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PLOTTED BY: qph

DATE: 2/23/2007

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ANAEROBIC TREATMENT SYSTEM FOR RENOVA ENERGY PLC HEYBURN, ID CONTROL BUILDING FOR ADI-BVF® REACTORS



Fredericton, NB, CA and Salem, NH, US
CAN PATENT #1253266; #2,096,852
USA PATENTS #4,672,691; #5,505,848; #5,587,080
MEXICO PATENT #190898

Project No. 1079-3.1

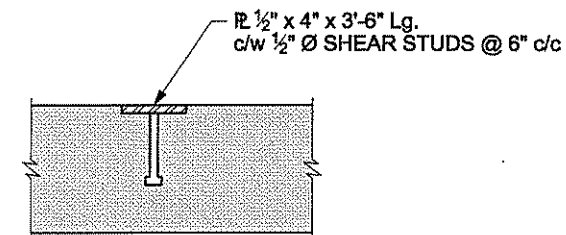
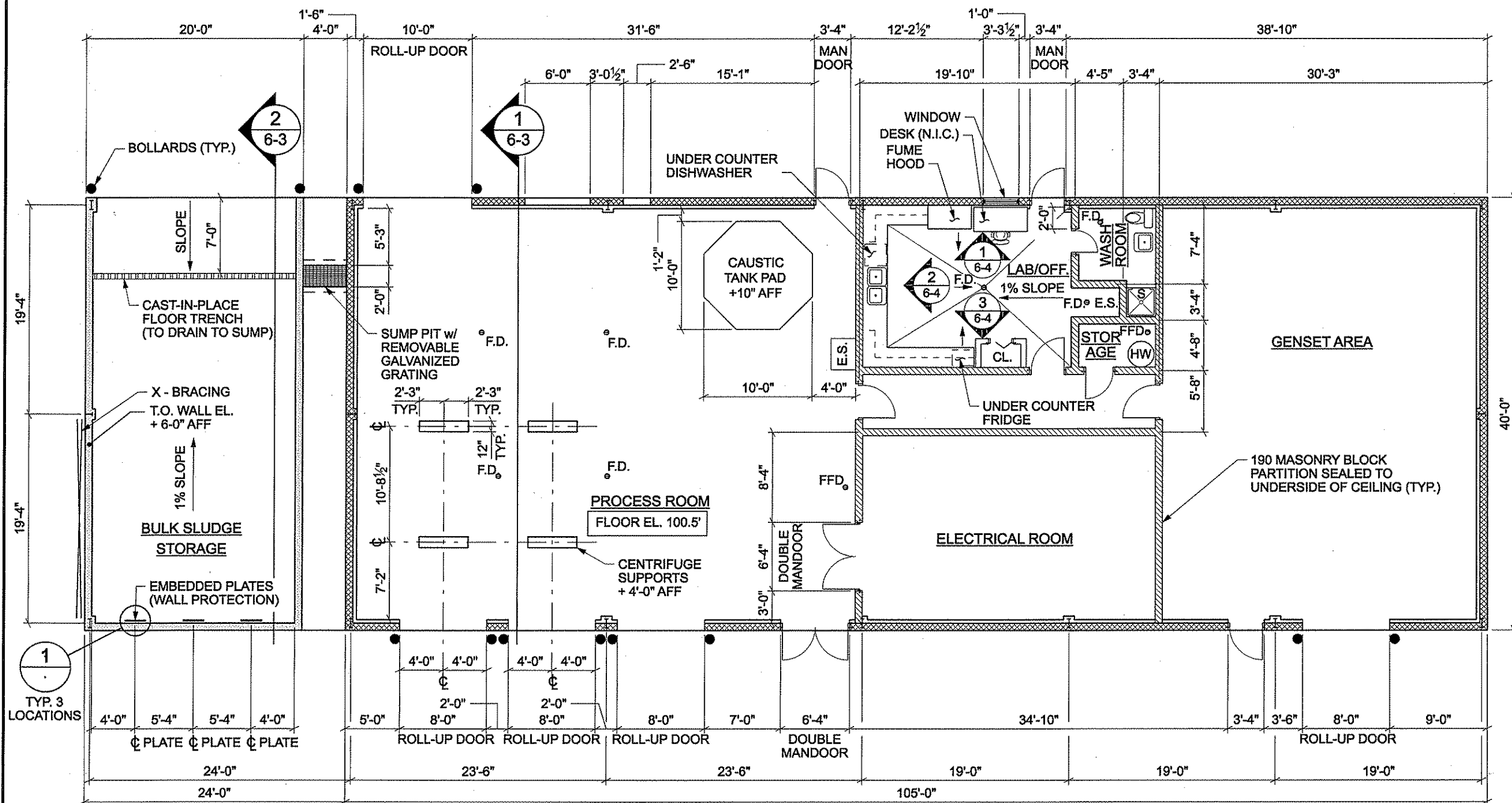


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Project No. 2889-199.1

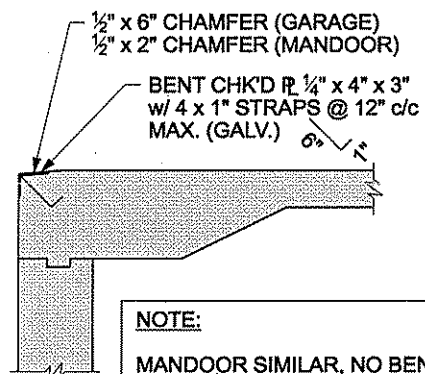
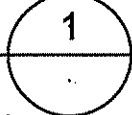
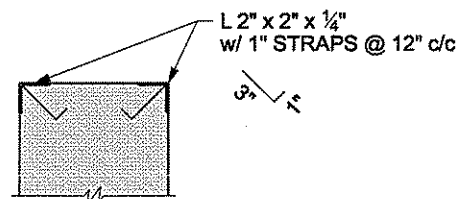
DRAWING INDEX		
DWG. NO.	REV. NO.	DRAWING DESCRIPTION
COVER	0	COVERSHEET
6-1	0	CONTROL BUILDING FLOOR PLAN & TYPICAL DETAILS
6-2	0	CONTROL BUILDING EAST & WEST ELEVATIONS
6-3	0	CONTROL BUILDING NORTH & SOUTH ELEVATIONS & CROSS SECTIONS
6-4	0	CASEWORK ELEVATIONS
6-5	0	CONTROL BUILDING MECHANICAL FLOOR PLAN
6-6	0	CONTROL BUILDING SPECIFICATIONS
6-7	0	CONTROL BUILDING SPECIFICATIONS
6-8	0	CONTROL BUILDING MECHANICAL SPECIFICATIONS
6-9	0	CONTROL BUILDING MECHANICAL SPECIFICATIONS
61240960		CENTRIFUGE EQUIPMENT DRAWINGS (FOR REFERENCE ONLY)

