

## Appendix A: Input Data (TRACE 700)

Fourth/Fifth Floor					
Room	Quantity	Area [ft <sup>2</sup> ]	From Design Documents:		Load Sources
			Occupancy	OA Ventilation Rate [cfm]	
Ante Room 1	1	65	1	0	computers
Ante Room 2	1	65	1	0	computers
Clean Utility 1	1	87	0	0	none
Clean Utility 2	1	168	0	0	none
Clean Utility 3	1	128	0	0	none
Clinical Leaders	1	253	3	0	computers
CR Reader	1	80	0	0	none
Director's Office 1	1	148	3	0	computers
Director's Office 2	1	147	3	0	computers
Electrical Closet 1	1	50	0	0	elec. equip.
Electrical Closet 2	1	128	0	0	elec. equip.
Elevator Lobby	1	378	11	0	none
Equipment Storage	1	363	0	0	none
Family Consultant	1	108	2	0	computers
Housekeeping	1	50	0	0	none
ICU Patient Room 01	1	419	5	130	med. equip.
ICU Patient Room 02	1	399	5	120	med. equip.
ICU Patient Room 03	1	399	5	120	med. equip.
ICU Patient Room 04	1	399	5	120	med. equip.
ICU Patient Room 05	1	399	5	120	med. equip.
ICU Patient Room 06	1	399	5	120	med. equip.
ICU Patient Room 07	1	399	5	120	med. equip.
ICU Patient Room 08	1	399	5	120	med. equip.
ICU Patient Room 09	1	399	5	120	med. equip.
ICU Patient Room 10	1	400	5	120	med. equip.
ICU Patient Room 11	1	399	5	120	med. equip.
ICU Patient Room 12	1	379	5	115	med. equip.

<u>Room</u>	<u>Quantity</u>	<u>Area</u> <u>[ft<sup>2</sup>]</u>	<u>Occupancy</u>	<u>OA Ventilation Rate [cfm]</u>	<u>Load</u> <u>Sources</u>
ICU Patient Room 13	1	339	5	105	med. equip.
ICU Patient Room 14	1	411	5	125	med. equip.
ICU Patient Room 15	1	366	5	110	med. equip.
ICU Patient Room 16	1	363	5	110	med. equip.
ICU Patient Room 17	1	366	5	110	med. equip.
ICU Patient Room 18	1	434	5	135	med. equip.
ICU Patient Room 19	1	399	5	120	med. equip.
ICU Patient Room 20	1	399	5	120	med. equip.
ICU Patient Room 21	1	399	5	120	med. equip.
ICU Patient Room 22	1	399	5	120	med. equip.
ICU Patient Room 23	1	399	5	120	med. equip.
ICU Patient Room 24	1	399	5	120	med. equip.
ICU Patient Room 25	1	399	5	120	med. equip.
Isolation Room 1	1	398	5	120	med. equip.
Isolation Room 2	1	369	5	115	med. equip.
Isolation Room 3	1	454	5	140	med. equip.
Isolation Room 4	1	454	5	140	med. equip.
Medication 1	1	88	0	0	computers
Medication 2	1	81	0	0	computers
Meds Room	1	77	0	0	computers
Mid Level Providers	1	150	2	0	computers
Nourishment 1	1	131	0	0	none
Nourishment 2	1	74	0	0	none
Nurse Manager	1	110	4	0	computers
Nurse Station 1	1	198	4	0	computers
Nurse Station 2	1	202	4	0	computers
Nurse Station 3	1	202	4	0	computers
Nurse Station 4	1	150	4	0	computers
On Call Room 1	1	62	1	0	computers
On Call Room 2	1	63	1	0	computers
On Call Room 3	1	68	1	0	computers
On Call Room 4	1	65	1	0	computers

