

**HIGHLANDS COUNTY  
BOARD OF COUNTY COMMISSIONERS  
Purchasing Division**

DATE: 7/6/17

BID NO. ITB 17-035 ADDENDUM No. 1

Project.: Highlands County Jail Water Heater Replacement

Owner: Highlands County BCC  
Attn: Purchasing Department  
4320 George Blvd; Sebring, FL 33875-5803

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This document contains 7 pages.

1. The Request for Information deadline is Wednesday, July 12, 2017 at 5 P.M.
2. The Bid Opening date changed from Wednesday, July 12, 2017 at 4 P.M. to Wednesday, July 19, 2017 at 4 P.M. Bid opening location remains the same.
3. The cut sheet for the existing water heater is included herein. Bidders should confirm that the information is correct on the cut-sheet.

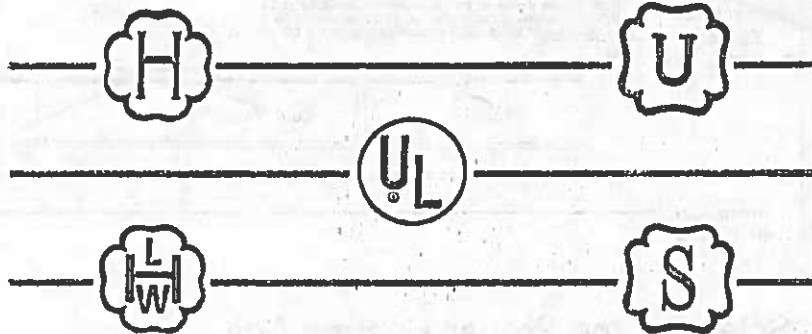
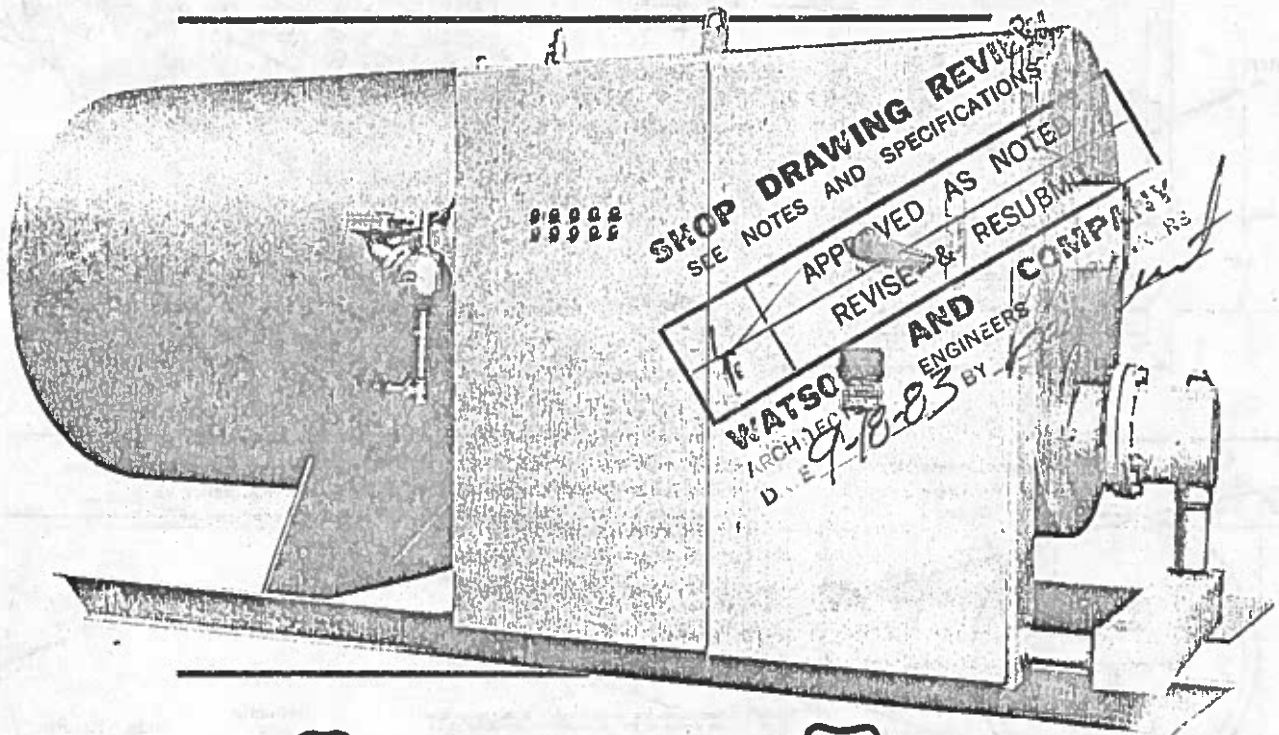
# RECO

