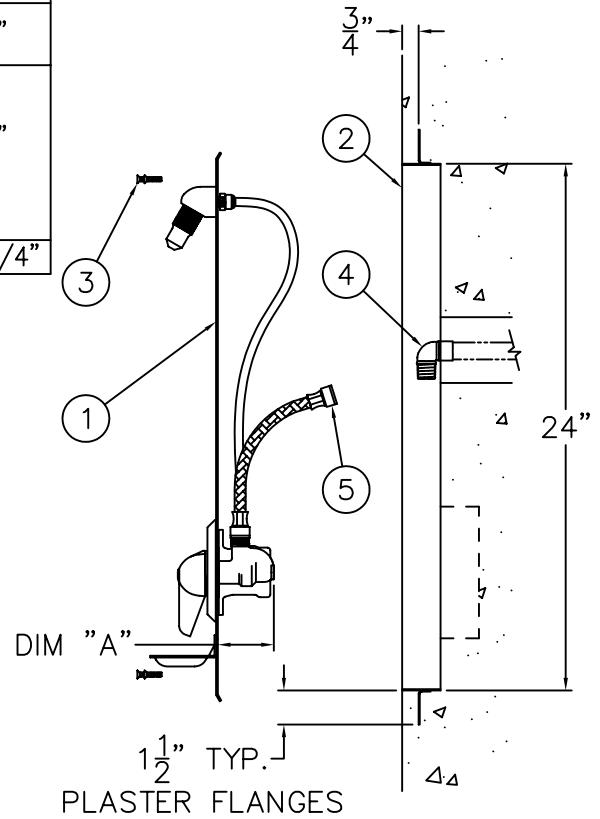
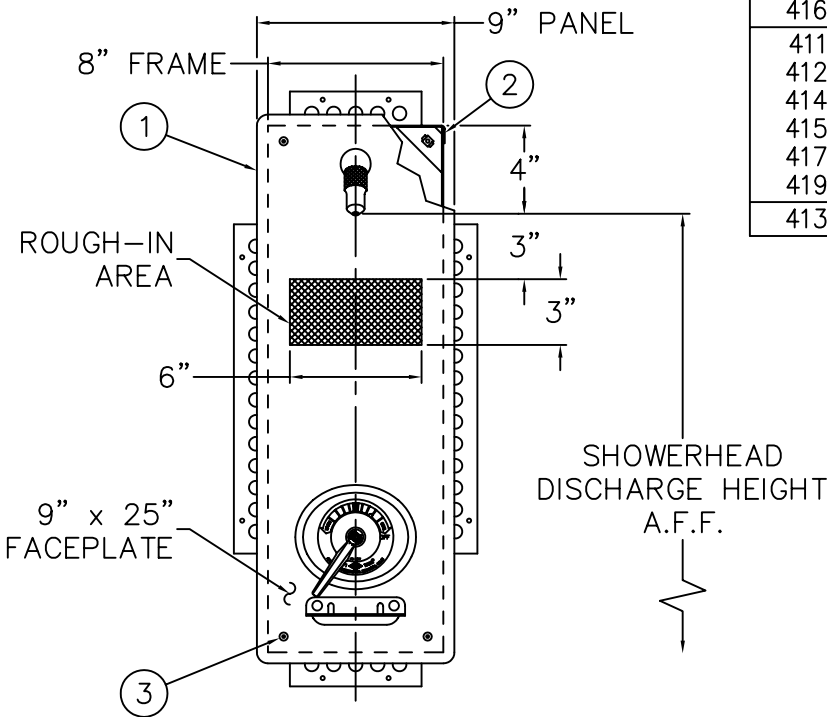




REFERENCE DRAWINGS			
ASSEMBLIES		PANEL MOUNTING FASTENERS	
SHOWERHEAD	9970-122-001	TINNERMAN NUT	9951-007-001
STANDARD NOZZLE	9970-101-004	PANEL SCREW	9951-005-001
SAFTI-TROL VALVE	9975-032-001	AIR-CONTROL VALVE	
CARTRIDGES		VALVE BODY	9975-090-001
FLO-CLOZ	9975-000-001	METERING SERVOMOTOR	9955-000-002
METER-MATIC	9975-020-003	CHECKSTOP/STRAINER	9956-040-003
SAFTI-TROL (SHOWN)	9975-030-001	PUSHBUTTON/ESCUTCHEON	9957-300-001

