Roger Sherman Elementary School
HVAC Verification and Evaluation

Meriden Public Schools
Meriden, Connecticut

September 2023

Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Project No. 20170932.C46

FUSS & O'NEILL

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Meriden Public Schools

Appendices

1 Executive Summary

In 2022, Public Act 23-167 codified ventilation assessments at each school building under jurisdiction of local and regional boards of education. These assessments must be completed by January 1, 2025 and every five years thereafter. Per the requirements of Public Act 23-167, the assessment included the following inspections and evaluations:

(A) Documenting for maximum filter efficiency (MERV ratings)

(B) Physical measurements of outside air delivery rate at the minimum damper position

(C) Verification of the appropriate condition and operation of ventilation components

(D) Measurement of air distribution through all system inlets and outlets,

(E) Verification of unit operation and that required maintenance has been performed in accordance with the most recent indoor ventilation standards promulgated by the American Society of Heating, Refrigerating and Air-Conditioning Engineers

(F) Verification of control sequences of damper operations

(G) Verification of carbon dioxide sensors does not apply.

(H) Identification of to what extent each school's current ventilation system components, including any existing central or noncentral mechanical ventilation system, are operating in such a manner as to provide appropriate ventilation to the school building in accordance with most recent indoor ventilation standards promulgated by the American Society of Heating, Refrigerating and Air-Conditioning Engineers.

It has been identified that most of the AHUs are operating well below their intended design airflows as indicated by the 1989 drawings schedules. As such most of the 133 rooms within Roger Sherman Elementary School fail to meet the outside air requirements prescribed by the ASHRAE Standard 62 as referenced in the state's building code. It is possible that this can be improved by repairing the existing AHU's and adjusting the minimum outdoor air damper position, but the equipment is past its expected useful life. Fuss and O'Neill recommends replacing all of the air handling units. Further assessment of the air handling units would be recommended to determine the extent of the repairs needed to refurbish the AHUs to operate properly.

Rooms that are not served by the air handling units are utilizing exhaust fans to help cool and ventilate the spaces. The majority of exhaust fans were found to not be operational when signaled on by the TAB contractor (Wings). Replacement or repair of the existing fans should be determined on an individual basis. Additional ventilation equipment options should be studied in more detail. This may consist of new air handling units, heating and ventilating units, unit ventilators, or dedicated outdoor air units. Exact equipment that would best suit these spaces will be determined during a future design task.

2 Introduction

The City of Meriden Board of Education has requested a detailed assessment of the mechanical systems ventilation performance in accordance with new regulations set forth by the State of Connecticut. In 2022, the state of Connecticut codified ventilation assessment at each school building under jurisdiction of local and regional boards of education. Per HB5479, "each local and regional board of education shall ensure that its heating, ventilation and air conditioning (HVAC) system is maintained and operated in accordance with the prevailing maintenance standards, such as ASHRAE Standard 62 at the time of installation or renovation of such system". These assessments must be completed by January 1, 2025, and every five years thereafter.

Roger Sherman Elementary School is located at 64 N Pearl St., Meriden CT. The 2-story, 55,000 square foot school was renovated in 1989, and includes the following systems:

- Eight air handling units (AHU) utilize hydronic heating and cooling coils to serve the majority of the first floor. Indoor air is returned to the unit, where it is either exhausted or recirculated back into the supply airstream. All AHU units are constant volume, which supply a consistent volume of air. The supply air temperature varies to maintain the temperature setpoint. There is no air conditioning or mechanical ventilation in rooms not served by AHUs.
- MERV 13 filters were observed in seven of the eight units. MERV 10 filters were observed in AHU-5.
- Hydronic cabinet heaters are installed at building entrances and stairwells. Hydronic finned-tube radiation is located on exterior walls under windows. These units do not utilize or affect room ventilation.
- Some classrooms have operable windows.
- Some classrooms are served by ceiling-mounted exhaust fans or roof-mounted exhaust fans. The exhaust fans are controlled by a reverse acting thermostat or manual wall switch.
- The building is monitored and controlled by a building management system (BAS).

3 2021 International Mechanical Code (IMC) Compliance

The required supply of outside air into interior occupied spaces is governed by the 2022 Connecticut State Building Code, which adopts the 2021 International Mechanical Code (IMC), and ASHRAE Standard 62.1, which prescribes the flow rate of outdoor air required for occupied areas based on occupancy classification. Depending on the room classification and occupant density, the outdoor air flow rates in cubic feet per minute (CFM) per person are defined. When occupancy density is unknown, these documents define occupant density for each room classification in number of occupants per space floor area. The required flow rate in CFM for every occupied space is then calculated based on this value. It shall be noted that although the occupancy classification is education, the IMC does not distinguish between an office within an office building, a school or any other building classification. This applies to all rooms that are not considered traditional educational rooms such as health care offices,

gymnasiums, theaters and assembly halls. Table 1 below, from the 2021 IMC, indicates population density and required ventilation rates for each room classification.

Table 1: Room Type & Occupancy Summary

Room Types	Quantity[1]	Total Area[2] (SF)	Occupancy Rate[2] (People/1000 SF)	Occupancy Ventilation[2] (CFM/person)	Area Ventilation[2] (CFM/SF)	Exhaust Rate[2] (CFM)
Art Classroom	0	0	20	10	0.18	0.7
Auditorium	2	4020	150	5	0.06	
Cafeteria	2	3115	100	7.5	0.18	
Classroom	32	24857	35	10	0.12	
Computer Lab	0	0	25	10	0.12	
Conference Room	2	635	50	5	0.06	
Corridor	14	10331			0.06	
Custodial	1	62				
Greenhouse	0	0				
Gymnasium	0	0	7	20	0.18	
Library	1	3056	10	5	0.12	
Lobby	1	256	10	5	0.06	
Locker Room	0	0				0.25
Nurse	3	579	5	5	0.06	
Office	11	2650	5	5	0.06	
Restroom	30	2706				50/70*
Stairs	0	0				
Storage	21	2566			0.12	
Utility	4	2343				
Vestibule	7	590	10	5	0.06	
Waiting Room	2	198	30	5	0.06	
Kitchen	1	1051	20	7.5	0.12	

[1] Based on 1998 as-built drawings

[2] Based on 2021 International Mechanical Code

In addition to providing mechanical ventilation to the space, an alternative method approved by the building code allows for air to enter the occupied space naturally through operable windows. The code states that the minimum openable area to the outdoors shall be 4% of the floor area being ventilated. Although this is an acceptable means of providing outdoor air by code, it is not a realistic option during cold weather or hot weather months, as windows will typically be closed. Operable windows are not considered as sources of ventilation in this analysis.

4 Observations, Measurements and Calculations

4.1 General Observations

F&O performed a walkdown of the school prior to the TAB testing activities and noted room measurements, observable maintenance concerns and general equipment condition. Table 1 and Table 2 below summarize our observations.

The air handling equipment appeared to be in good condition. However, testing by the TAB contractor suggests that they are not operating properly and have exceeded their expected useful life. Filters on most units were observed in good condition. Bent fins were observed on half of the AHUs, and the coil of AHU-7b appeared to be 50% clogged. Exhaust fans controlled via wall switch and reverse acting thermostats did not run during testing. There are many classrooms and other spaces that are not served by the air handling equipment, therefore are not receiving any mechanical ventilation.

Discolored ceiling tiles were observed throughout the building and should be replaced. Some discoloration indicates current or past leaks within the ceiling plenum. Leaks could be from sprinkler piping or condensation from poorly insulated cold-water piping or ductwork. The source of the discoloration should be determined and corrected, and ceiling panels replaced.

Accumulated debris on return grilles indicates a potential need for duct cleaning as part of future maintenance. Accumulated debris on supply diffusers indicate a need for more frequent air handler filter replacement to prevent particulates from returning to the space. Overall, most return and supply grilles were in good condition.

Table 1: Equipment Observations

Equipment	Observation
AHU-1	Fan belt is loose, bent coil fins, and low airflow
AHU-2	Low airflow
AHU-3	No outside air connection, loose fan belt, and bent coil fins
AHU-4	Fan belt is loose
AHU-5	Fan belt is loose, dirty coil, MERV 10 filter, and dirty filter
AHU-6	Loose fan belt
AHU-7a	Low airflow, loose fan belt, dirty coil, bent coil fins
AHU-7b	Filters are dirty, coil appears 50% clogged, fan belt is loose, piping to unit is valved off
AHU-8	Loose fan belt

Table 2: Room Observations

Room Type	Drawing Room #	Drawing Room Name	Field Comments
Utility	B-04	Electrical	No ventilation
Utility	B-03	Mechanical	Combustion Air louver on door/wall
Storage	B-01	Storage	Ducted to 12x10 up on 1st floor
Storage	B-02	Storage	Ducted to 12x10 up on 1st floor

Room Type	Drawing Room #	Drawing Room Name	Field Comments
Waiting Room	1-05	Waiting	Thermostat for AHU-3
Nurse	1-09	Rest	Look for separate exhaust
Classroom	1-10	Art	Thermostat for AHU-4
Storage	1-14	Storage	Ducted to Penn 24x12 Exhaust Hood on Roof (D)
Restroom	1-18	Toilet	Ducted to Penn 24x12 Exhaust Hood on Roof (E)
Restroom	1-19	Toilet	Ducted to Penn 24x12 Exhaust Hood on Roof (E)
Cafeteria	1-20	Cafeteria	Thermostat to AHU-5, Exhaust via (F)
Storage	1-22	Storage	Brick vents
Office	1-24	Office	Supply from AHU-5
Locker Room	1-25	Lockers	No ventilation
Restroom	1-26	Toilet	Ducted to Penn 24x12 Exhaust Hood on Roof (E)
Restroom	1-27	Toilet	Ducted to Penn 24x12 Exhaust Hood on Roof (E)
Storage	1-29	Dry Storage	Ducted to Penn 12x12 Exhaust Hood on Roof (G)
Office	1-31	Custodian	No ventilation
Locker Room	1-32	Lockers	No ventilation
Storage	1-34	Maintenance Storage	Ducted to Penn 12x12 Exhaust Hood on Roof (G), Exhaust fan interlocked with thermostat
Storage	1-35/120B	Practice	No ventilation
Restroom	1-36/120A	Storage	Ducted to Penn 12x12 Exhaust Hood on Roof (G)
Classroom	1-37/120	Music	Thermostat for AHU-6
Storage	1-40	Storage	Ducted to 10x4 up
Storage	1-43	Storage	Ducted to 10x3.25 up
Waiting Room	1-46	Waiting	Thermostat for AHU-2
Storage	1-53	Storage	Ducted to 10x3.25 up
Corridor	1-54	Corridor	AHU-1, AHU-3 Located above ceiling
Restroom	1-55	Women's Handicapped	Ducted to 10x6 up
Restroom	1-56	Men's Handicapped	Ducted to 10x6 up
Office	1-57	L/S/H	Thermostat for AHU-1
Restroom	1-56A	Janitor	Ducted to 10x6 up
Classroom	1-65	Kindergarten	Ducted to Penn 24x12 Exhaust Hood on Roof (B)
Storage	1-65A	Closet	No ventilation
Storage	1-65B	Coat Room	No ventilation
Restroom	1-66	Toilet	Ducted to Penn 12x12 Exhaust Hood on Roof (A)
Storage	1-67	Storage	Ducted to Penn 24x12 Exhaust Hood on Roof (B)
Restroom	1-68	Toilet	Ducted to Penn 12x12 Exhaust Hood on Roof (A)
Restroom	1-69	Boys	Ducted to Penn 12x12 Exhaust Hood on Roof (C)
Restroom	1-70	Girls	Ducted to Penn 12x12 Exhaust Hood on Roof (C)
Classroom	1-71	Kindergarten	Ducted to Penn 24x12 Exhaust Hood on Roof (B)
Vestibule	1-72	Vestibule	No Ventilation
Storage	1-73	Storage	Ducted to Penn 24x12 Exhaust Hood on Roof (B)
Classroom	1-74	Kindergarten	Ducted to Penn 24x12 Exhaust Hood on Roof (B)
Storage	1-74A	Closet	No ventilation

Room Type	Drawing Room #	Drawing Room Name	Field Comments
Storage	1-74B	Coat Room	No ventilation
Restroom	1-75	Toilet	Ducted to Penn 12x12 Exhaust Hood on Roof (A)
Vestibule	1-76	Vestibule	No ventilation
Classroom	1-94	Workshop	Thermostat to AHU-8
Utility	2-03	Ancil	No ventilation
Office	2-08	Teachers	No ventilation
Corridor	2-11	Corridor	No ventilation
Restroom	2-12	Girls	Up to 12x12 Exhaust Hood on Roof (H)
Utility	2-13	H/V IMP	No ventilation
Classroom	2-14	Classroom	Up to 24x24 Exhaust Hood on Roof (J)
Classroom	2-15	EMR	Up to 24x24 Exhaust Hood on Roof (J)
Classroom	2-16	EMR	Up to 24x24 Exhaust Hood on Roof (J)
Lobby	2-17	Lobby	No ventilation
Corridor	2-27	Corridor	No ventilation

4.2 Airflow Design vs. Measurements

Table 3 below displays AHU design parameters regarding supply and outside air flow. This information was obtained from the Roger Sherman Elementary School record schedule data. Airflow measurements were performed by Wings TAB. Note that the measured airflows are less than design, and that the minimum outdoor air damper setting through the building management system is nearly shut. Appendix A contains the full report compiled by Wings TAB.

Table 3: Design vs. Measured Airflow

AHU	DESIGN AIRFLOW			MEASURED AIRFLOWS			
	SUPPLY CFM	OA CFM (CFM)	DESIGN % OA	SUPPLY CFM	RETURN CFM	OA CFM	% OA
AHU-1	4785	860	18%	1087	570	677	62%
AHU-2	2210	315	14%	1331	818	59	4%
AHU-3	2730	360	13%	586	400	0	0%
AHU-4	1585	280	18%	1498	1159	52	3%
AHU-5	5400	2310	43%	4776	3070	688	14%
AHU-6	1525	280	18%	1130	931	0	0%
AHU-7A	3925	750	19%	450	356	0	0%
AHU-7B	3925	750	19%	642	516	126	20%
AHU-8	4900	765	16%	1910	2503	108	6%

Note that the measured supply air is significantly lower than the design supply air except for AHU-4 and 5. The measured outdoor air for all AHU's is significantly lower than the design outdoor air and a few units are providing zero ventilation. AHU-3 was found to not be connected to any outdoor air ductwork but the BMS indicates an outside air damper. As shown above, the measured OA is below the design

OA for all of the air handlers. Our recommendations to address these findings are discussed in Section 5.

Table **4** below highlights the calculated ventilation rates associated with each air handler at the minimum damper positions. Calculated ventilation rates are based on methods described in Section 3. Highlighted cells in the 5th and 6th column indicate higher-than-typical outdoor air percentages.

Six air handlers designed outdoor airflow is less that the calculated outdoor airflows determined in this study. This suggests that even if the air handlers could run as designed many of them would not be providing adequate ventilation air to the spaces served. Also note the "No AHU" row, which indicates the calculated outdoor air required for spaces that are currently not served by an AHU. For the purposes of this study, these spaces are considered to have no ventilation.

Table 4: Calculated Ventilation Airflows

AHU	DESIGN SUPPLY CFM	DESIGN OA CFM	CALCULATED OA CFM	DESIGN OA %	CALCULATED OA %
AHU-1	4785	860	760	18%	16%
AHU-2	2210	315	302	14%	14%
AHU-3	2730	360	135	13%	5%
AHU-4	1585	280	649	18%	41%
AHU-5	5400	2310	3285	43%	61%
AHU-6	1525	280	640	18%	42%
AHU-7A	3925	750	1628	19%	41%
AHU-7B	3925	750	1628	19%	41%
AHU-8	4900	765	848	16%	17%
No AHU	-	-	10253		

4.3 Individual Room Ventilation

Ventilation rates for each room at the minimum outdoor air damper position are itemized in Appendix C. At this position, most rooms lack appropriate ventilation based on ASHRAE population densities described in Section 3. As stated above, supply fan speed and minimum damper positions should be set such that continuous ventilation is provided. See Section 5 for recommended adjustments.

5 Discussion and Recommendations

5.1 Equipment Replacement

Only one air handling unit (AHU-1) provides airflow within an acceptable range of the design air. The outdoor air and return air damper associated with AHU-1 is a manual-type damper and appeared to be approximately 80% open. With the damper at 80% open the unit is still not capable of providing sufficient ventilation air. All other AHUs are providing a supply airflow below the acceptable range of the design airflow. The air handling units have exceeded their expected useful life. It is recommended that the air handling units be replaced with new. Additional ventilation equipment is recommended to serve spaces that are currently not provided with mechanical ventilation.

Almost all of the exhaust fans controlled by a wall mounted switch or a reverse-acting thermostat were found to not be operational. Further assessment of the exhaust fans should be conducted to determine if they should be replaced or repaired. Providing ventilation to existing spaces that currently do not have any will allow for many of the exhaust fans to be eliminated completely.

5.2 Controls

The building management system controls and monitors the air handlers and zone temperature setpoints. The minimum outdoor air damper position for air handling units is typically at least 20%, which would increase the outdoor air available to the air handling unit. In some cases, a minimum position of 30% is acceptable. This value should be confirmed with the manufacturer. AHU-1 outdoor air damper and return air damper are manual type which cannot be controlled via the BAS. AHU-3 does not have an outdoor air duct connection, but the BAS indicates one. It is recommended that AHUs be replaced and the BAS be updated to reflect the new equipment.

5.3 Rebalancing

As many of the air handling units are deficient in providing adequate supply air, adjusting the minimum damper positions will not provide greater ventilation airflow unless the AHU is able to be repaired as such that it can provide the designed supply airflows.

5.4 Ductwork Modifications

Some existing ductwork may be able to be re-used if the AHUs are replaced with new similar units. Further investigation and a full HVAC system design is recommended to determine the extent of which the ductwork can be re-used.

Sincerely,

Michael Tetrault
Senior Mechanical Engineer

Jennifer Thurber
Senior Mechanical Engineer

Appendix A

Wings Testing and Balancing Report

WING'S TESTING & BALANCING CO., INC.

Meriden Public Schools

Roger Sherman Elementary

Ventilation Verification

* * * *

Fuss & O'Neill, Inc.
Attn: Jennifer Thurber, PE
146 Hartford Road
Manchester, CT 06040

July 12, 2023

94 North Branford Road • Suite One • Branford, CT 06405
(203) 481-4988 • wings@wingstesting.com

SM-1 License #6803

www.wingstesting.com

WING'S TESTING & BALANCING CO., INC.

July 12, 2023

Fuss & O'Neill, Inc.
Attn: Jennifer Thurber, PE
146 Hartford Road
Manchester, CT 06040

Re: Roger Sherman Elementary School Meriden, CT - Airflow Survey

Dear Jennifer,

The airflow survey at the above referenced location has been completed as noted on the attached data sheets. The following are our results:

- Most AHU's have issues contributing to low flow. See individual data sheets for details.
- AHU-3 is shown on drawing HVAC-2 to have OA ducted from same plenum as AHU-2. AHU-3 ductwork was traced out and no outside air connection to this unit could be found. There is an outside air damper shown on the BMS for AHU-3 with a setpoint.
- Exhaust fans with reverse acting T-Stats did not run.
- Some ceiling exhaust fans activated by light switches and classroom exhaust fans operated by wall mounted potentiometers were not operational. Individual findings are noted on data sheets.

The following pages are your record of the tested conditions. If you have any questions, or if we can be of further service please do not hesitate to call.

Very truly yours,

Wing's Testing & Balancing Co., Inc.
ICB Certified Contractor for:
TABB—Commissioning—Fire/Life Safety L1&L2—Sound & Vibration

Nick Carrano

Nicholas Carrano
Certified TABB Technician #BB1160780T
CT SM-2 License 7484

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SUPPLY FAN REPORT

PROJECT: Roger Sherman Elementary School Meriden, CT		**DATE:**	7/10/23, 7/11/23
AREA SERVED: Various		**TECH:**	NC, BS

FAN DATA

FAN NUMBER	AHU-1		AHU-2		AHU-3	
LOCATION	Ceiling		Ceiling		Ceiling	
AREA SERVED	Resource Rooms		Administration		Nurse's Suite	
MANUFACTURER	McQuay		McQuay		McQuay	
MODEL OR SIZE	L3L111CH		L5L106CH		L5L106CH	
	DESIGN	**ACTUAL**	**DESIGN**	**ACTUAL**	**DESIGN**	**ACTUAL**
TOTAL CFM	4785	1087	2260	1331	2745	586
RETURN AIR	3925	570	1945	818	2385	400
OUTSIDE AIR	880	677 (3)	315	59 (3)	360	N/A (2)
DISCH. STATIC	---		---		---	
SUCTION STATIC	---		---		---	
TOTAL STATIC	1.28"		1.08"		1.3"	
FAN RPM	680		810		915	
PULLEY O.D.						
ESP						
VFD SPEED	No VFD		No VFD		No VFD	
O.A.D.MIN POS	80% (manual damper)		5%		No OA Installed	
OA %	62%		4%		No OA Installed	

MOTOR DATA

MANUFACTURER	Magnetek		Magnetek		Magnetek	
MODEL OR FR.	N145T		L143T		M145T	
HORSEPOWER	2	2	1	1	1.5	1.5
MOTOR RPM	1745	1745	1745	1745	1745	1745
VOLTAGE / PH.	208/3	208/3	208/3	208/3	208/3	208/3
AMPS **LEG 1**	6.6		3.8		5.5	
AMPS **LEG 2**	---		---		---	
AMPS **LEG 3**	---		---		---	
SHEAVE O.D.						
BELTS - QUANTITY / SIZE	N/A to Size (1)		1/4L490		1/AP49 (1)	
SHEAVE POSITION						
FILTER TYPE	Merv-13		Merv-13		Merv-13	
FILTER CONDITION	Good		Good		Good	
COIL CONDITION	Fins Bent		Good		Fins Bent	

REMARKS

(1) Loose Belt.
(2) No OA found connected to AHU-3. Ductwork differs from drawing.
(3) OA reading from VPT, does not match suppy/return offset.

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

SUPPLY FAN REPORT

PROJECT: Roger Sherman Elementary School Meriden, CT		**DATE:**	7/10/23, 7/11/23
AREA SERVED: Various		**TECH:**	NC, BS

FAN DATA

FAN NUMBER	AHU-4		AHU-5		AHU-6	
LOCATION	Above Ceiling		Above Kitchen		Above Ceiling	
AREA SERVED	Art		Cafeteria		Classroom/Storage	
MANUFACTURER	McQuay		McQuay		McQuay	
MODEL OR SIZE	LSL104CH		LSL111CH		LSL104CH	
	DESIGN	**ACTUAL**	**DESIGN**	**ACTUAL**	**DESIGN**	**ACTUAL**
TOTAL CFM	1585	1498	5320	4776	1525	1130
RETURN AIR	1305	1159	3010	3070	1245	931
OUTSIDE AIR	280	52 (2)	2310	688 (2)	280	0 (2)
DISCH. STATIC	---		---		---	
SUCTION STATIC	---		---		---	
TOTAL STATIC	1.55"		1.35"		1.25"	
FAN RPM	1480		680		1360	
PULLEY O.D.						
ESP						
VFD SPEED	No VFD		No VFD		No VFD	
O.A.D.MIN POS	5%		5%		0%	
OA %	4%		14%		0%	

MOTOR DATA

MANUFACTURER		Magnetek		Magnetek		Magnetek
MODEL OR FR.		HA56		S182T		HA56
HORSEPOWER		3/4	3/4	3	3	3/4	3/4
MOTOR RPM		1725	1725	1745	1745	1725	1725
VOLTAGE / PH.		208/3	208/3	208/3	208/3	208/3	208/3
AMPS	**LEG 1**	3.3		10.0		3.3	
	LEG 2	---		---		---	
	LEG 3	---		---		---	
SHEAVE O.D.							
BELTS - QUANTITY / SIZE		1/4L460 (1)		1/AP62 (1)		1/4L460 (1)	
SHEAVE POSITION							
C to C							
FILTER TYPE		MERV-13		MERV-10		MERV-13	
FILTER CONDITON		Good		Dirty		Good	
COIL CONDITION		Good		Dirty		Good	

REMARKS

(1) Loose Belt.

(2) OA reading from VPT, does not match up with supply/return offset.

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

SUPPLY FAN REPORT

PROJECT: Roger Sherman Elementary School Meriden, CT		**DATE:**	7/10/23, 7/11/23
AREA SERVED: Various		**TECH:**	NC, BS

FAN DATA

FAN NUMBER	AHU-7A		AHU-7B		AHU-8	
LOCATION	Above Stage		Above Stage		Mechanical Room	
AREA SERVED	Gym		Gym		Library	
MANUFACTURER	McQuay		McQuay		McQuay	
MODEL OR SIZE	LSL108CH		LSL108CH		LSL111CH	
	DESIGN	**ACTUAL**	**DESIGN**	**ACTUAL**	**DESIGN**	**ACTUAL**
TOTAL CFM	3925	450	3925	642 (3)	4920	1910
RETURN AIR	3175	356	3175	516	4155	2503
OUTSIDE AIR	750	0	750	126	765	108
DISCH. STATIC	---		---		---	
SUCTION STATIC	---		---		---	
TOTAL STATIC	1.44"		1.44"		1.46"	
FAN RPM	810		810		740	
PULLEY O.D.						
ESP						
VFD SPEED	No VFD		No VFD		No VFD	
O.A.D.MIN POS	5%		100% (2)		5%	
OA %	0%		20%		6%	

MOTOR DATA

MANUFACTURER	Magnetek		Magnetek		Magnetek	
MODEL OR FR.	146T		146T		N145T	
HORSEPOWER	2	2	2	2	2	2
MOTOR RPM	1745	1745	1745	1745	1745	1745
VOLTAGE / PH.	208/3	208/3	208/3	208/3	208/3	208/3
AMPS **LEG 1**	6.6		6.6		6.6	
AMPS **LEG 2**	---		---		---	
AMPS **LEG 3**	---		---		---	
SHEAVE O.D.						
BELTS - QUANTITY / SIZE	1/AP59 (1)		1/AP59 (1)		1/AP62 (1)	
SHEAVE POSITION						
C to C						
FILTER TYPE	MERV-13		MERV-13		MERV-13	
FILTER CONDITON	Good		Dirty		Good	
COIL CONDITION	Some Dirt, Bent Fins		50% Clogged (4)		Good	

REMARKS

(1) Loose Belt.
(2) BMS shows 0% OAD position, damper is actually 100% open.
(3) No access for direct measurement of supply, total of return + OA.
(4) All piping to coils is valved off.

