

Example School District

455 Clary Avenue
Dallas, TX 75227
Tel: (214) 552-1234
Fax: (214) 552-5678

Founded: 1905
Grades: K-9
of Schools: 12
Total Area: (75227, 75149, 75684)

Explore file by following instructions of Yellow Text Boxes with Red Font Words as this one.

Schools/Facilities

(Select/Click to view more information)

Red Strike through indicates schools not yet available.

- > Bayer Elementary School
- > Bell View Elementary School
- > Ceder Elementary School
- > Emanuel Elementary School
- > Impala Elementary School
- > Indigo Elementary School
- > Mesquite Elementary School
- > Newark Elementary School
- > Nickel Elementary School
- > Ontario Elementary School
- > Peccary Elementary School
- > St. Joseph Elementary School
- > Varian Elementary School
- > Education Center
- > Transportation & Facilities
- > Warehouse & Child Nutrition

Select/Click to access additional information

Instructions on use of this Manual

Long Range Facilities Master Plan

District Attendance Boundary

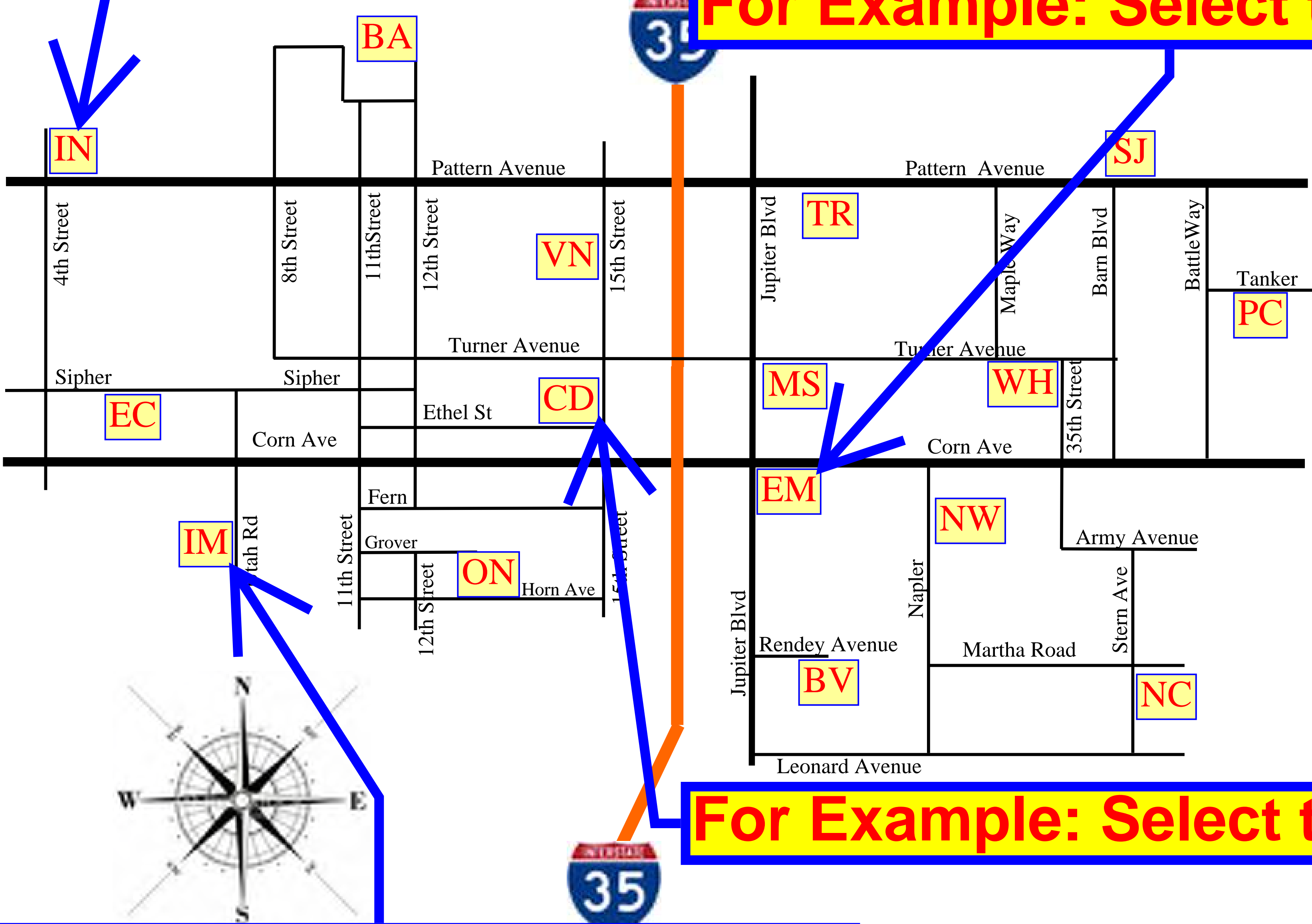
For Example: Select this School

Select/Click School to access additional information

For Example: Select this School

For Example: Select this School

For Example: Select this School



[Click here to return to District Index](#)

Ceder Elementary School

1594 Ethel Street
Dallas, TX 75264
Tel: (214) 490-8000
Fax: (214) 490-8001

Grade Level: K-6
Size of Campus: 10 acres
Total Area of Permanent Classrooms: 46,239
Total Area of Relocatable Classrooms: 10,080
Total Building Square Footage: 56,319

Number of Permanent Classrooms: 19
Number of Relocatable Classrooms: 12
Total Number Classrooms: 31

Permanent Student Capacity (x25): 475
Relocatable Student Capacity (x25): 300
Total Student Capacity(x25): 775

School Personnel
Contact Information

For Example: Select this Building H.

Department Index List
(Select/Click to view more information)

- > Facilities & Maintenance
- > Technology Services
- > Education Services
- > Business Services

Select/Click on **White Building Indicator** to access additional information



Ceder Elementary School

[Click here to return to School Index](#)

Building H - Classroom Building

Building Data	
Year Built:	1958
Facility Type:	Classroom Bldg
Total # Rooms:	08
Total # Classrooms:	04
Occupancy:	E
Fire Sprinkler:	No

Summary of Area (SF)	
Classroom:	3847
Restrooms:	449
Mech-Jan-Stor:	152
Covered Walks:	597
Total:	1960

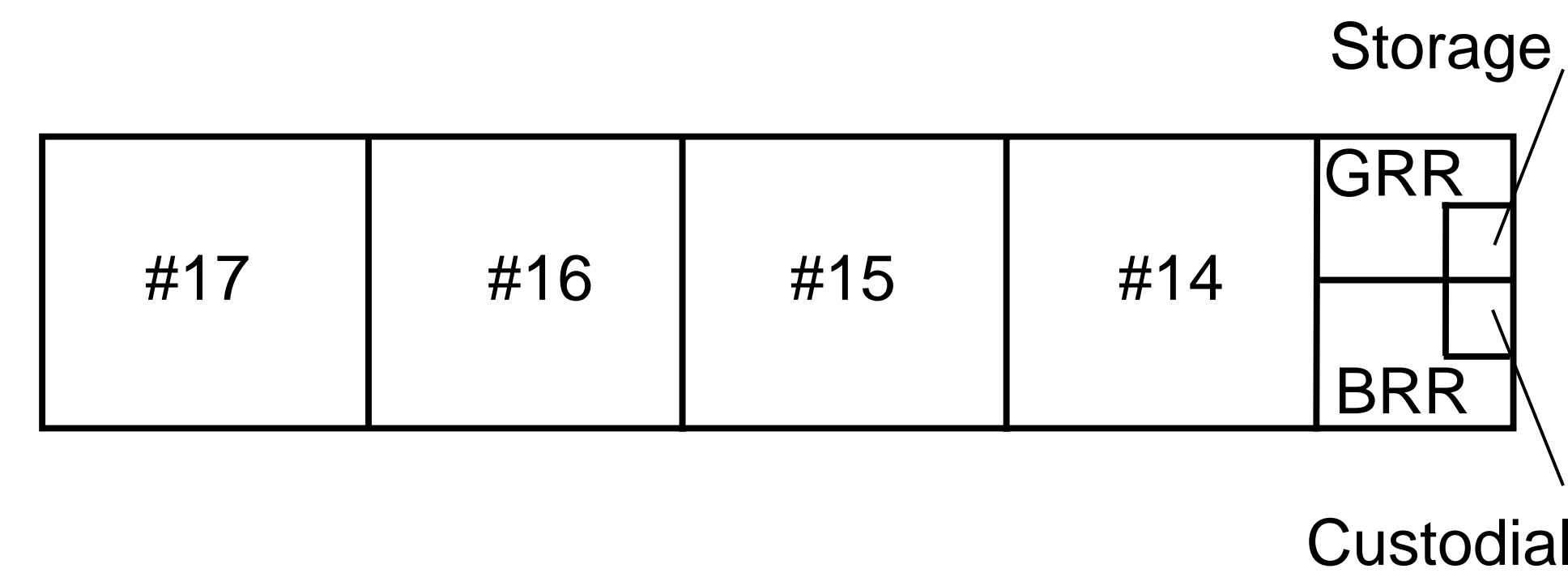
Capacity Summary (Pupil)	
Number of Permanent Classrooms:	04
Number of Relocatable Classrooms:	00
Total Number Classrooms:	04
Permanent Student Capacity (x25):	100
Relocatable Student Capacity (x25):	000
Total Student Capacity(x25):	100

For Example: Select this Electrical Lighting Floor Plan.

DSA Project List
(Select/Click to view more information)

DSA #	Year	Category
#15628	1958	Construction
#60546	1999	Upgrades

Building H Footprint



Building Information (Select/Click to view more information)

Architectural

- > Floor Plan
- > Reflected Ceiling Plan
- > Roof Plan
- > Finish Plan
- > Door Schedule
- > Window Schedule

Mechanical

- > Floor Plan
- > Roof Plan
- > Exhaust Fan Control
- > Split System Heat Pump Control
- > Make Up Air Unit Control

Plumbing

- > Floor Plan
- > Roof Plan

Electrical

- > Lighting Floor Plan
- > Power Floor Plan
- > Communication Floor Plan
- > Data Networking Riser Diagram
- > Multimedia/CATV Riser Diagram
- > Communication Diagram
- > Fire Alarm Floor Plan
- > Roof Plan
- > Power One Line Diagram

Note: Above plans linked to latest DSA # As-Builts

[Click here to return to District Index](#)

Emanuel Elementary School

1862 Jupiter Blvd	Grade Level: K-6
Dallas, TX 75227	Size of Campus: 10 acres
Tel: (214) 418-6800	Total Area of Permanent Classrooms: 20,000
Fax: (214) 418-6801	Total Area of Relocatable Classrooms: 12,000
	Total Building Square Footage: 32,000

Number of Permanent Classrooms:	21
Number of Relocatable Classrooms:	10
Total Number Classrooms:	31
Permanent Student Capacity (x25):	525
Relocatable Student Capacity (x25):	250
Total Student Capacity(x25):	775

School Personnel
Contact Information

For Example: Select this Building E.

Select/Click on **White Building Indicator** to access additional information

Department Index List
(Select/Click to view more information)

- > Facilities & Maintenance
- > Technology Services
- > Education Services
- > Business Services



Emanuel Elementary School

[Click here to return to School Index](#)

Building E

Building Data

Year Built:	1953
Facility Type:	Clstrm Bldg.
Total # Rooms:	08
Total # Classrooms:	4
Occupancy:	E
Fire Sprinkler:	No

Summary of Area (SF)

Classrooms:	3830
Restrooms:	442
Mech-Jan-Stor:	168
Covered Walks:	2038
Total:	6478

Capacity Summary (Pupil)

Number of Permanent Classrooms:	04
Number of Relocatable Classrooms:	00
Total Number Classrooms:	04
Permanent Student Capacity (x25):	025
Relocatable Student Capacity (x25):	000
Total Student Capacity(x25):	100

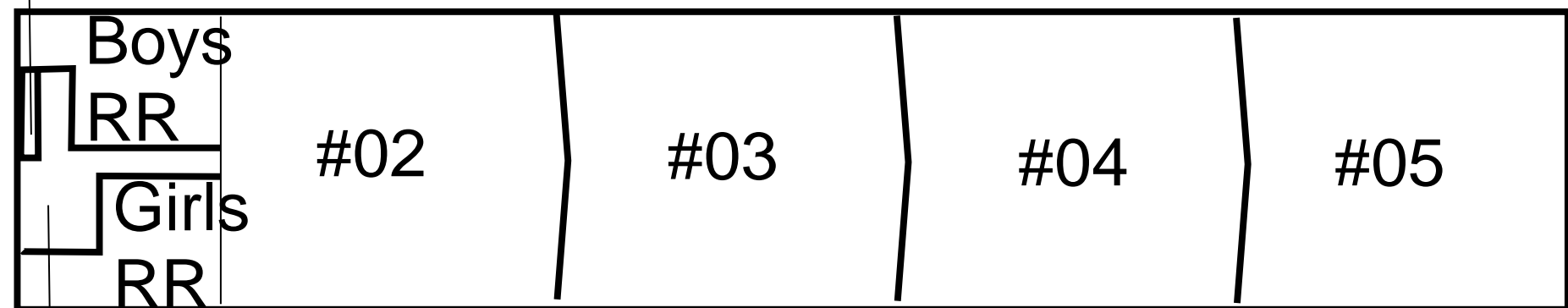
DSA Project List

(Select/Click to view more information)

DSA #	Year	Category
#8667	1953	Construction
#62351	2000	Modernization

Building E Footprint

Electrical



Janitor

Building Information (Select/Click to view more information)

Architectural

- > Floor Plan
- > Reflected Ceiling Plan
- > Roof Plan
- > Finish Plan
- > Door Schedule
- > Window Schedule

Mechanical

- > Floor Plan
- > Roof Plan
- > Exhaust Fan Control
- > Split System Heat Pump Control
- > Make Up Air Unit Control

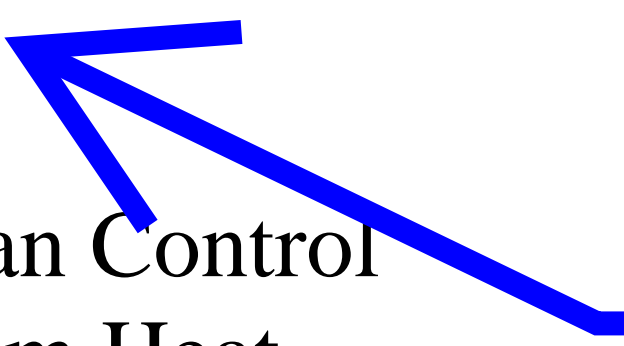
Plumbing

- > Floor Plan
- > Roof Plan

Electrical

- > Lighting Floor Plan
- > Power Floor Plan
- > Communication Floor Plan
- > Data Networking Riser Diagram
- > Multimedia/CATV Riser Diagram
- > Communication Diagram
- > Fire Alarm Floor Plan
- > Roof Plan
- > Power One Line Diagram

For Example: Select this Mechanical Floor Plan.



Note: Above plans linked to latest DSA # As-Built

[Click here to return to District Index](#)

Impala Elementary School

789 Utah Road	Grade Level: K-6
Dallas, TX 75623	Size of Campus: 12 acres
Tel: (214) 478-7000	Total Area of Permanent Classrooms: 72,854
Fax: (214) 478-7001	Total Area of Relocatable Classrooms: 6,680
	Total Building Square Footage: 79,534

Number of Permanent Classrooms:	40
Number of Relocatable Classrooms:	09
Total Number Classrooms:	49
Permanent Student Capacity (x25):	1000
Relocatable Student Capacity (x25):	225
Total Student Capacity(x25):	1225

**School Personnel
Contact Information**

For Example: Select this Building BB.

Select/Click on White Building Indicator to access additional information

Department Index List

(Select/Click to view more information)

- > Facilities & Maintenance
- > Technology Services
- > Education Services
- > Business Services



Impala Beach Charter

[Click here to return to School Index](#)

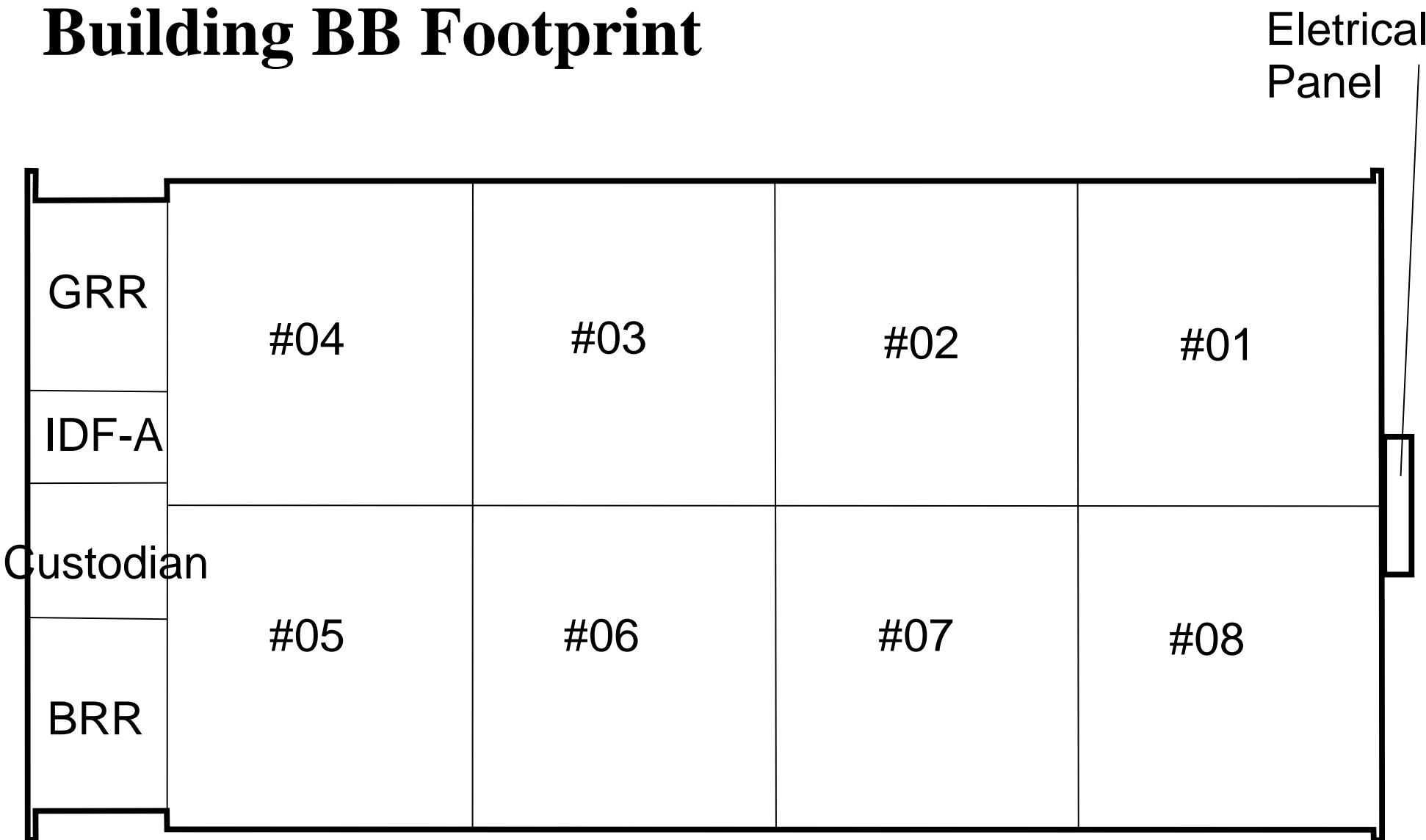
Building BB - Classroom & Administration Building

Building Data		Summary of Area (SF)		Capacity Summary (Pupil)	
Year Built:	1942	Classrooms:	5902	Number of Permanent Classrooms:	06
Facility Type:	Clrm & Admin	Admin:	1499	Number of Relocatable Classrooms:	00
Total # Rooms:	17	Restrooms:	579	Total Number Classrooms:	06
Total # Classrooms:	06	Mech-Jan-Stor:	103	Permanent Student Capacity (x25):	300
Occupancy:	E	Other:	1117	Relocatable Student Capacity (x25):	000
Fire Sprinkler:	No	Total:	9200	Total Student Capacity(x25):	300

DSA Project List
(Select/Click to view more information)

DSA #	Year	Category
#3917	1942	Construction

Building BB Footprint



Building Information (Select/Click to view more information)

Architectural

- > Floor Plan
- > Reflected Ceiling Plan
- > Roof Plan
- > Finish Plan
- > Door Schedule
- > Window Schedule

Electrical

- > Lighting Floor Plan
- > Power Floor Plan
- > Communication Floor Plan
- > Data Networking Riser Diagram
- > Multimedia/CATV Riser Diagram
- > Communication Diagram
- > Fire Alarm Floor Plan
- > Roof Plan
- > Power One Line Diagram

Mechanical

- > Floor Plan
- > Roof Plan
- > Exhaust Fan Control
- > Split System Heat Pump Control
- > Make Up Air Unit Control

Plumbing

- > Floor Plan
- > Roof Plan

For Example: Select the Plumbing Floor Plan

Note: Above plans linked to latest DSA # As-Builts

[Click here to return to District Index](#)

Indigo Elementary School

325 4th Street
Dallas, TX 75256
Tel: (214) 650-4000
Fax: (214) 650-4001

Grade Level: Charter School
Size of Campus: 34,919 s.f.
Total Area of Permanent Classrooms: 16,022
Total Area of Relocatable Classrooms: 3,820
Total Building Square Footage: 34,919

Number of Permanent Classrooms: 04
Number of Relocatable Classrooms: 19
Total Number Classrooms: 24

Permanent Student Capacity (x25): 100
Relocatable Student Capacity (x25): 475
Total Student Capacity(x25): 575

**School Personnel
Contact Information**

Department Index List
(Select/Click to view more information)

- > Facilities & Maintenance
- > Technology Services
- > Education Services
- > Business Services

Select/Click on **Red Building Indicator** to access additional information

For Example: Select this Building



Indigo Elementary School
Building C - Classrooms

[Click here to return to School Index](#)

Building Data

Year Built:	1949
Facility Type:	Classrooms
Total # Rooms:	10
Total # Classrooms:	04
Occupancy:	E
Fire Sprinkler:	No

Summary of Area (SF)

Classrooms:	3847
Restrooms:	925
Office:	648
Total:	5420

Capacity Summary (Pupil)

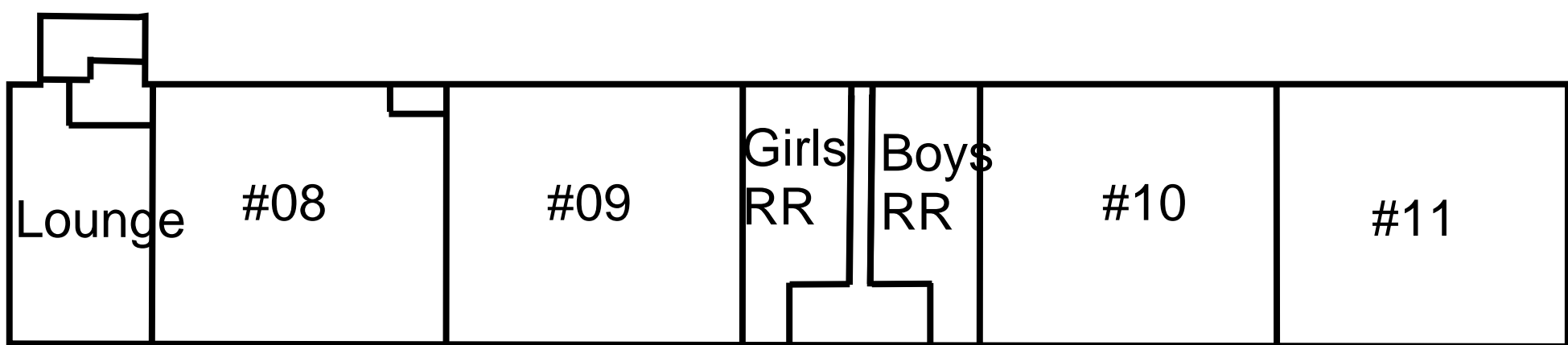
Number of Permanent Classrooms:	04
Number of Relocatable Classrooms:	00
Total Number Classrooms:	00
Permanent Student Capacity (x25):	100
Relocatable Student Capacity (x25):	000
Total Student Capacity(x25):	100

For Example: Select this Electrical Power Plan.

DSA Project List
(Select/Click to view more information)

DSA #	Year	Category
#6276	1949	Construction
#9878	1953	Construction
#15711	1958	Construction

Building C Footprint



Building Information (Select/Click to view more information)

Architectural

- > Floor Plan
- > Reflected Ceiling Plan
- > Roof Plan
- > Finish Plan
- > Door Schedule
- > Window Schedule

Mechanical

- > Floor Plan
- > Roof Plan
- > Exhaust Fan Control
- > Split System Heat Pump Control
- > Make Up Air Unit Control

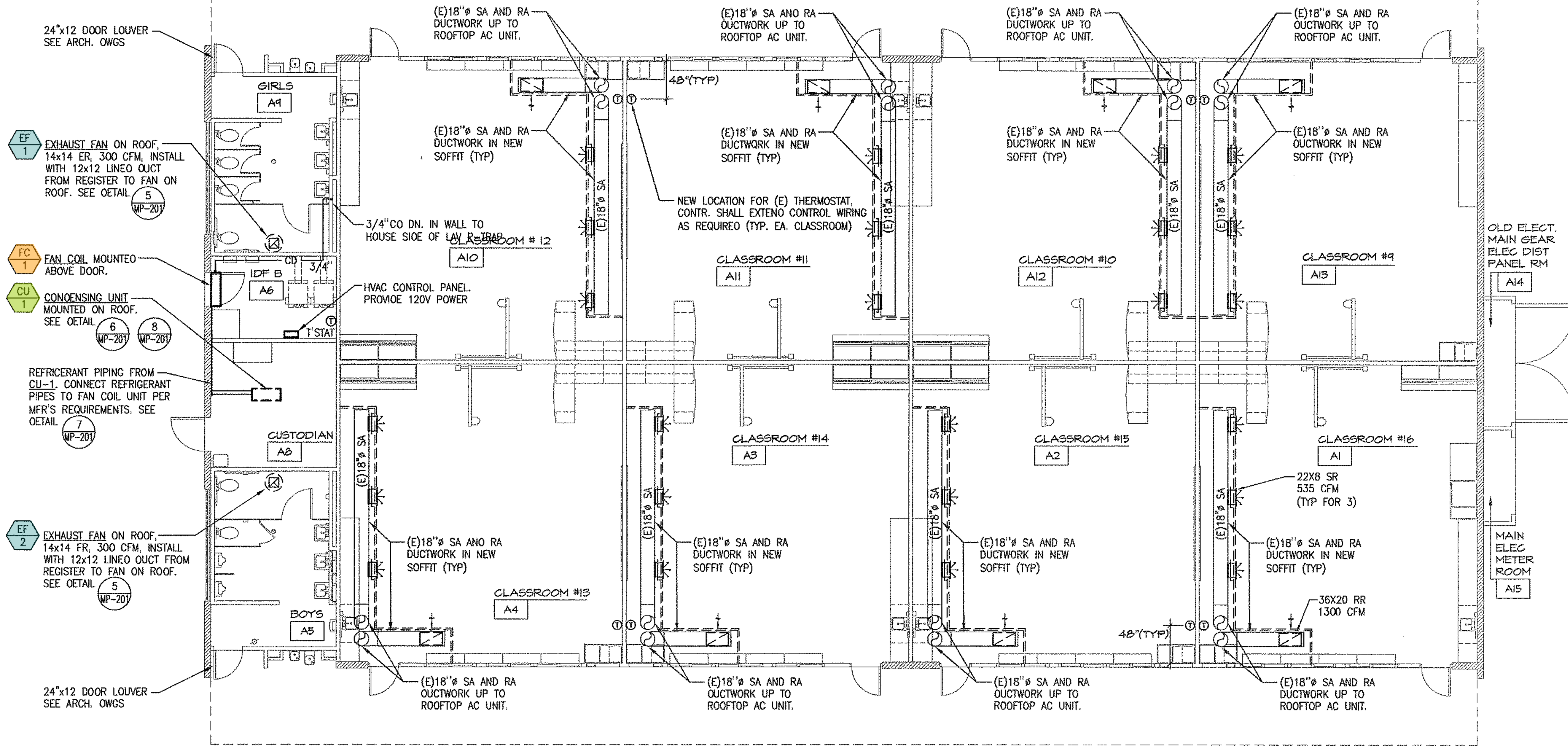
Plumbing

- > Floor Plan
- > Roof Plan

Electrical

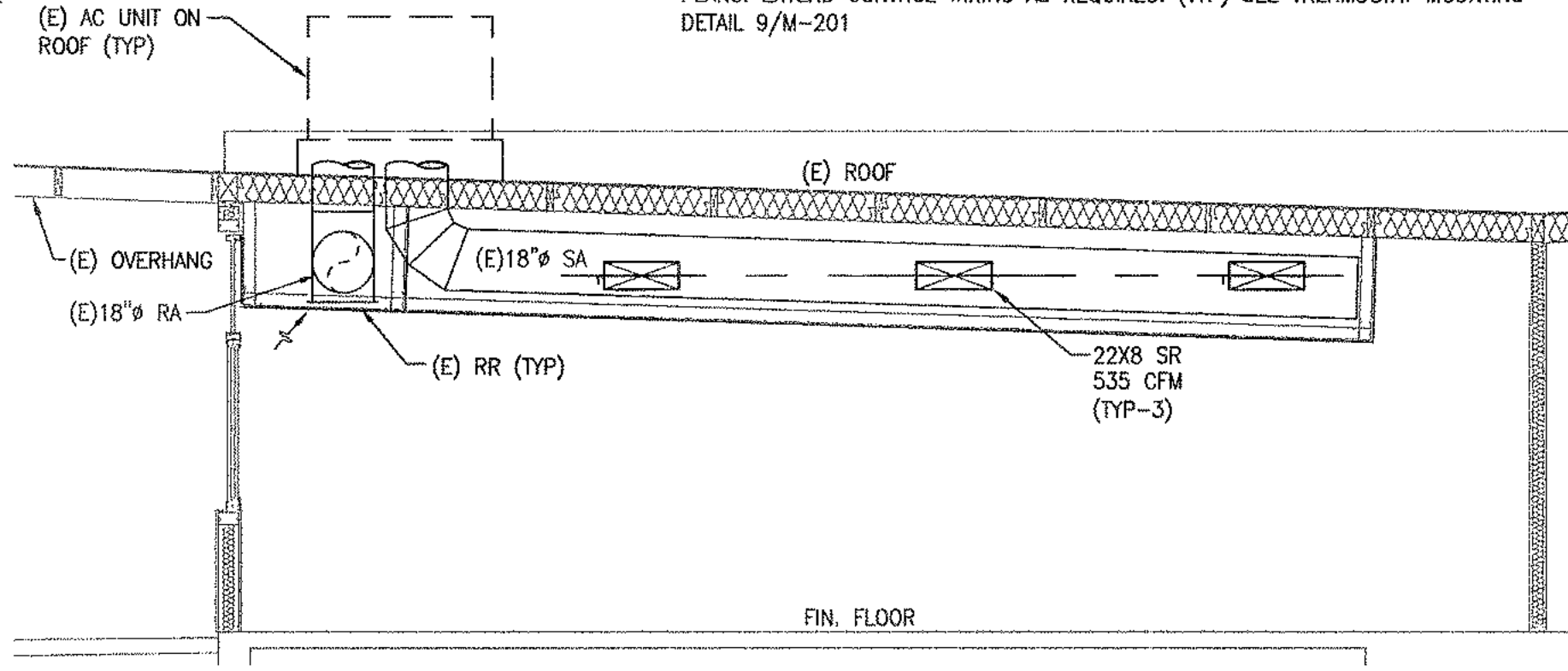
- > Lighting Floor Plan
- > Power Floor Plan
- > Communication Floor Plan
- > Data Networking Riser Diagram
- > Multimedia/CATV Riser Diagram
- > Communication Diagram
- > Fire Alarm Floor Plan
- > Roof Plan
- > Power One Line Diagram