PACKAGED

ELECTRIC

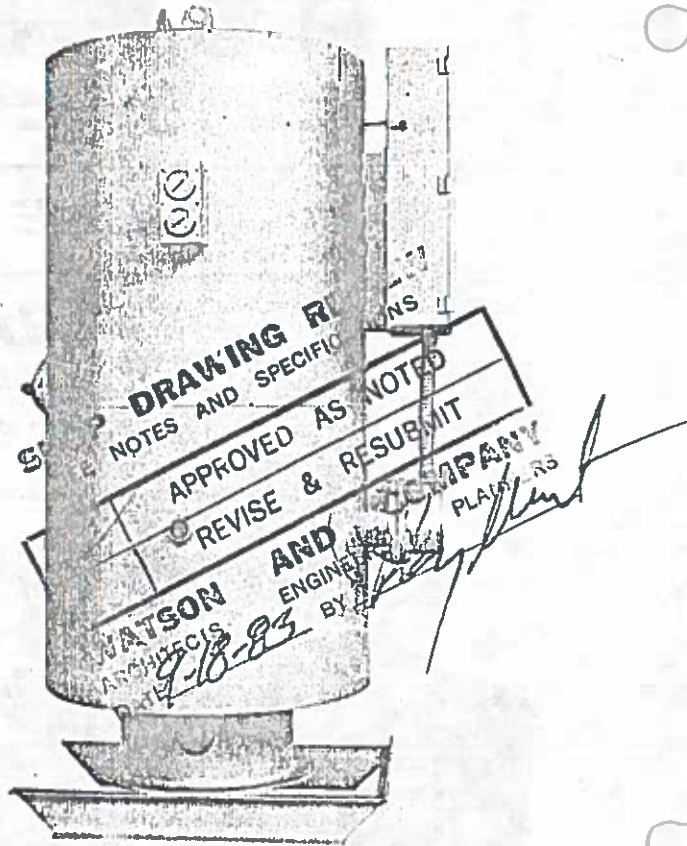
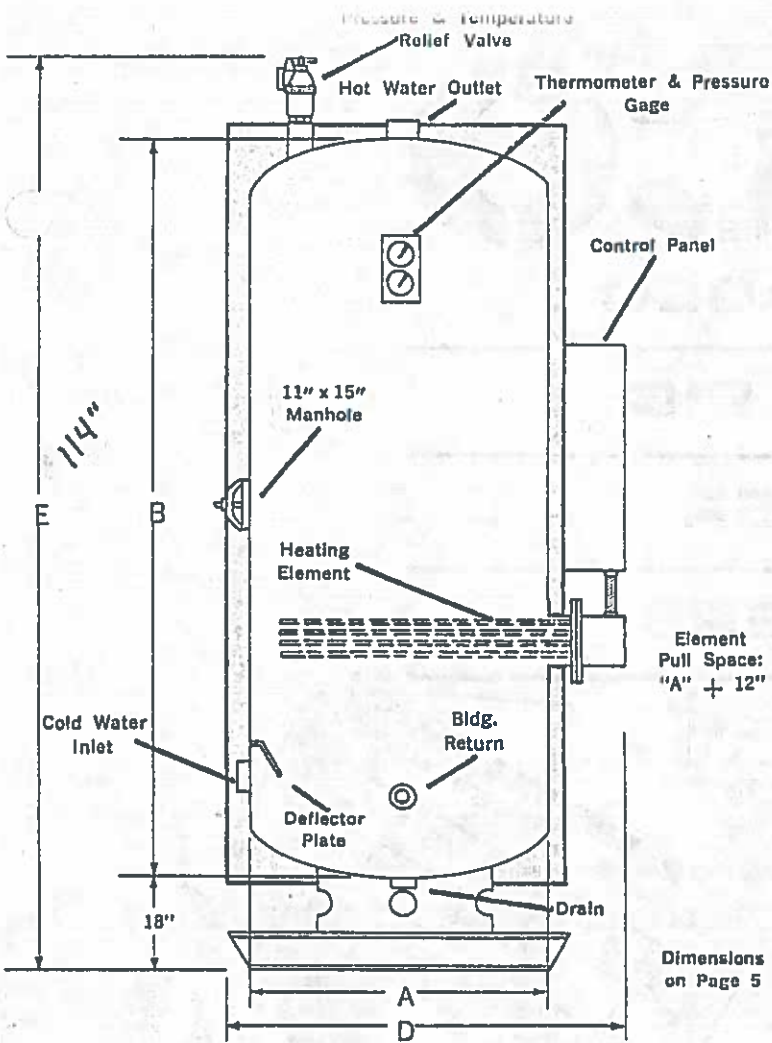
WATER

