

MUSHROOM EXHAUST FAN ON ROOF 1

CERTIFICATE OF COMPLIANCE (Part 1 of 3) MECH-1-C

PROJECT NAME: CSM AQUATICS CENTER EQUIPMENT BUILDING DATE: 09/19/08

PROJECT ADDRESS: 1100 W Hillside Blvd., San Mateo, CA 94402

PRINCIPAL DESIGNER-MECHANICAL: WESTERN ALLIED MECHANICAL - ROBERT JOHNSON

TELEPHONE: (650) 236-0150

TELEFAX: (650) 236-0150

DATE OF PLANS: 09/19/08 BUILDING CONDITIONED FLOOR AREA: 1565 SQ. FT. CLIMATE ZONE: 3

BUILDING TYPE: NONRESIDENTIAL HIGH RISE RESIDENTIAL HOTEL/MOTEL/GUEST ROOM

PHASE OF CONSTRUCTION: NEW CONSTRUCTION ADDITION ALTERATION UNCONDITIONED

PROOF OF ENVELOPE COMPLIANCE: PREVIOUS ENVELOPE PERMIT ENVELOPE COMPLIANCE ATTACHED

STATEMENT OF COMPLIANCE: This Certificate of Compliance lists the building features and performance specifications needed to comply with Title 24, Parts 1 and 6 of the California Code of Regulations. The certificate applies only to building mechanical requirements. The documentation preparer hereby certifies that the documentation is accurate and complete.

PRINCIPAL MECHANICAL DESIGNER: ROBERT JOHNSON DATE: 09/19/08

INSTRUCTIONS TO APPLICANT MECHANICAL COMPLIANCE & WORKSHEETS (check box if worksheet is included):

MECH-1-C Certificate of Compliance, Part 1 of 3, 2 of 3, 3 of 3 are required on plans for all submittals.

MECH-2-C Certificate of Compliance, Part 1 of 3, 2 of 3, 3 of 3 are required for all submittals, but may be on plans.

MECH-3-C Certificate of Compliance are required for all submittals with mechanical ventilation, but may be on plans.

MECH-4-C Certificate of Compliance are required for all prescriptive submittals, but may be on plans.

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CERTIFICATE OF COMPLIANCE (Part 2 of 3) MECH-1-C

PROJECT NAME: CSM AQUATICS CENTER EQUIPMENT BUILDING DATE: 09/19/08

TEST DESCRIPTION: MECH-2-A: Ventilation System Acceptance Document. Variable Air Volume Systems Outdoor Air Acceptance. Constant Air Volume Systems Outdoor Air Acceptance. Test required on all new air systems both New Construction and Retrofit. Equipment requiring acceptance testing: N/A

MECH-3-A: Packaged HVAC System Acceptance Document. Test required on all new packaged systems both New Construction and Retrofit. Equipment requiring acceptance testing: N/A

MECH-4-A: Air Side Economizer Acceptance Document. Test required on all new air-side economizers for both New Construction and Retrofit. Units with economizers that are installed at the factory and certified with the Commission do not require equipment testing but do require construction inspection. Equipment requiring acceptance testing: N/A

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CERTIFICATE OF COMPLIANCE (Part 3 of 3) MECH-1-C