Note: Above plans linked to latest DSA # As-Built



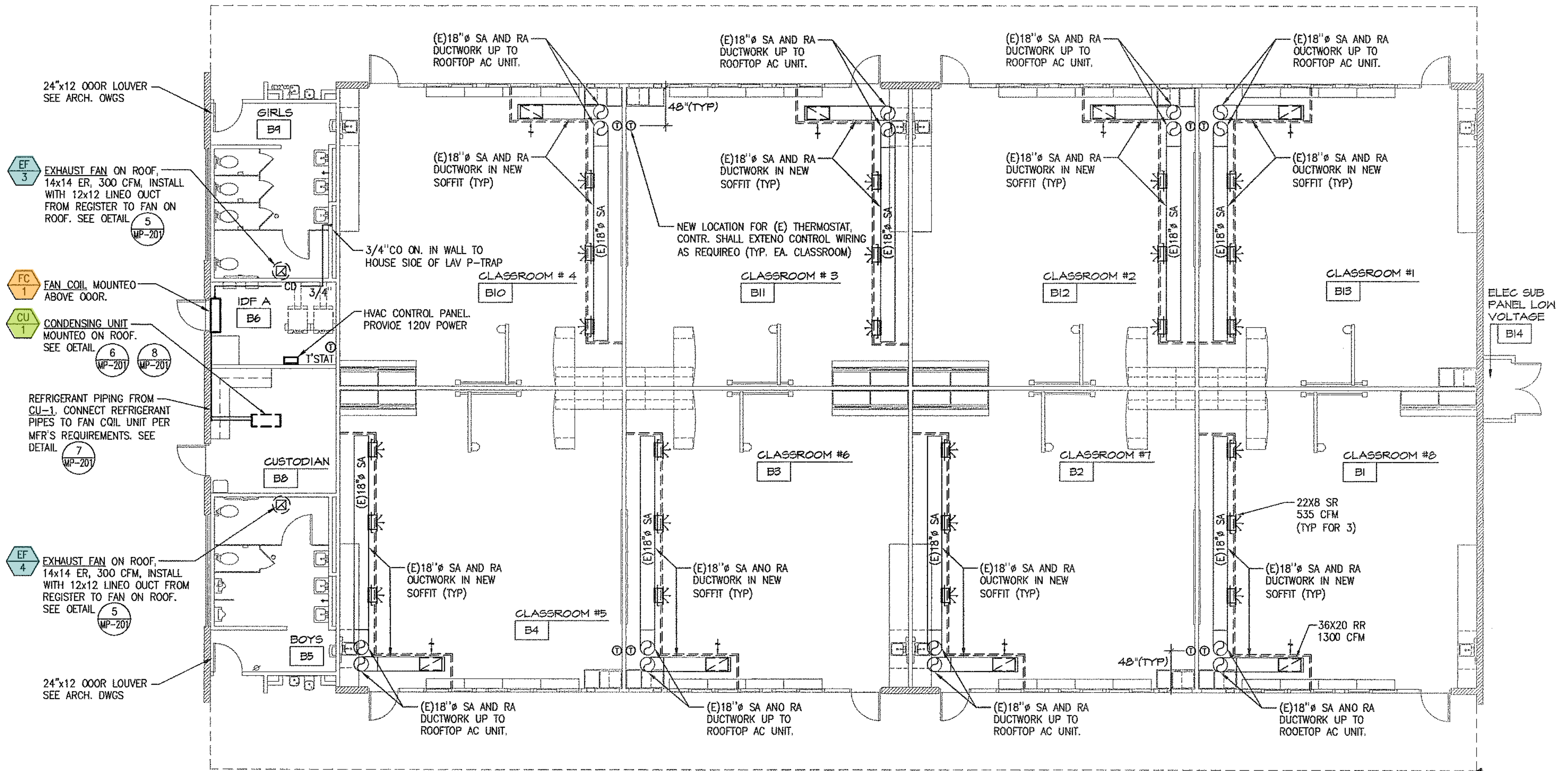
BUILDING "A" - MECHANICAL PLAN

1/8"=1'-0"



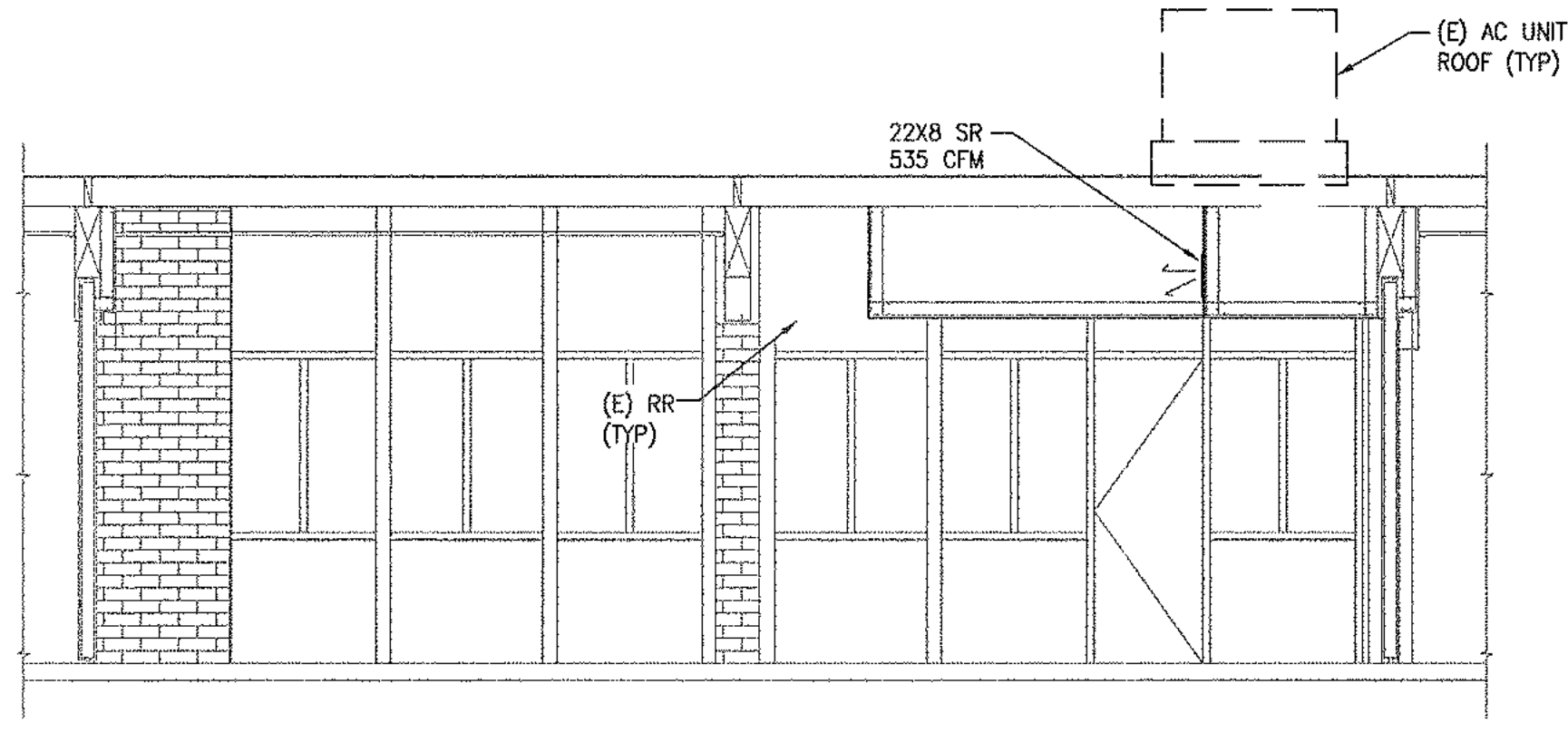
BLDG "A"/"B" - TYP CLASSROOM SECTION

1/4"=1'-0"



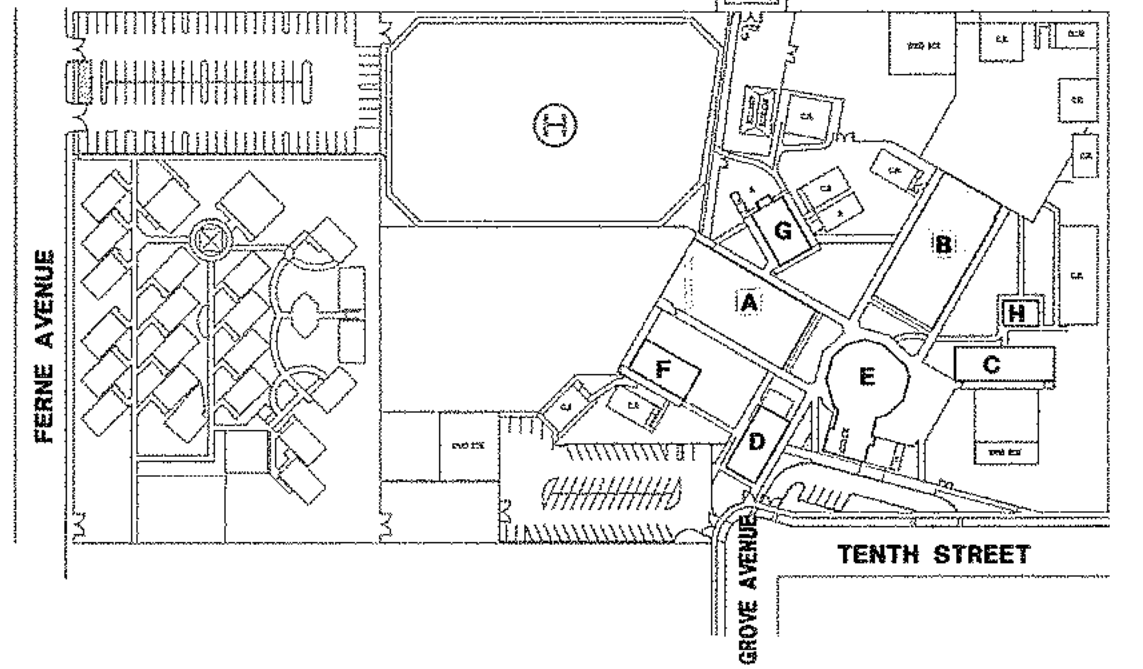
BUILDING "B" - MECHANICAL PLAN

1/8"=1'-0"



BLDG "A"/"B" - TYP CLASSROOM SECTION

1/4"=1'-0"



KEY PLAN

SHEET TITLE:

MECHANICAL FLOOR PLANS BUILDINGS A AND B

SHEET NO:

M-101

OF:

DSA APPROVAL

GENERAL NOTES

1. CONTRACTOR IS REQUIRED TO VERIFY ALL EQUIPMENT MODEL NUMBERS, CAPACITIES, SIZES, VOLTAGES, AND ALL OTHER SCHEDULED INFORMATION WITH OTHER APPLICABLE TRADES AND WITH THE MANUFACTURER PRIOR TO INSTALLATION.
2. CONTRACTOR IS REQUIRED TO CAREFULLY REVIEW THESE PLANS AND SPECIFICATIONS PRIOR TO BID. CONTRACTOR IS REQUIRED TO ALSO REVIEW PLANS AND SPECIFICATIONS OF OTHER RELATED TRADES (INCLUDING CIVIL, STRUCTURAL, AND ELECTRICAL) PRIOR TO BID TO INSURE AN ACCURATE UNDERSTANDING OF EXACT SCOPE OF WORK. ANY ITEMS REQUIRING CLARIFICATION SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT IN SUFFICIENT TIME TO BE INCORPORATED INTO THE BID.
3. THESE DRAWINGS ARE ESSENTIALLY DIAGRAMMATIC, AND ARE NOT INTENDED TO INDICATE ALL DETAILS AND NECESSARY OFFSETS OF PIPING. THE CONTRACTOR IS REQUIRED TO INSTALL MATERIAL AND EQUIPMENT IN A MANNER AS TO CONFORM TO STRUCTURE, AVOID OBSTRUCTIONS, PRESERVE HEADROOM, AND KEEP OPENINGS AND PASSAGeways CLEAR. ALL INSTALLATIONS SHALL BE CONSISTENT WITH NORMALLY ACCEPTABLE INDUSTRY STANDARDS. THE CONTRACTOR IS REQUIRED TO NOTIFY THE ARCHITECT IN WRITING OF ANY DISCREPANCIES OR CONFLICTS THAT WOULD AFFECT THE SYSTEM PERFORMANCE OR INCUR ADDITIONAL COSTS. THIS NOTIFICATION SHALL BE SUBMITTED PRIOR TO INSTALLATION OF THE ITEMS CONCERNED.
4. NEW AND/OR EXISTING EQUIPMENT INDICATED ON THIS DRAWING IS SHOWN IN APPROXIMATE POSITION(S). CONTRACTOR SHALL FIELD VERIFY ALL CONDITIONS, INCLUDING EQUIPMENT LOCATIONS, P.O.C.'S AND STRUCTURAL MEMBERS PRIOR TO INSTALLATION. IN ALL CASES, ADEQUATE ACCESS (PER MANUFACTURER'S RECOMMENDATIONS AND CODE COMPLIANCE) FOR MAINTENANCE AND REPLACEMENT OF EQUIPMENT SHALL BE PROVIDED.
5. CONTRACTOR IS RESPONSIBLE TO CUT AND PATCH WALLS, CEILINGS AND FLOORS AS REQUIRED TO MAKE CONNECTIONS TO EXISTING SURFACE. SEE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR LOCATION AND MATERIALS.
6. ALL WORK SHALL BE DONE IN ACCORDANCE WITH ALL APPLICABLE CODES. NOTHING SHOWN ON THE PLANS OR STATED IN THE SPECIFICATIONS IS INTENDED TO INDICATE THAT THE INSTALLATIONS OR CONNECTIONS OF ANY ITEM OR DEVICE SHOULD BE DONE CONTRARY TO MANUFACTURER'S INSTRUCTIONS AND ALL APPLICABLE CODES AND REGULATIONS.
7. IF THE CONTRACTORS' USE OF SUBSTITUTE MATERIALS, EQUIPMENT OR METHODS OF INSTALLATION REQUIRES ANY CHANGES IN OTHER TRADES' WORK FROM THAT SHOWN ON THE DRAWINGS, THE EXTRA COST OF THE OTHER TRADES WORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR INITIATING THE SUBSTITUTION.
8. SUBMITTALS: APPROVAL OF THE SUBMITTALS DOES NOT RELEASE THE CONTRACTOR FROM OBLIGATIONS TO FULLY COMPLY WITH ALL REQUIREMENTS OF THE CONSTRUCTION DOCUMENTS OR APPLICABLE CODE REGULATIONS. CONTRACTOR IS RESPONSIBLE TO CUT AND PATCH WALLS, CEILINGS AND FLOORS AS REQUIRED TO MAKE CONNECTIONS TO EXISTING SURFACE. SEE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR LOCATION AND MATERIALS.
9. ALL WORK SHALL CONFORM TO 2007 C.B.C. PART 5, TITLE 24 C.C.R. REFER TO SMACNA FOR DUCT & PIPE BRACING.
10. ALL DUCTWORK AND PIPING SHALL BE SUPPORTED AND BRACED IN ACCORDANCE WITH SMACNA GUIDELINES CONFORMING TO SEISMIC HAZARD LEVEL "AA" TYPICAL AND AS APPROVED BY DSA.
11. PENETRATIONS OF FIRE-RESISTIVE WALLS, FLOORS-CEILINGS AND ROOF-CEILINGS SHALL BE PROTECTED AS REQUIRED BY CBC SECTIONS 712 AND 713.
12. ALL PLUMBING EQUIPMENT, MATERIAL, AND ALL CONNECTIONS THERETO SHALL BE INSTALLED COMPLETE PER MANUFACTURER'S INSTRUCTIONS TO PROVIDE A COMPLETE AND FULLY OPERATIONAL SYSTEM.
13. SOIL, SEWER AND WASTE PIPING SHALL SLOPE AT 1/4" PER FOOT MINIMUM, UNLESS OTHERWISE NOTED.
14. ALL PLUMBING SOLDER SHALL BE LEAD FREE.
15. CROSS CONNECTION PROTECTION SHALL BE PROVIDED AT ALL POTABLE WATER SUPPLIED APPLIANCES AND EQUIPMENT. BACKFLOW PREVENTERS SHOWN ON THESE PLANS, WHICH ARE USED FOR EQUIPMENT (I.E. MEDICAL, PROCESS, AIR CONDITIONING, KITCHEN EQUIPMENT, LANDSCAPE, ETC.) SHALL BE APPROVED BY THE FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH (FCCCHR) AT THE UNIVERSITY OF SOUTHERN CALIFORNIA.
16. ALL VENT-THROUGH-ROOF PIPES SHALL TERMINATE NO LESS THAN 10'-0" MIN FROM ALL OUTSIDE AIR AND BUILDING OPENINGS.
17. A WATER HAMMER ARRESTOR SHALL BE INSTALLED AT LOCATIONS OF SELF-CLOSING VALVES PER UPC 609.10. PROVIDE 8XB ACCESS PANEL.
18. INSTALL FLUSH VALVE HANDLES ON WIDE SIDE OF ACCESSIBLE TOILETS PER ADA STANDARDS.
19. BUILDING DRAIN AND VENT PIPING MATERIALS SHALL COMPLY WITH SECTION 710.0 AND 903.0 OF THE CALIFORNIA PLBG. CODE.
20. ALL SANITARY SYSTEM MATERIALS SHALL BE LISTED BY AN APPROVED LISTING AGENCY.

SEISMIC ANCHORAGE NOTES:

EQUIPMENT ANCHORAGE NOTE:

ALL MECHANICAL AND ELECTRICAL EQUIPMENT SHALL BE ANCHORED OR BRACED TO MEET THE HORIZONTAL AND VERTICAL FORCES PRESCRIBED IN THE 2007 CBC, SECTION 1614A.1.13 AND ASCE 7-05 SECTIONS 13.3, 13.4, 13.6 AND CHAPTER 6.

THE ATTACHMENT OF THE FOLLOWING ITEMS SHALL BE DESIGNED TO RESIST THE FORCES PRESCRIBED ABOVE, BUT NEED NOT BE DETAILED ON THE PLANS, AND THE PROJECT INSPECTOR WILL VERIFY THAT THESE ITEMS (EQUIPMENT) HAVE BEEN ANCHORED.

A. EQUIPMENT WEIGHING LESS THAN 400 POUNDS SUPPORTED DIRECTLY ON THE FLOOR OR ROOF.

B. FURNITURE REQUIRED TO BE ATTACHED IN ACCORDANCE WITH ASCE 7-05, SECTION 13.5.

C. TEMPORARY MOVABLE EQUIPMENT WITH FLEXIBLE CONNECTION TO POWER OR UTILITIES.

D. EQUIPMENT WEIGHING LESS THAN 20 POUNDS SUPPORTED BY VIBRATION ISOLATORS.

E. EQUIPMENT WEIGHING LESS THAN 20 POUNDS SUSPENDED FROM A ROOF, OR FLOOR OR HUNG FROM A WALL.

FOR THOSE ELEMENTS THAT DO NOT REQUIRE DETAILS ON THE APPROVED DRAWINGS, THE INSTALLATION SHALL BE SUBJECT TO THE APPROVAL OF THE MECHANICAL/ELECTRICAL ENGINEER.

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEM BRACING NOTE:

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACE TO RESIST THE FORCES PRESCRIBED IN ASCE 7-05 SECTION 13.3 AS DEFINED IN ASCE 7-05 SECTION 13.6.B, 13.6.7, 13.6.5.5 ITEM 6 AND 2007 CBC 1614A.1.13.

THE BRACING AND ATTACHMENTS TO THE STRUCTURE SHALL COMPLY WITH ONE OF THE OSHPD PRE-APPROVALS WITH AN OPA #, SUCH AS MASON INDUSTRIES (OPA 349), OR ISAT (OPA 485) AS MODIFIED TO SATISFY ANCHORAGE REQUIREMENTS OF ACI 318, APPENDIX D.

COPIES OF THE MANUAL SHALL BE AVAILABLE ON THE JOBSITE PRIOR TO THE START OF HANGING AND BRACING OF PIPE, DUCTWORK, AND ELECTRICAL SYSTEMS.

PLUMBING FIXTURE SCHEDULE

MARK	MIN. BRANCH SIZE				TRAP OR ARM	DESCRIPTION
	C.W.	H.W.	VENT	WASTE		
WC-1 ELEM. (10' TO TOP OF SEAT)	1-1/4"	-	2"	4"	INTEGRAL	WATER CLOSET: "AMERICAN STANDARD" 2234.015 MADERA OR EQUAL. (ELEMENTARY STUDENT) VITREOUS CHINA, FLOOR MOUNTED, ULTRA-LOW CONSUMPTION (1.6 GPF), SIPHON-JET ACTION, WATER CLOSET WITH ELONGATED BOWL. SLOAN ROYAL 111 FLUSH VALVE WITH SCREWDRIVER ANGLE STOP & VANDAL PROOF PROTECTIVE CAP ON STOP. BEMIS 1655C WHITE OPEN FRONT SEAT.
WC-2 ADULT (17"min)	1-1/4"	-	2"	4"	INTEGRAL	WATER CLOSET: "AMERICAN STANDARD" 3043.102 OR EQUAL. (ADULT) VITREOUS CHINA, FLOOR MOUNTED, ULTRA-LOW CONSUMPTION (1.6 GPF), SIPHON-JET ACTION, WATER CLOSET WITH ELONGATED BOWL. SLOAN ROYAL 111 FLUSH VALVE WITH SCREWDRIVER ANGLE STOP & VANDAL PROOF PROTECTIVE CAP ON STOP. BEMIS 1655C WHITE OPEN FRONT SEAT. ADA COMPLIANT.
WC-3 KINDER. (10' min)	1-1/4"	-	2"	4"	INTEGRAL	WATER CLOSET: "AMERICAN STANDARD" 2282.010 BABY DEVORO OR EQUAL. (KINDERGARTEN) VITREOUS CHINA, FLOOR MOUNTED, ULTRA-LOW CONSUMPTION (1.6 GPF), SIPHON-JET ACTION, WATER CLOSET WITH ROUND BOWL. SLOAN ROYAL 111 FLUSH VALVE WITH SCREWDRIVER ANGLE STOP & VANDAL PROOF PROTECTIVE CAP ON STOP. BEMIS 1655C WHITE OPEN FRONT SEAT. ADA COMPLIANT.
EU-1 KID (EU)-2 15' LIP. MAX.	3/4"	-	1-1/2"	2"	INTEGRAL	(E) URINAL: FALCON F-2000 WATERLESS URINAL - ALL EXISTING TO BE RE-INSTALLED DURING REMODEL (LOCATION PER PLANS) ELEMENTARY
L-1 ELEM.	1/2"	-	1-1/2"	2"	1-1/4"	LAVATORY: AMERICAN STANDARD 0955 MADERA 22"x21" WALL HUNG WHITE VITREOUS CHINA. PROVIDE WITH UNIVERSAL FLOOR MOUNTED CARRIER BY ZURN. CHICAGO FAUCET 333-665 PSHVP, SELF-CLOSING METERED FAUCET WITH AERATOR, GRID STRAINER, 1-1/4" INLET AND 1-1/4" OUTLET CAST BRASS P-TRAPS WITH CLEANOUT PLUG, CHROME PLATED WALL ESCUTCHEON PLATE. PROVIDE BRASS CRAFT KTR17 C QUARTER TURN BALL STOP 1/2" I.P.S. INLET 3/8" O.D. OUTLET ANGLE STOP ESCUTCHEON AND SUPPLIES.
L-2 ELEM.	1/2"	-	1-1/2"	2"	1-1/4"	LAVATORY: AMERICAN STANDARD 0955 MADERA 22"x21" WALL HUNG WHITE VITREOUS CHINA. PROVIDE WITH UNIVERSAL FLOOR MOUNTED CARRIER BY ZURN. CHICAGO FAUCET 333-665 PSHVP, ADA COMPLIANT, SELF-CLOSING METERED FAUCET WITH AERATOR, GRID STRAINER, 1-1/4" INLET AND 1-1/4" OUTLET CAST BRASS P-TRAPS WITH CLEANOUT PLUG, CHROME PLATED WALL ESCUTCHEON PLATE. PROVIDE BRASS CRAFT KTR17 C QUARTER TURN BALL STOP 1/2" I.P.S. INLET 3/8" O.D. OUTLET ANGLE STOP ESCUTCHEON AND SUPPLIES. ADA COMPLIANT.
L-3 ADULT	1/2"	1/2"	1-1/2"	2"	1-1/4"	LAVATORY: AMERICAN STANDARD 0955 MADERA 22"x21" WALL HUNG WHITE VITREOUS CHINA. PROVIDE WITH UNIVERSAL FLOOR MOUNTED CARRIER BY ZURN. CHICAGO FAUCET 3300-CP, ADA COMPLIANT, SELF-CLOSING METERED FAUCET WITH AERATOR, GRID STRAINER, 1-1/4" INLET AND 1-1/4" OUTLET CAST BRASS P-TRAPS WITH CLEANOUT PLUG, CHROME PLATED WALL ESCUTCHEON PLATE. PROVIDE BRASS CRAFT KTR17 C QUARTER TURN BALL STOP 1/2" I.P.S. INLET 3/8" O.D. OUTLET ANGLE STOP ESCUTCHEON AND SUPPLIES. ADA COMPLIANT.
S-1 KINDER./ELEM.	1/2"	-	1-1/2"	2"	1-1/2"	SINK: ELKAY DRKAD2517-5" DEEP, CENTER FAUCET CONFIGURATION SINGLE COMPARTMENT 18 GA. STAINLESS STEEL SINK WITH SELF-RIMMING EDGE, COATED OUTSIDE WITH MASTIC FOR SOUND PROOFING. CHICAGO FAUCET 350-317VPAC SINGLE HANDLE RIGID GOOSENECK SPOUT WITH AERATOR AND HAWS 5054LF CHROME PLATED BRASS BUBBLER, GRID STRAINER 1-1/2" INLET AND 1-1/2" OUTLET CAST BRASS P-TRAPS WITH CLEANOUT PLUG, CHROME PLATED WALL ESCUTCHEON PLATE. PROVIDE BRASS CRAFT KTR17 C QUARTER TURN BALL STOP 1/2" I.P.S. INLET 3/8" O.D. OUTLET ANGLE STOP. (ADA 5" DEEP)
S-2 ADULT	1/2"	1/2"	1-1/2"	2"	1-1/2"	SINK: ELKAY LRAD2219-6" DEEP SINGLE COMPARTMENT 18 GA. STAINLESS STEEL SINK WITH SELF-RIMMING EDGE, COATED OUTSIDE WITH MASTIC FOR SOUND PROOFING. PROVIDE CHICAGO FAUCET 201-AGNBAE3-317VPAC SINK FAUCET WITH SWIVEL GOOSENECK SPOUT, AERATOR, AND STRAINER, 1-1/2" INLET AND 1-1/2" OUTLET CAST BRASS P-TRAPS WITH CLEANOUT PLUG, CHROME PLATED WALL ESCUTCHEON PLATE. PROVIDE BRASS CRAFT KTR17 C QUARTER TURN BALL STOP 1/2" I.P.S. INLET 3/8" O.D. OUTLET ANGLE STOP. (ADA 6" DEEP)
S-3 ADULT	1/2"	1/2"	1-1/2"	2"	1-1/2"	SINK: ELKAY LRAD-3319-6" DEEP DOUBLE COMPARTMENT 18 GA. STAINLESS STEEL SINK WITH SELF-RIMMING EDGE, COATED OUTSIDE WITH MASTIC FOR SOUND PROOFING. PROVIDE CHICAGO FAUCET 201-AGNBAE2805-5 KITCHEN SINK FAUCET WITH SWIVEL GOOSENECK SPOUT, AERATOR, AND STRAINER, 1-1/2" INLET AND 1-1/2" OUTLET CAST BRASS P-TRAPS WITH CLEANOUT PLUG, CHROME PLATED WALL ESCUTCHEON PLATE. PROVIDE BRASS CRAFT KTR17 C QUARTER TURN BALL STOP 1/2" I.P.S. INLET 3/8" O.D. OUTLET ANGLE STOP. (ADA 6" DEEP) WITH GARBAGE DISPOSER
SS-1	3/4"	3/4"	2"	3"	3"	SERVICE SINK: FIAT TSBC-1610 24" x 24x 12", TERRAZZO MOP BASIN WITH STAINLESS STEEL RIM GUARDS ALL SIDES & STAINLESS STEEL SPLASH PLATE. CHICAGO FAUCET 897-RCF ROUGH CHROME PLATED SERVICE SINK FAUCET WITH VACUUM BREAKER SPOUT, 3/4" HOSE THREAD ON SPOUT, ADJUSTABLE WALL BRACE, PAIL HOOK, INTEGRAL STOPS IN SUPPLY ARMS.
DF-1 KINDER./ELEM.	1/2"	-	1-1/2"	2"	1-1/4"	DRINKING FOUNTAIN: HAWS 1501, BARRIER-FREE DUAL HEIGHT (HI-LO) WALL MOUNTED WHITE ENAMELED CAST IRON DRINKING FOUNTAIN WITH DUAL BASINS, BUBBLERS AND FRONT PUSH BUTTONS TO BE POLISHED CHROME PLATED BRASS. PROVIDE WITH VANDAL RESISTANT BOTTOM PLATE, ACCESS PLATE AND WASTE ARM, BACK PANEL VANDAL-RESISTANT LEAD-FREE PCP FORGED BRASS BUBBLER HEADS, PCP CAST BRASS WASTE STRAINERS, WITH STREAM ADJUSTABLE PUSH BUTTON OPERATION AND PRESSURE REGULATING VALVES. 1-1/4" CAST BRASS ADJUSTABLE TRAPS, 60 MICRON WATER INLET STRAINERS. ADA COMPLIANT AND CERTIFIED LEAD-FREE TO ANSI/NSF STANDARD 61, SECTION 9. MOUNTED WITH NO. 6715 3/16" THICK STEEL IN-WALL MOUNTING PLATE, WITH 3/8" ALL THREAD STUDS ADA COMPLIANT. PROVIDE INDIVIDUAL WATER AND WASTE PIPING TO EACH DRINKING FOUNTAIN. WEIGHT= 80 LBS.
HB-1	3/4"	-	-	-	-	HOSE BIBB: ACORN 8121 ROUGH BRASS CONSTRUCTION HOSE FAUCET/VALVE WITH LOOSE KEY WHEEL HANDLE, REPLACEABLE DISC, HOSE THREAD SPOUT, WITH ASSE 1011BACKFLOW PREVENTER OUTLET IN 3/4" SIZE WITH 4"MAX. PROJECTION IF MOUNTED IN-BETWEEN 27" TO 80" A.F.F. IN PEDESTRIAN WAYS
FS-1	-	-	2"	2"	2"	FLOOR SINK: ZURN FLOOR SINK MODEL ZN1901-2-P, 12x12 OPENING, 8" DEEP CAST IRON, PORCELAIN ENAMEL INTERIOR, ABS ANTI-SPLASH INTERIOR BOTTOM DOME STRAINER, HALF GRATE, BOTTOM OUTLET WITH TRAP PRIMER CONNECTION, 1/2" MAX. GRATE OPENINGS IN ALL DIRECTIONS IN P.O.T.
FD-1	-	-	2"	2"	2"	FLOOR DRAIN: ZURN Z415-VP, CAST IRON ENAMELED WITH DOUBLE DRAINAGE FLANGE, WEEP HOLES, REVERSIBLE, ADJUSTABLE CLAMPING COLLAR, NICKEL BRONZE TYPE 'B' STRAINER THREADED COLLAR, BOTTOM OUTLET WITH TRAP PRIMER CONNECTION, 1/2" MAX. GRATE OPENINGS IN ALL DIRECTIONS IN PATH OF TRAVEL

- NOTES:
1. PROVIDE ALL FIXTURES WITH ALL VANDAL PROOF OPTIONS.
 2. SEE ARCHITECTURAL FOR ACCESSIBILITY MOUNTING HEIGHTS AND CLEARANCE DIMENSIONS

PLUMBING EQUIPMENT SCHEDULE

MARK	DESCRIPTION
GI 1	GREASE INTERCEPTOR
GD 1	GARBAGE DISPOSAL
WH 1	ELECTRIC WATER HEATER: CHROMONITE M-20L, 60' EWT / 106' LWT, 4.16 KW, 20 AMPS, 20B V. / 1 PH. / 60 HZ., OPR. WT = 5 LBS., MINIMUM OPERATING PRESSURE = 25 PSI, INSTALL PER MFRS. INSTRUCTIONS
WH 2	GAS FIRED WATER HEATER: LOCHINVAR CNR076-075, 75 GAL STORAGE, 76000 BTUH INPUT, 60' EWT / 110' LWT, 74 GPH RECOVERY AT 100' TEMP. RISE, 120V/1PH/60HZ, OPR. WT = 930 LBS, PROVIDE WITH APOLLO 7B-RV THERMAL EXPANSION RELIEF VALVE, PROVIDE SEISMIC ANCHORING AS PER CODE AND WITH INSTALL PER MFRS. INSTRUCTIONS
WH 3	ELECTRIC WATER HEATER: A.O. SMITH, DEL-20 20 GAL STORAGE, 2500 WATT INPUT, 60' EWT / 110' LWT, 20 GPH RECOVERY AT 50' TEMP. RISE, 208V/1PH/60HZ, OPR. WT = 250 LBS, PROVIDE WITH APOLLO 7B-RV THERMAL EXPANSION RELIEF VALVE, PROVIDE SEISMIC ANCHORING AS PER CODE AND WITH INSTALL PER MFRS. INSTRUCTIONS
WH 4	ELECTRIC WATER HEATER: A.O. SMITH, DEL-10 10 GAL STORAGE, 2500 WATT INPUT, 60' EWT / 110' LWT, 20 GPH RECOVERY AT 50' TEMP. RISE, 208V/1PH/60HZ, OPR. WT = 150 LBS, PROVIDE WITH APOLLO 7B-RV THERMAL EXPANSION RELIEF VALVE, PROVIDE SEISMIC ANCHORING AS PER CODE AND WITH INSTALL PER MFRS. INSTRUCTIONS
CP 1	CIRCULATION PUMP: BELL & GOSSETT MODEL NO. NBF-33 LEAD FREE BRONZE, BODY, NORYL IMPELLER, AND CERAMIC SHAFT. PROVIDED WITH 1" FLANGED CONNECTION, AND 10 GPM AT 8' TDH. 125 WATTS AT 120 V/1 PH/60 HZ. 2950 RPM. PROVIDE WITH OPTIONAL TC-1 AUTOMATIC TIMER AND AQ-3/4 AQUASTAT. WEIGHT = 11 LBS.
ET 1	EXPANSION TANK: WESFLEX MODEL FX19 5.0 GALLON HYDROPNEUMATIC EXPANSION TANK, 11" DIAMETER X 16" HIGH SECURELY ANCHOR TANK BASE TO SLAB WITH ANCHOR BOLTS AND ANGLES. TANK FILLED WEIGHT = 55 LBS.