HEATERS



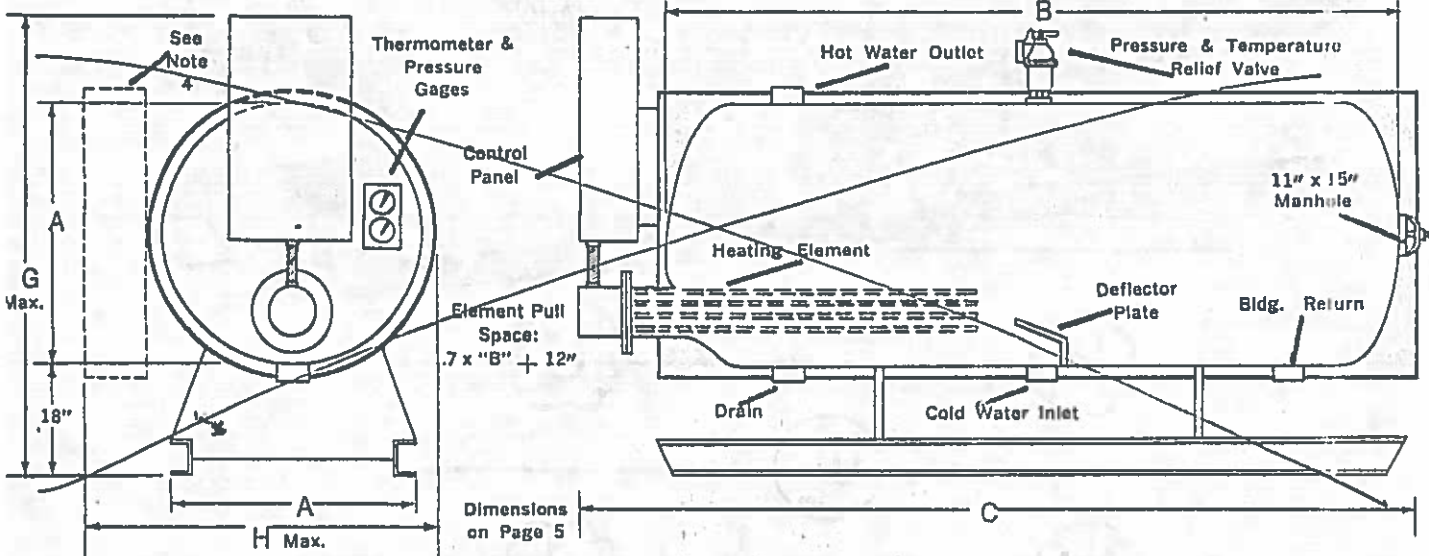
**RICHMOND ENGINEERING COMPANY, INC.**  
RICHMOND, VIRGINIA

# SERIES "E" STORAGE HEATER



Element Pull Space: "A" + 12"

Dimensions on Page 5



## Selecting the Proper Heating Coil

### DESIGN INFORMATION:

- To determine the G.P.H. of water required, refer to page 2.
- Select the required KW coil. Size shown in first column in Table B page 5.
- Choose the proper tank size from Table A page 5.
- If height of Panel Box exceeds "G" DIM., Panel Box will be side mounted.
- See page 12 for Sample Specifications.