PROJECT NAME: CSM AQUATICS CENTER EQUIPMENT BUILDING DATE: 09/19/08

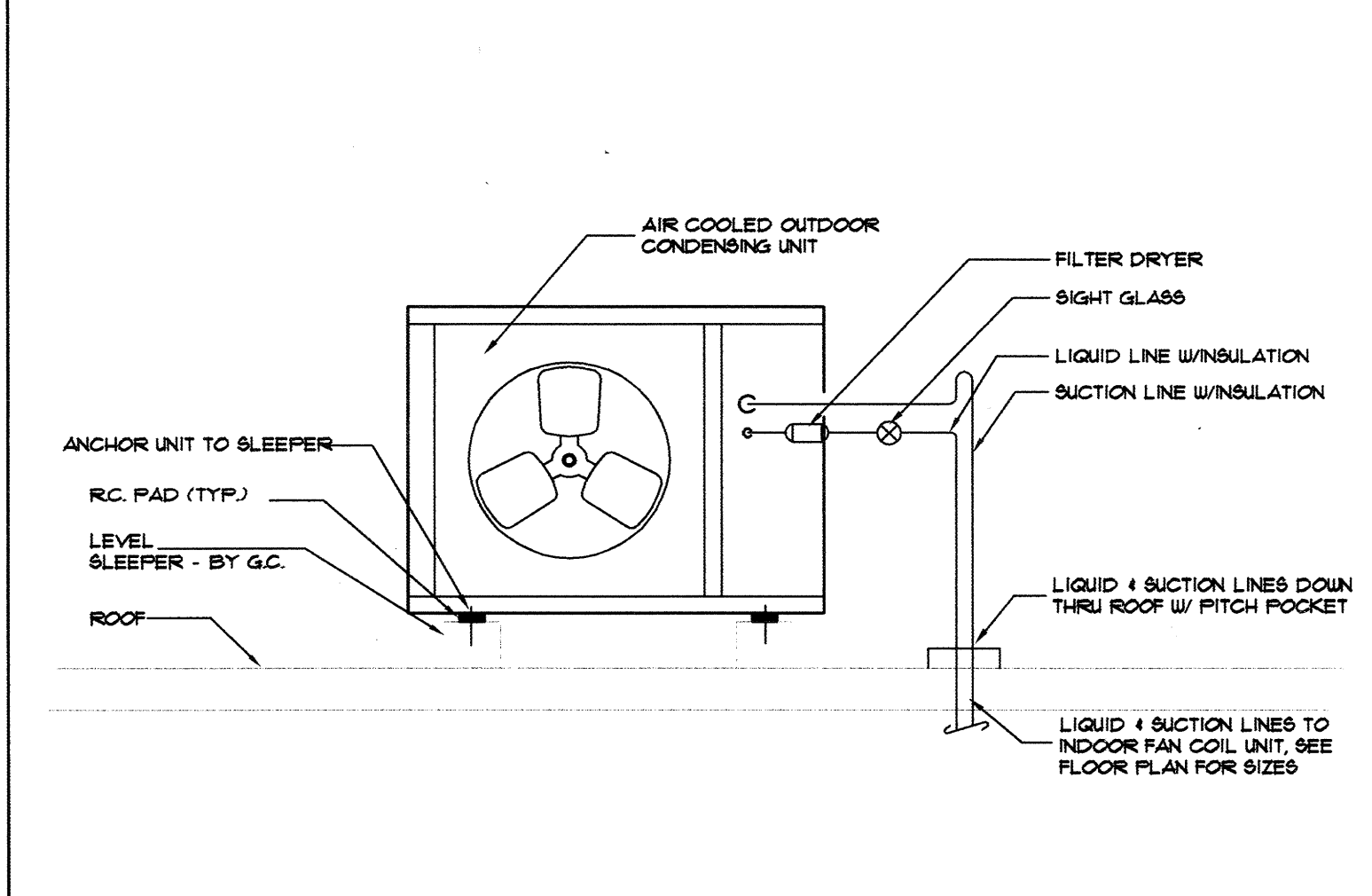
TEST DESCRIPTION: MECH-5-A: Air Distribution Acceptance Document. This test requires that the unit serves 5000 ft³ of space or less and 25% or more of the ducts are in nonconditioned or semiconditioned space like an attic. New systems that meet the above requirements. (Retrofit) systems that meet the above requirements and either extend ducts, replace ducts or replace the packaged unit. Equipment requiring acceptance testing: N/A

MECH-6-A: Demand Control Ventilation Acceptance Document. All new DCV controls installed on new or existing packaged systems must be tested. Equipment requiring acceptance testing: N/A

MECH-7-A: Supply Fan Variable Flow Control Acceptance Document. All new VAV fan volume controls installed on new or existing systems must be tested. Equipment requiring acceptance testing: N/A

MECH-8-A: Hydronic System Control Acceptance Document. Variable Flow Controls. Applies to chilled and hot water systems. Automatic Isolation Controls. Applies to new boilers and chillers and the primary pumps are connected to a common header. Supply Water Temperature Reset Controls. Applies to new constant flow chilled and hot water systems that have a design capacity greater than or equal to 500,000 Btu/hr. Water-loop Heat Pump Controls. Applies to all new waterloop heat pump systems where the combined loop pumps are greater than 5 hp. Variable Frequency Control. Applies to all new distribution pumps on new variable flow chilled, hydronic heat pump or condenser water systems where the pumps motors are greater than 5 hp. Equipment requiring acceptance testing: N/A