For Example: Select this Water Heater WH-4.

PLUMBING LEGEND

SYMBOL	ABBREVIATION	DESCRIPTION
(E)	EXIST	DENOTES EXISTING
POC	POC	POINT OF CONNECTION
----	(E)	EXISTING PIPING OR EQUIPMENT TO BE REMOVED
----	(E)	EXISTING PIPING OR EQUIPMENT ABANDONED IN PLACE
----	CW	COLD WATER
----	HW	HOT WATER (120°F)
----	HWR	HOT WATER RETURN
----	S OR W	SOIL OR WASTE ABOVE SLAB
----	S OR W	SOIL OR WASTE BELOW SLAB
-- V --	V	SANITARY VENT
DN	DN	DOWN OR DROP
UP	UP	RISE OR RISER
SOV	SOV	SHUT-OFF VALVE ON RISE OR DROP
WCO	WCO	WALL CLEAN-OUT
FCO	FCO	FLOOR CLEAN-OUT
FD	FD	FLOOR DRAIN
FS	FS	FLOOR SINK
HB	HB	HOSE BIBB
ABV	ABV	ABOVE
BEL	BEL	BELOW
CONN	CONN	CONNECT OR CONNECTION
CONT	CONT	CONTINUATION
CONTR	CONTR	CONTRACTOR
CLG	CLG	CEILING
CFM	CFM	CUBIC FEET PER MINUTE
DN	DN	DOWN
EXH	EXH	EXHAUST
EXIST	EXIST	EXISTING
FFE	FFE	FINISHED FLOOR ELEVATION
FIN	FIN	FINISH
FLR	FLR	FLOOR
GPM	GPM	GALLONS PER MINUTE
LAV	LAV	LAVATORY
MAX	MAX	MAXIMUM
MIN	MIN	MINIMUM
OA	OA	OUTSIDE AIR
PLBG	PLBG	PLUMBING
MTD	MTD	MOUNTED
TYP	TYP	TYPICAL
U.N.O.	U.N.O.	UNLESS NOTED OTHERWISE
DTL	DTL	TOP DENOTES DETAIL
SHT	SHT	BOTTOM DENOTES SHEET

ENERGY CONSERVATION NOTES

- ALL AIR CONDITIONING EQUIPMENT IS EXISTING. AIR CONDITIONED AREAS SHALL REMAIN UNCHANGED.
1. CERTIFICATE OF ACCEPTANCE (MECH-1-A) AND ALL RELATED ACCEPTANCE DOCUMENTS SHALL BE SUBMITTED TO THE FIELD INSPECTOR DURING CONSTRUCTION. CERTIFICATE OF OCCUPANCY WILL NOT BE ISSUED UNTIL THESE FORMS ARE REVIEWED AND APPROVED.
 2. ALL PIPING AND DISTRIBUTION SYSTEMS INCLUDING DUCTS AND PLENUMS SHALL BE INSULATED CONSISTENT WITH THE REQUIREMENTS OF SECTION 11B, 123 AND 124 E.E.S. INSULATION SHALL HAVE THE FLAME SPREAD RATING OF 25 OR LESS AND, A SMOKE DEVELOPED RATING OF 50 OR LESS.

USE AND/OR INSTALL ALTERNATIVE EQUIPMENT OR SYSTEMS, SUBJECT TO SECURE APPROVALS OF ALL REVIEWING AGENCIES AND PER LOCAL CODE COMPLIANCE AND TITLE 24 COMPLIANCE.

SHEET TITLE:

PLUMBING LEGEND,
SCHEDULES AND NOTES

SHEET NO:

P-001

OF:

DSA APPROVAL

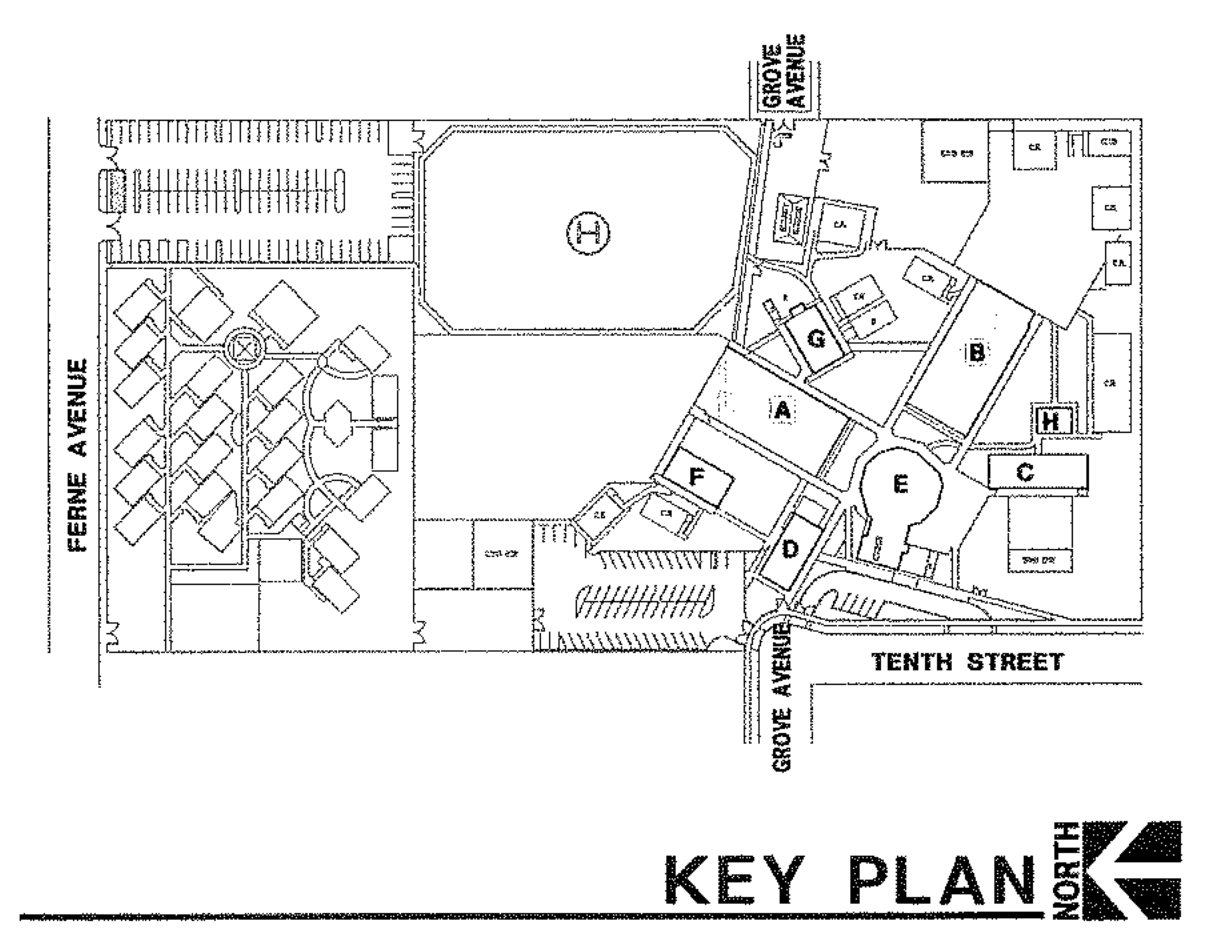
For Example: Select this Water Heater WH-4.

SHEET NOTES - NEW WORK

1. CONTRACTOR SHALL FIELD VERIFY EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO COMMENCING ANY WORK. EXISTING UTILITY INFORMATION USED ON THESE DRAWINGS HAVE BEEN PREPARED FROM ARCHIVED DRAWINGS PROVIDED BY SOUTH BAY UNION SCHOOL DISTRICT FOR REFERENCE.
2. CONTRACTOR SHALL PATCH EXISTING WALL, ROOF, CEILING AND SOFFIT PENETRATIONS AND SURFACES AS REQUIRED TO MATCH THE EXISTING / NEW CONSTRUCTION FINISHES. COORDINATE WITH ARCH. PLANS AND SHEET NOTES FOR ADDITIONAL REQUIREMENTS.
3. ALL EXISTING WATERLESS URINALS ARE TO BE CAREFULLY REMOVED AND STORED FOR RE-LOCATION / RE-MOUNTING AFTER ADJACENT REMODEL WORK HAS BEEN ACCOMPLISHED AND NECESSARY PLUMBING ROUGH-IN IS IN PLACE. RE-INSTALL PER MANUFACTURERS SPECIFICATIONS. ANY FIXTURES DAMAGED DURING REMOVAL OR RE-INSTALLATION SHALL BE REPLACED WITH EXACT MODEL AT NO COST TO THE SCHOOL DISTRICT. SEE ARCHITECTURAL DEMO AND NEW WORK PLANS - SEE SHEET A-611 FOR ADDITIONAL REQUIREMENTS INCLUDING ACCESSIBILITY.
4. EXISTING FLOOR DRAINS AND CLEANOUTS TO REMAIN U.N.O.; EXISTING FLOOR DRAIN GRATES AND CLEANOUT COVERS TO REMAIN SHALL BE CLEANED AND POLISHED. ANY DAMAGED GRATES / COVERS SHALL BE REPLACED TO MATCH EXISTING MODEL AND MATERIALS. REFER TO PLUMBING, ARCHITECTURAL AND FOOD SERVICE PLANS AND SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
5. EXISTING FLOOR DRAINS AND CLEANOUTS LOCATED WITHIN FLOOR AREAS BEING DEMOLISHED SHALL BE REPLACED WITH NEW. REFER TO PLUMBING PLANS AND SPECIFICATIONS. COORDINATE WITH ARCHITECTURAL AND FOOD SERVICE PLANS AND SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
6. CONTRACTOR SHALL UTILIZE EXISTING OPENINGS WHENEVER POSSIBLE. FIELD VERIFY EXISTING OPENING DIMENSIONS. ANY DAMAGE DUE TO MODIFICATION TO PENETRATIONS AND SURFACES SHALL BE REPAIRED TO MATCH EXISTING/NEW CONSTRUCTION AND FINISHES. COORDINATE WITH ARCH. PLANS AND SHEET NOTES FOR ADDITIONAL REQUIREMENTS.
7. WHERE COUNTERTOPS ABUT CONCRETE WALL, SURFACE MOUNT NEW PIPING TIGHT TO WALL. MAINTAIN ACCESSIBLE CLEARANCES BELOW SINK.
8. SEE FIXTURE SCHEDULE SHEET MP-001 FOR PIPE CONNECTION SIZING.
9. COORDINATE WITH ARCHITECTURAL PLANS FOR EXACT FIXTURE LOCATIONS AND MOUNTING HEIGHTS - SHEET A831.
10. CONTRACTOR SHALL VERIFY AND COORDINATE ALL PLUMBING AND MECHANICAL EQUIPMENT INSTALLATION REQUIREMENTS WITH FOOD SERVICE PLANS PRIOR TO COMMENCING ANY WORK.

BUILDING 'BB' - PLUMBING PLAN
1/8"=1'-0" 1 NORTH

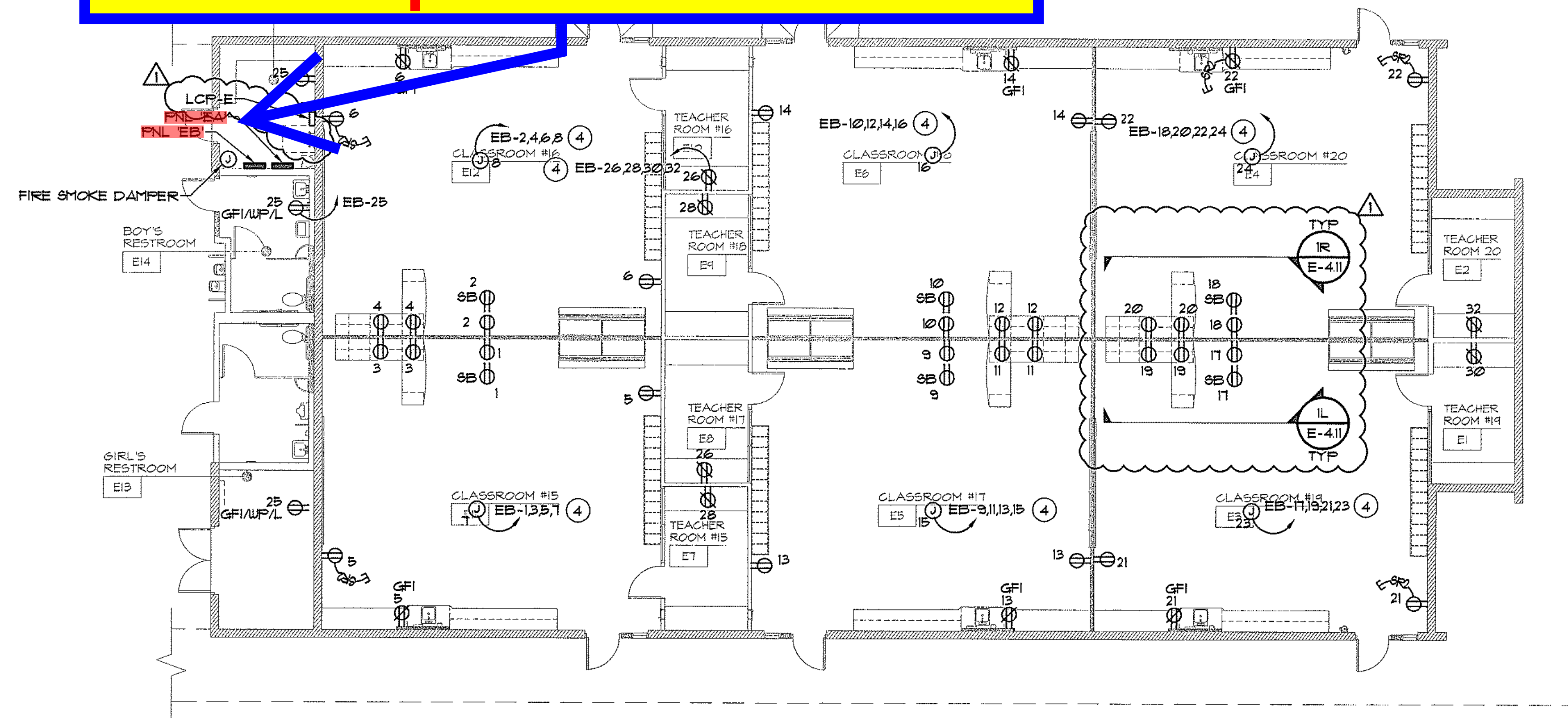
BUILDING "B" - PLUMBING PLAN
1/8"=1'-0" 1 NORTH



SHEET TITLE:
PLUMBING
FLOOR PLANS
BUILDINGS A AND B
SHEET NO:
P-101
OF:

DSA APPROVAL

For Example: Select a Panel.

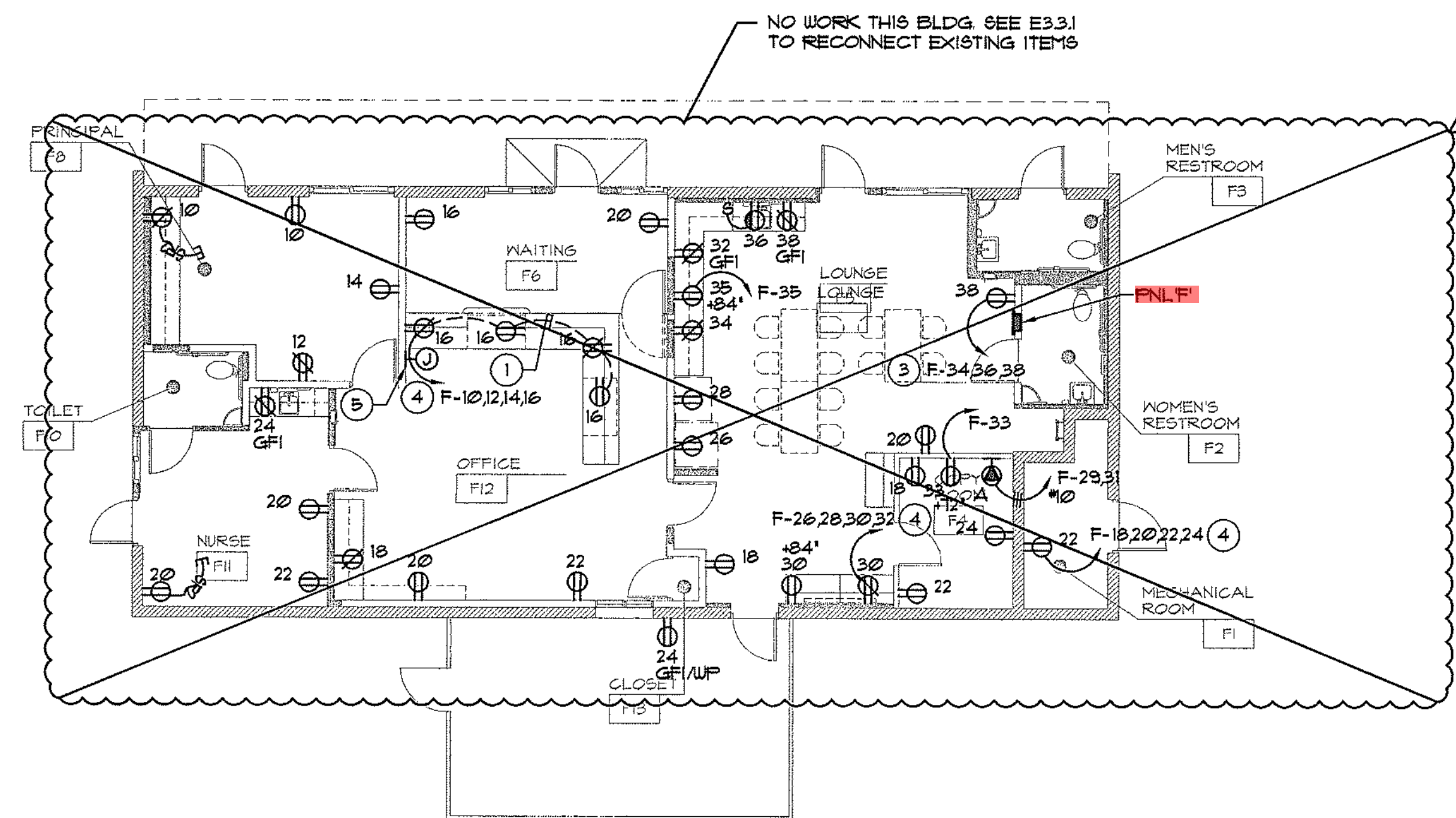


Electrical Legend

BUILDING 'C' FLOOR PLAN

1/8"=1'-0"

1



Electrical Legend

BUILDING 'F' FLOOR PLAN

1/8"=1'-0"

2

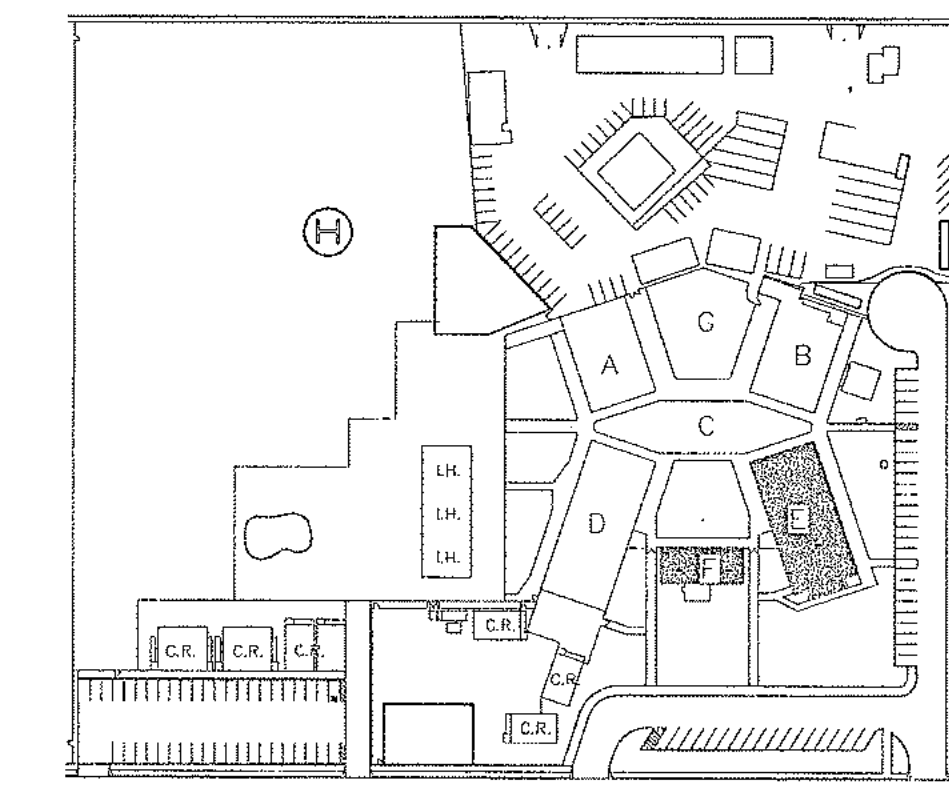


GENERAL NOTES:

1. REFERENCE ARCHITECTURAL INTERIOR ELEVATIONS FOR EXACT LOCATION OF ALL WALL MOUNTED POWER DEVICES WHERE INDICATED AT MOUNTING HEIGHTS OTHER THAN 48".
2. REFERENCE SHEET E6 SERIES SHEETS FOR MECHANICAL EQUIPMENT SCHEDULE.
3. REFERENCE E3 AND E8 SERIES SHEETS FOR TYPICAL CONDUIT AND BACKBOX INSTALLATION DETAILS.
4. NUMBERS ADJACENT TO EACH POWER DEVICE INDICATES THE CIRCUIT NUMBER TO WHICH THE DEVICE IS TO BE CONNECTED.
5. CIRCUIT HOMERUNS ARE INDICATED TO SHOW THE LOCATION AND NUMBER OF CIRCUITS TO BE GROUPED TOGETHER.
6. PROVIDE MINIMUM 1/2" CONDUIT AND #12 CIRCUIT CONDUCTORS AS REQUIRED TO CONNECT EACH POWER DEVICE TO THEIR INDICATED CIRCUIT (UON).
7. FIELD VERIFY EXACT ROUTING LOCATION FOR CONCEALED CONDUITS AND RECEPTACLES PRIOR TO ROUGH-IN.

KEY NOTES:

- 1 FIELD VERIFY EXACT LOCATION PRIOR TO ROUGH-IN.
- 2 2 #12 (HOT), 1 #10 (NEUTRAL), 1 #12 (GND), 1/2" C.
- 3 3 #12 (HOT), 1 #10 (NEUTRAL), 1 #12 (GND), 1/2" C.
- 4 4 #12 (HOT), 2 #10 (NEUTRAL), 1 #12 (GND), 3/4" C.
- 5 GATE CONTROLLER LOCATION, SEE SITEPLAN.



KEY PLAN



BUILDING E AND F
FLOOR PLANS POWER

SHEET NO:

E3.3

OF:

ISSUED FOR CONSTRUCTION

		120/208 3PH, 4WIRE	300 AMP		Main		Breaker		ENCLOSURE TYPE		ENCLOSURE NOTE			
		2000 Neutral Bus							X					
		(INTERMEDIATE) Protection					Enclosure		X					
		(REMOTE) Protection					Enclosure		X					
		Service Entrance Rated												
		Load Side Feed thru Lugs												
LCL	NHL	CIRCUIT DESCRIPTION	AMP	POLE	NO	PHASE A	PHASE B	PHASE C	NO	AMP	POLE	CIRCUIT DESCRIPTION	LCL	NHL
X	X	AC-3A	60	3	1	4700			2	20	1	LIT - EXTERIOR	X	
X	X					4700			4	20	1	LIT - EXTERIOR	X	
X	X					4700			6	20	1	LIT - EXTERIOR	X	
X	X	AC-3B	60	3	7	4700			8	20	1	LIT - INTERIOR	X	
X	X					4700			10	20	1	LIT - INTERIOR	X	
X	X					4700			12	20	1	LIT - INTERIOR	X	
X	X	HP-1	40	2	13	2300			14	20	1	LIT - INTERIOR	X	
X	X					2300			16	80	1	LIGHTING INVERTER	X	
X	X	HP-2	40	2	17	2300			18	20	2	CU-2		X
X	X					2300			20					
X	X					2300			22	20	2	FC-2		X
X	X	REC - ROOF	20	1	21	200			24					
X	X	CU-1	40	2	23	2300			26	20	1	SPARE		X
X	X					2300			28	20	1	SPARE		
X	X	FC	20	1	25	0			30	20	1	SPARE		
X	X					0			32	20	1	SPARE		
X	X					0			34	20	1	SPARE		
X	X					0			36	20	1	SPARE		
X	X	PANEL "MDF" SUBFEED	100	3	31	2500			38	20	1	RESERVED		
						2500			40	20	1	RESERVED		
		PANEL "CB" SUBFEED	200	3	37	4200			42	20	1	RESERVED		
						4200			44	20	1	RESERVED		
						4200			46	20	1	RESERVED		
						4200			48	20	1	RESERVED		
SPECIAL PANEL		NOTE #1												
NOTE		NOTE #2												
		NHL= Non Harmonic Load		TOTAL LOAD PER PHASE		29700		30200		26100				
		LCL= Long Continuous Load		25% LONG CONTINUOUS LOADS		1675		3075		1800				
				SUB PANEL										
		Max. Neut. Load		259 AMPS										
				TOTAL CONNECTED LOAD		31375		33275		27700				

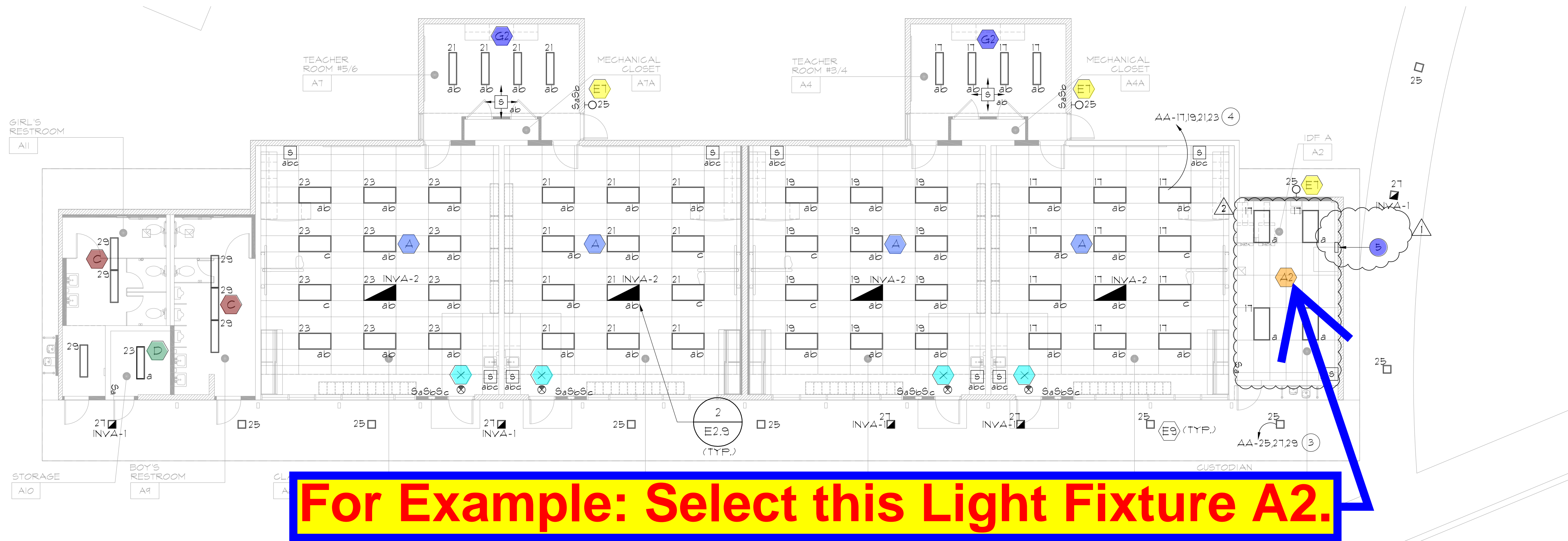
		120/208 3PH, 4WIRE	200 AMP		Main		Breaker		ENCLOSURE TYPE			ENCLOSURE NOTE			
		2000 Neutral Bus					List		X						
		(INTERMEDIATE) Protection	X		Enclosure		Recased		Surfaced			X			
		(REMOTE) Protection										NEMA TYPE 1			
		Service Entrance Rated										NEMA TYPE 3R			
		Load Side Feed thru Lugs										NEMA TYPE 4X			
												PROVIDE LOCK ON BREAKER KEYS FOR ALL EMERGENCY LIGHTING, WATER HEATERS MOTORS, AND FIRE ALARM EQUIPMENT SERVED FROM THIS PANEL			
LCL	NHL	CIRCUIT DESCRIPTION	AMP	POLE	NO	PHASE A	PHASE B	PHASE C	NO	AMP	POLE	CIRCUIT DESCRIPTION	LCL	NHL	
		RECEPTACLES	20	1	1	400				2	20	1	REC - IDF RACK		
						500									
		RECEPTACLES	20	1	3		400			4	20	1	REC - IDF RACK		
							500								
		RECEPTACLES	20	1	5			400		6	20	1	REC - IDF RACK		
								500							
		RECEPTACLES	20	1	7	400				8	20	1	REC - IDF RACK		
						500									
		RECEPTACLES	20	1	9		400			10	20	1	REC - IDF ROOM		
							400								
		RECEPTACLES	20	1	11			400		12	20	1	REC - IDF ROOM		
								400							
		RECEPTACLES	20	1	13	200				14	20	1	REC - CR C4		
						300									
		RECEPTACLES	20	1	15		200			16	20	1	REC - CR C4		
							400								
		RECEPTACLES	20	1	17			800		18	20	1	REC - CR C4		
								400							
		RECEPTACLES	20	1	19	600				20	20	1	REC - CR C4		
		RECEPTACLES	20	1	21		800			22	20	1	SPARE		
							0								
		RECEPTACLES	20	1	23			400		24	20	1	SPARE		
								0							
		RECEPTACLES	20	1	25	600				26	20	1	SPARE		
						0									
		SPARE	20	1	27		0			28	20	1	SPARE		
							0								
		SPARE	20	1	29			0		30	20	1	SPARE		
								0							
		SPARE	20	1	31	0				32	20	1	SPARE		
						0		0							
		SPARE	20	1	33			0		34	20	1	SPARE		
								0							
		SPARE	20	1	35					36	20	1	SPARE		
								0							
		SPARE	20	1	37	0				38	20	1	SPARE		
						0									
		SPARE	20	1	39			0		40	20	1	SPARE		
								0							
		SPARE	20	1	41					42	20	1	SPARE		
SPECIAL PANEL									NOTE #1						
NOTE									NOTE #2						
NHL= Non Harmonic Load			TOTAL LOAD PER PHASE			4200			3100			3300			
LCL= Long Continuous Load			25% LONG CONTINUOUS LOADS			0			0			0			
						SUB PANEL									
									SUB PANEL			4200			
									ALL PHASES			10000			
												/ 0.9pf = KVA • 120v			
												38.9 AMPS			
												/ 0.9pf = KVA • 208v			
												32.7 AMPS			
Max. Neut. Load			80 AMPS												
For Example: Select this Panel															
PS															

For Example: Select this Panel.

		120/208 3PH, 4WIRE		400 AMP		Main		Breaker		ENCLOSURE TYPE		ENCLOSURE NOTE			
		2000 Neutral Bus				Enclosure		List		X		X			
		(INTERMEDIATE) Protection						Recommended		X		NEMA TYPE 1			
		(REMOTE) Protection						Surface		X		NEMA TYPE 3R			
		Service Entrance Rated				Provide Load on Breaker		Devices for All Emergency Lighting, Water Heaters				NEMA TYPE 4X			
		Load Side Feed thru Lug				MOTORS, AND FIRE ALARM EQUIPMENT SERVED FROM THIS PANEL									
		CIRCUIT DESCRIPTION		AMP	POLE	NO	PHASE A	PHASE B	PHASE C	NO	AMP	POLE	CIRCUIT DESCRIPTION	LCL	NHL
X	X	AC-4	200	3	1	15500				2	20	1	LIT - EXTERIOR	X	
X	X			-	3	450		15500		4	20	1	LIT - EXTERIOR	X	
X	X			-	5			400		4	20	1	LIT - STUDENT RESTROOMS	X	
		REC - ROOF	20	1	7	200		15500		6	20	1	LIT - INTERIOR	X	
						600		300		8	20	1	LIT - INTERIOR	X	
		SPARE	20	1	9		0			10	20	1	LIT - INTERIOR	X	
		SPARE	20	1	11		0	900		10	20	1	LIT - INTERIOR	X	
		SPARE	20	1	13	0		0		12	20	1	LIT - INTERIOR	X	
		SPARE	20	1	15	999	0			14	20	1	LIT - INTERIOR	X	
X	X	EF-3, EF-4	20	1	17		0	900		16	20	1	LIT - INTERIOR	X	
								800		18	20	1	LIT - INTERIOR	X	
		SPACE	20	1	19	0		900		18	20	1	SPARE		
		SPACE	20	1	21	0	0			20	50	1	SPARE		
		SPACE	20	1	23	0	0			22	20	1	SPARE		
		SPACE	20	1	25	0	0			24	20	1	SPARE		
		SPACE	20	1	27	0	0			24	20	1	SPARE		
		SPACE	20	1	29	0	0			26	20	1	SPARE		
		SPACE	20	1	31	0	0			28	20	1	SPARE		
		SPACE	20	1	33	0	0			30	20	1	SPARE		
		SPACE	20	1	35	0	0			32	20	1	SPARE		
		SPACE	20	1	37	0	0			34	20	1	SPARE		
		PANEL "DB" SUBFEED	200	3	37	9000		0		36	20	1	RESERVED		
			-	-	39		8100			38	20	1	RESERVED		
			-	-	41				7850	40	20	1	RESERVED		
SPECIAL PANEL		NOTE #1								NOTE #2					
NOTE															
NHL= Non Harmonic Load		TOTAL LOAD PER PHASE				27900		28500		27200					
LCL= Long Continuous Load		25% LONG CONTINUOUS LOADS				4875		4875		4850					

For Example: Select this Panel.

