

Summary of Cooling Systems

Notes

1) This table focuses on primary cooling strategies. Many houses' cooling systems are supplemented by natural ventilation and other "passive" cooling strategies.

2005 Solar Decathlon

#	Team	Outdoor unit	Indoor unit	System Description	Size	"Coolth" delivery method
1	Cal Poly	Carrier 38YDB	Carrier FH4BNF001	2-speed split system HP	2 ton	Ducted forced air
2	Crowder					
3	Colorado	Mitsubishi MXZ30TN	Two (2) Mitsubishi "Hi-Wall"	Mini-split HP w/ 2 indoor units	1.5 ton (total)	Ductless forced air
4	Canada	"Hot tank"	Airtechni Water-to-Water HP w/ fancoil	Water-to-water heat pump (backup cooling of heat sink unclear)		Ducted forced air
5	Cornell	Trane XL19i	Trane 4TEE3F31A	Split-system HP w/ RotorSource desiccant wheel	2.5 ton	Ducted forced air
6	FIU	Daikin 2MXS18DVJU	Two (2) Daikin CTXS09DVJU	Mini-split AC w/ 2 indoor units	1.5 ton (total)	Ductless forced air
7	Michigan	Friedrich MR09C1E	Friedrich MW09C1E	Small AC unit	0.75 ton	Ductless forced air
8	NYIT	Mitsubishi MXZ30TN	Three (3) Mitsubishi MSH09TW	Mini-split HP w/ 3 indoor units	2 ton	Ductless forced air
9	Pittsburgh	Mitsubishi MXZ30TN	Mitsubishi MSH17TN and MSH09TW	Mini-split HP w/ 2 indoor units	2 ton	Ductless forced air
10	RISD	n/a	n/a	PCM w/ radiant panels and ERV pre-cool	n/a	Barcol-Air radiant ceiling panels
11	UMassD	n/a	n/a	n/a	n/a	n/a
12	UMD	n/a	Friedrich Vert-I-Pak VHA09K	Single package verticle air conditioning system	0.75 ton	Ducted forced air
13	UMR	Carrier 38TDB024300	Carrier FE4ANF002	2-speed split-system AC	2 ton	Ducted forced air
14	Madrid	n/a	Raised technical floor	PCM w/ Peltier (thermoelectric) dehumidification	1.25 ton	Displacement ventilation
15	Puerto Rico	Trane	Trane	Split-system AC	1 ton	Ducted forced air
16a	UT (primary)	Mitsubishi MXZ30TN	Two (2) Mitsubishi MSH09TW	Mini-split HP w/ 2 indoor units	1.5 ton (total)	Ductless forced air
16b	UT (secondary)	n/a	Aprilaire 1700	Dehumidifier	n/a	n/a
17	VT	Ground, large water tank, or fan-coil	FHP Manufacturing ES018-1VTC	Geothermal WAHP	1.5 ton	Ducted forced air
18a	WSU (primary)	n/a	Glacier Bay "Arctic Air"	Small AC unit that serves double-duty between AC and fridge	0.5 ton	Ducted forced air
18b	WSU (secondary)	Panasonic CS-A9CKPG	Panasonic CU-A9CKP6G	Mini-split HP	0.75 ton	Ductless forced air

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#	Team	Outdoor unit	Indoor unit	System Description	Size	"Coolth" delivery method
1	Auburn	Trane	Trane	Split-system HP		
2	Carnegie Mellon			Water source heat pump		
3	Crowder	York	York	Split-system AC	1.5 ton	
4	Texas A&M			Water source heat pump		
5	Tuskegee			Split-system HP		
6	Colorado	Carrier 38YDB	Carrier FV4A	Split-system HP	1.5 ton	Ducted forced air
7	Delaware			Water source heat pump		
8	Maryland	Trane XL 1500	Trane	Split-system HP		
9	Missouri-Rolla	Mitsubishi	Mitsubishi			Forced air
10	UNC-Charlotte			Water source heat pump		
11a	Puerto Rico			Liquid desiccant		
11b	Puerto Rico	Carrier	Carrier	Split-system AC	1 ton	Forced air
12	Texas			Bio-Radiant Hydro-Air ice battery		
13	Virginia			Water source heat pump		Hydronic via natural convection valence
14	Virginia Tech			Water source heat pump		

Summary of Heating Systems

Notes

1) This table focuses on primary heating strategies. Many houses' heating systems are supplemented by "passive" heating strategies.