**VALVE DEPTH**

MODELS	DIM "A"
410	4"
416	
411	3"
412	
414	
415	
417	
419	
413	3-1/4"



**INSTALLATION INSTRUCTIONS:**

- A-DISASSEMBLE SHOWER PANEL ASSEMBLY ① FROM WALL MOUNTING FRAME ② BY REMOVING VANDAL-RESISTANT SCREWS ③ FROM THE FACEPLATE.
- B-INSTALL MOUNTING FRAME ② AT DESIRED HEIGHT WITH FRAME FACE FLUSH WITH FINISHED WALL. BLOCKOUT FOR VALVE DEPTH REFERENCING DIM "A".
- C-PROVIDE SUPPLY ROUGH-IN(S) ④ IN THE AREA INDICATED. THOROUGHLY FLUSH SUPPLY LINES.
- D-MAKE-UP SUPPLY CONNECTIONS TO 1/2" NPS FLEX HOSE FEMALE ENDS ⑤ WHILE SUPPORTING PANEL OFF THE FLOOR. (NOTE: SUPPLY INLET CONNECTION WILL ACCOMMODATE 1/2" NPT MALE ADAPTER.)

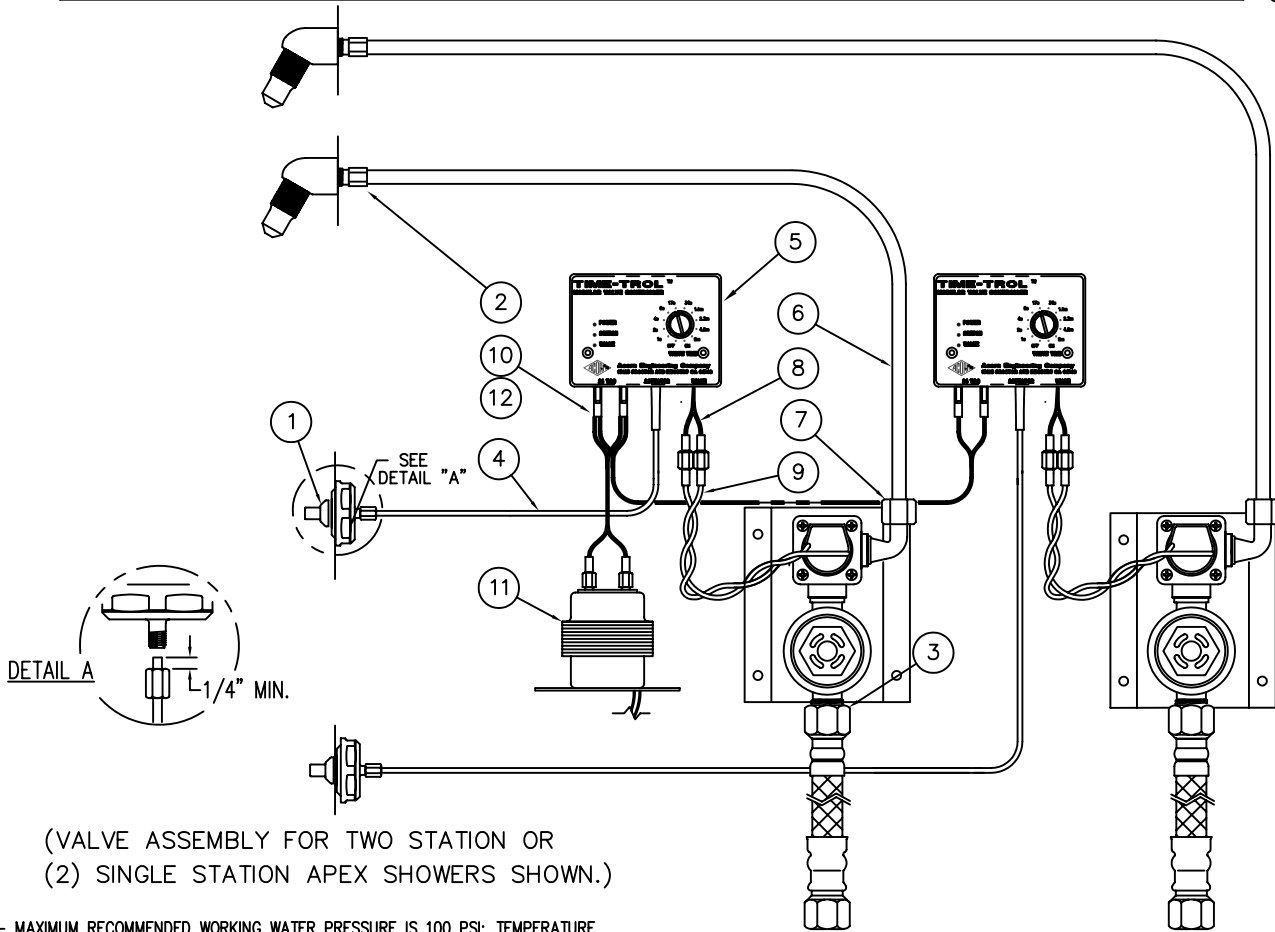
**\* NOTE:** INSTALLER MUST PROVIDE CHECKSTOPS WITH SAFTI-THERM VALVES IF OPTIONAL -GX CHECKSTOPS NOT ORDERED FROM ACORN.