100° F. Recovery Rise:  $GPH \div 4.1 = KW$   
 Recovery Rise for other temperature rises:  
 $\frac{GPH \times T.R.}{410} = KW$  (T.R. = Temperature Rise)

- Specify: RECO Model #:

E-	Table A	Voltage	K.W.
3	Page 5	Table B	Table B
		Page 5	Page 5

# SIZING RECO ELECTRIC WATER HEATERS

This table is a dependable guide in determining required G.P.H. and storage capacity required. For example, we will consider an apartment building having the following fixtures:

- Private lavatories 10 at 2 gals. each = 20 G.P.H.
- Public lavatories 3 at 4 gals. each = 12 G.P.H.
- Bath Tubs .... 10 at 20 gals. each = 200 G.P.H.
- Dishwashers ... 5 at 15 gals. each = 75 G.P.H.
- Kitchen sinks .. 10 at 10 gals. each = 100 G.P.H.
- Laundry tubs .. 13 at 20 gals. each = 260 G.P.H.
- Slop sinks ..... 3 at 20 gals. each = 60 G.P.H.

Total Gals. of water per hour required = 727 G.P.H.

Average hourly demand for hot water or recovery capacity is 30% of 727 gallons or 218 G.P.H. at 140° F. Storage capacity is 125% of 218 or 273 gallons.

Once this information is obtained—turn to page 5 to determine k.w. required and to page 4, 6 or 9 for the type of vessel desired.

## GALLONS OF WATER PER HOUR PER FIXTURE

	Apartment Bldg.	Club	Gym	Hospital	Hotel	Industrial Plant	Office Bldg.	Y.M.C.A.	Y.M.C.A.	Y.M.C.A.
Basin—Private Lavatory	2	2	2	2	2	2	2	2	2	2
Basin—Public Lavatory	4	6	8	6	8	8	8	8	8	8
Bath Tub	20	20	30	20	20	20	20	20	20	20
Dishwasher	15	50-100	—	50-150	50-200	20-100	—	20-100	20-100	20-100
Foot Basin	3	3	12	3	3	12	—	3	3	3
Kitchen Sink	10	20	—	20	20	20	—	20	20	20
Laundry Stationary Tubs	20	28	—	28	28	28	—	28	28	28
Pantry Sink	5	10	—	10	10	10	—	10	10	10
Showers	75	150	225	75	75	225	75	225	225	225
Slop Sink	20	20	—	20	30	20	15	15	20	20
Average Hourly Demand for Hot Water	30%	30%	40%	25%	25%	40%	30%	30%	40%	40%
Storage Capacity Compared to Av'g. Hourly Demand	125%	90%	100%	60%	80%	100%	200%	70%	100%	100%

RECO electric water heaters are constructed to the latest A.S.M.E. code requirements and the requirements of the National Electric Code (NEC), National Electric Manufacturers Association (NEMA), and Underwriters Laboratories (UL). All RECO electric water heaters are UL labeled.

Packaged heaters are completely factory wired and assembled and ready for electrical hook-up.

### ACCESSORIES AVAILABLE

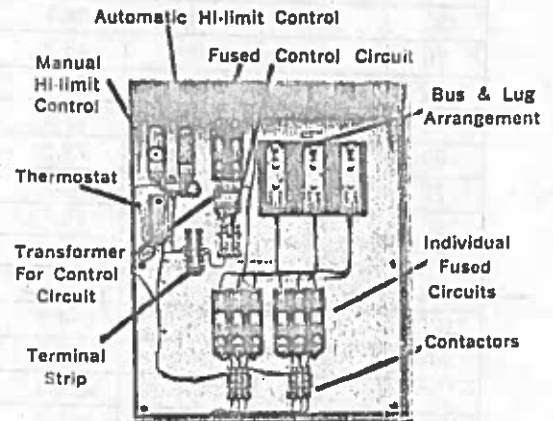
1. Electric removable blade heating element.
2. RECO "heavy duty" fixed blade elements.
3. NEMA 1, 4 or 12 control panel (with safety interlock).
4. Circuit breaker; automatic or non-automatic (and or) fused circuits.

Thermostat: solid state circular-mode, motorized proportioning or non-proportioning—on all units with more than 4 steps, solid state step control is standard.