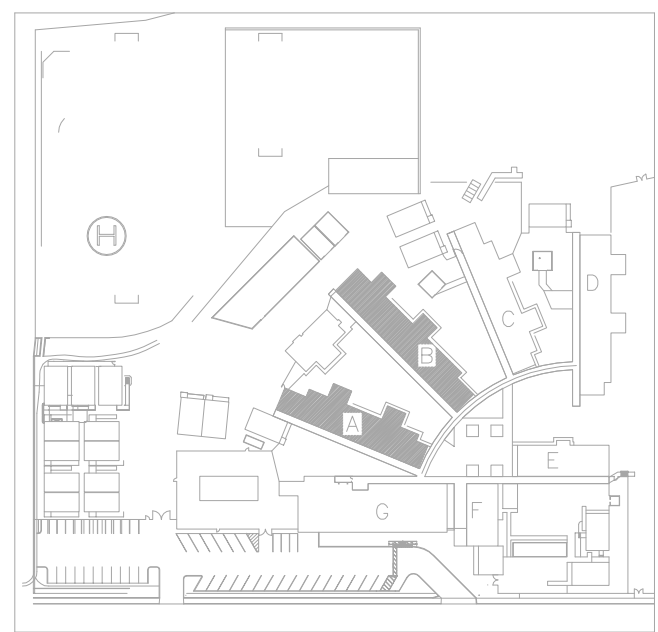
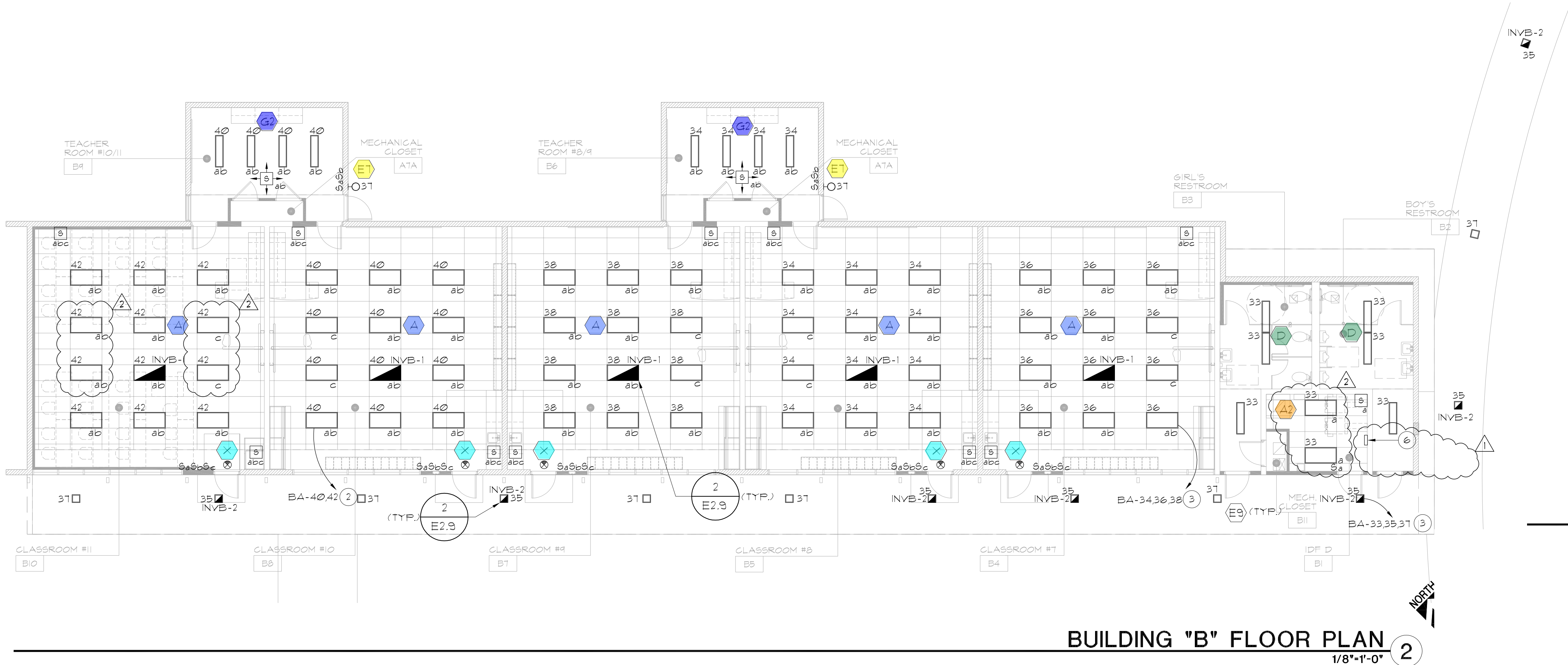
DB		120/208 3PH, 4WIRE		200 AMP		Main		Breaker		ENCLOSURE TYPE		ENCLOSURE NOTE			
		2000 Neutral Bus						X		X					
		(INTERMEDIATE) Protection		X				X		X					
		(REMOTE) Protection						X		X					
		Service Entrance Rated						X		X					
		Load Side Fed thru Lug		GENERAL DISTRIBUTION BREAKER REQUIREMENTS :		PROVIDE LOCK ON BREAKER DEVICES FOR ALL EMERGENCY LIGHTING, WATER HEATERS MOTORS, AND FIRE ALARM EQUIPMENT SERVED FROM THIS PANEL		Surfaced		NEMA TYPE 1R		NEMA TYPE 3R			
LCL	NHL	CIRCUIT DESCRIPTION	AMP	POLE	NO	PHASE A	PHASE B	PHASE C	NO	AMP	POLE	CIRCUIT DESCRIPTION	LCL	NHL	
		REC - CLASSROOM	20	1	1	600			2	20	1	REC - COMP LAB			
		REC - CLASSROOM	20	1	3	600	400		4	20	1	REC - COMP LAB			
		REC - CLASSROOM	20	1	5		400		8	20	1	REC - COMP LAB			
		REC - CLASSROOM	20	1	7	600		800	8	20	1	REC - COMP LAB			
		REC - CLASSROOM	20	1	8	600		800	8	20	1	REC - CLASSROOM			
		REC - CLASSROOM	20	1	11		600		10	20	1	REC - CLASSROOM			
		REC - CLASSROOM	20	1	13	600		400	12	20	1	REC - CLASSROOM			
		REC - CLASSROOM	20	1	15	600	400		14	20	1	REC - CLASSROOM			
		REC - CLASSROOM	20	1	17		600		16	20	1	REC - CLASSROOM			
		REC - CLASSROOM	20	1	19	400		800	18	20	1	REC - CLASSROOM			
		REC - CLASSROOM	20	1	21	400		800	20	20	1	REC - CLASSROOM			
		REC - CLASSROOM	20	1	23		600		22	20	1	REC - CLASSROOM			
		SPARE	20	1	25	0		800	24	20	1	REC - CLASSROOM			
		SPARE	20	1	27	1600	0		26	20	1	REC - WORKROOM			
		SPARE	20	1	28		1600	0	28	20	1	REC - WORKROOM			
		SPARE	20	1	31	0		1200	30	20	1	REC - WORKROOM			
		FIRE ALARM PANEL	20	1	33	1200			32	20	1	REC - COMP LAB			
		REC - RESTROOMS	20	1	35		600		34	20	1	REC - COMP LAB			
		REC - COMP LAB	20	1	37	600		800	36	20	1	REC - COMP LAB			
		REC - COMP LAB	20	1	38	800			38	20	1	REC - COMP LAB			
		REC - COMP LAB	20	1	39		800		40	20	1	SPARE			
		REC - COMP LAB	20	1	41			800	42	20	1				
SPECIAL PANEL															
NOTE															
NHL= Non Harmonic Load		TOTAL LOAD PER PHASE		9000		8100		7800		9000		0.9pf = KVA @ 120V		83.3 AMPS	
LCL= Long Continuous Load		25% LONG CONTINUOUS LOADS		0		0		0		ALL PHASES 24900		0.95pf = KVA @		76.9 AMPS	
Max. Next Load		SUB PANEL		9000		8100		7800		DEMAND PH		NCC 220-34		0 sq. ft.	
128 AMPS		SUB PANEL		9000		8100		7800		NCC 220-34		0 sq. ft.		AMPS	



- GENERAL NOTES:**
1. REFERENCE ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATION OF ALL LIGHTING FIXTURES.
 2. REFERENCE E2 SERIES SHEETS FOR ALL FIXTURE TYPES AND FOR TYPICAL DETAILS.
 3. REFERENCE E8 SERIES SHEETS FOR TYPICAL CONDUIT AND BACKBOX INSTALLATION DETAILS.
 4. LETTERS IN OR ADJACENT TO EACH FIXTURE OR FIXTURE ROW INDICATES SWITCH AND/OR OCCUPANCY SENSOR WHICH CONTROLS THE LIGHTING FIXTURE.
 5. CIRCUIT HOMERUNS ARE INDICATED TO SHOW THE LOCATION AND NUMBER OF CIRCUITS TO BE GROUPED TOGETHER.
 6. PROVIDE MINIMUM 1/2" CONDUIT AND #12 CIRCUIT CONDUCTORS AS REQUIRED TO CONNECT EACH LIGHTING FIXTURES TO THEIR INDICATED CONTROL DEVICES. (U.O.N.)

- KEY NOTES:**
- ① SEE ARCHITECTURAL PLANS FOR MOUNTING HEIGHT.
 - ② 2 #12 (HOT), 1 #10 (NEUTRAL), 1 #12 (GND), 1/2" C.
 - ③ 3 #12 (HOT), 1 #10 (NEUTRAL), 1 #12 (GND), 1/2" C.
 - ④ 4 #12 (HOT), 2 #10 (NEUTRAL), 1 #12 (GND), 3/4" C.
 - ⑤ PROVIDE 4 CIRCUIT PROGRAMMABLE TIME CLOCK 'INTERMATIC' MODEL ET1045CR TO CONTROL CIRCUITS 'AA-25,21,29'. VERIFY SCHEDULE FOR 'ON-OFF' WITH DISTRICT.
 - ⑥ PROVIDE 4 CIRCUIT PROGRAMMABLE TIME CLOCK 'INTERMATIC' MODEL ET1045CR TO CONTROL CIRCUITS 'BA-33,35,31'. VERIFY SCHEDULE FOR 'ON-OFF' WITH DISTRICT.

BUILDING "H" FLOOR PLAN 1
1/8"=1'-0"



KEY PLAN



SHEET TITLE:
**BUILDING A AND B
FLOOR PLANS LIGHTING**

SHEET NO:

BUILDING "B" FLOOR PLAN 2
1/8"=1'-0"



OF: **E2.1**

LIGHTING FIXTURE SCHEDULE																				
Mark	Approved Manufacturer's (See Key Note No.1)	Catalog Series Type (See Key Note No.2)	FIXTURE					LAMP		MOUNTING					Description					
			Incandescent	Fluorescent	Metal Halide	High pressure sodium	Low pressure sodium	Volts	Lamp Watts	No.	Type	Recessed / Ceiling Surface / Ceiling	Wall	Recessed / Wall		Pendant Surface / Wall	Pole			
A	Lithonia	GT8 Grid 2'x4'	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	120	32	3	F8	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Provide ballast type B2	
	Columbia	JT8 Grid 2'x4'	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	120	76	Minimum fixture depth shall be 3=2/16" with .125 prismatic acrylic #12 pattern lens, flush steel white frame, spring loaded latches.									
	Day Brite	TG8 Grid 2'x4'	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	277											
	Lightolier	SPS Grid 2'x4'	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	277											
	Metalux	GR8 Grid 2'x4'	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	480	<input type="checkbox"/> Provide emergency ballast type 'EM'								<input type="checkbox"/> Provide custom color finish, to be selected at time of submittal	<input type="checkbox"/> See detail	
A2	Lithonia	GT8 Grid 2'x4'	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	120	32	2	F8	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Provide ballast type B2	
	Columbia	JT8 Grid 2'x4'	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	120	51	Minimum fixture depth shall be 3=2/16" with .125 prismatic acrylic #12 pattern lens, flush steel white frame, spring loaded latches.									
	Day Brite	TG8 Grid 2'x4'	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	277											
	Lightolier	SPS Grid 2'x4'	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	277											
	Metalux	GR8 Grid 2'x4'	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	480	<input type="checkbox"/> Provide emergency ballast type 'EM'								<input type="checkbox"/> Provide custom color finish, to be selected at time of submittal	<input type="checkbox"/> See detail	
C	Lithonia	GT8 Flanged 1'x4'	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	120	32	2	F8	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Provide ballast type B2	
	Columbia	J14 Flanged 1'x4'	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	120	51	Minimum fixture depth shall be 3=7/8" with .125 prismatic acrylic #12 pattern lens, flush steel white frame, spring loaded latches.									
	Day Brite	DF Flanged 1'x4'	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	277											
	Lightolier	XP Flanged 1'x4'	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	277											
	Metalux	GR8 Flanged 1'x4'	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	480	<input type="checkbox"/> Provide emergency ballast type 'EM'								<input type="checkbox"/> Provide custom color finish, to be selected at time of submittal	<input type="checkbox"/> See detail	
D	Lithonia	C Series	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	120	32	2	F8	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Provide ballast type B2	
	Columbia	CS Series	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	120	51	Fluorescent strip light, with wire guard.									
	Day Brite	T Series	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	277											
	Lightolier	SW Series	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	277											
	Metalux	SS Series	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	480	<input type="checkbox"/> Provide emergency ballast type 'EM'								<input type="checkbox"/> Provide custom color finish, to be selected at time of submittal	<input type="checkbox"/> See detail	
E7	Kenall	Millenium Series	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	120	26	2	F4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Provide ballast type B1	
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	120	60	Max 13" sq. surface mount, max 5" deep with pearlescent high impact acrylic lens and decorative cross grille.									
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	277		<input type="checkbox"/> Provide emergency ballast type 'EM2'								<input checked="" type="checkbox"/> Provide custom color finish, to be selected at time of submittal	<input type="checkbox"/> See detail
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	277											
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	480											
E8	Kenall	Millenium Series	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	120	42	2	F4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Provide ballast type	
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	120	90	Max 16" sq. surface mount, max 7" deep with pearlescent high impact acrylic lens and eyelid style shield.									
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	277		<input type="checkbox"/> Provide emergency ballast type 'EM2'								<input type="checkbox"/> Provide custom color finish, to be selected at time of submittal	<input type="checkbox"/> See detail
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	277											
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	480											
F	Lithonia	GT8 Flanged 2'x4'	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	120	32	3	F8	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Provide ballast type B2	
	Columbia	JT8 Flanged 2'x4'	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	120	71	Minimum fixture depth shall be 3=2/16" with .125 prismatic acrylic #12 pattern lens, flush steel white frame, spring loaded latches.									
	Day Brite	TF Flanged 2'x4'	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	208											
	Lightolier	SPS Flanged 2'x4'	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	277		<input type="checkbox"/> Provide emergency ballast type 'EM'								<input type="checkbox"/> Provide custom color finish, to be selected at time of submittal	<input type="checkbox"/> See detail
	Metalux	GR8 Flanged 2'x4'	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	480											
G2	Lithonia	YR1 Flanged 1'x4'	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	120	32	2	F8	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Provide ballast type B2	
	Columbia	4VS Flanged 1'x4'	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	120	51	Minimum fixture depth shall be 4=3/8" with clear polycarbonate laminated to acrylic. 0.375 total thickness. Steel door frame with tamper resistant screws (min.) 4.									
	Day Brite	DP Flanged 1'x4'	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	277											
	Lightolier	GVS Flanged 1'x4'	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	277		<input type="checkbox"/> Provide emergency ballast type 'EM'								<input type="checkbox"/> Provide custom color finish, to be selected at time of submittal	<input type="checkbox"/> See detail
	Fail-Safe	VR Flanged 1'x4'	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	480											
H8	Engineered LTG Products	CLC Series	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	120	55	1	F7	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Provide ballast type	
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	120	60	Decorative soapie cove light. Max 5" wide x 4" height. See plan for length.									
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	277		<input type="checkbox"/> Provide emergency ballast type 'EM2'								<input checked="" type="checkbox"/> Provide custom color finish, to be selected at time of submittal	<input type="checkbox"/> See detail
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	277											
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	480											

LIGHTING FIXTURE SCHEDULE																			
Mark	Approved Manufacturer's (See Key Note No.1)	Catalog Series Type (See Key Note No.2)	FIXTURE					LAMP		MOUNTING					Description				
			Incandescent	Fluorescent	Metal Halide	High pressure sodium	Low pressure sodium	Volts	Lamp Watts	NO.	Type	Recessed / Ceiling Surface / Ceiling	Wall	Recessed / Wall		Pendant Surface / Wall	Pole		
K2	Lithonia	WRT Flanged 2'x4'	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	120	32	3	F8	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Provide ballast type B2
	Columbia	CT Flanged 2'x4'	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	120		Enclosed and gasketed, wet location listed Fluorescent with high impact .125" prismatic acrylic lens (inverted) and flush aluminum white door frame. Provide with lens and frame neoprene gasketing.								
	Day Brite	DWL Flanged 2'x4'	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	277	76	<input type="checkbox"/> Provide emergency ballast Type 'EM'								
	Lightolier	WES Flanged 2'x4'	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	277		<input type="checkbox"/> Provide custom color finish, to be selected at time of submittal								
	Fall-Safe	CFD Flanged 2'x4'	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	480		<input type="checkbox"/> See detail								
N11	Omega	OM10-2-H Series	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	120	42	2	F5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Provide ballast type B1
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	208		12" Dia. X 11" High maximum one piece aluminum cylinder finished in white color with horizontal lamps, clear semi-specular open reflector and 12" stem for pendant mounting.								
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	277	90	<input type="checkbox"/> Provide emergency ballast Type 'EM'								
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	277		<input type="checkbox"/> Provide custom color finish, to be selected at time of submittal								
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	480		<input type="checkbox"/> See detail								
K8	Lithonia	WRT 2X2 Flanged	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	120	17	3	T8	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Provide ballast type
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	120		Enclosed and gasketed, wet location listed Fluorescent with high impact .125" prismatic acrylic lens (inverted) and flush aluminum white door frame. Provide with lens and frame neoprene gasketing. Rapid start ballasts.								
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	277	54	<input type="checkbox"/> Provide emergency ballast Type 'EM'								
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	277		<input checked="" type="checkbox"/> Provide custom color finish, to be selected at time of submittal								
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	480		<input type="checkbox"/> See detail								
X	ISOLITE	SLX-60 Series	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	120	N/A	NA	NA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Penteco	P160 Series	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	120		Surface mount self luminous exit sign mount above door. Green stencil, 20yr. Life, and plastic white frame. Field verify mounting hardware required.								
	SRB Tech.	171 Series	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	277	N/A	<input type="checkbox"/> Provide emergency ballast Type 'EM'								
	Lightolier	TE Series	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	277		<input type="checkbox"/> Provide custom color finish, to be selected at time of submittal								
	Mule	EGX Series	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	480		<input type="checkbox"/> See detail								
X			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>											

AIR CONDITIONING UNIT SCHEDULE

MARK	AREA SERVED	MANUFACTURER AND MODEL NUMBER	SUPPLY FAN						MINIMUM OUTSIDE AIR (CFM)	COOLING					HEATING					FILTERS		ELECTRICAL						WEIGHT (LBS)	REMARKS		
			CFM	EXT. S.P.	B.H.P.	MAX. B.H.P.	FLA	R.P.M.		MBH		EAT		EER	AMBIENT TEMP °F	STAGE	INPUT MBH	OUTPUT MBH	EFF. %	AMBIENT TEMP °F	DIMENSION (QUANTITY)	TYPE	COMPRESSOR		VOLTS/PH	O.D. FAN FLA	MTR HP			MCA	MOCP
										TOTAL	SENSIBLE	DB	WB										RA	RLA							
AC 1	CLASSROOM 17	CARRIER 48HCD-A05	1600	1.0	1.14	1.7	2.1	1193	450	53.3	39.2	80	67	13.0	85.0	1	72.0	59.0	82	38	RA (4)16x16x2 OA (1)20x24x1	THROW AWAY	1	6.2	460/3	0.9	1/4	13.0	15	653	1. PROVIDE COPPER CONDENSER FINS, POWERED CONVENIENCE OUTLET ON SBUSD SELECTED UNITS, BELT DRIVE SUPPLY FAN, LOW NOX GAS HEAT, R-410A REFRIGERANT. (2) TWO EXTRA SETS OF CAM-FIL FARR 30/30, 30% EFFICIENT FILTERS. INSTALL NEW FILTERS AFTER CONSTRUCTION IS COMPLETE. UNIT SHALL BE PROVIDED WITH STANDARD FACTORY CONTROLS.
AC 2	CLASSROOM 18	CARRIER 48HCD-A06	1950	1.0	1.56	2.4	2.6	1399	450	63.8	49.3	80	67	12.45	85.0	1	72.0	59.0	82	38	RA (4)16x16x2 OA (1)20x24x1	THROW AWAY	1	7.0	460/3	0.9	1/4	14.5	20	663	
AC 3	KINDERGARTEN K1	CARRIER 48HCD-A08	3000	1.0	1.57	2.4	3.4	882	600	98.1	74.1	80	67	12.0	85.0	1	125.0	103.0	82	38	RA (4)20x20x2 OA (1)20x24x1	THROW AWAY	2	6.1(EA)	460/3	(2)0.8	(2)1/4	17.9	20	1012	
AC 4	KINDERGARTEN K2	CARRIER 48HCD-A08	3000	1.0	1.57	2.4	3.4	882	600	98.1	74.1	80	67	12.0	85.0	1	125.0	103.0	82	38	RA (4)20x20x2 OA (1)20x24x1	THROW AWAY	2	6.1(EA)	460/3	(2)0.8	(2)1/4	17.9	20	1012	
AC 5	CLASSROOM 16	CARRIER 48HCD-A06	1950	1.0	1.56	2.4	2.6	1399	450	63.8	49.3	80	67	12.45	85.0	1	72.0	59.0	82	38	RA (4)16x16x2 OA (1)20x24x1	THROW AWAY	1	7.0	460/3	0.9	1/4	14.5	20	663	
AC 6	NURSES OFFICE	CARRIER 48ESN-036	1200	0.8	-	.5	1.5	-	200	35.8	25.6	80	67	11.2	85	1	60.0	47.0	78.7	38	RA (1)24x30x2	THROW AWAY	1	5.6	460/3	0.6	1/8	9.5	15	350	
AC 7																				RA (4)16x16x2 OA (1)20x24x1	THROW AWAY	1	5.8	460/3	0.5	1/8	12.1	15	561		
AC 8																				RA (4)16x16x2 OA (1)20x24x1	THROW AWAY	1	6.0	460/3	0.5	1/5	11.0	15	350		
AC 9	SPEECH/READ	CARRIER 48HCD-A06	1950	1.0	1.56	2.4	2.6	1399	450	63.8	49.3	80	67	12.45	85.0	1	72.0	59.0	82	38	RA (4)16x16x2 OA (1)20x24x1	THROW AWAY	1	7.0	460/3	0.9	1/4	14.5	20	663	2. PROVIDE 120V, SMOKE DETECTOR IN SUPPLY AIR DUCT FOR ALL 48TC-A08 UNITS (TYP-3).
AC 10	CLASSROOM 1	CARRIER 48HCD-A06	1950	1.0	1.56	2.4	2.6	1399	450	63.8	49.3	80	67	12.45	85.0	1	72.0	59.0	82	38	RA (4)16x16x2 OA (1)20x24x1	THROW AWAY	1	7.0	460/3	0.9	1/4	14.5	20	663	
AC 11	CLASSROOM 15	CARRIER 48HCD-A06	1950	1.0	1.56	2.4	2.6	1399	450	63.8	49.3	80	67	12.45	85.0	1	72.0	59.0	82	38	RA (4)16x16x2 OA (1)20x24x1	THROW AWAY	1	7.0	460/3	0.9	1/4	14.5	20	663	
AC 12	LEARNING CENTER	CARRIER 48HCD-A08	3000	1.0	1.57	2.4	3.4	882	600	98.1	74.1	80	67	12.0	85.0	1	125.0	103.0	82	38	RA (4)20x20x2 OA (1)20x24x1	THROW AWAY	2	6.1(EA)	460/3	(2)0.8	(2)1/4	17.9	20	1012	
AC 13	LIBRARY WEST	CARRIER 48HCD-A05	1600	1.0	1.14	1.7	2.1	1193	450	53.3	39.2	80	67	13.0	85.0	1	72.0	59.0	82	38	RA (4)16x16x2 OA (1)20x24x1	THROW AWAY	1	6.2	460/3	0.9	1/4	13.0	15	653	
AC 14	LIBRARY EAST	CARRIER 48HCD-A05	1600	1.0	1.14	1.7	2.1	1193	450	53.3	39.2	80	67	13.0	85.0	1	72.0	59.0	82	38	RA (4)16x16x2 OA (1)20x24x1	THROW AWAY	1	6.2	460/3	0.9	1/4	13.0	15	653	
AC 15	COMPUTER LAB	CARRIER 48HCD-A04	1200	1.0	.84	1.2	2.1	1077	200	39.3	29.1	80	67	12.5	85	1	72.0	59.0	82	38	RA (2)16x25x2 OA (1)20x24x1	THROW AWAY	1	5.8	460/3	0.5	1/8	12.1	15	561	
AC 16	CLASSROOM 2	CARRIER 48HCD-A05	1600	1.0	1.14	1.7	2.1	1193	450	53.3	39.2	80	67	13.0	85.0	1	72.0	59.0	82	38	RA (4)16x16x2 OA (1)20x24x1	THROW AWAY	1	6.2	460/3	0.9	1/4	13.0	15	653	
AC 17	CLASSROOM 14	CARRIER 48HCD-A06	1950	1.0	1.56	2.4	2.6	1399	450	63.8	49.3	80	67	12.45	85.0	1	72.0	59.0	82	38	RA (4)16x16x2 OA (1)20x24x1	THROW AWAY	1	7.0	460/3	0.9	1/4	14.5	20	663	
AC 18	CLASSROOM 13	CARRIER 48HCD-A05	1600	1.0	1.14	1.7	2.1	1193	450	53.3	39.2	80	67	13.0	85.0	1	72.0	59.0	82	38	RA (4)16x16x2 OA (1)20x24x1	THROW AWAY	1	6.2	460/3	0.9	1/4	13.0	15	653	
AC 19	CLASSROOM 4	CARRIER 48HCD-A05	1600	1.0	1.14	1.7	2.1	1193	450	53.3	39.2	80	67	13.0	85.0	1	72.0	59.0	82	38	RA (4)16x16x2 OA (1)20x24x1	THROW AWAY	1	6.2	460/3	0.9	1/4	13.0	15	653	
AC 20	CLASSROOM 3	CARRIER 48HCD-A05	1600	1.0	1.14	1.7	2.1	1193	450	53.3	39.2	80	67	13.0	85.0	1	72.0	59.0	82	38	RA (4)16x16x2 OA (1)20x24x1	THROW AWAY	1	6.2	460/3	0.9	1/4	13.0	15	653	
AC 21	CLASSROOM 11	CARRIER 48HCD-A06	1950	1.0	1.56	2.4	2.6	1399	450	63.8	49.3	80	67	12.45	85.0	1	72.0	59.0	82	38	RA (4)16x16x2 OA (1)20x24x1	THROW AWAY	1	7.0	460/3	0.9	1/4	14.5	20	663	
AC 22	CLASSROOM 12	CARRIER 48HCD-A05	1600	1.0	1.14	1.7	2.1	1193	450	53.3	39.2	80	67	13.0	85.0	1	72.0	59.0	82	38	RA (4)16x16x2 OA (1)20x24x1	THROW AWAY	1	6.2	460/3	0.9	1/4	13.0	15	653	
AC 23	CLASSROOM 5	CARRIER 48HCD-A05	1600	1.0	1.14	1.7	2.1	1193	450	53.3	39.2	80	67	13.0	85.0	1	72.0	59.0	82	38	RA (4)16x16x2 OA (1)20x24x1	THROW AWAY	1	6.2	460/3	0.9	1/4	13.0	15	653	
AC 24	CLASSROOM 6	CARRIER 48HCD-A06	1950	1.0	1.56	2.4	2.6	1399	450	63.8	49.3	80	67	12.45	85.0	1	72.0	59.0	82	38	RA (4)16x16x2 OA (1)20x24x1	THROW AWAY	1	7.0	460/3	0.9	1/4	14.5	20	663	
AC 25	CLASSROOM 10	CARRIER 48HCD-A06	1950	1.0	1.56	2.4	2.6	1399	450	63.8	49.3	80	67	12.45	85.0	1	72.0	59.0	82	38	RA (4)16x16x2 OA (1)20x24x1	THROW AWAY	1	7.0	460/3	0.9	1/4	14.5	20	663	
AC 26	CLASSROOM 9	CARRIER 48HCD-A05	1600	1.0	1.14	1.7	2.1	1193	450	53.3	39.2	80	67	13.0	85.0	1	72.0	59.0	82	38	RA (4)16x16x2 OA (1)20x24x1	THROW AWAY	1	6.2	460/3	0.9	1/4	13.0	15	653	
AC 27	CLASSROOM 8	CARRIER 48HCD-A05	1600	1.0	1.14	1.7	2.1	1193	450	53.3	39.2	80	67	13.0	85.0	1	72.0	59.0	82	38	RA (4)16x16x2 OA (1)20x24x1	THROW AWAY	1	6.2	460/3	0.9	1/4	13.0	15	653	
AC 28	CLASSROOM 7	CARRIER 48HCD-A06	1950	1.0	1.56	2.4	2.6	1399	450	63.8	49.3	80	67	12.45	85.0	1	72.0	59.0	82	38	RA (4)16x16x2 OA (1)20x24x1	THROW AWAY	1	7.0	460/3	0.9	1/4	14.5	20	663	

For Example: Select this unit AC-4.

EXHAUST FAN SCHEDULE

SEE DETAIL SHEET MP-201 FOR MOUNTING AND ANCHORAGE DETAILS.