- E- ASSEMBLE THE SHOWER PANEL ① TO MOUNTING FRAME ② USING SCREWS ③ PROVIDED.

**NOTE:** MAXIMUM RECOMMENDED WORKING PRESSURE IS 100PSI; TEMPERATURE IS 130°F; OUTLET TEMPERATURE IS RECOMMENDED AT A MAXIMUM OF 105°F.

**WARNING:** PRIOR TO MAKING INSTALLATION, SUPPLY LINES MUST BE FLUSHED OF ALL FOREIGN MATERIAL SUCH AS PIPE DOPE, CHIPS, SOLDER, ETC. VALVE MUST BE DRAINED PRIOR TO BEING SUBJECTED TO FREEZING TEMPERATURES.

ACORN ENGINEERING COMPANY P.O. BOX 3527 INDUSTRY, CA. 91744 (626) 336-4561 FAX (626) 961-2200	TITLE <b>APEX FLUSH MOUNTED SHOWER (410 SERIES)</b>		
	MANUFACTURE DATE <b>APRIL 2003</b> <b>TO PRESENT</b>	DATE ISSUED <b>04/03/03</b>	DRAWING NUMBER <b>9900-000-002</b>
	DATE REVISED <b>02/13/07</b>		



(VALVE ASSEMBLY FOR TWO STATION OR (2) SINGLE STATION APEX SHOWERS SHOWN.)

**NOTE:** 1- MAXIMUM RECOMMENDED WORKING WATER PRESSURE IS 100 PSI; TEMPERATURE IS 130° F; OUTLET TEMPERATURE IS RECOMMENDED AT A MAXIMUM OF 105° F.  
 2- TRANSFORMER MUST BE WIRED TO A GFI PROTECTED CIRCUIT. FIXTURE MUST BE EARTH GROUNDED PER N.E.C. (NATIONAL ELECTRICAL CODE).

**WARNING:** PRIOR TO MAKING INSTALLATION, SUPPLY LINES MUST BE FLUSHED OF ALL FOREIGN MATERIAL SUCH AS PIPE DOPE, CHIPS, SOLDER, ETC. VALVE MUST BE DRAINED PRIOR TO BEING SUBJECTED TO FREEZING TEMPERATURES.