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CONDENSING UNIT MOUNTING DETAIL 2

GRAVITY VENTILATOR SCHEDULE

NO.	MANUFACTURER # MODEL NO.	TYPE	THROAT SIZE	AREA	HEIGHT	SERVICE	OPER. WGT.	REMARKS
GV 1	GRAINGER 2C533	TURBINE VENTILATOR	16"	145 SQ.FT.	2 1/2"	EQUIPMENT ROOM	40 LBS.	W/ ADJUSTABLE BASE

EXHAUST FAN SCHEDULE

NO.	MANUFACTURER # MODEL NO.	TYPE	SERVICE	CFM	ESP	RPM	ROOF OPENING	BHP	HP	VOLTAGE	OPER. WT. (LBS.)	REMARKS
EF 1	GREENHECK G	MUSH ROOM	ACID ROOM	130	0.2	1300	10 5/8" X 10 5/8"	0.21	1/60	15V/60HZ/3P	40	FACTORY ROOF CURB, ELECTRICAL DISCONNECT, BACKDRAFT DAMPER, 4 BIRD SCREEN
EF 2	GREENHECK G	MUSH ROOM	CHLORINE ROOM	130	0.2	1300	10 5/8" X 10 5/8"	0.21	1/60	15V/60HZ/3P	40	FACTORY ROOF CURB, ELECTRICAL DISCONNECT, BACKDRAFT DAMPER, 4 BIRD SCREEN
EF 3	GREENHECK G	MUSH ROOM	CHLORINE ROOM	130	0.2	1300	10 5/8" X 10 5/8"	0.21	1/60	15V/60HZ/3P	40	FACTORY ROOF CURB, ELECTRICAL DISCONNECT, BACKDRAFT DAMPER, 4 BIRD SCREEN

SPLIT SYSTEM HEAT PUMP CONDENSER SCHEDULE

NO.	MANUFACTURER # MODEL NO.	AMB.	COOLING CAP. @ 12°F DB/60°F WB (BTU/HR)	INTEGRATED HEATING CAP. @ 12°F DB/60°F WB (BTU/HR)	ELECTRICAL DATA	OPER. WT. (LBS.)	REMARKS	
CU 1	MITSUBISHI MUZ-A1NA	84	12,000 TOTAL	38	10 13.6 8.2 12 15	200/230V 1/60HZ	100	INSULATE SUCTION AND LIQUID LINE SEPARATELY

SPLIT SYSTEM HEAT PUMP CONDENSER SCHEDULE

NO.	MANUFACTURER # MODEL NO.	SERVICE	FAN DATA	FILTERS	ELECTRICAL DATA	OPER. WT. (LBS.)	REMARKS
FC 1	MITSUBISHI MBZ-A1NA	CONCESSIONS	353 0.3 - - -	- - - -	12 200/230V 1/60HZ	30	WITH CONDENSATE PUMP AND WIRELESS REMOTE CONTROLLER. SPACE SERVED BY NATURAL VENTILATION

AIR SYSTEM REQUIREMENTS (Part 1 of 3) MECH-2-C

PROJECT NAME: CSM AQUATICS CENTER EQUIPMENT BUILDING DATE: 09/19/08

ITEM OR SYSTEM TAG(S)	T-24 Section	FC/CU-1	Reference on Plans or Specification ¹
MANDATORY MEASURES			
Heating Equipment Efficiency	112(e)	M01	
Cooling Equipment Efficiency	112(b)	M01	
Furnace Thermostat	112(b)	M01	
Furnace Controls	112(b), 115(a)	N/A	
Natural Ventilation	121(b)	M01	
Minimum Ventilation	121(c)	M01	
VAV Minimum Position Control	121(d)	M01	
Demand Control Ventilation	121(e)	N/A	
Time Control	121(c), 122(e)	M01	
Setback and Setup Control	122(e)	N/A	
Outdoor Damper Control	122(f)	N/A	
Isolation Zones	123	N/A	
Pipe Insulation	123(a)	M01	
Duct Insulation	124	N/A	
PRESCRIPTIVE MEASURES			
Calculated Heating Capacity ²	144(a & b)	B3 MBH	
Proposed Heating Capacity ²	144(a & b)	M01	
Calculated Cooling Capacity ²	144(a & b)	10.6 MBH	
Proposed Cooling Capacity ²	144(a & b)	M01	
Fan Control	144(c)	N/A	
DP Sensor Location	144(c)	N/A	
Supply Pressure Reset (DDC only)	144(d)	N/A	
Simultaneous Heat/Cool	144(e)	M01	
Economizer	144(f)	N/A	
Heat and Cool Air Supply Reset	144(f)	N/A	
Duct Sealing	144(g)	N/A	