MARK	SERVICE	MANUFACTURER & MODEL NO.	TYPE	CFM	S.P. (in. w.g.)	FAN RPM	BHP	HP	V/PH	DBA	OPERATING WEIGHT (Lbs.)	REMARKS
EF 1	KINDERGARTEN K1	GREENHECK G-065-D	DIRECT DRIVE CENTRIFUGAL	85	0.3	1,383	.01	1/30	120/1	41	18	PROVIDE PRE-MANUFACTURED ROOF CURB, ALUMINUM CURB CAP WITH PRE-PUNCHED MOUNTING HOLES, BIRDSCREEN AND NEMA 1 DISCONNECT SWITCH FACTORY MOUNTED / WIRED
EF 2	KINDERGARTEN K2	GREENHECK G-065-D	DIRECT DRIVE CENTRIFUGAL	85	0.3	1,383	.01	1/30	120/1	41	18	PROVIDE PRE-MANUFACTURED ROOF CURB, ALUMINUM CURB CAP WITH PRE-PUNCHED MOUNTING HOLES, BIRDSCREEN AND NEMA 1 DISCONNECT SWITCH FACTORY MOUNTED / WIRED
EF 3	CUSTODIAN E14	GREENHECK G-065-D	DIRECT DRIVE CENTRIFUGAL	85	0.3	1,383	.01	1/30	120/1	41	18	PROVIDE PRE-MANUFACTURED ROOF CURB, ALUMINUM CURB CAP WITH PRE-PUNCHED MOUNTING HOLES, BIRDSCREEN AND NEMA 1 DISCONNECT SWITCH FACTORY MOUNTED / WIRED
EF 4	NURSE RESTROOM N5	GREENHECK G-065-D	DIRECT DRIVE CENTRIFUGAL	85	0.3	1,383	.01	1/30	120/1	41	18	PROVIDE PRE-MANUFACTURED ROOF CURB, ALUMINUM CURB CAP WITH PRE-PUNCHED MOUNTING HOLES, BIRDSCREEN AND NEMA 1 DISCONNECT SWITCH FACTORY MOUNTED / WIRED
EF 5	FACULTY RESTROOM N12	GREENHECK G-065-D	DIRECT DRIVE CENTRIFUGAL	85	0.3	1,383	.01	1/30	120/1	41	18	PROVIDE PRE-MANUFACTURED ROOF CURB, ALUMINUM CURB CAP WITH PRE-PUNCHED MOUNTING HOLES, BIRDSCREEN AND NEMA 1 DISCONNECT SWITCH FACTORY MOUNTED / WIRED
EF 6	FACULTY RESTROOM N13	GREENHECK G-065-D	DIRECT DRIVE CENTRIFUGAL	85	0.3	1,383	.01	1/30	120/1	41	18	PROVIDE PRE-MANUFACTURED ROOF CURB, ALUMINUM CURB CAP WITH PRE-PUNCHED MOUNTING HOLES, BIRDSCREEN AND NEMA 1 DISCONNECT SWITCH FACTORY MOUNTED / WIRED
EF 7	GIRLS RESTROOM N19	GREENHECK G-095-D	DIRECT DRIVE CENTRIFUGAL	260	0.3	1,040	.04	1/8	120/1	46	26	PROVIDE PRE-MANUFACTURED ROOF CURB, ALUMINUM CURB CAP WITH PRE-PUNCHED MOUNTING HOLES, BIRDSCREEN AND NEMA 1 DISCONNECT SWITCH FACTORY MOUNTED / WIRED
EF 8	BOYS RESTROOM N18	GREENHECK G-095-D	DIRECT DRIVE CENTRIFUGAL	260	0.3	1,040	.04	1/8	120/1	46	26	PROVIDE PRE-MANUFACTURED ROOF CURB, ALUMINUM CURB CAP WITH PRE-PUNCHED MOUNTING HOLES, BIRDSCREEN AND NEMA 1 DISCONNECT SWITCH FACTORY MOUNTED / WIRED
EF 9	BOYS RESTROOM N1	GREENHECK G-095-D	DIRECT DRIVE CENTRIFUGAL	260	0.3	1,040	.04	1/8	120/1	46	26	PROVIDE PRE-MANUFACTURED ROOF CURB, ALUMINUM CURB CAP WITH PRE-PUNCHED MOUNTING HOLES, BIRDSCREEN AND NEMA 1 DISCONNECT SWITCH FACTORY MOUNTED / WIRED
EF 10	GIRLS RESTROOM N2	GREENHECK G-095-D	DIRECT DRIVE CENTRIFUGAL	260	0.3	1,040	.04	1/8	120/1	46	26	PROVIDE PRE-MANUFACTURED ROOF CURB, ALUMINUM CURB CAP WITH PRE-PUNCHED MOUNTING HOLES, BIRDSCREEN AND NEMA 1 DISCONNECT SWITCH FACTORY MOUNTED / WIRED
EF 11	GIRLS RESTROOM S10	GREENHECK G-095-D	DIRECT DRIVE CENTRIFUGAL	300	0.3	1,053	.04	1/8	120/1	46	26	PROVIDE PRE-MANUFACTURED ROOF CURB, ALUMINUM CURB CAP WITH PRE-PUNCHED MOUNTING HOLES, BIRDSCREEN AND NEMA 1 DISCONNECT SWITCH FACTORY MOUNTED / WIRED
EF 12	BOYS RESTROOM S9	GREENHECK G-095-D	DIRECT DRIVE CENTRIFUGAL	300	0.3	1,053	.04	1/8	120/1	46	26	PROVIDE PRE-MANUFACTURED ROOF CURB, ALUMINUM CURB CAP WITH PRE-PUNCHED MOUNTING HOLES, BIRDSCREEN AND NEMA 1 DISCONNECT SWITCH FACTORY MOUNTED / WIRED
EF 13	STAFF RESTROOM S11	GREENHECK G-065-D	DIRECT DRIVE CENTRIFUGAL	85	0.3	1,383	.01	1/30	120/1	41	18	PROVIDE PRE-MANUFACTURED ROOF CURB, ALUMINUM CURB CAP WITH PRE-PUNCHED MOUNTING HOLES, BIRDSCREEN AND NEMA 1 DISCONNECT SWITCH FACTORY MOUNTED / WIRED
KEF 1	KITCHEN	GREENHECK CUBE-141-7	BELT DRIVE CENTRIFUGAL	2,000	0.75	1,410	.54	3/4	208/3	63	120	EXHAUST FOR TYPE 2 HOOD. PROVIDE PRE-MANUFACTURED 36" HIGH VENTILATED ROOF CURB, NEMA 1 DISCONNECT SWITCH FACTORY MOUNTED / WIRED AND HIGH EFFICIENCY MOTOR. INTERLOCK WITH MAU-1.

SHEET TITLE:

MECHANICAL
SCHEDULES

SHEET NO:

MP-002

OF:

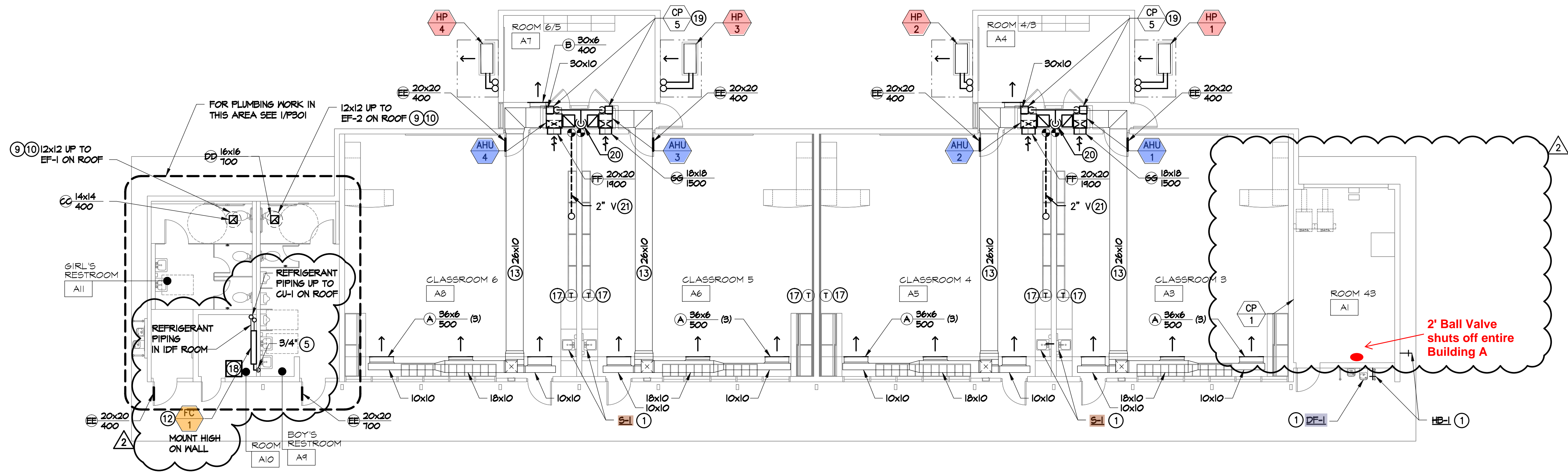
SPLIT SYSTEM HEAT PUMPS																										
NOTES: INSTALL IN-ROOM PRESSURE SENSOR PER MANUFACTURER'S INSTRUCTIONS. ALL UNITS SHALL BE R-410A REFRIGERANT. ALL UNITS SHALL BE PROVIDED WITH CONVENTIONAL THERMOSTAT INTERFACE. CONTROLS CONTRACTOR SHALL PROVIDE FIELD INSTALLED CONTROLLER IN NEMA 3R BOX.													ACCESSORIES: 1) LOW AMBIENT KIT, 2) FIELD FABRICATED ECONOMIZER WITH BELIMO ACTUATORS, 3) PROVIDE PROTECTIVE COIL COATING ON OUTDOOR HEAT PUMP COILS													
INDOOR AIR HANDLER	MANUFACTURER & MODEL	AREA SERVED	LOCATION	EVAPORATOR FAN			MIN OA CFM	ELECTRICAL DATA			AHU FILTER	OPERATING WEIGHT (LB)	OUTDOOR HEAT PUMP	MANUFACTURER & MODEL	MINIMUM ARI RATED COOLING EER	MINIMUM ARI TOTAL COOLING CAPACITY (MBH)	MINIMUM ARI SENSIBLE COOLING CAPACITY (MBH)	MINIMUM ARI HEATING HSPFF	MINIMUM ARI HEATING CAPACITY (MBH)	ELECTRICAL DATA			ACCESSORIES	OPERATING WEIGHT (LB)		
				MAX CFM	E.S.P.	HP		V/PH/Hz	UNIT MCA	UNIT MOCP										V/PH/Hz	UNIT MCA	UNIT MOCP				
AHU 1	CARRIER FX4CNB048T00	CLASSROOM A3	ROOM A4	1500	.6	3/4	450	208/1/60	7.5	15	SPACESUARD 2200	170	HP 1	CARRIER 38GRR048	12.0	44.0	36.0	8.0	47.0	208/1/60	28.7	50	1,2,3	278		
AHU 2	CARRIER FX4CNB060T00	CLASSROOM A5	ROOM A4	1900	.6	3/4	480	208/1/60	7.5	15	SPACESUARD 2200	198	HP 2	CARRIER 38GRR060	11.5	57.0	42	8.8	56.0	208/1/60	34.5	60	1,2,3	306		
AHU 3	CARRIER FX4CNB048T00	CLASSROOM A6	ROOM A7	1500	.6	3/4	450	208/1/60	7.5	15	SPACESUARD 2200	170	HP 3	CARRIER 38GRR048	12.0	44.0	36	8.0	47.0	208/1/60	28.7	50	1,2,3	278		
AHU 4	CARRIER FX4CNB060T00	CLASSROOM A8	ROOM A7	1900	.6	3/4	480	208/1/60	7.5	15	SPACESUARD 2200	198	HP 4	CARRIER 38GRR060	11.5	57.0	42	8.8	56.0	208/1/60	34.5	60	1,2,3	306		
AHU 5	CARRIER FX4CNB048T00	CLASSROOM B4	MECHANICAL ROOM	1500	.6	3/4	450	208/1/60	7.5	15	SPACESUARD 2200	170	HP 5	CARRIER 38GRR048	12.0	44.0	36	8.0	47.0	208/1/60	28.7	50	1,2,3	278		
AHU 6	CARRIER FX4CNB048T00	CLASSROOM B5	ROOM B6	1500	.6	3/4	450	208/1/60	7.5	15	SPACESUARD 2200	170	HP 6	CARRIER 38GRR048	12.0	44.0	36	8.0	47.0	208/1/60	28.7	50	1,2,3	278		
AHU 7	CARRIER FX4CNB060T00	CLASSROOM B7	ROOM B6	1900	.6	3/4	480	208/1/60	7.5	15	SPACESUARD 2200	198	HP 7	CARRIER 38GRR060	11.5	57.0	42	8.8	56.0	208/1/60	34.5	60	1,2,3	306		
AHU 8	CARRIER FX4CNB048T00	CLASSROOM B8	ROOM B4	1500	.6	3/4	450	208/1/60	7.5	15	SPACESUARD 2200	170	HP 8	CARRIER 38GRR048	12.0	44.0	36	8.0	47.0	208/1/60	28.7	50	1,2,3	278		
AHU 9	CARRIER FX4CNB060T00	CLASSROOM B10	ROOM B4	1900	.6	3/4	480	208/1/60	7.5	15	SPACESUARD 2200	198	HP 9	CARRIER 38GRR060	11.5	57.0	42	8.8	56.0	208/1/60	34.5	60	1,2,3	306		
AHU 10	CARRIER FX4CNB048T00	CLASSROOM C3	ROOM C4	1500	.6	3/4	450	208/1/60	7.5	15	SPACESUARD 2200	170	HP 10	CARRIER 38GRR048	12.0	44.0	36	8.0	47.0	208/1/60	28.7	50	1,2,3	278		
AHU 11	CARRIER FX4CNB060T00	CLASSROOM C5	ROOM C4	1900	.6	3/4	480	208/1/60	7.5	15	SPACESUARD 2200	198	HP 11	CARRIER 38GRR060	11.5	57.0	42	8.8	56.0	208/1/60	34.5	60	1,2,3	306		
AHU 12	CARRIER FX4CNB048T00	CLASSROOM C6	ROOM C7	1500	.6	3/4	450	208/1/60	7.5	15	SPACESUARD 2200	170	HP 12	CARRIER 38GRR048	12.0	44.0	36	8.0	47.0	208/1/60	28.7	50	1,2,3	278		
AHU 13	CARRIER FX4CNB060T00	CLASSROOM C8	ROOM C7	1900	.6	3/4	480	208/1/60	7.5	15	SPACESUARD 2200	198	HP 13	CARRIER 38GRR060	11.5	57.0	42	8.8	56.0	208/1/60	34.5	60	1,2,3	306		
AHU 14	CARRIER FX4CNB048T00	CLASSROOM D3	MECHANICAL ROOM	1500	.6	3/4	450	208/1/60	7.5	15	SPACESUARD 2200	170	HP 14	CARRIER 38GRR048	12.0	44.0	36	8.0	47.0	208/1/60	28.7	50	1,2,3	278		
AHU 15	CARRIER FX4CNB048T00	CLASSROOM D4	ROOM D5	1500	.6	3/4	450	208/1/60	7.5	15	SPACESUARD 2200	170	HP 15	CARRIER 38GRR048	12.0	44.0	36	8.0	47.0	208/1/60	28.7	50	1,2,3	278		
AHU 16	CARRIER FX4CNB060T00	CLASSROOM D6	ROOM D5	1900	.6	3/4	480	208/1/60	7.5	15	SPACESUARD 2200	198	HP 16	CARRIER 38GRR060	11.5	57.0	42	8.8	56.0	208/1/60	34.5	60	1,2,3	306		
AHU 17	CARRIER FX4CNB048T00	CLASSROOM D7	ROOM D8	1500	.6	3/4	450	208/1/60	7.5	15	SPACESUARD 2200	170	HP 17	CARRIER 38GRR048	12.0	44.0	36	8.0	47.0	208/1/60	28.7	50	1,2,3	278		
AHU 18	CARRIER FX4CNB060T00	CLASSROOM D9	ROOM D8	1900	.6	3/4	480	208/1/60	7.5	15	SPACESUARD 2200	198	HP 18	CARRIER 38GRR060	11.5	57.0	42	8.8	56.0	208/1/60	34.5	60	1,2,3	306		
AHU 19	CARRIER FX4D03T	ADMIN NORTH	ROOM F5	1200	.6	1/3	360	208/1/60	5.1	15	SPACESUARD 2200	157	HP 19	CARRIER 38GRR036	12.0	34.0	25.5	8.8	34.4	208/1/60	19.1	30	1,2,3	232		
AHU 20	CARRIER FX4D03T	ADMIN SOUTH	ROOM F5	1200	.6	1/3	360	208/1/60	5.1	15	SPACESUARD 2200	157	HP 20	CARRIER 38GRR036	12.0	34.0	25.5	8.8	34.4	208/1/60	19.1	30	1,2,3	232		
AHU 21	CARRIER FX4D03T	TEACHER RM	MECHANICAL ROOM	1200	.6	1/3	360	208/1/60	5.1	15	SPACESUARD 2200	157	HP 21	CARRIER 38GRR036	12.0	34.0	25.5	8.8	34.4	208/1/60	19.1	30	1,2,3	232		
AHU 22	CARRIER FX4D03T	LIBRARY	MECHANICAL ROOM	1200	.5	1/3	360	208/1/60	5.1	15	SPACESUARD 2200	157	HP 22	CARRIER 38GRR036	12.0	34.0	25.5	8.8	34.4	208/1/60	19.1	30	1,2,3	232		
AHU 23	CARRIER FX4D03T	LIBRARY	MECHANICAL ROOM	1200	.5	1/3	360	208/1/60	5.1	15	SPACESUARD 2200	157	HP 23	CARRIER 38GRR036	12.0	34.0	25.5	8.8	34.4	208/1/60	19.1	30	1,2,3	232		

See AD #07R1 for AHU 24 & HP 24

ROOFTOP PACKAGED HEAT PUMPS																	
NOTES: INSTALL IN-ROOM PRESSURE SENSOR PER MANUFACTURER'S INSTRUCTIONS. ALL UNITS SHALL BE R-410A REFRIGERANT. ALL UNITS SHALL BE PROVIDED WITH CONVENTIONAL THERMOSTAT INTERFACE. CONTROLS CONTRACTOR SHALL PROVIDE FIELD INSTALLED CONTROLLER IN NEMA 3R BOX.										ACCESSORIES: 1) NOT USED, 2) FIELD INSTALLED ECONOMIZER WITH LOW LEAK DAMPERS AND OUTDOOR SINGLE ENTHALPHY SENSOR 3) COATED COPPER CONDENSER AND EVAPORATOR COILS, 4) NOT USED 5) 2" HIGH EFFICIENCY (MERV 8) FILTERS, 6) NOT USED 7) BAROMETRIC RELIEF 8) DISCONNECT, 9) CO2 SENSOR, 10) 11" ROOF CURB							
UNIT #	MANUFACTURER & MODEL	AREA SERVED	LOCATION	SUPPLY FAN			MIN OA CFM	MINIMUM ARI RATED COOLING EER	MINIMUM ARI TOTAL COOLING CAPACITY (MBH)	MINIMUM ARI SENSIBLE COOLING CAPACITY (MBH)	MINIMUM ARI HEATING HSPFF	MINIMUM ARI HEATING CAPACITY (MBH)	ELECTRICAL DATA			ACCESSORIES	OPERATING WEIGHT (LB)
				MAX CFM	E.S.P.	HP							V/PH/Hz	UNIT MCA	UNIT MOCP		
HP 1	CARRIER 50EZ-A42-3	KINDERGARTEN	ROOF	1,200	.5	3/4	450	11.5	40.40	31.24	7.7	40.05	208/1/60	33.3	50	2,3,5,7,8,10	545
HP 2	CARRIER 50EZ-A42-3	KINDERGARTEN	ROOF	1,200	.5	3/4	450	11.5	40.40	31.24	7.7	40.05	208/1/60	33.3	50	2,3,5,7,8,10	545

RFI #20

VE NARRATIVE #01
Date 04/19/13

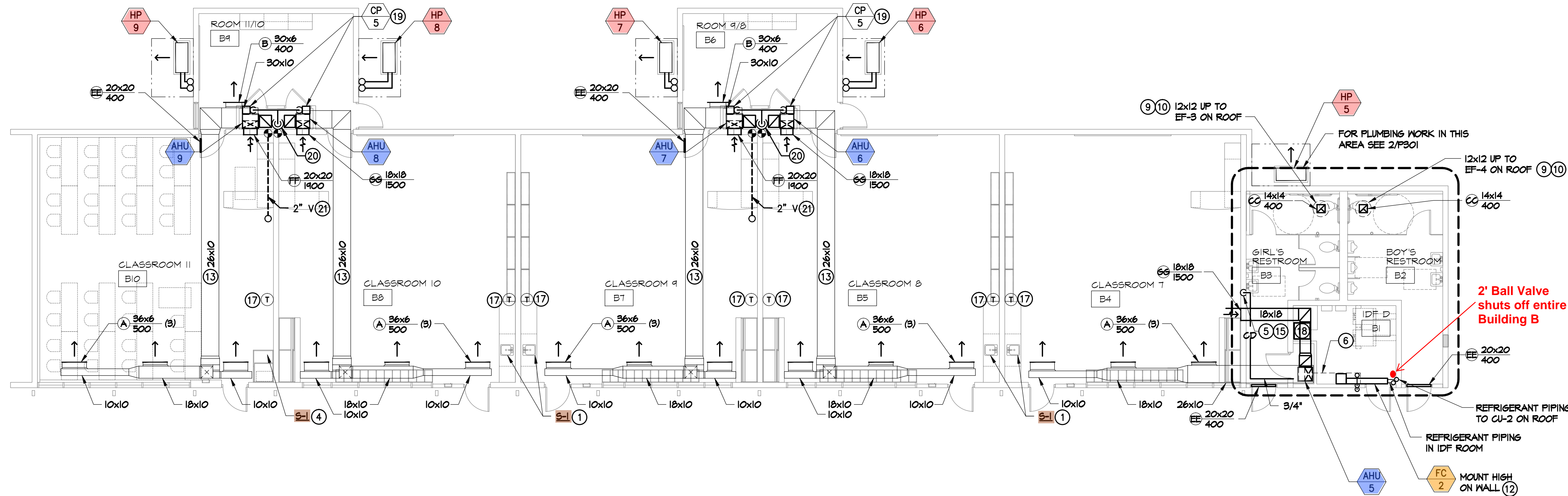


BUILDING "A"
1/8"=1'-0" 1

KEYNOTES

- 1 PROVIDE NEW WASTE, VENT AND WATER PIPING TO FIXTURE FROM EXISTING ROUGH-IN.
- 2 INSTALL NEW FLOOR DRAIN AND TRAP IN PLACE OF EXISTING DRAIN. CONNECT TO EXISTING PIPING. TYPICAL.
- 3 EXTEND EXISTING WATER, WASTE AND VENT ROUGH IN TO NEW FIXTURE.
- 4 INSTALL RETAINED URINAL AND PROVIDE WASTE AND VENT FROM EXISTING ROUGH-IN OR PROVIDE NEW PIPING AS SHOWN.
- 5 SLOPE 3/4" CONDENSATE DRAIN AT 1/8" PER FOOT AND TERMINATE AT HOUSE SIDE OF SINK TRAP.
- 6 NOT USED.
- 7 PROVIDE NEW NICKEL BRONZE COVER FOR CLEANOUT. TYPICAL ALL CLEANOUTS.
- 8 WATER HAMMER ARRESTOR (FPI SIZE AS NOTED) IN LOCKABLE STAINLESS STEEL ACCESS PANEL.
- 9 REFER TO 3/MP402 FOR ROOF MOUNTED EXHAUST FAN DETAIL.
- 10 REFER TO 4/MP402 FOR DUCT THRU ROOF DETAIL.
- 11 NOT USED.
- 12 REFER TO 5/MP402 FOR DUCTLESS AC UNIT DETAIL.
- 13 SLOPE DUCTWORK ALONG CEILING SPACE.
- 14 NOT USED.
- 15 PROVIDE FIRESTOP SEALANT AT RATED WALL PENETRATIONS. SEE DETAIL 7/MP402. TYPICAL.
- 16 NOT USED.
- 17 PROVIDE NEW ALC THERMOSTAT. REUSE EXISTING CONDUIT FOR CONTROL WIRING.
- 18 MECHANICAL CONTROL PANEL.
- 19 MOUNT CONDENSATE PUMP ON FLOOR IN MECHANICAL CLOSET. TERMINATE AHU DRAIN INTO PUMP RECEPTOR (SEE DETAIL 10/MP401) AND ROUTE PUMPED 3/4" INSULATED DRAIN UP AND GRAVITY DRAIN INTO CONDENSATE RECEPTOR.
- 20 CAST BRONZE CONDENSATE RECEPTOR WITH DEEP SEAL TRAP EXPOSED IN MECHANICAL CLOSET (J.R. SMITH 3823 OR EQUAL). PROVIDE CONNECTIONS TO EXISTING WASTE AND VENT PIPING IN WALL AND STRAPS TO WALL TO ANCHOR RECEPTOR. PROVIDE STAINLESS STEEL MESH WITHIN RECEPTOR TO PREVENT INSECT INFILTRATIONS.
- 21 CONNECT TO EXISTING VENT AND PROVIDE NEW VENT IN SOFFIT SPACE TO 10'-0" MIN. AWAY FROM INTAKE HOODS (SEE ROOF PLANS). PROVIDE VENT THRU ROOF - SEE DETAIL 6/MP401.

VE NARRATIVE #01
Date 04/19/13



BUILDING "B"
1/8"=1'-0" 2

KEY PLAN

SHEET TITLE:

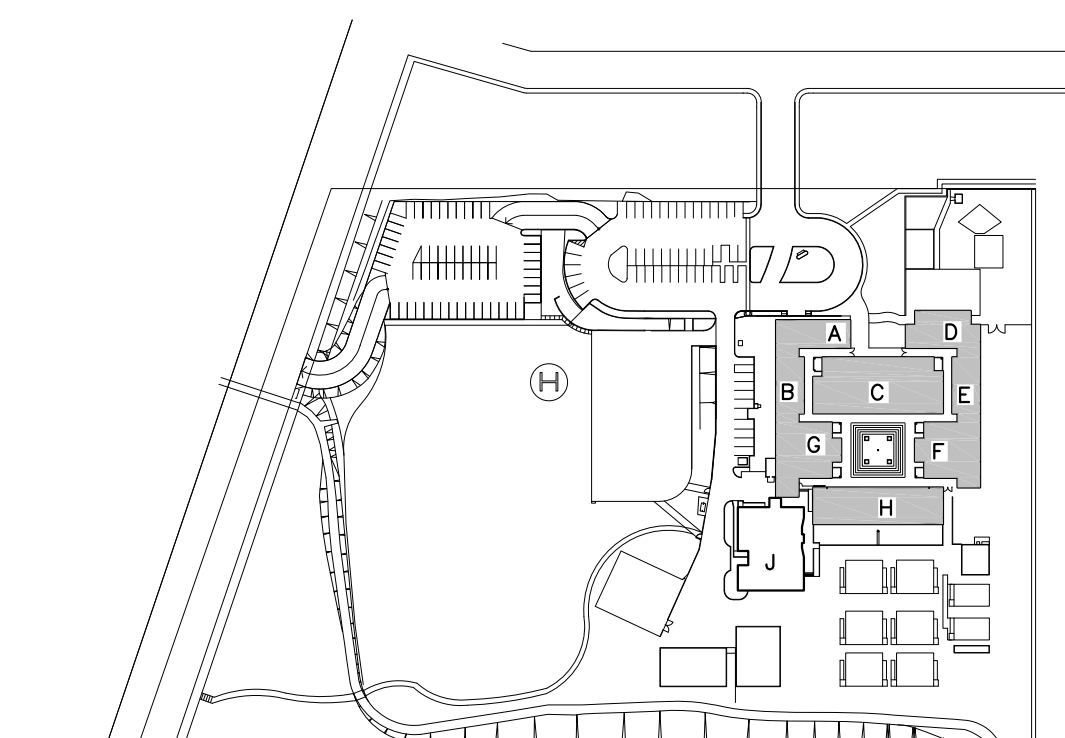
**MECHANICAL/PLUMBING
FLOOR PLANS
BUILDINGS A AND B**

SHEET NO:

MP101

OF:

1. CONTRACTOR SHALL FIELD VERIFY EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO COMMENCING ANY WORK. EXISTING UTILITY INFORMATION USED ON THESE DRAWINGS HAVE BEEN PREPARED FROM ARCHIVED DRAWINGS PROVIDED BY SOUTH BAY UNION SCHOOL DISTRICT FOR REFERENCE.



48ES
Single-Packaged Gas Furnace/Air Conditioner
System with Puron® (R-410A) Refrigerant
Single- And Three-Phase Units Sizes 018-060



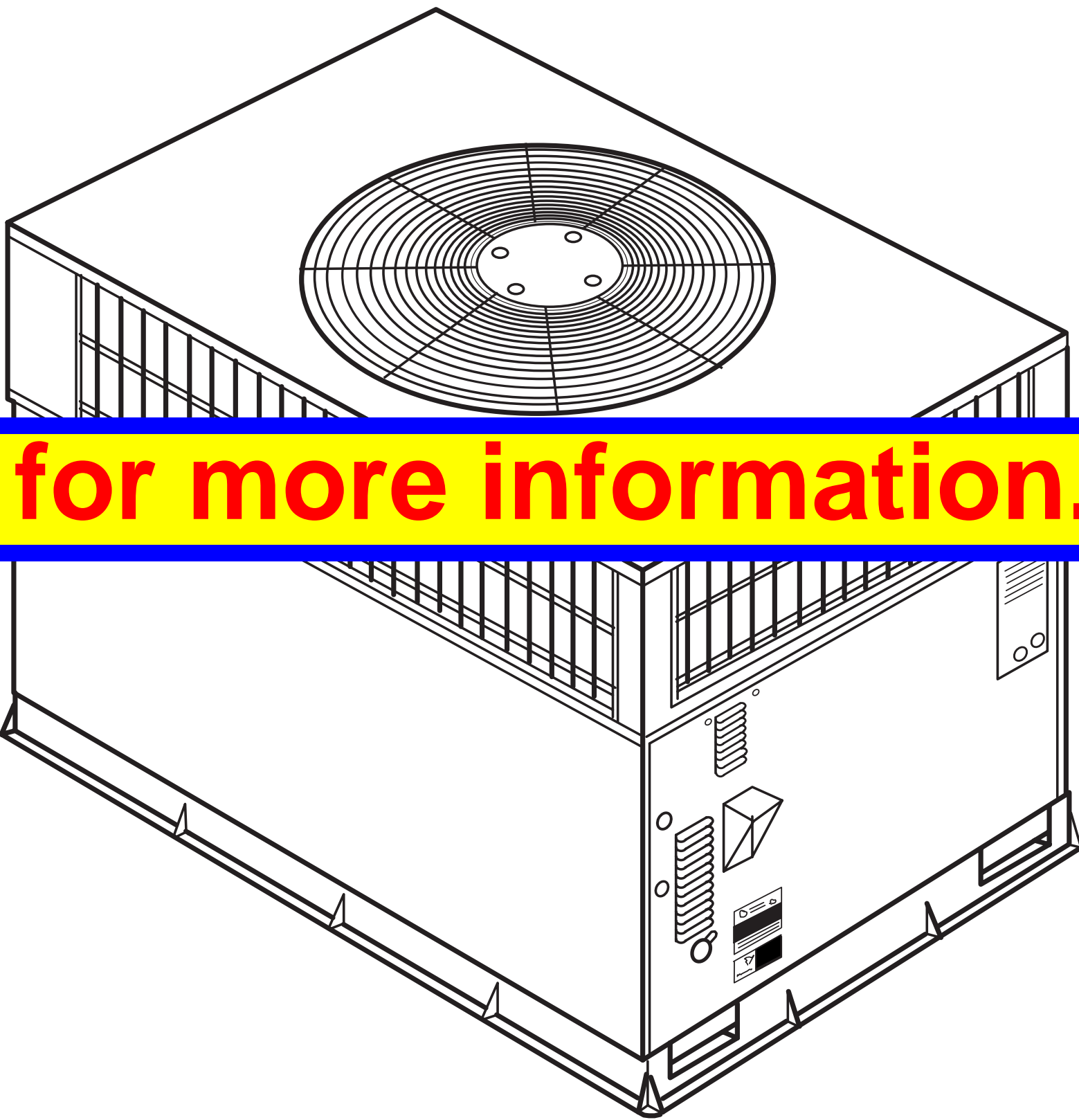
Installation Instructions

Click here for:
Maintenance Information Log

Instructions are left with the unit after installation.

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A99338

Fig. 1 - Unit 48ES
(Low NOx Model Available)

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SAFETY CONSIDERATIONS

Installation and servicing of this equipment can be hazardous due to

For Example: Select here for more information.

Untrained personnel can perform basic maintenance functions such as cleaning and replacing air filters. All other operations must be performed by trained service personnel. When working on this equipment, observe precautions in the literature, on tags, and on labels attached to or shipped with the unit and other safety precautions that may apply.

Follow all safety codes. Installation must be in compliance with local and national building codes. Wear safety glasses, protective clothing, and work gloves. Have fire extinguisher available. Read these instructions thoroughly and follow all warnings or cautions included in literature and attached to the unit.

Recognize safety information. This is the safety-alert symbol . When you see this symbol on the unit and in instructions or manuals, be alert to the potential for personal injury. Understand these signal words: DANGER, WARNING, and CAUTION. These words are used with the safety-alert symbol. DANGER identifies the most serious hazards which **will** result in severe personal injury or death. WARNING signifies hazards which **could** result in personal injury or death. CAUTION is used to identify unsafe practices which **may** result in minor personal injury or product and property damage. NOTE is used to highlight suggestions which **will** result in enhanced installation, reliability, or operation.



WARNING

ELECTRICAL SHOCK HAZARD

Failure to follow this warning could result in personal injury or death.

Before installing or servicing system, always turn off main power to system. There may be more than one disconnect switch. Turn off accessory heater power switch if applicable.



WARNING

FIRE, EXPLOSION, ELECTRICAL SHOCK AND CARBON MONOXIDE POISONING HAZARD

Failure to follow this warning could result in personal injury or unit damage.

A qualified installer or agency must use only factory-authorized kits or accessories when modifying this product.

INTRODUCTION

The 48ES unit (see Fig. 1) is a fully self-contained, combination Category I gas heating/electric cooling unit designed for outdoor installation (See Fig. 3 and 4 for unit dimensions). All unit sizes have return and discharge openings for both horizontal and downflow configurations, and are factory shipped with all downflow duct openings covered. Units may be installed either on a rooftop, a cement slab, or directly on the ground, if local codes permit (See Fig. 5 for roof curb dimensions).

Models with an N in the fifth position of the model number are dedicated Low NOx units designed for California installations. These models meet the California maximum oxides of nitrogen (NOx) emissions requirements of 40 nanograms/joule or less as shipped from the factory and must be installed in California Air Quality Management Districts or any other regions in North America where a Low NOx rule exists.