**INSTALLATION INSTRUCTIONS:**

- A- PRIOR TO MOUNTING FIXTURE TO WALL, PUSHBUTTONS (1) AND SHOWER HEADS (2) SHOULD BE MOUNTED TO FIXTURE HOUSING.
- B- USE THIS INSTALLATION DETAIL WITH STANDARD INSTALLATION INSTRUCTION FOR APEX SHOWERS, FOR FIXTURE ASSEMBLY AND MOUNTING.
- C- MOUNT THE SOLENOID VALVE ASSEMBLY (3). POSITION VALVE ASSY AS REQUIRED A MAXIMUM OF 10 FEET FROM FIXTURE OR INSIDE UNIT. WALL FASTENERS BY OTHERS.
- D- MOUNT VALVE CONTROLLER (5). (SEE NOTE.) CONNECT 1/8" OD POLYETHYLENE AIR LINES (4) TO PUSHBUTTONS (1) AND TO VALVE CONTROLLERS (5). HAND TIGHTEN FERRULE NUT AT BUTTON, INSERT AIRLINE INTO VALVE CONTROLLER (5) AT POSITION MARKED "ACTUATOR". NOTE: LOCATE VALVE CONTROLLER AS REQUIRED, A MAXIMUM OF 100 FEET FROM FIXTURE, OR INSIDE UNIT.

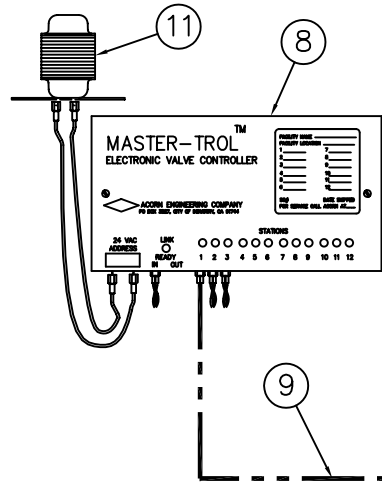
REFERENCE DRAWINGS			
ASSEMBLIES	NUMBER	ELECTRICAL COMPONENTS	
SHOWERHEAD	9970-120-003	VALVE CONTROLLER	9955-025-001
STANDARD NOZZLE	9970-101-004	SOLENOID VALVE	9955-020-002
CHECKSTOP	9956-040-003	TRANSFORMER	9955-020-002
FIXTURE TRIM	9957-300-001	WIRING COMPONENTS	9955-020-002

- E- CONNECT 1/4" OD POLYETHYLENE WATER LINE (6) TO SHOWER HEAD (2) AND VALVE ASSEMBLY (7) HAND TIGHTEN USING FERRULE NUTS PROVIDED.
- F- CONNECT WIRES (8) FROM VALVE CONTROLLER MARKED "VALVE" TO WIRES (9) FROM SOLENOID VALVE. ASSEMBLE USING WIRE CONNECTORS PROVIDED. EXTENSION WIRE MAY BE INCLUDED - IF ORDERED.
- G- CONNECT WIRES FROM TRANSFORMER (24VAC) (11) TO VALVE CONTROLLER (10). ASSEMBLE USING WIRE CONNECTORS PROVIDED. EXTENSION WIRES FROM TRANSFORMER MAY BE INCLUDED - IF ORDERED. NOTE: FOR UNITS WITH MORE THAN (1) STATION, ASSEMBLE 24VAC WIRES TO ADDITIONAL VALVE CONTROLLERS IN PARALLEL BY ATTACHING JUMPER WIRE TO SPADE CONNECTOR FITTINGS (12).
- H- AFTER THOROUGHLY FLUSHING THE SUPPLY LINES, MAKE UP SUPPLY CONNECTIONS (1/2" NPT FEMALE)
- I- SET TIMING ON VALVE CONTROLLER AT DESIRED SETTING FOR FLOW DURATION.