1: For each central and single zone air systems (or group of similar units) fill in the reference to sheet number and/or specification section and paragraph number where the required features are documented. If a requirement is not applicable, put 'N/A' in the column.
2: Not required for hydronic heating or cooling. Either enter value here or put in reference to plans and specifications per footnote 1.

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MECHANICAL VENTILATION AND REHEAT MECH-3-C

PROJECT NAME: CSM AQUATICS CENTER EQUIPMENT BUILDING DATE: 09/19/08

Zone/ System	Condition Area (ft ²)	CFM per ft ²	Min CFM by Area	Num of People	CFM per Person	Min CFM by Occupant	REOD V.A. Max of 100	Design Ventilation Air cfm	VAV Minimum				Design minimum Air per seat	Transfer Air
									J	K	L	M		
GV-1	810	0.15	122	15	15	15	150	1340	N/A	N/A	N/A	N/A	0	0
EF-1	15	0.15	15	0	0	0	150	15	N/A	N/A	N/A	N/A	0	0
EF-2	15	0.15	15	0	0	0	150	15	N/A	N/A	N/A	N/A	0	0
FC-1	15	0.15	15	0	0	0	150	15	N/A	N/A	N/A	N/A	0	0
Totals							165	1340					0	

C Minimum ventilation rate per Section 121, Table 121-A.
E Based on fixed seat or the greater of the expected number of occupants and 50% of the CBC occupant load for egress purposes for spaces without fixed seating.
H Required Ventilation Air (REQ'D V.A.) is the larger of the ventilation rates calculated on an AREA BASIS or OCCUPANCY BASIS (Column D or G).
J Must be greater than or equal to 1/3 of the transfer air (Column N) to make up the difference.
K Design fan supply cfm (from CFM)50% or
L Condition area (ft²) x 4 cfm/ft² or
M Minimum of Columns H, K, or 300 cfm
N This must be less than or equal to Column L and greater than or equal to the sum of Columns H plus N.
Transfer Air must be provided where the Required Ventilation Air (Column H) is greater than the Design Minimum Air (Column M). Where required, transfer air must be greater than or equal to the difference between the Required Ventilation Air (Column H) and the Design Minimum Air (Column M), Column H minus M.

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TABLE NO.1-G PIPE INSULATION THICKNESS (23(a) TABLE NO.1-G)

FLUID TEMPERATURE RANGE	CONDUCTIVITY RANGE (IN BTU INCH PER HOUR PER SQUARE FOOT PER F)	INSULATION MEAN RATING TEMPERATURE	NOMINAL PIPE DIAMETER (IN INCHES)									
			1 AND LESS	1.25 - 2	2.50 - 4	5 - 6	8 AND LARGER					
HEATING SYSTEMS (STEAM, STEAM CONDENSATE AND HOT WATER)			INSULATION THICKNESS REQUIRED (IN INCHES)									
ABOVE 350	0.31 - 0.34	750	15	25	25	3.0	3.5	3.5	3.5			
251-350	0.25 - 0.31	100	15	2.0	2.5	2.5	2.5	2.5	2.5			
201-250	0.21 - 0.30	150	10	1.5	1.5	2.0	2.0	2.0	2.0			
141-200	0.25 - 0.25	125	0.5	1.5	1.5	1.5	1.5	1.5	1.5			
105-140	0.24 - 0.28	100	0.5	1.0	1.0	1.0	1.0	1.0	1.0			