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

VELOCITY PRESSURE READINGS

PROJECT:	Roger Sherman Elementary School Meriden, CT					**DATE:**	7/7/23, 7/11/23	
AREA SERVED:						**TECH:**	NC, BS	
TRAVERSE LOCATIONS	**DUCT SIZE "**	**AREA SQ.FT.**	**DESIGN**		**CENT. STAT. PRESS."**	**TEST**		**NOTES**
			FPM	**CFM**		**FPM**	**CFM**	
AHU-1-OA	22" x 22" ID	1.83	470	860	-0.03"	370	677	(1)
AHU-2 OA	10" x 10"	0.69	457	315	-0.13"	85	59	
AHU-3 OA	---	---	---	---	---	---	---	(2)
AHU-4 OA	10" x 10"	0.69	406	280	-0.08"	75	52	
AHU-5 OA	30" x 30"	6.25	367	2310	-0.007"	110	688	
AHU-6 OA	12" x 12"	1.0	280	280	0.0"	0	0	
AHU-7A OA	12" x 12"	1.0	750	750	750	0.0"	0	
AHU-7A Return	48" x 12"	FH	---	3175	---	---	356	(4)
AHU-7A Total	24" x 18"	3.0	1308	3925	+0.00"	150	450	
AHU-7B OA	12" x 12"	1.0	750	750	-0.01"	126	126	
AHU-7B Return	24" x 20"	3.33	954	3175	-0.007"	155	516	
AHU-7B Total				3925			642	(3)
AHU-8 Supply	24" x 22" ID	3.67	1341	4920	+0.08"	625	2294	
AHU-8 OA	46" x 8"	2.56	299	765	-0.11"	42	108	
AHU-8 Return	26" x 24"	4.33	960	4155	-0.1"	578	2503	

REMARKS

(1) OA + RA dampers are manual type.
(2) No OA connection to this unit.
(3) No access to measure supply, total is summation of OA + return.
(4) No access for traverse reading, taken with flow hood.

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE REPORT

PROJECT: Roger Sherman Elementary School Meriden, CT | **DATE:** 7/6/23

SYSTEM / AREA: AHU-1 / Resource Rooms - 1st Floor | **TECH:** NC

				DESIGN		TEST		FINAL		
LOCATION	NO.	SIZE	A K	FPM	CFM	FPM	CFM	FPM	CFM	NOTES
AHU-1 Supply										
Corridor 1-54A	1	12" x 12"	FH	---	470	---	87			
Reading 1-60	2	12" x 12"	FH	---	385	---	61			
Reading 1-60	3	12" x 12"	FH	---	385	---	70			
Reading 1-60	4	12" x 12"	FH	---	385	---	70			
Reading 1-60	5	12" x 12"	FH	---	385	---	65			
PT/OT 1-59	6	9" x 9"	FH	---	195	---	49			
PT/OT 1-59	7	9" x 9"	FH	---	195	---	49			
LD Resource 1-58	8	9" x 9"	FH	---	220	---	60			
LD Resource 1-58	9	9" x 9"	FH	---	220	---	65			
LD Resource 1-58	10	9" x 9"	FH	---	220	---	66			
LD Resource 1-58	11	9" x 9"	FH	---	220	---	57			
L/S/H 1-57	12	12" x 12"	FH	---	355	---	87			
L/S/H 1-57	13	12" x 12"	FH	---	355	---	95			
Corridor 1-54	14	9" x 9"	FH	---	300	---	83			
Time Out 1-52	15	6" x 6"	FH	---	60	---	26			
Guidance 1-51	16	12" x 12"	FH	---	435	---	97			
					4785		1087			
AHU-1 Return										
Reading 1-60	R1	24" x 20"	FH	---	1540	---	395			
Corridor 1-54A	R2	12" x 12"	FH	---	470	---	34			
PT/OT 1-59	R3	12" x 12"	FH	---	390	---	0			
LD Resource 1-58	R4	16" x 16	FH	---	880	---	85			
L/S/H 1-57	R5	16" x 16	FH	---	710	---	56			
Tome Out 1-52	R6	8" x 8"	FH	---	60	---	0			
Guidance 1-51	R7	12" x 12"	FH	---	435	---	0			
					4485		570			(1)

REMARKS

(1) Design OA 880 CFM should = 3925 CFM return total.

N/A Not Available | N/D No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE REPORT

PROJECT: Roger Sherman Elementary School Meriden, CT | **DATE:** 7/5/23

SYSTEM / AREA: AHU-2 / Administrative - 1st Floor | **TECH:** NC

				DESIGN		TEST		FINAL		
LOCATION	**NO.**	**SIZE**	**A K**	**FPM**	**CFM**	**FPM**	**CFM**	**FPM**	**CFM**	**NOTES**
AHU-2 Supply										
Principle 1-44	1	9" x 9"	FH	---	280	---	154			
Vestible 1-01	2	6" x 6"	FH	---	100	---	65			
Corridor 1-54	3	9" x 9"	FH	---	180	---	118			
Waiting 1-46	4	6" x 6"	FH	---	135	---	66			
Office 1-45	5	12" x 12"	FH	---	435	---	284			
Office 1-45	6	12" x 12"	FH	---	435	---	233			
VLT 1-47	7	6" x 6"	FH	---	50	---	N/A			(3)
Psych 1-48	8	6" x 6"	FH	---	95	---	30			
Corridor 1-50	9	6" x 6"	FH	---	55	---	80			
Conference 1-49	10	12" x 12"	FH	---	495	---	231			
					2260		1331			
AHU-2 Return										
Corridor 1-02	R1	10" x 10"	FH	---	300	---	130			
Vestibule 1-01	R1A	8" x 8"	FH	---	100	---	NI			(2)
Principle 1-44	R2	10" x 10"	FH	---	280	---	78			
Waiting 1-46	R3	8" x 8"	FH	---	135	---	NI			(2)
Office 1-45	R4	16" x 16"	FH	---	870	---	301			
Psych 1-48	R5	8" x 8"	FH	---	95	---	47			
Conference 1-49	R6	12" x 12"	FH	---	495	---	204			
Corridor 1-50	R7	8" x 8"	FH	---	55	---	58			
					2330		818			(1)

REMARKS

(1) Design OA of 315 CFM should = 1945 CFM return total.
(2) Not Installed.
(3) No access to vault.

N/A Not Available | N/D No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE REPORT

PROJECT: Roger Sherman Elementary School Meriden, CT | **DATE:** 7/5/23

SYSTEM / AREA: AHU-3 / Nurse Suite , Restrooms - 1st Floor | **TECH:** NC

				DESIGN		TEST		FINAL		
LOCATION	**NO.**	**SIZE**	**A K**	**FPM**	**CFM**	**FPM**	**CFM**	**FPM**	**CFM**	**NOTES**
AHU-3 Supply										
Boys 1-03	1	6" x 6"	FH	---	110	---	0			
Boys 1-03	2	6" x 6"	FH	---	110	---	26			
Girls 1-04	3	6" x 6"	FH	---	110	---	37			
Girls 1-04	4	6" x 6"	FH	---	110	---	27			
Corridor 1-02	5	12" x 12"	FH	---	470	---	108			
Waiting 1-05	6	6" x 6"	FH	---	125	---	35			
Corridor 1-15C	7	9" x 9"	FH	---	190	---	40			
Teach Work 1-16	8	9" x 9"	FH	---	335	---	73			
Exam 1-08	9	8" x 8"	FH	---	165	---	42			
First Aid 1-06	10	9" x 9"	FH	---	340	---	63			
First Aid 1-06	11	9" x 9"	FH	---	340	---	70			
Rest 1-09	12	9" x 9"	FH	---	340	---	65			
					2745		586			
AHU-3 Return										
Corridor 1-02	R1	16" x 16"	FH	---	660	---	164			
Teach Work 1-16	R2	12" x 12"	FH	---	335	---	20			
Exam 1-08	R3	8" x 8"	FH	---	165	---	0			
First Aid 1-06	R4	16" x 16"	FH	---	680	---	141			
Waiting 1-05	R5	8" x 8"	FH	---	125	---	35			
Rest 1-09	R6	10" x 10"	FH	---	340	---	40			
					2305		400			(1)

REMARKS

(1) Design OA 360 CFM should = 2385 CFM return total.

N/A Not Available | N/D No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE REPORT

PROJECT: Roger Sherman Elementary School Meriden, CT | **DATE:** 7/5/23

SYSTEM / AREA: AHU-4 & AHU-5 / Art & Cafeteria - 1st Floor | **TECH:** NC

				DESIGN		TEST		FINAL		
LOCATION	**NO.**	**SIZE**	**A K**	**FPM**	**CFM**	**FPM**	**CFM**	**FPM**	**CFM**	**NOTES**
AHU-4 Supply										
Corridor 1-12	1	6" x 6"	FH	---	85	---	46			
Vestible 1-11	2	6" x 6"	FH	---	100	---	114			
Art 1-10	3	12" x 12"	FH	---	350	---	320			
Art 1-10	4	12" x 12"	FH	---	350	---	356			
Art 1-10	5	12" x 12"	FH	---	350	---	334			
Art 1-10	6	12" x 12"	FH	---	350	---	328			
					1585		1498			
AHU-4 Return										
Art 1-10	R1	18" x 18"	FH	---	1400	---	979			
Corridor 1-12	R2	8" x 8"	FH	---	85	---	92			
Vestibule 1-11	R3	8" x 8"	FH	---	100	---	88			
					1585		1159			(1)
AHU-5 Supply										
Kitchen Office	1A	6" x 6"	FH	---	N/D	---	184			(4)
Teach Loung 1-17	1	9" x 9"	FH	---	340	---	316			
Teach Loung 1-17	2	9" x 9"	FH	---	340	---	353			
Cafeteria 1-20	3	12" x 12"	FH	---	450	---	164			
Cafeteria 1-20	4	12" x 12"	FH	---	450	---	139			
Cafeteria 1-20	5	12" x 12"	FH	---	450	---	204			
Cafeteria 1-20	6	12" x 12"	FH	---	450	---	459			
Cafeteria 1-20	7	16" x 8"	.64	---	520	---	496			
Cafeteria 1-20	8	12" x 12"	FH	---	450	---	518			
Cafeteria 1-20	9	16" x 8"	.64	---	520	---	547			
Cafeteria 1-20	10	12" x 12"	FH	---	450	---	416			
Cafeteria 1-20	11	12" x 12"	FH	---	450	---	432			
Cafeteria 1-20	12	12" x 12"	FH	---	450	---	461			
Vol 1-13	13	6" x 6"	FH	---	N/D	---	87			
					5320		4776			
AHU-5 Return										
Teach Lounge 1-17	R1	14" x 14"	FH	---	680	---	502			
Kitchen	R2	---	FH	---	N/D	---	---			(3)
Cafeteria 1-20	R3	22" x 20"	FH	---	1515	---	934			
Cafeteria 1-20	R4	22" x 20"	FH	---	1515	---	990			
Cafeteria 1-20	R5	22" x 20"	FH	---	1515	---	644			
					5225		3070			(2)

REMARKS

(1) Design OA of 280 CFM should = 1305 CFM return total.
(2) Design OA of 2310 CFM should = 3010 CFM return total.
(3) Does not exist, ductwork capped above ceiling.
(4) Does not appear on print, no design.

N/A Not Available | N/D No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE REPORT

PROJECT: Roger Sherman Elementary School Meriden, CT | **DATE:** 7/5/23

SYSTEM / AREA: AHU-6 / Music - 1st Floor | **TECH:** NC

LOCATION	NO.	SIZE	A K	DESIGN		TEST		FINAL		NOTES
				FPM	CFM	FPM	CFM	FPM	CFM	
AHU-6 Supply										
Music 1-137	1	9" x 9"	FH	---	290	---	230			
Music 1-137	2	9" x 9"	FH	---	290	---	216			
Music 1-137	3	9" x 9"	FH	---	290	---	155			
Music 1-137	4	9" x 9"	FH	---	290	---	134			
Storage 1-35	5	6" x 6"	FH	---	N/D	---	54			
Corridor 1-38	6	9" x 9"	FH	---	200	---	138			
Vestibule 1-39	7	6" x 6"	FH	---	165	---	97			
Corridor 1-28	8	9" x 9"	FH	---	N/D	---	106			
					1525		1130			
AHU-6 Return										
Music 1-37	R1	18" x 18"	FH	---	1160	---	744			
Corridor 1-38	R2	8" x 8"	FH	---	200	---	104			(1)
Vestibule 1-39	R3	8" x 8"	FH	---	165	---	83			
					1525		931			

REMARKS

(1) Design OA of 280 CFM should = 1245 CFM return total.

N/A Not Available | N/D No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE REPORT

PROJECT: Roger Sherman Elementary School Meriden, CT | **DATE:** 7/7/23

SYSTEM / AREA: AHU-8 / Library & Conference - 1st & 2nd Floor | **TECH:** NC

				DESIGN		TEST		FINAL		
LOCATION	NO.	SIZE	A K	FPM	CFM	FPM	CFM	FPM	CFM	NOTES
AHU-8 Supply										
Conference 2-32	1	9" x 9"	FH	---	320	---	147			
Conference 2-32	2	9" x 9"	FH	---	320	---	127			
Work 1-94	3	9" x 9"	FH	---	250	---	117			
Library-1-97	4	9" x 9"	FH	---	250	---	71			
Library-1-97	5	12" x 12"	FH	---	420	---	173			
Library-1-97	6	12" x 12"	FH	---	420	---	101			
Library-1-97	7	12" x 12"	FH	---	420	---	165			
Library-1-97	8	12" x 12"	FH	---	420	---	165			
Library-1-97	9	12" x 12"	FH	---	420	---	120			
Library-1-97	10	12" x 12"	FH	---	420	---	208			
Library-1-97	11	12" x 12"	FH	---	420	---	68			
Library-1-97	12	12" x 12"	FH	---	420	---	236			
Library-1-97	13	12" x 12"	FH	---	420	---	212			
					4920		1910			
AHU-8 Return										
Library-1-97	R1	32" x 20"	FH	---	2140	---	N/A			(2)
Conference 2-32	R2	14" x 14"	FH	---	640	---	327			
Library-1-97	R3	32" x 20"	FH	---	2140	---	N/A			(2)
					4920					(1,3)

REMARKS

(1) Design OA of 765 CFM should = 4155 CFM return totala.
(2) No access to diffuser due to high ceiling.
(3) Return total is from traverse since all distribution was not accessible.

N/A Not Available | N/D No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE REPORT

PROJECT: Roger Sherman Elementary School Meriden, CT | **DATE:** 7/5/23

SYSTEM / AREA: Exhaust / Various | **TECH:** NC

LOCATION	NO.	SIZE	A K	DESIGN		TEST		FINAL		NOTES
				FPM	CFM	FPM	CFM	FPM	CFM	
Men's 1-18	E1	12" x 9"	FH	---	85	---	92			CEF-2
Women's 1-19	E2	12" x 9"	FH	---	85	---	0			CEF-2 (4)
Janitor 1-26	E3	12" x 9"	FH	---	85	---	0			CEF-2 (4)
Toilet 1-27	E4	12" x 9"	FH	---	85	---	0			CEF-2 (4)
Storage 2-02	E1	12" x 9"	FH	---	160	---	0			CEF-6 (3)
Restroom 1-36	E1	12" x 9"	FH	---	85	---	39			CEF-2
Dry Torage 1-29	E2	12" x 9"	FH	---	160	---	0			CEF-6 (3)
Maint. Storage 1-34	E3	12" x 9"	FH	---	160	---	0			CEF-6 (3)
Toilet 1-33	E1	12" x 9"	FH	---	85	---	84			CEF-2
Storage 1-14	E1	12" x 9"	FH	---	85	---	0			CEF-2 (3)
Common Ductwork										
Boy's 1-103	E1	8" x 8"	FH	---	115	---	0			(1,4)
Boy's 1-103	E2	8" x 8"	FH	---	115	---	0			(1,4)
Girl's 1-04	E3	8" x 8"	FH	---	115	---	0			(2,4)
Girl's 1-04	E4	8" x 8"	FH	---	115	---	0			(2,4)
Toilet 1-07	E5	12" x 9"	FH	---	85	---	95			CEF-2
Janitor 2-05	E6	12" x 9"	FH	---	85	---	105			CEF-2
Boy's 2-06	E7	12" x 9"	FH	---	330	---	283			CEF-3
Storage 1-43	E1	12" x 9"	FH	---	85	---	0			CEF-2 (3)
Classroom 2-07	E2	16" x 12"	FH	---	400	---	291			CEF-1
Classroom 2-10	E3	16" x 12"	FH	---	400	---	374			CEF-1
EF-7 Kiln	EF1	12"Ø	FH	---	1450	---	911			
Elevator a 1-77	E1	12" x 9"	FH	---	160	---	0			CEF-6 (3)
Classsroom 2-04	FH	16" x 12"	FH	---	400	---	302			CEF-1

REMARKS

(1) Separate inline fan type EF-4 serves Boy's room.
(2) Separate inline fan type EF-4 serves Girl's room.
(3) EF controlled by reverse acting T-Stat, fan not running.
(4) EF controlled by light switch not running.

N/A Not Available | N/D No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE REPORT

PROJECT: Roger Sherman Elementary School Meriden, CT | **DATE:** 7/6/23

SYSTEM / AREA: Exhaust / Various | **TECH:** NC

LOCATION	NO.		A K	DESIGN FPM	DESIGN CFM			FINAL FPM	FINAL CFM	NOTES
Storage 1-53	E1	12" x 9"	FH	---	85	---	0			CEF-2 (1)
Storage 1-40	E2	12" x 9"	FH	---	160	---	0			CEF-6 (1)
Reading 1-60	E3	12" x 9"	FH	---	330	---	0			CEF-3 (2)
Classrrom 2-14	E4	12" x 9"	FH	---	400	---	370			CEF-1
EMR 2-15	E5	12" x 9"	FH	---	400	---	0			CEF-1 (2)
EMR-2-16	E6	12" x 9"	FH	---	400	---	299			CEF-1
Janitor 1-56A	E1	12" x 6"	FH	---	140	---	157			EF-5
Men 1-56	E2	12" x 9"	FH	---	85	---	0			CEF-2 (3)
Women 1-55	E3	12" x 9"	FH	---	85	---	109			CEF-3
Girls 2-12	E4	12" x 9"	FH	---	330	---	327			
Boys 1-69	E1	12" x 9"	FH	---	85	---	134			CEF-2
Girls 1-70	E2	12" x 9"	FH	---	85	---	131			CEF-2
Janitor 1-68	E1	12" x 9"	FH	---	85	---	0			CEF-2 (3)
Toilet 1-75	E2	12" x 9"	FH	---	85	---	79			CEF-2 (3)
Toilet 1-66	E3	12" x 9"	FH	---	85	---	78			CEF-2 (3)
Kindergarten 1-65	E1	16" x 12"	FH	---	400	---	250			CEF-1
Storage 1-67	E2	12" x 9"	FH	---	85	---	0			CEF-2 (1)
Storage 1-73	E3	12" x 9"	FH	---	85	---	0			CEF-2 (1)
Kindergarten 1-74	E4	16" x 12"	FH	---	400	---	338			CEF-1
Kindergarten 1-71	E5	16" x 12"	FH	---	400	---	376			CEF-1
Classroom 1-79	E1	16" x 12"	FH	---	400	---	264			CEF-1
Classroom 1-80	E2	16" x 12"	FH	---	400	---	284			CEF-1
Classroom 2-18	E3	16" x 12"	FH	---	400	---	180			CEF-1
Classroom 2-19	E4	16" x 12"	FH	---	400	---	319			CEF-1
Restroom 2-09	E1	12" x 9"	FH	---	85	---	0			CEF-2 (3)

REMARKS

(1) EF controlled by reverse acting T-Stat, fan not running.
(2) Classroom EF controlled by wall mounted potentiometer not running.
(3) Ceiling EF operated by light switch not running.

N/A Not Available | N/D No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE REPORT

PROJECT: Roger Sherman Elementary School Meriden, CT | **DATE:** 7/5/23

SYSTEM / AREA: Exhaust / Various | **TECH:** NC

LOCATION	NO.	SIZE	A K	DESIGN		TEST		FINAL		NOTES
				FPM	CFM	FPM	CFM	FPM	CFM	
Classroom 1-87	E1	16" x 12"	FH	---	400	---	59			CEF-1
Classroom 1-89	E2	16" x 12"	FH	---	400	---	289			CEF-1
Classroom 1-82	E3	16" x 12"	FH	---	400	---	391			CEF-1
Classroom 1-81	E4	16" x 12"	FH	---	400	---	272			CEF-1
Classroom2-26	E5	16" x 12"	FH	---	400	---	408			CEF-1
Classroom 2-28	E6	16" x 12"	FH	---	400	---	292			CEF-1
Classroom 2-21	E7	16" x 12"	FH	---	400	---	520			CEF-1
Classroom 2-20	E8	16" x 12"	FH	---	400	---	330			CEF-1
Boys 1-83	E1	12" x 9"	FH	---	3330	---	0			CEF-3 (3)
H'Cap Men 1-84	E2	12" x 9"	FH	---	85	---	0			CEF-2 (3)
H'Cap Women 1-85	E3	12" x 9"	FH	---	85	---	29			CEF-2 (3)
Girls 1-86	E4	12" x 9"	FH	---	330	---	224			CEF-3
Boys 2-22	E5	12" x 9"	FH	---	330	---	227			CEF-3
H'Cap Men 2-23	E6	12" x 9"	FH	---	85	---	105			CEF-2
H'Cap Women 2-24	E7	12" x 9"	FH	---	85	---	0			CEF-2 (3)
Girls 2-25	E8	12" x 9"	FH	---	330	---	0			CEF-3 (3)
Classroom 1-91	E1	16" x 12"	FH	---	400	---	330			CEF-1
Classroom 1-90	E2	16" x 12"	FH	---	400	---	444			CEF-1
Classroom 2-29	E3	16" x 12"	FH	---	400	---	0			CEF-1 (2)
Classroom 2-30	E4	16" x 12"	FH	---	400	---	0			CEF-1 (2)
Conference 2-32	E5	16" x 12"	FH	---	400	---	508			CEF-1
Janitor 1-96	E1	12" x 9"	FH	---	85	---	0			CEF-2 (3)
Janitor 2-31	E2	12" x 9"	FH	---	85	---	0			CEF-2 (3)
Storage 1-95	E1	12" x 9"	FH	---	85	---	0			CEF-2 (1)
Storage 1-93	E2	12" x 9"	FH	---	85	---	0			CEF-2 (1)
Storage 2-33A	E1	12" x 9"	FH	---	160	---	0			CEF-6 (1)

REMARKS

(1) EF controlled by reverse acting T-Stat, fan not running.
(2) Classroom EF controlled by wall mounted potentiometer not running.
(3) Ceiling EF operated by light switch not running.

