# HVAC REPLACEMENT PROJECT AT JUVENILE DETENTION CENTER

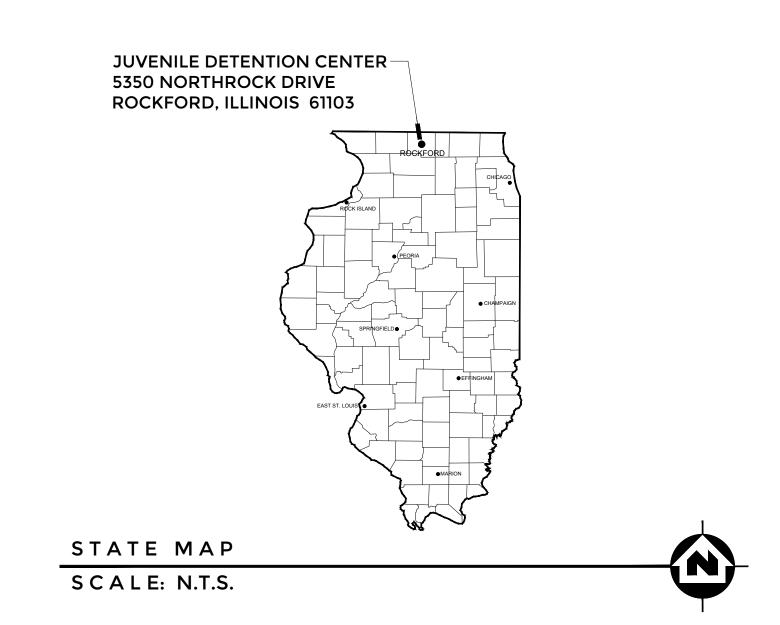
5350 NORTHROCK DRIVE ROCKFORD, ILLINOIS 61103

IFB NO. 23B-2276

**OWNER** 

## WINNEBAGO COUNTY

404 ELM STREET ROCKFORD, ILLINOIS 61101



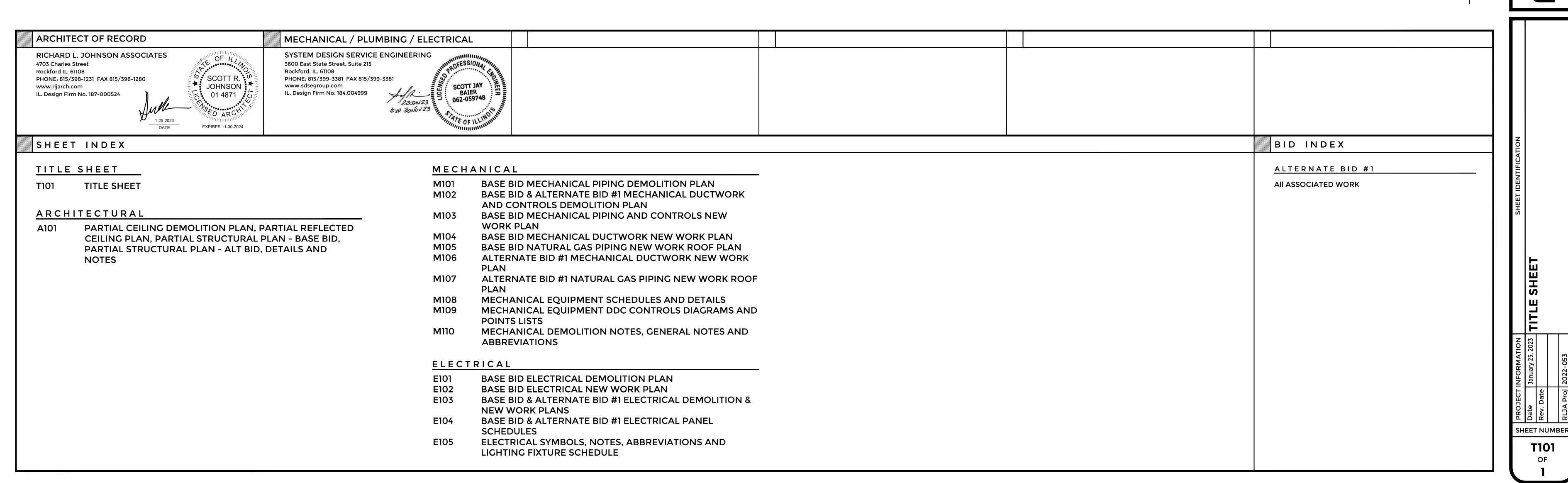
WINNEBAGO COUNTY
JUVENILE DETENTION CENTER

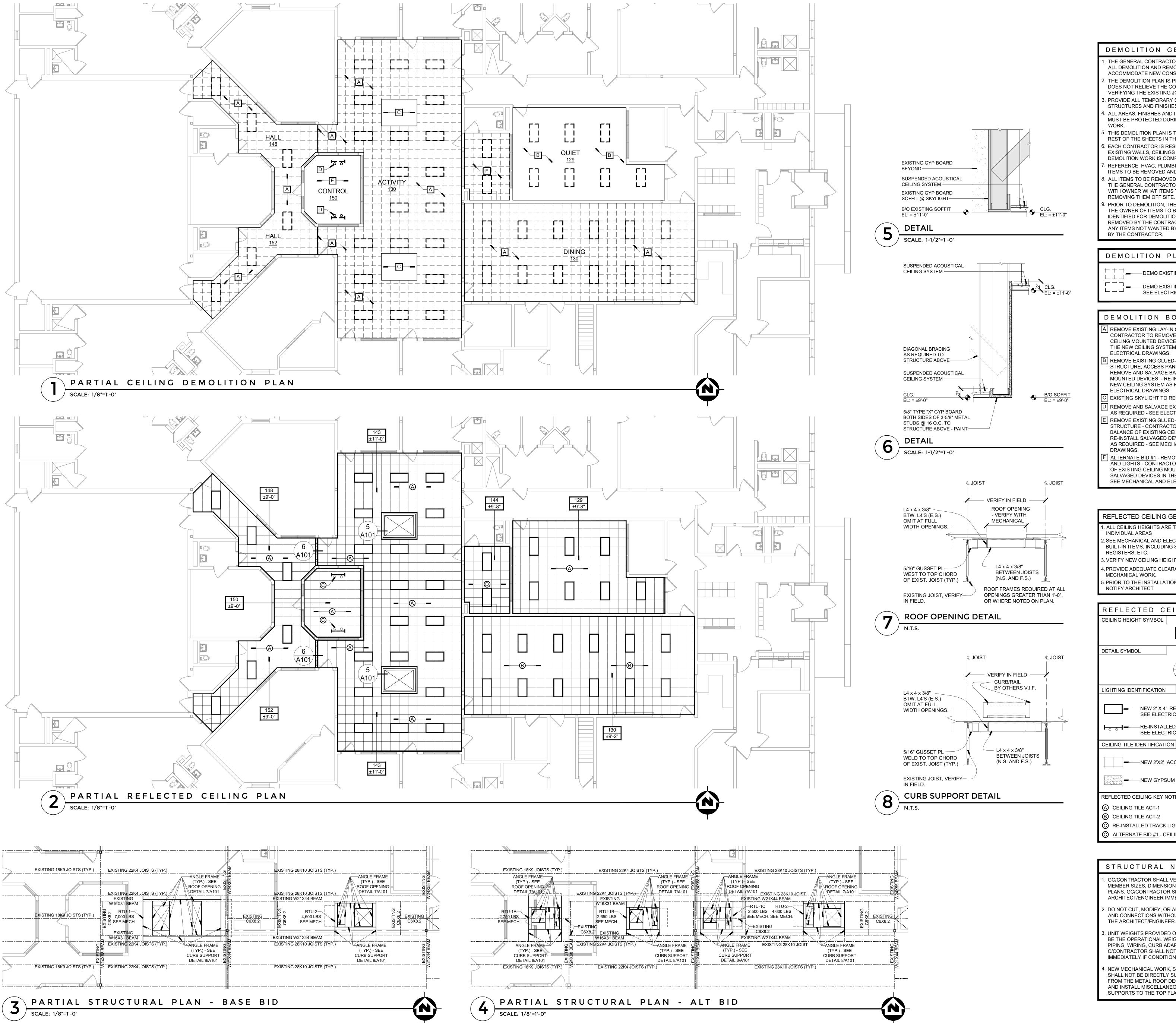


SITE LOCATION MAP

SCALE: N.T.S.







DEMOLITION GENERAL NOTES

. THE GENERAL CONTRACTOR IS TO COORDINATE AND PROVIDE ALL DEMOLITION AND REMOVAL OF DEBRIS NECESSARY TO

ACCOMMODATE NEW CONSTRUCTION. THE DEMOLITION PLAN IS PROVIDED AS AID IN PLANNING AND

DOES NOT RELIEVE THE CONTRACTOR'S RESPONSIBILITY IN FIE VERIFYING THE EXISTING JOB SITE. B. PROVIDE ALL TEMPORARY SHORING AS REQUIRED TO SUPPORT

STRUCTURES AND FINISHES TO REMAIN. ALL AREAS, FINISHES AND ITEMS NOT REQUIRING DEMOLITION MUST BE PROTECTED DURING DEMOLITION AND CONSTRUCTION

THIS DEMOLITION PLAN IS TO BE USED IN CONJUNCTION WITH T

REST OF THE SHEETS IN THE SET.

5. EACH CONTRACTOR IS RESPONSIBLE TO PATCH AND MATCH EXISTING WALLS, CEILINGS AND FLOORS AS REQUIRED AFTER DEMOLITION WORK IS COMPLETE TO MATCH EXISTING.

REFERENCE HVAC, PLUMBING, AND ELECTRICAL SHEETS FOR ITEMS TO BE REMOVED AND/OR RELOCATED.

ALL ITEMS TO BE REMOVED SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR UNLESS NOTED OTHERWISE. VERIF WITH OWNER WHAT ITEMS THEY WANT TO SALVAGE PRIOR TO

PRIOR TO DEMOLITION, THE CONTRACTOR SHALL VERIFY WITH IDENTIFIED FOR DEMOLITION - SALVAGED ITEMS SHALL BE REMOVED BY THE CONTRACTOR AND RETURNED TO THE OWNER ANY ITEMS NOT WANTED BY THE OWNER SHALL BE DISPOSED OF

DEMOLITION PLAN LEGEND

■ DEMO EXISTING LAY-IN CEILING SYSTEM

DEMO EXISTING LIGHT FIXTURE -SEE ELECTRICAL DWGS

DEMOLITION BOX NOTES

REMOVE EXISTING LAY-IN CEILING SYSTEM AND LIGHTS -CONTRACTOR TO REMOVE AND SALVAGE BALANCE OF EXISTING CEILING MOUNTED DEVICES - RE-INSTALL SALVAGED DEVICES IN THE NEW CEILING SYSTEM AS REQUIRED - SEE MECHANICAL AN ELECTRICAL DRAWINGS.

REMOVE EXISTING GLUED-ON CEILING TILE, SUB-CEILING STRUCTURE, ACCESS PANELS AND LIGHTS - CONTRACTOR TO REMOVE AND SALVAGE BALANCE OF EXISTING CEILING MOUNTED DEVICES - RE-INSTALL SALVAGED DEVICES IN THE NEW CEILING SYSTEM AS REQUIRED - SEE MECHANICAL AND

ELECTRICAL DRAWINGS. EXISTING SKYLIGHT TO REMAIN.

REMOVE AND SALVAGE EXISTING TRACK LIGHTING - RE-INSTALL AS REQUIRED - SEE ELECTRICAL DRAWINGS.

REMOVE EXISTING GLUED-ON CEILING TILE AND SUB-CEILING STRUCTURE - CONTRACTOR TO REMOVE AND SALVAGE BALANCE OF EXISTING CEILING MOUNTED DEVICES -RE-INSTALL SALVAGED DEVICES IN THE NEW CEILING SYSTEM AS REQUIRED - SEE MECHANICAL AND ELECTRICAL

ALTERNATE BID #1 - REMOVE EXISTING LAY-IN CEILING SYSTEM AND LIGHTS - CONTRACTOR TO REMOVE AND SALVAGE BALANC OF EXISTING CEILING MOUNTED DEVICES - RE-INSTALL SALVAGED DEVICES IN THE NEW CEILING SYSTEM AS REQUIRE SEE MECHANICAL AND ELECTRICAL DRAWINGS.

REFLECTED CEILING GENERAL NOTES

1. ALL CEILING HEIGHTS ARE TAKEN FROM FINISH FLOOR OF INDIVIDUAL AREAS SEE MECHANICAL AND ELECTRICAL DRAWINGS FOR LOCATION C

BUILT-IN ITEMS, INCLUDING SUPPLY DIFFUSERS, EXHAUST REGISTERS, ETC.

3. VERIFY NEW CEILING HEIGHT SHOWN. 4. PROVIDE ADEQUATE CLEARANCE FOR ELECTRICAL AND

MECHANICAL WORK. PRIOR TO THE INSTALLATION OF ANY MODIFIED CEILING HEIGHT: NOTIFY ARCHITECT

REFLECTED CEILING PLAN LEGEND CEILING HEIGHT SYMBOL

103 ROOM NUMBER
9'-0" CEILING HEIGHT DETAIL SYMBOL

1 — DETAIL NUMBER A101/\_\_\_\_SHEET NUMBER

LIGHTING IDENTIFICATION

-NEW 2' X 4' RECESSED LED LIGHT FIXTURE -SEE ELECTRICAL DRAWINGS

RE-INSTALLED TRACK LIGHTING FIXTURE -SEE ELECTRICAL DRAWINGS

CEILING TILE IDENTIFICATION

NEW 2'X2' ACOUSTICAL CEILING TILE AND GRID

NEW GYPSUM WALL BOARD SOFFIT - PAINT

REFLECTED CEILING KEY NOTES

A CEILING TILE ACT-1

RE-INSTALLED TRACK LIGHTING - SEE ELECTRICAL DRAWINGS © ALTERNATE BID #1 - CEILING TILE ACT-1

STRUCTURAL NOTES

. GC/CONTRACTOR SHALL VERIFY ALL EXISTING STEEL FRAMING MEMBER SIZES, DIMENSIONS, ETC. TO THOSE SHOWN ON THE PLANS. GC/CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER IMMEDIATELY IF CONDITIONS VARY.

DO NOT CUT, MODIFY, OR ALTER EXISTING STRUCTURAL FRAMIN AND CONNECTIONS WITHOUT PRIOR, WRITTEN APPROVAL FROM THE ARCHITECT/ENGINEER.

3. UNIT WEIGHTS PROVIDED ON THE DRAWINGS ARE ASSUMED TO BE THE OPERATIONAL WEIGHTS WITH ALL APPURTENANCES, PIPING, WIRING, CURB ADAPTERS, DUCTWORK, ETC. C/CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER IMMEDIATELY IF CONDITIONS VARY.

I. NEW MECHANICAL WORK, SUCH AS PIPING, DUCTWORK, ETC. SHALL NOT BE DIRECTLY SUPPORTED BY OR DIRECTLY HUNG FROM THE METAL ROOF DECK. GC/CONTRACTOR SHALL PROVIDE AND INSTALL MISCELLANEOUS MECHANICAL EQUIPMENT SUPPORTS TO THE TOP FLANGE OF JOISTS AND BEAMS.

L A

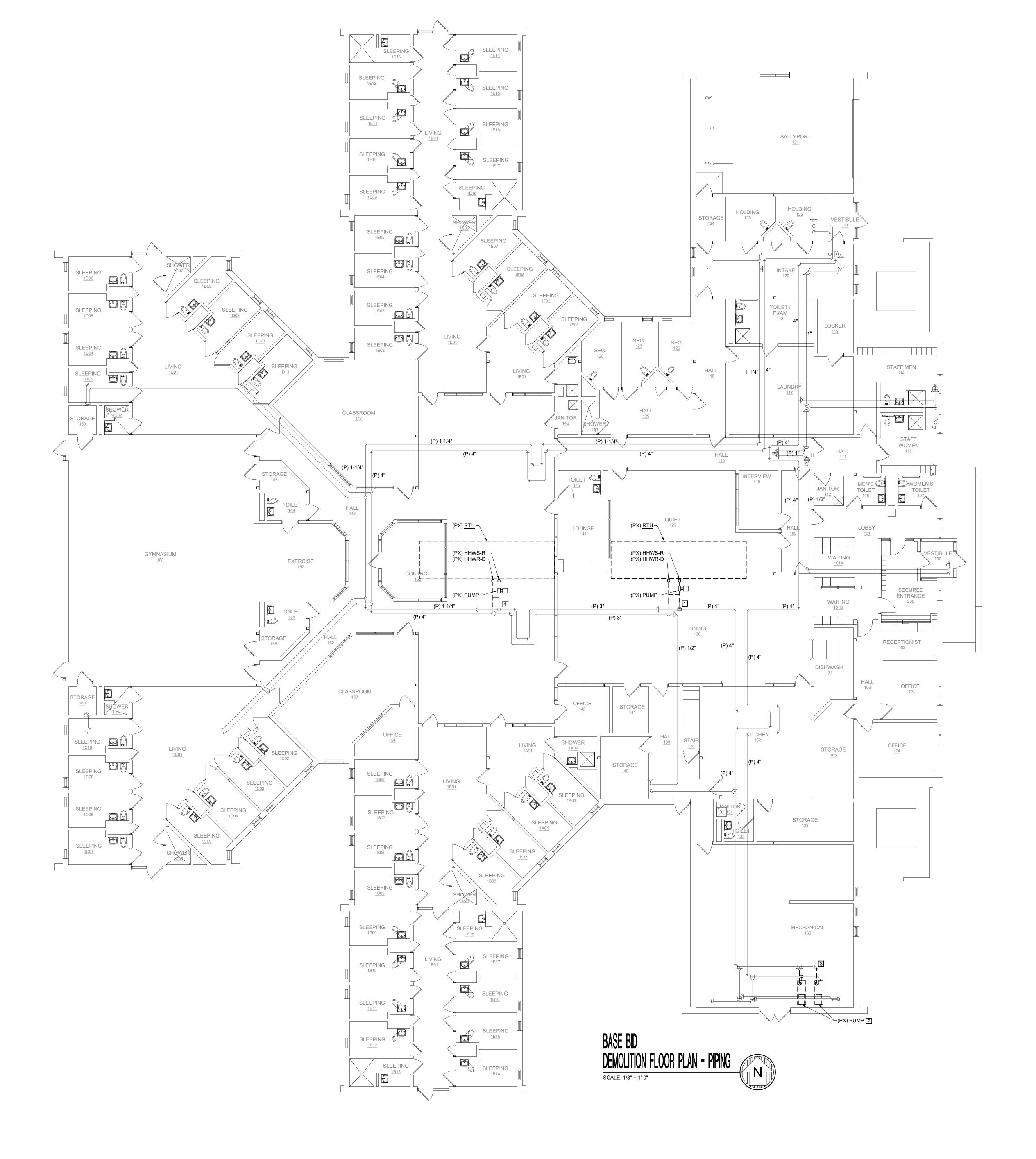
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CEILING DEMOLITION PLAN,
REFLECTED CEILING PLAN,
STRUCTURAL PLAN - BASE BID, PARTIAL
JRAL PLAN - ALT BID, DETAILS AND NOTE

PART PART PART STRU

SHEET NUMBER

SHEET NUMBER M101



3. COMPLETELY DRAIN EXISTING BOILER SYSTEM TO ALLOW FOR NEW WORK.

|X| DEMOLITION NOTES

REMOVE (PX) CONNECTION TO EXISTING RTUS, INCLUDING ALL VALVES, PUMPS, UNIONS, WIRING ETC PER PX NOTE. REMOVE PIPING BACK TO LOCATIONS SHOWN.