SERVICE WATER HEATING SYSTEMS (RECIRCULATING SECTIONS, ALL PIPING IN ELECTRIC TAPE SYSTEMS, AND THE FIRST 8 FEET OF PIPING FROM THE STORAGE TANK FOR NON-RECIRCULATING SYSTEMS)
ABOVE 105: 0.24 - 0.28, 100, 0.5, 1.0, 1.0, 1.5, 1.5, 1.5
COOLING SYSTEMS (CHILLED WATER, REFRIGERANT AND DRAIN): 40-60: 0.23 - 0.21, 75, 0.5, 0.5, 0.5, 1.0, 1.0, 1.0; BELOW 40: 0.23 - 0.21, 75, 0.5, 1.0, 1.5, 1.5, 1.5

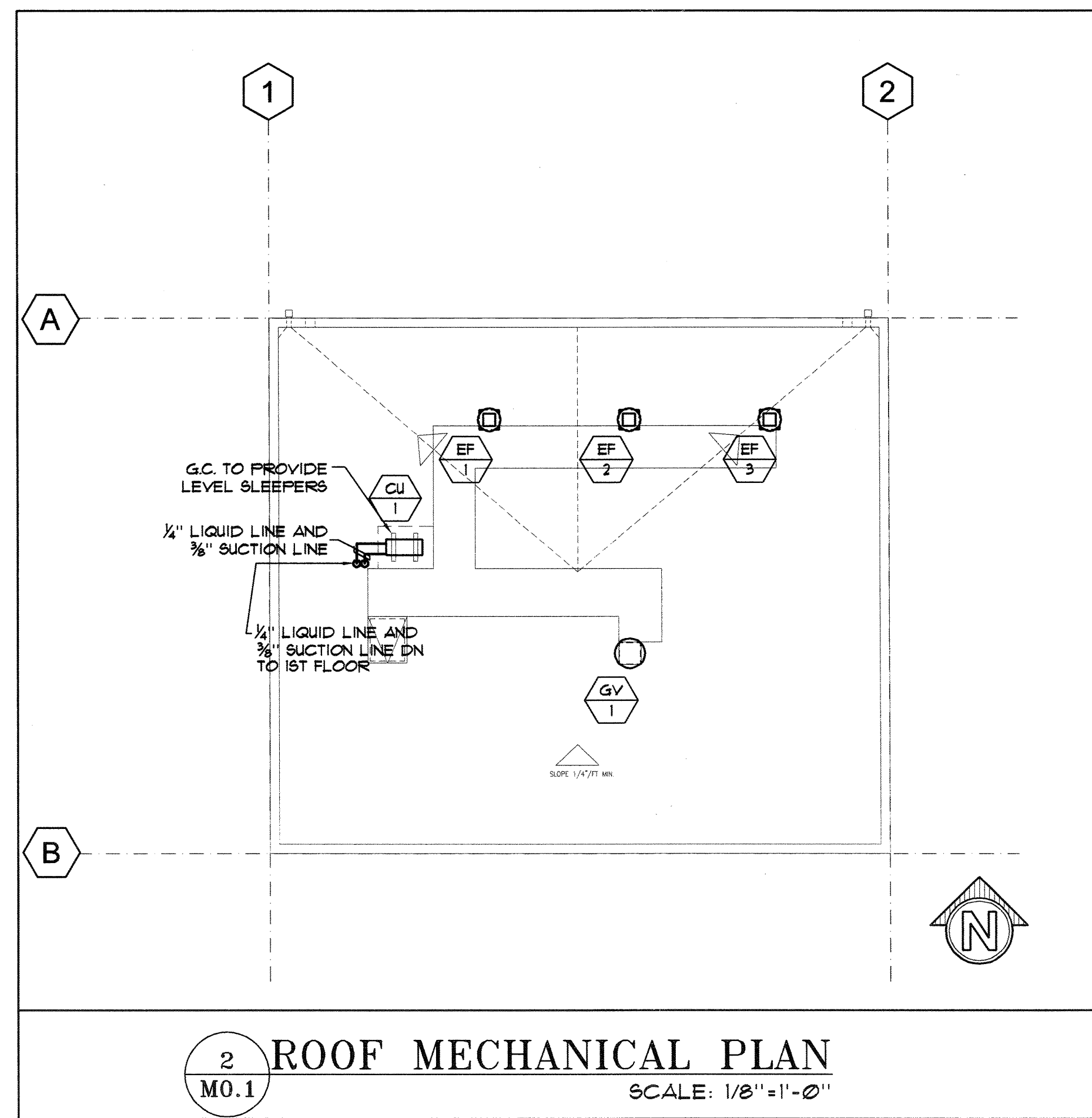
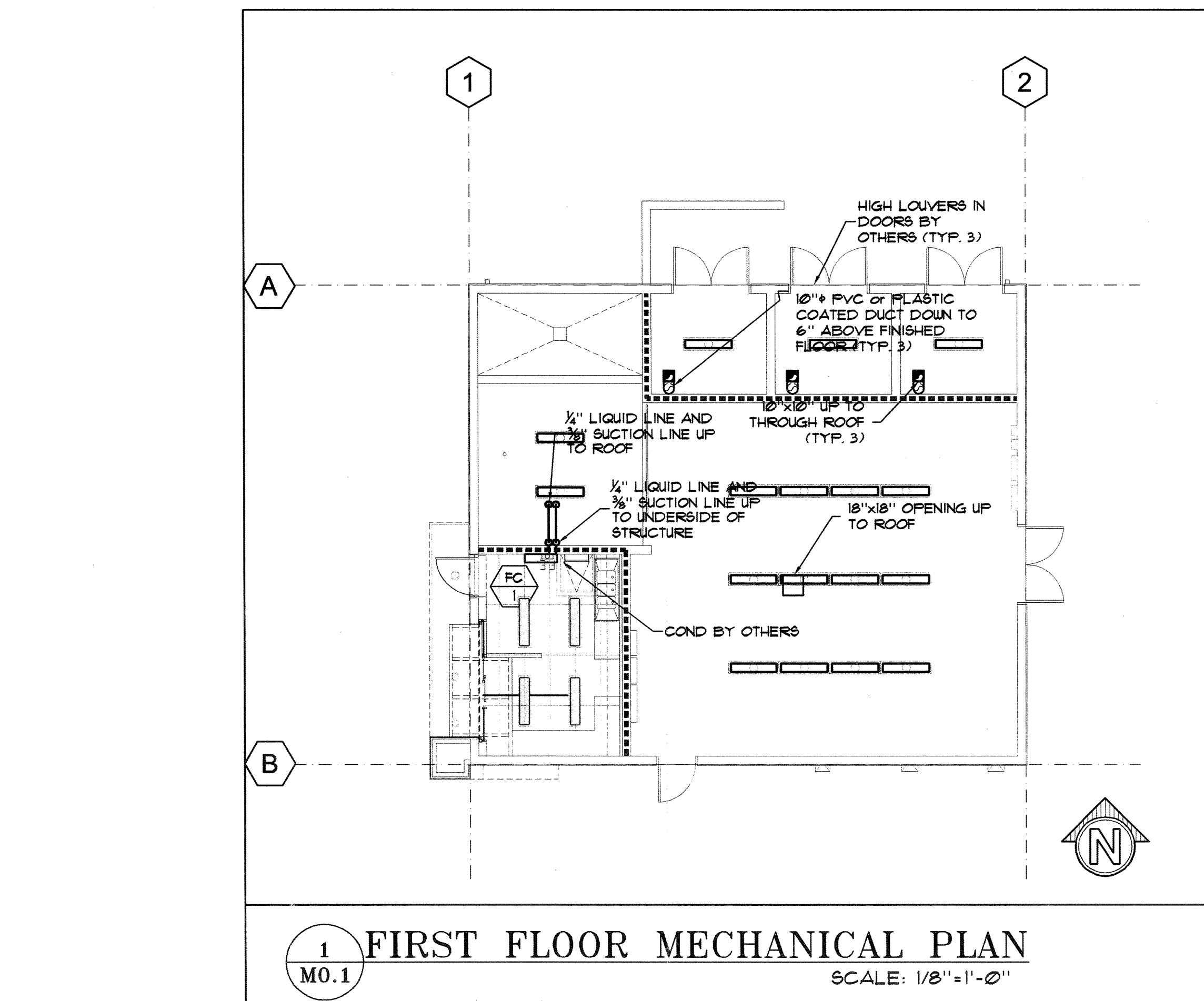
SHEET INDEX