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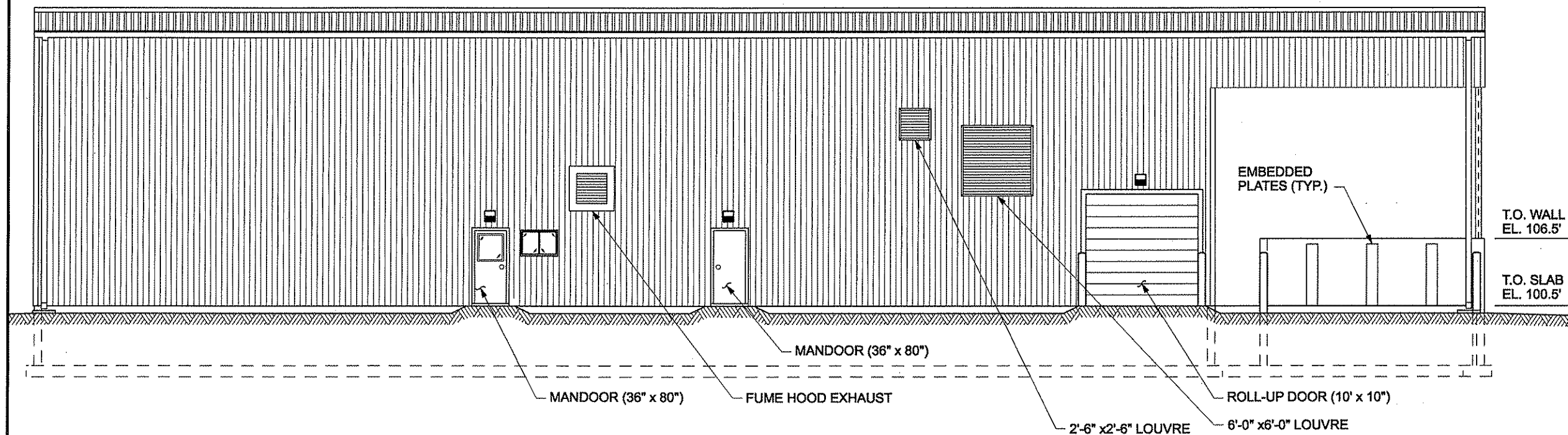
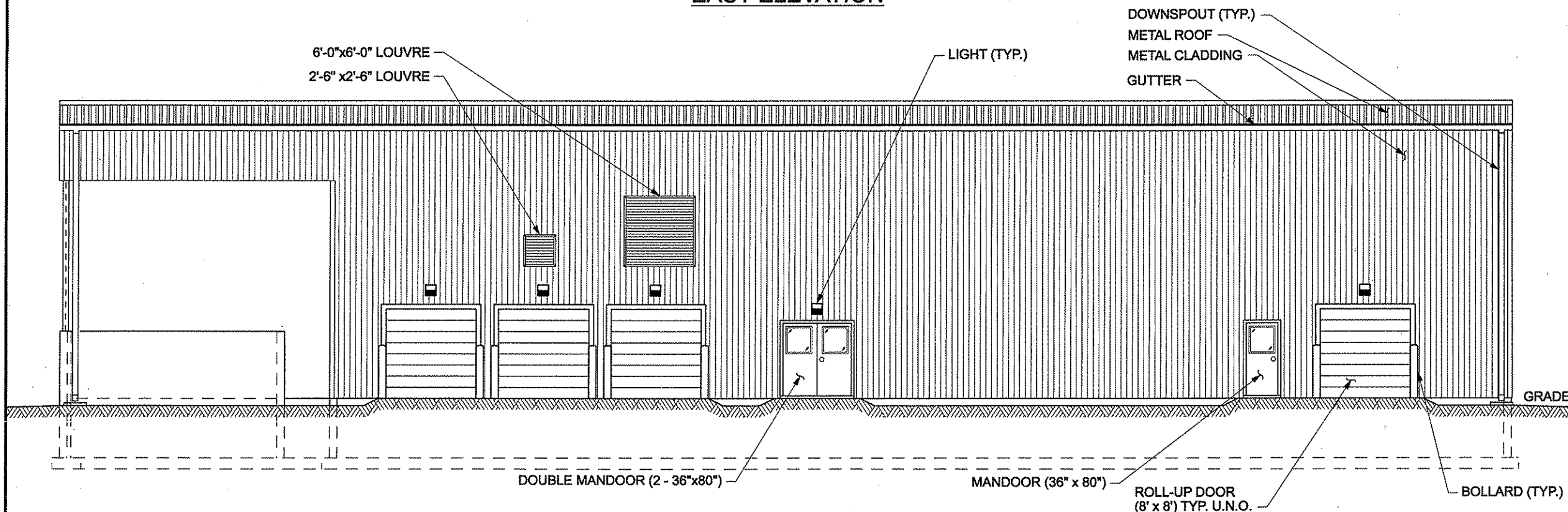


DETAIL

1" = 1'-0"

TYPICAL THICKENED SLAB
AT GARAGE DOOR
NOT TO SCALETYPICAL TOP & ENDS OF
BULK STORAGE WALL
NOT TO SCALE

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**EAST ELEVATION****WEST ELEVATION**