N/A Not Available | N/D No Design | **D/D** Direct Drive | **N/R** No Requirement

Appendix B

Table of Existing Conditions

FIELD NOTES					ASSIGNED EQUIPMENT	
Floor	Room Type	Drawing Room #	Drawing Room Name	Field Comments	EF	AHU
0	Utility	B-04	Electrical	No ventilation		
0	Utility	B-03	Mechanical	Combustion Air louver on door/wall		
0	Storage	B-01	Storage	Ducted to 12x10 up on 1st fl	CEF-2	
0	Storage	B-02	Storage	Ducted to 12x10 up on 1st fl	CEF-6	
1	Vestibule	1-01	Vestibule			AHU-2
1	Corridor	1-02	Corridor			AHU-2
1	Restroom	1-03	Boys		EF-4	AHU-3
1	Restroom	1-04	Girls		EF-4	AHU-3
1	Waiting Room	1-05	Waiting	Thermostat for AHU-3		AHU-3
1	Nurse	1-06	Nurse			AHU-3
1	Restroom	1-07	Toilet		CEF-2	
1	Nurse	1-08	Exam			AHU-3
1	Nurse	1-09	Rest	Look for separate exhaust		AHU-3
1	Classroom	1-10	Art	Thermostat for AHU-4	EF-7,8	AHU-4
1	Vestibule	1-11	Vestibule			AHU-4
1	Corridor	1-12	Corridor			AHU-4
1	Office	1-13	Vol?			AHU-5
1	Storage	1-14	Storage	Ducted to Penn 24x12 Exhaust Hood on Roof (D)	CEF-2	
1	Office	1-16	Teachers' Work			AHU-3
1	Office	1-17	Teachers' Lounge			AHU-5
1	Restroom	1-18	Toilet	Ducted to Penn 24x12 Exhaust Hood on Roof (E)	CEF-2	
1	Restroom	1-19	Toilet	Ducted to Penn 24x12 Exhaust Hood on Roof (E)	CEF-2	
1	Cafeteria	1-20	Cafeteria	Thermostat to AHU-5, Exhaust via (F)		AHU-5
1	Cafeteria	1-21	Dishwashing			
1	Storage	1-22	Storage	Brick vents		
1	Kitchen	1-23	Kitchen			
1	Office	1-24	Office	Supply from AHU-5		AHU-5
1	Locker Room	1-25	Lockers	No ventilation		
1	Restroom	1-26	Toilet	Ducted to Penn 24x12 Exhaust Hood on Roof (E)	CEF-2	
1	Restroom	1-27	Toilet	Ducted to Penn 24x12 Exhaust Hood on Roof (E)	CEF-2	
1	Corridor	1-28	Corridor			AHU-6
1	Storage	1-29	Dry Storage	Ducted to Penn 12x12 Exhaust Hood on Roof (G)	CEF-6	
1	Corridor	1-30	Receiving			
1	Office	1-31	Custodian	No ventilation		
1	Locker Room	1-32	Lockers	No ventilation		
1	Restroom	1-33	Toilet		CEF-2	
1	Storage	1-34	Maintenance Storage	Ducted to Penn 12x12 Exhaust Hood on Roof (G), Exhaust fan interlocked with thermostat	CEF-6	CUH-12
1	Storage	1-35/120B	Practice	No ventilation		AHU-6
1	Restroom	1-36/120A	Storage	Ducted to Penn 12x12 Exhaust Hood on Roof (G)	CEF-2	
1	Classroom	1-37/120	Music	Thermostat for AHU-6		AHU-6
1	Corridor	1-38	Corridor			AHU-3,6

FIELD NOTES					ASSIGNED EQUIPMENT	
Floor	Room Type	Drawing Room #	Drawing Room Name	Field Comments	EF	AHU
1	Vestibule	1-39	Vestibule			AHU-6
1	Storage	1-40	Storage	Ducted to 10x4 up	CEF-6	
1	Auditorium	1-41	Auditorium/Gym/Stage(1-42)			AHU-7A
1	Auditorium	1-41	Auditorium/Gym/Stage(1-42)			AHU-7B
1	Storage	1-43	Storage	Ducted to 10x3.25 up	CEF-2	
1	Office	1-44	Principal			AHU-2
1	Office	1-45	Office			AHU-2
1	Waiting Room	1-46	Waiting	Thermostat for AHU-2		AHU-2
1	Storage	1-47	Vault			AHU-2
1	Office	1-48	Psych			AHU-2
1	Conference Room	1-49	Conference Room			AHU-2
1	Corridor	1-50	Corridor			AHU-2
1	Classroom	1-51	Guidance			AHU-1
1	Classroom	1-52	Time Out			AHU-1
1	Storage	1-53	Storage	Ducted to 10x3.25 up	CEF-2	
1	Corridor	1-54	Corridor	AHU-1, AHU-3 Located above ceiling		AHU-1,2,3
1	Restroom	1-55	Womans Handicapped	Ducted to 10x6 up	CEF-2	
1	Restroom	1-56	Mens Handicapped	Ducted to 10x6 up	CEF-2	
1	Office	1-57	L/S/H	Thermostat for AHU-1		AHU-1
1	Classroom	1-58	LD Resource			AHU-1
1	Office	1-59	PT/OT			AHU-1
1	Classroom	1-60	Reading Clinic		CEF-3	AHU-1
1	Restroom	1-56A	Janitor	Ducted to 10x6 up	EF-5	
1	Corridor	1-62	Corridor			
1	Vestibule	1-63	Vestibule			
1	Corridor	1-64	Corridor			
1	Classroom	1-65	Kindergarten	Ducted to Penn 24x12 Exhaust Hood on Roof (B)	CEF-2, EF-10	
1	Storage	1-65A	Closet	No ventilation		
1	Storage	1-65B	Coat Room	No ventilation		
1	Restroom	1-66	Toilet	Ducted to Penn 12x12 Exhaust Hood on Roof (A)	CEF-2	
1	Storage	1-67	Storage	Ducted to Penn 24x12 Exhaust Hood on Roof (B)	CEF-2	
1	Restroom	1-68	Toilet	Ducted to Penn 12x12 Exhaust Hood on Roof (A)	CEF-2	
1	Restroom	1-69	Boys	Ducted to Penn 12x12 Exhaust Hood on Roof (C)	CEF-2	
1	Restroom	1-70	Girls	Ducted to Penn 12x12 Exhaust Hood on Roof (C)	CEF-2	
1	Classroom	1-71	Kindergarten	Ducted to Penn 24x12 Exhaust Hood on Roof (B)	EF-11, CEF-1	
1	Vestibule	1-72	Vestibule	No Ventilation		
1	Storage	1-73	Storage	Ducted to Penn 24x12 Exhaust Hood on Roof (B)	CEF-2	
1	Classroom	1-74	Kindergarten	Ducted to Penn 24x12 Exhaust Hood on Roof (B)	CEF-1	
1	Storage	1-74A	Closet	No ventilation		
1	Storage	1-74B	Coat Room	No ventilation		
1	Restroom	1-75	Toilet	Ducted to Penn 12x12 Exhaust Hood on Roof (A)		

FIELD NOTES					ASSIGNED EQUIPMENT	
Floor	Room Type	Drawing Room #	Drawing Room Name	Field Comments	EF	AHU
1	Vestibule	1-76	Vestibule	No ventilation		
1	Corridor	1-78	Corridor			
1	Classroom	1-79	Classroom		CEF-1	
1	Classroom	1-80	Classroom		CEF-1	
1	Classroom	1-81	Classroom		CEF-1	
1	Classroom	1-82	Classroom		CEF-1	
1	Restroom	1-83	Boys		CEF-3	
1	Restroom	1-84	Handicapped Men		CEF-2	
1	Restroom	1-86	Girls		CEF-3	
1	Restroom	1-85	Handicapped Women		CEF-2	
1	Classroom	1-87	Classroom		CEF-1	
1	Corridor	1-88	Corridor			
1	Classroom	1-89	Classroom		CEF-1	
1	Classroom	1-90	Classroom		CEF-1	
1	Classroom	1-91	Classroom		CEF-1	
1	Vestibule	1-92	Vestibule			
1	Storage	1-93	Storage		CEF-2	
1	Classroom	1-94	Workshop	Thermostat to AHU-8		AHU-8
1	Storage	1-95	Storage		CEF-2	
1	Restroom	1-96	Janitor		CEF-2	
1	Library	1-97	Library			AHU-8
2	Corridor	2-01	Corridor			
2	Storage	2-02	Storage		CEF-6	
2	Utility	2-03	Ancil	No ventilation		
2	Classroom	2-04	Classroom		CEF-1	
2	Restroom	2-05	Janitor		CEF-2	
2	Restroom	2-06	Boys		CEF-3	
2	Classroom	2-07	Classroom		CEF-1	
2	Office	2-08	Teachers	No ventilation		
2	Restroom	2-09	Toilet		CEF-2	
2	Classroom	2-10	Classroom		CEF-1	
2	Corridor	2-11	Corridor	No ventilation		
2	Restroom	2-12	Girls	Up to 12x12 Exhaust Hood on Roof (H)	CEF-3	
2	Utility	2-13	H/V IMP	No ventilation		
2	Classroom	2-14	Classroom	Up to 24x24 Exhaust Hood on Roof (J)	CEF-1	
2	Classroom	2-15	EMR	Up to 24x24 Exhaust Hood on Roof (J)	CEF-1	
2	Classroom	2-16	EMR	Up to 24x24 Exhaust Hood on Roof (J)	CEF-1	
2	Lobby	2-17	Lobby	No ventilation		
2	Classroom	2-18	Classroom		CEF-1	
2	Classroom	2-19	Classroom		CEF-1	
2	Classroom	2-20	Classroom		CEF-1	
2	Classroom	2-21	Classroom		CEF-1	
2	Restroom	2-22	Boys		CEF-3	
2	Restroom	2-23	Handicap Mens Toilet		CEF-2	
2	Restroom	2-24	Handicap Womens Toilet		CEF-2	
2	Restroom	2-25	Girls		CEF-3	
2	Classroom	2-26	Classroom		CEF-1	

FIELD NOTES					ASSIGNED EQUIPMENT	
Floor	Room Type	Drawing Room #	Drawing Room Name	Field Comments	EF	AHU
2	Corridor	2-27	Corridor	No ventilation		
2	Classroom	2-28	Classroom		CEF-1	
2	Classroom	2-29	Classroom		CEF-1	
2	Classroom	2-30	Classroom		CEF-1	
2	Custodial	2-31	Janitor		CEF-2	
2	Conference Room	2-32	Conference Room		CEF-1	AHU-8
2	Storage	2-33A	Storage		CEF-6	

Appendix C

Room Ventilation Calculation

APPENDIX C - ROOM VENTILATION CALCULATION

Drawing Room #	Drawing Room Name	Area (ft^2)	OA CFM Rp	OA CFM Ra	Total Vent.
			CFM/PERSON	CFM/SF	CFM
B-04	Electrical	372.3	0	0.00	0
B-03	Mechanical	1203	0	0.00	0
B-01	Storage	68	0	8.16	8
B-02	Storage	287	0	34.44	34
1-01	Vestibule	103.36	5	6.20	11
1-02	Corridor	131.6	0	7.90	8
1-03	Boys	239	0	0.00	0
1-04	Girls	234.79	0	0.00	0
1-05	Waiting	85.36	5	5.12	18
1-06	Nurse	339.1	5	20.35	29
1-07	Toilet	37.18	0	0.00	0
1-08	Exam	124.69	5	7.48	11
1-09	Rest	115.06	5	6.90	10
1-10	Art	1316.26	10	157.95	619
1-11	Vestibule	66.86	5	4.01	7
1-12	Corridor	375.14	0	22.51	23
1-13	Vol?	95.63	5	5.74	8
1-14	Storage	77.07	0	9.25	9
1-16	Teachers' Work	309.61	5	18.58	26
1-17	Teachers' Lounge	584.6	5	35.08	50
1-18	Toilet	33.76	0	0.00	0
1-19	Toilet	32.76	0	0.00	0
1-20	Cafeteria	2984.69	8	537.24	2776
1-21	Dishwashing	130.76	8	23.54	122
1-22	Storage	125.54	0	15.06	15
1-23	Kitchen	1051.39	8	126.17	284
1-24	Office	68.09	5	4.09	6
1-25	Lockers	124.15	0	0.00	0
1-26	Toilet	33.84	0	0.00	0
1-27	Toilet	32.86	0	0.00	0
1-28	Corridor	252	0	15.12	15
1-29	Dry Storage	219.18	0	26.30	26
1-30	Receiving	237.55	10	0.12	29
1-31	Custodian	29.32	5	1.76	2
1-32	Lockers	48	0	0.00	0
1-33	Toilet	120.12	0	0.00	0
1-34	Maintenance Storage	378.26	0	45.39	45
1-35/120B	Practice	144.91	0	17.39	17
1-36/120A	Storage	83.07	0	0.00	0

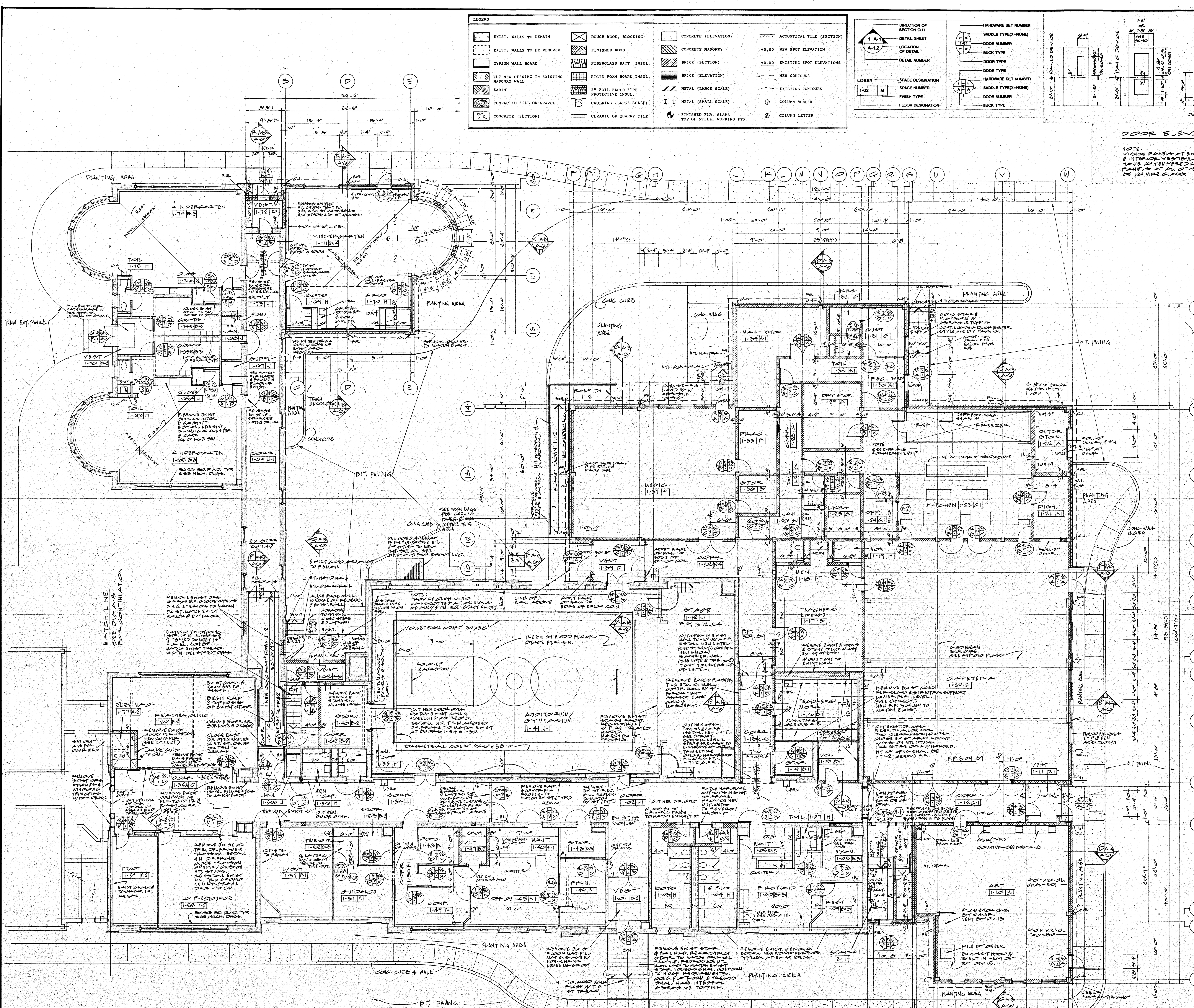
Drawing Room #	Drawing Room Name	Area (ft^2)	OA CFM Rp	OA CFM Ra	Total Vent.
			CFM/PERSON	CFM/SF	CFM
1-37/120	Music	1263.05	10	151.57	594
1-38	Corridor	697.13	0	41.83	42
1-39	Vestibule	123.08	5	7.38	14
1-40	Storage	173.29	0	20.79	21
1-41	Auditorium/Gym/Stage(1-42)	2010	5	120.60	1628
1-41	Auditorium/Gym/Stage(1-42)	2010	5	120.60	1628
1-43	Storage	76.53	0	9.18	9
1-44	Principal	188.23	5	11.29	16
1-45	Office	435.2	5	26.11	37
1-46	Waiting	112.97	5	6.78	24
1-47	Vault	55.13	0	6.62	7
1-48	Psych	88.81	5	5.33	8
1-49	Conference Room	171.14	5	10.27	53
1-50	Corridor	81.08	0	4.86	5
1-51	Guidance	171.17	10	20.54	80
1-52	Time Out	54.42	10	6.53	26
1-53	Storage	66.62	0	7.99	8
1-54	Corridor	1948.24	0	116.89	117
1-55	Womans Handicapped	47.06	0	0.00	0
1-56	Mens Handicapped	58.42	0	0.00	0
1-57	L/S/H	372.58	5	22.35	32
1-58	LD Resource	507.91	10	60.95	239
1-59	PT/OT	231.44	5	13.89	20
1-60	Reading Clinic	691.32	10	82.96	325
1-56A	Janitor	18.15	0	0.00	0
1-62	Corridor	517.72	0	31.06	31
1-63	Vestibule	76.22	5	4.57	8
1-64	Corridor	612.14	0	36.73	37
1-65	Kindergarten	954.49	10	114.54	449
1-65A	Closet	9.62	0	1.15	1
1-65B	Coat Room	133.97	0	16.08	16
1-66	Toilet	22.95	0	0.00	0
1-67	Storage	25.87	0	3.10	3
1-68	Toilet	56.42	0	0.00	0
1-69	Boys	28.55	0	0.00	0
1-70	Girls	32.43	0	0.00	0
1-71	Kindergarten	1131.9	10	135.83	532
1-72	Vestibule	62.26	5	3.74	7
1-73	Storage	25.68	0	3.08	3
1-74	Kindergarten	889.15	10	106.70	418
1-74A	Closet	9.3	0	1.12	1

Drawing Room #	Drawing Room Name	Area (ft^2)	OA CFM Rp	OA CFM Ra	Total Vent.
			CFM/PERSON	CFM/SF	CFM
1-74B	Coat Room	137.47	0	16.50	16
1-75	Toilet	21.95	0	0.00	0
1-76	Vestibule	77.66	5	4.66	9
1-78	Corridor	108.91	0	6.53	7
1-79	Classroom	815.83	10	97.90	383
1-80	Classroom	821.71	10	98.61	386
1-81	Classroom	826.56	10	99.19	388
1-82	Classroom	813.71	10	97.65	382
1-83	Boys	232.07	0	0.00	0
1-84	Handicapped Men	43.5	0	0.00	0
1-86	Girls	33.71	0	0.00	0
1-85	Handicapped Women	212.02	0	0.00	0
1-87	Classroom	825.21	10	99.03	388
1-88	Corridor	1809.11	0	108.55	109
1-89	Classroom	826.14	10	99.14	388
1-90	Classroom	821.4	10	98.57	386
1-91	Classroom	817	10	98.04	384
1-92	Vestibule	80.27	5	4.82	9
1-93	Storage	71.86	0	8.62	9
1-94	Workshop	314.39	10	37.73	148
1-95	Storage	79.54	0	9.54	10
1-96	Janitor	58.84	0	0.00	0
1-97	Library	3055.84	5	366.70	519
2-01	Corridor	105.45	0	6.33	6
2-02	Storage	246.79	0	29.61	30
2-03	Ancil	436.24	0	0.00	0
2-04	Classroom	731.54	10	87.78	344
2-05	Janitor	18.9	0	0.00	0
2-06	Boys	224.34	0	0.00	0
2-07	Classroom	726.45	10	87.17	341
2-08	Teachers	246.9	5	14.81	21
2-09	Toilet	24.19	0	0.00	0
2-10	Classroom	724.26	10	86.91	340
2-11	Corridor	1913.5	0	114.81	115
2-12	Girls	228.14	0	0.00	0
2-13	H/V IMP	331.89	0	0.00	0
2-14	Classroom	711.76	10	85.41	335
2-15	EMR	785.93	10	94.31	369
2-16	EMR	784.22	10	94.11	369
2-17	Lobby	256.47	5	15.39	28
2-18	Classroom	815.85	10	97.90	383

Drawing Room #	Drawing Room Name	Area (ft^2)	OA CFM Rp	OA CFM Ra	Total Vent.
			CFM/PERSON	CFM/SF	CFM
2-19	Classroom	817.46	10	98.10	384
2-20	Classroom	814.67	10	97.76	383
2-21	Classroom	815.39	10	97.85	383
2-22	Boys	210.17	0	0.00	0
2-23	Handicap Mens Toilet	35.85	0	0.00	0
2-24	Handicap Womens Toilet	37.5	0	0.00	0
2-25	Girls	213.8	0	0.00	0
2-26	Classroom	820.27	10	98.43	386
2-27	Corridor	1541.4	0	92.48	92
2-28	Classroom	827.93	10	99.35	389
2-29	Classroom	808.49	10	97.02	380
2-30	Classroom	810.83	10	97.30	381
2-31	Janitor	62.03	0	0.00	0
2-32	Conference Room	463.56	5	27.81	144
2-33A	Storage	154.67	0	18.56	19

Appendix D

1989 Sherman Drawings



GENERAL NOTE:

FIN. FLOOR ELEVATIONS ON FLOOR PLANS ARE BASED ON FIN. FLR. ELEVATIONS ON SITE SURVEY. FIELD VERIFY ALL EXIST. ELEVATIONS. ADJUST TOP OF CONC. ELEVATIONS AT NEW ADDITIONS TO ACCOMODATE FLOOR FINISHES. FIN. FLOOR ELEVATIONS AT NEW ADDITIONS SHALL MATCH ADJACENT EXIST. FIN. FLOOR ELEVATIONS.

NOTES:

1. REMOVE ALL DOOR HOLD-OPEN DEVICES AT EXISTING DOORS.
2. COVER ALL EXISTING DOOR TRANSOMS WITH 1 LAYER OF 5/8" GWB AT EACH SIDE.
3. EXISTING CABINETS, WARDROBE CLOSET DRS., COUNTERS & ALL BUILT-IN ITEMS TO REMAIN SHALL BE CLEANED & WIPED W/ DENATURED ALCOHOL, SANDED W/ FINE SANDPAPER OR STEEL WOOL, CRACKS & DENTS FILLED W/ PLASTIC CELLULOSE FILLER & THEN PAINTED OR STAINED TO MATCH ORIGINAL CONDITION. ADJUST & REPLACE ALL OPERABLE PARTS & HARDWARE AS REQUIRED. REMOVE EXIST. LINOLEUM FROM ALL COUNTERTOPS & INSTALL NEW LAMINATED PLASTIC W/ HALF ROUND HARDWOOD APRON OR EDGING. COORDINATE CUT-OUTS W/ INSTALLATION OF SELF RIMMING SINKS.

DOOR SCHEDULE							
TYPE	MAT.	LEAF	WIDTH	HEIGHT	V.P. (WXH)	LABEL	REMARKS
1	H.M.	1	3'- 0"	7'- 0"	----	1HR B	
2 2a 2b	H.M. " "	1 " "	3'- 0" " "	7'- 2" " "	---- ---- ----	--- 1HR B 1 1/2HR B	
3 3a	H.M. "	1 "	3'- 0" "	7'- 2" "	6" x 30" "	--- 45M C	
4	H.M.	1	3'- 0"	7'- 2"	1'-8"x1'-10" 1'-8"x2'-10"	---	
5 5a	H.M. H.M.	1 "	3'- 8" "	7'- 2" "	6" x 30" "	--- 45M C	
6	H.M.	2	2'- 6"	7'- 0"	1'-2"x1'-10" 1'-2"x2'-8"	---	
7 7a	H.M. "	2 "	3'- 0" "	7'- 2" "	---- ----	--- 1HR B	
8	H.M.	2	3'- 0"	7'- 2"	1'-8"x1'-10" 1'-8"x2'-10"	---	
9	WD.	1	2'- 0"	7'- 0"	----	---	
10 10a	WD. "	1 "	2'- 6" "	7'- 0" "	---- ----	--- 1HR B	
11 11a 11b	WD. " "	1 " "	3'- 0" " "	7'-0" " "	---- ---- ----	--- 45M C 1HR B	
12 12a	WD. "	1 "	3'- 0" "	7'- 0" "	6"x 28" "	--- 45M C	
13	WD.	1	3'- 0"	7'- 0"	1'-8"x1'-10" 1'-8"x2'-8"	---	
14 14a 14b	WD. " "	1 " "	3'- 0" " "	7'- 2" " "	---- ---- ----	--- 45M C 1HR B	
15 15a	WD. "	1 "	3'- 0" "	7'- 2" "	6"x 30" "	--- 45M C	
16	WD.	2	2'- 6"	7'- 0"	6"x 28"	45M C	
17	WD.	2	2'- 6"	7'- 0"	1'-8"x1'-10" 1'-8"x2'-8"	---	
18	WD.	2	3'- 0"	7'- 0"	----	1HR B	
19	WD.	2	3'- 0"	7'- 0"	6"x 28"	45M C	
20	WD.	2	4'- 0"	7'- 0"	6"x 28"	45M C	
21	WD.	2	2'- 0"	7'- 2"	----	---	
22	WD.	2	3'- 0"	7'- 2"	6"x 30"	45M C	
23	WD.	2	3'- 0"	7'- 2"	1'-8"x1'-10" 1'-8"x2'-10"	---	
24	WD.	2	3'- 6"	7'- 2"	6"x 30"	45M C	
25	WD.	6	2'- 0"	7'- 2"	----	---	3 DR OPENINGS 2 DRS PER OPN'G
26	H.M.	1	3'- 0"	7'- 2"	----	---	18" x 36" MTL LOUVER IN DOOR SEE ELEVATION

NOTES:

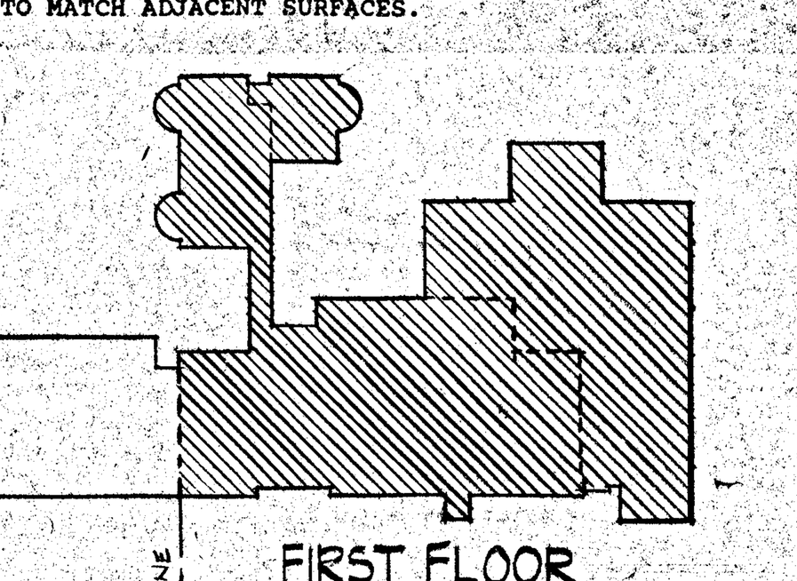
1. VERIFY EXISTING DOOR FRAME SIZES WHERE EXISITING FRAMES ARE TO BE REUSED. VERIFY CUTOUTS.
2. VERIFY EXISTING OPENINGS AND WALL THICKNESS.
3. ALL DOORS SHALL BE 1 3/4" THICK.
4. WHERE DOOR CLOSERS ARE OMITTED PROVIDE EQUIVALENT LABEL CONSTRUCTION
5. "E" DESIGNATES EXISTING DOOR & BUCK TYPES & HARDWARE SET. ALTER & REPAIR DOORS & FRAMES TO RECEIVE NEW HARDWARE & THRESHOLD.