NOTE: Low NOx requirements apply only to natural gas installations.

RECEIVING AND INSTALLATION

Step 1—Check Equipment

IDENTIFY UNIT

The unit model number and serial number are stamped on the unit information plate. Check this information against shipping papers.

INSPECT SHIPMENT

Inspect for shipping damage while unit is still on shipping pallet. If unit appears to be damaged or is torn loose from its anchorage, have it examined by transportation inspectors before removal. Forward claim papers directly to transportation company. Manufacturer is

not responsible for any damage incurred in transit. Check all items against shipping list. Immediately notify the nearest equipment distribution office if any item is missing. To prevent loss or damage, leave all parts in original packages until installation.

Step 2—Provide Unit Support

For hurricane tie downs, contact distributor for details and PE (Professional Engineering) Certificate if required.

ROOF CURB

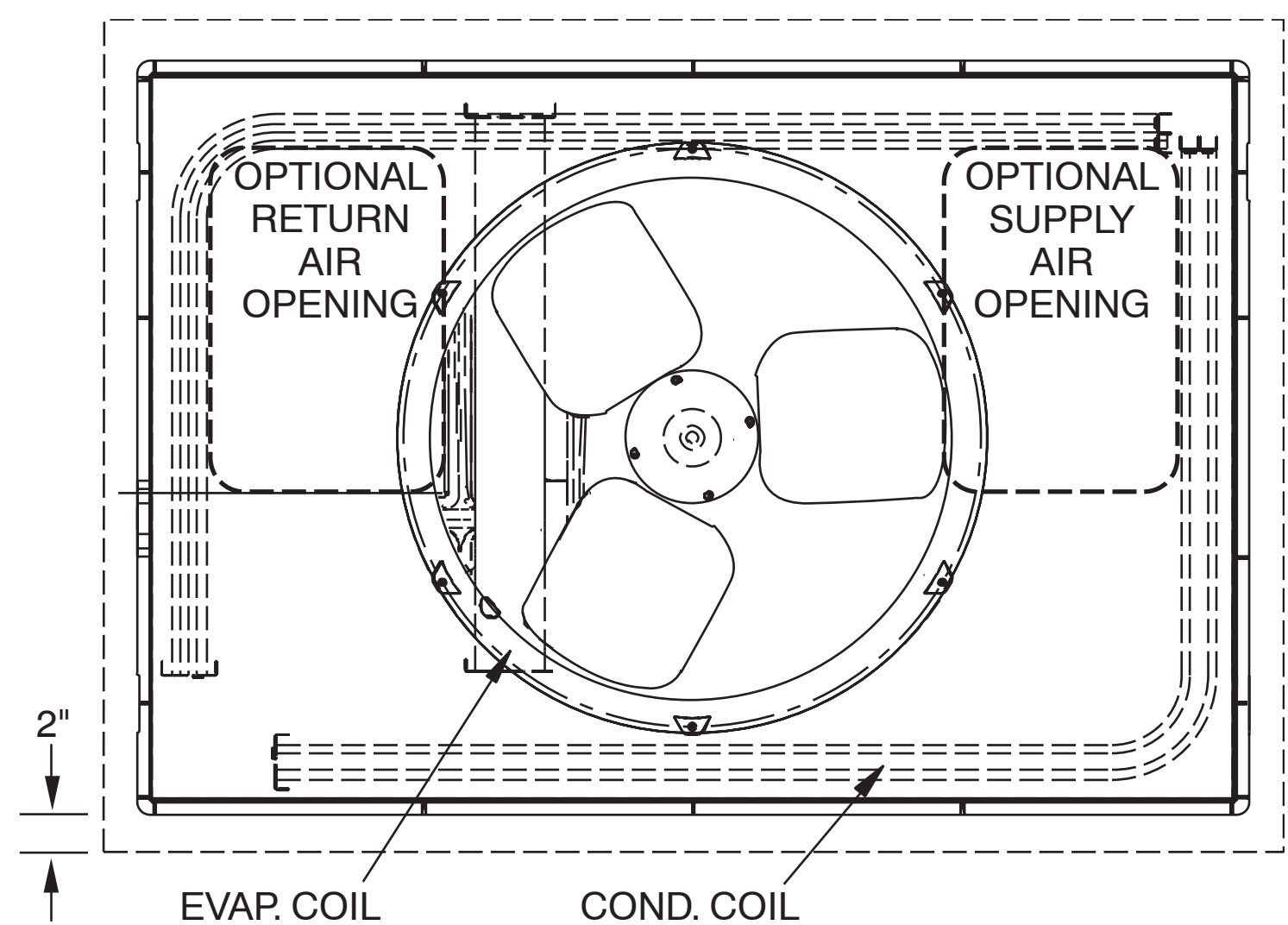
Install accessory roof curb in accordance with instructions shipped with curb (See Fig. 5). Install insulation, cant strips, roofing, and flashing. Ductwork must be attached to curb.

IMPORTANT: The gasketing of the unit to the roof curb is critical for a water tight seal. Install gasketing material supplied with the roof curb. Improperly applied gasketing also can result in air leaks and poor unit performance.

Curb should be level to within 1/4 in. This is necessary for unit drain to function properly. Refer to accessory roof curb installation instructions for additional information as required.

SLAB MOUNT

Place the unit on a solid, level concrete pad that is a minimum of 4 in. (101.6 mm) thick with 2 in. (50.8 mm) above grade (See Fig. 2). The slab should extend approximately 2 in. beyond the casing on all 4 sides of the unit. Do not secure the unit to the slab *except* when required by local codes.



C99096

Fig. 2 - Slab Mounting Details

GROUND MOUNT

The unit may be installed either on a slab or placed directly on the ground, if local codes permit. Place the unit on level ground prepared with gravel for condensate discharge.

Step 3—Field Fabricate Ductwork

Secure all ducts to roof curb and building structure on vertical discharge units. Do not connect ductwork to unit. For horizontal applications, unit is provided with flanges on the horizontal openings. All ductwork should be secured to the flanges. Insulate and weatherproof all external ductwork, joints, and roof openings with counter flashing and mastic in accordance with applicable codes.

Ducts passing through an unconditioned space must be insulated and covered with a vapor barrier.

If a plenum return is used on a vertical unit, the return should be ducted through the roof deck to comply with applicable fire codes.

A minimum clearance is not required around ductwork. Cabinet return-air static shall not exceed -.25 in. wc.

PRESSURE SWITCHES

Pressure switches are protective devices wired into control circuit (low voltage). They shut off compressor if abnormally high or low pressures are present in the refrigeration circuit. These pressure switches are specifically designed to operate with Puron (R-410A) systems. R-22 pressure switches must not be used as replacements for the Puron (R-410A) system.

LOSS OF CHARGE SWITCH

This switch is located on the liquid line. It opens on low suction pressures caused by such events as loss of charge, low airflow across indoor coil, dirty filters, etc. It opens on a pressure drop at about 20 psig. If system pressure is above this, switch should be closed. To check switch:

- 1. Turn off all power to unit.
- 2. Disconnect leads on switch.
- 3. Apply ohm meter leads across switch. You should have continuity on a good switch.

NOTE: Because these switches are attached to refrigeration system under pressure, it is not advisable to remove this device for troubleshooting unless you are reasonably certain that a problem exists. If switch must be removed, remove and recover all system charge so that pressure gauges read 0 psi. Never open system without breaking vacuum with dry nitrogen.

HIGH-PRESSURE SWITCH

The high-pressure switch is located in the discharge line and protects against excessive condenser coil pressure. It opens at 650 psig.

High pressure may be caused by a dirty outdoor coil, failed fan motor, or outdoor air recirculation. To check switch:

- 1. Turn off all power to unit.
- 2. Disconnect leads on switch.
- 3. Apply ohm meter leads across switch. You should have continuity on a good switch.

COPELAND SCROLL COMPRESSOR (PURON REFRIGERANT)

The compressor used in this product is specifically designed to operate with Puron (R-410A) refrigerant and cannot be interchanged.

The compressor is an electrical (as well as mechanical) device. Exercise extreme caution when working near compressors. Power should be shut off, if possible, for most troubleshooting techniques. Refrigerants present additional safety hazards.

⚠️

WARNING

FIRE/EXPLOSION HAZARD

Failure to follow this warning could result in personal injury or death and/or property damage.

Wear safety glasses and gloves when handling refrigerants. Keep torches and other ignition sources away from refrigerants and oils.

The scroll compressor pumps refrigerant throughout the system by the interaction of a stationary and an orbiting scroll. The scroll compressor has no dynamic suction or discharge valves, and it is more tolerant of stresses caused by debris, liquid slugging, and flooded starts. The compressor is equipped with an anti-rotational device and an internal pressure relief port. The anti-rotational device prevents the scroll from turning backwards and replaces the need for a cycle protector. The pressure relief port is a safety device, designed to protect against extreme high pressure. The relief port has an operating range between 550 (26.34 kPa) and 625 psi (29.93 kPa) differential pressure.

The Copeland scroll compressor uses Mobil 3MAF POE oil. Copeland Ultra 22 CC should be used if additional oil is needed in the field. Mobil Arctic EAL22CC or ICI Emkarate RL22 or 32CF oil may be used to recharge these compressors if Ultra 22 is not available.

⚠️

WARNING

Failure to follow this warning could result in personal injury or equipment damage.

This system uses Puron (R-410A) refrigerant which has higher operating pressures than R-22 and other refrigerants. No other refrigerant may be used in this system. Gauge set, hoses, and recovery system must be designed to handle Puron. If you are unsure, consult the equipment manufacturer.

REFRIGERANT SYSTEM

This information covers the refrigerant system of the 48ES, including the compressor oil needed, servicing systems on roofs containing synthetic materials, the filter drier and refrigerant charging.

Compressor Oil

The compressor in this system uses a polyolester (POE) oil, Mobil 3MAF POE. This oil is extremely hygroscopic, meaning it absorbs water readily. POE oils can absorb 15 times as much water as other oils designed for HCFC and CFC refrigerants. Take all necessary precautions to avoid exposure of the oil to the atmosphere.

SERVICING SYSTEMS ON ROOFS WITH SYNTHETIC-MATERIALS

POE (polyolester) compressor lubricants are known to cause long term damage to some synthetic roofing materials.

Exposure, even if immediately cleaned up, may cause embrittlement (leading to cracking) to occur in one year or more. When performing any service that may risk exposure of compressor oil to the roof, take appropriate precautions to protect roofing. Procedures which risk oil leakage include, but are not limited to, compressor replacement, repairing refrigerant leaks, replacing refrigerant components such as filter drier, pressure switch, metering device, coil, accumulator, or reversing valve.

Synthetic Roof Precautionary Procedure

- 1. Cover extended roof working area with an impermeable polyethylene (plastic) drip cloth or tarp. Cover an approximate 10 X 10 ft. area.
- 2. Cover area in front of the unit service panel with a terry cloth shop towel to absorb lubricant spills and prevent run-offs, and protect drop cloth from tears caused by tools or components.
- 3. Place terry cloth shop towel inside unit immediately under component(s) to be serviced and prevent lubricant run-offs through the louvered openings in the unit base.
- 4. Perform required service.
- 5. Remove and dispose of any oil contaminated material per local codes.

LIQUID LINE FILTER DRIER

This filter drier is specifically designed to operate with Puron. Use only factory-authorized components. Filter drier must be replaced whenever the refrigerant system is opened. When removing a filter drier, use a tubing cutter to cut the drier from the system. Do not unsweat a filter drier from the system. Heat from unsweating will release moisture and contaminants from drier into system.

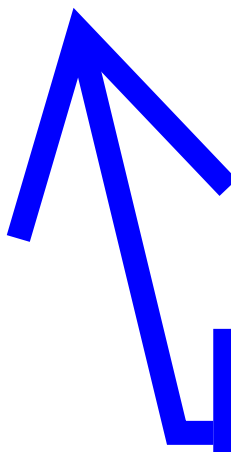
Point-of-Use Electric Water Heater

USE & CARE MANUAL



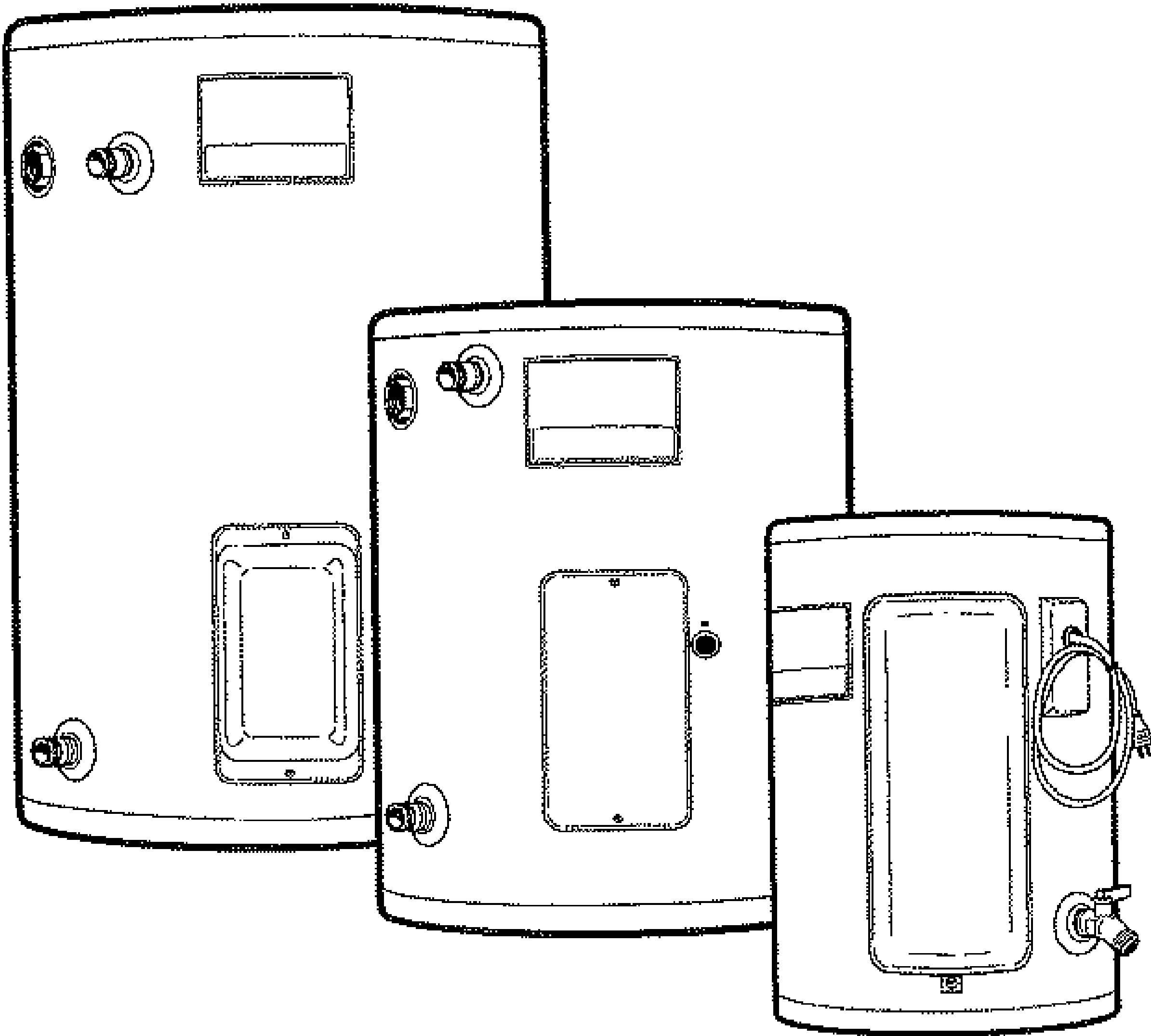
WITH INSTALLATION INSTRUCTIONS FOR THE CONTRACTOR

Click here for:
Maintenance Information Log



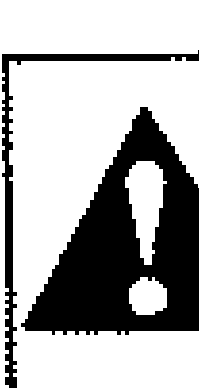
For Example: Select here for more information.

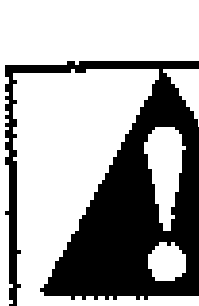
The purpose of this manual is twofold: one, for the installing contractor, to provide requirements and recommendations for the proper installation and adjustment of the water heater; and two, for the owner-operator, to explain the features, operation, safety precautions, maintenance and trouble shooting of the water heater. This manual also includes replacement parts information. It is imperative that all persons who are expected to install, operate or adjust this water heater



 Do Not Destroy this Manual. Please read carefully and keep in a safe place for Future Reference.

 Recognize this symbol as an Indication of Important Safety Information!

 **NOTICE:** This water heater is designed for use in a commercial application and the installation and maintenance of it should be performed by qualified, licensed service personnel. If the foregoing assumption is not appropriate, then we recommend that you obtain and retain our Residential Use & Care Manual.

 **PROPOSITION 65:** This appliance contains fiberglass insulation. Respirable particles of fiberglass are known to the State of California to cause cancer.

General Safety Precautions

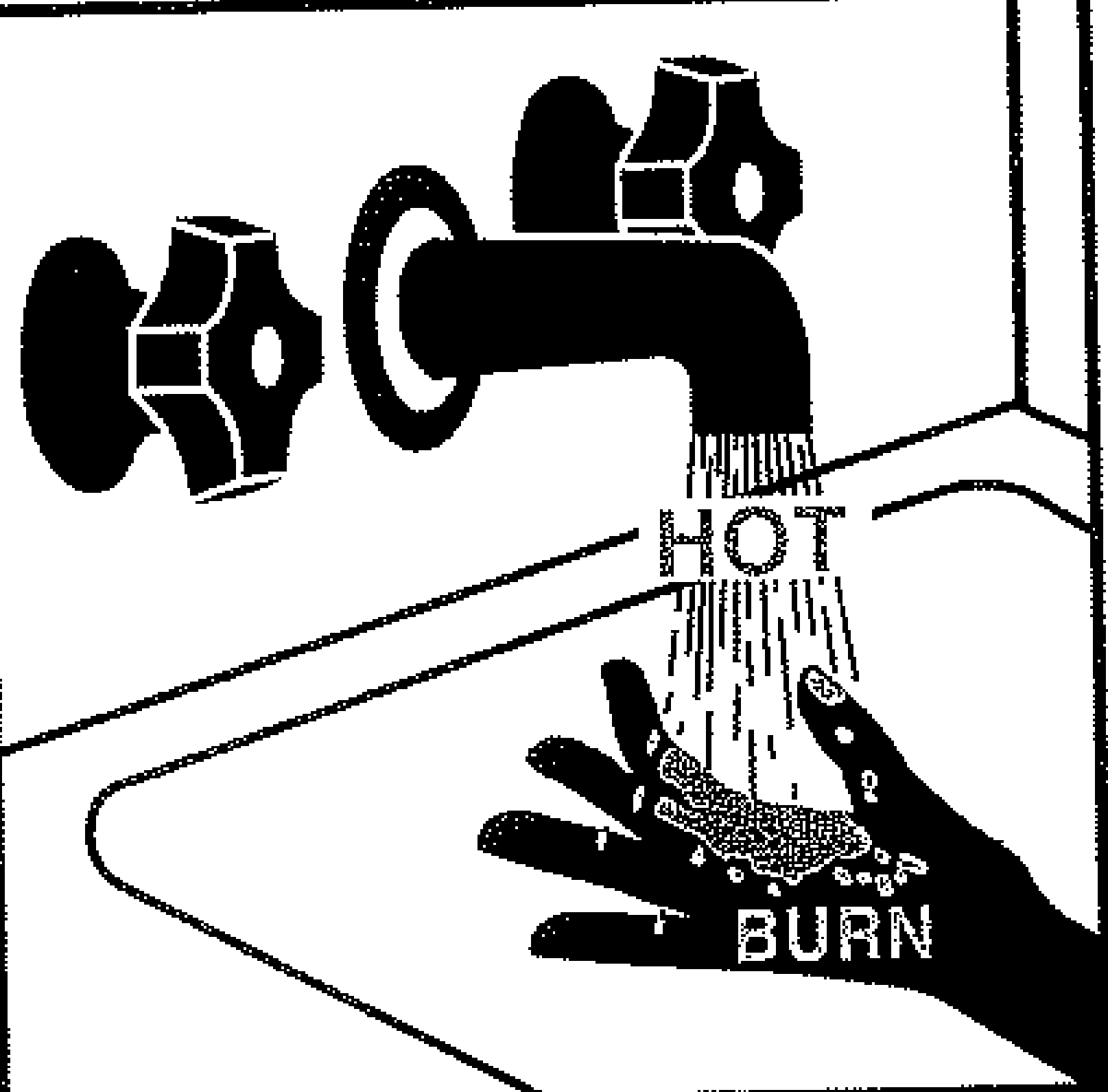
Be sure to read and understand the entire Use & Care Manual before attempting to install or operate this water heater. It may save you time and cost. Pay particular attention to the General Safety Precautions. Failure to follow these warnings could result in serious bodily injury or death. Should you have problems understanding the instructions in this manual, or have any questions, STOP, and get help from a qualified installer, service technician, or the local electric utility.

WARNING

Gasoline, as well as other flammable materials and liquids (adhesives, solvents, etc.), and the vapors they produce, are extremely dangerous. DO NOT handle, use or store gasoline or other flammable or combustible materials anywhere near or in the vicinity of a water heater. The arc drawn in the water heater controls can ignite these vapors. Failure to do so can result in property damage, bodily injury, or death.

To meet commercial water use needs, the thermostat on this water heater is adjustable to deliver water up to 170°F. However, water temperatures over 125°F. can cause severe burns instantly or death from scalds. This is the preferred starting point for setting the control for supplying general purpose hot water.

! DANGER



Water temperature over 125°F can cause severe burns instantly or death from scalds.

Children, disabled and elderly are at highest risk of being scalded.

See instruction manual before setting temperature at water heater.

Feel water before bathing or showering.

Temperature limiting valves are available, see manual.

shut off the elements. To find the hot water temperature being delivered, turn on a hot water faucet and place a thermometer in the hot water stream and read the thermometer.

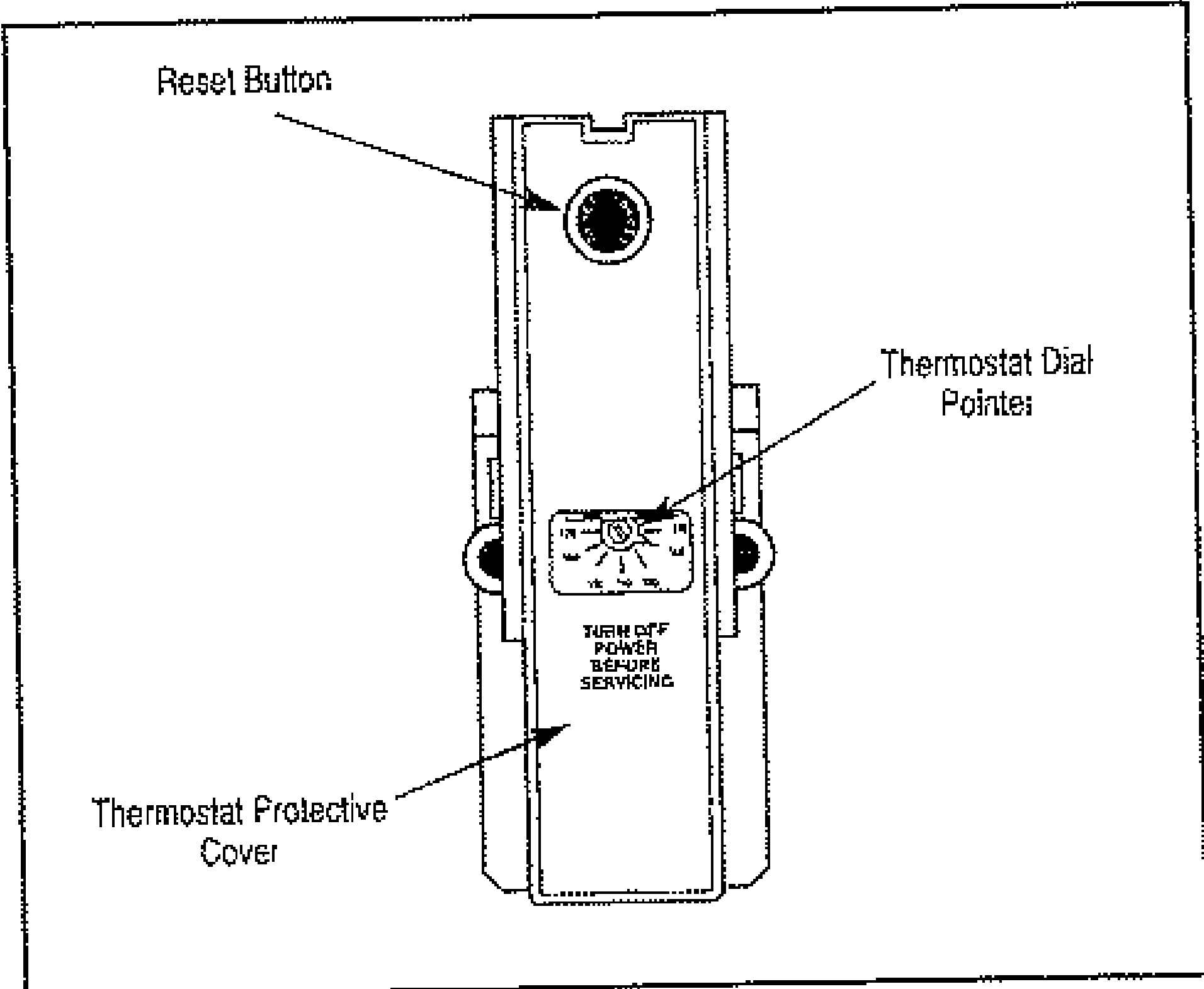
The following chart details the relationship of water temperature and time with regard to scald injury and may be used as a guide in determining the safest water temperature for your applications.

TIME / TEMPERATURE RELATIONSHIPS IN SCALDS

Temperature	Time to Produce Serious Burn
120° F	More than 5 minutes
125° F	1 1/2 to 2 minutes
130° F	About 30 seconds
135° F	About 10 seconds
140° F	Less than 5 seconds
145° F	Less than 3 seconds
150° F	About 1 1/2 seconds
155° F	About 1 second

Table courtesy of Shriners Burn Institute

The temperature of the water in the heater can be regulated by adjusting the thermostat. To comply with safety regulations the thermostat was set at the factory to a setting corresponding to 120°F.



The illustration above shows the temperature adjustment dial used for setting the water temperature. Refer to Operation section of this manual for detailed instructions in how to adjust the thermostat(s).

DANGER

There is a Hot Water SCALD Potential if the thermostat is set too high.

NOTE: When this water heater is supplying general purpose hot water requirements for use by individuals, a thermostatically controlled mixing valve for reducing point of use water temperature is recommended to reduce the risk of scald injury. Contact a licensed plumber or the local plumbing authority for further information.

Safety and energy conservation are factors to be considered when setting the water temperature on the thermostat. The most energy efficient operation will result when the temperature setting is the lowest that satisfies the needs consistent with the application. Maximum water temperatures occur just after the thermostat has

Introduction

The location chosen for the water heater must take into consideration the following:

LOCAL INSTALLATION REGULATIONS

This water heater must be installed in accordance with these instructions, local codes, utility company requirements or, in the absence of local codes, the latest edition of the National Electrical Code. It is available from some local libraries or can be purchased from the National Fire Prevention Association, Batterymarch Park, Quincy, MA 02269 as booklet ANSI/NFPA 70.

LOCATION

This water heater is designed to meet a wide range of applications. It fulfills a demand for a small water heater that can be installed in a limited space such as under counter tops, in cabinets or in a closet. Locate the water heater in a clean dry area as near as practical to hot water fixtures, or close to the hot water faucet most frequently used. Place the water heater in such a manner that the thermostat and element access panels can be removed to permit inspection and servicing such as removal of elements or checking controls. The water heater and water lines should be protected from freezing temperatures. Do not install the water heater in outdoor, unprotected areas.

CAUTION

The water heater should not be located in an area where leakage of the tank or connections will result in damage to the area adjacent to it or to lower floors of the structure. Where such areas cannot be avoided, it is recommended that a suitable catch pan, adequately drained, be installed under the water heater.

NOTE: Auxiliary catch pan installation **MUST** conform to local codes.

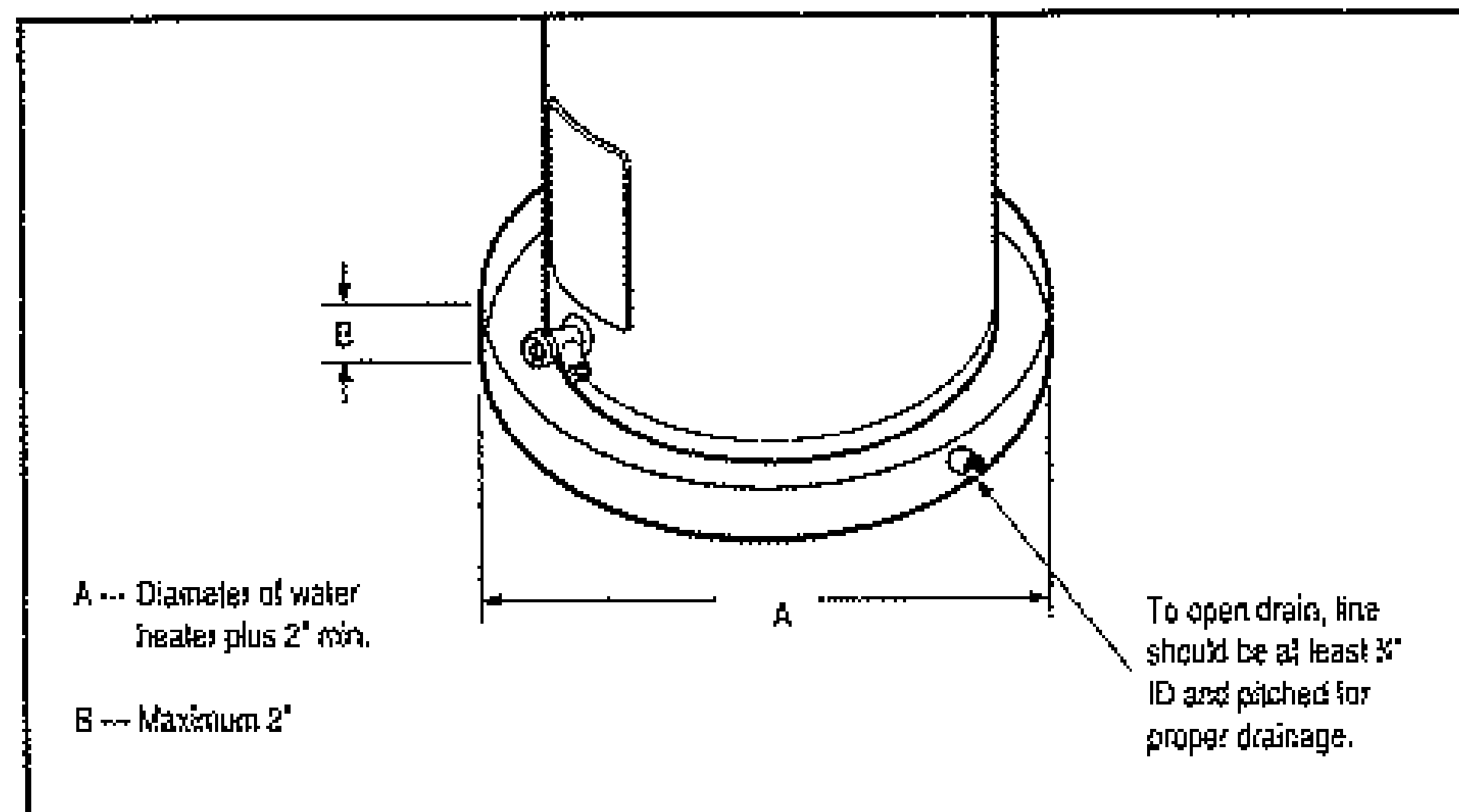


Figure 1. — Auxiliary Catch Pan

Catch Pan Kits are available from the distributor or store where the water heater was purchased

WARNING

This water heater **SHOULD NOT** be installed in a space where liquids which give off flammable vapors are to be used or stored. Such liquids include gasoline, LP gas (butane and propane), paint or adhesives and their thinners, solvents or removers. Because of natural air movement in a room or other enclosed space, flammable vapors can be carried from where their liquids are being used or stored. The arc drawn within the water heater's control can ignite these vapors causing an explosion or fire which may result in severe burns or death to those in range, as well as property damage.

Installation

- 1. INSPECT SHIPMENT** — Inspect the water heater for possible damage. Check the markings on the rating plate of the water heater to be certain the power supply corresponds to that for which the water heater is equipped.
- 2. WATER SUPPLY CONNECTIONS** — Refer to Fig. 2 or 3 for suggested typical installation. The installation of unions or flexible copper connectors on the water connections is recommended so that the water heater may be easily disconnected for servicing if necessary. Connect cold water supply line to 3/4" pipe connection near the bottom of water heater. (Refer to Figure 2.) Install a shut-off valve and a drain valve (not supplied) in the cold water line near the water heater (Refer to Fig. 2.). Connect hot water line to 3/4" pipe connection marked HOT on the side near the top of the water heater. On the some models, the hot and cold water connections are 1/2" pipe connections and are located on top of the heater. (Refer to Figure 3.) A drain valve is supplied on these models. Local codes may require an Anti-Syphon device on the water inlet of a side connect water heater.