<u>Room</u>	<u>Quantity</u>	<u>Area</u> <u>[ft<sup>2</sup>]</u>	<u>Occupancy</u>	<u>OA Ventilation Rate [cfm]</u>	<u>Load</u> <u>Sources</u>
Patient Corridor	1	4400	0	0	none
Public Toilet	1	59	0	0	none
Reception	1	119	1	0	computers
Security	1	104	1	0	computers
Social Worker	1	75	2	0	computers
Soiled Utility	1	100	0	0	none
Staff Conference Room	1	292	10	0	tv
Staff Lockers	1	271	1	0	none
Staff Lounge	1	290	12	0	tv, refrigerator
Staff Toilet 1	1	66	0	0	none
Staff Toilet 2	1	42	0	0	none
Staff Toilet 3	1	62	0	0	none
Storage 1	1	365	0	0	none
Storage 2	1	45	0	0	none
Viewing	1	222	9	0	tv, computers
Waiting Room	1	930	26	0	tv
Work Alcove	13	40	1	0	computers

<b>Sixth Floor</b>					
<u>Room</u>	<u>Quantity</u>	<u>Area</u> [ft <sup>2</sup> ]	From Design Documents:		<u>Load Sources</u>
			<u>Occupancy</u>	<u>OA Ventilation Rate [cfm]</u>	
Ante Room 1	1	69	1	0	computers
Ante Room 2	1	139	1	0	computers
Charting	1	46	1	0	computers
Clean Utility 1	1	120	0	0	none
Clean Utility 2	1	120	0	0	none
Clean Utility 3	1	147	0	0	none
Clinical Coach	1	86	2	0	computers
Clinical Leaders	1	310	4	0	computers
Conference	1	240	8	0	computers
Consulting	1	133	4	0	computers
Corridor 1	2	2275	0	0	none
Corridor 2	1	1533	0	0	none
Corridor 3	1	303	0	0	none
Corridor 4	1	220	0	0	none
Corridor 5	1	355	0	0	none
Corridor 5A	1	200	0	0	none
E Patient Room	11	300	5	85	med. equip.
E Patient Room Toilet	11	35	0	0	none
Electrical Room	1	156	0	0	elec. equip.
Elevator Lobby	2	80	5	0	none
Equipment	1	242	0	0	none
Family Waiting	1	138	7	0	none
Isolation Room 1	1	331	5	94	med. equip.
Isolation Room 2	1	373	5	106	med. equip.
Isolation Room 3	1	50	5	15	med. equip.
Isolation Room 4	1	50	5	15	med. equip.
Isolation Room 5	1	347	5	99	med. equip.
Isolation Room 6	1	343	5	98	med. equip.
Janitor 1	1	51	0	0	none
Janitor 2	1	63	0	0	none

<u>Room</u>	<u>Quantity</u>	<u>Area [ft<sup>2</sup>]</u>	<u>Occupancy</u>	<u>OA Ventilation Rate [cfm]</u>	<u>Load Sources</u>
Locker	1	207	1	0	none
Managerial Assistant	1	88	3	0	computers
Medication	1	120	0	0	computers
Nourishment 1	1	81	0	0	none
Nourishment 2	1	81	0	0	none
Nurse Manager	1	145	6	0	computers
Nurse's Station 1	1	641	6	0	computers
Nurse's Station 2	1	534	6	0	computers
Office	1	123	3	0	computers
Patient Room	1	336	5	96	med. equip.
Patient Support	1	115	1	0	computers
Repertory Storage	1	395	0	0	none
Repertory Therapy	1	360	6	0	computers
S Patient Room	5	290	5	83	med. equip.
S Patient Room Toilet	5	35	0	0	none
S Patient Room Toilet 1	1	35	0	0	none
S Patient Room Toilet 2	1	35	0	0	none
S Patient Room Toilet 3	1	35	0	0	none
Soiled Utility	1	147	0	0	none
Soiled Holding	1	70	0	0	none
Staff Lounge	1	318	12	0	refrigerator
Staff Toilet	1	78	0	0	none
Storage	1	170	0	0	none
SW Case Management	1	148	2	0	computers
Trash Room	1	80	0	0	none
Vending	1	64	3	0	none
W Patient Room	13	320	5	91	med. equip.
W Patient Room Toilet	13	35	0	0	none