2. REMOVE (PX) EXISTING MAIN CIRCULATION PUMPS, INCLUDING SUCTION DIFFUSERS, VALVES, FLEX CONNECTIONS, ETC.

SYSTEMS DESIGN SERVICE

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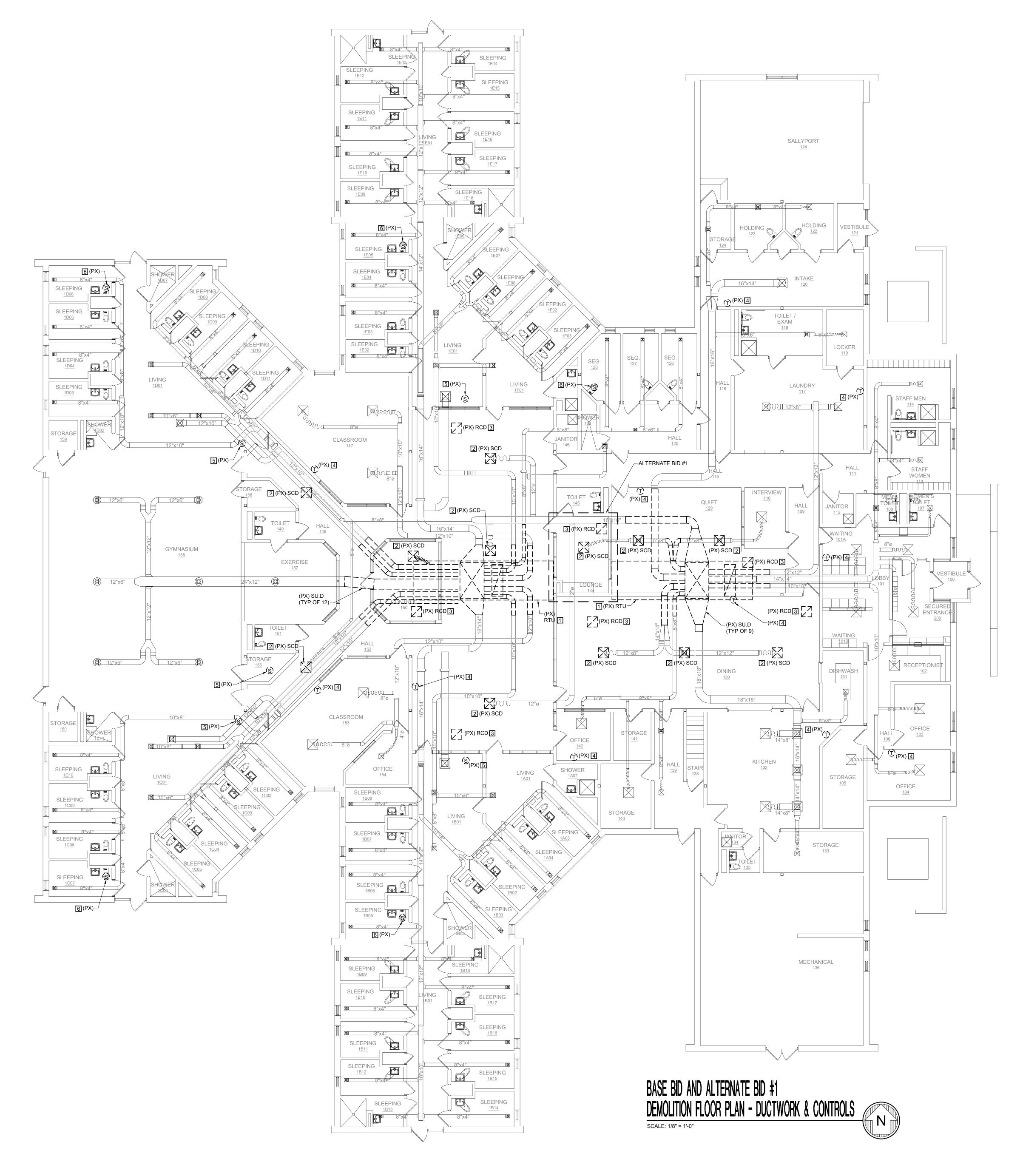
SHEET NUMBER

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X DEMOLITION NOTES

1. REMOVE (PX) EXISTING RTUS AND DUCT CONNECTIONS AS SHOWN. REMOVE EXISTING CONTROL AND ELECTRICAL WIRING. EXISTING ROOF CURB SHALL REMAIN

 DISCONNECT DUCTWORK FROM SUPPLY DIFFUSER AND REMOVE (PX) EXISTING SUPPLY CEILING DIFFUSER WHERE CEILINGS WILL BE REMOVED.

3. REMOVE (PX) EXISTING RETURN CEILING DIFFUSER WHERE CEILINGS WILL BE

REMOVED.

4. REMOVE (PX) WALL MOUNTED ZONE TEMPERATURE SENSOR.

5. REMOVE (PX) RETURN DUCT MOUNTED ZONE TEMPERATURE SENSOR.6. REMOVE (PX) EXHAUST DUCT MOUNTED ZONE TEMPERATURE SENSOR.

SHEET NUMBER

M103



PRESSURE TEST, FLUSH, FILL, AND CHEMICALLY TREAT BOILER WATER UPON COMPLETION

2. PROVIDE AND INSTALL NEW PUMPS, PIPING, SUCTION DIFFUSERS, FLEXIBLE CONNECTORS,

TRIPLE DUTY VALVES, AND BUTTERFLY VALVES PER DETAIL ON SHEET M108.

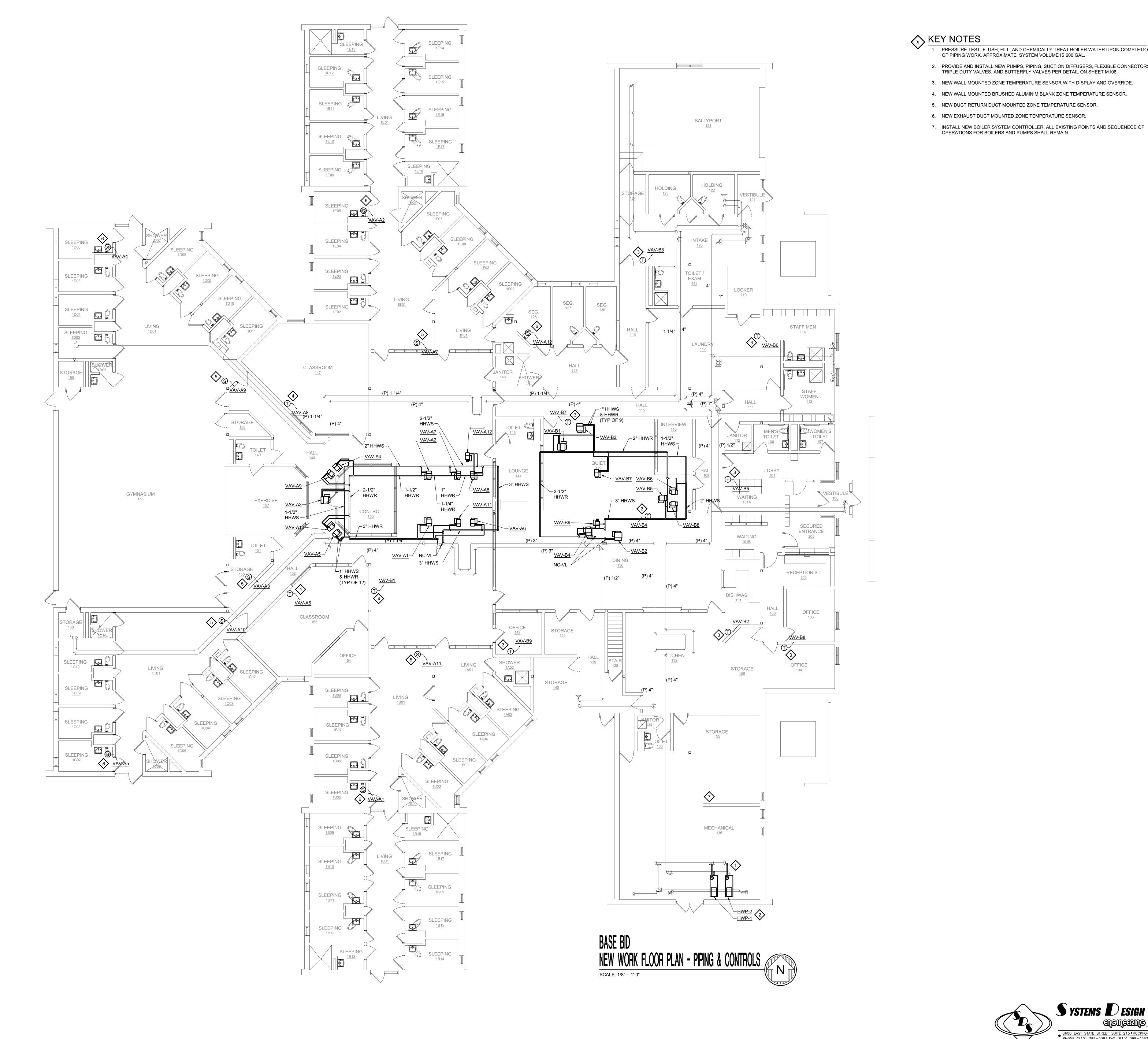
3. NEW WALL MOUNTED ZONE TEMPERATURE SENSOR WITH DISPLAY AND OVERRIDE.

4. NEW WALL MOUNTED BRUSHED ALUMINIM BLANK ZONE TEMPERATURE SENSOR.

OF PIPING WORK. APPROXIMATE SYSTEM VOLUME IS 600 GAL.

5. NEW DUCT RETURN DUCT MOUNTED ZONE TEMPERATURE SENSOR.

6. NEW EXHAUST DUCT MOUNTED ZONE TEMPERATURE SENSOR.



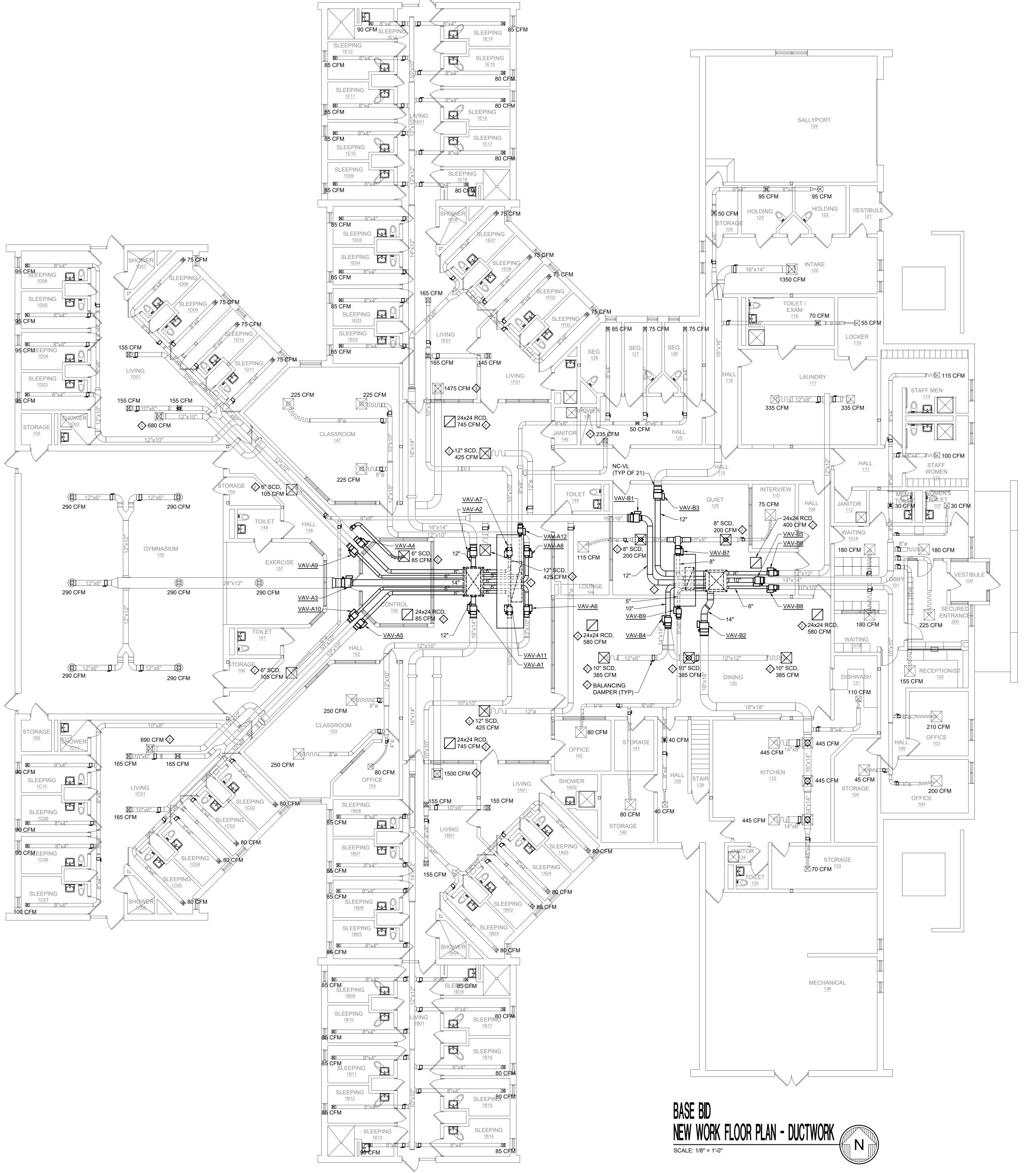
PROJECT INFORMATION
Date
January 25, 2023
Rev. Date
Plantary 25, 2023
Plantary 25, 2023

M104

SYSTEMS DESIGN SERVICE

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KEY NOTES

- 1. CONNECT NEW VAV DUCT TO EACH EXISTING ZONE DUCTWORK. RETURN SHALL BE PLENUM, RETURN DUCT SHALL DROP AND HAVE A "T" WITH MINIMUM 5' ON EACH SIDE TO REDUCE FAN NOISE TRANSMISSION.
- 2. INSTALL NEW DIFFUSER IN NEW CEILING GRID AND RECONNECT EXISTING DUCTWORK TO NEW.
- 3. DIFFUSER IS USED DURING SMOKE EVACUATION MODE; MOTORIZED DAMPER IN DUCT SUPPLYING THE DIFFUSER SHALL OPEN AND MOTORIZED DAMPER IN DUCT SUPPLYING SLEEPING AREAS SHALL CLOSE. BALANCE DIFFUSER WHEN RTU IS IN SMOKE
- 4. ADD BALANCING DAMPER TO EACH BRANCH AS SHOWN TO ALLOW FOR BALANCING OF EACH DIFFUSER. CUT AND PATCH DUCT AS REQUIRED FOR DAMPER INSTALLATION.

### **GENERAL NOTES**

EVACUATION MODE.

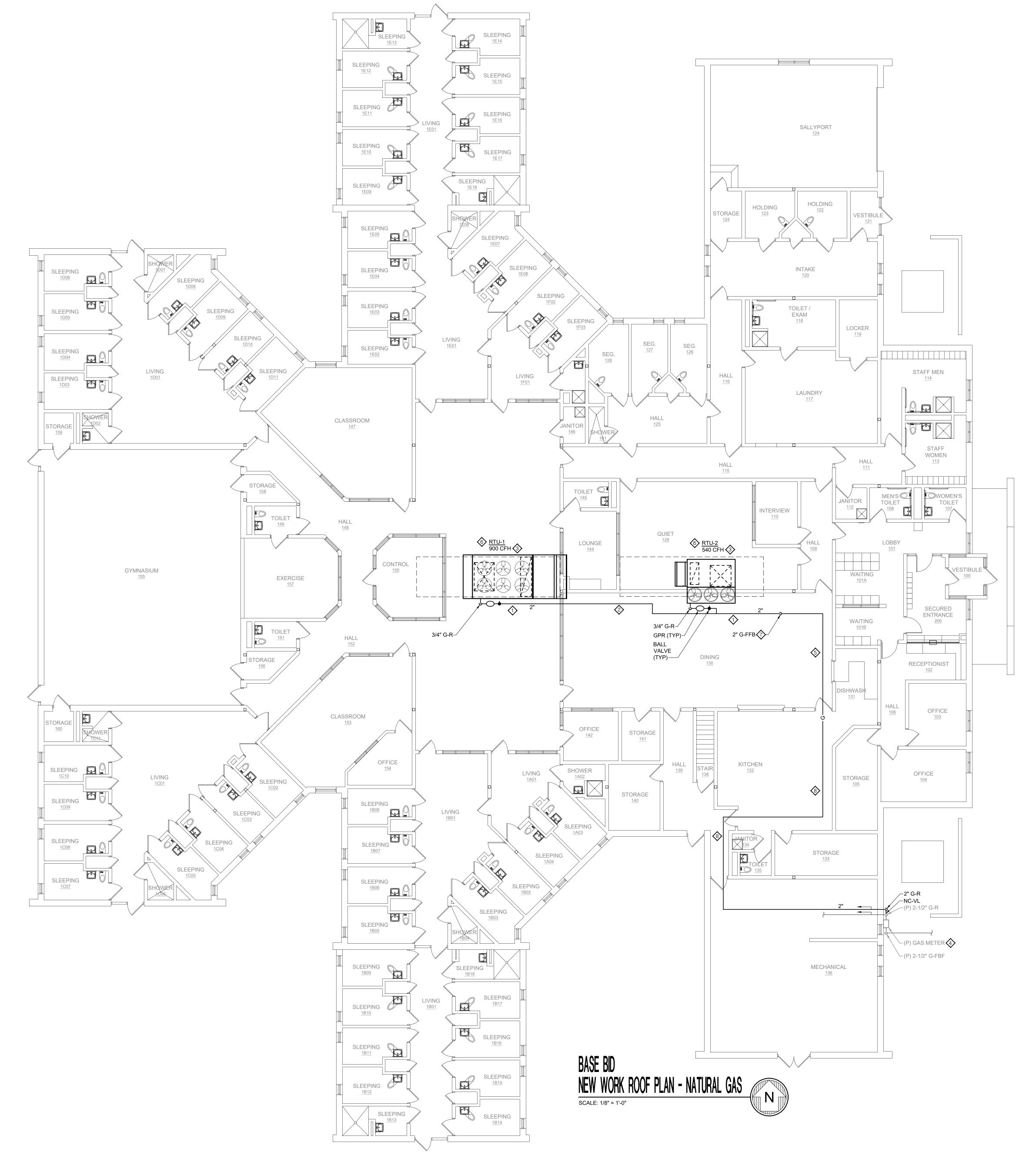
1. BALANCE EXISTING SUPPLY DIFFUSERS AND REGISTERS TO CFM AS SHOWN.

SHEET NUMBER M105

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- 1. COORDINATE LOCATION OF GAS PIPING WITH WALKING PADS.
- 2. GAS PIPING ON ROOF.
- 3. CONNECT TO GAS-FIRED EQUIPMENT WITH FULL LINE SIZE GAS COCK, DRIP LEG AND UNION. COORDINATE EXACT LOCATION IN FIELD. VERIFY PRESSURE REQUIREMENT WITH MANUFACTURER PRIOR TO INSTALLATION OF GPR.
- 4. COORDINATE WITH NICOR FOR GAS SERVICE UPGRADE. INCLUDE ALL ASSOCIATED SERVICE UPGRADE COSTS WITH BID. TOTAL SERVICE CAPACITY INCREASE IS 1440 CFH. VERIFY EXISTING PRESSURE REQUIREMENTS.
- 5. GAS PIPING ABOVE SUSPENDED CEILING.
- 6. INSTALL NEW ROOF CURB ADAPTER OVER EXISTING ROOF CURB FOR NEW ROOFTOP UNIT. FILL EXISTING CURB SPACE WITH ALTERNATING LAYERS OF 3/4" DRYWALL AND BATT INSULATION FOR SOUND ATTENUATION OF COMPRESSORS.
- 7. PENETRATION THROUGH ROOF.
- 8. GAS PIPING ABOVE HARD CEILING. CUT CEILING AS NEEDED. PATCH AND PAINT TO MATCH EXISTING.