6. Transformer for control circuit.
7. Hi limit control (manual and automatic reset.)

8. Contactors.
9. 7-day time clock.
10. 1½" fiberglass insulation with 22 Ga. sheet metal jacket and painted hammertone blue. (Can be furnished without insulation and jacket if field insulation is preferred)
11. Factory installed supports and permanent skids. (Can be furnished with or without skids.)
12. Pressure gage and thermometer with console mounting.
13. Pressure and temperature relief valve.
14. Lift lugs.
15. Pilot lights and pilot switches.
16. Low water cut-off (required by A.S.M.E. on units with more than 117 K.W. input.)
17. Power Management System (See Page 11).
18. Mixing valve. (Page 11)
19. Factory applied vessel linings:
  - RECO cement — ¾" thick
  - RECO phenolic — (4) coats? baked on
  - Hot-dip galvanized
  - 3 # per sq. ft. copper lining
  - 4 # per sq. ft. copper lining
  - Solid copper silicon vessels

RECO's highly qualified engineers are available as consultants for any special corrosion resistant lining problems you might incur. All internal vessel parts in contact with domestic water are lined or copper silicon material.



### RECO Bus & Lug Arrangement.

1. RECO Bus & Lug panels are furnished with a solenoid interlock on the panel door to prevent the panel from being opened while power is on the panel.
2. A wall mounted disconnect switch can be furnished with a Nema enclosure.



STORAGE SECTION CAPACITIES & DIMENSIONS TABLE A

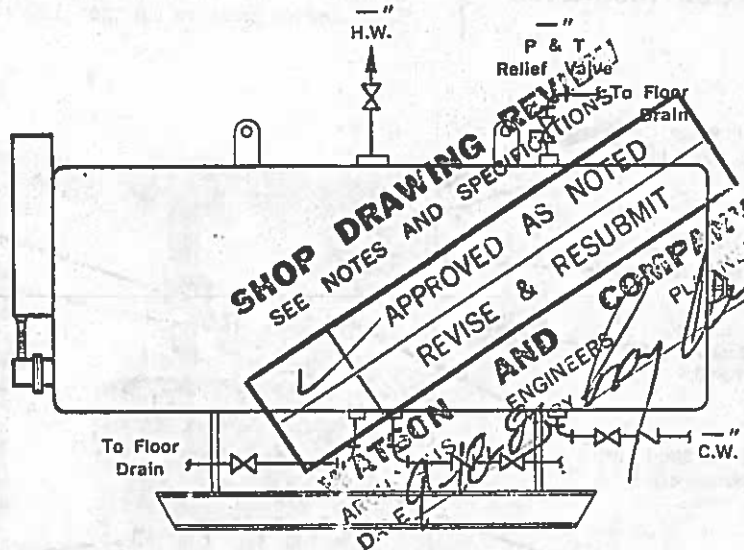
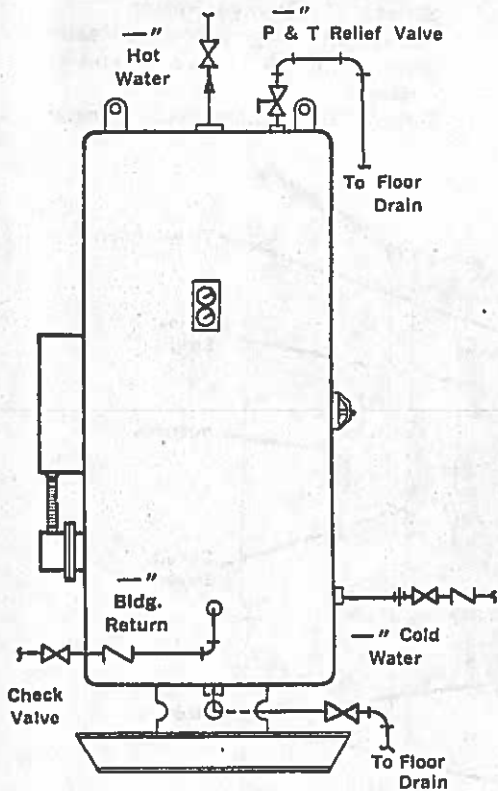
Model No.	Storage Gallons	C.W. Inlet	H.W. Outlet	Bldg. Return & Drain	A	B	C	D	E	G	H
E-1	166	2"	2"	1 1/2"	30	60	76	46	85	66	44
E-2	203	2"	2"	1 1/2"	30	72	88	46	97	66	44
E-3	240	2"	2"	1 1/2"	30	84	100	46	109	66	44
E-4	286	2"	2"	1 1/2"	36	72	88	52	97	73	50
E-5	340	2"	2"	1 1/2"	36	84	100	52	109	73	50
E-6	398	2"	2"	1 1/2"	36	96	112	52	121	73	50
E-7	452	2 1/2"	2 1/2"	2"	42	84	100	58	109	79	56
E-8	525	2 1/2"	2 1/2"	2"	42	96	112	58	121	79	56
E-9	596	2 1/2"	2 1/2"	2"	42	108	124	58	133	79	56
E-10	680	2 1/2"	2 1/2"	2"	48	96	112	64	121	85	62
E-11	771	2 1/2"	2 1/2"	2"	48	108	124	64	133	85	62
E-11.5	809	2 1/2"	2 1/2"	2"	54	90	136	70	114	85	62
E-13	1053	2 1/2"	2 1/2"	2"	48	144	160	64	169	85	62
E-14	1075	3"	3"	2 1/2"	54	120	136	70	145	91	68
E-15	1033	3"	3"	2 1/2"	60	96	112	76	121	96	74
E-16	1168	3"	3"	2 1/2"	60	108	124	76	133	96	74
E-17	1315	3"	3"	2 1/2"	60	120	136	76	145	96	74
E-18	1609	3"	3"	2 1/2"	60	144	160	76	169	96	74
E-19	1903	3"	3"	2 1/2"	60	168	184	76	193	96	74
E-20	1872	3"	3"	2 1/2"	72	144	160	88	145	98	74
E-21	2305	3"	3"	2 1/2"	72	168	184	88	169	98	74
E-22	2718	3"	3"	2 1/2"	72	180	196	88	193	98	74
E-23	2508	3"	3"	2 1/2"	84	120	136	100	108	96	86
E-24	3100	3"	3"	2 1/2"	84	144	160	100	121	108	98
E-25	3260	3"	3"	2 1/2"	96	120	136	112	145	120	110
E-26	4011	3"	3"	2 1/2"	96	144	160	112	169	120	110