<b>Link &amp; Lobby</b>					
			From Design Documents:		
<u>Room</u>	<u>Quantity</u>	<u>Area</u> [ft <sup>2</sup> ]	<u>Occupancy</u>	<u>OA Ventilation Rate</u> [cfm]	<u>Load Sources</u>
First Floor Walkway & Lobby	1	7580	0	0	none
Second Floor Walkway	1	2100	0	0	none
Third Floor Walkway	1	2100	0	0	none
Fourth Floor Walkway	1	2100	0	0	none
Fifth Floor Walkway	1	2100	0	0	none
Sixth Floor Walkway	1	2100	0	0	none
Women's Toilet	1	400	0	0	none
Men's Toilet	1	420	0	0	none
Corridor	1	240	0	0	none

## Appendix B: Domestic Hot Water Demand

	<u>Quantity</u>	<u>Basins</u>	<u>Other Fixtures</u>	<u>GPH/fixture</u>	<u>Total GPH</u>	<u>Notes</u>
Patient Room	25	2	-	2	100	
Isolation Room	4	2	-	2	16	
Staff Conference Room	1	1	-	6	6	
Staff Toilet	4	1	-	6	24	
Staff Lounge	1	1	-	6	6	
On-Call Toilet	1	1	-	6	6	
	1	-	1	10	10	Shower
Public Toilet	1	1	-	6	6	
Soiled Utility	1	1	-	6	6	
	1	-	1	28	28	Laundry
House Keeping	2	1	-	20	40	
Nourishment	2	1	-	6	12	
Ante Room	2	1	-	6	12	
Medication	2	1	-	6	12	
Meds Room	1	1	-	6	6	

GPH/floor =	290
Demand Factor =	0.25
Floors =	3
Total GPH =	217.5

OR

Total GPM =	3.625
Storage Capacity Factor =	0.6
Storage Tank Volume =	130.5 [gal]

OR

Storage Tank Volume =	17.44785 [ft <sup>3</sup> ]
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# Appendix C: Payback Calculations

*\*Values are for the month of December*

<u>Collector T</u>	<u>Ambient T</u>	<u>ΔT</u>	<u>ΔT/I</u>	<u>Efficiency</u>	<u>Max Solar Rad</u>	<u>Actual Solar Rad</u>	<u>BTU/hr</u>
145	36.7	108.3	0.43	0.39	17393	6753	145000
135	36.7	98.3	0.39	0.42	17393	7313	126875
125	36.7	88.3	0.35	0.45	17393	7873	108750
115	36.7	78.3	0.31	0.48	17393	8433	90625
105	36.7	68.3	0.27	0.52	17393	8993	72500
95	36.7	58.3	0.23	0.55	17393	9554	54375
85	36.7	48.3	0.19	0.58	17393	10114	36250
75	36.7	38.3	0.15	0.61	17393	10674	18125

<u>Collector T</u>	<u>kW</u>	<u>\$ Boiler</u>	<u>BTU/month</u>	<u>ft<sup>2</sup> Of Collectors</u>	<u># Of Collectors</u>	<u>\$ Collectors</u>	<u>Payback</u>
145	53.12	48733	1.04E+08	15459	413	1159442	23.79
135	46.48	42642	91350000	12491	333	936820	21.97
125	39.84	36550	78300000	9945	265	745870	20.41
115	33.20	30458	65250000	7737	206	580281	19.05
105	26.56	24367	52200000	5804	155	435316	17.87
95	19.92	18275	39150000	4098	109	307347	16.82
85	13.28	12183	26100000	2581	69	193552	15.89
75	6.64	6092	13050000	1223	33	91698	15.05