SADDLE TYPES

A - METAL THRESHOLD TYPE A (EXTERIOR DOORS)
B - METAL THRESHOLD TYPE B (INTERIOR DOORS)
C - SLATE THRESHOLD
D - METAL CARPET STRIP
E - EXISTING
F - METAL CARPET SEPARATOR
G - VINYL REDUCING STRIP

FINISH SCHEDULE					
TYPE	FLOOR	BASE	WALL	CEILING	REMARKS
A	CONC	---	EXP CMU	GWB	2 LAYERS 5/8" GWB ON MTL FRAMING @ OUTDOOR STOR 1-22 CLG. INTEGRAL HARDENER.
A-1	CONC	VINYL	CMU	ACT	INTEGRAL HARDENER ON CONC.
A-2	CONC	VINYL	CMU/ EXIST BRICK OR PLASTER	ACT	FILL EXIST. WINDOW OP'NG @ VEST 1-63 W/ BRICK TO MATCH EXISTING WALL.
B	RESILIENT FLOORING (RESIL)	VINYL	CMU	ACT	
B-1	RESIL	VINYL	CMU/GWB	ACT	GWB ABOVE & BELOW H.M.& GL. VISION PANELS @ WORK 1-94
B-2	RESIL	VINYL	CMU/ EXIST PLASTER AND/OR MASONRY	ACT	CLG @ VLT 1-47 SHALL BE 2 LAYERS OF 5/8" GWB ON MTL FRAMING.
B-3	RESIL	VINYL	GWB/ EXIST PLASTER	ACT	REMOVE SHEET VINYL ON WALLS @ KIND 1-65 & 1-74. PATCH & PAINT WALLS AS REQ'D. SEE FLOOR PLANS FOR CARPET @ FLRS @ KIND 1-65 & 1-74.
B-4	RESIL	VINYL	GWB/ EXIST BRICK	ACT	SEE FLR PLAN FOR CARPET @ FLR @ KIND 1-71.
C	VINYL COMPOSITION TILE (VCT)	VINYL	EXIST PLASTER	ACT	SEE REF CLG PLANS FOR GWB @ CLGS @ CORR 1-54A & 2-11A. RST @ RAMP BETW CORR 1-61 & CORR 1-64.
C-1	VCT	VINYL	CMU	ACT	
C-2	VCT	VINYL	BRICK/ EXIST BRICK	ACT	
C-3	VCT	VINYL	BRICK	ACT	
D	ENTRY MAT	VINYL	BRICK/ EXIST BRICK	ACT	
D-1	ENTRY MAT	VINYL	CMU	ACT	
D-2	ENTRY MAT	EXIST TILE	EXIST TILE/ EXIST PLASTER	ACT	FILL MAT SINKAGE IN EXIST VESTIBULE FLOORS TO RECEIVE NEW ENTRY MAT.
E	RUBBER STUDDED TILE (RST)	VINYL	CMU	ACT	CLG @ FIRST FLOOR OF STAIR CORE SHALL BE EXPOSED STAIR CONSTRUCTION. ACT CLG @ SECOND FLOOR.
E-1	RST	VINYL	BRICK/ EXIST BRICK	ACT	SEE NOTE ABOVE
F	CARPET & RESIL @ NEW CLASSROOMS & ADJOINING CLOSETS.	VINYL	CMU	ACT	SEE REF CLG PLANS FOR GWB CLG @ LIBRARY 1-97, CORR 1-88 & CORR 2-27. GWB CLGS. @ BUILT-IN CLOSETS @ NEW CLASSROOMS. GWB WALLS ABOVE & AROUND CLOSET DOORS.
F-1	CARPET	VINYL	GWB/ EXIST PLASTER	ACT	GWB WALLS @ CONF 2-32. SEE REF CLG PLAN FOR GWB CLG. COVES @ CONF 2-32
F-2	CARPET	EXIST WOOD	GWB/ EXIST PLASTER	ACT	REUSE WOOD BASEBOARD FROM EXIST WALLS TO BE REMOVED
F-3	CARPET	VINYL	EXIST PLASTER	ACT	NORTH WALL OF HV/IMP 2-13 SHALL BE CMU.
F-4	CARPET	VINYL	BRICK/ EXIST BRICK	ACT	
G	QUARRY TILE (Q.T.)	Q.T.	CMU	ACT	SEE REF CLG PLAN FOR GWB @ CAFETERIA 1-20 CLG.
G-1	Q.T.	Q.T.	SPRAY-GLAZE	ACT	GWB WALLS ABOVE WALK-IN FREEZER & REFRIG @ KITCHEN 1-23
H	CERAMIC TILE (C.T.)	C.T.	C.T.	ACT	
J	EXIST	EXIST	EXIST	EXIST	REFINISH EXIST WOOD STAGE FLOOR.
J-1	EXIST	EXIST	EXIST	ACT	AT AUD/GYM 1-41: SPRAY GLAZE ON EXIST EXPOSED CMU WALLS. REFINISH EXIST WOOD FLOOR.

1. USE SMOOTH FACED ACOUSTICAL TILE IN TOILETS, KITCHEN AND OTHER HIGH HUMIDITY AREAS.
2. PAINT NEW AND EXISTING CONSTRUCTION INCLUDING ALL FERROUS METALS, DUCTWORK, PIPING AND PIPE INSULATION, CONDUITS, EQUIPMENT AND INCIDENTAL SUPPORTS AND HANGERS. SEE SPECIFICATIONS FOR DETAILED PAINTING REQUIREMENTS.
3. PAINT ALL EXPOSED CMU AND GWB UNLESS NOTED OTHERWISE.
4. PAINT ALL EXISTING EXPOSED PLASTER UNLESS NOTED OTHERWISE.
5. PAINT ALL EXPOSED WOOD TRIM @ RATED SPACES.
6. PATCH AND/OR REPAIR ALL EXISTING SURFACES AFFECTED BY DEMOLITION OR NEW CONSTRUCTION TO MATCH ADJACENT SURFACES.



FIRST FLOOR KEY PLAN

NO SCALE

revisions

no. date description

scale 1/8" = 1'-0"

date 1/25/89

drawn MHP, PJP

checked DC

approved PEP

CARLIN·POZZI·CHIN ARCHITECTS, P.C.

THREE LINCOLN STREET NEW HAVEN, CONNECTICUT

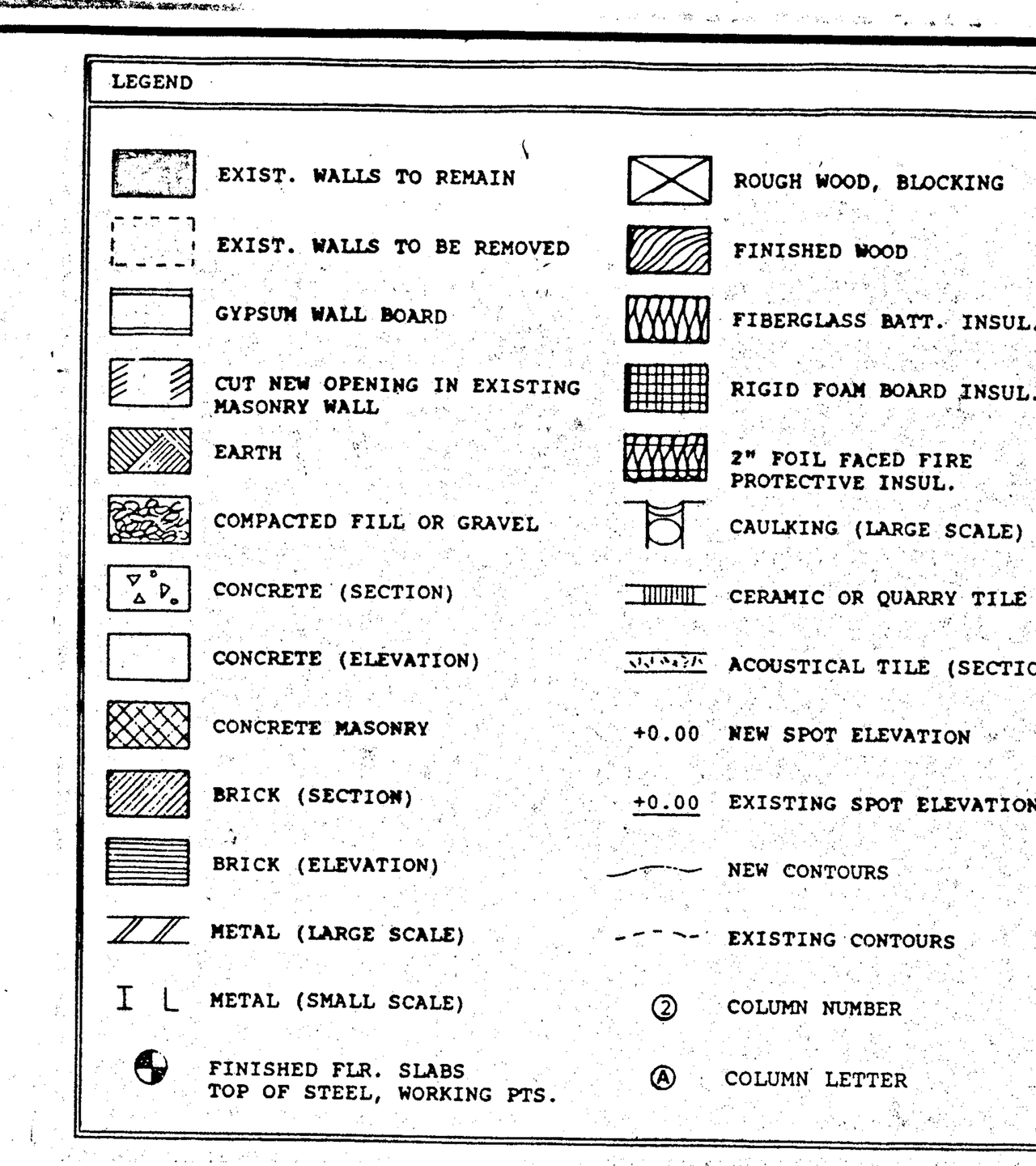
ROGER SHERMAN ELEMENTARY SCHOOL

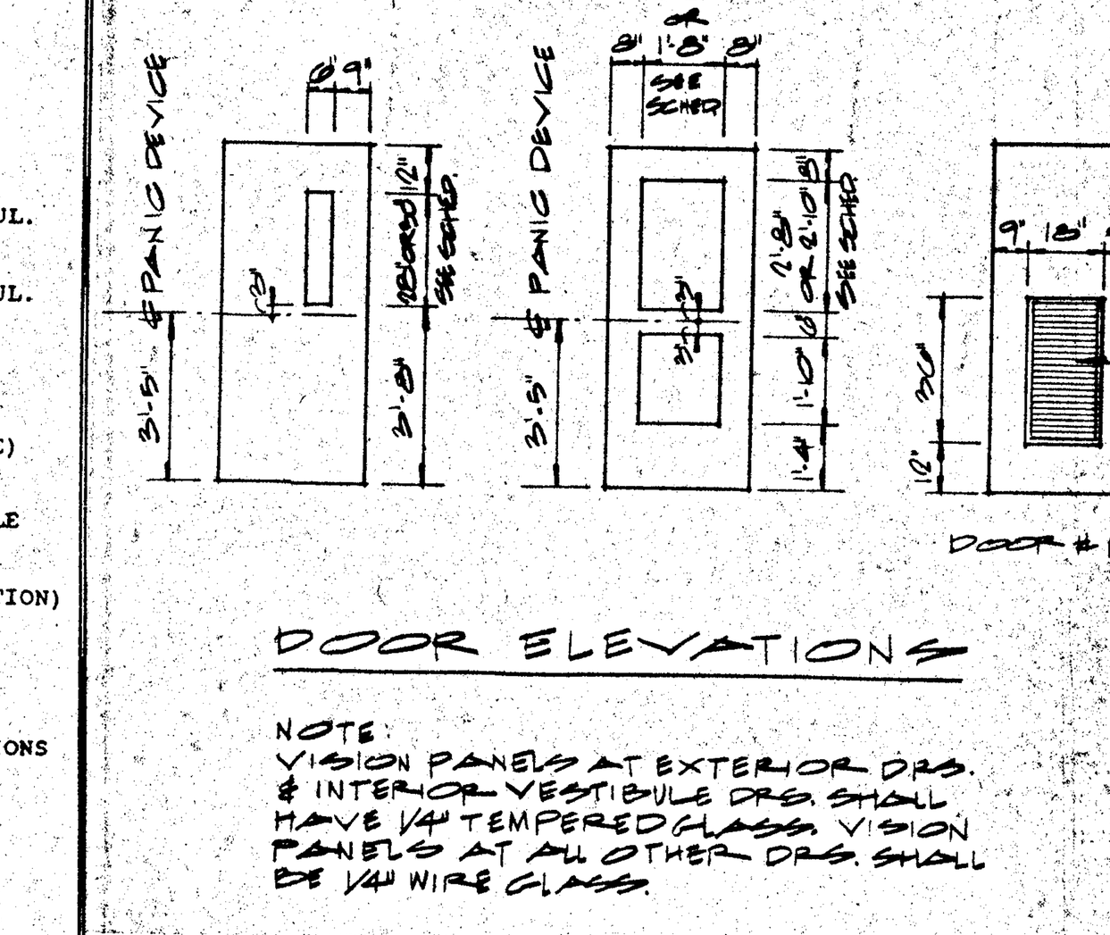
ADDITIONS, ALTERATIONS & CODE COMPLIANCE

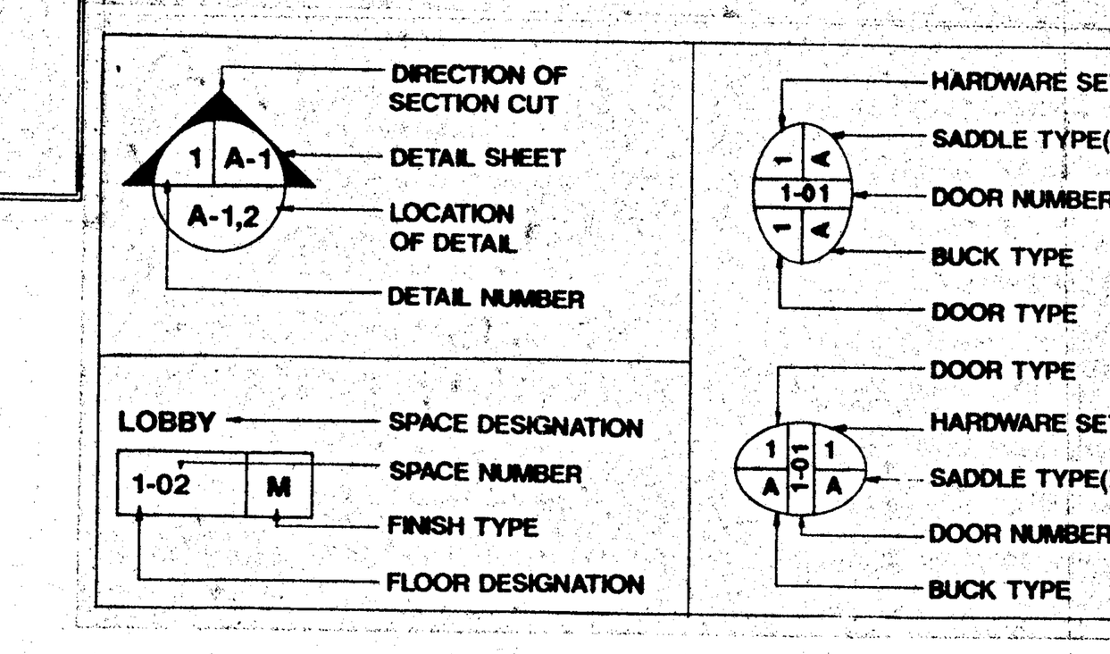
MERIDEN, CONNECTICUT

FIRST FLOOR PLAN

A-6


LEGEND
EXIST. WALLS TO REMAIN
EXIST. WALLS TO BE REMOVED
GYPSUM WALL BOARD
CUT NEW OPENING IN EXISTING MASONRY WALL
EARTH
COMPACTED FILL OR GRAVEL
CONCRETE (SECTION)
CONCRETE (ELEVATION)
CONCRETE MASONRY
BRICK (SECTION)
BRICK (ELEVATION)
METAL (LARGE SCALE)
METAL (SMALL SCALE)
FINISHED FLR. SLABS TOP OF STEEL, WORKING PTS.
ROUGH WOOD, BLOCKING
FINISHED WOOD
FIBERGLASS BATT. INSUL.
RIGID FOAM BOARD INSUL.
2" FOIL FACED FIRE PROTECTIVE INSUL.
CAULKING (LARGE SCALE)
CERAMIC OR QUARRY TILE
ACOUSTICAL TILE (SECTION)
+0.00 NEW SPOT ELEVATION
+0.00 EXISTING SPOT ELEVATIONS
NEW CONTOURS
EXISTING CONTOURS
COLUMN NUMBER
COLUMN LETTER





DOOR SCHEDULE							
TYPE	MAT.	LEAF	WIDTH	HEIGHT	V.P. (WXH)	LABEL	REMARKS
1	H.M.	1	3'- 0"	7'- 0"	----	1HR B	
2 2a 2b	H.M. " "	1 " "	3'- 0" " "	7'- 2" " "	---- ---- ----	--- 1HR B 1 1/2HR B	
3 3a	H.M. "	1 "	3'- 0" "	7'- 2" "	6" x 30" "	--- 45M C	
4	H.M.	1	3'- 0"	7'- 2"	1'-8"x1'-10" 1'-8"x2'-10"	---	
5 5a	H.M. H.M.	1 "	3'- 8" "	7'- 2" "	6" x 30" "	--- 45M C	
6	H.M.	2	2'- 6"	7'- 0"	1'-2"x1'-10" 1'-2"x2'-8"	---	
7 7a	H.M. "	2 "	3'- 0" "	7'- 2" "	---- ----	--- 1HR B	
8	H.M.	2	3'- 0"	7'- 2"	1'-8"x1'-10" 1'-8"x2'-10"	---	
9	WD.	1	2'- 0"	7'- 0"	----	---	
10 10a	WD. "	1 "	2'- 6" "	7'- 0" "	---- ----	--- 1HR B	
11 11a 11b	WD. " "	1 " "	3'- 0" " "	7'-0" " "	---- ---- ----	--- 45M C 1HR B	
12 12a	WD. "	1 "	3'- 0" "	7'- 0" "	6"x 28" "	--- 45M C	
13	WD.	1	3'- 0"	7'- 0"	1'-8"x1'-10" 1'-8"x2'-8"	---	
14 14a 14b	WD. " "	1 " "	3'- 0" " "	7'- 2" " "	---- ---- ----	--- 45M C 1HR B	
15 15a	WD. "	1 "	3'- 0" "	7'- 2" "	6"x 30" "	--- 45M C	
16	WD.	2	2'- 6"	7'- 0"	6"x 28"	45M C	
17	WD.	2	2'- 6"	7'- 0"	1'-8"x1'-10" 1'-8"x2'-8"	---	
18	WD.	2	3'- 0"	7'- 0"	----	1HR B	
19	WD.	2	3'- 0"	7'- 0"	6"x 28"	45M C	
20	WD.	2	4'- 0"	7'- 0"	6"x 28"	45M C	
21	WD.	2	2'- 0"	7'- 2"	----	---	
22	WD.	2	3'- 0"	7'- 2"	6"x 30"	45M C	
23	WD.	2	3'- 0"	7'- 2"	1'-8"x1'-10" 1'-8"x2'-10"	---	
24	WD.	2	3'- 6"	7'- 2"	6"x 30"	45M C	
25	WD.	6	2'- 0"	7'- 2"	----	---	3 DR OPENINGS 2 DRS PER OPN'G
26	H.M.	1	3'- 0"	7'- 2"	----	---	18" x 36" MTL LOUVER IN DOOR SEE ELEVATION

NOTES:
1. VERIFY EXISTING DOOR FRAME SIZES WHERE EXISITING FRAMES ARE TO BE REUSED. VERIFY CUTOUTS.
2. VERIFY EXISTING OPENINGS AND WALL THICKNESS.
3. ALL DOORS SHALL BE 1 3/4" THICK.
4. WHERE DOOR CLOSERS ARE OMITTED PROVIDE EQUIVALENT LABEL CONSTRUCTION
5. "E" DESIGNATES EXISTING DOOR & BUCK TYPES & HARDWARE SET. ALTER & REPAIR DOORS & FRAMES TO RECEIVE NEW HARDWARE & THRESHOLD.

SADDLE TYPES
A - METAL THRESHOLD TYPE A (EXTERIOR DOORS)
B - METAL THRESHOLD TYPE B (INTERIOR DOORS)
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D - METAL CARPET STRIP
E - EXISTING
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G - VINYL REDUCING STRIP

FINISH SCHEDULE					
TYPE	FLOOR	BASE	WALL	CEILING	REMARKS
A	CONC	---	EXP CMU	GWB	2 LAYERS 5/8" GWB ON MTL FRAMING @ OUTDOOR STOR 1-22 CLG. INTEGRAL HARDENER.
A-1	CONC	VINYL	CMU	ACT	INTEGRAL HARDENER ON CONC.
A-2	CONC	VINYL	CMU/ EXIST BRICK OR PLASTER	ACT	FILL EXIST. WINDOW OP'NG @ VEST 1-63 W/ BRICK TO MATCH EXISTING WALL.
B	RESILIENT FLOORING (RESIL)	VINYL	CMU	ACT	
B-1	RESIL	VINYL	CMU/GWB	ACT	GWB ABOVE & BELOW H.M.& GL. VISION PANELS @ WORK 1-94
B-2	RESIL	VINYL	CMU/ EXIST PLASTER AND/OR MASONRY	ACT	CLG @ VLT 1-47 SHALL BE 2 LAYERS OF 5/8" GWB ON MTL FRAMING.
B-3	RESIL	VINYL	GWB/ EXIST PLASTER	ACT	REMOVE SHEET VINYL ON WALLS @ KIND 1-65 & 1-74. PATCH & PAINT WALLS AS REQ'D. SEE FLOOR PLANS FOR CARPET @ FLRS @ KIND 1-65 & 1-74.
B-4	RESIL	VINYL	GWB/ EXIST BRICK	ACT	SEE FLR PLAN FOR CARPET @ FLR @ KIND 1-71.
C	VINYL COMPOSITION TILE (VCT)	VINYL	EXIST PLASTER	ACT	SEE REF CLG PLANS FOR GWB @ CLGS @ CORR 1-54A & 2-11A. RST @ RAMP BETW CORR 1-61 & CORR 1-64.
C-1	VCT	VINYL	CMU	ACT	
C-2	VCT	VINYL	BRICK/ EXIST BRICK	ACT	
C-3	VCT	VINYL	BRICK	ACT	
D	ENTRY MAT	VINYL	BRICK/ EXIST BRICK	ACT	
D-1	ENTRY MAT	VINYL	CMU	ACT	
D-2	ENTRY MAT	EXIST TILE	EXIST TILE/ EXIST PLASTER	ACT	FILL MAT SINKAGE IN EXIST VESTIBULE FLOORS TO RECEIVE NEW ENTRY MAT.
E	RUBBER STUDDED TILE (RST)	VINYL	CMU	ACT	CLG @ FIRST FLOOR OF STAIR CORE SHALL BE EXPOSED STAIR CONSTRUCTION. ACT CLG @ SECOND FLOOR.
E-1	RST	VINYL	BRICK/ EXIST BRICK	ACT	SEE NOTE ABOVE
F	CARPET	VINYL	CMU	ACT	SEE REF CLG PLANS FOR GWB CLG @ LIBRARY 1-97, CORR 1-88 & CORR 2-27. GWB CLGS. @ BUILT-IN CLOSETS @ NEW CLASSROOMS. GWB WALLS ABOVE & AROUND CLOSET DOORS.
F-1	CARPET	VINYL	GWB/ EXIST PLASTER	ACT	GWB WALLS @ CONF 2-32. SEE REF CLG PLAN FOR GWB CLG. COVES @ CONF 2-32
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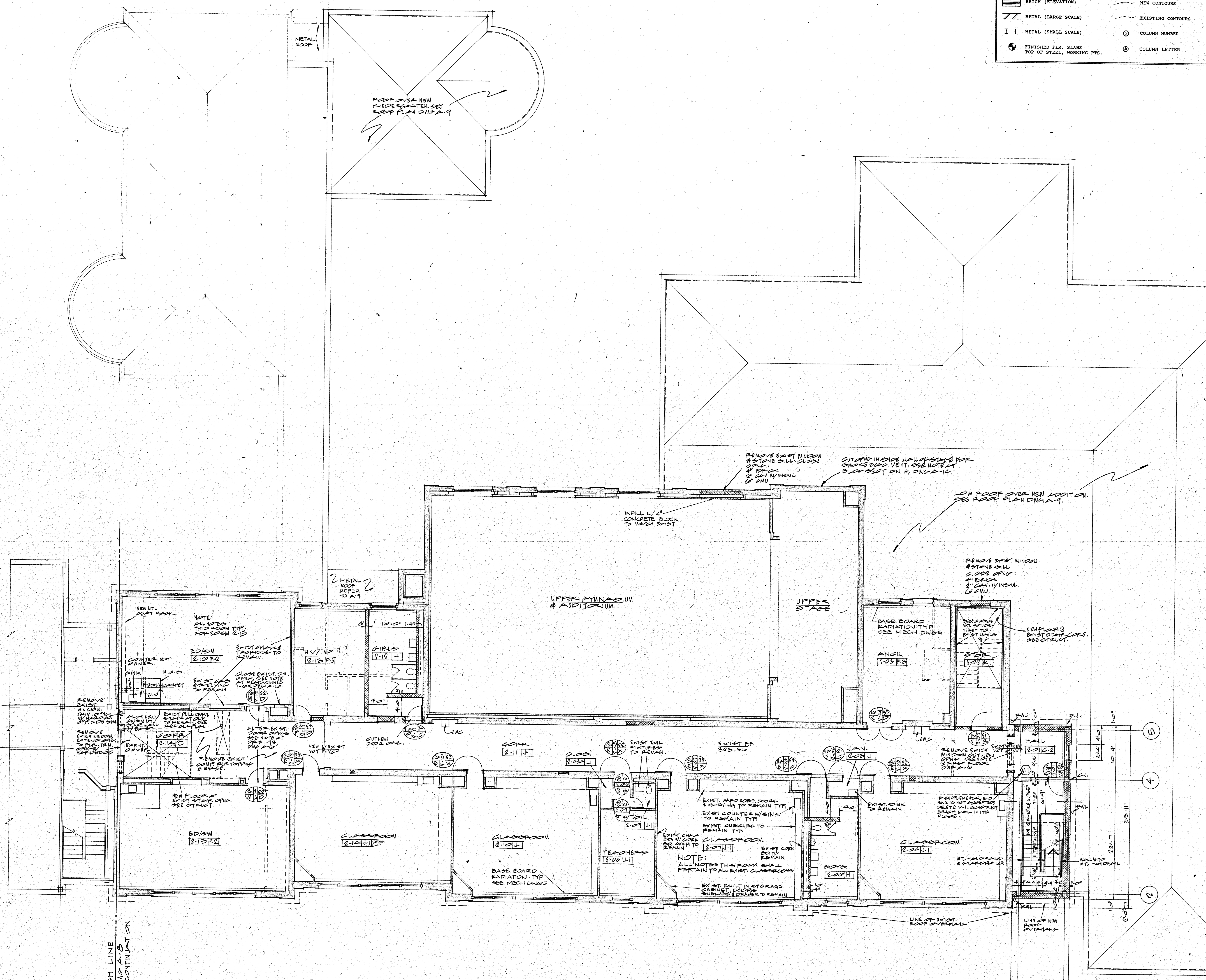
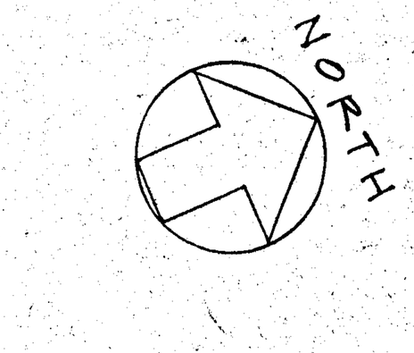
F-4	CARPET	VINYL	BRICK/ EXIST BRICK	ACT	
G	QUARRY TILE (Q.T.)	Q.T.	CMU	ACT	SEE REF CLG PLAN FOR GWB @ CAFETERIA 1-20 CLG.
G-1	Q.T.	Q.T.	SPRAY-GLAZE	ACT	GWB WALLS ABOVE WALK-IN FREEZER & REFRIG @ KITCHEN 1-23
H	CERAMIC TILE (C.T.)	C.T.	C.T.	ACT	
J	EXIST	EXIST	EXIST	EXIST	REFINISH EXIST WOOD STAGE FLOOR.
J-1	EXIST	EXIST	EXIST	ACT	AT AUD/GYM 1-41: SPRAY GLAZE ON EXIST EXPOSED CMU WALLS. REFINISH EXIST WOOD FLOOR.