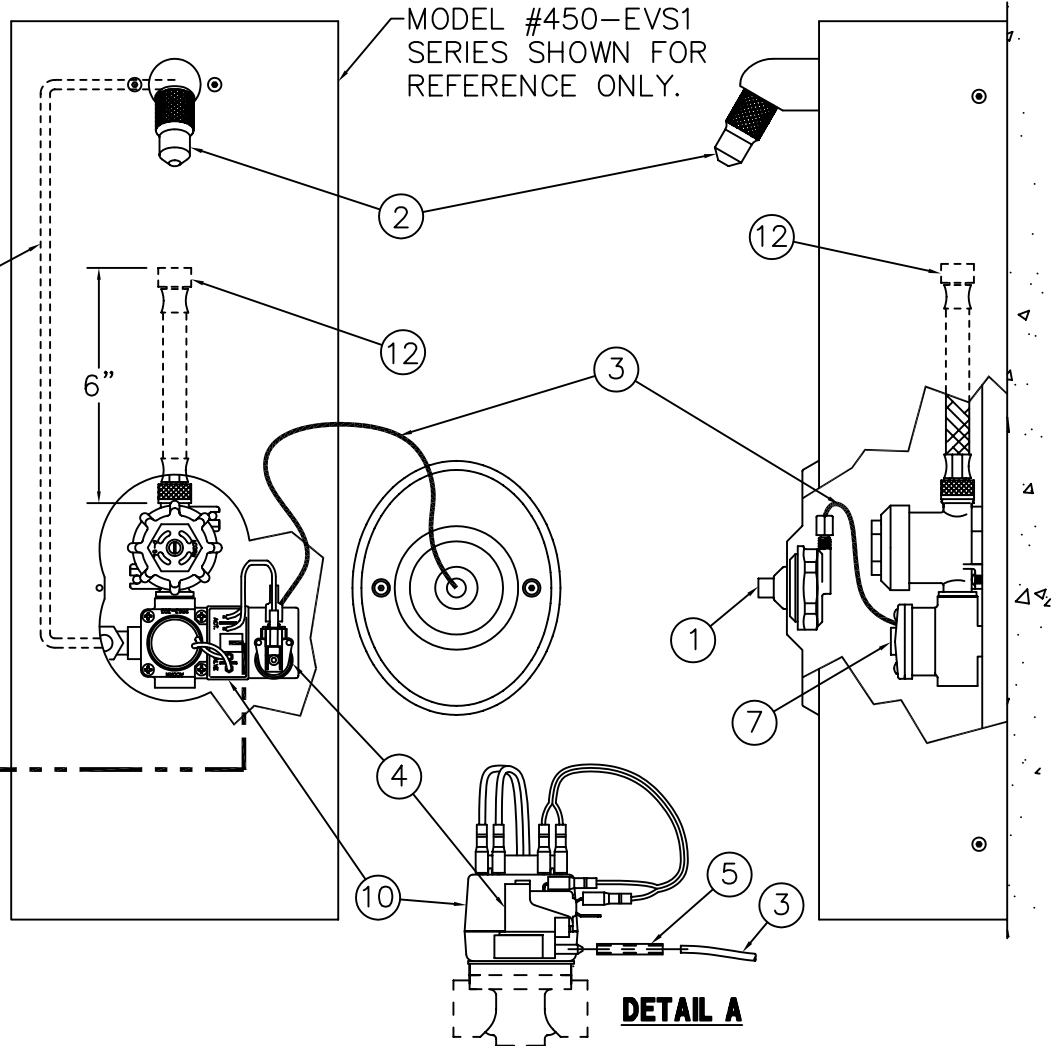
ACORN ENGINEERING COMPANY P.O. BOX 3527 INDUSTRY, CA. 91744 (626) 336-4561 FAX (626) 961-2200	TITLE <b>APEX WALL MOUNTED SHOWERS WITH SINGLE TEMP. TIME-CONTROL VALVES</b>		
	MANUFACTURE DATE <b>SEPTEMBER 1995                  TO PRESENT</b>	DATE ISSUED <b>11/01/95</b>	DRAWING NUMBER <b>9900-001-003</b>
		DATE REVISED <b>11/10/03</b>	



INSTALLATION REFERENCE DRAWINGS	
410 SERIES	9900-000-001
420 SERIES	9900-010-001
450 SERIES	9900-005-001
460 / 470 SERIES	9900-020-001



REFERENCE DRAWINGS	
VALVE BODY	9955-006-003
STOPS	9956-040-003
SHOWER HEAD	9970-120-003
VALVE CONTROLLER	9957-110-001
SOLENOID VALVE/ BRANCH BOX	9955-030-003



MODEL #450-EVS1 SERIES SHOWN FOR REFERENCE ONLY.