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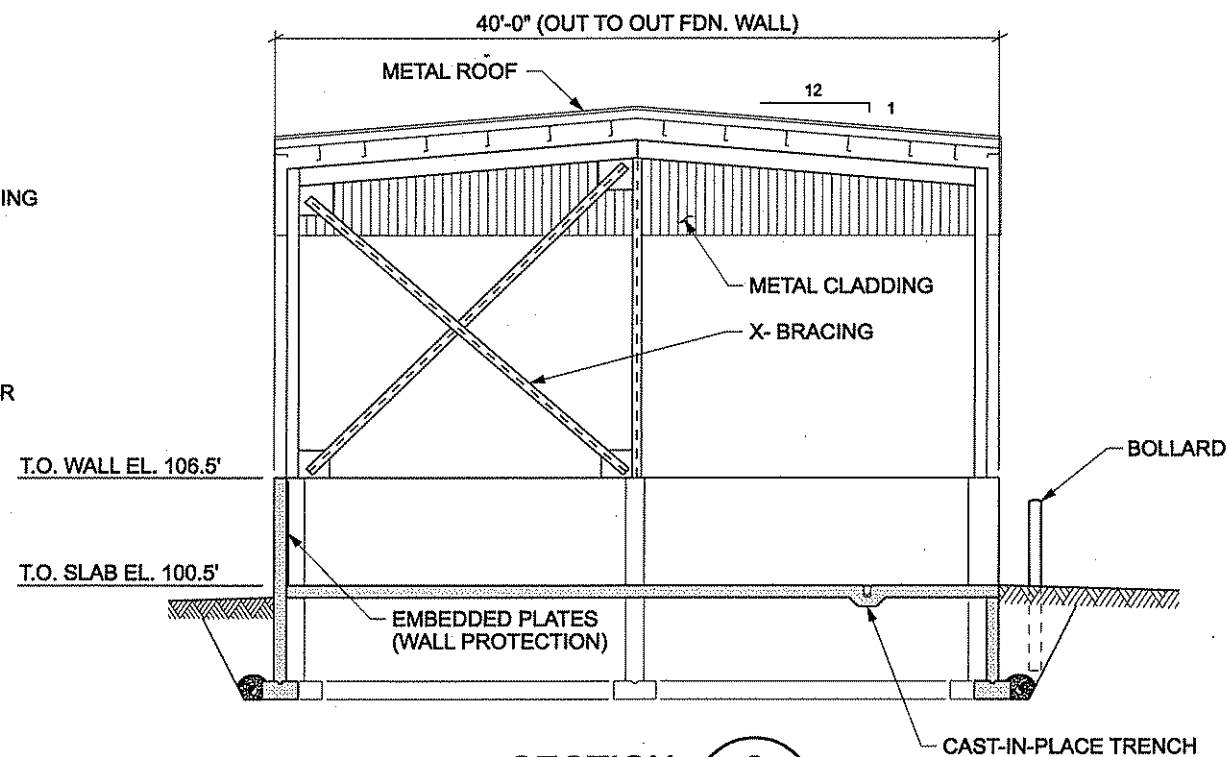
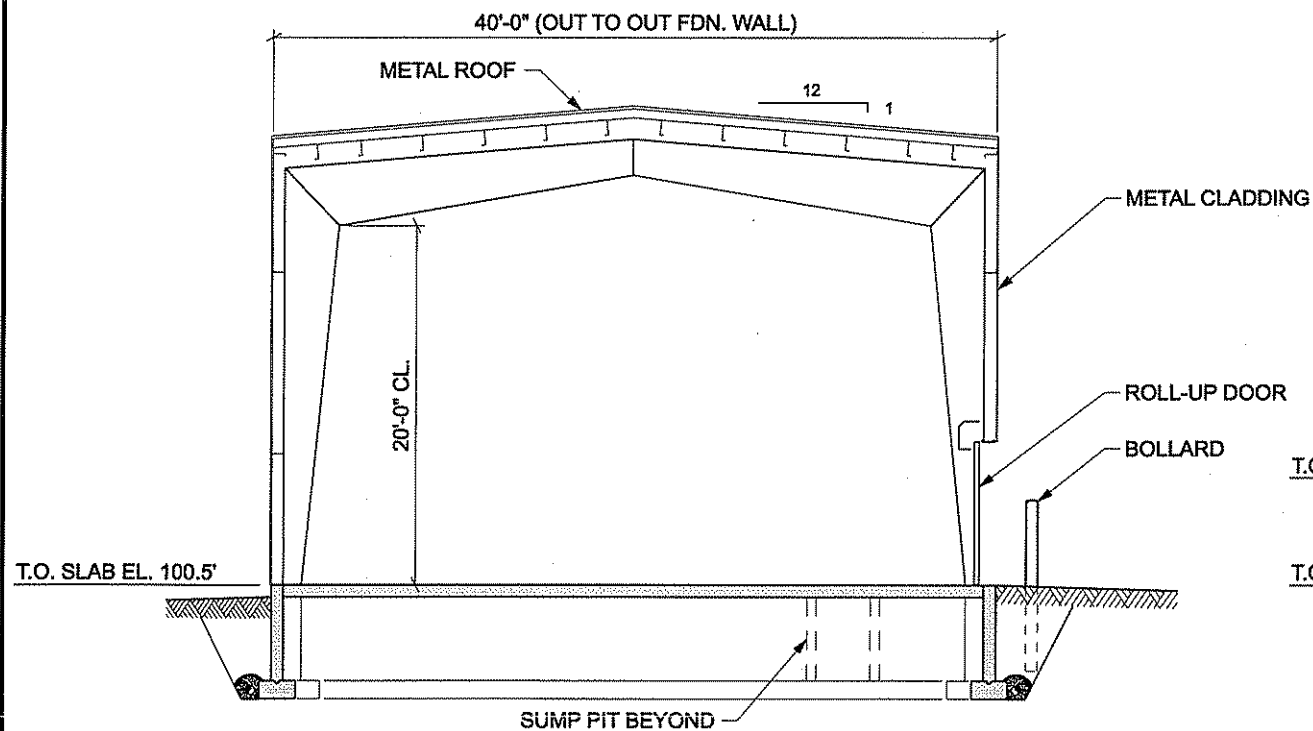
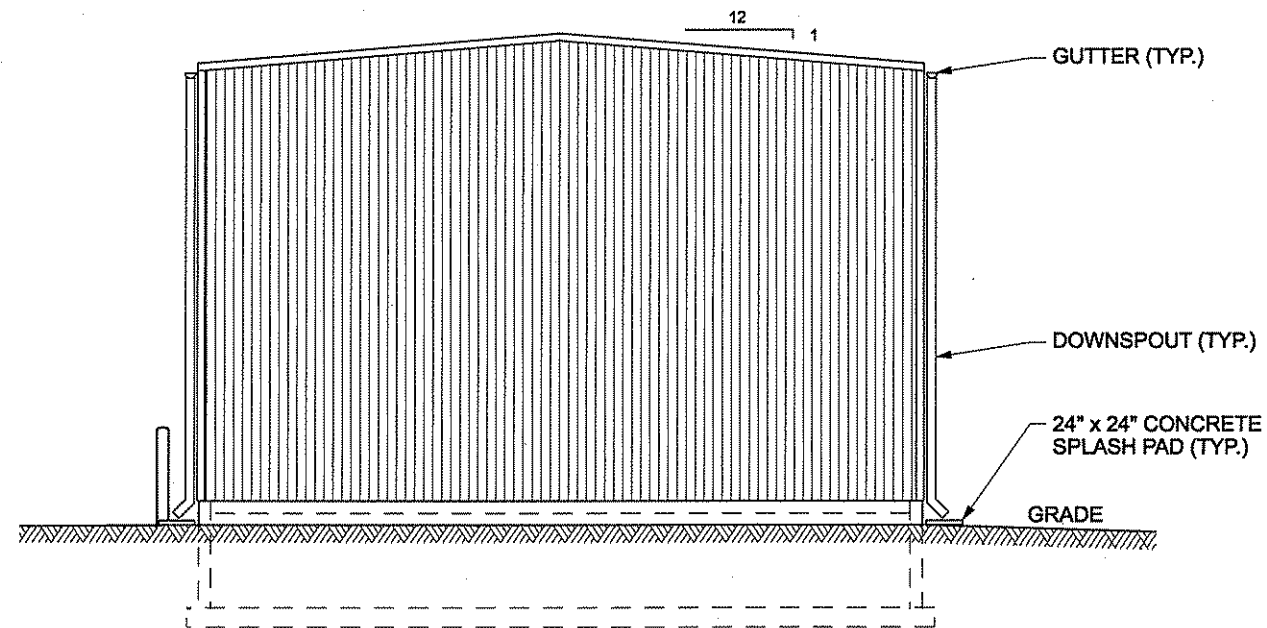
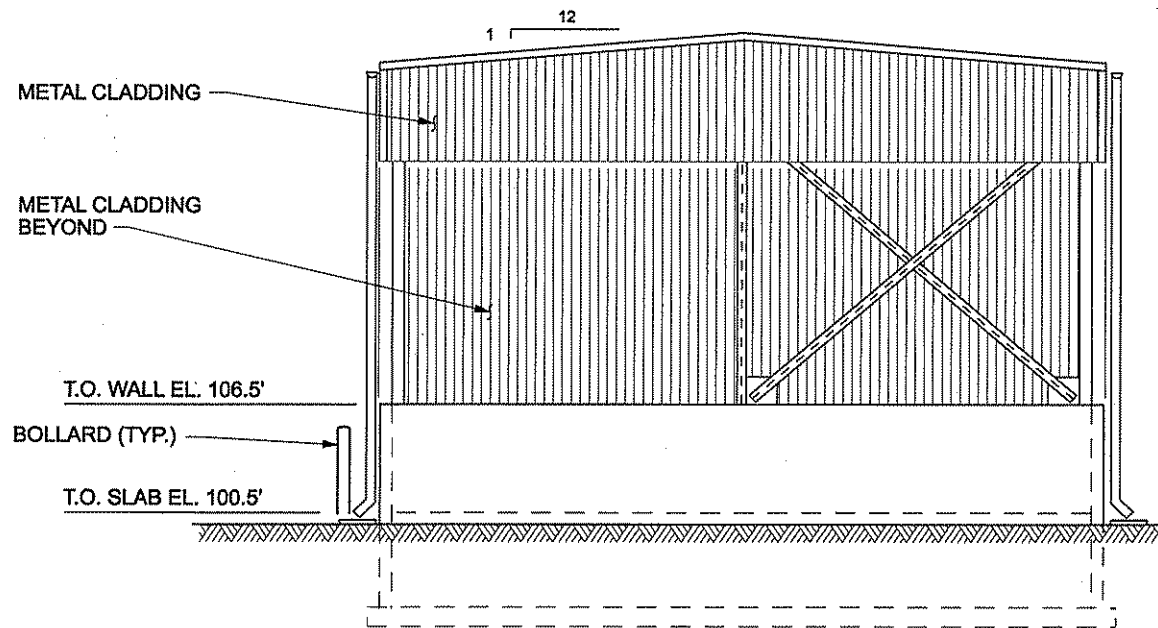
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 2889-199.1

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	Designed By: MJM²
	Dwg. Design Ckd. By: <i>[Signature]</i>

ADI Systems Inc.
 Waste Treatment Systems
 Fredericton, NB, CA and Salem, NH, US
 CAN PATENT #1253266; #2,096,852
 USA PATENTS #5,505,848; #5,587,080
 MEXICO PATENT #190898

Project Title ANAEROBIC TREATMENT SYSTEM FOR RENOVA ENERGY PLC HEYBURN, ID	
Dwg. Title CONTROL BUILDING EAST & WEST ELEVATIONS	
Project No.	1079-3.1
Dwg. No.	6-2
Rev. No.	0
Scale	3/32" = 1'-0" This drawing is not to be scaled



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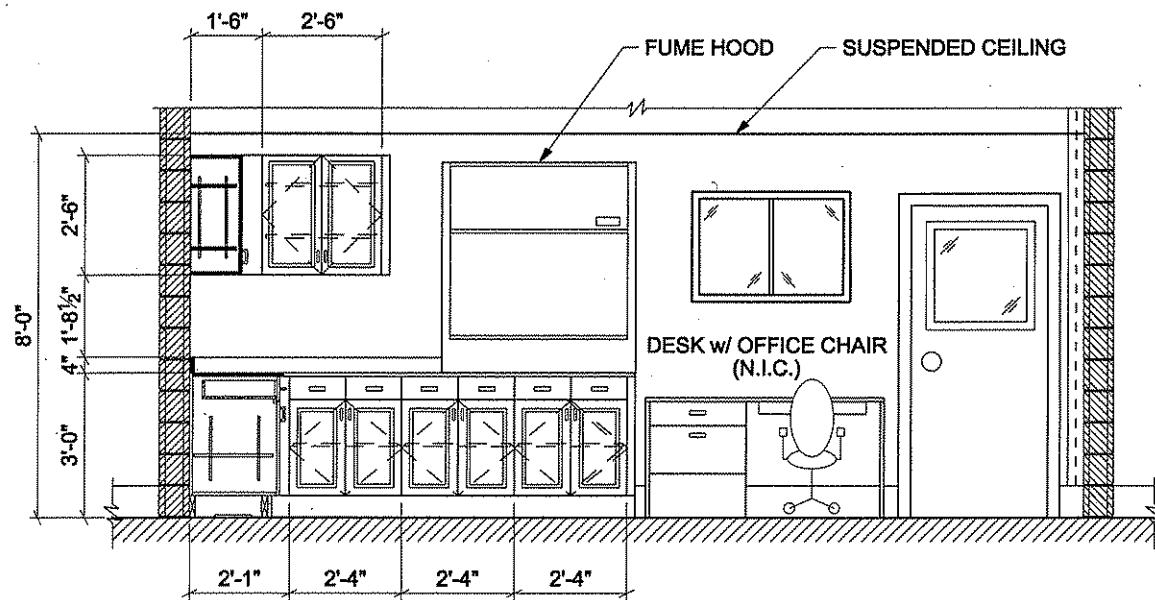
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	Dwg. Standards: Ckd. By: [Signature]
	Designed By: M.J.M. ²
Date Printed	Dwg. Design: Ckd. By: M.M.