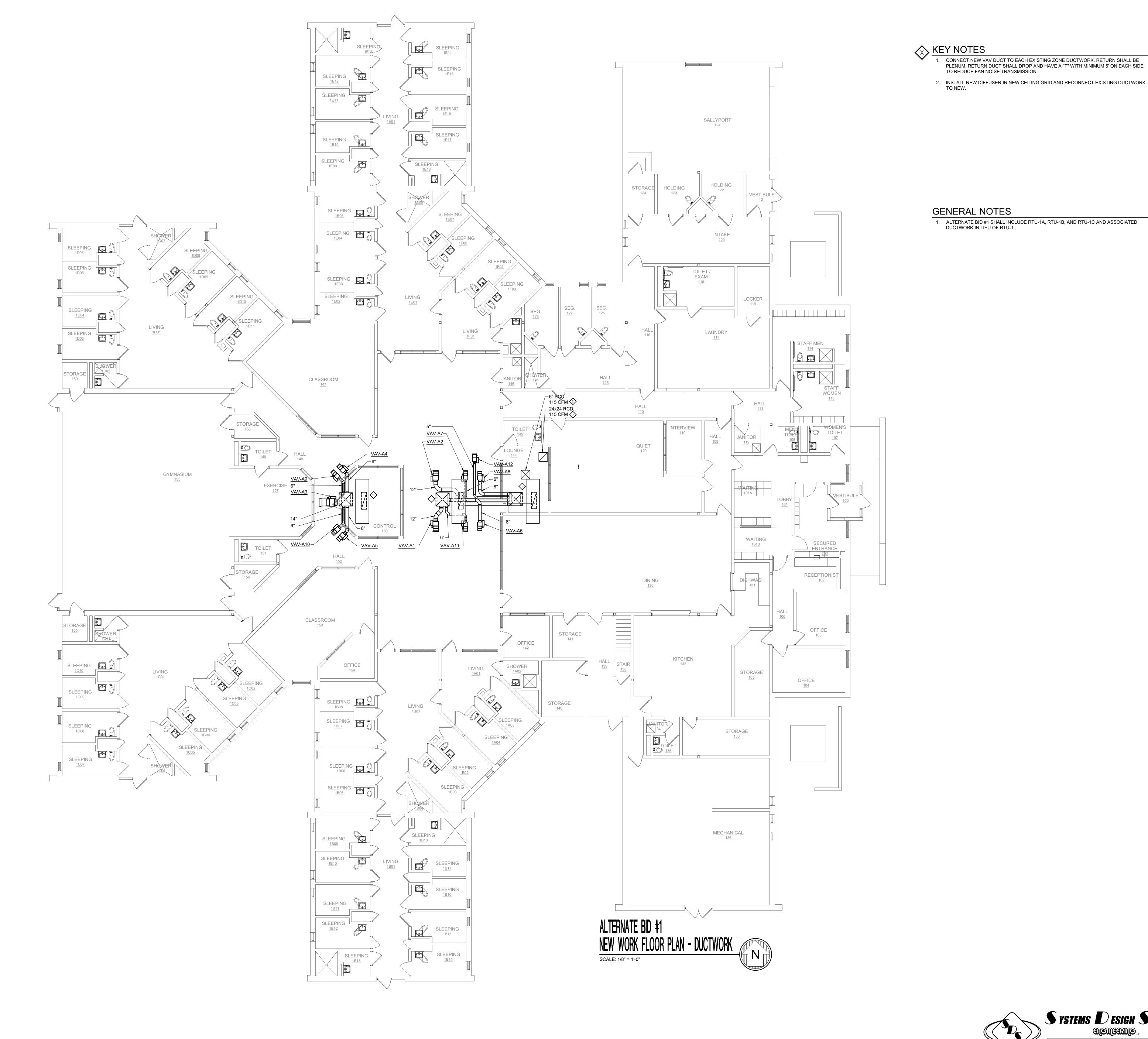
M106

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GENERALS

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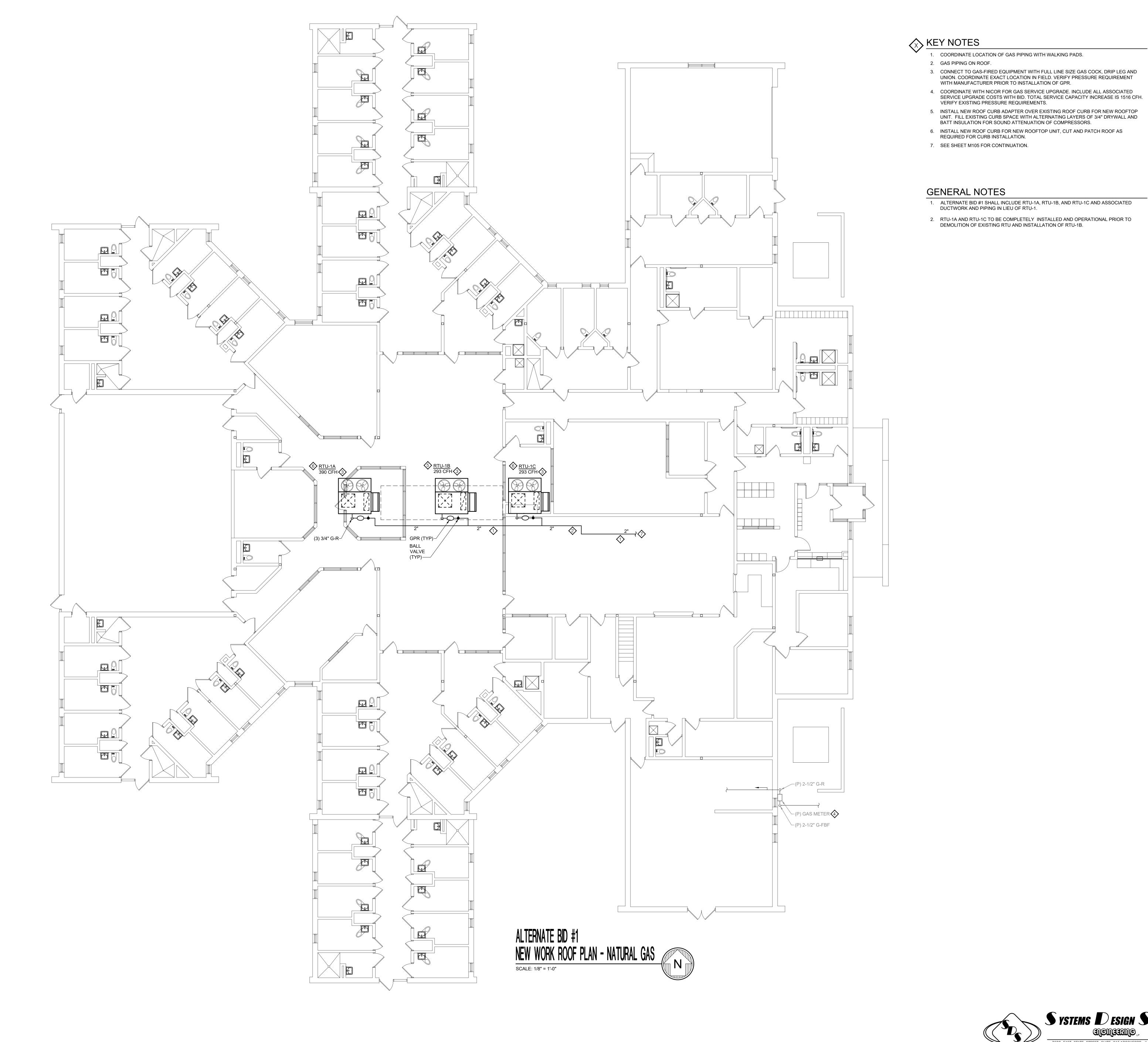
VERIFY EXISTING PRESSURE REQUIREMENTS.

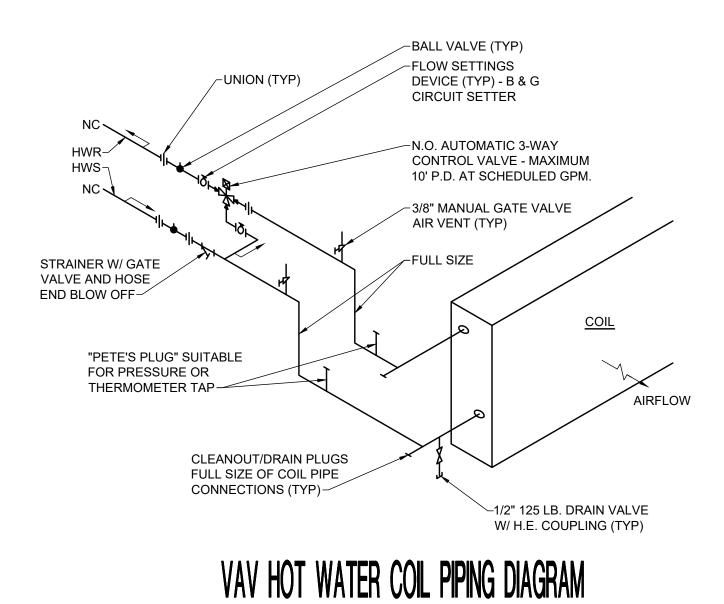
UNIT. FILL EXISTING CURB SPACE WITH ALTERNATING LAYERS OF 3/4" DRYWALL AND

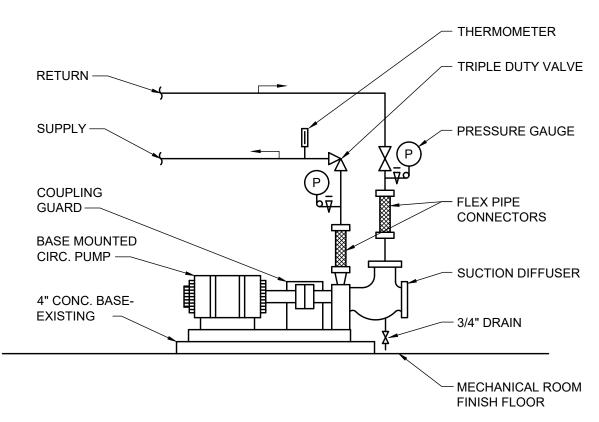
SHEET NUMBER SYSTEMS DESIGN SERVICE

SCHOOLSTEIN SERVICE

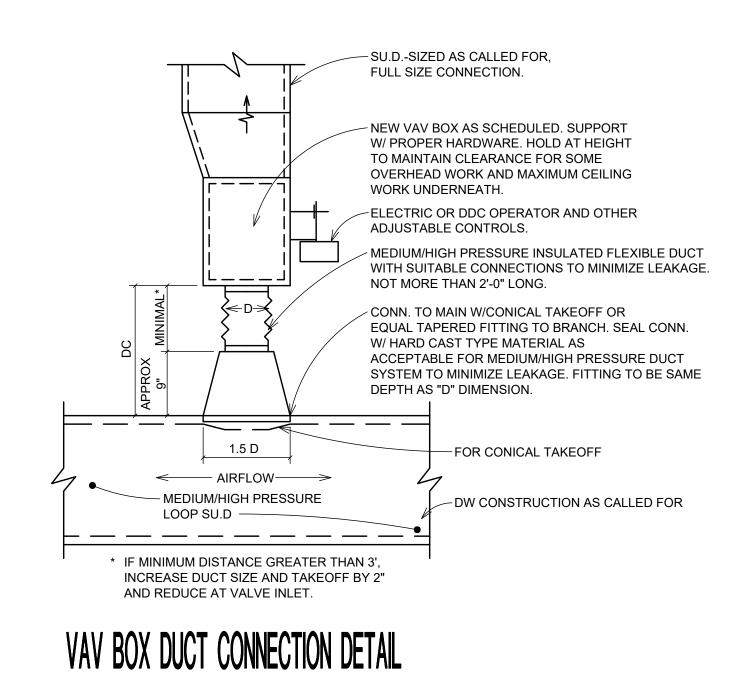
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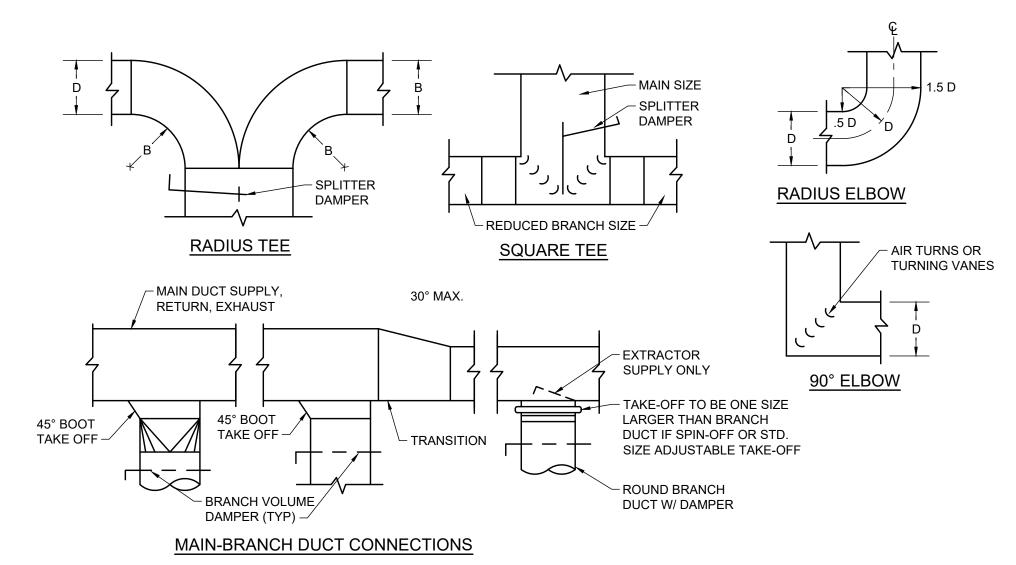


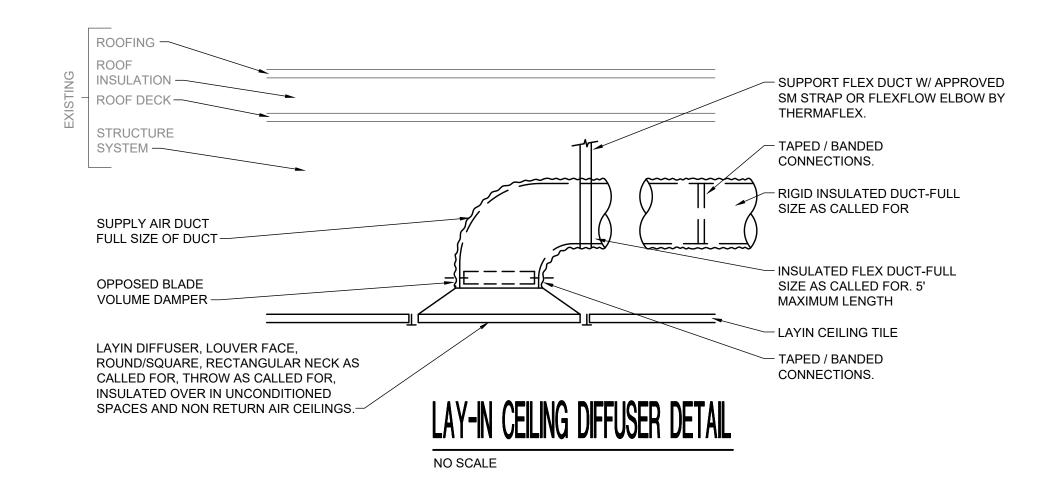


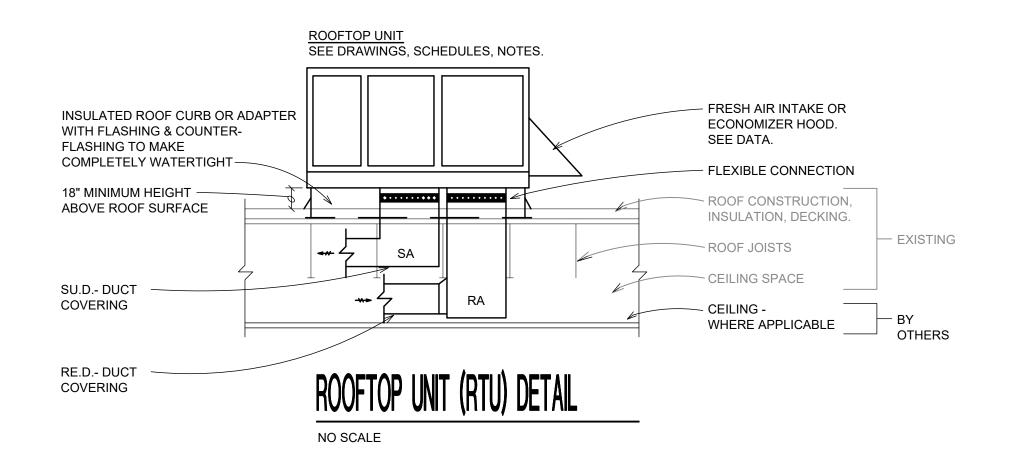


### BASE-MOUNTED CIRCULATING PUMP PIPING DETAIL









### VARIABLE AIR VOLUME (VAV) BOX SCHEDULE:

							_	Primary								Heating			
					Unit		Max	Min	Htg	Cooling	Heating	_	_	•	•	Coil		Heating	
					Inlet	Reheat	Airflow	Airflow	Airflow	APD	Coil	Coil	Coil	Coil	Capacity	Flow		Coil APD	
Plan No.	RTU	Service	Manufacturer	Model	Size	Type	(CFM)	(CFM)	(CFM)	(in. H2O)	EWT (F)	<u>`</u>	EAT (F)		(MBH)	(GPM)	Rows	(ft H2O)	NOTES
VAV-A1	RTU-1/RTU-1B	"A" and "B" Cells	Trane	VCWF	12 Inch		1500	1500	1500	0.44	180.0	145.22	60	100	65.07	3.74	2	0.76	1-2
VAV-A2	RTU-1/RTU-1C	"E" and "F" Cells	Trane	VCWF		Hot Water	1475	1475	1475	0.43	180.0	144.58	60	100	63.99	3.61	2	0.71	1-2
VAV-A3	RTU-1/RTU-1A	Gymnasium 155	Trane	VCWF	14 Inch	Hot Water	2030	610	2030	0.4	180.0	140.96	60	100	88.06	4.51	2	0.85	1-2
VAV-A4	RTU-1/RTU-1A	"D" Cells and Control 150	Trane	VCWF	8 Inch	Hot Water	765	765	765	0.56	180.0	155.68	60	100	33.19	2.73	2	0.55	1-2
VAV-A5	RTU-1/RTU-1A	"C" Cells	Trane	VCWF	8 Inch	Hot Water	690	690	690	0.47	180.0	152.36	60	100	29.93	2.16	2	0.36	1-2
VAV-A6	RTU-1/RTU-1B	Classroom 153 and Office 154	Trane	VCWF	8 Inch	Hot Water	580	175	580	0.36	180.0	147.66	60	100	25.16	1.55	2	0.2	1-2
VAV-A7	RTU-1/RTU-1C	Living 1E101 and Living 1F101	Trane	VCWF	6 Inch	Hot Water	475	145	475	0.57	180.0	139.55	60	100	20.61	1.02	2	0.61	1-2
VAV-A8	RTU-1/RTU-1C	Classroom 147	Trane	VCWF	8 Inch	Hot Water	675	200	675	0.46	180.0	151.71	60	100	29.28	2.07	2	0.33	1-2
VAV-A9	RTU-1/RTU-1A	Living 1D101	Trane	VCWF	6 Inch	Hot Water	465	140	465	0.55	180.0	138.73	60	100	20.17	0.98	2	0.57	1-2
VAV-A10	RTU-1/RTU-1A	Living 1C101	Trane	VCWF	6 Inch	Hot Water	495	150	495	0.62	180.0	141.18	60	100	21.47	1.11	2	0.71	1-2
VAV-A11	RTU-1/RTU-1B	Living 1A101 and Living 1B101	Trane	VCWF	6 Inch	Hot Water	465	150	465	0.55	180.0	138.73	60	100	20.17	0.98	2	0.57	1-2
VAV-A12	RTU-1/RTU-1C	Seg. 126/127/128	Trane	VCWF	5 Inch	Hot Water	285	285	285	0.18	180.0	169.58	60	100	13.05	0.5	2	0.18	1-2
VAV-B1	RTU-2	Common and Hall 148/152	Trane	VCWF	12 Inch	Hot Water	1485	445	1485	0.43	180.0	144.84	60	100	64.42	3.66	2	0.73	1-2
		Dishwash 131, Kitchen 132, and																	
VAV-B2	RTU-2	Storage 133	Trane	VCWF	14 Inch	Hot Water	2405	720	2405	0.52	180.0	147.89	60	100	104.33	6.49	2	1.7	1-2
		Storage 124, Holding 122/123,																	
		Intake 120, Toilet/Exam 118,																	
VAV-B3	RTU-2	and Locker 119	Trane	VCWF	12 Inch	Hot Water	1715	515	1715	0.54	180.0	150.62	60	100	74.40	5.06	2	1.34	1-2
VAV-B4	RTU-2	Dining 130	Trane	VCWF	10 Inch	Hot Water	1155	350	1155	0.5	180.0	145.09	60	100	50.10	2.87	2	1.27	1-2
		Staff Men 114, Staff Women																	
		113, Men's 108, Women's 107,																	
		Lobby/Waiting 110, Secured																	
VAV-B5	RTU-2	Entrance 200, Receptionist 102	Trane	VCWF	10 Inch	Hot Water	1195	805	1195	0.53	180.0	146.63	60	100	51.84	3.11	2	1.47	1-2
VAV-B6	RTU-2	Laundry 117	Trane	VCWF	8 Inch	Hot Water	670	200	670	0.45	180.0	151.47	60	100	29.06	2.04	2	0.32	1-2
		Lounge 144, Quiet 129, and																	
VAV-B7	RTU-2	Interview 110	Trane	VCWF	8 Inch	Hot Water	590	180	590	0.37	180.0	148.06	60	100	25.59	1.6	2	0.21	1-2
VAV-B8	RTU-2	Office 103/104 and Storage 105	Trane	VCWF	6 Inch	Hot Water	455	135	455	0.53	180.0	137.9	60	100	19.74	0.94	2	0.53	1-2
		Hall 139, Office 142, and																	
VAV-B9	RTU-2	Storage 140	Trane	VCWF	5 Inch	Hot Water	285	85	285	0.18	180.0	130.38	60	100	13.64	0.55	2	0.21	1-2

NOTES: SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.