M 01	DRAWING SCHEDULE, TITLE 24, LEGENDS AND NOTES
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TITLE-24 ENERGY EFFICIENCY STANDARDS FOR NON-RESIDENTIAL BUILDINGS

- MANDATORY REQUIREMENTS**
- NOTE: SECTION NUMBERS REFER TO TITLE-24 REGULATIONS UNLESS NOTED OTHERWISE.
- MANUFACTURER'S REQUIREMENTS SET FORTH IN SECTIONS III & IV FOR APPLIANCES AND HVAC EQUIPMENT EFFICIENCY AND FAN SPEED CONTROLS SHALL APPLY.
- A. THE MANUFACTURER HAS CERTIFIED THAT THE EQUIPMENT COMPLIES WITH THE APPLICABLE MANUFACTURER PROVISIONS OF SECTION III THROUGH IV.
- SECTION 105: NATURAL GAS EQUIPMENT OR APPLIANCES SHALL NOT BE EQUIPPED WITH A CONTINUOUSLY BURNING PILOT LIGHT, INCLUDING FURNACES AND SPACE HEATERS BUT NOT LIMITED THERETO.
- CONTROL EQUIPMENT CERTIFICATION:
- AUTOMATIC TIMER SWITCHES SHALL BE INSTALLED PER SECTION 105(C).
 - OCCUPANCY SENSORS SHALL BE INSTALLED PER SECTION 105(D).
 - DEMAND VENTILATION CONTROLS CAN BE INSTALLED PER SECTION 105(C) IF APPLICABLE TO TAKE EXCEPTION TO MINIMUM OUTDOOR VENTILATION REQUIREMENTS.
- SECTION 102: VENTILATION REQUIREMENTS:
- VENTILATION RATES OF OUTDOOR AIR SHALL MEET THE REQUIREMENTS OF SECTION 102(B).
 - DESIGN REQUIREMENTS OF SECTION 102(B) SHALL BE INCORPORATED.
 - OPERATING AND CONTROL REQUIREMENTS OF SECTION 102(C) SHALL BE ADHERED TO.
 - OUTDOOR AIR SHALL BE PROVIDED AS SPECIFIED IN SECTION 102(D).
 - AIR BALANCE AND CERTIFY DESIGN OUTDOOR AIR QUANTITIES AS SPECIFIED IN SECTION 102(E).
- SECTION 102: CONTROLS FOR SPACE CONDITIONING SYSTEMS:
- EACH ZONE AS SET FORTH IN SECTION 102(A) SHALL HAVE AN INDIVIDUAL HEATING AND COOLING THERMOSTAT.
 - THERMOSTATS SECTION 102(B): WHEN USED FOR HEATING SHALL BE CAPABLE OF ADJUSTMENT DOWN TO 55° F OR LOWER. WHEN USED FOR COOLING SHALL BE CAPABLE OF ADJUSTMENT UP TO 85° F OR HIGHER. WHEN USED FOR BOTH HEATING AND COOLING SHALL BE CAPABLE OF A DEAD BAND TEMPERATURE RANGE OF 5° F BETWEEN HEATING AND COOLING.
 - SET BACK OR SET UP CONTROLS SHALL BE AS DESCRIBED IN SECTION 102(E).
 - CONTROLS SHALL AUTOMATICALLY SHUT OFF SYSTEM DURING PERIODS OF NON-USE PER SECTION 102(F).
 - DAMPERS FOR SUFFLE AND EXHAUST AIR SHALL BE INSTALLED TO CLOSE DURING PERIODS OF NON-USE PER SECTION 102(F).
- SECTION 103: PIPE INSULATION:
- PIPE INSULATION SHALL BE INSTALLED PER SECTION 103 REFER TO TABLE 1-G FOR STANDARDS FOR INSULATION THICKNESS OF PIPES USING FIBERGLASS OR FOAM INSULATION. USE EQUATION 1-A FOR INSULATION THICKNESS OF OTHER INSULATING MATERIALS.
- INSULATION MAY BE OMITTED FOR THE FOLLOWING EXCEPTIONS:
- FACTORY INSTALLED PIPING WITHIN CERTIFIED EQUIPMENT.
 - PIPING CONVEYING FLUIDS WITH AN OPERATING RANGE TEMPERATURE RANGE OF BETWEEN 60° F TO 105° F.
 - PIPING SERVING PROCESS LOADS.
 - PIPING WHERE THE HEAT GAIN OR LOSS WILL NOT INCREASE THE BUILDING SOURCE ENERGY.
- SECTION 104: DUCT CONSTRUCTION AND INSULATION:
- DUCTS SHALL BE CONSTRUCTED, INSTALLED AND INSULATED PER CHAPTER 6 OF THE 2007 CALIFORNIA MECHANICAL CODE (CMC) AND TITLE 24 STANDARDS.
- DUCT MATERIALS AND JOINTING SHALL BE IN ACCORDANCE WITH CHAPTER 6 OF THE 2007 CMC. DUCT SEALING SHALL BE IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS METAL AND FLEXIBLE 1999. PRESSURE SENSITIVE TAPE SHALL NOT BE THE PRIMARY SEALANT ON DUCTS WITH A DESIGN OPERATING STATIC PRESSURE EXCEEDING 1" WATER COLUMN.
 - DUCT INSTALLATION SHALL BE IN ACCORDANCE WITH CHAPTER 6 OF THE 2007 CMC.
 - DUCT INSULATION SHALL BE IN ACCORDANCE WITH TITLE 24 STANDARDS.