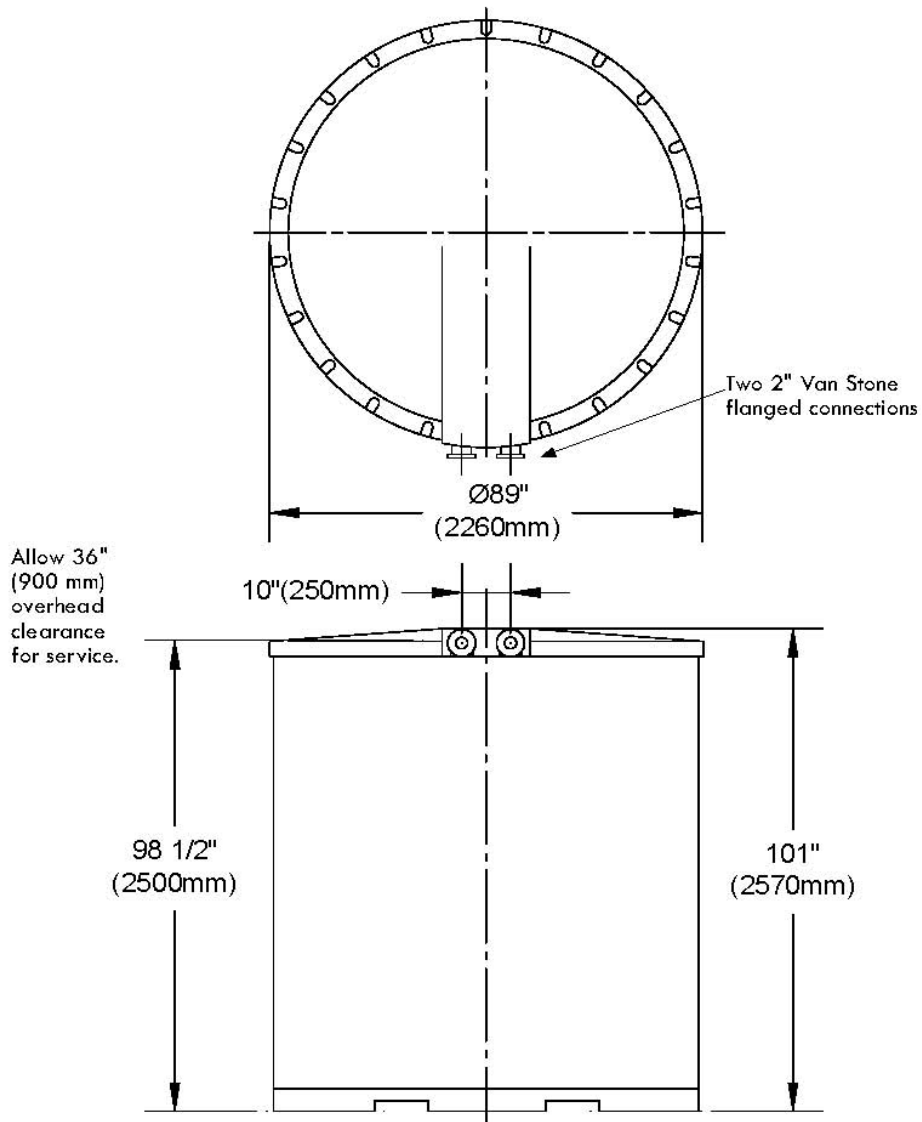


# Appendix D: Product Specifications



**DRAWING**  
Model 1190A  
August 2007  
CS-5

CALMAC Manufacturing Corp. 3-00 Barta Place Fair Lawn, NJ 07410 Tel (201) 797-1511 www.Calmac.com