ELECTRIC HEATING CAPACITY - TABLE B

Capacity in GPH and Current Required at Standard Voltages 3 Phase									
KW	Capacity in GPH at 100° Rise	Capacity in GPH at 140° Rise	Total Amps Required At Line Voltage					Relief Valve Size	Minimum Storage Capacity In Gallons
			480V.	440V.	240V.	220V.	208V.		
10	41	29	12.1	13.2	24.1	26.2	27.8	3/4"	29
12	49	35	14.5	15.8	28.9	31.5	33.3	3/4"	34
20	82	58	24.1	26.3	48.2	52.5	55.6	3/4"	57
24	98	70	28.9	31.5	57.8	63.0	66.7	3/4"	68
30	123	88	36.1	39.4	72.2	78.7	83.3	3/4"	85
36	147	105	43.3	47.3	86.7	94.5	100.0	3/4"	102
40	164	117	48.2	52.5	96.4	105.0	111.1	3/4"	114
48	196	140	57.8	63.1	115.6	125.9	133.3	3/4"	137
60	246	176	72.2	78.8	144.5	157.4	166.7	3/4"	171
72	295	211	86.7	94.6	173.4	188.9	200.0	3/4"	205
80	328	234	96.3	105.1	192.7	210.0	222.2	3/4"	228
96	393	281	115.6	126.1	231.3	252.0	266.7	3/4"	274
105	430	307	126.3	137.7	252.6	275.5	291.4	3/4"	285
120	492	352	144.5	157.7	289.1	315.0	333.3	3/4"	342
144	590	421	173.4	189.2	346.9	378.0	400.0	3/4"	411
180	738	527	216.8	236.5	433.7	472.4	500.0	3/4"	514
200	820	586	240.9	262.8	481.9	524.9	555.6	3/4"	571
216	885	633	260.2	283.8	512.4	566.9	600.0	3/4"	617
240	984	703	289.1	315.4	578.3	630.0	666.7	3/4"	685
288	1180	844	346.9	378.4	693.9	755.9	800.0	3/4"	822
360	1476	1055	433.7	473.0	867.4	944.8	1000.0	3/4"	1028

Note 1. National Electric Code requires that total amp load be distributed at a maximum of 48 amps per circuit.  
2. To determine the number of circuits and steps to be used: divide total amps required by 48.

# SPECIFICATION FOR RECO "E" SERIES



Furnish and install where indicated on the plans an Electric Storage Water heater as manufactured by RECO or approved equal. Heater shall be RECO Model # E-11.5. Storage section shall be 54" diameter X 114" long and ASME construction. vertical

The storage section shall be stamped for 125 P.S.I. in accordance with A.S.M.E. Code, Section IV and meet the requirements for the state of FLORIDA.