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Waste Treatment Systems
Fredericton, NB, CA and Salem, NH, US
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Project Title	
ANAEROBIC TREATMENT SYSTEM FOR RENOVA ENERGY PLC HEYBURN, ID	
Dwg. Title	
CONTROL BUILDING NORTH & SOUTH ELEVATIONS & CROSS SECTIONS	
Project No.	1079-3.1
Dwg. No.	6-3
Rev. No.	0
Scale	
3/32" = 1'-0" U.N.O. This drawing is not to be scaled	

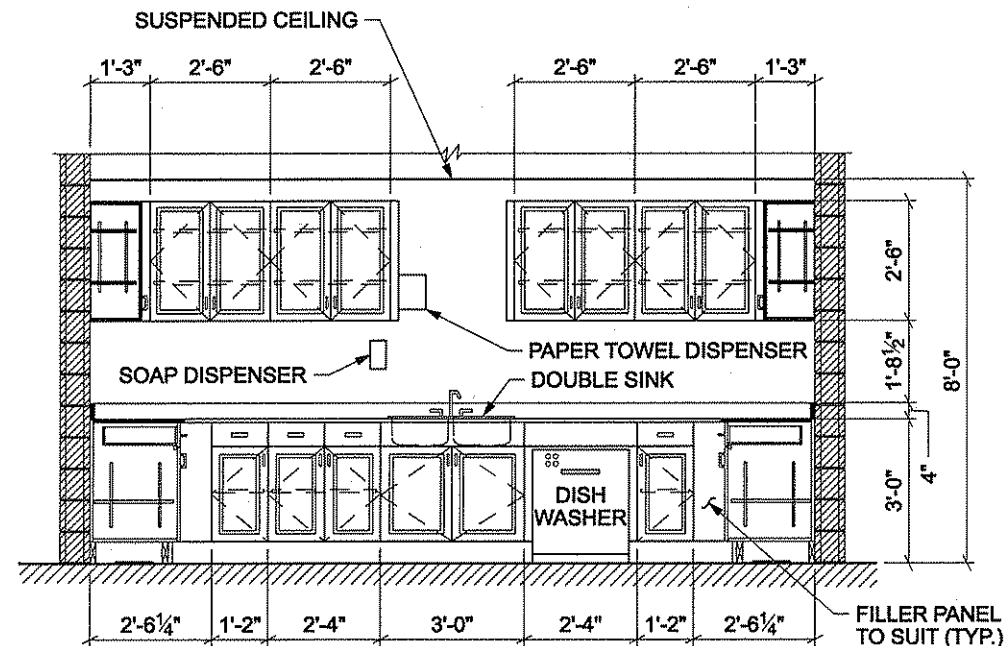


ELEVATION

1

1/4" = 1'-0"

6-1

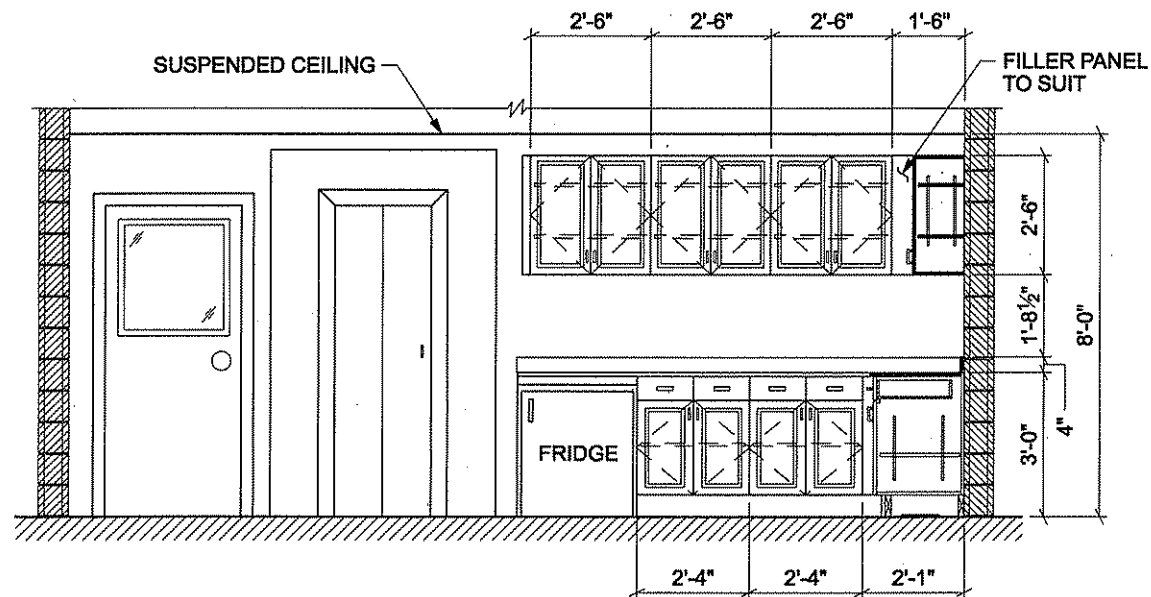


ELEVATION

2

1/4" = 1'-0"

6-1



ELEVATION

3

1/4" = 1'-0"

6-1

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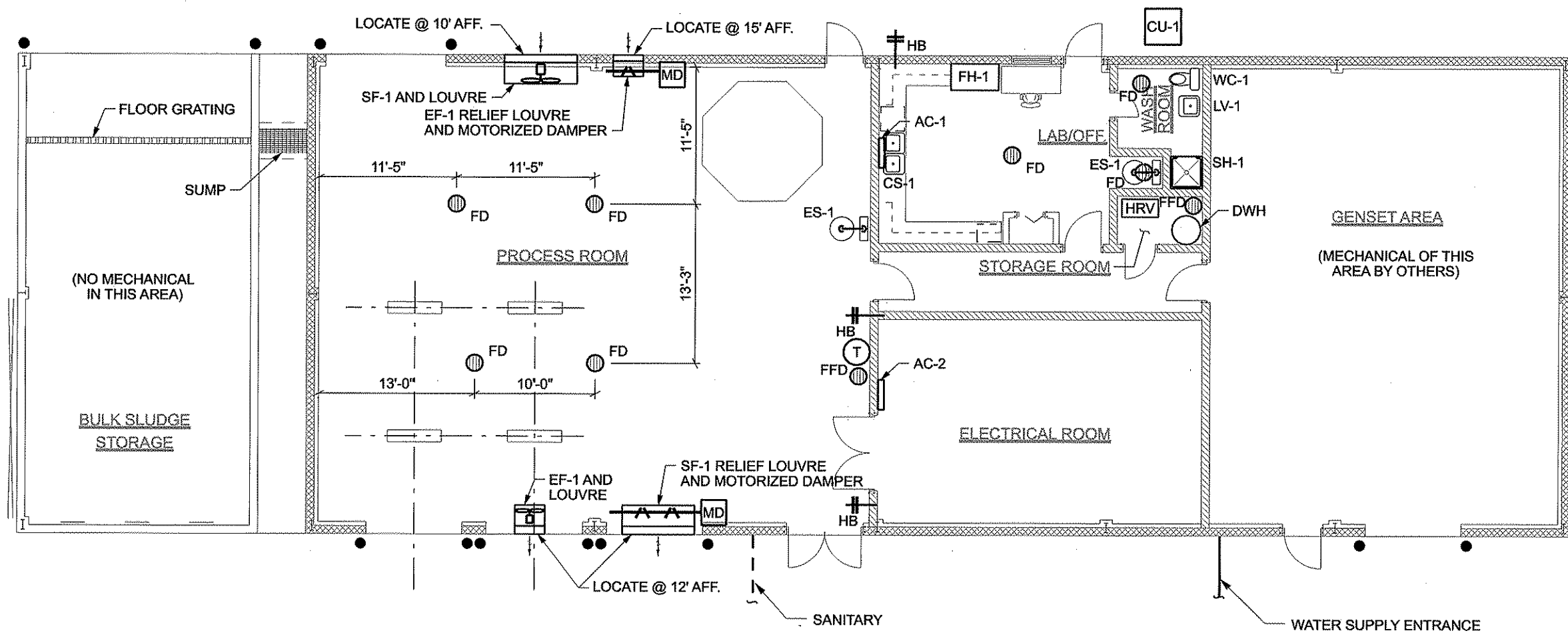
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	Designed By: M.J.M. ²
Dwg. Design Ckd. By: <i>M.M.</i>	