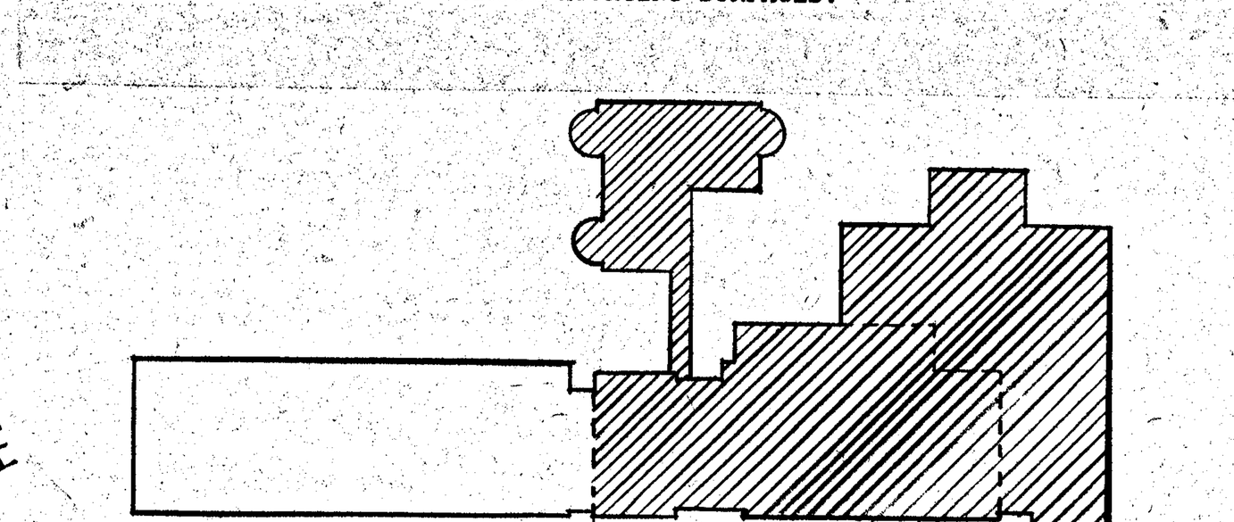
1. USE SMOOTH FACED ACOUSTICAL TILE IN TOILETS, KITCHEN AND OTHER HIGH HUMIDITY AREAS.
2. PAINT NEW AND EXISTING CONSTRUCTION INCLUDING ALL FERROUS METALS, DUCTWORK, PIPING AND PIPE INSULATION, CONDUITS, EQUIPMENT AND INCIDENTAL SUPPORTS AND HANGERS. SEE SPECIFICATIONS FOR DETAILED PAINTING REQUIREMENTS.
3. PAINT ALL EXPOSED CMU AND GWB UNLESS NOTED OTHERWISE.
4. PAINT ALL EXISTING EXPOSED PLASTER UNLESS NOTED OTHERWISE.
5. PAINT ALL EXPOSED WOOD TRIM @ RATED SPACES.
6. PATCH AND/OR REPAIR ALL EXISTING SURFACES AFFECTED BY DEMOLITION OR NEW CONSTRUCTION TO MATCH ADJACENT SURFACES.



GENERAL NOTE:
FIN. FLOOR ELEVATIONS ON FLOOR PLANS ARE BASED ON FIN. FLOOR ELEVATIONS ON SITE SURVEY. FIELD VERIFY ALL EXISTING ELEVATIONS. ADJUST TOP OF CONC FLR SLAB ELEVATIONS AT NEW ADDITIONS TO ACCOMODATE FLOOR FINISHES. FIN FLOOR ELEVATIONS AT NEW ADDITIONS SHALL MATCH ADJACENT EXIST. FIN. FLOOR ELEVATIONS.

NOTES:
1. REMOVE ALL DOOR HOLD OPEN DEVICES AT EXISTING DOORS
2. COVER ALL EXISTING DOOR TRANSOMS W/ 1 LAYER 5/8" GWB AT EACH SIDE.
3. EXISTING CABINETS, WARDROBE CLOSET DRS, COUNTERS AND ALL BUILT-IN ITEMS TO REMAIN SHALL BE CLEANED & WIPED W/ DENATURED ALCOHOL, SANDED W/ FINE SANDPAPER OR STEEL WOOL, CRACKS AND DENTS FILLED W/ PLASTIC CELLULOSE FILLER, AND THEN PAINTED OR STAINED TO MATCH ORIGINAL CONDITION. ADJUST & REPLACE ALL OPERABLE PARTS & HARDWARE AS REQUIRED. REMOVE EXIST. LINOLEUM FROM ALL COUNTERTOPS & INSTALL NEW LAMINATED PLASTIC W/ HALF ROUND HARDWOOD APRON OR EDGING. COORDINATE CUTOUTS W/ INSTALLATION OF SELF RIMMING SINKS.





SECOND FLOOR KEY PLAN
NO SCALE

revisions
no. date description

drawn NMP, PJP
checked DC
approved PEP
scale 1/8"=1'-0"
date 1/25/89

CARLIN·POZZI·CHIN ARCHITECTS, P.C.
THREE LINCOLN STREET
NEW HAVEN, CONNECTICUT

ROGER SHERMAN ELEMENTARY SCHOOL
ADDITIONS, ALTERATIONS & CODE COMPLIANCE
MERIDEN, CONNECTICUT

SECOND FLOOR PLAN

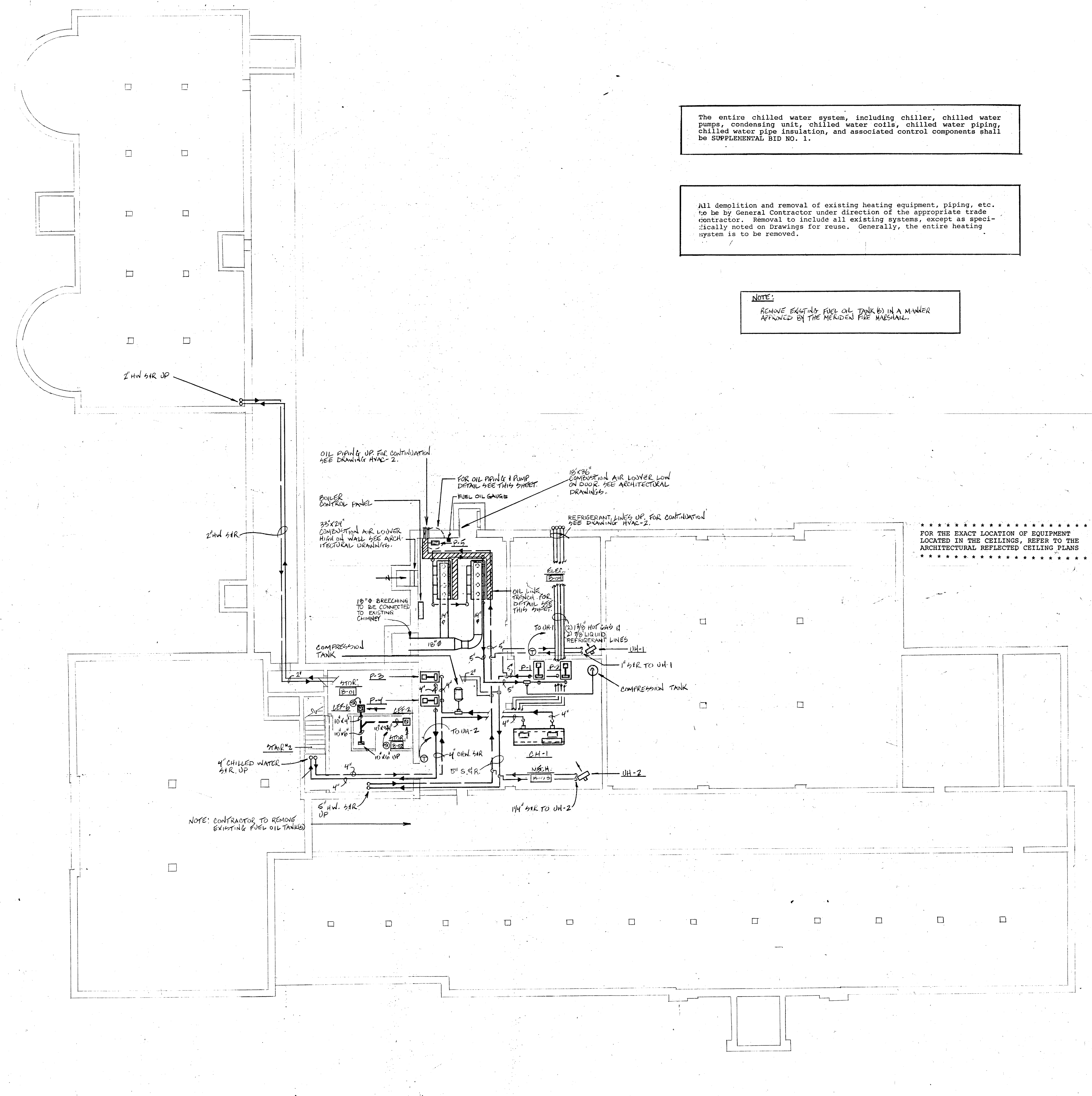
drawing no.
A-7

The entire chilled water system, including chiller, chilled water pumps, condensing unit, chilled water coils, chilled water piping, chilled water pipe insulation, and associated control components shall be SUPPLEMENTAL BID NO. 1.

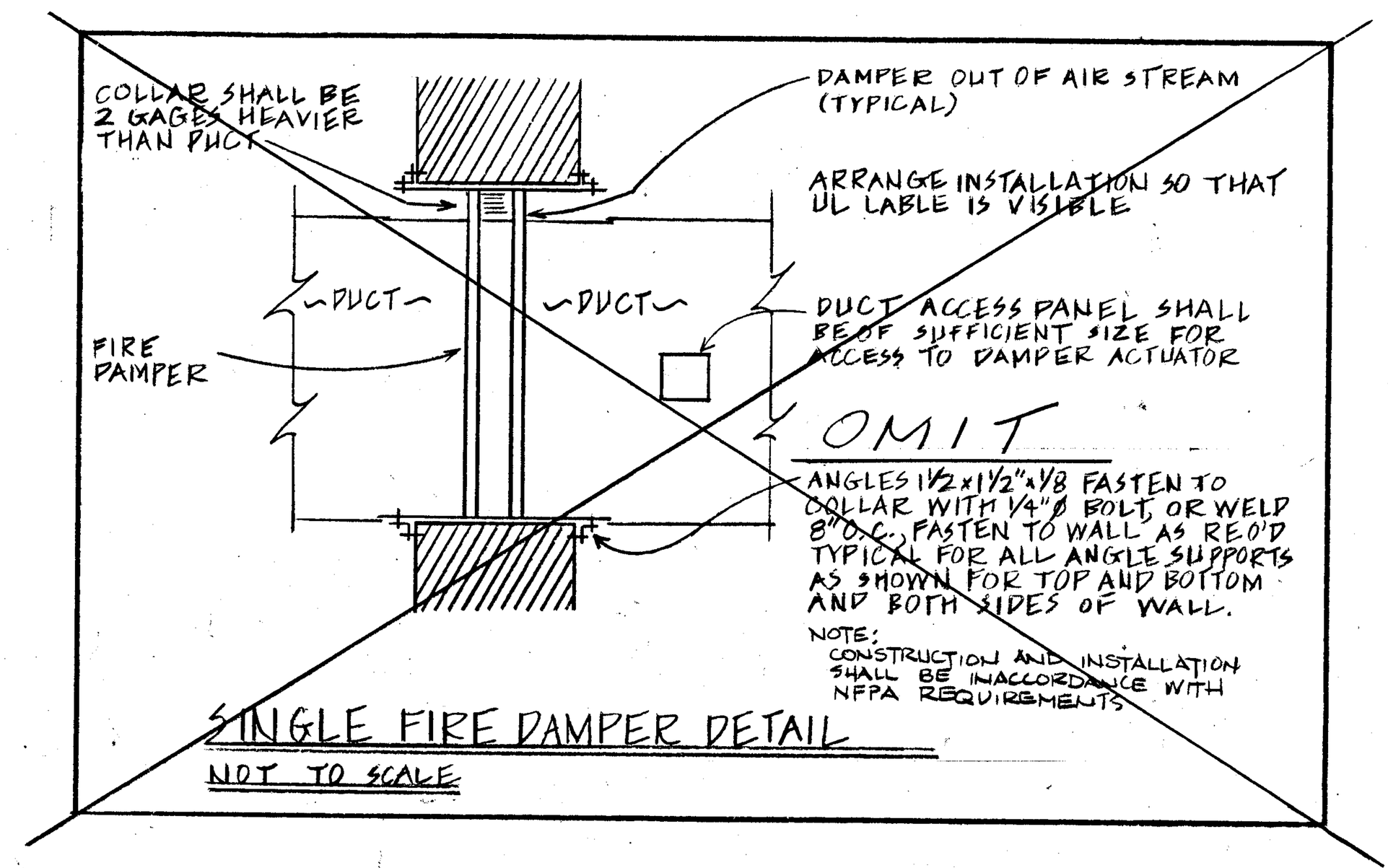
All demolition and removal of existing heating equipment, piping, etc. to be by General Contractor under direction of the appropriate trade contractor. Removal to include all existing systems, except as specifically noted on Drawings for reuse. Generally, the entire heating system is to be removed.

NOTE:
REMOVE EXISTING FUEL OIL TANK(S) IN A MANNER APPROVED BY THE MERIDEN FIRE MARSHALL.

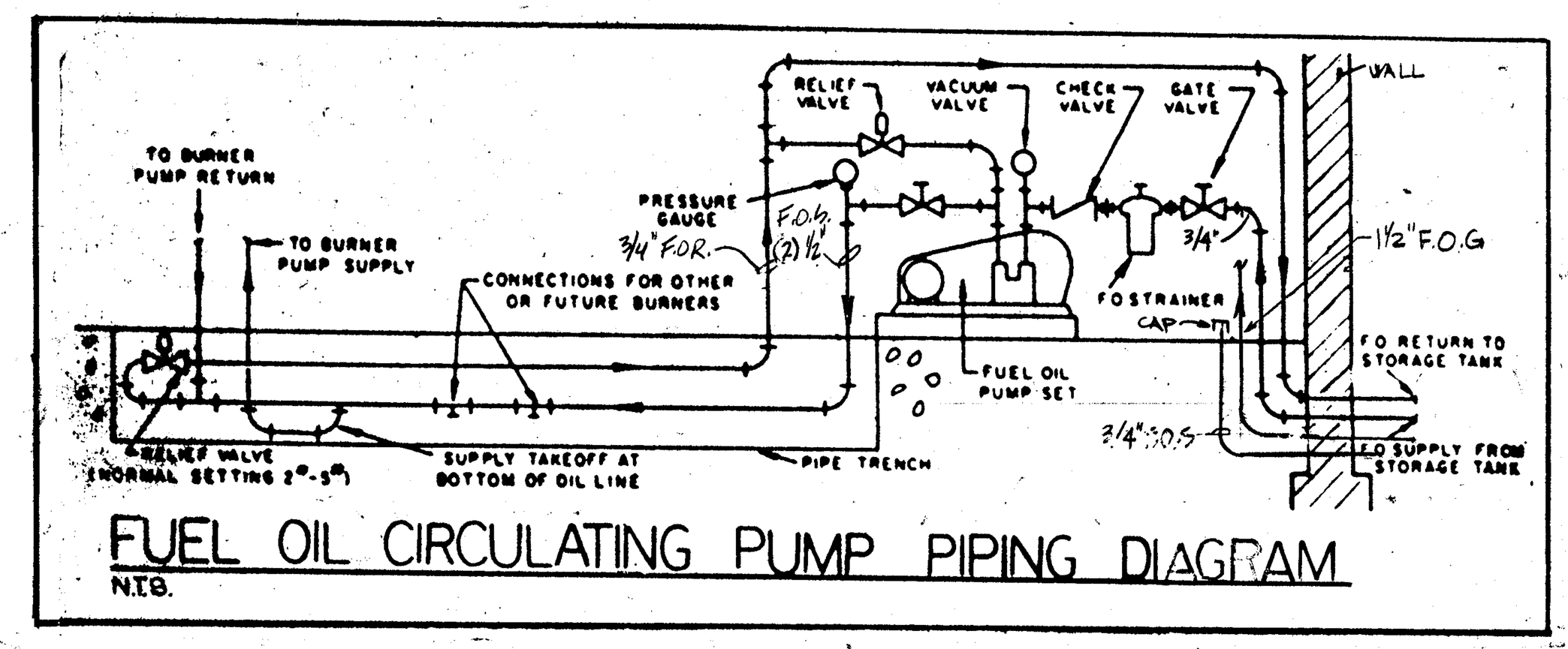
FOR THE EXACT LOCATION OF EQUIPMENT LOCATED IN THE CEILINGS, REFER TO THE ARCHITECTURAL REFLECTED CEILING PLANS



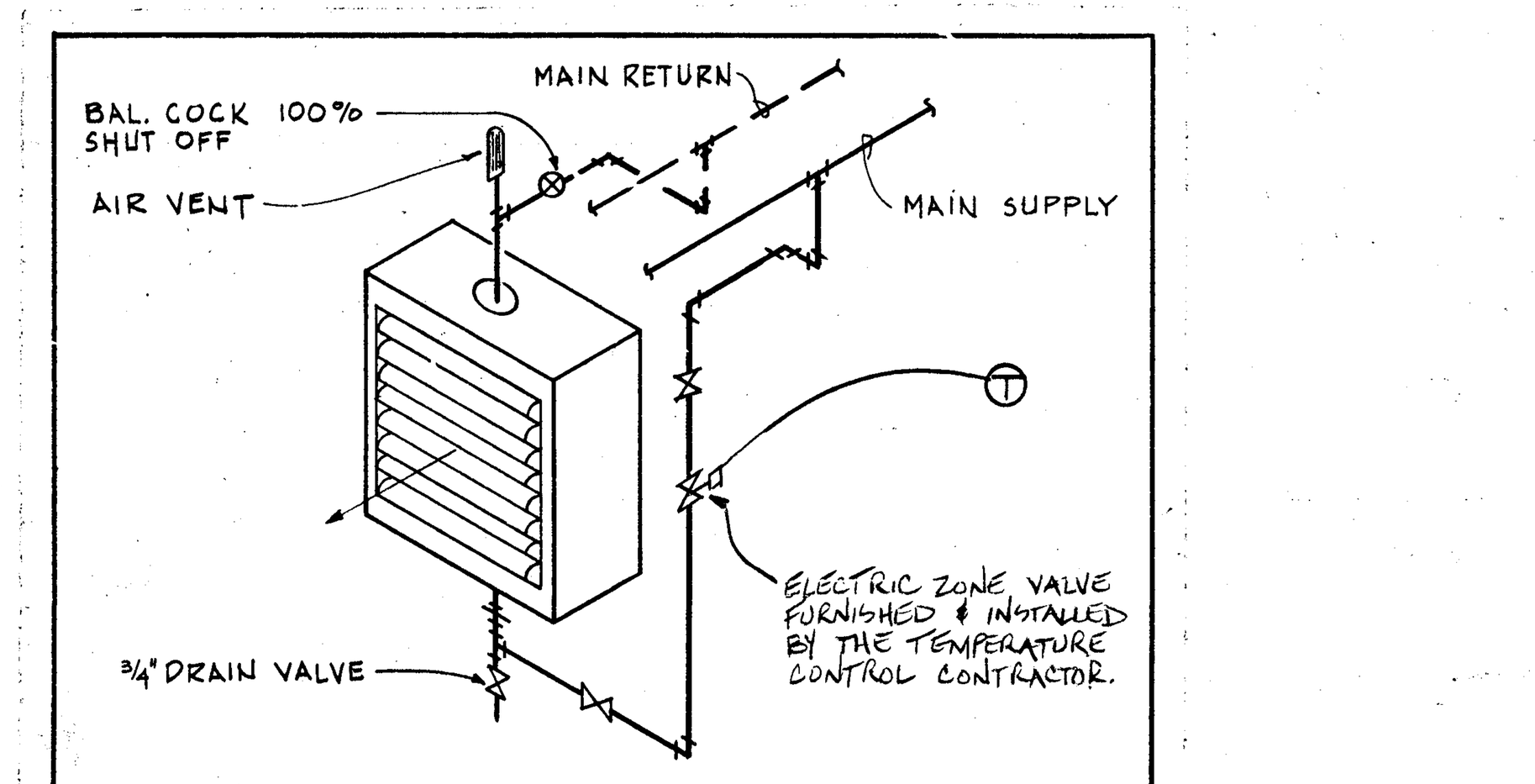
BASEMENT FLOOR PLAN
SCALE: 1/8" = 1'-0"



SINGLE FIRE DAMPER DETAIL
NOT TO SCALE



FUEL OIL CIRCULATING PUMP PIPING DIAGRAM
N.T.S.