The storage section shall be lined with PHENOLIC in a manner that all internal parts in

contact with domestic water will be either lined or non-ferrous materials.

The vessel shall be supported on permanent, factory installed skids and shall be insulated with 1 1/2" thick high density fiberglass and covered with a 22 gage galvanized steel jacket. All external parts shall be coated with Blue Hammertone Enamel.

The recovery section shall be rated to heat 430G.P.H. of water from          °F. to          °F. with 105 K.W. 480 volts, 3 phase, 60 HZ power.

Electric element shall be Heavy Duty-RECO Heavy Duty or RECO, removable blade element with copper clad tube sheet and copper sheathed blades. Elements

shall be designed for 50 watts per square inch maximum density.

All electrical accessories shall be UL listed components and the package shall bear the UL label under Guide BDJS.

The following accessories shall be furnished:

1. NEMA 1 panel box with safety interlock.
2. Automatic and Manual Reset Hi-Limit control.
3. Transformer for control circuit.
4. Individual fused circuits with manual disconnect switch.
5. Thermostat—(see page 2 for types available).
6. Contactors.
7. All wiring to make a complete package.

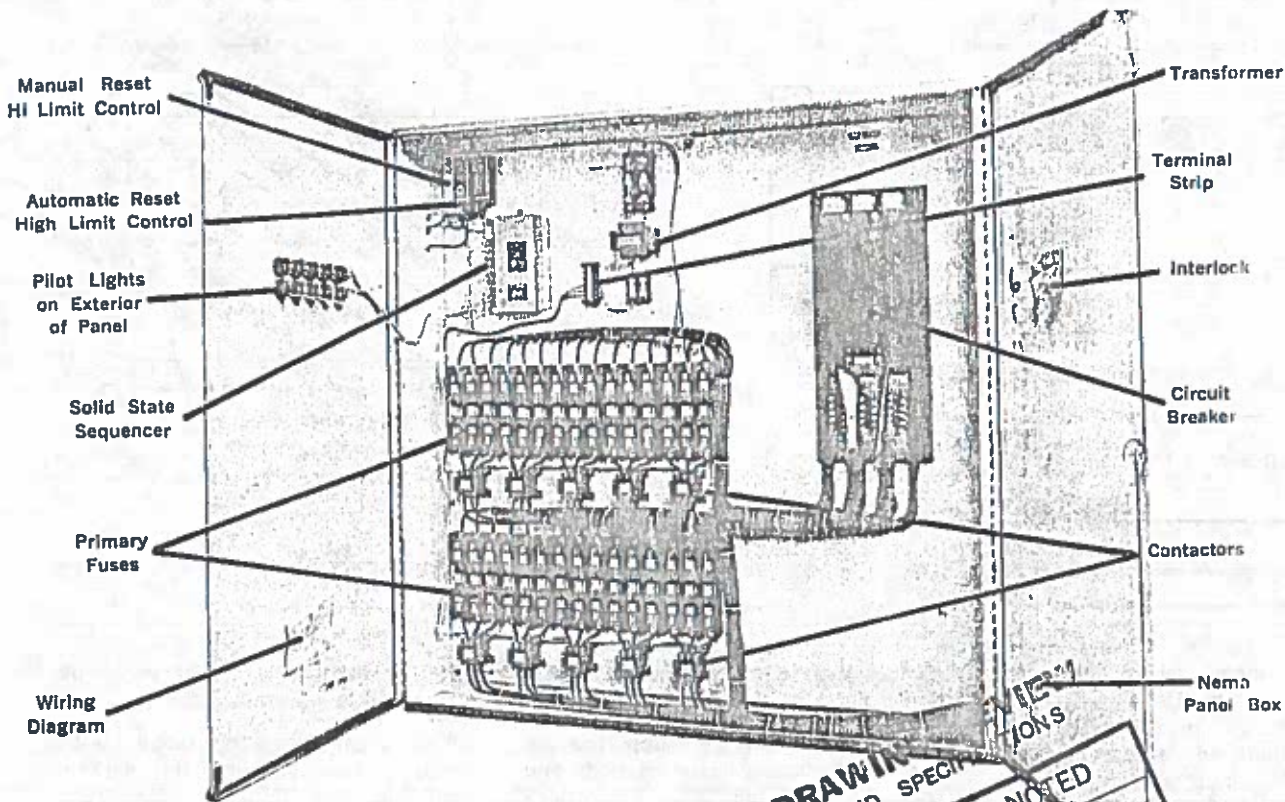
## NOTES:

1. See Page 2, for Available Accessories.
2. See Page 11 for Energy Saving Accessories.
3. See Pages 2, 4 and 5 for Sizing Data.