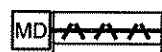
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Project Title	
ANAEROBIC TREATMENT SYSTEM FOR RENOVA ENERGY PLC HEYBURN, ID	
Dwg. Title	
CASEWORK ELEVATIONS	
Project No.	1079-3.1
Dwg. No.	6-4
Rev. No.	0
Scale	
1/4" = 1'-0"	
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LEGEND



MOTORIZED DAMPER



FUNNEL FLOOR DRAIN



FLOOR DRAIN



HOSE BIBB



THERMOSTAT

DWH

DOMESTIC WATER HEATER

WC-1

WATER CLOSET TYPE 1

CS-1

COUNTER SINK TYPE 1

LV-1

LAVATORY TYPE 1

SH-1

SHOWER TYPE 1

ES-1

EMERGENCY SHOWER TYPE 1

AC-1

AIR CONDITIONER #1

AC-2

AIR CONDITIONER #2

CU-1

CONDENSING UNIT TYPE 1

SF-1

SUPPLY FAN TYPE 1

EF-1

EXHAUST FAN TYPE 1

FH-1

FUME HOOD TYPE 1

AFF

ABOVE FINISHED FLOOR

HRV

HEAT RECOVERY VENTILATOR

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Project Title	
ANAEROBIC TREATMENT SYSTEM FOR RENOVA ENERGY PLC HEYBURN, ID	
Dwg. Title	
CONTROL BUILDING MECHANICAL FLOOR PLAN	
Project No.	1079-3.1
Dwg. No.	6-5
Rev. No.	0
Scale	
3/32" = 1'-0"	
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CONTROL BUILDING SPECIFICATIONS

1. FURNISH ALL LABOR AND MATERIALS TO DESIGN, SUPPLY AND CONSTRUCT A PRE-ENGINEERED STEEL FRAMED BUILDING AND CAST-IN-PLACE CONCRETE FOUNDATION IN ACCORDANCE WITH INTERNATIONAL BUILDING CODE (IBC), 2003 AND LOCAL BUILDING CODES AND AMENDMENTS AS PER LOCAL AUTHORITY HAVING JURISDICTION, UNLESS MORE STRINGENT REQUIREMENTS ARE SPECIFIED ELSEWHERE.
2. SYSTEM DESCRIPTION: CLEAR SPAN RIGID FRAME COMPLETE WITH TAPERED COLUMNS, TAPERED BEAMS, POST AND BEAM ENDWALL, CROSS-BRACING AT SIDE AND END WALLS. ROOF: GABLE TYPE WITH 1:12 SLOPE.
3. MANUFACTURER OF THE STEEL BUILDING SYSTEM SHALL BE CERTIFIED IN ACCORDANCE WITH AISC CERTIFICATION STANDARD MD. SUBMIT COPY OF CERTIFICATION PRIOR TO FABRICATION.
4. SUBMIT THE FOLLOWING DOCUMENTS FOR THE PRE-ENGINEERED BUILDING:

1. CERTIFICATION THAT BUILDING IS IN ACCORDANCE WITH CONTRACT REQUIREMENTS.

2. STRUCTURAL ANALYSIS CERTIFICATION OF BUILDING SYSTEM.
5. SUBMIT A COMPLETE SET OF PERMITABLE BUILDING DRAWINGS FOR REVIEW PRIOR TO FABRICATION. DRAWINGS SHALL BE STAMPED BY A QUALIFIED PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE STATE OF IDAHO. INDICATE ROOF SYSTEM, WALL CLADDING, INSULATION DETAILS FRAMED OPENINGS, ACCESSORIES, SCHEDULE OF MATERIALS AND FINISHES, ANCHOR BOLT PLAN AND FRAME/COLUMN FOUNDATION REACTIONS. BUILDING TO MEET OR EXCEED IBC (LATEST ENFORCED EDITION) ENERGY CODE.
6. SUBMIT A COMPLETE SET OF PERMITABLE BUILDING FOUNDATION DRAWINGS AND SPECIFICATIONS FOR REVIEW PRIOR TO CONSTRUCTION. DRAWINGS SHALL BE STAMPED BY A QUALIFIED PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE STATE OF IDAHO. INDICATE DESIGN SOIL BEARING PRESSURE, CONCRETE STRENGTH, GRADE OF REINFORCING, EXCAVATION AND BACKFILL SPECIFICATIONS.
7. STRUCTURAL DESIGN CRITERIA:

1. STRUCTURAL DESIGN SHALL BE IN ACCORDANCE WITH THE 2003 INTERNATIONAL BUILDING CODE (IBC)

2. FLOOR LIVE LOAD:

- 100 PSF UNLESS NOTED OTHERWISE.

- BULK SLUDGE STORAGE: 370 PSF + ASSUMED CATERPILLAR 936 WHEEL LOADER (OPERATING WEIGHT = 27 000 lbs).

- CAUSTIC TANK: 84 000 lbs.

- TANK = 9'-6" Ø x 13'-0" H. CONFIRM PRIOR TO DESIGN.

- CENTRIFUGE: LOADS AS PER CENTRIFUGE SUPPLIER REFERENCE DRAWINGS.

3. ROOF LIVE LOAD = 20 PSF.

4. ROOF SNOW LOAD:

- GROUND SNOW LOAD, Pg = 20 PSF.

- FLAT ROOF SNOW LOAD, Pf = 20 PSF.

- SNOW EXPOSURE FACTOR, Ce = 1.2

- SNOW LOAD IMPORTANCE FACTOR, Is = 1.0.

- THERMAL FACTOR Ct = 1.0, EXCEPT BULK SLUDGE STORAGE AREA, Ct = 1.2

5. WIND LOAD:

- BASIC WIND SPEED = 90 MPH.

- WIND LOAD IMPORTANCE FACTOR, Iw = 1.0.

- BUILDING CATEGORY = II.

- WIND EXPOSURE CATEGORY = B.

- COMPONENTS AND CLADDING: IN ACCORDANCE WITH SECTION 1609.6, "SIMPLIFIED WIND LOAD METHOD".

6. EARTHQUAKE DESIGN DATA:

- SEISMIC IMPORTANCE FACTOR, Ie = 1.0.

- SEISMIC USE GROUP = I.

- MAPPED SPECTRAL RESPONSE ACCELERATIONS:

- Ss = 20%.

- S1 = 10%.

- SITE CLASS = D.

- SPECTRAL RESPONSE COEFFICIENTS:

- Sds = 0.21

- Sd1 = 0.16

- SEISMIC DESIGN CATEGORY = C.

- BASIC SEISMIC FORCE RESISTING SYSTEMS:

- FINAL SYSTEM(S) TO BE DETERMINED BY METAL BUILDING SUPPLIER.

- BRACED FRAMES AT EXTERIOR WALL WHERE POSSIBLE, OTHERWISE MOMENT FRAMES EXTERIOR AND INTERIOR.

- DESIGN BASE SHEAR:

- TO BE DETERMINED BY METAL BUILDING SUPPLIER.

- SEISMIC RESPONSE COEFFICIENT, Cs:

- TO BE DETERMINED BY METAL BUILDING SUPPLIER.

- RESPONSE MODIFICATION FACTOR, R:

- TO BE DETERMINED BY METAL BUILDING SUPPLIER.

- ANALYSIS PROCEDURE USED:

- TO BE DETERMINED BY METAL BUILDING SUPPLIER.

7. IN ADDITION TO THE BUILDING DEAD LOADS, INCLUDE IN THE DESIGN, A MECHANICAL ALLOWANCE OF 5 PSF.

8. CONCRETE DESIGN SHALL BE TO ACI 318.

9. ROLLED AND BUILT-UP STEEL SHAPE DESIGN SHALL BE TO AISC "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS".

10. COLD-FORMED STEEL SHAPES SHALL BE DESIGNED IN ACCORDANCE WITH "NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STRUCTURAL STEEL MEMBERS".

11. A GEOTECHNICAL REPORT DATED FEB 27, 2006 BY XCELL ENGINEERING INC. IS AVAILABLE UPON REQUEST. THE BUILDING SUPPLIER TO DETERMINE AND / OR CONSIDER THE NEED FOR ADDITIONAL INFORMATION AS PART OF THE BUILDING PACKAGE SUPPLY.

12. MASONRY DESIGN TO INTERNATIONAL BUILDING CODE (IBC) REQUIREMENTS.

13. CONCRETE FLOOR SLABS TO BE MINIMUM 6" AND REINFORCED WITH #4 @ 14" c/c MINIMUM.

14. SOIL BEARING PRESSURE: DESIGN CONCRETE AND FOOTINGS BASED ON AN ALLOWABLE SOIL BEARING PRESSURE OF 2500 psf.

8. MATERIALS:

1. STRUCTURAL STEEL: ASTM A572 GRADE 50 MINIMUM.

2. SECONDARY FRAMING STEEL: ASTM A1011 GRADE 55.

3. SHEET STEEL: ZINC COATED (G90) STEEL TO ASTM A653, MINIMUM THICKNESS - 26 GAUGE; PRE FINISHED WITH FACTORY FINISH COATING SYSTEM, COLOR BY OWNER.