- GENERAL NOTES**
- ALL CUTTING, PATCHING AND PAINTING BY GENERAL CONTRACTOR.
 - ALL ROOF FLOOR AND WALL OPENINGS BY GENERAL CONTRACTOR.
 - CONDENSATE DRAIN LINES SHALL BE SLOPED AT 1/4" PER FOOT TO AN APPROVED RECEPTOR, ALL BY PLUMBING CONTRACTOR.
 - ROOF MOUNTED EQUIPMENT SHALL BE LABELED.
 - ALL APPLIANCES DESIGNED TO BE INSTALLED IN A PERMANENT POSITION SHALL BE SECURELY FASTENED IN PLACE.
 - LINING MATERIALS WITHIN DUCT SHALL HAVE A MOLD, HUMIDITY, AND EROSION RESISTANT SURFACE THAT MEETS THE REQUIREMENTS OF CMC CHAPTER 16, PART II AND CMC SECTION 609.0.
 - ALL FACTORY MADE AIR DUCT SHALL BE CLASS 1.
 - INSULATION MATERIALS APPLIED TO THE EXTERIOR OF THE DUCTS LOCATED IN THE BUILDING SHALL HAVE A FLAME SPREAD OF NOT MORE THAN 25 AND A GENERATED SMOKE DENSITY NOT EXCEEDING 50 WHEN TESTED AS A COMPOSITE INSTALLATION.
 - ALL DUCTS SHALL BE SUPPORTED PER THE MINIMUM REQUIREMENT OF UPC TABLE 6-E. SHALL BE BRACED AND GUYED TO PREVENT LATERAL OR HORIZONTAL SWING, AND SHALL BE INSTALLED IN ACCORDANCE WITH SMACNA GUIDELINES.
 - ALL NEW THERMOSTATS TO BE WHITE AND MOUNTED 42" ABOVE FINISHED FLOOR.
 - ALL DUCT SIZE DIMENSIONS CALLED OUT ARE NET INSIDE DIMENSIONS OF DUCT, UNLESS OTHERWISE NOTED.



MCCARTHY

LPA KH

McCarthy Building Companies, Inc.
343 Sansome Street, 14th Floor
San Francisco, California 94104
P 415 364-1339
F 415 397-9999

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THE GREEN DRIVE
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SAN MATEO, CA 94402
(650) 231-0548 FAX

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College of San Mateo
Site Package
San Mateo, CA

Developed for
San Mateo County Community College District

Date: _____
Revision: _____
Description: _____
Date: _____
Drawn by: _____
Checked by: _____
Scale: AS SHOWN

Job No. 118051
Date 19 SEPTEMBER 2008
Drawn by JGM
Checked by LV
Scale AS SHOWN

DRAWING SCHEDULE, TITLE 24, LEGENDS, NOTES & PLANS
M0.1