TYPICAL UNIT HEATER PIPING DETAIL
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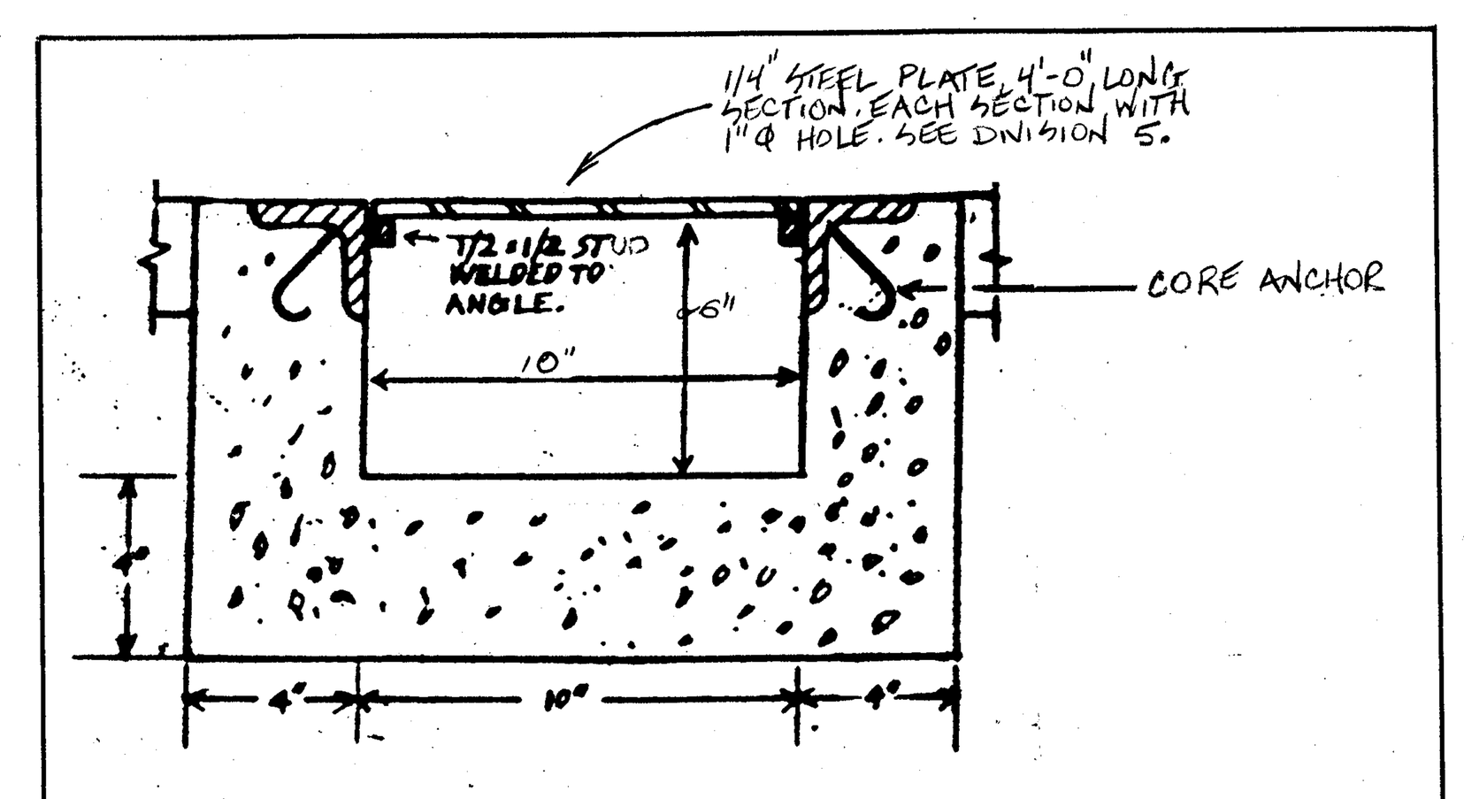
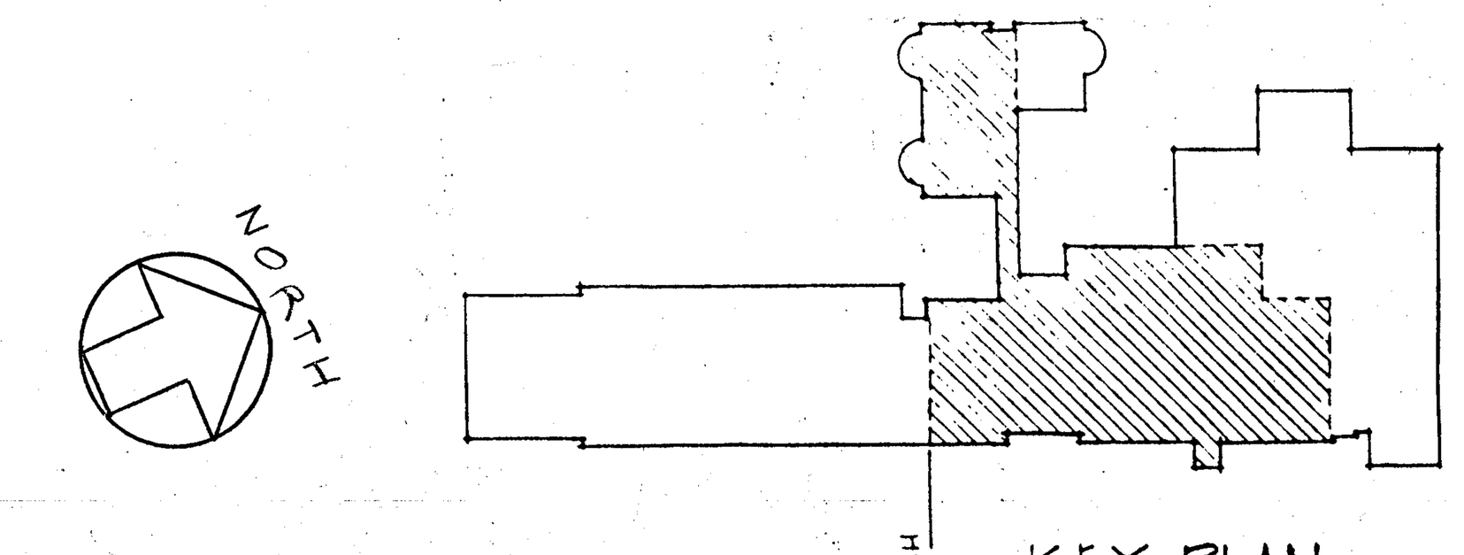


TRENCH DETAIL
N.T.S.

LEGEND

SYMBOL	DESCRIPTION
F.O.V.	FUEL OIL VENT
F.O.S.	FUEL OIL SUPPLY
F.O.R.	FUEL OIL RETURN
F.O.G.	FUEL OIL GAUGE



KEY PLAN
NO SCALE

revisions
no. date description

drawn
checked
approved
scale 1/8" = 1'-0"
date 1-25-1989

CARLIN·POZZI·CHIN ARCHITECTS, P.C.
THREE LINCOLN STREET
NEW HAVEN, CONNECTICUT

D. C. ALLEN, INC.
consulting engineers
800 cottage grove road
bloomfield, ct 06002

ROGER SHERMAN ELEMENTARY SCHOOL
ADDITIONS, ALTERATIONS & CODE COMPLIANCE
MERIDEN, CONNECTICUT

BASEMENT FLOOR PLAN

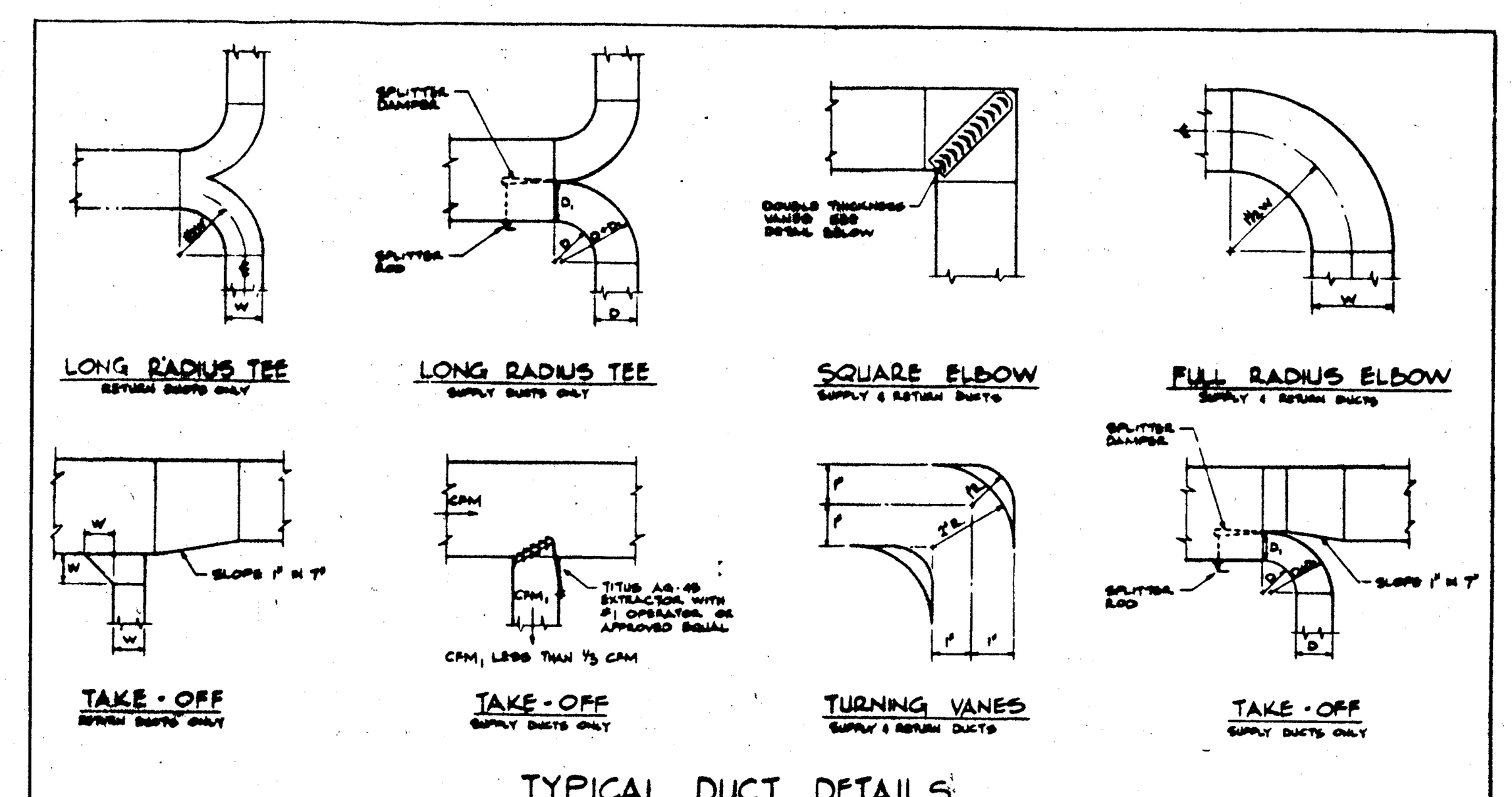
drawing no.
HVAC-1

All demolition and removal of existing heating equipment, piping, etc. to be by General Contractor under direction of the appropriate trade contractor. Removal to include all existing systems, except as specifically noted on Drawings for reuse. Generally, the entire heating system is to be removed.

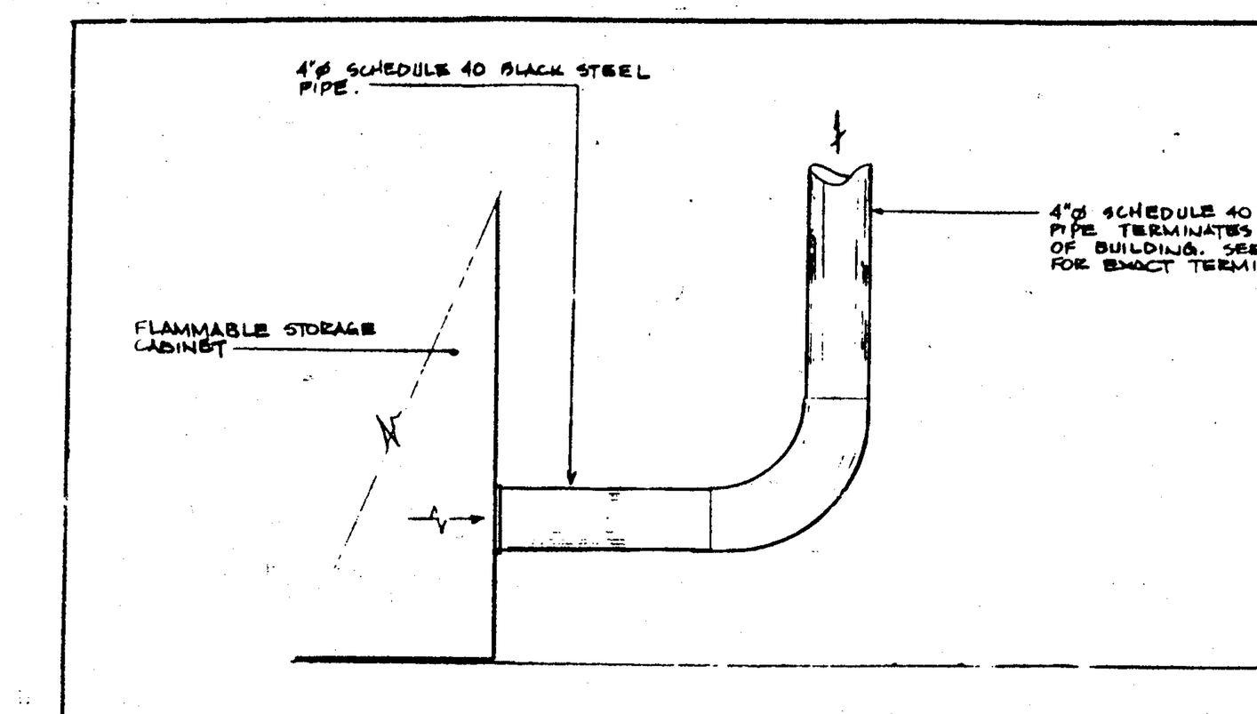
NOTE:
REMOVE EXISTING FUEL OIL TANK(S) IN A MANNER APPROVED BY THE MERIDEN FIRE MARSHALL.

The entire chilled water system, including chiller, chilled water pumps, condensing unit, chilled water coils, chilled water piping, chilled water pipe insulation, and associated control components shall be SUPPLEMENTAL BID NO. 1.

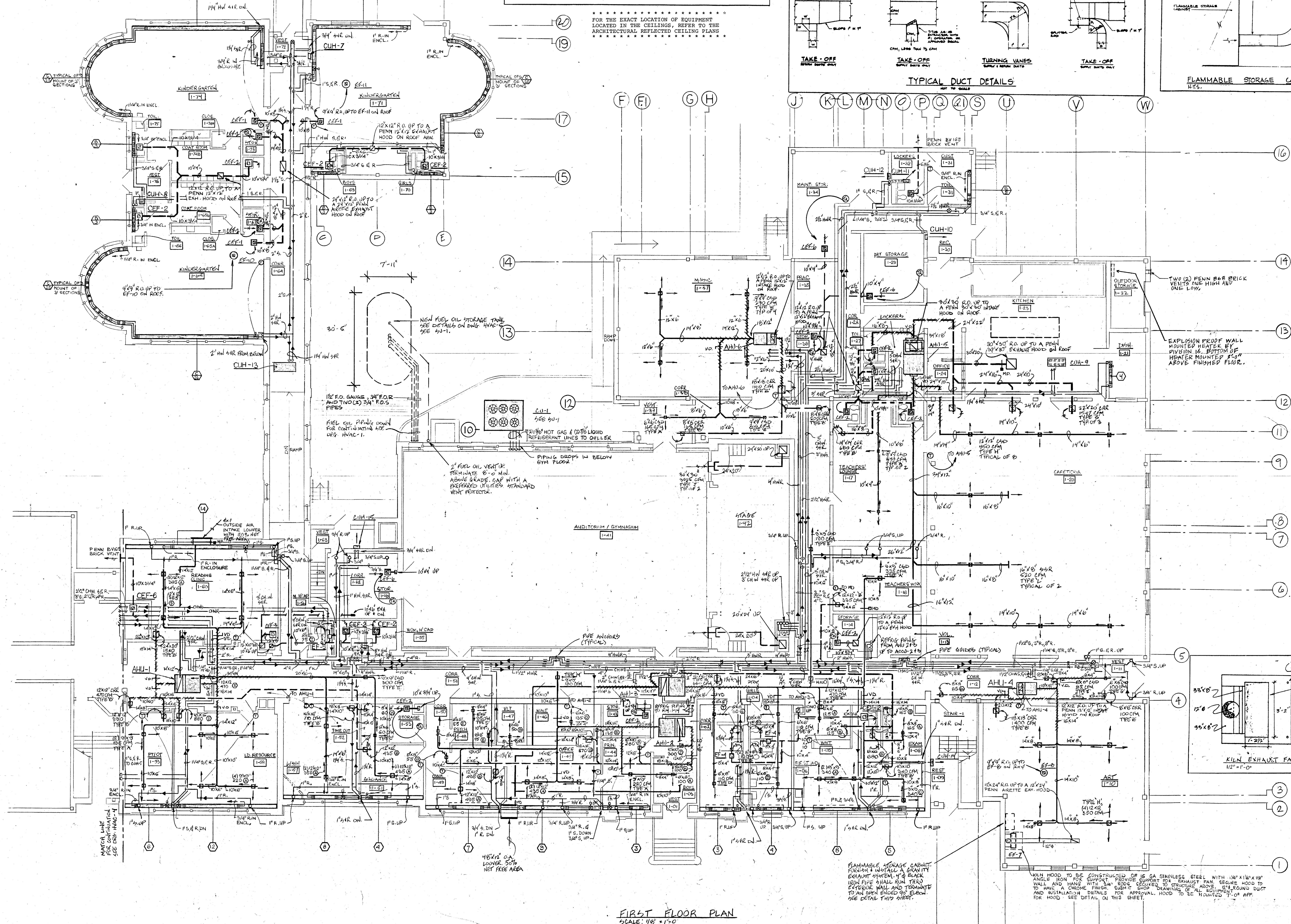
* * * * * * * * * * * * * * * * * * * *
FOR THE EXACT LOCATION OF EQUIPMENT LOCATED IN THE CEILINGS, REFER TO THE ARCHITECTURAL REFLECTED CEILING PLANS
* * * * * * * * * * * * * * * * * * * *



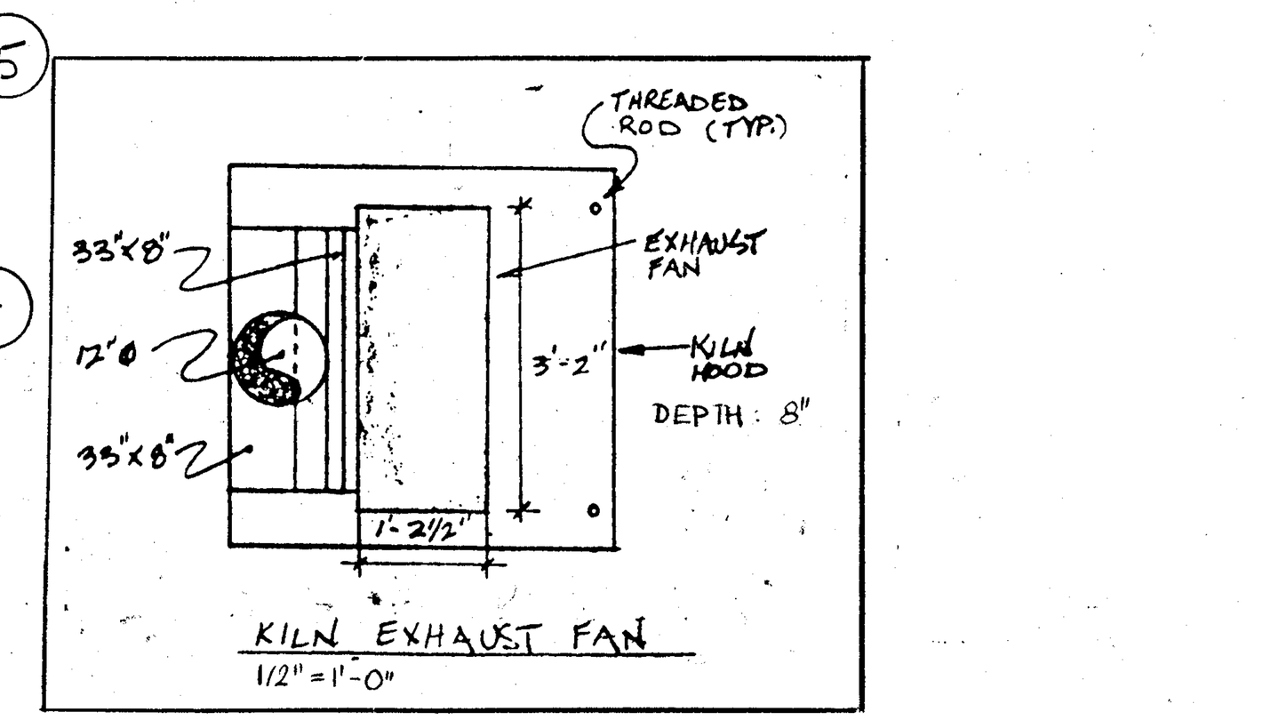
TYPICAL DUCT DETAILS



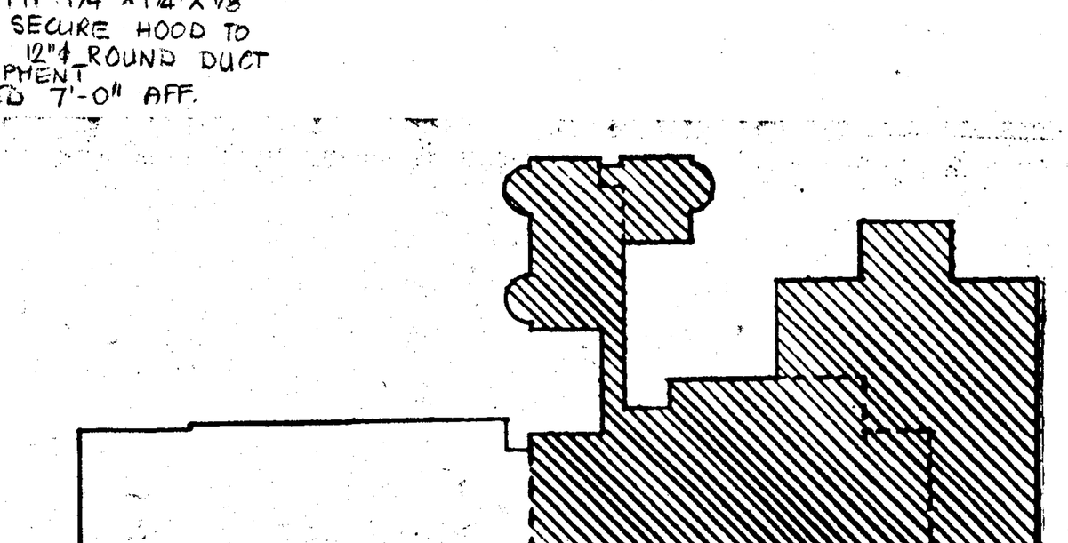
FLAMMABLE STORAGE CABINET EXHAUST DETAIL
N.T.S.



FIRST FLOOR PLAN
SCALE: 1/8" = 1'-0"



KILN EXHAUST FAN
1/2" = 1'-0"



FIRST FLOOR
KEY PLAN
NO SCALE

revisions	
no.	date description

drawn S.G. | checked AY | approved | scale 1/8" = 1'-0" | date 1-25-1989

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ADDITIONS, ALTERATIONS & CODE COMPLIANCE
MERIDEN, CONNECTICUT

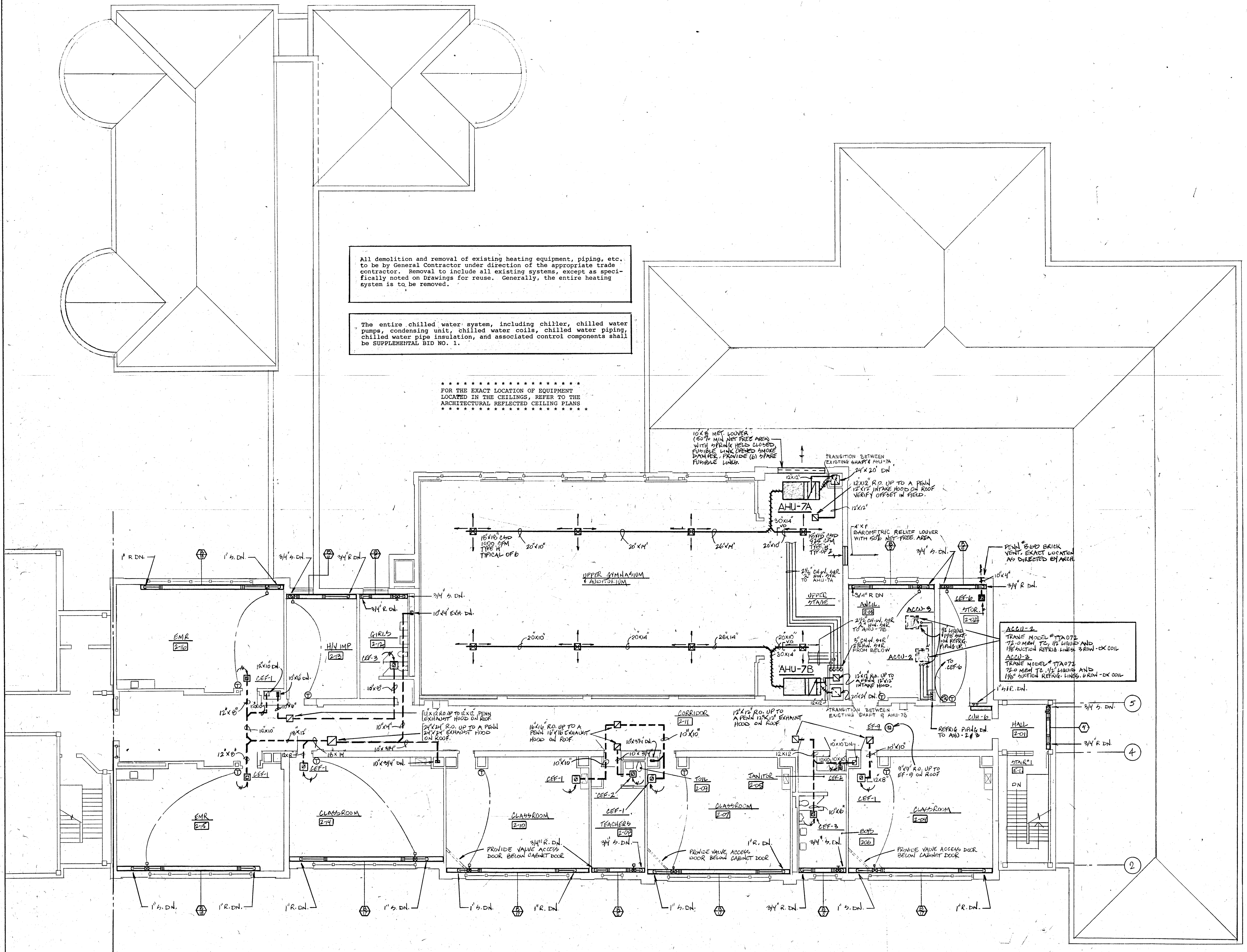
FIRST FLOOR PLAN

drawing no.
HVAC-2

All demolition and removal of existing heating equipment, piping, etc. to be by General Contractor under direction of the appropriate trade contractor. Removal to include all existing systems, except as specifically noted on Drawings for reuse. Generally, the entire heating system is to be removed.

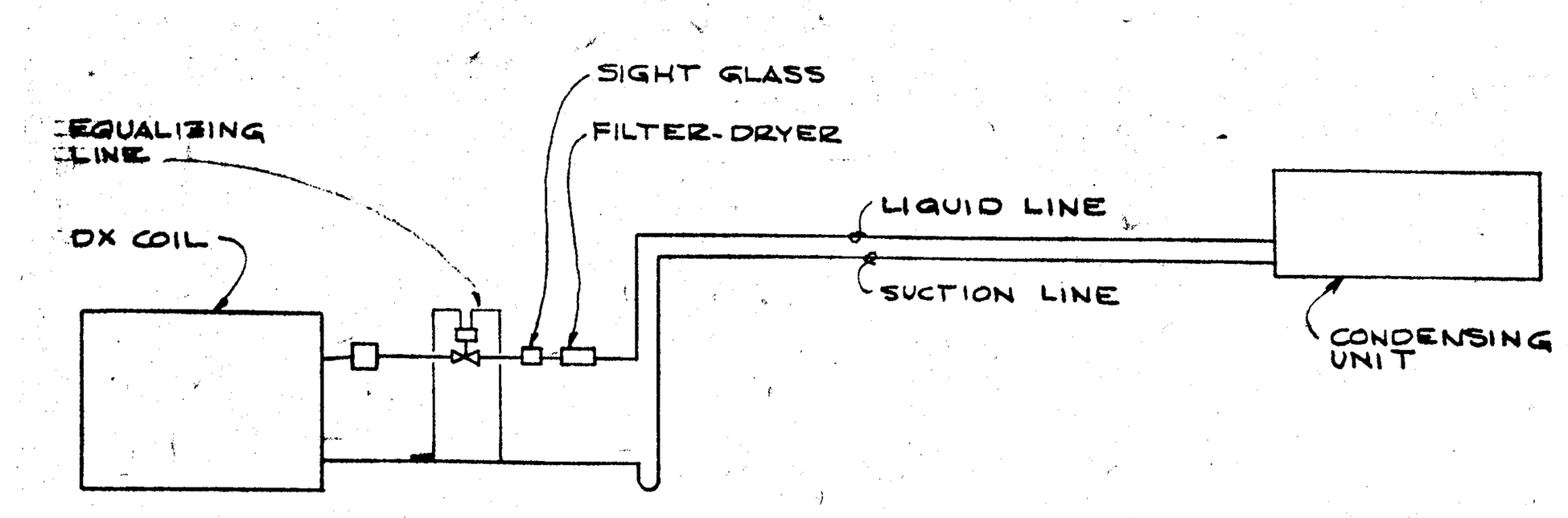
The entire chilled water system, including chiller, chilled water pumps, condensing unit, chilled water coils, chilled water piping, chilled water pipe insulation, and associated control components shall be SUPPLEMENTAL BID NO. 1.