4. ALL CONCRETE WORK AND METHODS OF CONCRETE CONSTRUCTION SHALL CONFORM TO THESE SPECIFICATIONS AND THE LATEST EDITIONS OF THE FOLLOWING: ACI 318, "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE"; ACI 301, "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS" AND THE 2003 INTERNATIONAL BUILDING CODE AND HOWARD COUNTY AMENDMENTS THERE TO.

5. PRIMER: BUILDING MANUFACTURER'S STANDARD PRIMER.

6. WALL AND ROOF INSULATION: MINIMUM R12, COMPLETE WITH REINFORCED INTEGRAL VAPOUR BARRIER.

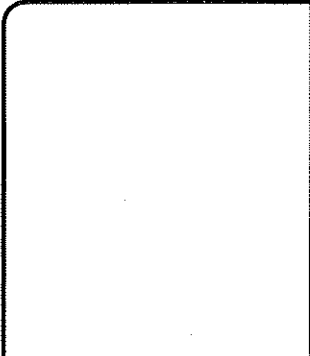
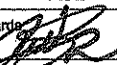
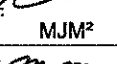

9. ROOF SYSTEM: MANUFACTURER'S STANDARD STANDING SEAMROOF SYSTEM, 24 GA. MINIMUM SHEET THICKNESS.
10. LINER PANEL: INTERIOR FACE OF EXTERIOR WALLS, 26 GA. G90 COATED STEEL WITH PRE-PAINTED FINISH.
11. GUTTERS AND DOWNSPOUTS: 26 GA. G90 COATED STEEL WITH PRE-PAINTED FINISH. PROVIDE CONCRETE SPLASH PADS AT EACH DOWNSPOUT.
12. MANDOORS: 1 3/4" THICK FULL FLUSH TYPE, 16 GAUGE GALVANIZED STEEL DOOR PANELS, 14 GAUGE FLUSH MOUNTED END CHANNELS, POLYURETHANE FOAM BOARD CORE, STANDARD HARDWARE WITH LOCKS KEYED AS PER OWNER'S INSTRUCTIONS.


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CONTROL BUILDING SPECIFICATIONS	
Project No.	1079-3.1
Dwg. No.	6-6
Rev. No.	0
Scale	
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3/2889199/1/CONT010-7 SPECIFICATIONS.dgn

MODEL: 6-7

PLOTTED BY: gph

DATE: 2/23/2007

10:10:06 AM

CONTROL BUILDING SPECIFICATIONS

13. ROLL-UP DOORS:

- .1 DESIGN EXTERIOR DOOR ASSEMBLY TO WITHSTAND WIND LOAD OF 20 psf WITH A MAXIMUM HORIZONTAL DEFLECTION OF 1/240 OF OPENING WIDTH.
 - .2 COILING DOOR: GALVANIZED STEEL SLAT WITH FOAMED-IN-PLACED URETHANE INSULATION; EQUAL TO INSULATED DOOR BY COOKSON
 - .3 CURTAIN: ROLL-FORMED, 20 GA. GALVANIZED STEEL SHEET, INTERLOCKING SLAT SECTIONS WITH 22 GA. BACK SLAT; MINIMUM THICKNESS 3/4". EQUIP BOTH ENDS OF ALTERNATE SLATS WITH ENDLOCKS; PROVIDE WINDLOCKS ON BOTH ENDS OF REMAINING SLATS.
 - .4 DOOR OPERATION: MOTOR; WITH LOCKING ACCOMPLISHED BY GEARS IN OPERATOR.
 - .5 WEATHERSTRIPPING: PROVIDE HOOD WITH INTERNAL NEOPRENE HEADER WEATHER BAFFLE FULL LENGTH OF OPENING, WEATHERSTRIPPING AT PERIMETER AND BOTTOM RAIL.
 - .6 ACCESSORIES: PROVIDE ACCESSORIES AS REQUIRED FOR COMPLETE INSTALLATION.
14. CASEWORK: FABRICATED FROM MELAMINE COMPOSITE MATERIAL, 24" DEEP BASE CABINETS WITH 3'-0" HIGH COUNTER TOP, 2'-6" HIGH OVERHEAD CUPBOARDS.
- .1 CONSTRUCTION FLUSH OVERLAY IN ACCORDANCE WITH ARCHITECTURAL WOODWORK INSTITUTE: WITH MANUFACTURER'S STANDARD CONCEALED HINGES AND HARDWARE.
 - .2 SHELVES TO BE 5/8" MINIMUM THICKNESS WITH ALL EDGES BANDED.
 - .3 COUNTER TOP: ONE-PIECE TOP AND BACKSPLASH 25" WIDE WITH 1" OVERHANG, POST-FORMED EDGE, COVED BACK: HIGH BACKSPLASH: OF MAXIMUM PRACTICAL LENGTH: COMPOSED OF ACID RESISTANT FACE LAMINATE, 3/4" MINIMUM THICK PARTICLEBOARD SUBSTRATE.
 - .4 SUBMIT SHOP DRAWINGS FOR REVIEW PRIOR TO FABRICATION.

15. ROOM FINISHES:

- .1 OFFICE TO HAVE SUSPENDED ACOUSTIC CEILING 8'-0" ABOVE FINISHED FLOOR.
- .2 MASONRY WALLS TO BE PAINTED WITH 1 COAT OF AMERLOCK 400 BF BLOCK FILLER AND 1 COAT OF AMERCOAT 335 EPOXY ACRYLIC PAINT COLOR BY OWNER.

16. MISCELLANEOUS PENETRATIONS:

- .1 ALLOW FOR TYPICAL HVAC AND PLUMBING PENETRATIONS AS SHOWN ON DWGS.

17. SEPARATION WALL


- .1 THE WALL DIVIDING THE PROCESS ROOM AND THE ELECTRICAL AND OFFICE AREAS TO BE SEALED GAS TIGHT TO THE UNDERSIDE OF ROOF INCLUDING THE END WALLS.

18. STRUCTURAL TESTS AND SPECIAL INSPECTIONS

- .1 STRUCTURAL TESTS AND SPECIAL INSPECTIONS AS SPECIFIED IN CHAPTER 17 OF IBC 2003 SHALL BE THE RESPONSIBILITY OF THE BUILDING DESIGN PROFESSIONAL.


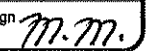
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Charlottetown, Moncton, Saint John, Truro, Halifax, Sydney
Port Hawkesbury, St.John's, Fredericton and Salem, NH
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ADI Systems Inc.
Waste Treatment Systems
Fredericton, NB, CA and Salem, NH, US
CAN PATENT #1253266; #2,096,852
USA PATENTS #5,505,848; #5,587,080
MEXICO PATENT #190898

Project Title		
ANAEROBIC TREATMENT SYSTEM FOR RENOVA ENERGY PLC HEYBURN, ID		
Dwg. Title		
CONTROL BUILDING SPECIFICATIONS		
Project No.		
1079-3.1		
Dwg. No.	6-7	Rev. No.
		0
Scale		
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1.0 CODES, STANDARDS AND DESIGN GUIDELINES

1.1 THE MECHANICAL SYSTEMS FOR THIS FACILITY SHALL BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEER IN CONFORMANCE WITH ALL FEDERAL, STATE AND MUNICIPAL LAWS AND REGULATIONS AND SHALL CONFORM TO THE LATEST EDITION OR REVISION OF THE CODES AND STANDARDS OF THE FOLLOWING TECHNICAL ASSOCIATIONS AND ORGANIZATIONS:

- AABC: AMERICAN AIR BALANCE COUNCIL
- AMCA: AIR MOVING AND CONDITIONING ASSOCIATION
- ANSI: AMERICAN NATIONAL STANDARD INSTITUTE
- ASHRAE: AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR CONDITIONING ENGINEERS
- ASME: AMERICAN SOCIETY OF MECHANICAL ENGINEERS
- ASTM: AMERICAN SOCIETY FOR TESTING AND MATERIALS
- ARI: AIR CONDITIONING AND REFRIGERATION INSTITUTE
- IBC: INTERNATIONAL BUILDING CODE
- NFPA: NATIONAL FIRE PROTECTION ASSOCIATION
- SMACNA: SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION INC.
- UL: UNDERWRITER'S LABORATORIES
- IMC: INTERNATIONAL MECHANICAL CODE
- FM: FACTORY MUTUAL
- MSS: MANUFACTURERS STANDARDIZATION SOCIETY OF THE VALVE AND FITTINGS INDUSTRY.