THERMAL EXPANSION — Determine if a check valve exists in the inlet water line. It may have been installed in the cold water line as a separate back flow preventer, or it may be part of a pressure reducing valve, water meter or water softener. A check valve located in the cold water inlet line can cause what is referred to as a "closed water system". A cold water inlet line with no check valve or back flow prevention device is referred to as an "open" water system.

As water is heated, it expands in volume and creates an increase in the pressure within the water system. This action is referred

to as "thermal expansion". In an "open" water system, expanding water which exceeds the capacity of the water heater flows back into the city main where the pressure is easily dissipated.

A "closed water system", however, prevents the expanding water from flowing back into the main supply line, and the result of "thermal expansion" can create a rapid, and dangerous pressure increase in the water heater and system piping. This rapid pressure increase can quickly reach the safety setting of the relief valve, causing it to operate during each heating cycle. Thermal expansion, and the resulting rapid, and repeated expansion and contraction of components in the water heater and piping system can cause premature failure of the relief valve, and possibly the heater itself. Replacing the relief valve **will not** correct the problem!

The suggested method of controlling thermal expansion is to install an expansion tank in the cold water line between the water heater and the check valve. The expansion tank is designed with an air cushion built in that compresses as the system pressure increases, thereby relieving the over pressure condition and eliminating the repeated operation of the relief valve. Other methods of controlling thermal expansion are also available. Contact your installing contractor, water supplier, or plumbing inspector for additional information regarding this subject.

IMPORTANT!! Do not apply heat to the hot or cold water supply fitting. If sweat connections are used, sweat tubing to adapter before fitting adapter to cold water inlet of heater. Any heat applied to the hot or cold

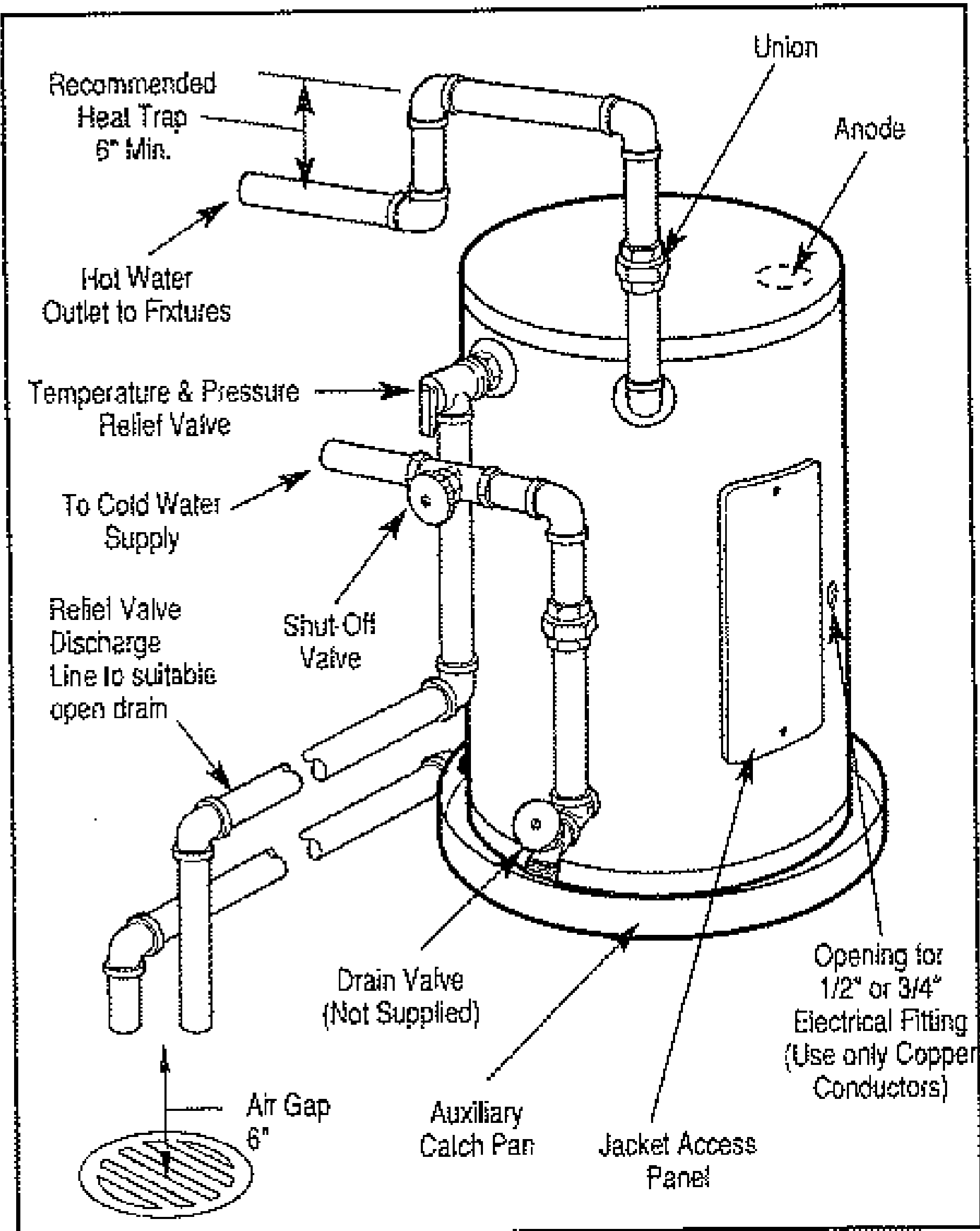


Figure 2. — Typical Side Connect Installation

water supply fittings will permanently damage them.

3. **RELIEF VALVE** — A new combination pressure and temperature relief valve, complying with the Standard for Relief Valves and Automatic Gas Shutoff Devices for Hot Water Supply Systems, ANSI Z21.22, must be installed in the opening provided and marked for the purpose on the water heater. (Refer to Fig. 2 or 3.) No valve of any type should be installed between the relief valve and the tank. Local codes shall govern the installation of relief valves.

The pressure rating of the relief valve must not exceed 150 psi, the maximum working pressure of the water heater as marked on the rating plate. The BTUH Rating of the relief valve must not be less than the input rating of the water heater as indicated on the rating label located on the front of the heater (1 watt = 3.412 BTUH).

Connect the outlet of the relief valve to a suitable open drain so that the discharge water cannot contact live electrical parts and to eliminate potential water damage. Piping used should be of a type approved for hot water distribution. The discharge line must be no smaller than the outlet of the valve and must pitch downward from the valve to allow complete drainage (by gravity) of the relief valve and discharge line. The end of the discharge line should not be threaded or concealed and should be protected from freezing. No valve of any type, restriction or reducer coupling should be installed in the discharge line.

4. **TO FILL WATER HEATER** — Make certain drain valve is completely closed. Open shut-off valve in cold water supply line. Open each hot water faucet slowly to allow air to vent from the water heater and piping. A steady flow of water from the hot water faucet(s) indicates a full water heater. Tank MUST BE full of water before power is turned on. Heating

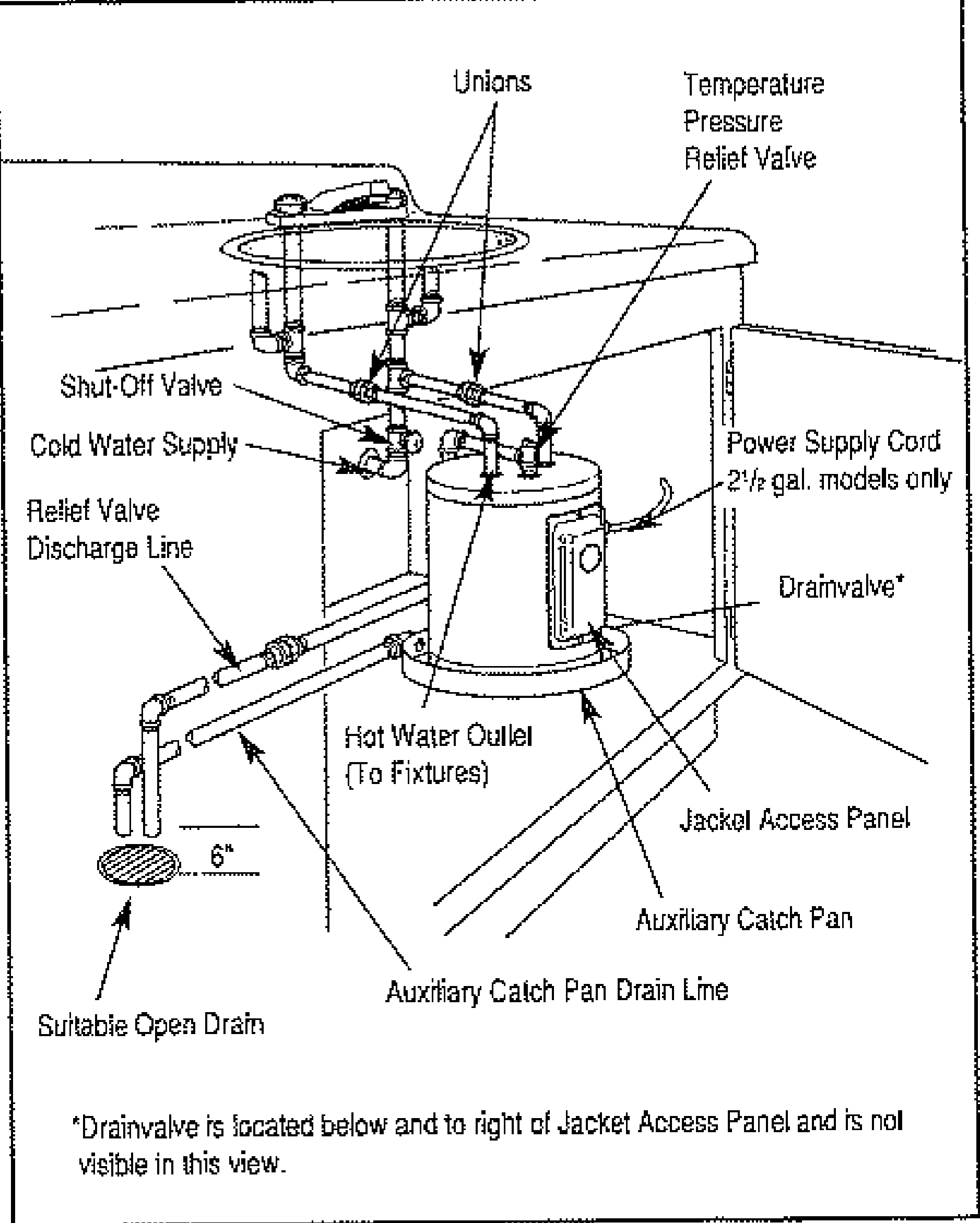


Figure 3. — Typical Under Counter Top Connect installation

WARNING

element(s) WILL BE DAMAGED if energized for even a short time while tank is dry. The water heater's warranty does not cover damage or failure resulting from operation with an empty or partially empty tank. (Reference is made to the limited warranty for complete terms and conditions.)

5. **ELECTRICAL CONNECTIONS** — The voltage requirements and wattage load for all heaters is specified on the rating plate. Table 1 recommends minimum branch circuit sizing based on the National Electrical Code. All wiring must conform to local codes or latest edition of National Electrical Code ANSI/NFPA 70.

Some models are supplied with a plug connected power supply cord for use only in 120 VAC applications. The cord must be connected to a properly

Total Water Heater Wattage	Recommended Over Current Protection (Fuse or Circuit Breaker) Amperage Rating					Copper Wire Size - AWG Based on N.E.C. Table 310-16 (75°C.)				
	120V	208V	240V	277V	480V	120V	208V	240V	277V	480V
1440	15	—	—	—	—	14	—	—	—	—
1500	20	15	15	15	15	12	14	14	14	14
2000	25	15	15	15	15	10	14	14	14	14
2500	30	15	15	15	15	10	14	14	14	14
3000	35	20	20	15	15	8	12	12	14	14
4500	—	30	25	25	15	—	10	10	10	14
6000	—	40	35	30	20	—	8	8	10	12

Table 1. — Branch Circuit Sizing Guide Based on N.E.C. ANSI / NFPA 70

Installation

grounded receptacle on a branch circuit with copper conductors, an over current protection device and a suitable disconnect means. If desired, straight field wiring connections can be made to these models by removing the access cover on front of the heater and disconnecting the cord set from the thermostat and the grounding lug. Remove the cord set and strain relief bushing from the junction bracket. The hole in the junction bracket will accommodate 1/2" or 3/4" electrical fittings. Refer to wiring diagrams on back cover of this manual for wiring connections.

Some models are completely wired to the junction bracket inside the jacket at the front of the water heater. An opening for 1/2" or 3/4" electrical fitting is provided for field wiring connections. A separate branch circuit with copper conductors, overcurrent protective device and suitable disconnecting means must be provided by a qualified electrician. Refer to wiring diagrams on back cover of this manual for wiring connections.

⚠ CAUTION

The presence of water in the piping and water heater does not provide sufficient conduction for a ground. Non-metallic piping, dielectric unions, flexible connectors etc. can cause the water heater to be electrically isolated.

The branch circuit wiring should include either:

- A. Metallic conduit or metallic sheathed cable approved for use as a grounding conductor and installed with fittings approved for the purpose.
- B. Non-metallic sheathed cable or metallic conduit or metallic sheathed cable not approved for use as a ground conductor shall include a

separate conductor for grounding. It should be attached to the ground terminals of the water heater and the electrical distribution box.

⚠ WARNING

The manufacturer's warranty does not cover any damage or defect caused by installation, attachment or use of any type of energy saving or other unapproved devices (other than those authorized by the manufacturer) into, onto or in conjunction with the water heater. The use of unauthorized energy saving devices may shorten the life of the water heater and may endanger life and property. The manufacturer disclaims any responsibility for such loss or injury resulting from the use of such unauthorized devices.

If local codes require external application of insulation blanket kits the manufacturer's instructions included with the kit must be carefully followed.

⚠ CAUTION

Application of any external insulation to this water heater will require careful attention to the following:

- Do not cover the temperature and pressure relief valve.
- Do not cover jacket access panels to thermostats and heating elements.
- Do not cover electrical junction box of water heater.
- Do not cover operating or warning labels attached to the water heater nor attempt to relocate them on exterior of insulation blanket.

Installation Check List

A. Water Heater Location

- ☐ Close to area of heated water demand.
- ☐ Indoors and protected from freezing temperatures.
- ☐ Area free of flammable vapors.
- ☐ Provisions made to protect area from water damage.
- ☐ Sufficient room to service water heater.

B. Water Supply

- ☐ Water heater completely filled with water.
- ☐ Water heater and piping air vented.

- ☐ Water connections tight and free of leaks

C. Relief Valve

- ☐ Temperature and Pressure Relief Valve properly installed and discharge line run to open drain
- ☐ Discharge line protected from freezing.

D. Wiring

- ☐ Power supply voltage agrees with water heater rating plate.
- ☐ Branch circuit wire and fusing or circuit breaker of proper size.
- ☐ Electrical connections tight and unit properly grounded.

Model No. _____ Serial No. _____ Date of Installation _____ Installed By: _____

SAFETY PRECAUTIONS

- A. Do turn off power to water heater if it has been subjected to over heating, fire, flood or physical damage.
 - B. Do Not turn on water heater unless it is filled with water.
 - C. Do Not turn on water heater if cold water supply shut-off valve is closed.
 - D. Do Not store or use gasoline or other flammable vapors and liquids, such as adhesives or paint thinner, in vicinity of this or any other appliance. If such flammables must be used, open doors and windows for ventilation.
- NOTE: Flammable vapors may be drawn by air currents from surrounding areas to the water heater.
- E. If there is any difficulty in understanding or following the OPERATION

or MAINTENANCE instructions, it is recommended that a qualified person or serviceman perform the work.

CAUTION

Hydrogen gas can be produced in a hot water system served by this water heater that has not been used for a long period of time (generally two weeks or more). HYDROGEN GAS IS EXTREMELY FLAMMABLE!! To dissipate such gas and to reduce risk of injury, it is recommended that the hot water faucet be opened for several minutes at the kitchen sink before using any electrical appliance connected to the hot water system. If hydrogen is present, there will probably be an unusual sound such as air escaping through the pipe as the water begins to flow. Do not smoke or use an open flame near the faucet at the time it is open.

- 1. WATER TEMPERATURE SETTING — The temperature of the water in the water heater can be regulated by setting the temperature dial of the adjustable surface mounted thermostat located behind the jacket access panel. To comply with safety regulations the thermostat is factory set at 120° F or less where local codes require.

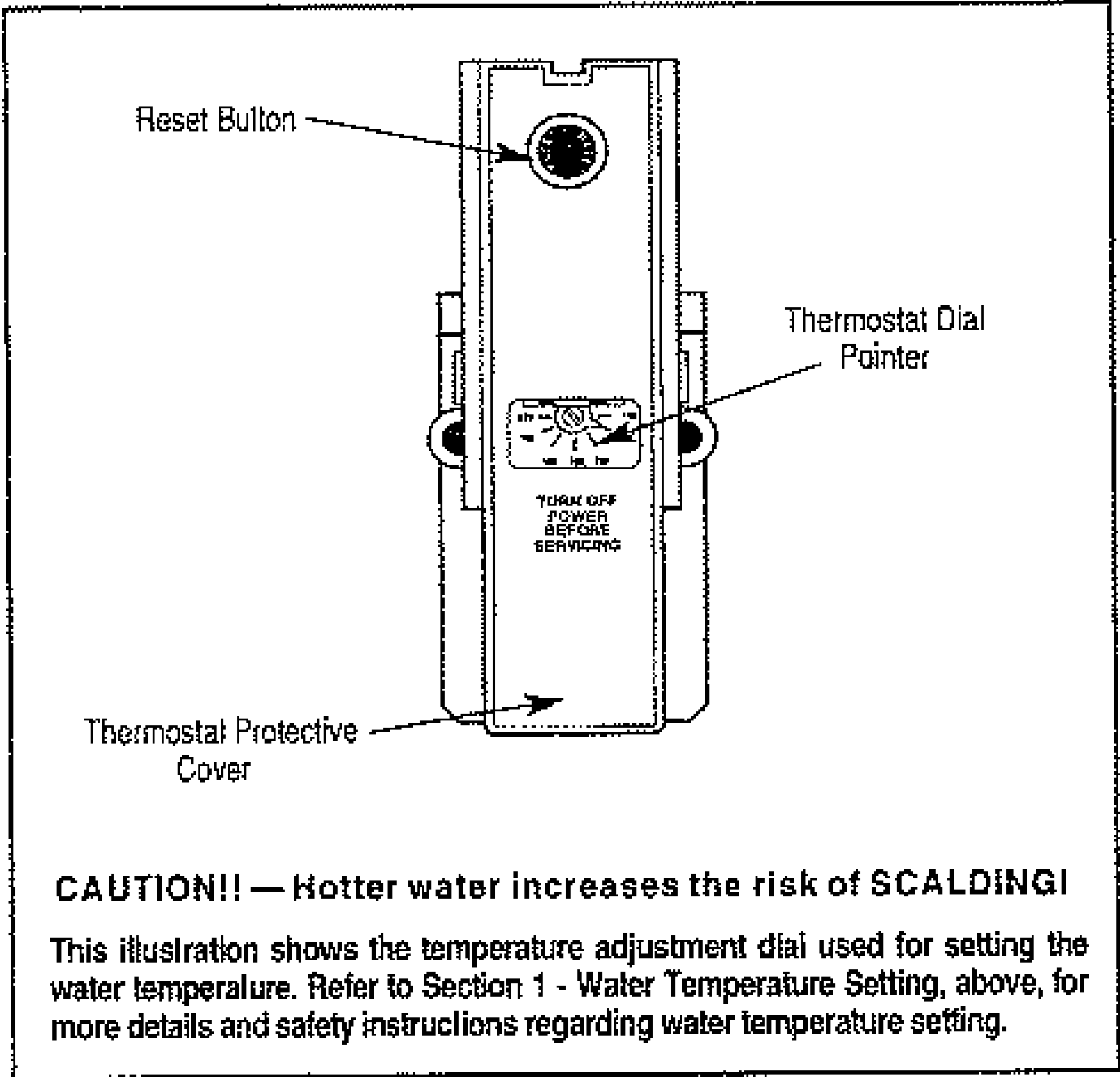


Figure 4. — Thermostat and Protective Cover.

Safety and energy conservation are factors to be considered when selecting the water temperature setting of the water heater's thermostat. The lower the temperature setting the greater the savings in energy and operating costs.

DANGER

There is a Hot Water SCALD Potential if the thermostat is set too high.

NOTE: When this water heater is supplying general purpose hot water requirements for use by individuals, a thermostatically controlled mixing valve for reducing point of use water temperature is recommended to reduce the risk of scald injury. Contact a licensed plumber or the local plumbing authority for further information.

TIME / TEMPERATURE RELATIONSHIPS IN SCALDS

Temperature	Time to Produce Serious Burn
120° F	More than 5 minutes
125° F	1½ to 2 minutes
130° F	About 30 seconds
135° F	About 10 seconds
140° F	Less than 5 seconds
145° F	Less than 3 seconds
150° F	About 1½ seconds
155° F	About 1 second

Table courtesy of Shriners Burn Institute

DANGER

Make certain power to water heater is OFF before removing jacket access panel FOR ANY REASON.

If adjustment is necessary, turn off power to water heater, remove jacket access panel and insulation exposing thermostat. The thermostat protective cover should not be removed. Set thermostat dial pointer, with a small screwdriver, to desired temperature. (Refer to Fig. 4.) Replace insulation and jacket access panel. Turn on power to water heater.

- 2. SAFETY CONTROLS — The water heater is equipped with a combination Thermostat and Temperature Limiting Control (ECO) that is located above the heating element in contact with the tank surface. If for any reason the water temperature becomes excessively high, the Temperature Limiting Control (ECO) breaks the power circuit to the heating element. Once the control opens, it must be reset manually.

CAUTION

The cause of the High Temperature Condition must be investigated by qualified service personnel and corrective action taken before placing the water heater in service again.

To reset Temperature Limiting Control, turn off power to water heater, remove jacket access panel and insulation. The thermostat protective

Operation

cover **SHOULD NOT** be removed. (Refer to Fig. 4.) Press red "RESET" button. Replace insulation and jacket access panel before turning on power to water heater.

3. EMERGENCY INSTRUCTIONS —

WARNING

If water heater has been subjected to flood, fire, or physical damage, turn off power and water to water heater. Do not operate the water heater again until it has been thoroughly checked by qualified service personnel.

4. **LONG TIME SHUT-DOWN** — If the water heater is to remain idle for an extended period of time, the power and water to the water heater should be turned off to conserve energy. The water heater and piping should be drained if they might be subjected to freezing temperatures.

NOTE: Refer to "Hydrogen Gas Caution" in Safety Precautions Section on page 6.

After a very long shut-down period, the water heater's operation and controls should be checked by qualified service personnel. Make certain the water heater is completely filled before again placing it in operation.

5. DRAINING HEATER —

CAUTION

Shut off power to water heater before draining water.

In order to drain water heater, turn off cold water supply, then it is necessary to open a hot water faucet or lift the handle on the relief valve to admit air to the tank. Attach a garden hose to the drain valve on the water heater and direct the stream of water to a drain where it will do no damage.

DANGER

The water drained from the tank may be hot enough to present a **SCALD HAZARD** and should be directed to a suitable drain to prevent injury or damage.

6. **ANODE** — This water heater is equipped with an anode rod designed to prolong the life of the glass lined tank. The anode is slowly consumed cathodically, thereby eliminating or minimizing corrosion of the glass lined tank.

Water sometimes contains a high sulfate and/or mineral content and together with the cathodic protection process can produce a hydrogen sulfide or rotten egg odor in the heated water. Chlorination of the water supply should minimize the problem.

NOTE: Do not remove the anode rod from the water heater's tank, except for inspection and/or replacement, as permanent removal will shorten the life of the glass lined tank and effect the water heater warranty.

Maintenance

Properly maintained, your water heater will provide years of dependable trouble-free service. It is suggested that a routine preventive maintenance program be established and followed by the user. It is further recommended that a periodic inspection of the operating controls, heating element and wiring should be made by service personnel qualified in electric appliance repair.

1. ROUTINE PREVENTATIVE MAINTENANCE

- A. Most electrical appliances make some sound when in operation, even when new. If the hissing or singing sound level increases excessively, the electric heating element may require cleaning. Contact your installer or plumbing contractor to inspect.
- B. The area near the water heater must be kept free of flammable liquids such as gasoline or paint thinners, adhesives or other combustible materials.
- C. At least once a year, lift and release the lever handle on the temperature pressure relief valve, located near the top of the water heater, to make certain the valve operates freely and allow several gallons to flush through discharge line. Make certain the discharged water is directed to an open drain.

DANGER

Before manually operating the relief valve, make certain no one will be exposed to the danger of coming in contact with the hot water released by this valve. The water may be hot enough to create a **SCALD** hazard. The water released should be directed to a suitable drain to prevent injury or damage.

NOTE: If the temperature and pressure relief valve on the water heater discharges periodically, this may be due to thermal expansion in a "Closed" water system. Contact the water supplier or your plumbing contractor on how to correct this. **DO NOT** plug the relief valve outlet.

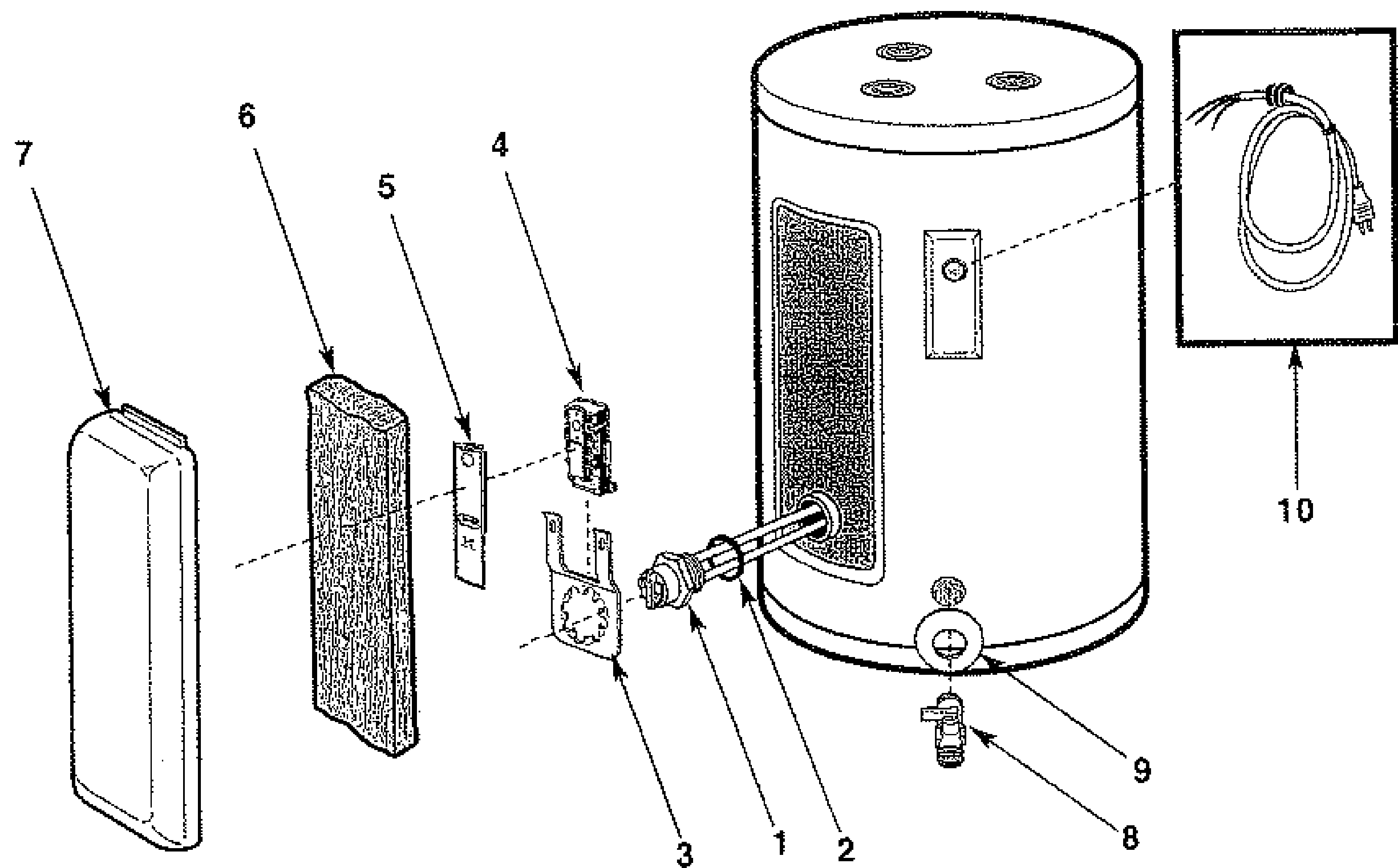
- D. A water heater's tank can act as a settling basin for solids suspended in the water. It is, therefore, not uncommon for hard water deposits to accumulate in the bottom of the tank. It is suggested that a few quarts of water be drained from the water heater's tank through the drain valve every month to clean the tank of these deposits.
 - E. Rapid closing of faucets or solenoid valves in automatic water using appliances can cause a pounding "water hammer" sound. "Water hammer" can be described as a banging noise heard in a water pipe following an abrupt alteration of the flow with resulting pressure surges. Strategically located risers in the water pipe system can be used to minimize the problem. Also water hammer arresting devices are usually available from your plumber or local plumbing supply store.
2. **ANODE ROD INSPECTION** — The anode rod should be removed from the water heater's tank annually for inspection and replaced when more than 6" of core wire is exposed at either end of the rod. Refer to Fig. 2 for anode rod location. Make certain cold water supply is turned off before removing anode rod.

Replacement Parts List

Top Connect Models
120 or 240 Volt Operation

Instructions for placing a Parts Orders:

- Address parts orders to the distributor or store from where the heater was purchased.
- All parts orders should include:
1. Model number and Serial number of heater (from rating plate).
 2. Specify voltage and wattage as marked on rating plate.
 3. Part Description (as noted below) and number of parts desired.



Ref. No.	Part Description	Qty. Req'd
1.	Heating Element	1
2.	Heating Element Gasket	1
3.	Thermostat Bracket	1
4.	Thermostat	1
5.	Thermostat Protective Cover	1
6.	Cavity Insulation	1
7.	Jacket Access Panel	1
8.	Drain Valve	1
9.	Drain Valve Shroud	1
10.	Electrical Cord Set (120 VAC models ONLY)	1

CAUTION

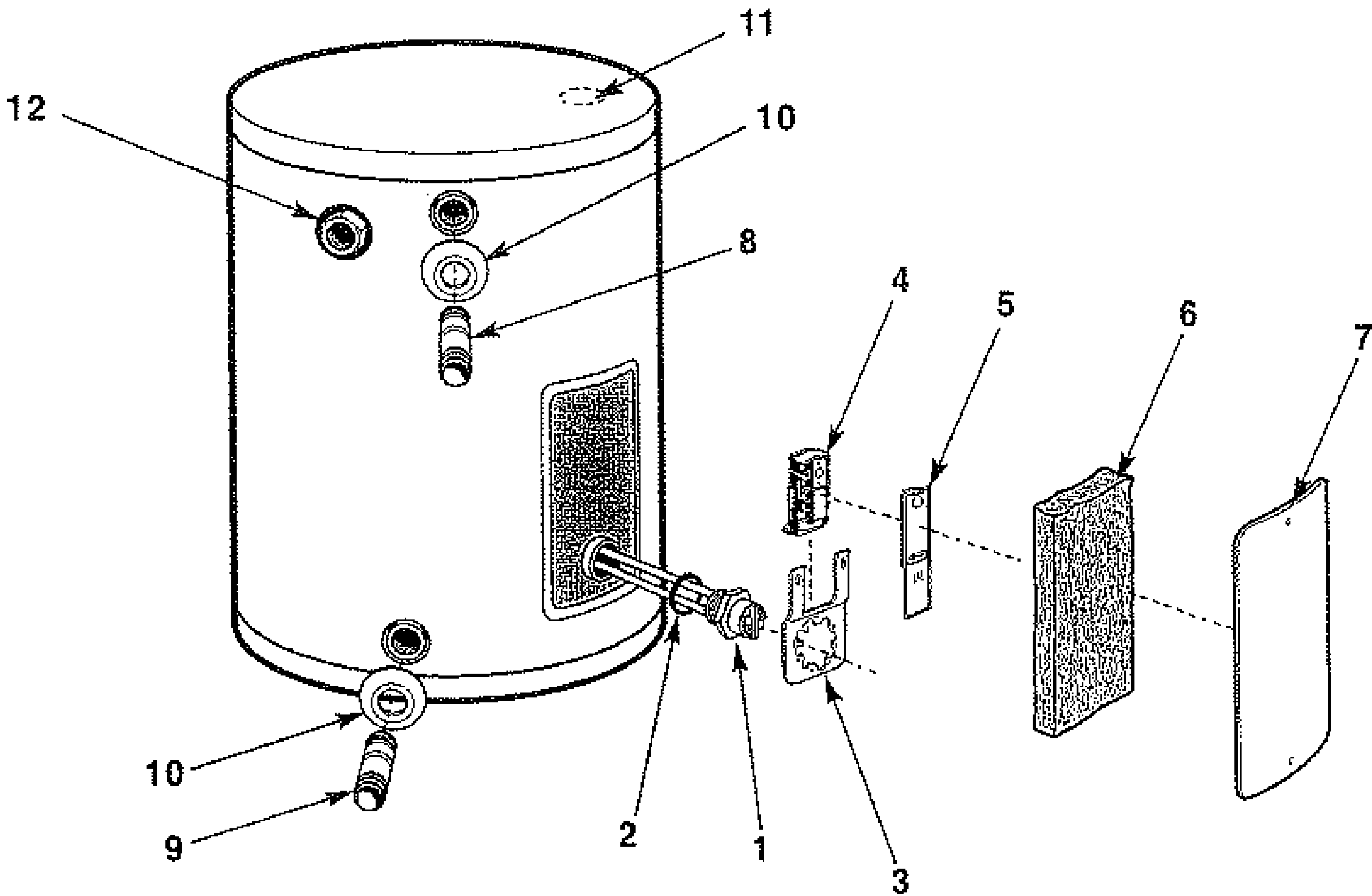
For your safety, DO NOT attempt repair of electrical wiring, thermostats, heating elements or other operating controls. Refer repairs to qualified service personnel.