* *
FOR THE EXACT LOCATION OF EQUIPMENT LOCATED IN THE CEILINGS, REFER TO THE ARCHITECTURAL REFLECTED CEILING PLANS
* *

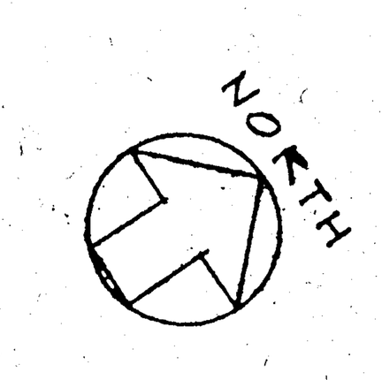


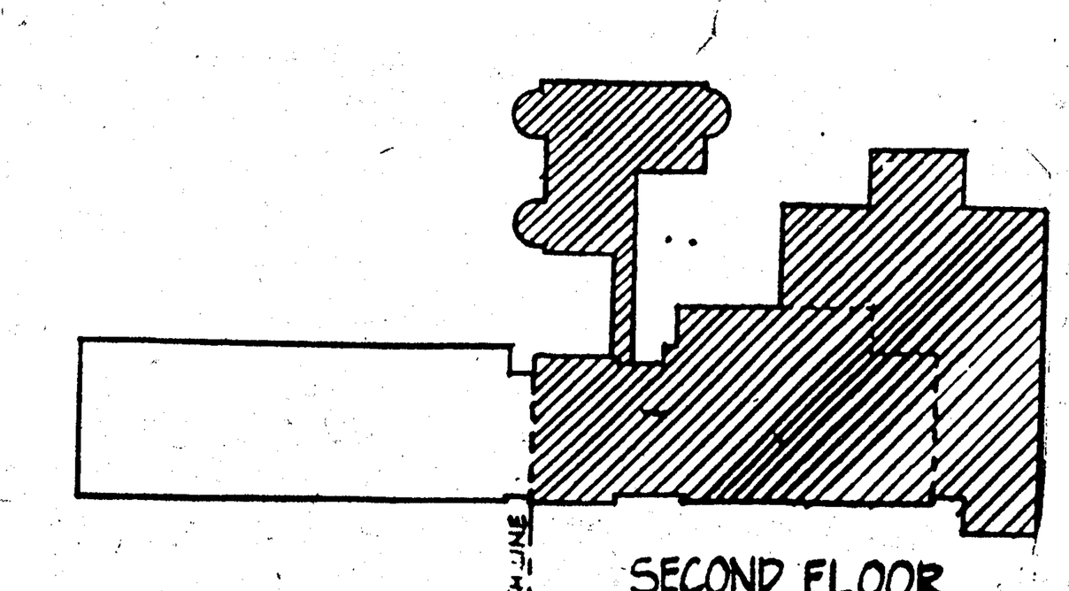
SECOND FLOOR PLAN
SCALE: 1/8" = 1'-0"

DX PIPE SCHEDULE		
UNIT No.	SUCTION	LIQUID
ACCU-2	1 1/8"	1/2"
ACCU-3	1 1/8"	1/2"



REFRIGERANT PIPING DETAIL
N.T.S.





SECOND FLOOR KEY PLAN
NO SCALE

revisions
no. date description

scale 1/8" = 1'-0"
date 1-25-89

drawn D.T.
checked A.Y.
approved D.C.A.

CARLIN·POZZI·CHIN ARCHITECTS, P.C.
THREE LINCOLN STREET
NEW HAVEN, CONNECTICUT

D. C. ALLEN, INC.
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800 cottage grove road
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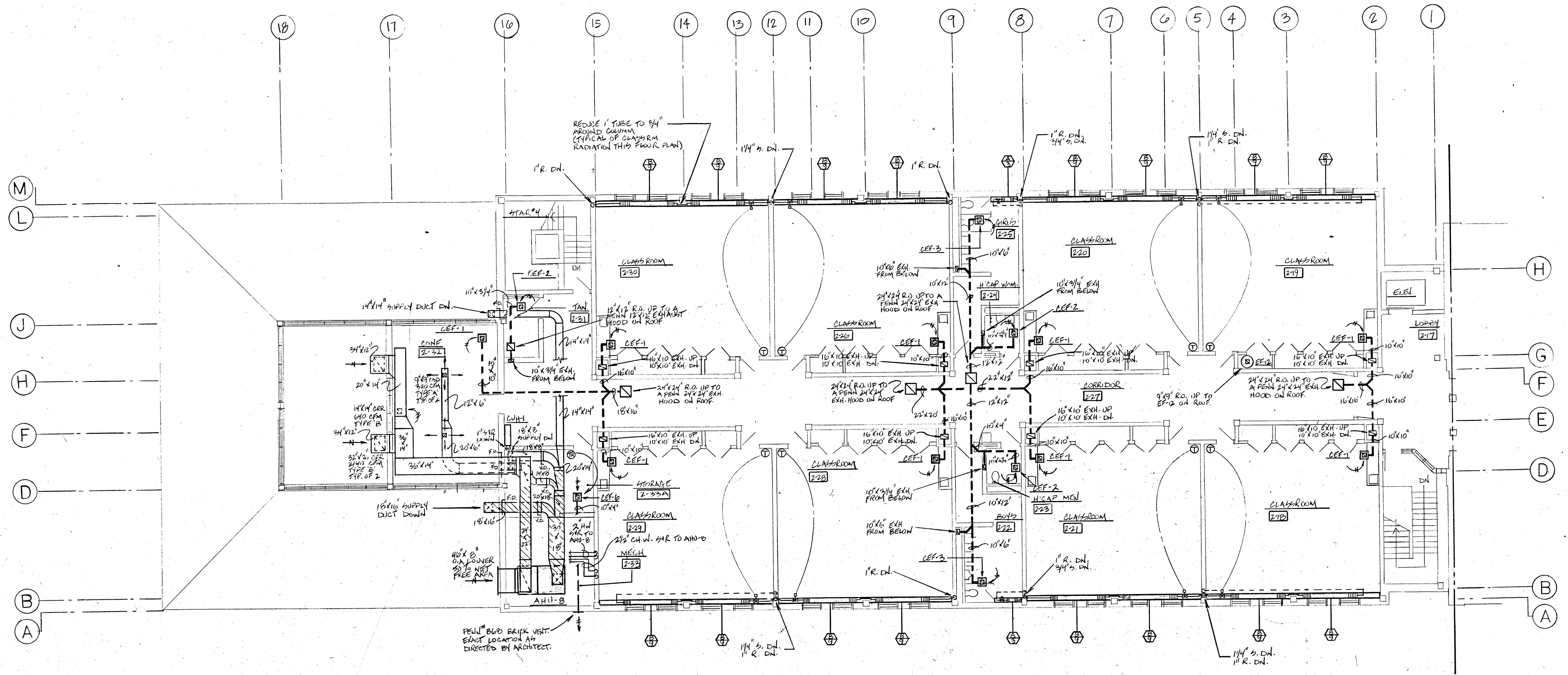
ROGER SHERMAN ELEMENTARY SCHOOL
ADDITIONS, ALTERATIONS & CODE COMPLIANCE
MERIDEN, CONNECTICUT

SECOND FLOOR PLAN

drawing no.
HVAC-3

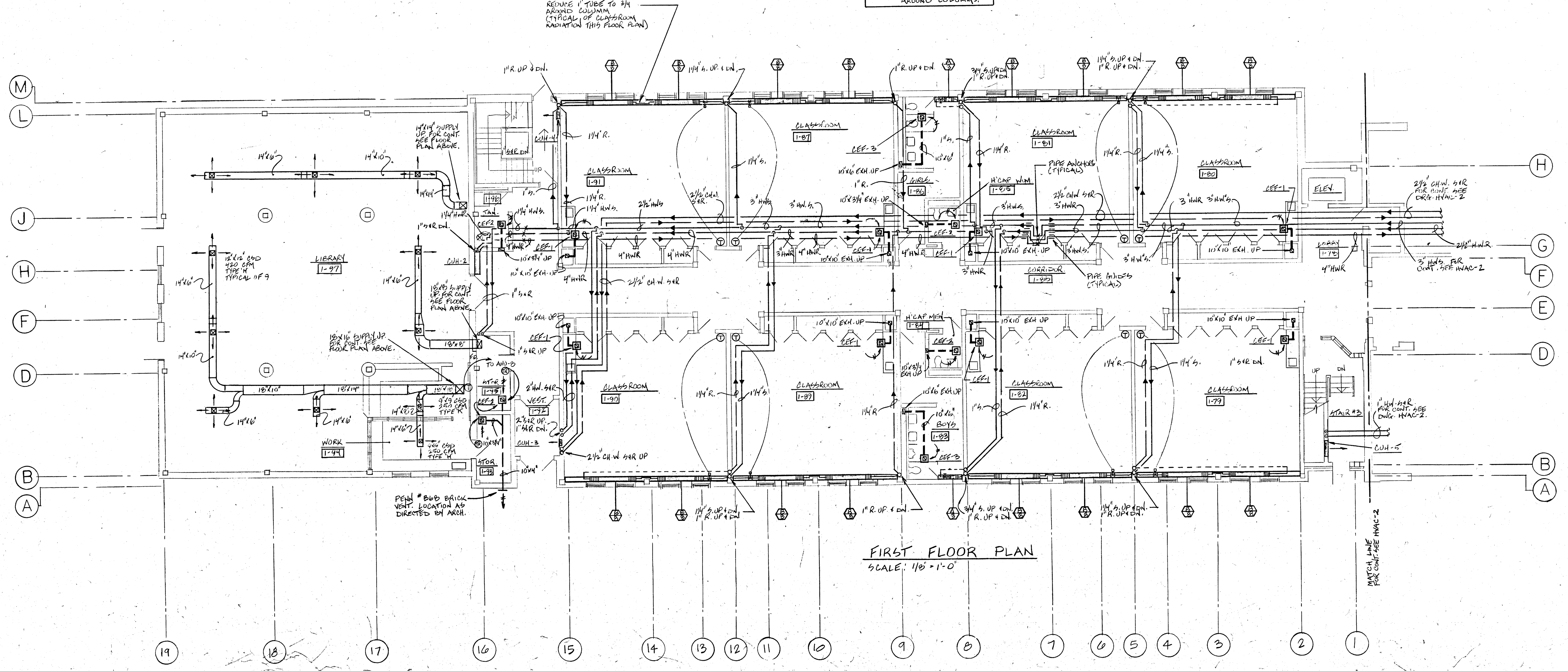


SECOND FLOOR PLAN
SCALE: 1/8" = 1'-0"

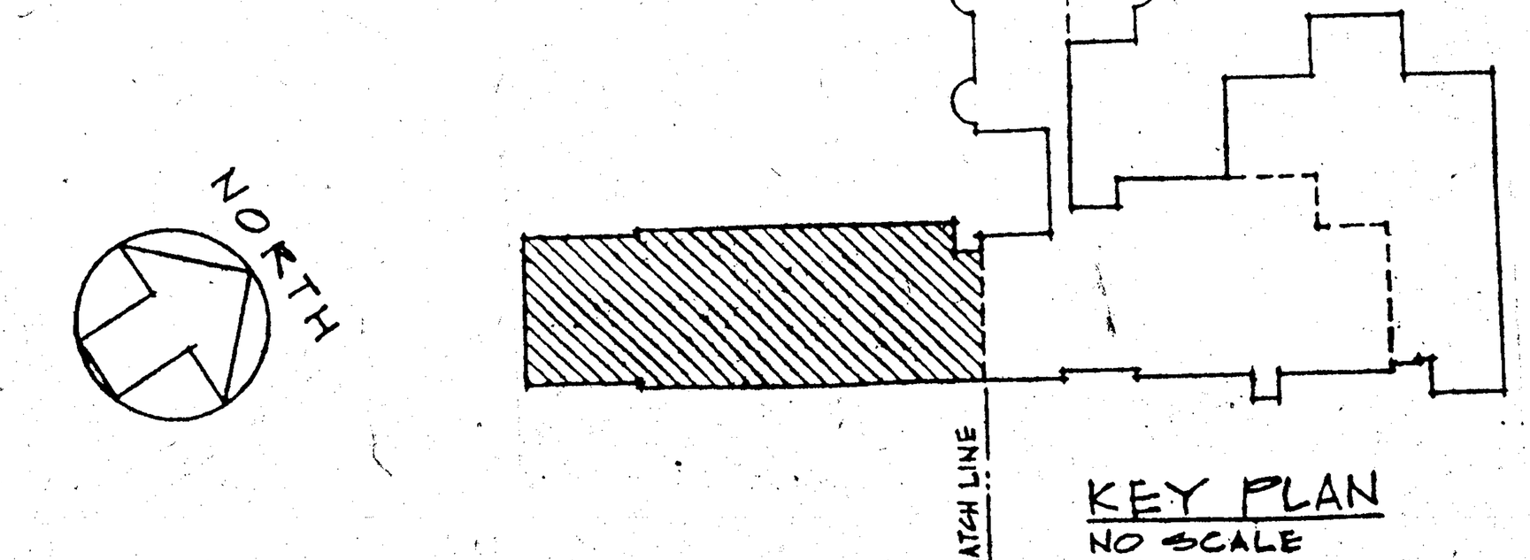
The entire chilled water system, including chiller, chilled water pumps, condensing unit, chilled water coils, chilled water piping, chilled water pipe insulation, and associated control components shall be SUPPLEMENTAL BID NO. 1.

* *
FOR THE EXACT/LOCATION OF EQUIPMENT LOCATED IN THE CEILINGS, REFER TO THE ARCHITECTURAL REFLECTED CEILING PLANS
* *

NOTE: RADIATION SHALL BE FIELD CUT & PAINTED AROUND COLUMNS.



FIRST FLOOR PLAN
SCALE: 1/8" = 1'-0"



KEY PLAN
NO SCALE

revisions		
no.	date	description

drawn D.T. checked A.Y. approved D.C.A.
scale 1/8" = 1'-0"
date 1-25-89

CARLIN·POZZI·CHIN ARCHITECTS, P.C.
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ROGER SHERMAN ELEMENTARY SCHOOL
ADDITIONS, ALTERATIONS & CODE COMPLIANCE
MERIDEN, CONNECTICUT

CLASSROOM ADDITION
FIRST & SECOND FLOOR

drawing no. HVAC-4

AIR HANDLING UNIT SCHEDULE

		BLOWER			FAN MOTOR			COOLING									CHILLED WATER				REFRIGERANT		HEATING						HOT WATER						
	MANUFACTURER & MODEL	SUPPLY CFM	E.S.P.	O.A. CFM	V-PH-HZ	HP	RPM	TOTAL COOLING (BTUH)	COIL TYPE	EAT (°F) DB	EAT (°F) WB	LAT (°F) DB	LAT (°F) WB	COIL FPF/TYPE	COIL ROWS	APD	GPM	EWT (°F)	LWT (°F)	WPD	TYPE	SUCTION TEMP.	HEATING CAPACITY (BTUH)	EAT (°F)	LAT (°F)	COIL FPF/TYPE	COIL ROWS	APD	GPM	EWT (°F)	LWT (°F)	WPD	AREA SERVED	T.S.P	REMARKS
AHU-1	TRANE SIZE # 10A	4785	.500"	860	208-3-60	2.0	680	142,000	WL	80°	67°	59.2	57.7	110 DF	4	.450"	28.4	45°	55°	3.3'	—	—	171,200	57°	90°	117 PF	1	.13"	17.1	180°	160°	.4'	READ. CLINIC, OFFICES	1.28"	HOT WATER COIL TYPE WC
AHU-2	TRANE SIZE # 6A	2210	.500"	315	208-3-60	1.0	810	63,000	WL	80°	67°	58.3	57.4	124 DF	4	.300"	12.6	45°	55°	1.0'	—	—	73,300	60°	90°	80 SF	1	.08"	7.3	180°	160°	.4'	OFFICES	1.08"	↓
AHU-3	TRANE SIZE # 6A	2730	.600"	360	208-3-60	1.5	915	71,300	WL	80°	66°	58.6	57.6	129 DF	4	.390"	14.4	45°	55°	1.3'	—	—	85,900	61°	90°	88 SF	1	.11"	8.6	180°	160°	.5'	OFFICES	1.30"	
AHU-4	TRANE SIZE # 3A	1585	.400"	280	208-3-60	.75	1480	49,400	WL	80°	67°	57.4	57.2	138 DF	6	.800"	9.9	45°	55°	0.6'	—	—	55,000	58°	90°	132 SF	1	.15"	5.5	180°	160°	.2'	ART	1.55"	
AHU-5	TRANE SIZE # 10W	5400	.500"	2310	208-3-60	3.0	680	269,400	WL	83°	70°	54.8	54.5	116 DF	6	.610"	53.7	45°	55°	8.2'	—	—	292,800	40°	90°	128 SF	1	.11"	29.3	180°	160°	1.2'	CAFETERIA, TCHRS. L.	1.35"	ECONOMIZER
AHU-6	TRANE SIZE # 3A	1525	.400"	280	208-3-60	.75	1360	47,500	WL	80°	67°	57.9	57.2	140 DF	4	.510"	9.5	45°	55°	0.8'	—	—	54,600	57°	90°	132 SF	1	.14"	5.5	180°	160°	.2'	MUSIC	1.25"	
AHU-7A	TRANE SIZE # 8A	3925	.600"	750	208-3-60	2.0	810	123,500	WL	80°	67°	58.1	57.1	126 DF	4	.500"	24.7	45°	55°	2.2'	—	—	140,500	57°	90°	113 SF	1	.14"	14.0	180°	160°	.2'	GYM/AUDITORIUM	1.44"	
AHU-7B	TRANE SIZE # 8A	3925	.600"	750	208-3-60	2.0	810	123,500	WL	80°	67°	58.1	57.1	126 DF	4	.500"	24.7	45°	55°	2.2'	—	—	140,500	57°	90°	113 SF	1	.14"	14.0	180°	160°	.2'	GYM/AUDITORIUM	1.44"	
AHU-8	TRANE SIZE # 10A	4900	.700"	765	208-3-60	2.0	740	125,500	W	80°	67°	60.0	59.1	137 FF	4	.430"	25.1	45°	55°	0.6'	—	—	164,700	59°	90°	99 SF	1	.13"	16.5	180°	160°	.3'	LIBRARY	1.46"	↓

CONDENSING UNIT SCHEDULE

SYMBOL	MANUFACTURER & MODEL	CAPACITY (TONS)	CONDENSER FANS EDB (°F)	EWB (°F)	QTY.	MCA	FLA (EA)	COMPRESSOR QTY.	RLA	LRA	LIQUID AND SUCTION LINE	ELECTRICAL	REFRIGERANT	REMARKS
CU-1	TRANE CAUB-C60	57.4	95°	—	6	25.6	4.1	—	—	—	1 1/8" LIQUID, 2 5/8" SUCTION	208-3-60	R-22	SUPPLEMENTAL BID # 1

CHILLER SCHEDULE

SYMBOL	MANUFACTURER & MODEL	EWT (°F)	LWT (°F)	TONS COOLING 95° AMB	NUMBER OF COMPRESSORS	RLA	ELECTRICAL	KW	GPM	WEIGHT	WPD	MCA	REMARKS
CH-1	TRANE CCAC-C60M	55°	45°	57.2	2	127	208-60-3	67.4	123	2247	12'	286	SUPPLEMENTAL BID # 1

FIN TUBE RADIATION SCHEDULE

SYMBOL	MANUFACTURER & MODEL	BTUH/FT	GPM	EWT (°F)	LWT (°F)	HEATING ELEMENT FINS/FT	TUBE	ROWS	FIN SIZE	ENCLOSURE DEPTH	HEIGHT	REMARKS
X	VULCAN 'FLOORLINE' FR	720	1	180°	160°	48	3/4"	1	2 3/4" x 3"	3 1/2"	10"	
A/X	VULCAN 'LINOVECTOR' DS	1540	1	180°	160°	60	1"	1	3 1/4" x 3 1/4"	5 5/16"	24"	
B/X	VULCAN 'LINOVECTOR' DS	1160	1	180°	160°	60	1"	1	3 1/4" x 3 1/4"	4 1/4"	24"	
C/X	ARGO 'DESIGNER SERIES'	690	1	180°	160°	60	3/4"	1	2 1/8" x 2 3/4"	3 3/8"	9 3/4"	

FAN SCHEDULE

SYMBOL	MANUFACTURER & MODEL	CFM	ESP	RPM	SONES	WATTS	ELECTRICAL	CONTROLLED BY	REMARKS
CEF-1	PENN 'ZEPHYR' Z101	400	.375"	1050	4.9	239	115/1/60	LEK-TROL SPEED CONTROLLER	BACKDRAFT DAMPERS SHALL BE CONSTRUCTED SO AS TO PROVIDE POSITIVE CLOSURE WHEN FAN IS NOT OPERATING, UNDER ALL WEATHER CONDITIONS TO WHICH THE ACCOMPANYING FAN IS SUBJECTED.
CEF-2	PENN 'ZEPHYRETTE' ZT	85	.250"	1110	2.8	48	115/1/60	SEE REMARKS	RMS. B-02, 1-14, 1-36, 1-43, 1-53, 1-67, 1-73, 1-93, 1-95 REV. ACT. T'STAT SET AT 78°F. ALL OTHER RMS. LIGHT SWITCH.
CEF-3	PENN 'ZEPHYR' Z9	330	.375"	1550	4.5	185	115/1/60	LIGHT SWITCH	↓
EF-4	PENN 'ZEPHYR' Z9TDA	330	.375"	1550	4.3	185	115/1/60	LIGHT SWITCH	
EF-5	PENN 'ZEPHYR' Z7 TDA	140	.375"	1550	3.1	68	115/1/60	LIGHT SWITCH	
CEF-6	PENN 'ZEPHYR' ZJ1	160	.375"	1240	3.4	105	115/1/60	REVERSE ACT. T'STAT SET AT 78°F	
EF-7	PENN 'ZEPHYR' Z-14	1450	.25"	880	5.7	1/3 HP	115/1/60	HOOD SWITCH	
EF-8,9,12	PENN 'DYNAFAN' LC-12W	725	.125"	850	4.3	1/12 HP	115/1/60	REV. ACTING T'STAT HUMIDISTAT	ATTIC VENTILATION FANS
EF-10,11	PENN 'DYNAFAN' LC-6V	240	.125"	1000	2.2	1/25 HP	115/1/60	REV. ACTING T'STAT HUMIDISTAT	ATTIC VENTILATION FANS

BOILER SCHEDULE

SYMBOL	MANUFACTURER & MODEL	AGA INPUT (BTUH)	OUTPUT (BTUH)	NET I-B-R RATING (BTUH)	NUMBER OF MODULES	GAS INPUT (CFH)	OIL FIRING RATE (GPH)	WEIGHT	REMARKS
B-1 & B-2	HYDROTHERM MOP-1540	1,540,000	1,168,000	1,015,000	4	1540	11.0	2880	

PUMP SCHEDULE

SYMBOL	MANUFACTURER & MODEL	GPM	HEAD	RPM	HP	IMP Ø	ELECTRICAL	REMARKS
P-1 & P-2	TACO BB 4008	240	35'	1750	5.0	7"	208-3-60	HOT WATER PUMPS
P-3 & P-4	TACO BB 4008	140	45'	1750	3.0	7"	208-3-60	CHILLED WATER PUMPS - SUPPLEMENTAL BID # 1
P-5	PREFERRED UTILITIES L-101	25	100 PSI	1725	1/4	N.A.	115-1-60	OIL PUMP