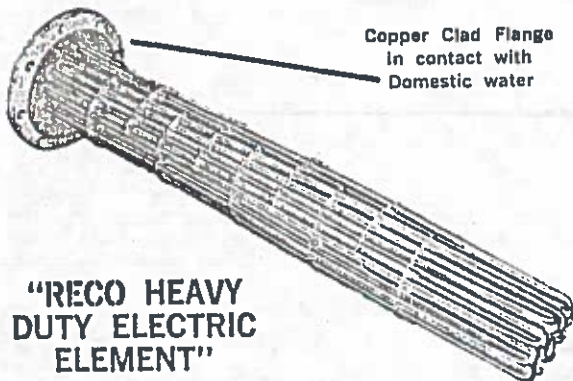
**RECO's**  
**Wide Range of**  
**Selection Includes:**

1. 10 K.W. to 600 K.W. capacity.
2. 480, 440, 240, 220, 208 volts, 3 phase are standard design.
3. Standard storage capacity from 150 gal. to 5,000 gal. (consult factory for capacities not listed.)
4. Choice of vertical or horizontal units.
5. Choice of pressure ratings: 100 psi, 125 psi, 150 psi (consult the factory for other pressure ratings.)
6. Choice of 4 different models:  
 Series "E": Storage Heater  
 Series "EH": High Efficiency Heater  
 Series "ESW": Summer-Winter Heater  
 Series "EI": Instantaneous Heater

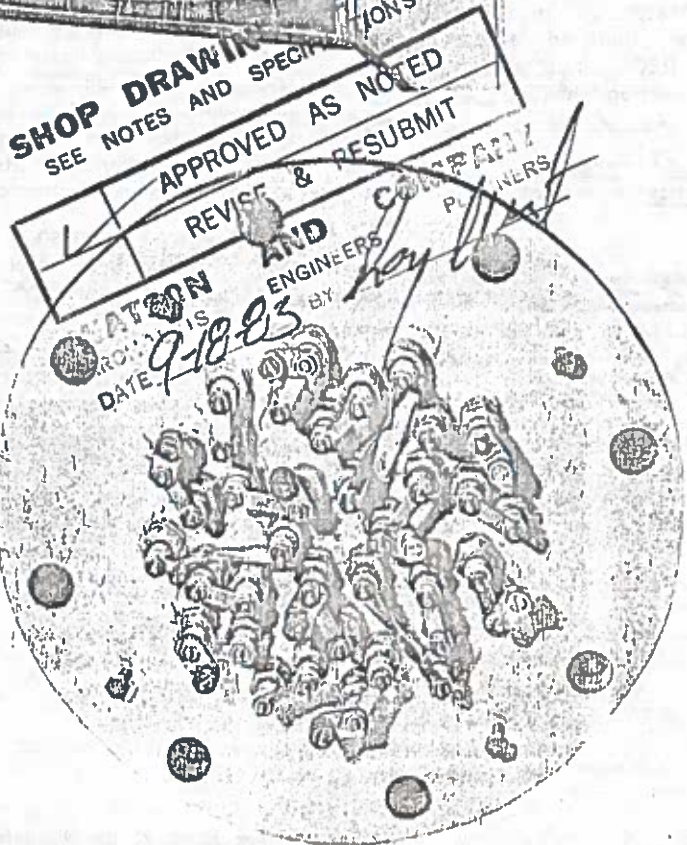


Electric Immersion Heating Elements are mounted on a 150 # A.S.A. Flange with a copper lining in contact with the domestic water. Individual blades are field replaceable with ordinary hand tools.

RECO "Heavy duty" elements are more economical, however, and with the long life of these elements, removable blades are not necessary. Elements can be made with copper, Incoloy, stainless steel, monel or carbon steel blades. Elements are designed for a maximum of 50 watts per square inch sheath density.



**"RECO HEAVY DUTY ELECTRIC ELEMENT"**



**"RECO REMOVABLE BLADE ELEMENT"**