Replacement Parts List

Side Connect Models
120, 208, 240, 277 or 480
Volt Operation

Instructions for placing a Parts Orders:

- Address parts orders to the distributor or store from where the heater was purchased.
All parts orders should include:
- 1. Model number and Serial number of heater (from rating plate).
 - 2. Specify voltage and wattage as marked on rating plate.
 - 3. Part Description (as noted below) and number of parts desired.



Ref. No.	Part Description	Qty. Req'd
1.	Heating Element	1
2.	Heating Element Gasket	1
3.	Thermostat Bracket	1
4.	Thermostat	1
5.	Thermostat Protective Cover	1
6.	Cavity Insulation	1
7.	Jacket Access Panel	1
8.	Nipple, Hot Outlet/J-Tube (Not Shown)	1
9.	Nipple, Cold Inlet	1
10.	Shroud	As Req'd
11.	Anode Rod	1
12.	Snap Bushing	1

CAUTION

For your safety, DO NOT attempt repair of electrical wiring, thermostats, heating elements or other operating controls. Refer repairs to qualified service personnel.

Trouble Shooting Guide

NATURE OF TROUBLE	POSSIBLE CAUSE	SERVICE
No Hot Water	1. Manual switch turned off 2. Improper Wiring 3. No Power — blown fuse or circuit breaker tripped a. Shorted wiring b. Circuit overloaded c. Improper wiring d. Grounded element or thermostat 4. Manual Reset Limit (ECO) open a. Thermostat(s) defective b. Thermostat out of calibration c. Heat build-up due to loose wires d. Defective Limit (ECO)	Turn to ON ** Rewire per Wiring Diagram ** Replace or repair ** Provide adequate circuit or reduce load ** Rewire per diagram ** Replace Refer to "Operation Section" ** Replace ** Lower setting or replace ** Tighten wire connections ** Replace
Not enough Hot Water	1. Heater undersized 2. Defective Element(s) 3. Miswired or defective thermostat causing only one element to work	Reduce rate of hot water use ** Check amperage, replace element if low ** Check wiring or replace
Water too hot or not hot enough	1. Thermostat setting too high or low 2. Thermostat out of calibration	Change setting as required ** Replace
Noisy heating element(s)	1. Scale build-up on elements	** Remove and clean

CAUTION

** For your safety, DO NOT attempt repair of Electrical Wiring, Thermostat(s), Heating Elements or other Operating Controls. Refer repairs to qualified service personnel.

How to Obtain Service Assistance

1. Should you have any questions about your new water heater, or if it requires adjustment, repair, or routine maintenance, it is suggested that you first contact your installer, plumbing contractor or previously agreed upon service agency. In the event that the firm has moved, or is unavailable, refer to the telephone directory commercial listings or local utility for qualified service assistance.
2. Should your problem not be solved to your complete satisfaction, you should then contact the Manufacturer's National Service Department at the following address:

2600 Gunter Park Drive
Montgomery, Alabama 36109-1413
Phone: 1-800-432-8373.

When contacting the manufacturer, the following information should be made available:

1. Model and serial numbers of the water heater as shown on the rating plate attached to the jacket of the heater.
2. Address where water heater is located and can be seen.
3. Name and address of installer and any service agency who performed service on the water heater.
4. Date of original installation and dates any service work was performed.
5. Details of the problem as you can best describe them.
6. List of people, with dates, who have been contacted regarding your problem.



A Series Panelboard

Item 11 EA

Index

Panel Description

GE Type AQ Panelboard
Qty 1
400 Amp,208Y/120V
3P4W
65 KAIC SC Series Rated
Aluminum Bus
Nema 1 Enclosure
Surface Mounted
Top Feed

Main Description

Amps: 400 Amp
Poles: 3 Pole
Type: Main Breaker
Cat No.: SGHA36AT0400+
Acc: SRPG400A400
Rating Plg
1TCLK365
Lug Kit
Lugs: 1-lug/ph 2-cable/lug
2/0 -500 mcm
or
1-lug/ph 1-cable/lug
#8 -600 mcm

Options Included

- 1 - Aluminum Bus Heat Rated
- 1 - Box Shipped
- 1 - Door within Door
- 1 - Metal Directory Card Hldr
- 1 - Screw-On Nameplate
- 1 - Ground main lug TGL20
- 3 - Ground-Box bonded TGL2

Branch Devices

Qty	Amps/P	Cat#
13	20A/1P	Spaces
23	20A/1P	THHQB1120
1	200A/3P	THQD32200
1	150A/3P	THQD32150

Suitable for service entrance
This panel was Series Rated
at 65 KAIC with a
400A SGHA4 Main breaker
UL Series connected ratings
are in most recent version of
publication DET-008.

Panel Interior

Device Layout is Customer Specified

VERTICAL MAIN BREAKER

THQD200/3CENTER MOUNTED

Return to main index page.

SUBFEED

Ckt	Type	Amps/P	Type	Amps/P	Ckt
13	THHQB	20/1	THHQB	20/1	14
15	THHQB	20/1	THHQB	20/1	16
17	SPACE	20/1	THHQB	20/1	18
19	SPACE	20/1	THHQB	20/1	20
21	SPACE	20/1	THHQB	20/1	22
23	SPACE	20/1	THHQB	20/1	24
25	SPACE	20/1	THHQB	20/1	26
27	SPACE	20/1	THHQB	20/1	28
29	SPACE	20/1	THHQB	20/1	30
31	SPACE	20/1	THHQB	20/1	32
33	SPACE	20/1	THHQB	20/1	34
35	SPACE	20/1	THHQB	20/1	36
37	SPACE	20/1	THHQB	20/1	38
39	SPACE	20/1	THHQB	20/1	40
41	SPACE	20/1	THHQB	20/1	42
43	THHQB	20/1	THHQB	20/1	44
45	THHQB	20/1	THHQB	20/1	46
47	THHQB	20/1	THHQB	20/1	48
400A NEUTRAL ONLY					

* Drawing not to scale

Job Name:	BERRY E.S. - FINAL VERSIO		
Prop No:	6N1-1J7GIQ2	GE Req#:	
PO#:			
Marks:	EA	Dated:	08/16/2012

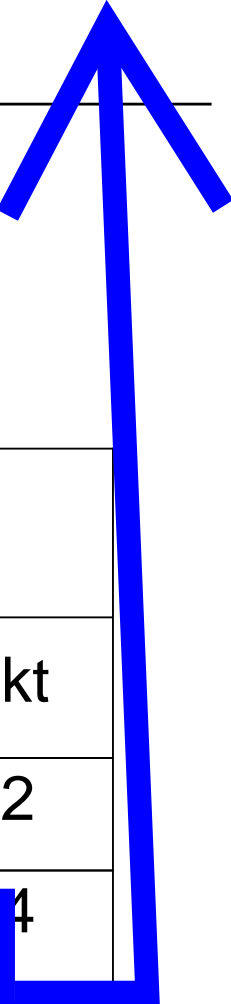
11A Interior	AQF3364JTX AXQ6S5
11B Box	AB76B
11C Front	AF76SPUM
Dimensions	76.5"H x 20"W x 5.75"D



A Series Panelboard

Item 12 EB

Index



Panel Description

GE Type AQ Panelboard
Qty 1
225 Amp,208Y/120V
3P4W
65 KAIC SC Series Rated
Aluminum Bus
Nema 1 Enclosure
Surface Mounted
Bottom Feed

Main Description

Amps: 225 Amp
Type: Main Lugs
Lugs: 1-lug/ph 1-cable/lug
#6 -350 mcm

Options Included

- 1 - Aluminum Bus Heat Rated
- 1 - Box Shipped
- 1 - Door within Door
- 1 - Metal Directory Card Hldr
- 1 - Screw-On Nameplate
- 1 - ME, 80kA/mode,160kA/phase (TVSS) TPME120Y08AS
- 4 - Ground-Insol/Isol EGS12
- 7 - Ground main lug TGL20

Branch Devices

Qty	Amps/P	Cat#
42	20A/1P	THHQB1120

Remarks

This panel was Series Rated
at 65 KAIC with a
GE Series connected ratings
are in most recent version of
publication DET-008.

Panel Interior

TVSS - DIRECT BUS CONNECTED					
Ckt	Type	Amps/P	Type	Amps/P	Ckt
1	THHQB	20/1	THHQB	20/1	2
3	THHQB	20/1	THHQB	20/1	4
5	THHQB	20/1	THHQB	20/1	6
7	THHQB	20/1	THHQB	20/1	8
9	THHQB	20/1	THHQB	20/1	10
11	THHQB	20/1	THHQB	20/1	12
13	THHQB	20/1	THHQB	20/1	14
15	THHQB	20/1	THHQB	20/1	16
17	THHQB	20/1	THHQB	20/1	18
19	THHQB	20/1	THHQB	20/1	20
21	THHQB	20/1	THHQB	20/1	22
23	THHQB	20/1	THHQB	20/1	24
25	THHQB	20/1	THHQB	20/1	26
27	THHQB	20/1	THHQB	20/1	28
29	THHQB	20/1	THHQB	20/1	30
31	THHQB	20/1	THHQB	20/1	32
33	THHQB	20/1	THHQB	20/1	34
35	THHQB	20/1	THHQB	20/1	36
37	THHQB	20/1	THHQB	20/1	38
39	THHQB	20/1	THHQB	20/1	40
41	THHQB	20/1	THHQB	20/1	42
225A MAIN LUGS WITH NEUTRAL					

* Drawing not to scale

Job Name:	BERRY E.S. - FINAL VERSIO		
Prop No:	6N1-1J7GIQ2	GE Req#:	
PO#:			
Marks:	EB	Dated:	08/16/2012

12A Interior	AQF3422MBX AXT6
12B Box	AB55B
12C Front	AF55SPUM
Dimensions	55.5"H x 20"W x 5.75"D



FEATURES & SPECIFICATIONS

INTENDED USE — Low-profile static luminaire provides general illumination for recessed applications; Ideal for restricted plenum spaces.
Certain airborne contaminants can diminish integrity of acrylic. [Click here for Acrylic Environmental Compatibility table for suitable uses.](#)

ATTRIBUTES — Designed exclusively for use with T8 lamps, electronic ballasts and sockets.
CONSTRUCTION — Smooth hemmed sides and smooth, inward formed end flanges for safe handling. Lighter weight fixture allows for safe, easy installation.

Standard steel door frame has superior structural integrity with premium extruded appearance and precision flush mitered corners. Steel door allows easy lens replacement without frame disassembly (for lenses up to .156" thick). Powder painted, steel latches provide easy, secure door closure.
Superior mechanical light seal requires no foam gasketing. Integral T-bar clips secure fixture to T-bar system. Housing formed from cold-rolled steel. Acrylic shielding material 100% UV stabilized. No asbestos is used in this product.

FINISH — Five-stage iron-phosphate pretreatment ensures superior paint adhesion and rust resistance. Painted parts finished with high-gloss, baked white enamel.

ELECTRICAL — Standard ballast is electronic, thermally protected, resetting, Class P, HPF, non-PCB, UL Listed, CSA certified ballast, universal voltage and sound rated A.

Luminaire is suitable for damp locations. AWM, TFN or THHN wire used throughout, rated for required temperatures.

LISTING — Standard: UL. Optional: Canada — CSA or cUL; Mexico — NOM.

WARRANTY — Guaranteed for one year against mechanical defects in manufacture.

US patents: 6,210,025; 6,231,213; 2,288,471.

Note: Specifications subject to change without notice.

Catalog Number

Notes

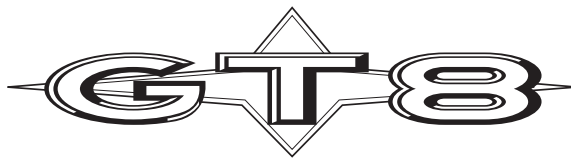
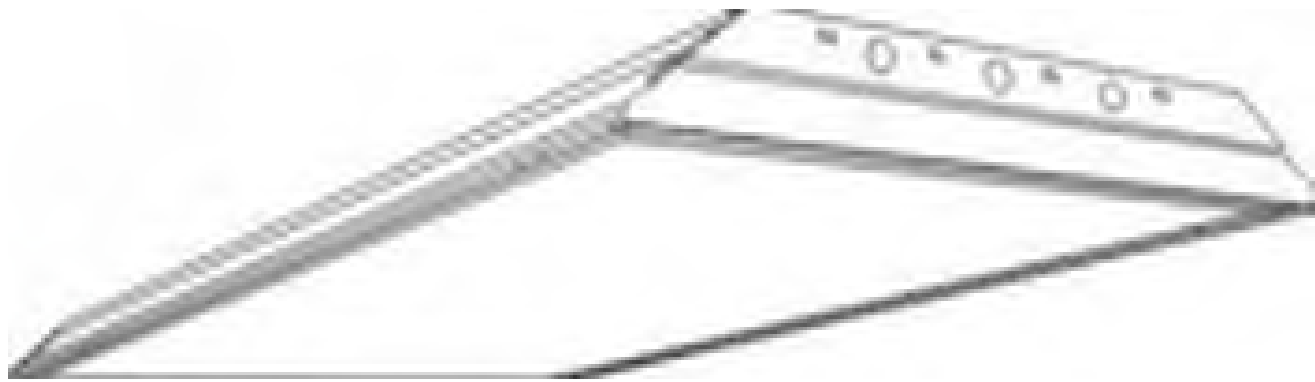
Type

Select Index

General Purpose T8 Troffer

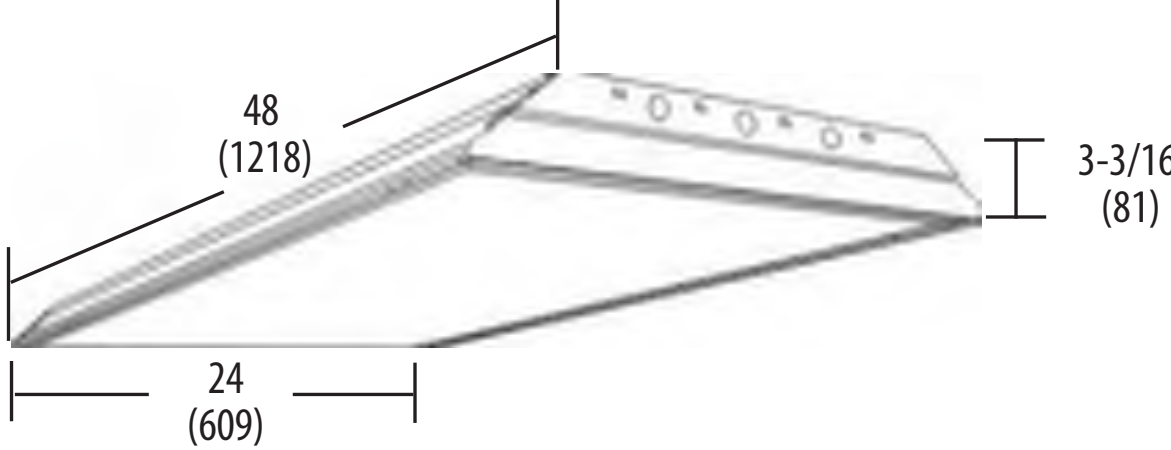
GT8 2'x4'

2, 3 or 4 Lamps



Specifications

- Length: 48 (1218)
- Width: 24 (609)
- Depth: 3-3/16 (81)
- Weight: 22 lbs (9.9 kg)



All dimensions are inches (millimeters).

ORDERING INFORMATION For shortest lead times, configure products using **bolded options**. Example: 2GT8 2 32 A12 MVOLT GEB10IS

2GT8							
Series	Trim type	Number of lamps	Lamp type	Door frame	Diffuser type	Voltage	Options²
2GT8 2" wide	(blank) Grid F Overlapping flanged	2 3 4 Not included	32 32W T8 (48")	(blank) Flush steel, white FN Flush aluminum, natural FM Flush aluminum, matte black FW Flush aluminum, white RN Regressed aluminum, natural RM Regressed aluminum, matte black RW Regressed aluminum, white	A12 #12 pattern acrylic A12125 #12 pattern acrylic, .125" thick A19 #19 pattern acrylic, .156" thick A15 #15 pattern acrylic, .2" thick PC1S 1/2" x 1/2" x 1/2" plastic cube louver, silver PC2S 1-1/2" x 1-1/2" x 1" plastic cube louver, silver w/ flange¹ PC3S 3/4" x 3/4" x 1/2" plastic cube louver, silver	120 277 347 MVOLT Others available	1/4 One 4-lamp ballast 1/3 One 3-lamp ballast GEB10IS Electronic ballast, <10% THD, instant start GEB10RS Electronic ballast, <10% THD, rapid start EL Emergency battery pack (nominal 300 lumens) EL14 Emergency battery pack (nominal 1400 lumens) GLR Internal fast-blow fuse GMF Internal slow-blow fuse LST Tandem-wired fixture pairs (shared ballasts) PWS1836 6' prewire, 3/8" dia., 18-gauge, 1 circuit LP_ Lamped, specify lamp type and color LP735 Lamped, 700-series, 3500K LP741 Lamped, 700-series, 4100K JP Palletized and stretch-wrapped without individual cartons; grid trim only CSA CSA Certified NOM NOM Certified

NOTES:

- 1 Available with flush door frames only.
- 2 MVOLT standard for 120-277V applications, 50-60 hz operation. Some options require voltage specified.

OSPSX Osram Electronic Program-Start Xtreme (0.71BF) Low Output

FLUORESCENT:

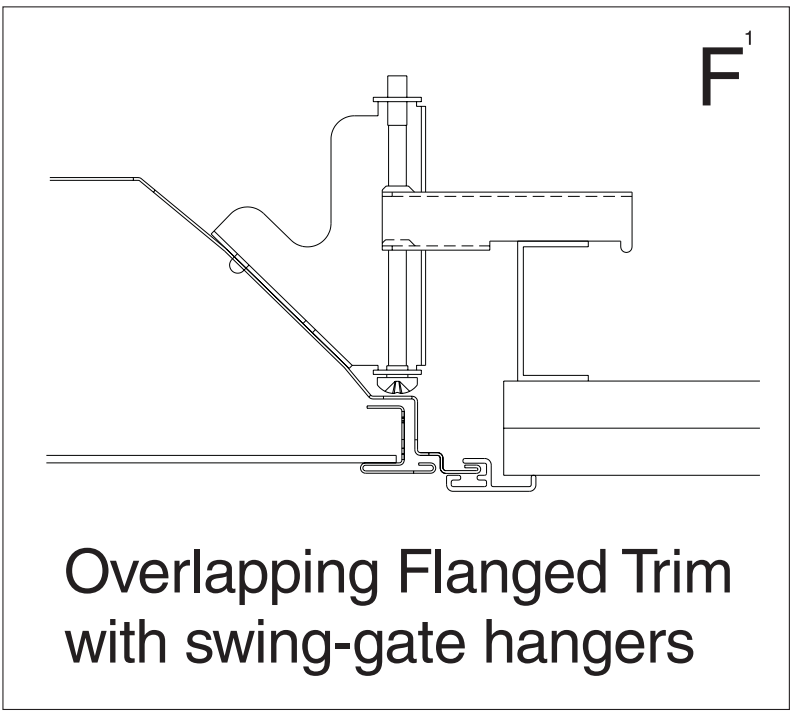
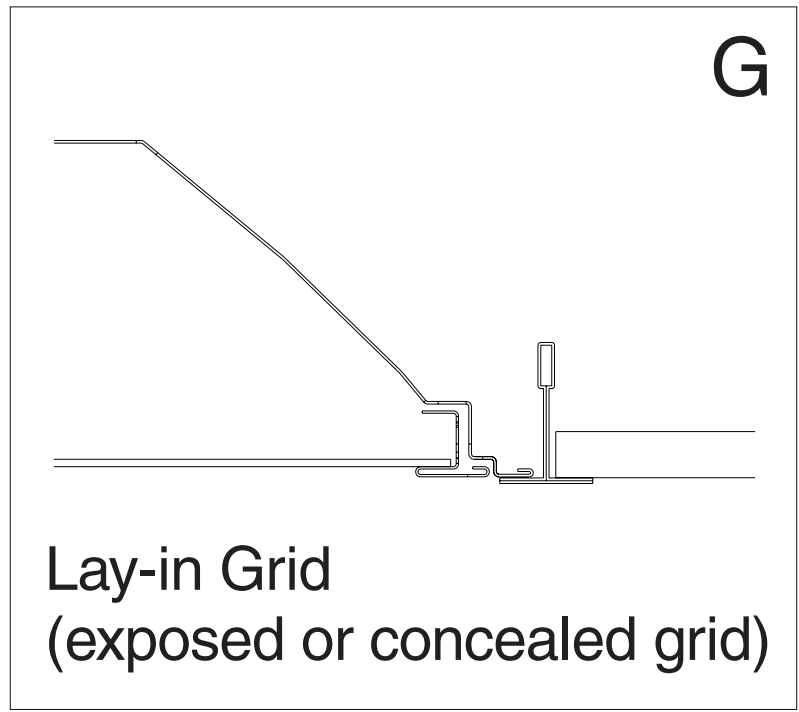
GT8-2X4

GT8 2'x4'

Static T8 Troffer

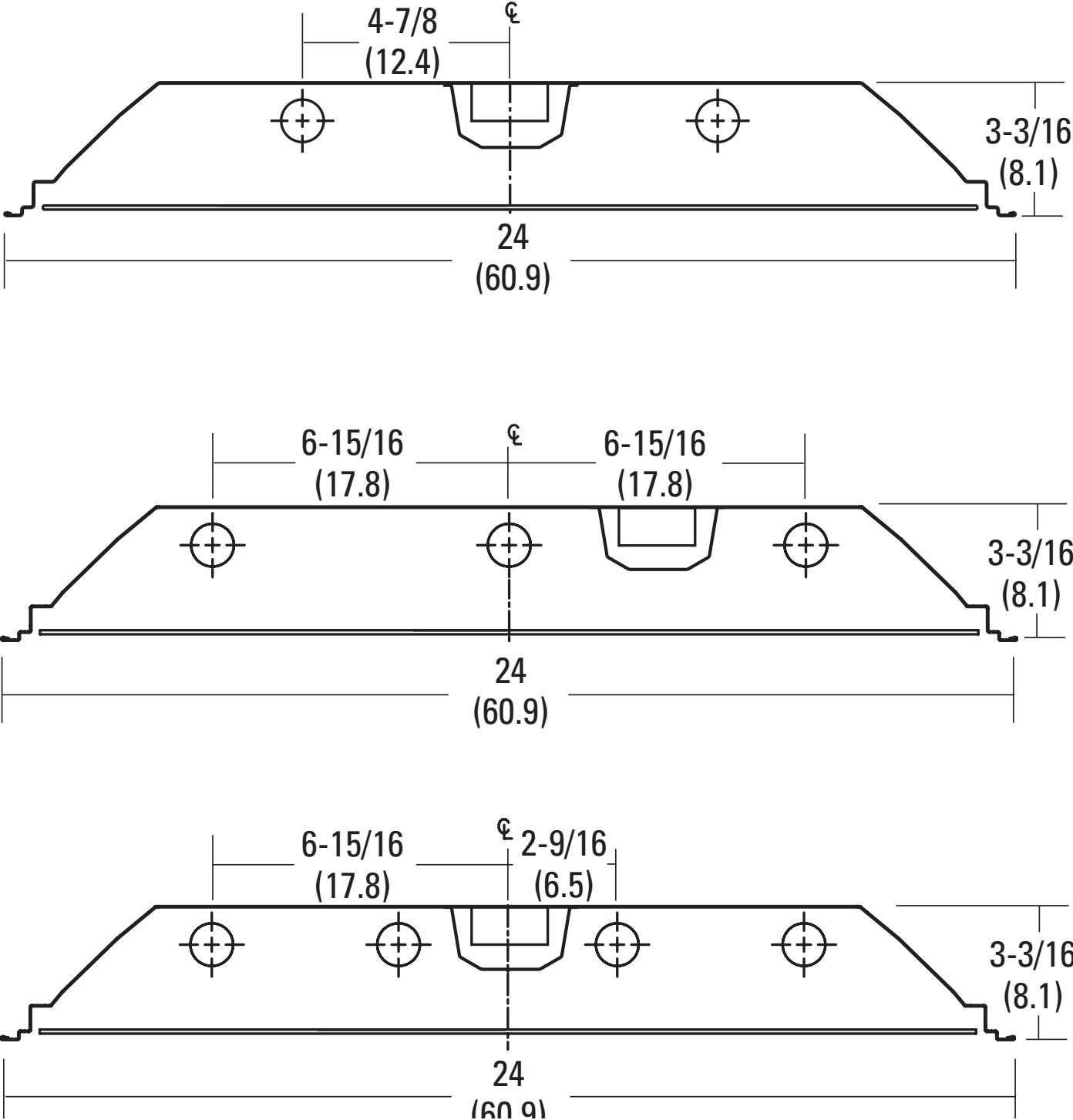
MOUNTING DATA

Continuous row mounting of flanged units requires CRE and CRM trim options (see Options).



NOTE:
1 Recommended rough-in dimensions for F-trim fixtures 24"x48" (Tolerance is +1/4"-0"). Swing-gate range 1-3/16" to 3-15/16". Swing-gate span 23-3/8" to 26-11/16". Fixture swing-gate points require additional 1-1/16" over nominal fixture height.

DIMENSIONS



PHOTOMETRICS

Calculated using the zonal cavity method in accordance with IESNA LM41 procedure. Floor reflectances are 20%. Lamp configurations shown are typical. Full photometric data on these and other configurations available upon request.

2GT8 2 32 A12

Report LTL 7424

Lumens per lamp - 2850 – Lum. eff. - 81.7%

S/MH (along) 1.2 (across) 1.4

Coefficient of Utilization

Ceiling	80%			70%			50%		
Wall	70%	50%	30%	70%	50%	30%	50%	30%	10%
0	97	97	97	95	95	95	91	91	91
1	89	86	82	87	84	81	80	78	76
2	82	75	70	80	74	69	71	67	63
3	75	67	60	73	65	59	63	58	54
4	69	59	52	67	58	52	56	51	46
5	63	53	46	62	52	46	51	45	40
6	59	48	41	47	47	40	46	40	35
7	54	44	37	53	43	36	42	36	31
8	51	40	33	49	39	33	38	32	28
9	47	37	30	46	36	30	35	29	25
10	44	34	27	43	33	27	32	27	23

Zonal Lumens Summary

Zone	Lumens	%Lamp	%Fixture
0-30	1372	24.1	29.4
0-40	2277	39.9	48.9
0-60	3907	68.5	83.9
0-90	4658	81.7	100.0
90-180	0	0	0
0-180	4658	81.7	100.0

2GT8 3 32 A12 1/3

Report LTL 7421

Lumens per lamp - 2850 – Lum. eff. - 80.1%

S/MH (along) 1.2 (across) 1.4

Coefficient of Utilization

Ceiling	80%			70%			50%		
Wall	70%	50%	30%	70%	50%	30%	50%	30%	10%
0	95	95	95	93	93	93	89	89	89
1	88	84	81	85	82	79	79	76	74
2	80	74	69	78	72	68	70	66	62
3	74	66	59	72	64	58	62	57	53
4	68	58	52	66	57	51	55	50	46
5	62	52	45	61	52	45	50	44	40
6	58	47	40	56	47	40	45	39	35
7	54	43	36	52	42	36	41	35	31
8	50	39	33	49	39	32	38	32	28
9	47	36	30	45	36	29	35	29	25
10	44	33	27	43	33	27	32	27	23

Zonal Lumens Summary

Zone	Lumens	%Lamp	%Fixture
0-30	2066	24.2	30.2
0-40	3412	39.9	49.8
0-60	5768	67.5	84.2
0-90	6851	80.1	100.0
90-180	0	0	0
0-180	6851	80.1	100.0

2GT8 4 32 A12 1/4

Report LTL 7425

Lumens per lamp - 2850 – Lum. eff. - 78.6%

S/MH (along) 1.2 (across) 1.4

Coefficient of Utilization

Ceiling	80%			70%			50%		
Wall	70%	50%	30%	70%	50%	30%	50%	30%	10%
0	94	94	94	91	91	91	87	87	87
1	86	82	79	84	81	78	77	75	73
2	79	73	68	77	71	67	68	64	61
3	72	64	58	70	63	57	61	56	52
4	66	57	51	65	56	50	54	49	45
5	61	51	45	60	51	44	49	43	39
6	57	47	40	55	46	39	44	39	34
7	53	42	36	51	42	35	40	35	31
8	49	39	32	48	38	32	37	31	27
9	46	35	29	45	35	29	34	29	25
10	43	33	27	42	32	27	32	26	22

Zonal Lumens Summary

Zone	Lumens	%Lamp	%Fixture
0-30	2718	23.8	30.3
0-40	4481	39.3	50.0
0-60	7553	66.3	84.2
0-90	8965	78.6	100.0
90-180	0	0	0
0-180	8965	78.6	100.0

Maintenance Documentation

Index

Job Information

Click here to return to main index page.

Job Name: Emmanuel ES

Address: 1862 Jupiter Blvd

City: Dallas

State: TX Zip: 75227

Phone: (214) 418-6800

Contact Person: John Buckner

Service Organization:

Address: 1313 Carson St

City: Dallas

State: TX Zip: 75227

Phone: (214) 520-9456

Work Done By: Pete Nobero

Nameplate Information

Model: 48 HCD-AOE

Volts: Hertz: Phase:

Amps: Mark:

Supply hp: Exhaust hp:

Serial Number: 74321-65749

Model Voltage:

Motor Amperage:

Fan RPM:

Field Start-Up Documentation

Actual Voltage: Hertz: Phase:

Actual Amperage:

Blower Rotation:

Air Volume: Design cfm:

Actual cfm:

Level of fan (L or H):

Fan RPM Range (min.) (max.)

Maintenance Log

Date 03/01/15 Time 8:00 AM/PM

Notes: Equipment Start Up and Testing.

All Pass

Date 05/13/15 Time 11:15 AM/PM

Notes: Equipment Review

Date 07/20/15 Time 2:00 AM/PM

Notes: Issue with equipment.

Added new Oil Compressor

Date 08/15/15 Time 9:00 AM/PM

Notes: Equipment Start Up and Testing.

All Pass

Date Time AM/PM

Notes:

Work Order #1 - 03/01/15

Date Time AM/PM

Notes:

Work Order #2 - 05/13/15

Date Time AM/PM

Notes:

Work Order #3 - 07/20/15

Date Time AM/PM

Notes:

Work Order #3 - 07/20/15

Select here for Actual Work Order

Work Order

Index

Select Index

[Company Name / Logo]

WORK ORDER

[Street Address]
[City, ST ZIP]
Phone: [000-000-0000]
Fax: [000-000-0000]
[Web Address]

W.O. # : [123456]
W.O. Date : 12/22/2010

Requested By : [Customer Name]
Customer ID : [abc1]
Department :

JOB	BILL TO	SHIP TO (if different)
[Enter description of work]	[Name] [Company Name] [Street Address] [City, ST ZIP] [Phone]	[Name] [Company Name] [Street Address] [City, ST ZIP] [Phone]

QTY	DESCRIPTION	TAXED	UNIT PRICE	LINE TOTAL
15	Part XYZ	x	150.00	2,250.00
5	Hourly Labor for ABC (5 hours)		50.00	250.00
				-
				-
				-
				-
				-
				-
				-
				-
				-
				-
				-
				-
				-

Other Comments or Special Instructions

1. Total payment due 30 days after completion of work

2. Please refer to the W.O. # in all your correspondence

3. Please send correspondence regarding this work order to:
[Name, Phone #, Email]

SUBTOTAL	\$ 2,500.00
TAXABLE	2,250.00
TAXRATE	6.875%
TAX	\$ 154.69
S & H	\$ -
OTHER	\$ -
TOTAL	\$ 2,654.69

Make checks payable to
[Enter Company Name]

I agree that all work has been performed to my satisfaction.

Completed Date:

Signature:

Date:

Thank You For Your Business!

Unit was not working properly. Add oil and restarted and unit seem to run better. Need to change filter.