DIFFUSER AND REGISTER SCHEDULE

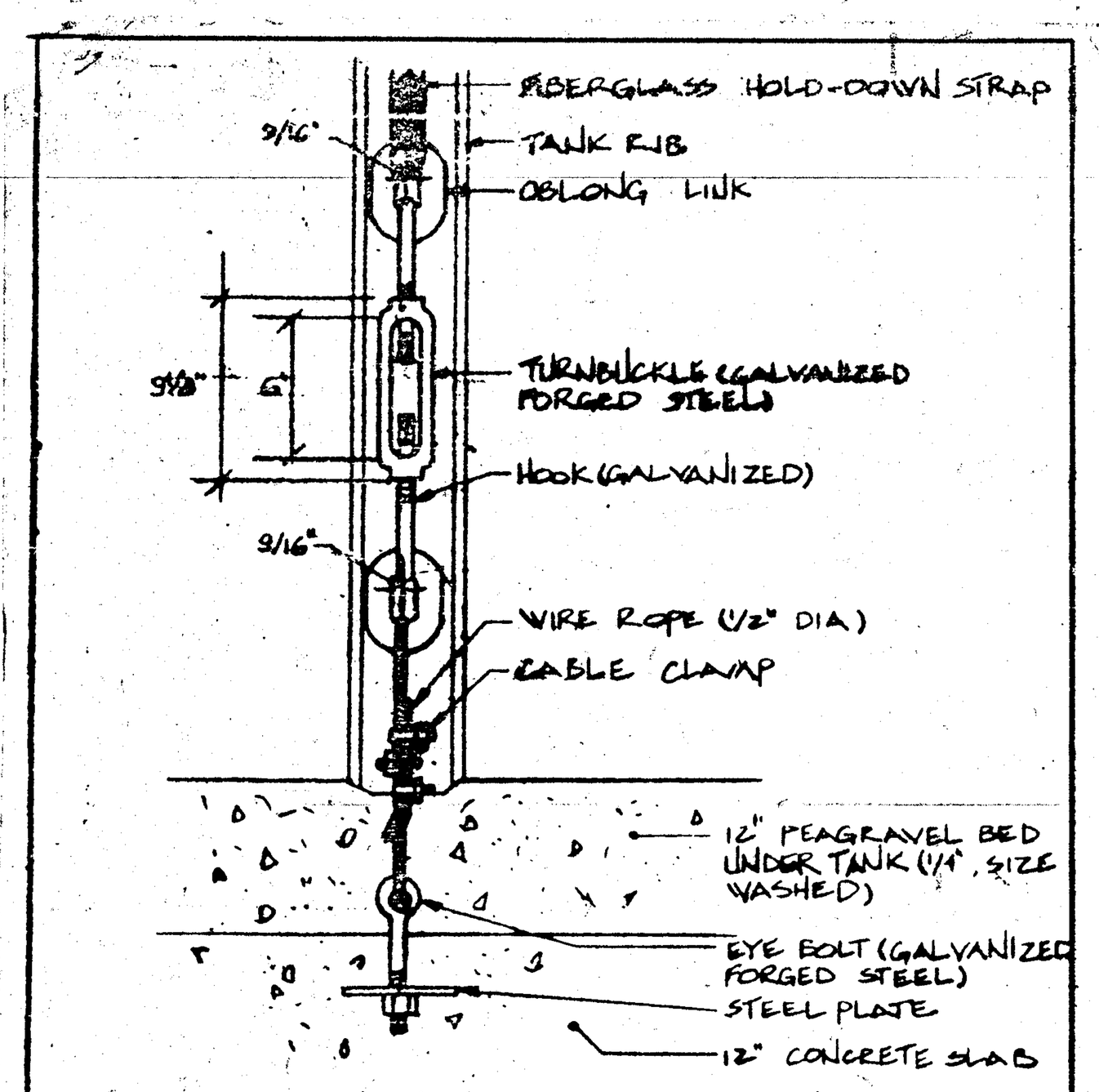
SYMBOL	MANUFACTURER & MODEL	AIR FLOW	DAMPER	MATERIAL	FINISH	MTG FRAME	REMARKS
'A'	TITUS TDC-A4	4-WAY	AG-95	STEEL	#25	#1	
'B'	↓ 50-F	RETURN	O.B.D.	ALUMINUM	↓	↓	
'C'	TDC-C3	3-WAY	AG-95	STEEL			
'D'	TDC-A3	3-WAY	↓	↓			
'E'	TDC-S2	2-WAY					
'G'	TDC-G2	2-WAY					
'H'	TDCA-A4	4-WAY					
'J'	15-RL	RETURN	AG-35				
'K'	TDCA-C3	3-WAY	AG-95				
'L'	TITUS 272-RS	SUPPLY	AG-35	STEEL	#25	#1	
'M'	TITUS TDC-S1	1-WAY	AG-95	STEEL	#25	#1	

CABINET UNIT HEATER / UNIT HEATER SCHEDULE

SYMBOL	MANUFACTURER & MODEL	CFM	RPM	HP	ELECTR.	BTUH-CAPACITY	GPM	EWT	LWT	EAT	LAT	WPD FT	REMARKS
CUH-1	VULCAN 'C' UNIT SIZE 3	330	1050	1/30	115/1/60	18,984	2.23	180°	160°	60°	113°	.3'	ARRANGEMENT 06
CUH-2	VULCAN 'C' UNIT SIZE 3	330	1050	1/30	115/1/60	18,984	2.23	180°	160°	60°	113°	.3'	" 06
CUH-3	BURNHAM DUO-RAD BD-50C	100	1050	50W	115/1/60	7,905	1.20	180°	167°	60°	138°	.5'	
CUH-4	↓ DUO-RAD BD-75C	200	1500	50W	115/1/60	12,750	2.0	180°	160°	60°	129°	1.2'	
CUH-5	↓ DUO-RAD BD-75C	200	1500	50W	115/1/60	12,750	2.0	180°	160°	60°	129°	1.2'	
CUH-6	VULCAN 'C' UNIT SIZE 4	450	1090	1/60	115/1/60	24,138	2.87	180°	160°	60°	109°	.5'	ARRANGEMENT 06
CUH-7	BURNHAM DUO-RAD BD-50C	100	1050	50W	115/1/60	7,905	1.20	180°	167°	60°	138°	.5'	
CUH-8	BURNHAM DUO-RAD BD-50C	100	1050	50W	115/1/60	7,905	1.20	180°	167°	60°	138°	.5'	
CUH-9	VULCAN 'CR' UNIT SIZE 6	620	1050	1/15	115/1/60	38,054	4.43	180°	160°	60°	116°	.9'	ARRANGEMENT 58
CUH-10	BURNHAM DUO-RAD BD-50C	100	1050	50W	115/1/60	7,905	1.20	180°	167°	60°	138°	.5'	
CUH-11	BURNHAM DUO-RAD BD-50C	100	1050	50W	115/1/60	7,905	1.20	180°	167°	60°	138°	.5'	
CUH-12	BURNHAM DUO-RAD BD-50C	100	1050	50W	115/1/60	7,905	1.20	180°	167°	60°	138°	.5'	
CUH-13	VULCAN 'CR' UNIT SIZE 6	620	1050	1/15	115/1/60	38,054	4.43	180°	160°	60°	116°	.9'	ARRANGEMENT 58
CUH-14	VULCAN 'C' UNIT SIZE 3	330	1050	1/30	115/1/60	18,984	2.23	180°	160°	60°	113°	.3'	
UH-1	VULCAN # HV-118A	500	1550	1/50	115/1/60	15,769	2.0	180°	160°	60°	89°	2.2'	.65 AMPS @ 115V
UH-2	VULCAN # HV-60	900	1050	1/30	115/1/60	37,365	4.4	180°	160°	60°	98°	.17'	1.30 AMPS @ 115V
CUH-15	BURNHAM DUO-RAD BD-50C	100	1050	50W	115/1/60	7,905	1.20	180°	167°	60°	138°	.5'	

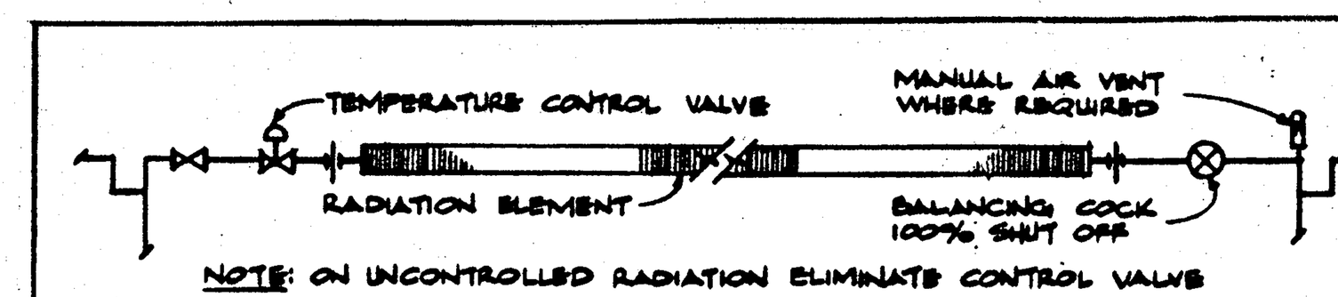
HVAC SYMBOL LIST

SYMBOL	DESCRIPTION
(symbol)	GATE VALVE
(symbol)	BALANCING COCK - 100% SHUT-OFF
C.S.D.	CEILING SUPPLY DIFFUSER
C.R.R.	CEILING RETURN REGISTER
S.S.R.	SIDEWALL SUPPLY REGISTER
S.R.R.	SIDEWALL RETURN REGISTER
O.A.	OUTDOOR AIR
H.W.	HOT WATER
CH.W.	CHILLED WATER
S.	SUPPLY
R.	RETURN
(symbol)	HOT WATER SUPPLY PIPING
(symbol)	HOT WATER RETURN PIPING
CH.W.S.	CHILLED WATER SUPPLY PIPING
CH.W.R.	CHILLED WATER RETURN PIPING
(symbol)	THERMOSTAT - 5'-0" A.F.F.
(symbol)	STRAINER
(symbol)	CHECK VALVE
(symbol)	UNION
(symbol)	THERMOMETER
V.D.	VOLUME DAMPER
(symbol)	ACOUSTICALLY LINED DUCTWORK
(symbol)	RADIATION CONTROL VALVE (REMOTE T'STAT)
(X)	LENGTH OF TYPE 'A' RADIATION
(symbol)	RETURN OR EXHAUST AIR
(symbol)	PRESSURE REDUCING VALVE
(symbol)	RADIATION CONTROL VALVE (INTEGRAL T'STAT)
F.D.	FIRE DAMPER
(TA)	REVERSE ACTING T'STAT SET AT 78°F - 7'-0" A.F.F.



DETAIL OF TURNBUCKLE & ANCHOR AT TANK RIB

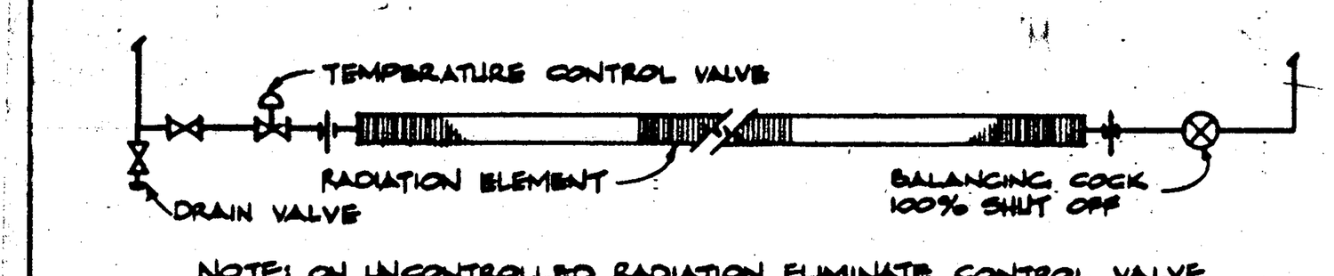
N.T.S.



NOTE: ON UNCONTROLLED RADIATION ELIMINATE CONTROL VALVE

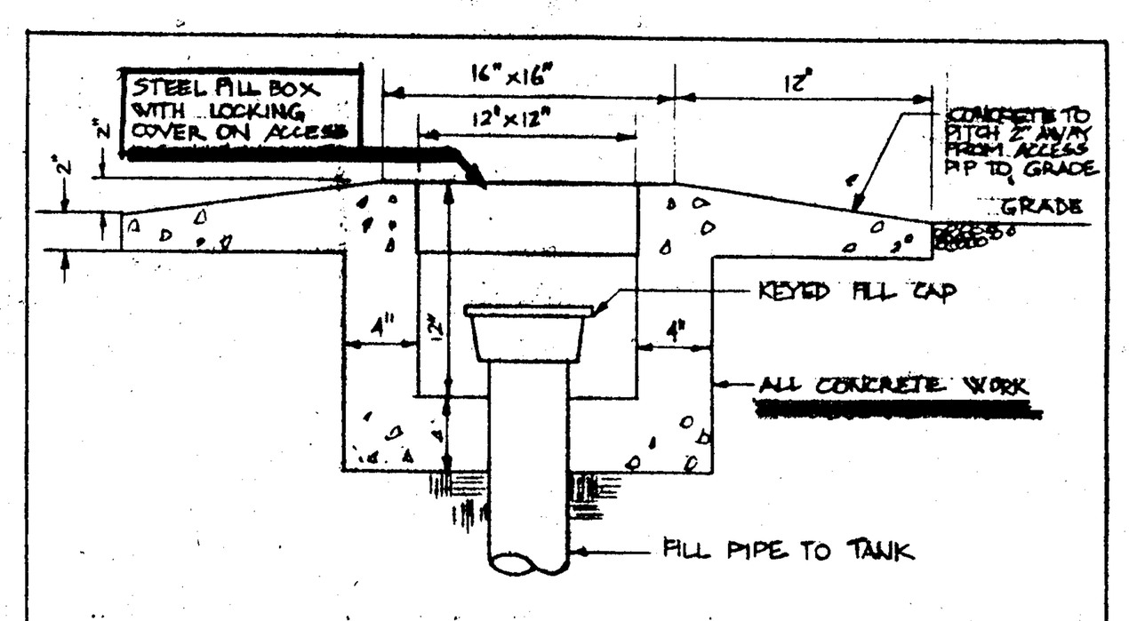
UPFEED RADIATION PIPING DETAIL

NOTE: INSTALL PIPE COMPENSATORS IN RADIATION PIPING WHEN PIPE LENGTH IS GREATER THAN 20' BETWEEN ROUGHING.



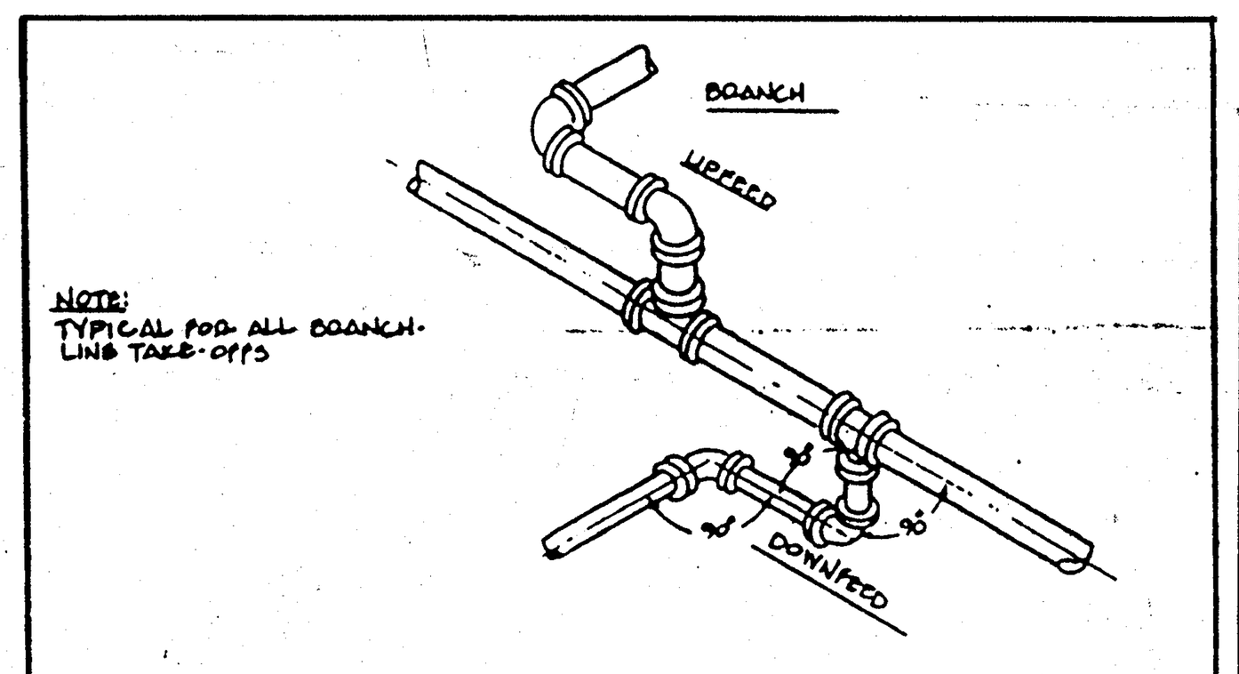
NOTE: ON UNCONTROLLED RADIATION ELIMINATE CONTROL VALVE

DOWNFEED RADIATION PIPING DETAIL



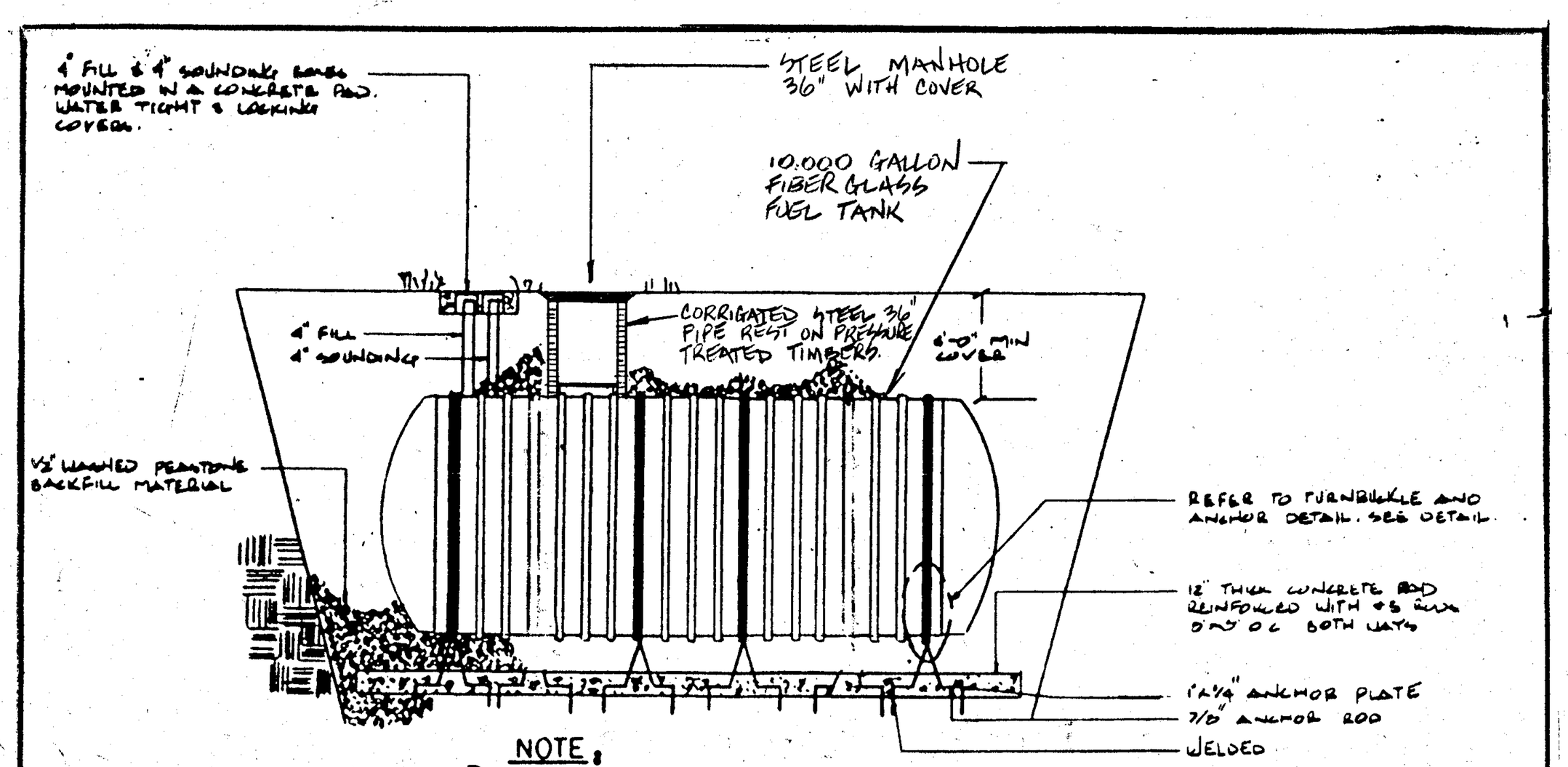
OIL TANK FILL CAP DETAIL

SCALE 1/2"=1'-0"



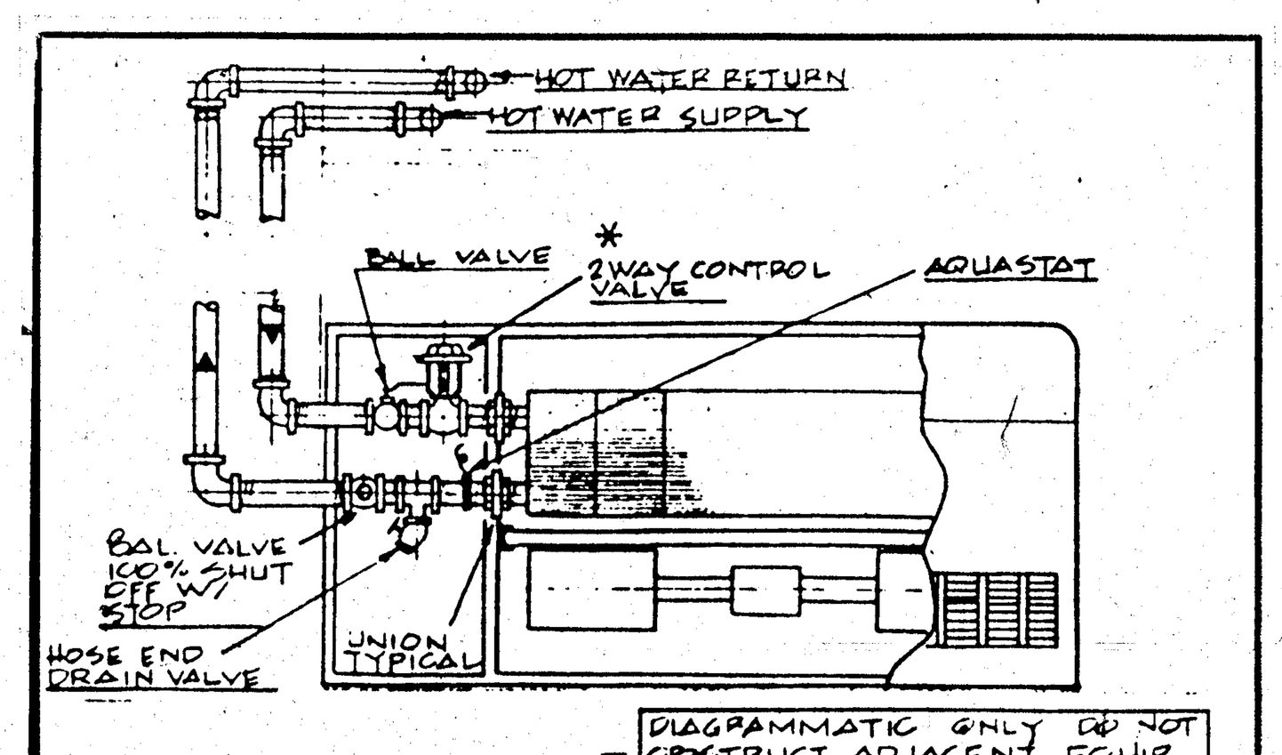
SWING JOINT DETAIL

NO SCALE

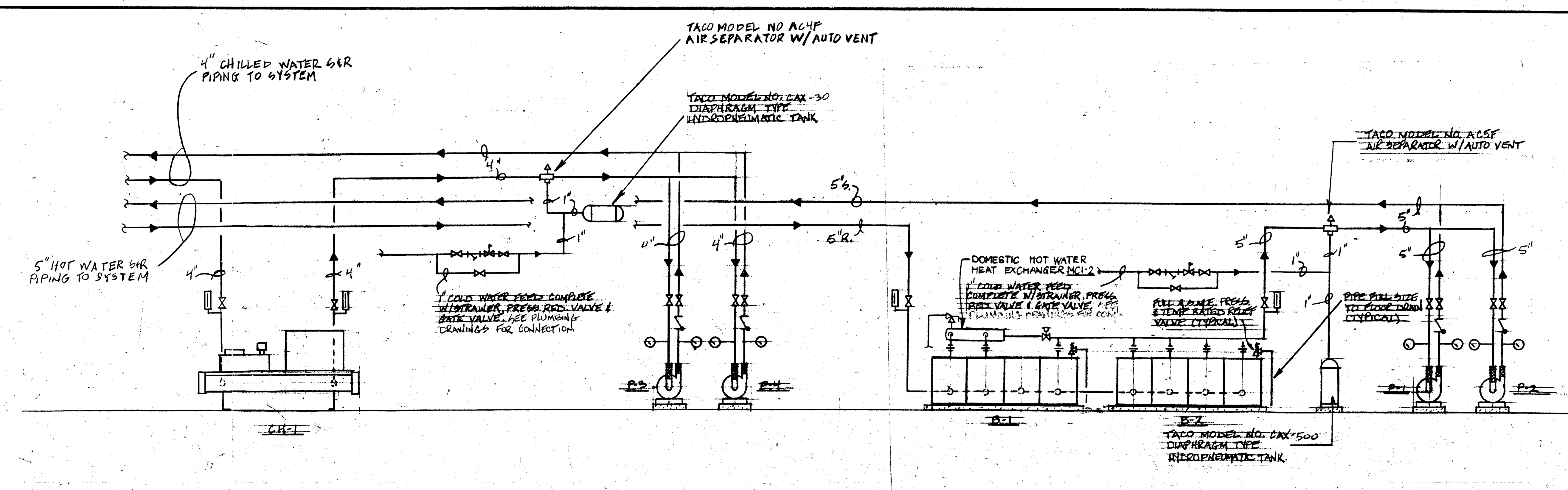


NOTE:
1) COMPLETE INSTALLATION TO BE IN ACCORDANCE WITH TANK MANUFACTURER REQUIREMENTS.
2) TANK TAPPINGS AS PER PLANS.

UNDERGROUND FUEL OIL STORAGE TANK
NO. 2 FUEL OIL INSTALLATION DETAIL N.T.S.



HOTWATER CABINET UNIT HEATER
PIPING DIAGRAM (DOWNFEED) N.T.S.



HYDRONIC SYSTEM PIPING DIAGRAM

N.T.S.

revisions

no. date description

scale 1/8"=1'-0"

date 1-25-1989

drawn D.T.

checked AY

approved D.C.A.

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ROGER SHERMAN ELEMENTARY SCHOOL
ADDITIONS, ALTERATIONS & CODE COMPLIANCE
MERIDEN, CONNECTICUT

SCHEDULES AND DETAILS

drawing no.
HVAC-5