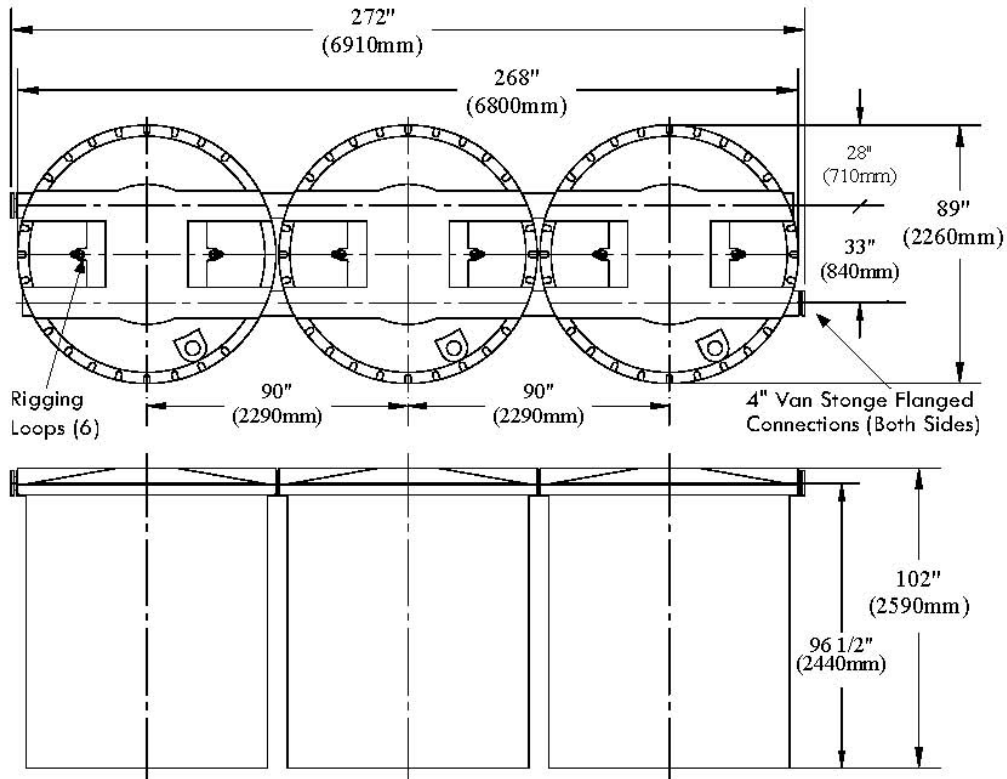


**NOTE:** Tolerance for all dimensions is  $\pm 1/2"$  (12.5 mm)



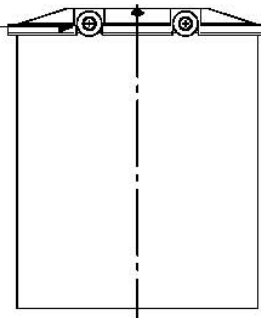
**DRAWING**  
 Model 1500CRF  
 August 2007  
 CS-50

CALMAC Manufacturing Corp. 3-00 Barta Place Fair Lawn, NJ 07410 Tel (201) 797-1511 www.Calmac.com



**NOTE:**  
 With each unit two 4" butterfly valves for field installation are:

- Included
- By Others



Allow 36" (900mm) overhead clearance for service.

**NOTE:** Overall length  $\pm 1"$ , Tolerance for all other dimensions is  $\pm 1/2"$  (12.5 mm)



## SOLAR COLLECTORS

The GOBI line of solar flat-plate collectors is one of the industry's highest-rated. Over 30 years of design and engineering refinement have gone into making it a world-class performer for heat output, efficiency, and durability. The collector is available in three sizes, with two surface types to choose from (blue sputtered and black paint), making it suitable for all types of solar heating applications.

### Features

- Low-profile tapered design for a subtle rooftop presence
- Optimal heat absorption and overall efficiency
- Certified to withstand a windload of 50 lbs per square foot
- Anodized aluminum frame improves durability & rigidity
- No-solder connections with factory installed DYN-O-SEAL unions
- Rated by SRCC and IAPMO as one of the industry's best-performing collectors



DOS unions are included to connect collectors

### ABSORBER SURFACES

Blue sputtered coating (Variant 001)

- Optimal heat absorption with minimal emission
- Suitable for all installations & regions
- Recommended for cool climates