- 1. FLOW CROSS AND CONTROL POWER TRANSFORMER SHALL BE PROVIDED WITH UNIT. CONTROLS CONTRACTOR TO FURNISH AND INSTALL DDC CONTROLS; UNIT CONTROLLER, DAMPER ACTUATOR, THREE WAY MODULATING CONTROL VALVE AND ACTUATOR, SUPPLY DISCHARGE AIR TEMPERATURE SENSOR, WALL OR DUCT MOUNTED TEMPERATURE SENSOR (AS SHOWN ON DARWINGS), WIRING, PROGRAMMING, GRAPHICS, ETC. AS SHOWN IN SPECIFICATIONS, CONTROLS DIAGRAMS, AND POINTS LIST. UNIT TO BE TIED INTO EXISTING ALPHA CONTROLS BUILDING MANAGEMENT SYSTEM.
- MINIMUM AIRFLOWS SHOWN MAY BE ADJUSTED UPWARD OR DOWNWARD TO GIVE COMFORT LEVEL AS REQUIRED. VAV TO BE PRESSURE INDEPENDENT CONTROL

### ROOFTOP UNIT (RTU) EQUIPMENT SCHEDULE:

PLAN NO.	RTU-1	RTU-2	RTU-1A	RTU-1B	RTU-1C	
RTU MFR	AAON	AAON	AAON	AAON	AAON	
RTU MODEL	RNA-040-D-0-3-DAA0A-CB3L0	RN-030-3-0-EB09-3CB	RN-015-3-0-HB09-36B	RN-013-3-0-HA09-3GB	RN-013-3-0-HA09-3GB	
FUEL	NATURAL GAS	NATURAL GAS	NATURAL GAS	NATURAL GAS	NATURAL GAS	ALTERNATE BID #1
MBH IN/OUT	900/720	540/432	390/315.9	292.5/234	292.5/234	ALTERNATE BID #1
EFFICIENCY	80%	80%	80%	80%	292.3/234 80%	Γ
HTG STAGES/TURNDOWN					MODULATING/10:1	·
	MODULATING/15:1 N/A	MODULATING/18:1	MODULATING/10:1 N/A	MODULATING/10:1 N/A	N/A	
ELECTRIC PRE-HEAT (KW)		60				1
ENTERING AIR DB (DEG F)	-10.0	9.0	1 -10.0	-10.0	-10.0	
ENTERING AIR WB (DEG F)	-11.0	5.3	-11.0	-11.0	-11.0	
LEAVING AIR DB (DEG F)	57.3	49.2	55.8	75.2	64.5	1
LEAVING AIR WB (DEG F)	37.3	32.7	36.5	46.4	41.1	
VENT MIN / % OUTSIDE AIR	6070/61%	1950/20%	1945/44%	1860/73%	2265/78%	:
DRIVE	VFD	VFD	VFD	VFD	VFD	
SUPPLY CFM/ESP (INCHES)	9900/1.7"	9955/1.8"	4445/1.7"	2545/1.7"	2910/1.7"	I
SUPPLY FAN HP	10.0	15.0	l 7.5	2.0	2.0	1
EXHAUST CFM/ESP (INCHES)	3830/0.1"	8435/0.1"	1860/0.1"	1860/0.1"	2350/0.1"	
EXHAUST FAN HP	1.0	7.5	1.0	1.0	1.0	ĺ
NOM COOL CAP @ 95° F. (TON)	40	30	l <sub>15</sub>	13	13	I
COOL STAGES	MODULATING	MODULATING	MODULATING	MODULATING	MODULATING	1
ENTERING AIR DB (DEG F)	87.30	78.92	83.75	89.62	90.57	
ENTERING AIR WB (DEG F)	70.60	65.23	68.39	71.96	72.51	1
LEAVING AIR DB (DEG F)	56.00	53.69	53.95	52.29	55.09	
LEAVING AIR WB (DEG F)	55.40	53.29	53.75	52.04	54.79	
FILTER QTY	24	24	24	24	24	
UNIT VOLTAGE	480-3-60	480-3-60	480-3-60	480-3-60	480-3-60	I
COOLING FLA	73	57	32	27	27	1
COOLING MCA	78	63	35	29	29	
COOLING MOCP	90	80	45	35	35	
HEATING FLA	19	94	14	6	6	
HEATING MCA	22	114	17	7	7	1
HEATING MOCP	35	125	25	15	, 15	
EFFICIENCY RATING	10.0 EER	10.8 EER	11.5 EER	12.2 EER	12.2 EER	l
REFRIGERANT	R-410A	R-410A	I R-410A	R-410A	R-410A	1
APPROX. WT. IN LBS.	6900	4250	2700	3050	2250	
NOTES	1-2,4-10	1-2,4-10	1 1-3,5-10	1-2,4-10	1-3,5-10	•

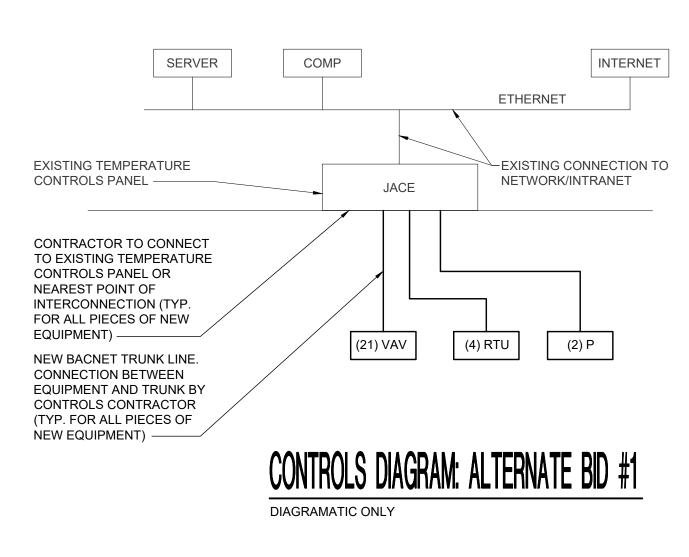
NOTES: SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.

- 1. UNIT SHALL BE EQUIPPED WITH VFD ON SUPPLY AND EXHAUST FANS, FULL MODULATING ULTRA LOW LEAK ECONOMIZER WITH ADJUSTABLE TEMPERATURE/ENTHALPY CONTROLS AND BAROMETRIC RELIEF, POWERED EXHAUST, STAINLESS STEEL HEAT EXCHANGER, MODULATING GAS HEAT, DIGITAL SCROLL COMPRESSORS WITH COMPRESSOR WRAPS, HINGED ACCESS DOORS, DOUBLE WALL CONSTRUCTION WITH R-13 INSULATION, OUTSIDE AIR HOOD, CLOGGED FILTER SWITCH, DAMPER ACTUATORS, AND POWERED CONVENIENCE OUTLET. UNIT SHALL HAVE 65 KAIC SCCR RATING. UNIT SHALL HAVE TWO POWER CONNECTIONS (CIRCUIT 1: COMPRESSORS AND CONDENSERS, CIRCUIT 2: SUPPLY FAN, EXHAUST FAN, COMBUSTION FAN, AND ELECTRIC PRE-HEAT). DISCONNECT SWITCHES SHALL BE PROVIDED AND INSTALLED BY
- 2. ALPHA CONTROLS TO FURNISH AND INSTALL ALL DDC CONTROLS; UNIT CONTROLLER, WALL MOUNTED SPACE/DUCT SENSORS SYSTEM SENSORS, RELAYS, TRANSFORMERS, WIRING, PROGRAMMING, GRAPHICS ETC. AS SHOWN IN SPECIFICATIONS, CONTROLS DIAGRAMS, AND POINTS LIST. UNIT TO BE TIED INTO EXISTING ALPHA
- CONTROLS BUILDING MANAGEMENT SYSTEM. 3. PROVIDE MANUFACTURER'S ROOF CURB, MINIMUM 18" TALL.
- 4. PROVIDE ROOF CURB ADAPTER TO BE MATED TO EXISTING CURB (THYBAR OR EQUAL), VERIFY EXISTING CURB DIMENSIONS IN FIELD.
- 5. UNIT TO HAVE MINIMUM VENTILATION QUANTITIES SET AS CALLED FOR DURING OCCUPIED HOURS. SET ECONOMIZER CHANGEOVER CONTROL TO LOWEST DEWPOINT (50
- DEG. F.) POSSIBLE TO LIMIT MOISTURE CONTENT OF AIR ENTERING BUILDING.
- 6. PROVIDE DEEP SEAL TRAPPED CONDENSATE FROM DRAIN PAN CONNECTION TO ROOF. 7. UNIT TO HAVE FULL SIZE GAS CONNECTION WITH LINE SIZE VALVE, UNION AND DIRT LEG.
- 8. UNIT TO HAVE FULL SIZE FLEXIBLE DUCT CONNECTION AT UNIT WITH FULL SIZE SUPPLY AND RETURN DUCT CONNECTIONS WITH 1" DL AT DROPS.
- 9. EXTERNAL STATIC PRESSURE DOES NOT INCLUDE FILTER, ECONOMIZER, OR UNIT PRESSURE DROPS.
- 10. HVAC CONTRACTOR TO COORDINATE ALL FINAL SIZES WITH MANUFACTURER(S) PRIOR TO ORDERING, TO ASSURE PROPER USE AND SELECTION. CONTROL PACKAGES TO INCLUDE ALL NECESSARY RELAYS, DUCT SMOKE DETECTOR (BY E.C.), CONTACTORS, CONTROL CABINET/ PANELS, TRANSFORMERS, WIRING TERMINAL STRIP, WIRING DIAGRAMS, COMPLETE INSTALLATION DETAILS/MATERIAL LISTS/STARTUP AND CHECK OUT PROCEDURE FOR THE SYSTEM BY MANUFACTURER'S REP AND FACTORY CHECK OUT WITH WRITTEN ASSURANCE THAT THE SYSTEM IS OPERATING AND INSTALLED IN CONFORMANCE WITH MANUFACTURER'S REQUIREMENTS/RECOMMENDATIONS.

### CIRCULATING PUMP SCHEDULE:

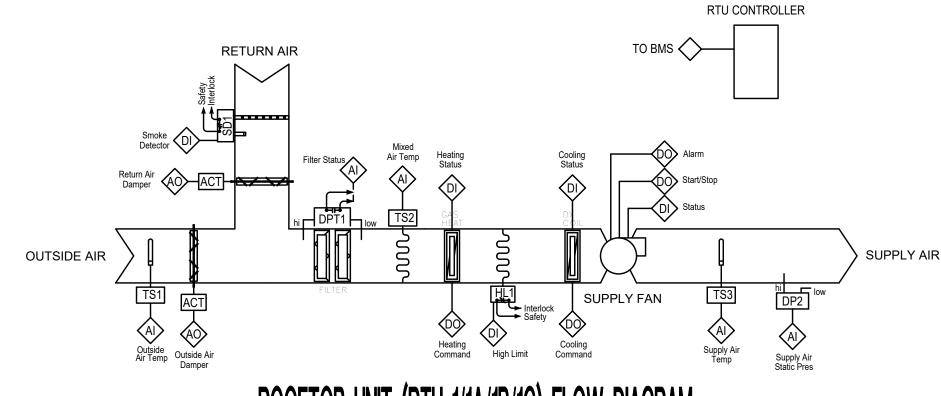
- A. ACCEPTABLE MANUFACTURERS: BELL & GOSSET, GRUNDFOS. CONFIRM/VERIFY SIZE WITH MANUFACTURER FOR PROJECT USAGE/SIZING.
- B. HWP-1: SYSTEM LOOP PUMP, BASE MOUNTED END SUCTION, B & G MODEL 1.5AD SERIES E-1510, VOLTAGE 480-3-60, 1.5 HP, 88 GPM, 30' HD., 2" SUCTION, 1.5" DISCHARGE, 145T FRAME. PROVIDE WITH B&G MODEL 3DS-2S TRIPLE DUTY VALVE AND B&G MODEL DB-3X SUCTION DIFFUSER. MOTOR CONTROLLER BY ELECTRICAL CONTRACTOR, COORDINATE.
- B. HWP-2: SYSTEM LOOP PUMP, BASE MOUNTED END SUCTION, B & G MODEL 1.5AD SERIES E-1510, VOLTAGE 480-3-60, 1.5 HP, 88 GPM, 30' HD., 2" SUCTION, 1.5" DISCHARGE, 145T FRAME. PROVIDE WITH B&G MODEL 3DS-2S TRIPLE DUTY VALVE AND B&G MODEL DB-3X SUCTION DIFFUSER. MOTOR CONTROLLER BY ELECTRICAL CONTRACTOR, COORDINATE.
- C. CONTROLS CONTRACTOR SHALL RE RESPONSIBLE FOR PROVIDING ALL CONTROLS, PROGRAMMING, WIRING, ETC. REQUIRED TO TIE NEW PUMPS INTO EXISTING CONTROL SYSTEM.



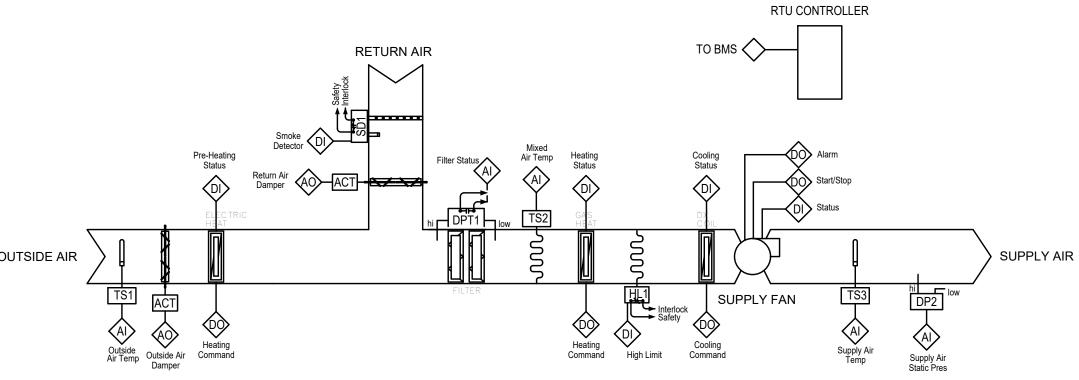


### MINIMUM CONTROLS POINTS LIST:

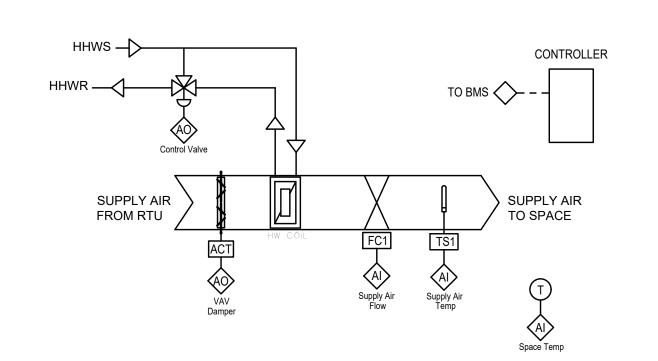
Rooftop Unit (RTU-1/1A/1B/1C)	System Point Names
Outside Air Temperature	OAT
Outside Air Damper Command	OaDmprCmd
Outside Air Damper Set Point	OaDmprStPt
Outside Air Damper Status Return Air Damper Command	OaDmprSts RaDmprCmd
Return Air Damper Command Return Air Damper Set Point	RaDmprStPt
Return Air Damper Status	RaDmprSts
Smoke Alarm	SmkAlm
Filter Pressure Setpoint	FltrStPt
Filter Alarm	FitrAlm
Mixed Air Temperature	MAT
Heating Command	HtgCmd
Heating Status	HtgSts
High Limit Alarm	HighLimit
Cooling Command	ClgCmd
Cooling Status	ClgSts
Supply Fan Status	SFanSts
Supply Fan Command Supply Fan Alarm	SFanCmd SFanAlm
Supply Fan Alaim Supply Air Temperature Setpoint	SATStPt
Supply Air Temperature Setponit Supply Air Temperature	SAT
Supply Air Static Pressure Setpoint	StaticStPt
Supply Air Static Pressure	Static
Economizer Set Point	EconStPt
Occupied Command	OccCmd
Unoccipied Command	UnOccCmd
Occupied Cooling Set Point	OccClgStPt
UnOccupied Cooling Set Point	UnOccClgStPt
Occupied Heating Set Point	OccHtgStPt
UnOccupied Heating Set Point	UnOccHtgStPt
Rooftop Unit (RTU-2)	System Point Names
Outside Air Temperature	OAT
Outside Air Damper Command	OaDmprCmd
Outside Air Damper Set Point	OaDmprStPt
Outside Air Damper Status	OaDmprSts
Pre-Heating Command	PreHtgCmd
Pre-Heating Status	PreHtgSts
Return Air Damper Command	RaDmprCmd
Return Air Damper Set Point	RaDmprStPt
Return Air Damper Status	RaDmprSts
Smoke Alarm	SmkAlm
Filter Pressure Setpoint	FltrStPt
Filter Alarm  Mixed Air Temperature	FltrAlm MAT
Heating Command	HtgCmd
Heating Status	HtgSts
High Limit Alarm	HighLimit
Cooling Command	ClgCmd
Cooling Status	ClgSts
Supply Fan Status	SFanSts
Supply Fan Command	SFanCmd
Supply Fan Alarm	SFanAlm
Supply Air Temperature Setpoint	SATStPt
Supply Air Temperature	SAT
Supply Air Static Pressure Setpoint	StaticStPt
Supply Air Static Pressure	Static
Economizer Set Point	EconStPt OccCmd
Occupied Command Unoccipied Command	OccCmd UnOccCmd
Occupied Confinand Occupied Cooling Set Point	OccClgStPt
UnOccupied Cooling Set Point  UnOccupied Cooling Set Point	UnOccClgStPt
Occupied Heating Set Point	OccHtgStPt
UnOccupied Heating Set Point	UnOccHtgStPt
Variable Air Volume Box (VAV)	System Point Names
Damper Command	DamperCmd
Damper Set Point	FlowStPt
Heating Command (HW Valve)	HtgCmd
Heating Status (HW Valve) Supply Air Flow	HtgSts Flow
Supply Air Flow Supply Air Temperature	SAT
Supply Air Temperature Space Temperature	SpaceTemp
Occupied Command	OccCmd
Unoccipied Command	UnOccCmd
Occupied Heating Set Point	OccHtgStPt
Occupied Cooling Set Point	OccClgStPt
•	
UnOccupied Heating Set Point	UnOccHtgStPt







ROOFTOP UNIT (RTU-2) FLOW DIAGRAM

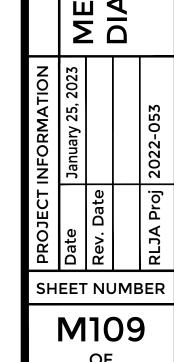


TYPICAL VAV BOX FLOW DIAGRAM
NO SCALE



JOHNSON

RICHARD L. ASSOCIATES | /



DESCRIPTION

MOUNTED

TYPICAL

VENT AIR DUCT

VOLUME DAMPER

VENT THRU ROOF

VENT GRILLE

VTR

NEW CONNECTION

OUTDOOR AIR DAMPER

OUTDOOR AIR

MECHANICAL CONTRACTOR

LPS | LOW PRESSURE STEAM SEE SPECIFICATIONS FOR ADDITIONAL ABBREVIATIONS, PREFIXES, SUFFIXES, ETC.

