIRST 3-FEET OF PIPE LENGTH. CLEANOUTS REQUIRED AT FLOOR LEVEL AS SHOWN AND ARE TO BE SIZED FOR PIPE IN FLOOR.
- 9 TRENCH DRAINS ARE TO BE INSTALLED AS PER MANUFACTURERS INSTRUCTIONS.
- 10 WATER SERVICE IS TO BE FROM A PRIVATE WELL SYSTEM. A NEW WELL IS PROPOSED FOR THE PROPERTY AND MUST BE DRILLED AND INSTALLED BY A LICENCED WELL CONTRACTOR.
- WATER WELL SERVICE TO INCLUDE DRILLED WELL C/W PUMP, 2" PIPING, PITLESS ADAPTOR, & WELL CAP. WELL REGISTRATION AND TAGS ARE REQUIRED. DRILLING SERVICE TO BE PRICED SEPARATELY BY WELL CONTRACTOR AND NOT REQUIRED TO BE INCLUDED IN PRICING FOR PLUMBING WORK. PLUMBER TO INCLUDE WELL EQUIPMENT UNLESS SPECIFICALLY STATED OTHERWISE.
- 12 ALL FIXTURES REQUIRE APPROPRIATE SHUT-OFF VALVES AS PER OBC. USE DAHL
- 13 CONTRACTOR TO BLOCK AND SECURE ALL WATER LINES THROUGH TO AVOID NOISY PIPES. WATERLINES TO BE INSTALLED ACROSS CEILINGS AS SHOWN.
- WATER LAYOUT MAY NOT DRAWN IN IT'S ENTIRETY. ALL PLUMBING FIXTURES ARE TO BE FED WITH WATER AS PER SCHEDULE.
- 15 INSULATE ALL EXPOSED WATERLINES THROUGHOUT. INSULATION TO BE 1-INCH SERVICE JACKET WITH PVC FITTINGS.
- 16 GREY WATER SYSTEM SHOWN AS PROPOSED WITH INTERCEPTOR, COLLECTION TANK, OVERFLOW TO SEPTIC. SIZING BASED ON AN ESTIMATED MAXIMUM FLOR 1,400L/DAY. USE OF GREYWATER PROPOSED FOR SPECIFIC HOSE BIB FIXTURES AND AS PER OWNER. FILTERING SYSTEM REQUIRED REVIEW AND APPROVAL. IF USING FOR LAWN IRREGATION SYSTEM, DESIGN BY OTHERS REQUIRED AND TO BE REVIEWED FOR PUMP
- 7 IRREGATION SYSTEM BY OTHERS. MAIN WATER DISTRIBUTION LINES SHOWN FOR REFERENCE. CONFIRM SIZING AND LOCATIONS IF INSTALLING FOR OWNER.
- 18 IRREGATION SYSTEM PROPOSED TO HAVE AN RO WATER TREATMENT SYSTEM. WATER SUPPLY SHOWN ON PLANS AND IS TO BE CONNECTED TO RO SYSTEM. RO SYSTEM WILL FILL UNDERGROUND TANK TO KEEP FULL AS PER FLOAT. IRREGATION PUMP IN TANK TO BE CONTROLLED BY BUILDING CONTROL SYSTEM FOR SUPPLY OF WATER TO EACH ROOM AS REQUIRED.

# LEGEND

WATER VALVE MIXING VALVE \_ MANUAL BALANCING VALVE WATTS ACCU—FLO ACUF

(3" MINIMUM W/ TRAP)

CHECK VALVE FLOOR DRAIN

ROOF DRAIN

FLOOR CLEAN OUT WALL CLEAN OUT

ELBOW TURNED UP ELBOW TURNED DOWN

HOSE BIB, 1/2" WITH VAC. BREAK — | — UNION

WATER METER

GAS METER

—·—·— GAS LINE

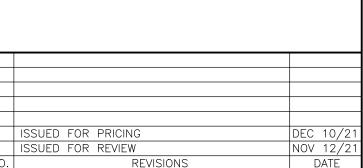
SPRINKLER HEAD ----- COLD WATER LINE — -- — HOT WATER LINE

---- SANITARY UNDER FLOOR SANITARY ABOVE FLOOR

---- STORM DRAIN LINE ------ GREY WATER LINE

COLD WATER LINE HOT WATER LINE

GW GREY WATER LINE HWR HOT WATER RETURN LINE





7-182 KING STREET STRATFORD, ON

DRAFT DEC 10/21

0507 INDUSTIRES LTD. PROPOSED NEW FACILITY

> 8 EASY STREET PORT PERRY, ONTARIO

PLUMBING - 2ND FLOOR NOTES & SCHEDULES

3/16" = 1'-0" 21016 NC P3 NC