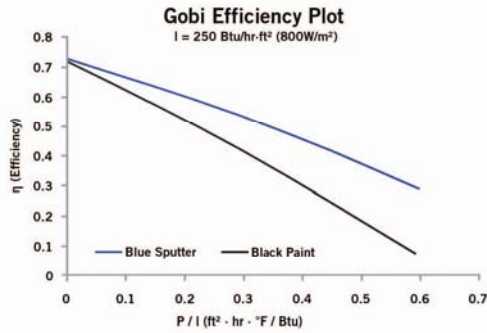
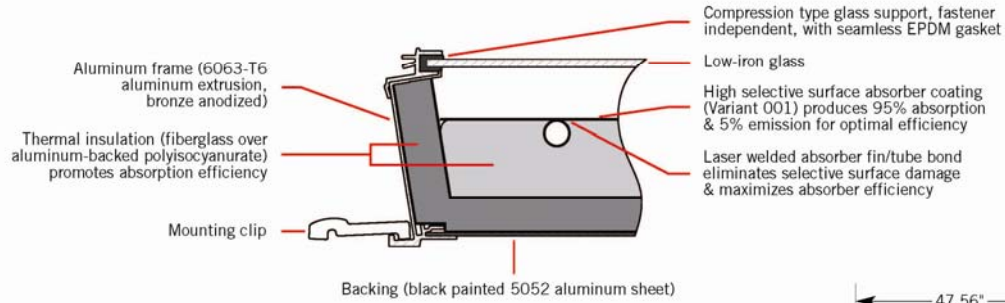
Black paint coating (Variant 002)

- An economical choice
- Adequate heat absorption in ideal climate regions
- Best for warm climates with ample solar radiation

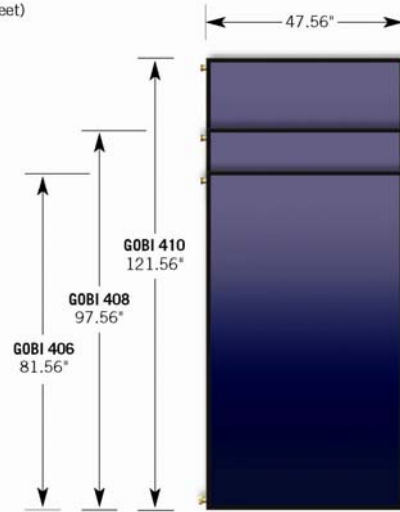


EXCELLENCE  
 BY DESIGN™

## TECHNICAL SPECIFICATIONS



Gross Area Efficiency Curve



Note: GOBIs all have a depth of 3.9"

REFERENCE AREA	BLACK PAINT GROSS	BLACK PAINT NET	BLUE SPUTTER GROSS	BLUE SPUTTER NET
C <sub>0</sub> (-)	0.7190	0.7783	0.7300	0.7902
C <sub>1</sub> (BTU / HR FT <sup>2</sup> °F)	0.9358	1.0130	0.6006	0.6501
C <sub>2</sub> (BTU / HR FT <sup>2</sup> °F)	0.0010	0.0011	0.0010	0.0011

PRODUCT CODE	GOBI 406	GOBI 408	GOBI 410
<b>Dimensions, Weights, Capacities</b>			
Gross Area	26.94 ft <sup>2</sup>	32.22 ft <sup>2</sup>	40.15 ft <sup>2</sup>
Net Area	24.90 ft <sup>2</sup>	29.93 ft <sup>2</sup>	37.47 ft <sup>2</sup>
Dry Weight	102 lbs	126 lbs	153 lbs
Fluid Capacity	1 gal	1.14 gal	1.34 gal
<b>Ratings &amp; Certifications</b>			
Maximum Operating Pressure	150 psi (10.34 Bar)	150 psi (10.34 Bar)	150 psi (10.34 Bar)
Wind Load Certification	50 psf (2.39 kPa)	50 psf (2.39 kPa)	50 psf (2.39 kPa)

PTLS 000 006 042508

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