GENERAL CONTRACTOR

HVAC | HEATING, VENTILATING & AIR CONDITION.

FIRE DAMPER

HGBP HOT GAS BYPASS PIPING

 $\wedge$   $\wedge$ 

 $\wedge$   $\wedge$ 

X/Y,  $N \times O$ 

<u>EQUIPMENT</u>, <u>EQUIPMENT</u>

ΧØ

**GAS PIPING** 

RK DESCRIPTION

ACCESS DOOR

ABOVE FINISH FLOOR

**AUTOMATIC ALUMINUM DAMPERS** 

AIR COOLED CONDENSING UNIT

ADJUSTABLE FLEXIBLE CONNECTION

(SEE SPECIFICATIONS FOR ADDITIONAL NOTES, SYMBOLS, ABBREVIATIONS, ETC.) = SUPPLY DUCT (SU.D.) UP —  $\bigcirc$ = EXHAUST DUCT (EX.D.) = VENT DUCT (VE.D.) = OUTDOOR DUCT (OU.D.) = = SUPPLY CEILING DIFFUSER = SUPPLY REGISTER (SR) = SUFFIX (-W) = WALL MOUNT - CFM TYP. SUFFIX (-C) = CEILING MOUNT = RETURN REGISTER (RR) = SUFFIX (-F) = FLOOR MOUNT SUFFIX (-#) = TYPE AS SCHEDULED = EXHAUST REGISTER (ER) = ✓ = VENT REGISTER (VR) → = RETURN GRILLE (RG) = EXHAUST GRILLE (EG) = DOOR CUT-OFF (DCO); BY OTHERS DOOR VENT (DV); BY OTHERS **→** — = DUCT R=RISE, D=DROP WITH DIRECTION OF AIR FLOW = SUPPLY CEILING DIFFUSER (SCD) ARROW INDICATES DIRECTION OF AIR FLOW U.L. FIRE DAMPER - SHEET METAL SLEEVE AROUND DUCT IN WALL, ADJACENT ACCESS DOOR = MANUAL VOLUME DAMPER - MUST BE ACCESSIBLE

MOTORIZED VOLUME DAMPER - MUST BE ACCESSIBLE

MUST BE ACCESSIBLE

= VANED ELBOW - SMACNA PLATE #22

DIAMETER, DIMENSIONS IN INCHES.

= BRANCH DUCT TAKE-OFF WITH MANUAL VOLUME EXTRACTOR,

= ADJUSTABLE FLEXIBLE CONNECTION (AFC) BETWEEN DUCTS

= RADIUS ELBOW - SMACNA PLATE #21 LOW VELOCITY

-G = WITH GUARD, 4'-0" FOR HANDICAP.

= EQUIPMENT NOTE, DESIGNATION, OR ITEM.

= THERMOSTAT - ARROW INDICATES UNITS CONTROLLED,

= ADJUSTABLE FLEXIBLE CONNECTION TO REGISTER, DIFFUSERS, ETC.

= DUCT SIZE (1ST FIGURE SIDE SHOWN, 2ND FIGURE SIDE NOT SHOWN) BOTH SIDES REFER TO INSIDE DIMENSION, DIMENSIONS IN INCHES.

### MECHANICAL GENERAL NOTES:

A. THE FOLLOWING REMOVED PRESENT EQUIPMENT AND MATERIALS WHICH ARE IN GOOD OPERATING CONDITION (OR ARE PLACED IN GOOD CONDITION), SUITABLE, MEETING THE REQUIREMENTS OF THESE SPECIFICATIONS, AND ARE APPROVED IN WRITING BY ENGINEER, OR CALLED FOR MAY BE REUSED (PXR, PXN, AND PN). B. REMOVED DUCTWORK MUST NOT BE REUSED.

PRESENT EQUIPMENT AND DEMOLITION NOTES

C. ANY OF ABOVE EQUIPMENT WHICH IS NOT REUSED AND FOLLOWING REMOVED PRESENT EQUIPMENT SHALL BECOME PROPERTY OF CONTRACTOR, AND SHALL BE REMOVED FROM PREMISES (PX). 1. EQUIPMENT SO DESIGNATED ON DRAWINGS.

C. CONTRACTOR SHALL: 1. PROVIDE NEW FLOORS UNDER REMOVED PRESENT EQUIPMENT AND WHERE CALLED FOR 2. REPAIR FLOORS UNDER AND WALLS ADJACENT TO REMOVED EQUIPMENT, TO

MATCH ADJACENT CONSTRUCTION. 3. FILL IN PRESENT CHASES WHICH ARE NO LONGER REQUIRED AND NEATLY PATCH TO MATCH ADJACENT CONSTRUCTION. 4. CUT OPENINGS REQUIRED FOR:

> A. HIS WORK: **B. ADMISSION OF NEW EQUIPMENT** C. REMOVAL OF PRESENT EQUIPMENT;

D. NEW CONNECTION TO PRESENT CONSTRUCTION. 5. PATCH AND REPAIR UNUSED PRESENT HOLES AND OPENINGS, AND THOSE LEFT BY THE REMOVAL OF PRESENT EQUIPMENT AND ADMISSION OF NEW

6. PATCH AND REPAIR PRESENT EQUIPMENT, AND BUILDING CONSTRUCTION WHICH HAS NOT BEEN CUT, REMOVED, DISTURBED OR MARRED, AS REQUIRED, TO RESTORE IT TO ORIGINAL CONDITION BEFORE BEING DISTURBED. F. UNUSED OPENINGS IN EQUIPMENT, WALLS, CEILING, FLOOR, ETC. SHALL BE FILLED. G. PRESENT PAINTED CONSTRUCTION WHICH IS MARRED SHALL BE REPAIRED SAME AS NEW CONSTRUCTION.

H. CERTAIN ABBREVIATIONS OR SYMBOLS, WHEN APPLIED TO PRESENT (TO EXISTING) LINE. DEVICE OR EQUIPMENT. SHALL HAVE THE FOLLOWING MEANINGS:

NEW CONNECTIONS TO PRESENT DUCTWORK, EQUIPMENT, PIPING, ETC. INSTALL, TEST, COVER, PAINT, ETC., SAME AS NEW WORK.

TO REMAIN UNCHANGED, IF CHANGE CANNOT BE AVOIDED, CHANGE "P" TO "PXR", AT NO INCREASE IN CONTRACT PRICE. VERIFY LOCATION.

TO BE COMPLETELY REMOVED, INCLUDING UNNEEDED CONNECTIONS, PIPING, DUCTS, WIRING, BASES, ETC., OF EVERY KIND. UNUSED OPENINGS PLUGGED OR CAPPED, TESTED, COVERED, PAINTED SAME AS NEW WORK. OTHER DISTURBED WORK OF EVERY KIND RESTORED, PATCHED, TESTED, COVERED, PAINTED, ETC., TO EQUAL ORIGINAL CONDITION. REMOVED MATERIAL MUST NOT BE REUSED UNLESS OTHERWISE SPECIFIED OR DIRECTED BY ENGINEER.

SAME AS "PX", EXCEPT REMOVED, CLEANED AND RESTORED TO GOOD OPERATING CONDITION AND REINSTALLED, SAME AS NEW WORK, IN ORIGINAL POSITION, OR CLOSE TO ORIGINAL LOCATION. IF RECONDITIONING IS IMPRACTICAL, PROVIDE NEW DEVICE, AS APPROVED BY ENGINEER, AT NO INCREASE IN CONTRACT

REMOVED, CLEANED AND RESTORED TO GOOD OPERATING CONDITION AND REINSTALLED SAME AS NEW WORK, IN NEW POSITION MARKED "PN". IF RECONDITIONING IS IMPRACTICAL, PROVIDE NEW DEVICE, AS APPROVED BY ENGINEER, AT NO INCREASE IN CONTRACT PRICE. UNUSED OPENINGS PLUGGED OR CAPPED, TESTED, COVERED, PAINTED SAME AS EXISTING OR NEW WORK. OTHER DISTURBED WORK OF EVERY KIND RESTORED, PATCHED, TESTED, COVERED, PAINTED, ETC., EQUAL TO EXISTING OR NEW WORK.

COMPLETELY REINSTALL DEVICE AT NEW LOCATION TO EXISTING OR NEW DUCTWORK AS SHOWN, SAME AS NEW WORK. PROVIDE ALL NECESSARY DUCT OR PIPE EXTENSIONS AS REQUIRED.

I. WORK OF EVERY DIVISION SHALL BE COORDINATED WITH ALL OTHER WORK AND PRESENT CONDITIONS, SO THAT 1. ELECTRICAL SERVICES TO PRESENT BUILDINGS OR PORTIONS OF BUILDING WILL NOT BE INTERRUPTED DURING PERIODS WHEN THOSE SERVICES ARE NEEDED.

2 SPECIAL SYSTEMS SUCH AS FIRE ALARM, SOUND, ETC., OF EVERY KIND TO PRESENT BUILDINGS WILL NOT BE INTERRUPTED DURING WORKING AND/OR OCCUPIED HOURS, EXCEPT AS APPROVED BY THE OWNER. J. DUCTWORK SERVING NEW AND/OR PRESENT MECHANICAL DEVICES IN FINISHED PRESENT ROOMS OR SPACES SHALL BE CONCEALED IN FINISHED ROOMS, WHERE POSSIBLE OR SHALL BE RUN IN ADJOINING UNFINISHED ROOMS, SHAFTS, CHAMBERS, CLOAK ROOMS, ETC., EXCEPT WHERE EXPOSED DUCT IS PERMITTED IN FINISHED PRESENT ROOMS BY ARCHITECT IN WRITING, PRESENT DIFFUSERS, GRILLS, REGISTERS, SWITCHES, ETC. SHALL BE REMOVED AS PER NOTE "PX" UNLESS ANOTHER SYMBOL IS SHOWN ON DRAWINGS OR THE DEVICES ARE SERVING OTHER EQUIPMENT. WHERE SPECIFICALLY APPROVED BY ARCHITECT IN WRITING, OPENINGS MAY BE PERMITTED TO REMAIN AND BE PROVIDED WITH NEAT FLUSH COVERS. EXTENDING OVER ENTIRE WALL OPENING.

K. UNNEEDED EQUIPMENT, DUCTWORK, ETC., SHALL BE COMPLETELY REMOVED; AND CONSTRUCTION PATCHED AS PER NOTE "PX". NEW CONNECTIONS TO PRESENT DUCTS/EQUIPMENT, SHALL BE MADE, TESTED, COVERED, PAINTED, ETC., SAME AS NEW EQUIPMENT. PRESENT EQUIPMENT, AND OTHER COVERING DISTURBED BY CONTRACTOR SHALL BE REPAIRED TO EQUAL NEW CONDITION AND PAINTED SAME AS NEW COVERING.

L. WORK SHALL BE COORDINATED SO THAT HEATING. PLUMBING. ELECTRICAL. INTERNET AND TELEPHONE SERVICES TO THE PRESENT BUILDING WILL NOT BE INTERRUPTED, EXCEPT AS APPROVED BY THE OWNER/ARCHITECT.

DRAWINGS ARE GENERALLY DIAGRAMMATIC. EACH CONTRACTOR SHALL MAKE REQUIRED CHANGES FROM THE GENERAL ROUTING SHOWN ON THESE DRAWINGS SUCH AS OFF SETS, BENDS OR CHANGES IN ELEVATION DUE TO COORDINATION WITH THE WORK OF OTHER TRADES AND THE BUILDING CONSTRUCTION. ALL CHANGES SHALL BE MADE WITHOUT ADDITIONAL COST TO THE OWNER. FOR PRESENT CONSTRUCTION, VERIFY ALL EXISTING CONDITIONS PRIOR TO BIDDING TO AVOID CONFLICT. IT IS INTENDED THAT ALL EQUIPMENT, MATERIAL, DEVICES, ETC., SHALL BE LOCATED SYMMETRICALLY WITH THE ARCHITECTURAL ELEMENTS, NOTWITHSTANDING THE FACT THAT LOCATIONS INDICATED BY THESE DRAWINGS MAY BE DISTORTED FOR CLEARNESS OF PRESENTATION.

CONTRACTOR IS ALLOWED TO MAKE MINOR CHANGES TO THE PIPING TO AVOID FIELD CONFLICTS AT NO ADDITIONAL COST TO THE OWNER AND AS LONG AS THE RELOCATION DOES NOT AFFECT THE PERFORMANCE OF THE SYSTEM.

EACH CONTRACTOR SHALL CHECK DRAWINGS OF THE OTHER CONTRACTORS TO VERIFY SPACES IN WHICH THEIR WORK WILL BE INSTALLED IS CLEAR OF OBSTRUCTIONS. MAINTAIN MAXIMUM HEADROOM AND SPACE CONDITIONS AT ALL POINTS IN THE BUILDING. WHERE HEADROOM OR SPACE CONDITIONS APPEAR INADEQUATE, NOTIFY ARCHITECT/ENGINEER BEFORE PROCEEDING WITH THE INSTALLATION.

FURNISH ALL TRADES ADVANCE INFORMATION ON LOCATIONS AND SIZES OF PIPING, DUCTWORK, EQUIPMENT, FRAMES, BOXES, SLEEVES AND OPENINGS NEEDED FOR WORK, AND ALSO FURNISH INFORMATION AND SHOP DRAWINGS TO PERMIT TRADES AFFECTED TO INSTALL THEIR WORK PROPERLY AND WITHOUT DELAY.

WHERE THERE IS EVIDENCE THAT WORK OF ONE TRADE WILL INTERFERE WITH WORK OF OTHER TRADES, ALL TRADES SHALL ASSIST IN WORKING OUT SPACE CONDITIONS TO MAKE SATISFACTORY ADJUSTMENTS.

CONTRACTOR TO REVIEW, PRIOR TO BIDDING, ALL DRAWINGS TO COORDINATE VARIOUS WORK AS CALLED FOR. CONTRACTOR SHALL CAREFULLY CHECK ALL DRAWINGS FOR ALL TRADES, AND ANY LACK OF COORDINATION BETWEEN HIS WORK AND DRAWINGS FOR JOB CONDITIONS SHALL BE IMMEDIATELY REPORTED TO ARCHITECT.

CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING, INCLUDING CORE DRILLING, SAW CUTTING, ETC., AS REQUIRED TO ACCOMMODATE HIS WORK. CUTTING AND PATCHING AND PAYMENT OF SAID WORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR REQUIRING THE DISTURBANCE BUT SAME SHALL BE DONE BY A GENERAL CONTRACTOR. IT SHALL BE THE RESPONSIBILITY OF THE APPROPRIATE MECHANICAL CONTRACTOR TO GIVE QUANTITIES OF PATCHING REQUIREMENTS TO A GENERAL CONTRACTOR. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.

CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND REPLACEMENT OF PRESENT CEILINGS, LIGHT FIXTURES, DIFFUSERS, DUCTWORK, PIPING, CONDUIT, ETC., AS REQUIRED FOR THE INSTALLATION OF HIS WORK. REMOVAL, REPLACEMENT AND PAYMENT FOR MECHANICAL/ELECTRICAL ITEMS SHALL BE THE RESPONSIBILITY OF THE APPLICABLE MECHANICAL CONTRACTOR. REMOVAL AND REPLACEMENT OF PRESENT CEILINGS, ETC., SHALL BE THE RESPONSIBILITY OF CONTRACTOR MAKING THE DISTURBANCE BUT SAME SHALL BE DONE BY A GENERAL CONTRACTOR. IT SHALL BE THE RESPONSIBILITY OF THE APPROPRIATE MECHANICAL CONTRACTOR TO GIVE QUANTITIES OF REMOVAL/REPLACEMENT REQUIREMENTS TO A GENERAL CONTRACTOR.