1.2 DESIGN SHALL BE BASED ON INFORMATION CONTAINED IN THIS SPECIFICATION AND DRAWINGS.

1.3 SUBMIT COPY OF ALL DESIGN CALCULATIONS TO ADI FOR RECORD PURPOSES UPON COMPLETION OF CONSTRUCTION.

2.0 SITE INFORMATION

2.1 GENERAL

2.1.1 MAKE SERVICE CONNECTIONS TO NEW SITE UTILITIES IN A MANNER APPROVED BY THE AUTHORITY HAVING JURISDICTION.

2.1.2 COORDINATE LOCATIONS, SIZES AND ELEVATIONS OF WATER AND SEWER SERVICES WITH THE SITE SERVICES CONTRACTOR AND LOCAL UTILITIES REQUIREMENTS.

2.1.3 WATER SOURCE: DOMESTIC WATER SHALL BE SUPPLIED BY OWNER TO A DISTANCE OF 5 FT FROM THE BUILDING EXTERIOR ON WEST SIDE OF BUILDING. TYPICAL WATER PRESSURE: 70-80 PSI.

2.1.4 SANITARY SEWER: SANITARY DRAINAGE PIPING. SEWER SHALL BE A GRAVITY DRAIN TO THE SITE SANITARY SEWER. PIPING TO EXTEND 5 FT FROM BUILDING EXTERIOR ON WEST SIDE OF BUILDING.

2.1.5 STORM SEWER: THIS BUILDING SHALL HAVE A SLOPED ROOF WITH GUTTERS AND DOWNSPOUTS.

2.1.6 WORK BY OTHERS: THERE IS NO PLUMBING OR HVAC REQUIRED BY THIS CONTRACTOR FOR THE GENSET AREA OR THE BULK SLUDGE STORAGE AREA INCLUDING THE ADJACENT SUMP PIT. ALL OTHER PLUMBING AND HVAC SHOWN ON DRAWINGS IS TO BE PROVIDED BY THIS CONTRACTOR.

3.0 MISCELLANEOUS REQUIREMENTS

3.1 IDENTIFY ALL EQUIPMENT, PIPING, DUCTWORK WITH COLOR CODED TAGS, NAMEPLATES, LABELS, TAPE/FLOW ARROWS AS APPROPRIATE. IDENTIFY ALL CONCEALED EQUIPMENT WITHIN THE CEILING SPACES BY INSTALLING COLOR CODED PRESSURE SENSITIVE TAPE ON ACCESS DOORS OR CEILING PANELS AS APPLICABLE.

3.2 FOR WATER SHUT OFF SERVICE, USE BRONZE BODY BALL VALVES FOR PIPING SYSTEMS. PROVIDE SHUT OFF VALVES FOR EACH FIXTURE.

3.3 PROVIDE ACCESS TO ALL FANS, VALVES AND CONTROL DEVICES FOR MAINTENANCE AND REPAIRS.

3.4 PROVIDE DRAINAGE VALVES WITH CHAINED ON CAPS AT ALL LOW POINTS OF HYDRONIC SYSTEMS.

3.5 PROVIDE ALL REQUIRED SUPPLEMENTARY STEEL SUPPORTS FOR EQUIPMENT, PIPING, DUCTWORK. SUITABLY CLEAN, PRIME AND FINISH THIS STEEL UPON INSTALLATION COMPLETION.

3.6 SUBMIT A COMPLETE SET OF ENGINEERING DRAWINGS FOR REVIEW PRIOR TO FABRICATION OF ALL SYSTEMS. DRAWINGS SHALL BE STAMPED BY A QUALIFIED PROFESSIONAL ENGINEER LICENCED TO PRACTICE IN THE STATE OF IDAHO.

3.7 INSTALL ALL MECHANICAL EQUIPMENT STRICTLY IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND WHERE APPLICABLE, REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION. CLEARANCES WILL BE, AS A MINIMUM, AS REQUIRED BY RELEVANT CODES AND REGULATIONS AND/OR AS RECOMMENDED BY EQUIPMENT MANUFACTURERS. IN ADDITION, ARRANGE ANY PROTRUSIONS IN SUCH A WAY AS TO AVOID HAZARDOUS SITUATIONS FOR PERSONNEL TRAFFIC.

4.0 THERMAL INSULATION

4.1 INSULATION THICKNESSES AND TYPES FOR EQUIPMENT, PIPING, AND DUCTWORK FOR THE PLUMBING, HEATING, AND VENTILATION SYSTEMS SHALL BE PROVIDED AS FOLLOWS: 1" THICK FORMED RIGID MINERAL FIBRE WITH VAPOUR BARRIER AND PVC JACKETING, -40°F TO 250°F, APPLICATION FOR PIPING, VALVES AND FITTINGS ON ABOVE GROUND POTABLE AND NON-POTABLE COLD WATER. TWO 1" LAYERS OF RIGID OR FLEXIBLE MINERAL FIBRE WITH VAPOUR BARRIER, -40°F TO 150°F, APPLICATION ON RECTANGULAR, ROUND AND OVAL DUCTWORK ON FRESH AIR INTAKES FROM LOUVRE TO FAN.

5.0 FIRE PROTECTION

5.1 FIRE EXTINGUISHERS

5.2.1 PROVIDE MULTI-PURPOSE DRY CHEMICAL PORTABLE FIRE EXTINGUISHERS AS REQUIRED BY THE LOCAL BUILDING CODE AND NFPA 10 - LATEST EDITION. FIRE EXTINGUISHERS TO BE SURFACE MOUNTED ON WALL WITH WALL BRACKETS. FIRE EXTINGUISHER LOCATIONS TO BE SHOWN ON DESIGN DRAWINGS.

6.0 PLUMBING

6.1 BACKFLOW PROTECTION SHALL BE INSTALLED TO THE REQUIREMENTS OF THE APPLICABLE PLUMBING CODE AS FOLLOWS: REDUCED PRESSURE PRINCIPLE TYPE AS PREMISES PROTECTION FOR POTABLE WATER MAIN. REDUCED PRESSURE PRINCIPLE TYPE ON WATER SUPPLY PIPING TO LAB.

6.2 SUPPLY AND INSTALLATION OF WATER METER WILL BE BY OWNER/LOCAL AUTHORITY AND IS NOT INCLUDED IN THIS CONTRACTOR'S SCOPE.

6.3 UTILIZE WATER CONSERVING FIXTURES AND TRIM.

6.4 WATER FOR FIXTURES SHALL BE SUPPLIED BY A DISTRIBUTION SYSTEM OF INSULATED COPPER PIPING.

6.5 SANITARY PIPING TO BE A SYSTEM OF COPPER, DWV PVC, DWV ABS, CAST IRON OR A COMBINATION THEREOF AS IS ALLOWABLE BY LOCAL CODES. VENT ALL SANITARY DRAINAGE IN ACCORDANCE WITH THE LOCAL CODES.

6.6 UTILIZE NON-LEAD BASED SOLDERS ONLY FOR COPPER PIPING.

6.7 FD AND FFD: ALL FLOOR DRAINS AND FUNNEL FLOOR DRAINS SHALL HAVE TRAP PRIMERS AND HEAVY DUTY STRAINERS. DRAIN LOCATIONS SHOWN ON FLOOR PLAN.

6.8 HB: THE BUILDING IS TO BE EQUIPPED WITH INTERIOR AND EXTERIOR HOSE BIBBS AS INDICATED ON THE FLOOR PLAN. ALL HOSE BIBBS SHALL BE COMPLETE WITH VACUUM BREAKERS. EXTERIOR HOSE BIBBS SHALL BE OF THE NON-FREEZE TYPE.

6.9 CS-1: PROVIDE ONE LABORATORY SINK AS SHOWN ON FLOOR PLAN. 316 STAINLESS STEEL, 10" DEEP DOUBLE BOWL, SELF-RIMMING, LEDGE-BACK. CHROME-PLATED. LABORATORY FAUCET WITH GOOSENECK SPOUT, VACUUM BREAKER AND SERRATED NOZZLE. CAST BRASS P-TRAP WITH CLEANOUT.

6.10 WC-1: FLOOR MOUNTED, VITREOUS CHINA WATER CLOSET WITH INSTITUTIONAL CLASS FLUSH TANK, MAXIMUM 3.5 GALLONS PER FLUSH, 2" BALL PASS AND INSTITUTIONAL CLASS SEAT WITH CHECK HINGE.

6.11 LV-1: VITREOUS CHINA SELF-RIMMING ABOVE COUNTER TYPE LAVATORY WITH INSTITUTIONAL CLASS CHROME PLATED BRASS 4" BASIN FAUCET, SUPPLY STOPS, OPEN GRID STRAINER AND BRASS P-TRAP.