**DETAIL A**

**INSTALLATION INSTRUCTIONS:**

- A-PRIOR TO INSTALLATION OF FIXTURE TO WALL, MOUNT PUSH-BUTTON ① AND SHOWERHEAD ② TO THE FIXTURE HOUSING.
- B-USE THIS INSTALLATION DETAIL WITH STANDARD INSTALLATION INSTRUCTIONS FOR APEX SHOWERS, FOR FIXTURE ASSEMBLY AND MOUNTING. SEE CHART.
- C-CONNECT 1/8" O.D. POLYETHYLENE AIR LINE ③ TO PUSH-BUTTON ① (HANDTIGHT USING FERRULE NUT) AND TO THE MOMENTARY AIR SWITCH ④ USING 3/16 O.D. TUBING ⑤ AS SHOWN IN DETAIL A.
- D-CONNECT 1/4" O.D. POLYETHYLENE WATER LINE ⑥ TO SHOWER HEAD ② AND VALVE ASSEMBLY ⑦. HAND-TIGHTEN USING FERRULE NUTS PROVIDED.
- E-MOUNT ELECTRONIC VALVE CONTROLLER ⑧ WITHIN 50 FEET OF SOLENOID VALVE ASSEMBLY ④. CONNECT 6-CONDUCTOR PHONE CABLE ⑨ (15 FT. PROVIDED) FROM ELECTRONIC VALVE CONTROLLER ⑧ AT THE POSITION MARKED "STATIONS" TO THE TERMINAL AT BRANCH-BOX ⑩. RJ-12 PLUGS ARE NECESSARY ON EACH END OF PHONE CABLE.
- F-CONNECT WIRES FROM TRANSFORMER (24VAC) ⑪ TO THE ELECTRONIC VALVE CONTROLLER ⑧. ASSEMBLE USING WIRE CONNECTORS PROVIDED.

- G-AFTER THOROUGHLY FLUSHING THE SUPPLY LINE, MAKE-UP SUPPLY CONNECTION (1/2" NPS FEMALE). (NOTE: SUPPLY INLET CONNECTION WILL ACCOMMODATE 1/2" NPT MALE ADAPTER.) THREAD FLEX CONNECTOR HOSE ⑫ TO VALVE ④ INLET AND TO SUPPLY STUBOUT.

**NOTE:**

WATER FLOW PRESSURE 25/100 PSI MIN/MAX. RECOMMENDED OUTLET TEMPERATURE 105°F MAX. FLUSH ALL SUPPLY LINES THOROUGHLY BEFORE CONNECTING. DRAIN VALVE PRIOR TO FREEZING TEMPERATURES. TRANSFORMER MUST BE WIRED TO GFI PROTECTED CIRCUIT. FIXTURE MUST BE EARTH GROUNDED PER NATIONAL ELECTRICAL CODE.

**GENERAL NOTES:**

- 1. DO NOT CRIMP OR CUT VALVE WIRE WHILE IT IS STILL CONNECTED TO THE CONTROLLER.
- 2. ALL WIRES SHOULD BE TESTED FOR CONTINUITY SHORT CIRCUIT BEFORE INSTALLATION.
- 3. ALL WIRES MUST BE CRIMPED PROPERLY BEFORE INSTALLATION.

ACORN ENGINEERING COMPANY  
P.O. BOX 3527 INDUSTRY, CA. 91744  
(626) 336-4561 FAX (626) 961-2200

TITLE  
**APEX WALL MOUNTED SHOWERS WITH EVS-1 MASTER-TROL VALVES - NEW STYLE**

MANUFACTURE DATE	DATE ISSUED	DRAWING NUMBER
<b>APRIL 1, 1998</b>	<b>5/11/98</b>	<b>9905-330-003</b>
<b>TO PRESENT</b>	DATE REVISED	