- HEATING, VENTILATING, AIR CONDITIONING, AND ELECTRICAL DESIGNS ARE BASED ON THE REQUIREMENTS FOR THE SPECIFIED EQUIPMENT MANUFACTURER. BASED ON THE REQUIREMENTS FOR THE SPECIFIED EQUIPMENT MANUFACTURER. CONDUITS, DISCONNECTS, BREAKERS, FUSES, AND WIRE SIZES ARE SELECTED ON THE BASIS OF SPECIFIED EQUIPMENT MANUFACTURER. INCREASED CURRENT REQUIREMENTS NECESSITATING LARGER WIRE, BREAKERS, FUSES, SWITCHES, ETC. TO ACCOMMODATE ANY ALTERNATE OR SUBSTITUTE MANUFACTURER'S EQUIPMENT OTHER THAN AS SHOWN ON DRAWINGS OR SCHEDULES SHALL BE PROVIDED WITHOUT INCREASE IN CONTRACT PRICE BY THE CONTRACTOR FURNISHING EQUIPMENT. WIRE SIZES ARE SELECTED ON THE BASIS OF SPECIFIED EQUIPMENT.
- CONTRACTOR SHALL PROVIDE TRAPPED COOLING COIL CONDENSATE DRAIN LINES FROM ALL ROOFTOP
- 4. CONTRACTOR SHALL COORDINATE WITH GENERAL CONTRACTOR FOR ALL CEILING DIFFUSERS, REGISTERS, AND/OR GRILLES AS TO LOCATION. QUANTITIES AND PROPER TYPES FOR SURFACE MOUNT AND/OR LAY-IN SUSPENDED CEILINGS AND LIGHT PATTERNS. OPENINGS SHALL BE IN CENTER OF TILES OR AS DIRECTED BY
- CONTRACTOR SHALL INCLUDE IN HIS WORK THE RELOCATION OF ALL CROSS BRACING, AS REQUIRED TO FIT DUCTS BETWEEN JOISTS. THIS WORK SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR WITH
- 6. CONTRACTOR SHALL PROVIDE ALL DUCT DROPS AND OFFSETS TO AVOID INTERFERENCES WITH JOISTS, OTHER DUCTS, LIGHTS, PIPES, ETC.
- 7. ALL DUCTWORK TO BE HELD TIGHT TO STRUCTURAL ROOF JOISTS, BEAMS, ETC. AS CLEARANCE IS MINIMAL. COORDINATE WITH OTHER CONTRACTORS TO AVOID CONFLICT. ALL DUCTWORK IS ABOVE SUSPENDED CEILINGS, UNLESS NOTED OTHERWISE.
- SHEETMETAL DUCT SIZES MAY BE ALTERED TO FIT JOB CONDITIONS, BUT NET FREE AREAS MUST BE MAINTAINED. INCREASE SHEETMETAL DUCT SIZE TO ALLOW FOR DUCT LINING. INSULATE DUCTWORK AS
- 9. INSTALL 1" OF NON-SHRINK GROUT AROUND DUCTWORK ON EACH WALL FACE TO SEAL OPENINGS AND ELIMINATE SOUND TRANSFER WITH AIR-TIGHT CONNECTIONS.
- 10. OUTDOOR INTAKE SHEETMETAL DUCTWORK SHALL BE WATER-TIGHT WITH SOLDERED SEAMS. PITCH DUCTWORK TO WALL LOUVER AND SCREEN TO DRAIN ALL MOISTURE TO BUILDING EXTERIOR. INTAKES TO BE INSULATED. CAULK AROUND INTAKE AT EXTERIOR WALL, COORDINATE WITH GENERAL CONTRACTOR.
- 11. CONTRACTOR SHALL INCLUDE IN HIS WORK (1) SET OF FILTERS TO BE USED DURING CONSTRUCTION FOR ALL AIR HANDLING EQUIPMENT, FURNACES, ENERGY RECOVERY VENTILATORS, ROOFTOP UNITS, RETURN FANS, FILTER BOXES, FAN OPERATED VAV BOXES, ETC. CONTRACTOR PRIOR TO AIR BALANCING AND BUILDING OCCUPANCY SHALL INSTALL A COMPLETE SET OF CLEAN FILTERS. PROVIDE TO OWNER (1) COMPLETE SPARE/REPLACEMENT SET OF FILTERS FOR EACH PIECE OF EQUIPMENT. PROVIDE ALSO TO OWNER IN WRITING REPLACEMENT SIZES, TYPE, NUMBER PER EQUIPMENT, LOCATIONS, ETC.
- 12. UPON BALANCING, IF SYSTEM(S) CANNOT BE SUCCESSFULLY BALANCED AS AGREED BY OWNER/ARCHITECT/ENGINEER THEN ADDITIONAL DAMPERS, BELTS, SHEAVES, OR PULLEYS WILL BE INSTALLED TO PROVIDE PROPER AIR QUANTITIES, ACCEPTABLE SOUND LEVELS AND TEMPERATURE/ HUMIDITY REQUIREMENTS BY THE HVAC CONTRACTOR WITHOUT INCREASE IN CONTRACT PRICE WITHIN THE GUARANTEE PERIOD.
- 13. ALL THERMOSTATS LOCATED UP 4'-0" TO MEET ADA REQUIREMENTS WITH PLASTIC OR CAST GUARDS, AS SPECIFIED. ALL THERMOSTATS LOCATED ON EXTERIOR WALLS OR COLUMNS MUST BE MOUNTED ON THERMAL INSULATING BLOCKS.
- 14. PRESENT PAINTED CONSTRUCTION WHICH IS MARRED SHALL BE REPAINTED SAME AS NEW CONSTRUCTION.
- 15. THE USER OF THE DRAWINGS AGREES TO HOLD THE ENGINEER HARMLESS FOR ANY RESPONSIBILITY IN REGARD TO CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES AND FOR ANY SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK AND FURTHER SHALL HOLD THE ENGINEER HARMLESS FOR COST AND PROBLEMS ARISING FROM THE NEGLIGENCE OF THE CONTRACTOR. SUBCONTRACTOR, TRADESMEN OR WORKMEN. THE USE OF THESE DRAWINGS ALSO IMPLIES THAT THE ENGINEER SHALL TAKE NO RESPONSIBILITY FOR THE PLANNED USER'S FAILURE TO CARRY OUT THE WORK IN ACCORDANCE WITH THE DRAWINGS OR CONTRACT DOCUMENTS.
- 16. SEE SPECIFICATIONS FOR ADDITIONAL NOTES, SYMBOLS, ABBREVIATIONS, PREFIXES AND SUFFIXES.

S YSTEMS DESIGN SERVICE

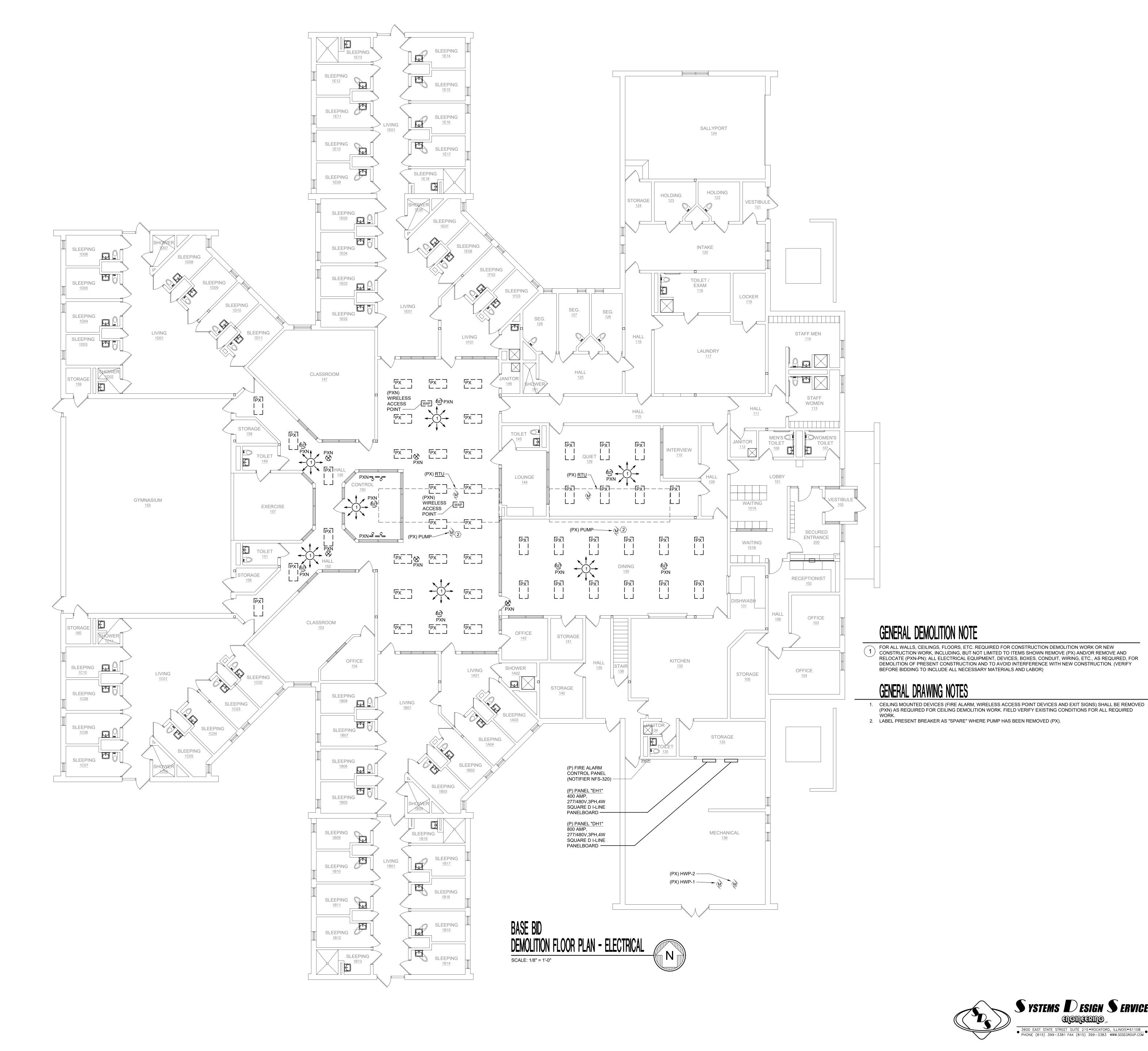
NEB.

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SHEET NUMBER SYSTEMS DESIGN SERVICE

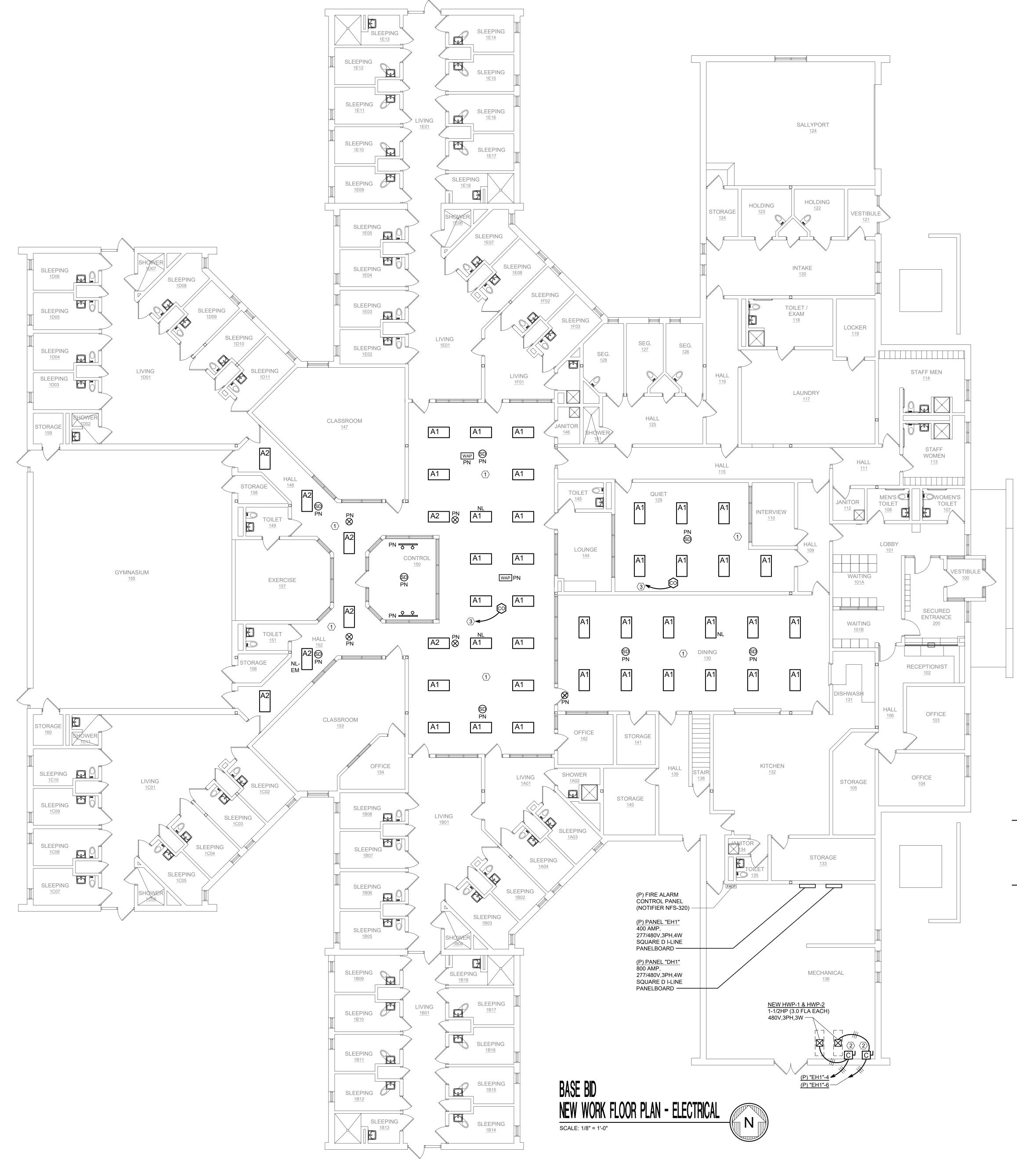
GENERAL STATE STREET SUITE 215 • ROCKFORD, ILLINOIS • 61108

PHONE (815) 399–3381 FAX (815) 399–3383 WWW.SDSEGROUP.COM E101



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### GENERAL DRAWING NOTES

CEILING MOUNTED DEVICES (FIRE ALARM, WIRELESS ACCESS POINT DEVICES AND EXIT SIGNS) SHALL BE REINSTALLED (PN) IN SAME LOCATION PRIOR TO CEILING DEMOLITION WORK.
 REWIRE RELOCATED (PXN-PN) DEVICES AS REQUIRED.

WIRE NEW FIXTURES TO PRESENT NORMAL / EMERGENCY BRANCH CIRCUIT AND LIGHTING CONTROLS CURRENTLY SERVING FIXTURES BEING REMOVED IN THIS AREA. FIELD VERIFY EXISTING CONDITIONS. (TYPICAL FOR ALL NEW FIXTURES).

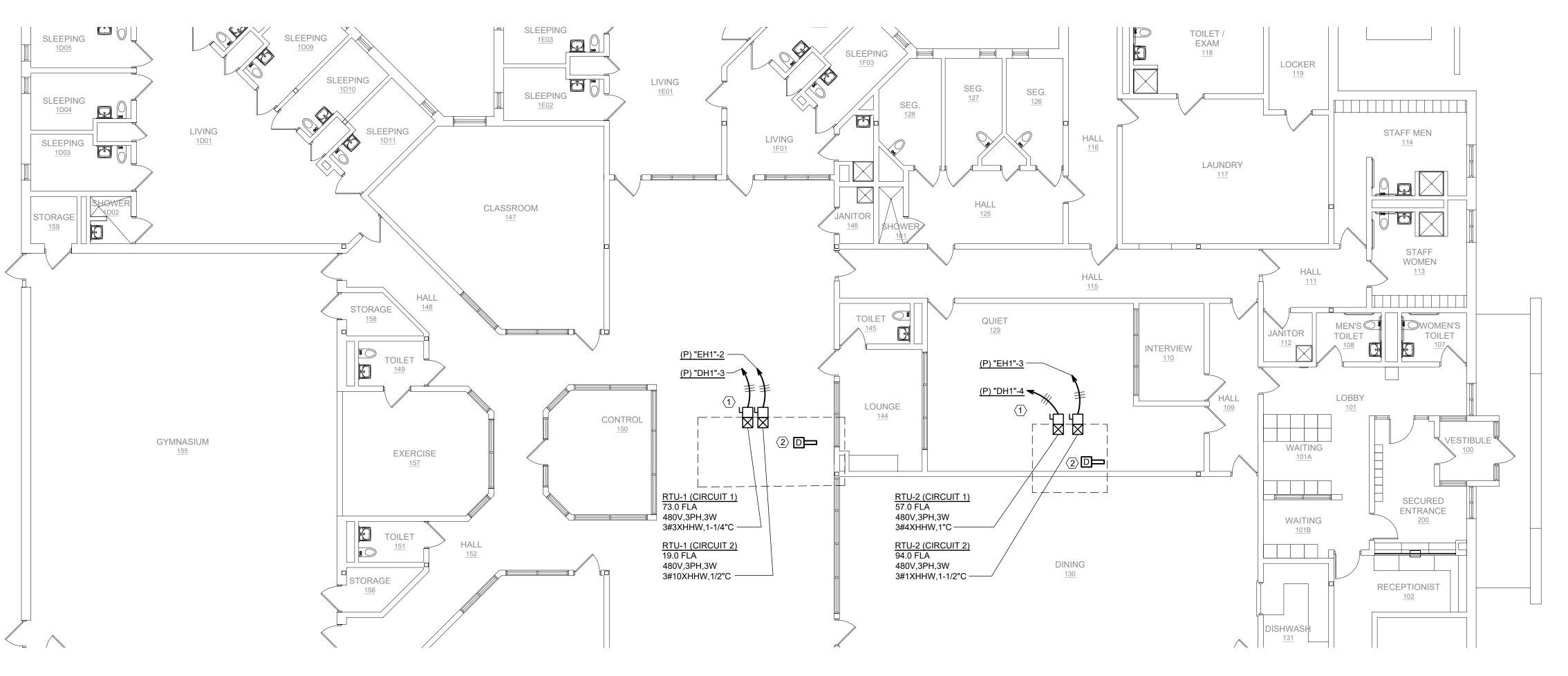
2. PROVIDE NEW MOTOR CONTROLLER (3 POSITION) FOR NEW PUMPS. COORDINATE LOCATION WITH EXISTING 3. WIRE NEW FIRE ALARM DEVICES TO PRESENT FACP. (TYPICAL FOR ALL NEW DEVICES).

SHEET NUMBER

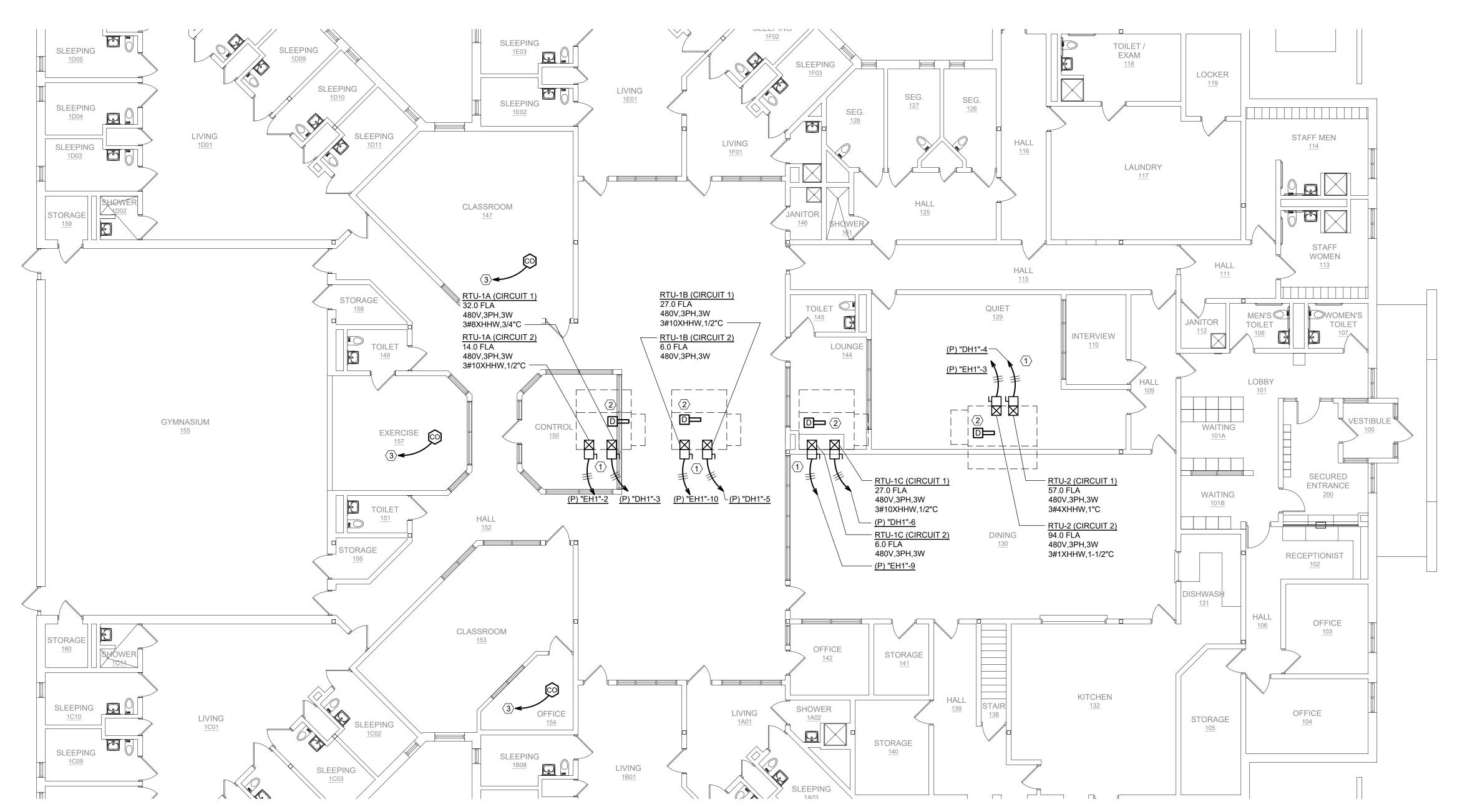
S YSTEMS DESIGN SERVICE E103 TIGHTSTILE

3600 EAST STATE STREET SUITE 215 • ROCKFORD, ILLINOIS • 61108

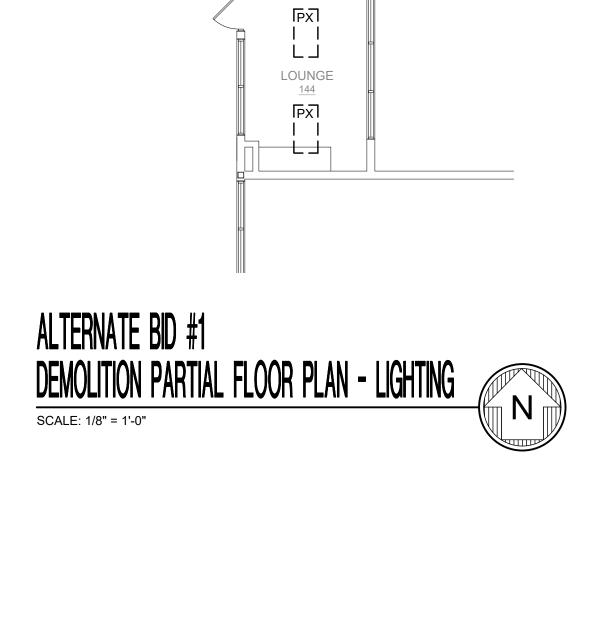
PHONE (815) 399–3381 FAX (815) 399–3383 WWW.SDSEGROUP.COM



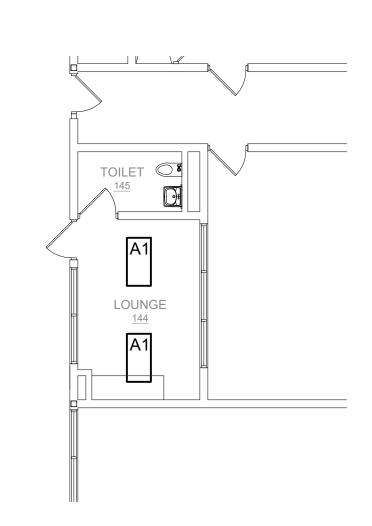








TOILET S



ALTERNATE BID #1 NEW WORK PARTIAL FLOOR PLAN - LIGHTING SCALE: 1/8" = 1'-0"



UTILIZE EXISTING CONDUITS IF IN ACCEPTABLE CONDITION.