6.12 SH-1: 36" X 36" ACRYLIC SHOWER CABINET WITH CURTAIN ROD, CURTAIN AND SOAP DISH. CHROME PLATED BRASS LOW FLOW SHOWER HEAD C/W CHROME PLATED BRASS BENT ARM, WALL ESCUTCHEON, SET SCREW, PRESSURE BALANCED WASHERLESS BALL VALVE WITH STOPS AND COLOUR LABELLED ESCUTCHEON.

6.13 ES-1: PROVIDE TWO EMERGENCY SHOWERS AS SHOWN ON FLOOR PLAN. COMBINATION SHOWER AND EYE/FACE WASH UNIT COMPLETE WITH 10" SHOWER HEAD, 11" RECEPTOR AND TWIN EYE/FACE WASH NOZZLES. SHOWER TO BE ACTIVATED BY PULL ROD. EYE/FACE WASH TO BE ACTIVATED BY PUSH FLAG. SHOWER FLOWRATE: 20 GPM @ 20 PSI. EYE/FACE WASH FLOWRATE: 2.5 GPM @ 20 PSI. WATER TO BE SUPPLIED AT A MINIMUM OF 60°F. UNIT TO COME COMPLETE WITH THERMOSTATIC MIXING VALVE. IN COMPLIANCE WITH OSHA AND ANSI Z358.1.

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Waste Treatment Systems

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6.14 DWH: UL CERTIFIED ELECTRIC DOMESTIC WATER HEATER IS TO BE SIZED, SUPPLIED AND INSTALLED BY THIS CONTRACTOR. UNIT(S) SHALL BE EQUIPPED WITH ASME RATED TEMPERATURE AND PRESSURE RELIEF VALVES, VACUUM RELIEF VALVES, EXPANSION TANK AND DRAIN PAN PER THE AUTHORITY HAVING JURISDICTION. UNITS(S) SHALL BE SIZED TO ACCOMMODATE DOMESTIC HOT WATER USE PLUS PROVIDE 15 MINUTES OF UNINTERRUPTED TEMPERED WATER (60°F) AT A FLOWRATE OF 20 GPM FOR EACH EMERGENCY SHOWER. DOMESTIC HOT WATER LINES THAT EXCEED 30 FT. FROM THE TANK TO A FIXTURE WILL REQUIRE A RECIRCULATION SYSTEM. ALL WATER PIPING IN UNHEATED SPACES IS TO BE INSULATED AND HEAT TRACED.

6.13 DISINFECT ALL POTABLE WATER LINES PRIOR TO USE AS PER LOCAL, STATE AND FEDERAL REQUIREMENTS.

7.0 HEATING, VENTILATING AND AIR CONDITIONING

7.1 PROVIDE HVAC IN THE BUILDING TO MAINTAIN SPACES AT THE FOLLOWING CONDITIONS WHILE TAKING INTO CONSIDERATION INTERNAL GAINS FROM EQUIPMENT:

OFFICE/LAB - WINTER 72°F @ JANUARY 1% DESIGN TEMPERATURE.

- SUMMER 75°F @ JULY 2% DESIGN TEMPERATURE.

ELECTRICAL ROOM - WINTER 72°F @ JANUARY 1% DESIGN TEMPERATURE.

- SUMMER 80°F @ JULY 2% DESIGN TEMPERATURE.

PROCESS ROOM - WINTER 60°F @ JANUARY 1% DESIGN TEMPERATURE.

- SUMMER NOT TO EXCEED THE JULY 2% DESIGN TEMPERATURE BY 10°F.

7.2 ELECTRICAL WIRING BETWEEN DEVICES AND ELECTRICAL PANEL WILL BE INSTALLED BY OTHERS. INSTALLATION WIRING DRAWINGS TO BE PROVIDED BY THE BUILDING CONTRACTOR FOR THE DEVICES TO BE WIRED BY OTHERS. THE FOLLOWING VOLTAGES ARE TO BE USED FOR EQUIPMENT SELECTION: 480 VAC, THREE PHASE (FOR MOTORS 1/2 HP AND LARGER); 208 VAC, SINGLE OR THREE PHASE; 120 VAC SINGLE PHASE.

7.3 OFFICE/LAB AND WASHROOM SHALL BE HEATED WITH ELECTRIC HEATERS WITH BUILT-IN THERMOSTATS SIZED, SUPPLIED AND INSTALLED BY THIS CONTRACTOR. THESE ROOMS ARE TO BE VENTILATED TO REQUIREMENTS OF LOCAL CODE WITH A HEAT RECOVERY VENTILATOR (HRV) LOCATED IN THE ADJACENT STORAGE ROOM. THE HRV IS TO PLUG INTO A 15A, 120V RECEPTACLE PROVIDED BY OTHERS. THE DUCTWORK SHALL BE RUN ABOVE SUSPENDED CEILING. COORDINATE LOCATIONS OF HEATERS WITH THE CABINETRY. PROVIDE AND INSTALL FUME HOOD AS PER MANUFACTURER'S RECOMMENDATIONS AND AS INDICATED INCLUDING VENTILATION AND PLUMBING CONNECTIONS; WIRING BY OTHERS.

7.4 ELECTRICAL ROOM SHALL BE HEATED WITH AN ELECTRIC UNIT HEATER WITH BUILT-IN THERMOSTATS SIZED, SUPPLIED AND INSTALLED BY THIS TRADE. COORDINATE LOCATIONS OF HEATER WITH ADI.

7.5 OFFICE/LAB AND ELECTRICAL ROOM SHALL BE COOLED WITH A SPLIT SYSTEM AIR CONDITIONING SYSTEM WITH OUTDOOR CONDENSING UNIT (CU-1) AND INDOOR EVAPORATORS (AC-1 AND AC-2) C/W REMOTE CONTROLS. COORDINATE LOCATIONS OF AC UNITS WITH ADI.

7.6 PROCESS ROOM HEATING SHALL BE BY ELECTRIC UNIT HEATER(S) WITH BUILT-IN THERMOSTATS SIZED, SUPPLIED AND INSTALLED BY THIS TRADE. THIS TRADE SHALL SUPPLY AND INSTALL DEVICES AS REQUIRED FOR THE OPERATION OF ALL HEATING AND VENTILATION EQUIPMENT INCLUDING CONTROLS. THE PROCESS ROOM WILL HAVE TWO VENTILATION SYSTEMS INDICATED ON THE FLOOR PLAN AND AS FOLLOWS:

1) A DEDICATED VENTILATION EXHAUST FAN (EF-1) TO EXHAUST 4 CONTINUOUS AIR CHANGES OF AIR FROM PROCESS ROOM. AN EQUAL AMOUNT OF AIR IS TO BE ALLOWED TO ENTER THROUGH A WALL LOUVER WITH INSULATED MOTORIZED DAMPER.

2) THE ROOM REQUIRES COOLING FROM INTERNAL HEAT GAINS FROM THE MOTORS. THIS IS TO BE ACCOMPLISHED WITH A WALL MOUNTED PROPELLER TYPE FAN (SF-1) WITH AN INTAKE LOUVER AND INSULATED DAMPER. AIR IS TO BE RELIEVED THROUGH A LOUVER MOUNTED IN THE EXTERIOR WALL EQUIPPED WITH AN INSULATED MOTORIZED DAMPER. SUPPLY AND INSTALL A ROOM THERMOSTAT TO START THE FAN AND OPEN THE DAMPERS ON A CALL FOR COOLING. PROCESS ROOM HEAT GAINS INCLUDE THE FOLLOWING MOTORS RUNNING CONCURRENTLY: 2 X 1/4 HP, 3 X 5 HP, 2 X 10 HP, 2 X 30 HP, AND 2 X 100 HP.

7.7 FH-1: LABCONCO BASIC 47 # 2247300 COUNTER TOP MOUNTED LABORATORY HOOD, 53" HIGH X 47" WIDE X 25" DEEP WITH BUILT-IN 1/3 HP BLOWER RATED AT 720 CFM 0.25" E.S.P., VAPOUR-PROOF INCANDESCENT LIGHT FIXTURE AND INTERIOR REAR-MOUNTED RECEPTACLE WIRED TO HOOD JUNCTION BOX, 10" DUCT CONNECTION, INLET AIR FOIL, VERTICAL RISING TEMPERED SAFETY GLASS SASH, EPOXY COATED 16 GA. STEEL LINER BLOWER AND LIGHT SWITCHES MOUNTED ON FRONT OF CABINET. UNIT TO COME COMPLETE WITH 3" X 6" POLYPROPYLENE CUP SINK AND CHROME TURRET.

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