2. WIRE NEW FIRE ALARM DEVICES TO PRESENT FACP. (TYPICAL FOR ALL NEW DEVICES). LOCATE REMOTE TEST STATIONS AS DIRECTED BY THE OWNER.



PROVIDE NEW WIRE FROM MOCP DEVICES IN PRESENT PANELS "DH1" AND "EH1" TO EACH NEW ROOF TOP UNIT.

### PANEL SCHEDULES - ALTERNATE BID#1 (REVISED FOR NEW WORK)

	PRESENT PANEL: "I  LOCATION: M  SUPPLY FROM: U  MOUNTING: S  ENCLOSURE: N	MECH/ELECTRIC JTILITY SURFACE		TERNATE	BID #1  VOLTAGE:  PHASE:  WIRE:	3	/277 V PH W					MAINS	RATING: IS TYPE: RATING: RATING:	M.BKR 800	A	
СКТ	DESCRIPTION		TRIP	POLES	DEMAND	,	4	E	3	C	<b>:</b>	DEMAND	POLES	TRIP	DESCRIPTION	СКТ
1	(P) PANEL "EH1" (ALT	. BID #1)	300	3	G G G	54,003	49,138	52,936	47,971	55,269	50,021	G G G	3	300	(P) TRANSFORMER 1	2
3	NEW RTU-1A (CKT 1 (	COOL) ALT. #1	NEW 45	3	H H H	8,857	15,777	8,857	15,777	8,857	15,777	H H	3	90	NEW RTU-2 (CKT 1 COOL) BASE BID	4
5	NEW RTU-1B (CKT 1 C	COOL) ALT. #1	NEW 35	3	H H H	7,473	7,473	7,473	7,473	7,473	7,473	H H	3	NEW 35	NEW RTU-1C (CKT 1 COOL) ALT. #1 BID	6
7	SPACE														SPACE	8
9	SPACE														SPACE	10
11	SPACE														SPACE	12
13	SPACE														SPACE	14
15	SPACE														SPACE	16
	-					142,721	VA	140,487	VA	144,870	VA			l		
LOAD	CLASSIFICATION [	DEMAND CODE	CC	NNECTED	LOAD	DEMAND	FACTOR	DEM	AND						PANEL TOTALS	
	MECH PTACLES	H R		118,740	VA VA		0%	94,992	VA VA						TAL DEMAND LOAD: 428,078 VA 404,330 VA	
LIGHT		L		0	VA		.0%		VA	1					,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
GENE		G		309,338	VA		.0%	309,338						TOTA	AL CONN. CURRENT: 515 A	
KITCH	EN	K		0	VA	100	.0%	0	VA					TOTAL	DEMAND CURRENT: 486 A	
LARGE	EST MOTOR	1 HP		0	VA	125	.0%	0	VA							

	LOCATION SUPPLY FROM	: SURFACE			VOLTAGE: PHASE: WIRE:	3	/277 V PH W					MAIN MAINS	RATING: IS TYPE: RATING: RATING:		BKR. A	
СКТ	DESCRIPTION		TRIP	POLES	DEMAND	,	4		3		:	DEMAND	POLES	TRIP	DESCRIPTION	
					<b>CODE</b> G	15,503	3,875					CODE H				├
1	  (P) TRANSFORMEF	R T-2	90	3	G	15,505	3,073	14,436	3,875			Н	3	NEW	NEW RTU-1A (CKT 2 HTG) ALT. BID #1	
ı	TO TO THE STATE OF	(1-2	90		G			14,430	3,073	16,769	3,875	Н		25	(OKT 21110) ALT. BID #1	
					Н	26,019	830			10,700	0,010	Н Н				$\vdash$
3	NEW RTU-2 (CKT 2	HTG)	125	3	H			26,019	830			Н	3	20	NEW HWP-1	
-	,	•			Н			,		26,019	830	Н				
					Н	1,148	830					Н				T
5	(P) PMCP-3		20	3	Н			1,148	830			Н	3	20	NEW HWP-2	
					Н					1,148	830	Н				
					Н	1,148	1,330					Н				
7	(P) PMCP-4		20	3	Н			1,148	1,330			Н	3	20	(P) AIR COMPRESSOR	
					Н					1,148	1,330	Н				
	NEW RTU-1C (CKT	OUTC) ALT DID	NIEW/		Н	1,660	1,660					Н		NEW		
9	#1	Z HTG) ALT. BID	NEW 15	3	Н			1,660	1,660			Н	3	NEW 15	NEW RTU-1B (CKT 2 HTG) ALT. BID #1	
					Н					1,660	1,660	Н				ot
11	SPACE														SPACE	
13	SPACE														SPACE	
13	OF ACL														SPACE	
15	SPACE														SPACE	
10	OI AOL														JI AOL	
						54,003	VA	52,936	VA	55,269	VA					_
LOAD	CLASSIFICATION	DEMAND CODE	cc	NNECTE	LOAD	DEMAND	FACTOR		AND						PANEL TOTALS	
HVAC/	MECH	Н		115,500	VA	80.	.0%	92,400	VA					1	TOTAL CONN. LOAD: 162,208 VA	
RECE	PTACLES	R		0	VA		-	<u> </u>	VA					TO	TAL DEMAND LOAD: 139,108 VA	
LIGHT		L		0	VA		5.0%		VA	]						
GENE		G		46,708	VA		0.0%	46,708							AL CONN. CURRENT: 196 A	
KITCH		K		0	VA		0.0%		VA					TOTAL	<b>DEMAND CURRENT</b> : 167 A	
LARGE	ST MOTOR	1 HP		[0	VA	լ 125	5.0%	0	VA	1			1			

SCALE:	#=#RESENT PANEL: "DH			SE BID	VOLTA 05:	400	/077.1/					410	DATING	EVOT		
	SUPPLY FROM: UTI  MOUNTING: SUF	LITY RFACE	AL		VOLTAGE: PHASE: WIRE:	3	/277 V PH W					MAINS	RATING: IS TYPE: RATING:	M.BKR 800	A	
	ENCLOSURE: NEM	IVIA I										IVICE	RATING:	800	A	
СКТ	DESCRIPTION		TRIP	POLES	DEMAND		<b>A</b>	ı	В	(	<b>C</b>	DEMAND	POLES	TRIP	DESCRIPTION	скт
1	(P) PANEL "EH1" (BASE I	BID)	300	3	G G	52,067	49,138	51,000	47,971			G G	3	300	(P) TRANSFORMER 1	2
					G	20,206	15,777			53,333	50,021	G				
3	NEW RTU-1 (CKT 1 COO	DL) BASE BID	90	3	H	20,206	15,777	20,206	15,777	00.000	45 333	H	3	90	NEW RTU-2 (CKT 1 COOL) BASE BID	4
5	SPACE				Н					20,206	15,777	H			SPACE	6
7	SPACE														SPACE	8
9	SPACE														SPACE	10
11	SPACE														SPACE	12
13	SPACE														SPACE	14
15	SPACE														SPACE	16
	1			1	<u> </u>	137,188	VA	134,954	VA	139,337	VA		I			1
		MAND CODE	СО	NNECTED	1		FACTOR		IAND						PANEL TOTALS	
HVAC/ RECEI	/MECH PTACLES	H R		107,949	VA VA		.0% -	86,359 0	VA VA						TOTAL CONN. LOAD: 411,479 VA TAL DEMAND LOAD: 389,889 VA	
LIGHT		L		0	VA		5.0%	0	VA							
GENE	RAL	G		303,530	VA	100	0.0%	303,530	VA					TOTA	AL CONN. CURRENT: 495 A	

0 VA 0 VA

100.0%

125.0%

TOTAL DEMAND CURRENT:

469 A

PANEL SCHEDULES - BASE BID (REVISED FOR NEW WORK)

KITCHEN

LARGEST MOTOR

1 HP

	LOCATION: MI SUPPLY FROM: PA MOUNTING: SI ENCLOSURE: NE	VOLTAGE: PHASE: WIRE:	3	/277 V PH W	A.I.C. RATING: EXST.  MAINS TYPE: M. BKR.  MAINS RATING: 400 A  MCB RATING: 400 A											
СКТ	DESCRIPTION		TRIP	POLES	DEMAND	,	4	I	3		<b>C</b>	DEMAND	POLES	TRIP	DESCRIPTION	СКТ
1	(P) TRANSFORMER T-2	2	90	3	G G G	15,503	5,259	14,436	5,259	16,769	5,259	H H H	3	NEW 35	NEW RTU-1 (CKT 2 HTG) BASE BID	2
3	NEW RTU-2 (CKT 2 HT	G) BASE BID	125	3	H H H	26,019	830	26,019	830	26,019	830	H H H	3	20	NEW HWP-1	4
5	(P) PMCP-3		20	3	H H H	1,148	830	1,148	830	1,148	830	H H	3	20	NEW HWP-2	6
7	(P) PMCP-4		20	3	H H H	1,148	1,330	1,148	1,330	1,148	1,330	H H H	3	20	(P) AIR COMPRESSOR	8
9	SPACE														SPACE	10
11	SPACE														SPACE	12
13	SPACE														SPACE	14
15	SPACE														SPACE	16
		<u>'</u>				52,067	VA	51,000	VA	53,333	VA					· · · · · · · · · · · · · · · · · · ·
OAD	CLASSIFICATION D	EMAND CODE	СО	NNECTED		DEMAND	FACTOR	DEM	AND						PANEL TOTALS	
	MECH PTACLES	H R		109,692	VA VA		.0% -	87,754 0	VA VA						TOTAL CONN. LOAD: 156,400 VA TAL DEMAND LOAD: 134,462 VA	
LIGHT		L		0	VA		5.0%	<b>+</b>	VA							
GENE		G		46,708	VA		0.0%	46,708		-					AL CONN. CURRENT: 189 A	
KITCH	EST MOTOR	K 1 HP		0	VA VA	100	.0%	<b>†</b>	VA VA	-				IUIAL	<b>DEMAND CURRENT:</b> 162 A	

	ELECTRICAL SYMBOLS	
F1®#a	RECESSED CEILING FIXTURE (>=WALL WASHER) SURFACE OR PENDANT CEILING FIXTURE BRACKET FIXTURE	
	RECESSED LED FIXTURE  SURFACE OR PENDANT LED FIXTURE  WALL LED FIXTURE (VERIFY HEIGHT)  BRACKET EXIT LIGHT (VERIFY)  CEILING EXIT LIGHT (VERIFY)  LIGHT TRACK  EXTERIOR POLE FIXTURE  BOLLARD FIXTURE  BATTERY EMERGENCY FIXTURE (R=REMOTE HEAD)	NUMBER=CIRCUIT LETTER=SWITCH F1,F2,F3=FIXTURE SEE SPECIFICATION AND FIXTURE SCHEDULE
3 - <del>9  </del> 4 - <del>9  </del> P - <del>9  </del> K - <del>9  </del> OS - <del>9  </del>	LEVITON DECODA INFDADED ODCAE ID LINO\	JP 4'-0", UNLESS NOTED OTHERWISE
	DIMMER CONTROL SWITCH SWITCH WITH GROUNDED DUPLEX RECEPTACLE REMOTE CONTROL SWITCH OR PUSH BUTTON GROUNDED DUPLEX RECEPTACLE GROUNDED DUPLEX RECEPTACLE MOUNTED ABOVE	
	GROUNDED DUPLEX GFCI RECEPTACLE GROUNDED DUPLEX GFCI RECEPTACLE MOUNTED A GROUNDED CEILING MOUNTED RECEPTACLE SPECIAL GROUNDED RECEPTACLE, SIZE AND TYPE A GROUNDED FLUSH FLOOR RECEPTACLE PLUGMOLD (VERIFY TYPE AND MOUNTING)	AS SPECIFIED
PD/T	POWER, DATA AND TELEPHONE FLUSH FLOOR BOX'D PROVIDE EMPTY CONDUIT FOR DATA/TELEPHONE TO CEILING AS REQUIRED. SEE LOW VOLTAGE CONDUIT OUTLET WITH FINAL CONNECTIONS TO EQUIPMENT. FURNISHED BY OTHERS (FBO). PROVIDE NECESSAR SAFETY SWITCH, WIRING ETC. FOR COMPLETE INST. VERIFY EXACT LOCATION AND HEIGHT BEFORE ROU	O ABOVE SUSPENDED F SIZING TABLE. (VERIF' EQUIPMENT Y RECEPTACLE, ALLATION
<u>о</u>	CEILING JUNCTION BOX WITH FLUSH COVER	
F) 	SAFETY SWITCH (F=FUSED) SURFACE ELECTRICAL PANELBOARD RECESSED ELECTRICAL PANELBOARD MOTOR CONTROLLER CONTROL RELAY (LETTER=FLOOR, NUMBER=NO. OF	RELAY)
# <b>T</b>	TRANSFORMER	
/# \ - X - - U	CONDUIT RUN CONCEALED (OR PARTIALLY CONCEALED) IN CEILINGS OR WALLS CONDUIT RUN CONCEALED IN OR UNDER FLOORS CONDUIT RUN EXPOSED, IN STRAIGHT LINES CONDUIT RUN UNDERGROUND	CHARACTER MARKS= NUMBER OF WIRES, IF NONE ARE SHOWN
E	EMERGENCY WIRING, IN CONDUIT, CONCEALED HOMERUN TO PANEL, IN CONDUIT, CONCEALED ARROWS INDICATE NUMBER OF CIRCUITS	TWO ARE REQUIRED
_T	TELEPHONE CONDUIT RUN ABOVE CEILINGS OR IN WALLS TELEPHONE CONDUIT RUN IN OR UNDER FLOORS	EMPTY CONDUIT, CONCEALED
<b>₽</b> ▼		PLATE AND 1" CONDUIT BOX PER SCHEDULE-

### ELECTRICAL ABBREVIATIONS

ADDITIONAL REQUIREMENTS,

IF APPLICABLE FOR THIS PROJECT.

NOTES: ELECTRICAL OUTLET BOXES INSTALLED IN FIRE RATED ASSEMBLIES

ELECTRICAL DEVICES INSTALLED IN ACCORDANCE WITH ADA

SPECIFICATIONS. VERIFY HEIGHTS AND SPECIFIC DIMENSIONS.

SHALL COMPLY WITH LATEST IBC, SECTION 712 (NOT LESS THAN 24" O.C.)

ELECTRICAL CONTRACTOR SHALL PROVIDE ALL NECESSARY LIGHTING

CONTROLS AS TO COMPLY WITH LOCAL ENERGY CODE REQUIREMENTS.

E.C. TO DETERMINE IF WALL OR CEILING OCCUPANCY DEVICE TYPE

IS REQUIRED BASED ON PROJECT DESIGN AND IDEAL USE OF DEVICE.

LOCATIONS OF THE CONTROL DEVICES REQUIRED FOR ENERGY CODE

ENERGY MANGAGEMENT PRODUCTS SHALL BE EQUAL TO SENSORSWITCH.

PROVIDE CONTROL DEVICE WITH SUITABLE FEATURES FOR INSTALLATION

AC	ABOVE COUNTER	JB	JUNCTION BOX
AFF	ABOVE FINISHED FLOOR	KW	KILOWATTS
ASC	ABOVE SUSPENDED CEILING	LTG	LIGHTING
С	CONDUIT	MAX	MAXIMUM
CF	CARPET FLANGE	MFG	MANUFACTURER
CTC	CLOSE TO CEILING	MIN	MINIMUM
CTF	CLOSE TO FLOOR	MOB	MOTOR OUTLET BOX
CTW	CLOSE TO WALL	MTD	MOUNTED
E	EMERGENCY	NEC	NATIONAL ELECTRICAL CODE
EDH	ELECTRIC DUCT HEATER	NL	NIGHT LIGHT
ESUH	ELECTRIC SUSPENDED UNIT	OS	OCCUPANCY SENSING DEVICE
	HEATER	PH	PHASE (Ø)
EWC	ELECTRIC WATER COOLER	PNL	PANEL
EWH	ELECTRIC WATER HEATER	SW	SWITCH
FAAP	FIRE ALARM ANNUNCIATOR PANEL	TFA	TO FLOOR ABOVE
FACP	FIRE ALARM CONTROL PANEL	TFB	TO FLOOR BELOW
FBO	FURNISHED BY OTHERS	TTC	TELEPHONE TERMINAL CABINET
FFA	FROM FLOOR ABOVE	UNO	UNLESS NOTED OTHERWISE
FFB	FROM FLOOR BELOW	V	VOLTS
FLA	FULL LOAD AMPS	W	WIRE
GFI	GROUND FAULT INTERRUPTER	WP	WEATHER PROOF
HP	HORSEPOWER	WR	WEATHER RESISTANT
IWS	IN WALL SPACE		

PULL STRING - W=WALL PHONE

### PRESENT EQUIPMENT AND DEMOLITION NOTES

A. FOLLOWING REMOVED PRESENT EQUIPMENT AND MATERIALS WHICH ARE IN GOOD OPERATING CONDITION (OR ARE PLACED IN GOOD CONDITION), SUITABLE, MEET REQUIREMENTS OF THESE SPECIFICATIONS, AND ARE APPROVED IN WRITING BY ENGINEER, OR CALLED FOR MAY BE REUSED (PXN-PN). 1. LIGHTING FIXTURES

B. REMOVED PIPE AND WIRE MUST NOT BE REUSED.

C. ANY OF ABOVE EQUIPMENT WHICH IS NOT REUSED AND FOLLOWING REMOVED PRESENT EQUIPMENT SHALL BECOME PROPERTY OF CONTRACTOR, AND SHALL BE REMOVED FROM PREMISES BY HIM (PX). 1. EQUIPMENT SO DESIGNATED ON DRAWINGS.

D. FOLLOWING PRESENT EQUIPMENT SHALL BE CAREFULLY REMOVED, INTACT, MATCH MARKED, INSOFAR AS IS PRACTICAL, SHALL REMAIN PROPERTY OF OWNER, AND SHALL BE DELIVERED TO OWNER OUTSIDE OF BUILDING WHERE DIRECTED BY THE ENGINEER (PX-DO). 1. EQUIPMENT SO DESIGNATED ON DRAWINGS.

E. CONTRACTOR SHALL: 1. PROVIDE NEW FLOORS UNDER REMOVED PRESENT EQUIPMENT AND WHERE CALLED FOR 2. REPAIR FLOORS UNDER AND WALLS ADJACENT TO REMOVED EQUIPMENT, TO MATCH ADJACENT

3. FILL IN PRESENT CHASES WHICH ARE NO LONGER REQUIRED AND NEATLY PATCH TO MATCH

ADJACENT CONSTRUCTION. 4. CUT OPENINGS REQUIRED FOR:

BEING DISTURBED.

A. HIS WORK; B. ADMISSION OF NEW EQUIPMENT;

C. REMOVAL OF PRESENT EQUIPMENT; D. NEW CONNECTION TO PRESENT CONSTRUCTION.

5. PATCH AND REPAIR UNUSED PRESENT HOLES AND OPENINGS, AND THOSE LEFT BY THE REMOVAL OF PRESENT EQUIPMENT AND ADMISSION OF NEW EQUIPMENT.

6. PATCH AND REPAIR PRESENT EQUIPMENT, AND BUILDING CONSTRUCTION WHICH HAS NOT BEEN CUT. REMOVED, DISTURBED OR MARRED, AS REQUIRED, TO RESTORE IT TO ORIGINAL CONDITION BEFORE

F. UNUSED OPENINGS IN ENCLOSURES, IN CONDUITS, BOXES, CABINETS, AND PANELS SHALL BE FILLED. G. PRESENT PAINTED CONSTRUCTION WHICH IS MARRED SHALL BE REPAIRED SAME AS NEW CONSTRUCTION.

H. CERTAIN ABBREVIATIONS OR SYMBOLS, WHEN APPLIED TO PRESENT (TO EXISTING) LINE, DEVICE OR

EQUIPMENT, SHALL HAVE THE FOLLOWING MEANINGS. NEW CONNECTIONS TO PRESENT PIPING, DEVICE WIRING, EQUIPMENT, ETC. INSTALL, TEST, COVER, PAINT, ETC., SAME AS NEW WORK.

TO REMAIN UNCHANGED, IF CHANGE CANNOT BE AVOIDED, CHANGE "P" TO "PXR", AT NO INCREASE IN CONTRACT PRICE. VERIFY LOCATION.

TO BE COMPLETELY REMOVED, INCLUDING UNNEEDED CONNECTIONS, PIPING, DUCTS, WIRING, BASES, ETC., OF EVERY KIND. UNUSED OPENINGS PLUGGED OR CAPPED, TESTED, COVERED, PAINTED SAME AS NEW WORK. OTHER DISTURBED WORK OF EVERY KIND RESTORED, PATCHED, TESTED, COVERED, PAINTED, ETC., TO EQUAL ORIGINAL CONDITION. REMOVED MATERIAL MUST NOT BE REUSED UNLESS OTHERWISE SPECIFIED OR DIRECTED BY ENGINEER.

SAME AS "PX", EXCEPT REMOVED, CLEANED AND RESTORED INTACT, AS FAR AS PRACTICAL, MATCHED MARKED, AND OTHERWISE IDENTIFIED AS REQUIRED AND DELIVERED TO OWNER OUTSIDE OF BUILDING AS DIRECTED BY ENGINEER.

SAME AS "PX", EXCEPT REMOVED, CLEANED AND RESTORED TO GOOD OPERATING CONDITION AND REINSTALLED, SAME AS NEW WORK, IN ORIGINAL POSITION. IF RECONDITIONING IS IMPRACTICAL, PROVIDE NEW DEVICE, AS APPROVED BY ENGINEER, AT NO INCREASE IN CONTRACT PRICE.

SAME AS "PXR" EXCEPT REMOVED, CLEANED AND RESTORED TO GOOD OPERATING CONDITION AND REINSTALLED SAME AS NEW WORK, IN NEW POSITION MARKED "PN". IF RECONDITIONING IS IMPRACTICAL, PROVIDE NEW DEVICE, AS APPROVED BY ENGINEER, AT NO INCREASE IN CONTRACT PRICE.

COMPLETELY REINSTALL DEVICE, LINE OR EQUIPMENT REMOVED, AT NEW LOCATION, SAME,

I. WORK OF EVERY DIVISION SHALL BE COORDINATED WITH ALL OTHER WORK AND PRESENT CONDITIONS, 1. ELECTRICAL SERVICES TO PRESENT BUILDINGS OR PORTIONS OF BUILDING WILL NOT BE INTERRUPTED DURING PERIODS WHEN THOSE SERVICES ARE NEEDED.

2. SPECIAL SYSTEMS SUCH AS FIRE ALARM, SOUND, ETC., OF EVERY KIND TO PRESENT BUILDINGS WILL NOT BE INTERRUPTED DURING WORKING AND/OR OCCUPIED HOURS, EXCEPT AS APPROVED BY

J. NEW CONDUIT SERVING NEW AND/OR PRESENT ELECTRICAL DEVICES IN FINISHED PRESENT ROOMS OR SPACES SHALL BE CONCEALED IN FINISHED ROOMS, WHERE POSSIBLE OR SHALL BE RUN IN ADJOINING UNFINISHED ROOMS, SHAFTS, STORAGE ROOMS, ETC., WHERE EXPOSED CONDUIT IS PERMITTED IN FINISHED PRESENT ROOMS BY ARCHITECT IN WRITING, IT SHALL BE WIREMOLD, WITH MATCHING BOXES RUN INCONSPICUOUSLY AS POSSIBLE, IN STRAIGHT LINES, PARALLEL TO WALLS AND CEILINGS, WITH NEAT BENDS, UNNEEDED BOXES, SWITCHES AND WIRING SHALL BE COMPLETELY REMOVED AND OPENINGS PATCHED. IN PRESENT ROOMS OR LOCATIONS WHERE NEW LIGHTING EQUIPMENT IS SHOWN. PRESENT FIXTURES, BOXES, WIRING, SWITCHES, ETC. SHALL BE REMOVED AS PER NOTE "PX" UNLESS ANOTHER SYMBOL IS SHOWN ON DRAWINGS. WHERE SPECIFICALLY APPROVED BY ARCHITECT IN WRITING, BOXES MAY BE PERMITTED TO REMAIN AND BE PROVIDED WITH NEAT FLUSH COVERS, EXTENDING OVER ENTIRE WALL OPENING.

K. UNNEEDED ELECTRICAL FIXTURES, SWITCHES, STARTERS, DEVICES, ETC., SHALL BE COMPLETELY REMOVED; AND CONSTRUCTION PATCHED AS PER NOTE "PX" NEW CONNECTIONS TO PRESENT EQUIPMENT, SHALL BE MADE, TESTED, COVERED, PAINTED, ETC., SAME AS NEW EQUIPMENT. PRESENT EQUIPMENT, AND OTHER COVERING DISTURBED BY CONTRACTOR SHALL BE REPAIRED TO EQUAL NEW CONDITION AND PAINTED SAME AS NEW COVERING.

L. WHERE DEVICES ARE OMITTED FROM PRESENT BRANCH CIRCUITS, THE REMAINING DEVICES, ON THE SAME CIRCUIT AND/OR CONDUIT RUN, SHALL BE REWIRED, IF NEEDED AND AS REQUIRED, TO REMAIN ON THEIR RESPECTIVE CIRCUITS AND IN OPERATING CONDITION.

M. LIGHTING FIXTURES WHICH ARE REUSED SHALL HAVE LENS AND REFLECTORS CLEANED. ALL FIXTURES SHALL BE PROVIDED WITH NEW LAMPS.

N. WORK SHALL BE COORDINATED SO THAT HEATING, PLUMBING, ELECTRICAL, AND TELEPHONE SERVICES TO THE PRESENT BUILDING WILL NOT BE INTERRUPTED, EXCEPT AS APPROVED BY THE ARCHITECT.

### GENERAL NOTES APPLY TO ALL SHEETS

SEE DETAILS AND SCHEDULES ON DRAWINGS AND SPECIFICATIONS FOR MEANING OF ABBREVIATIONS AND ADDITIONAL REQUIREMENTS AND INFORMATION. CHECK ARCHITECTURAL, STRUCTURAL, AND OTHER MECHANICAL AND ELECTRICAL DRAWINGS FOR SCALE, SPACE LIMITATIONS, BEAMS, DOOR SWINGS, WINDOWS, COORDINATION, ADDITIONAL INFORMATION, ETC. AND REPORT ANY DESCREPANCIES, CONFLICTS, ETC. TO ARCHITECT PRIOR TO SUBMITTING BID.

ALL EQUIPMENT FURNISHED BY OTHERS (FBO) SHALL BE PROVIDED WITH PROPER MOTOR STARTERS, DISCONNECTS, CONTROLS, ETC. BY THE ELECTRICAL CONTRACTOR UNLESS SPECIFICALLY NOTED OTHERWISE. THE ELECTRICAL CONTRACTOR SHALL INSTALL AND COMPLETELY WIRE ALL ASSOCIATED EQUIPMENT IN ACCORDANCE WITH THE MANUFACTURER'S WIRING DIAGRAMS AND AS REQUIRED FOR A COMPLETE OPERATING INSTALLATION. ELECTRICAL CONTRACTOR SHALL VERIFY AND COORDINATE ELECTRICAL CHARACTERISTICS AND REQUIREMENTS OF (FBO) EQUIPMENT PRIOR TO ROUGH-IN OF CONDUIT AND WIRING TO AVOID CONFLICTS.

CONTRACTOR SHALL VERIFY FINAL LOCATIONS AND CEILING TYPES FOR ALL ELECTRICAL EQUIPMENT WITH ARCHITECTURAL REFLECTED CEILING PLAN AND ALL TRADES BEFORE ORDERING OR ROUGH-IN OF EQUIPMENT TO AVOID CONFLICTS.

CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING, INCLUDING CORE DRILLING, SAW CUTTING. ETC.. AS REQUIRED TO ACCOMMODATE HIS WORK. CUTTING AND PATCHING AND PAYMENT OF SAID WORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR REQUIRING THE DISTURBANCE BUT SAME SHALL BE DONE BY A GENERAL CONTRACTOR. IT SHALL BE THE RESPONSIBILITY OF THE APPROPRIATE ELECTRICAL CONTRACTOR TO GIVE QUANTITIES OF PATCHING REQUIREMENTS TO A GENERAL CONTRACTOR.

CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND REPLACEMENT OF PRESENT CEILINGS. LIGHT FIXTURES, DIFFUSERS, DUCTWORK, PIPING, CONDUIT, ETC., AS REQUIRED FOR THE INSTALLATION OF HIS WORK. REMOVAL, REPLACEMENT AND PAYMENT FOR MECHANICAL/PLUMBING ITEMS SHALL BE THE RESPONSIBILITY OF THE APPLICABLE ELECTRICAL CONTRACTOR. REMOVAL AND REPLACEMENT OF PRESENT CEILINGS, ETC., SHALL BE THE RESPONSIBILITY OF CONTRACTOR MAKING THE DISTURBANCE BUT SAME SHALL BE DONE BY A GENERAL CONTRACTOR. IT SHALL BE THE RESPONSIBILITY OF THE APPROPRIATE ELECTRICAL CONTRACTOR TO GIVE QUANTITIES OF REMOVAL/REPLACEMENT REQUIREMENTS TO A GENERAL CONTRACTOR.

ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR LEGALLY DISPOSING OF ALL FIXTURE BALLASTS AND LAMPS FROM THE OWNER'S PROPERTY. MANAGEMENT AND DISPOSAL OF FLUORESCENT LIGHT BULBS AND OTHER MERCURY-CONTAINING BULBS SHALL COMPLY WITH THE RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) UNIVERSAL WASTE RULE (UWR) AND SUBTITLE C HAZARDOUS WASTE REGULATIONS. REFER TO SPECIFICATIONS SECTION 017419 FOR ADDITIONAL INFORMATION.

### ELECTRICAL COORDINATION NOTE

THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL ELECTRICAL REQUIREMENTS ASSOCIATED WITH ALL OTHER TRADES THAT INVOLVE THE ELECTRICAL CONTRACTOR TO PROVIDE POWER WIRING FOR DEVICES AND SYSTEMS PROVIDED BY OTHER TRADES. <u>ELECTRICAL CONTRACTOR</u> SHALL COORDINATE ALL ASPECTS OF WORK RELATED TO THESE SYSTEMS AND DEVICES PRIOR TO SUBMITTING FINAL BID. INCLUDE ALL NECESSARY LABOR AND MATERIALS ASSOCIATED WITH OTHER TRADES AS REQUIRED FOR COMPLETE OPERATIONAL SYSTEMS THAT REQUIRE THE ELECTRICAL CONTRACTOR TO WIRE.

FOR ALL WALLS, CEILINGS, FLOORS, ETC. REQUIRED FOR CONSTRUCTION DEMOLITION WORK OR NEW CONSTRUCTION WORK, INCLUDING, BUT NOT LIMITED TO ITEMS SHOWN REMOVE (PX) AND/OR REMOVE AND RELOCATE (PXN-PN): ALL ELECTRICAL EQUIPMENT, DEVICES, BOXES, CONDUIT, WIRING, ETC., AS REQUIRED, FOR DEMOLITION OF PRESENT CONSTRUCTION AND TO AVOID INTERFERENCE WITH NEW CONSTRUCTION. (VERIFY BEFORE BIDDING TO INCLUDE ALL NECESSARY MATERIALS AND

### LIGHTING FIXTURE SCHEDULE

FIXTURE TYPE	LAMP SIZE AND TYPE	MOUNTING	MANUFACTURER'S NUMBER	REMARKS
A1	80 CRI L.E.D., 4000K,	RECESSED	LITHONIA NO.	2' X 4' LED RECESSED EDGE-LIT FLAT PANEL WITH
	4800 LUMENS	IN CEILING	EPANL-2X4-4800LM-80CRI-	SATIN WHITE ACRYLIC LENS, MULTI-VOLT, LED
	(46 WATTS)	(VERIFY)	40K-MIN1-NLIGHT-MVOLT	0-10V DIMMING DRIVER, AND nlight OPTION.
A2	80 CRI L.E.D., 4000K,	RECESSED	LITHONIA NO.	2' X 4' LED RECESSED EDGE-LIT FLAT PANEL WITH
	6800 LUMENS	IN CEILING	EPANL-2X4-6800LM-80CRI-	SATIN WHITE ACRYLIC LENS, MULTI-VOLT, LED
	(59 WATTS)	(VERIFY)	40K-MIN1-NLIGHT-MVOLT	0-10V DIMMING DRIVER, AND nlight OPTION.

ALL FIXTURES SHALL INCLUDE THE REQUIRED COMPONENTS REQUIRED FOR LIGHTING CONTROLS. ALL RELATED DEVICES SHALL BE INCLUDED AS REQUIRED FOR A COMPLETE SYSTEM. E.C. TO COORDINATE WITH MANUFACTURER AS REQUIRED PRIOR

EMERGENCY BATTERIES SHALL PROVIDE A MINIMUM OF 90 MINUTES ILLUMINATION UPON POWER LOSS. ALL FIXTURE SELECTIONS AND FINISHES MUST BE APPROVED BY THE OWNER PRIOR TO ORDERING FIXTURES SPECIFIED ON

THIS SCHEDULE. ALL RECESSED LUMINAIRES SHALL BE COMPLETE WITH TRIM TYPE REQUIRED FOR CEILING SYSTEM BEING INSTALLED. PRIOR TO ORDERING, CONFIRM CEILING CONSTRUCTION DETAILS AND ARCHITECTURAL FINISH FOR EACH AREA AS REQUIRED FOR PROPER INSTALLATION AND SUPPORT FOR ALL FIXTURES BEING INSTALLED. PROVIDE ADDITIONAL ACCESSORIES/KITS FOR LUMINAIRES AS REQUIRED FOR PROPER INSTALLATION AND SUSPENSION IN CEILING SYSTEM DESIGN.

INSTALL RECESSED LUMINAIRES USING ACCESSORIES AND FIRESTOPPING MATERIALS TO MEET REGULATORY REQUIREMENTS

FOR FIRE RATING, IF APPLICABLE FOR THIS PROJECT. ELECTRICAL CONTRACTOR SHALL KEEP INSULATION A MINIMUM OF 3" FROM ALL RECESSED CAN HOUSINGS AS REQUIRED FOR INSTALLATION. (IF APPLICABLE FOR THIS PROJECT). THE FIXTURE SCHEDULE DOES NOT NECESSARILY LIST ALL ACCESSORIES AND HARDWARE NECESSARY FOR THE COMPLETION OF INSTALLATION, NOR DOES IT DETAIL THE CEILING CONSTRUCTION TO BE ENCOUNTERED FOR THIS PROJECT. IT IS THE

ELECTRICAL CONTRACTORS RESPONSIBILITY TO PROPERLY DETERMINE AND PROVIDE THE CORRECT COMPONENTS, ACCESSORIES AND HARDWARE AS REQUIRED FOR THE INSTALLATION. ALL ADDITIONAL HARDWARE FOR MOUNTING FIXTURES SHALL BE PROVIDED AT NO EXTRA COST.

### FIRE ALARM SYSTEM SYMBOLS

PRESENT FIRE ALARM CONTROL PANEL (NOTIFIER NFS-320)

FIRE ALARM SYSTEM WIRING IN CONDUIT, CONCEALED WHERE POSSIBLE

FIRE ALARM SYSTEM CEILING MOUNTED CARBON MONOXIDE (CO) DETECTOR. COORDINATE LOCATION WITH HVAC CONTRACTOR FOR SUPPLY DUCT LOCATION NEAREST TO ROOFTOP UNIT.

DUCT MOUNTED SMOKE DETECTOR. ALL LOCATIONS SHALL BE COORDINATE WITH HVAC CONTRACTOR. MOUNT TEST SWITCH IN EASILY ACCESSIBLE LOCATION. COORDINATE REMOTE TEST STATION LOCATION WITH THE OWNER.

FIRE ALARM SYSTEM SHALL BE INSTALLED AND WIRED IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS AND WIRING DIAGRAMS. CONTRACTOR SHALL PROVIDE IN SHOP DRAWINGS THE FINAL WIRING SCHEMATIC & ZONE SCHEDULE & BATTERY CALC'S AS REQUIRED. E.C. TO VERIFY ALL LOCAL REQUIREMENTS WITH LOCAL AUTHORITY PRIOR TO SUBMITTING FINAL BID TO INCLUDE ALL NECESSARY MATERIALS REQUIRED FOR A COMPLETE SYSTEM. ELECTRICAL CONTRACTOR TO INCLUDE ALL NECESSARY LABOR AND MATERIALS REQUIRED FOR FIRE ALARM SYSTEM WORK. ALL LABOR AND MATERIALS SHALL BE INCLUDED IN FINAL BID . COORDINATE WITH THE LOCAL AUTHORITY PRIOR TO SUBMITTING FINAL BIDS TO INCLUDE ALL MATERIAL AND

ALL CANDELA INTENSITIES SHALL BE FIELD ADJUSTED PER NFPA 72 SECTION 7.5. (TYPICAL).

ALL NEW AND RELOCATED DEVICES SHALL MEET ALL NFPA AND A.D.A OPERATION AND MOUNTING REQUIREMENTS.

ELECTRICAL CONTRACTOR SHALL INCLUDE IN HIS FINAL BID ANY ADDITIONAL COMPONENTS REQUIRED FOR EXISTING AND NEW DEVICES TO BE TIED INTO THE FACP AS REQUIRED. ALL FIRE ALARM SYSTEM WORK SHALL BE FIELD VERIFIED AND ALL LABOR AND MATERIALS SHALL BE INCLUDED IN THE FINAL SUBMITTED BID.

S YSTEMS DESIGN SERVICE