2005 Solar Decathlon

#	Team	Outdoor unit	Indoor unit	System Description	Size	Heat delivery method
1	Cal Poly	Carrier 38YDB	Carrier FH4BNF001	2-speed split system HP	2 ton	Ducted forced air
2	Crowder					
3a	Colorado (primary)	4 20-tube Thermomax Mazdon collectors	n/a	Solar thermal space heating/water heating hybrid	n/a	Warmboard subfloor radiant system
3b	Colorado (secondary)	Mitsubishi MXZ30TN	Two (2) Mitsubishi "Hi-Wall"	Mini-split HP w/ 2 indoor units	1.5 ton (total)	Ductless forced air
4	Canada	"Cold tank"	Airtechni Water-to-Water HP w/ fancoil	Water-to-water heat pump (backup heating of cold tank unclear)		Ducted forced air
5b	Cornell (primary)	2 16-tube Seido 5-16 collectors	n/a	Solar thermal space heating/water heating hybrid	n/a	
5a	Cornell (secondary)	Trane XL19i	Trane 4TEE3F31A	Split-system HP w/ RotorSource desiccant wheel	2.5 ton	Ducted forced air
6	FIU	Daikin 2MXS18DVJU	Two (2) Daikin CTXS09DVJU	Mini-split HP w/ 2 indoor units	1.5 ton (total)	Ductless forced air
7a	Michigan (primary)	2 20-tube Vitosol 300-H20 collectors	n/a	Solar thermal space heating/water heating hybrid	n/a	Viega Climate Panels (subfloor radiant)
7b	Michigan (secondary)	n/a	A.O. Smith ELJC-6	Electric water heater	1.5 kW	n/a
8	NYIT	Mitsubishi MXZ30TN	Three (3) Mitsubishi MSH09TW	Mini-split HP w/ 3 indoor units	2 ton	Ductless forced air
9	Pittsburgh	Mitsubishi MXZ30TN	Mitsubishi MSH17TN and MSH09TW	Mini-split HP w/ 2 indoor units	2 ton	Ductless forced air
10	RISD	4 20-tube Vitosol 300-H20 collectors	n/a	PCM w/ radiant panels	n/a	Barcol-Air radiant ceiling panels
11	UMassD	n/a	n/a	Solar thermal space heating/water heating hybrid	n/a	Viega Climate Panels (subfloor radiant)
12a	UMD (primary)	2 30-tube Focus Technology Co. Apricus collecto	n/a	Solar thermal space heating/water heating hybrid	n/a	Gyp-crete poured radiant floor
12b	UMD (secondary)	n/a	n/a	Electrical heating element in tank	n/a	Gyp-crete poured radiant floor
13a	UMR (tertiary)	n/a	Friedrich Vert-I-Pak VHA09K	Electric resistance heater in AC air handler	2.5 kW	Ducted forced air
13b	UMR	Thermomax SST 80 DB	n/a	Electric heating element in storage tank (but not evident on specs)	n/a	Watts Radiant Subray subfloor radiant system
13c	UMR	n/a	Carrier FE4ANF002	Electric resistance heater in AC air handler	5 kW	Ducted forced air
14	Madrid	n/a	Raised technical floor	PCM	1.25 ton	Displacement ventilation
15	Puerto Rico	n/a	Fan coil (model not provided)	Hot water from storage tank circulated through fan coil	n/a	Ducted forced air
16a	UT (primary)	n/a	Magic Air chilled water "DHW" model fan coil	Solar thermal space heating/water heating hybrid	n/a	Ductless forced air
16b	UT (secondary)	Mitsubishi MUH09TW	Mitsubishi MSH09TW	Two (2) mini-split HP	1.5 ton (total)	Ductless forced air
17	VT	Ground, large water tank, or fan-coil	FHP Manufacturing WH018-1CSC water-to-water he	Water-to-water heat pump	1.5 ton	Rehau RAUPANEL (subfloor radiant)
18	WSU	Panasonic CS-A9CKPG	Panasonic CU-A9CKP6G	Mini-split HP	0.75 ton	Ductless forced air

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#	Team	Outdoor unit	Indoor unit	System Description	Size	Heat delivery method
1	Auburn	Trane	Trane	Split-system HP		
2	Carnegie Mellon			Water source heat pump		
3	Crowder					Radiant floor
4	Texas A&M			Water source heat pump		
5	Tuskegee			Split-system HP		
6	Colorado	Carrier 38YDB	Carrier FV4A	Split-system HP	1.5 ton	Ducted forced air
7	Delaware			Water source heat pump		Radiant floor
8	Maryland					Radiant slab
9	Missouri-Rolla			Solar thermal space heating/water heating hybrid		Forced air
10	UNC-Charlotte			None		
11	Puerto Rico	4 evacuated tube collectors		Solar thermal space heating		
12	Texas			Bio-Radiant Hydro-Air with domestic hot water		
13	Virginia			Water source heat pump		Radiant floor
14a	Virginia Tech			Solar thermal space heating/water heating hybrid		
14b	Virginia Tech			Water source heat pump		

Summary of Ventilation Systems

Notes

1) This table focuses on primary ventilation strategies. Many houses' ventilation systems are supplemented by natural ventilation when conditions permit.

2005 Solar Decathlon

#	Team	Ventilation type	Model number
1	Cal Poly	ERV	Carrier ERVCC-LHU1150
2	Crowder		
3	Colorado	ERV	RenewAire BR 70
4	Canada	ERV	FanTech (model not provided)
5	Cornell	Exhaust fans	n/a
6	FIU	Exhaust fans	Panasonic FV-07VF1
7	Michigan	Solar chimney	n/a
8	NYIT	Exhaust fans	Panasonic FV-05VQ2
9	Pittsburgh	ERV	RenewAire EV300
10	RISD	ERV	UltimateAir RecoupAerator 200DX
11	UMassD	HRV	Venmar Solo 2.0
12	UMD	ERV	UltimateAir RecoupAerator 200DX
13	UMR	Exhaust fans	Broan-NuTone N655X
14	Madrid	Displacement ventilation	Soler&Palau TD-160/100 N
15	Puerto Rico	Exhaust fans	
16	UT	ERV	Renewaire BR 70
17a	VT	HRV	Des Champ Labs EZV 310
17b	VT	Exhaust fans	Vent-Axia (model not provided)
18	WSU	Balanced exhaust system	

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1	Auburn		
2	Carnegie Mellon		
3	Crowder		
4	Texas A&M		
5	Tuskegee		
6	Colorado	ERV	RenewAire
7	Delaware		
8	Maryland	ERV	
9	Missouri-Rolla		
10	UNC-Charlotte		
11	Puerto Rico		
12	Texas		
13	Virginia		
14	Virginia Tech		

Summary of PV Systems

Notes

1) All ratings are at STC conditions

2005 Solar Decathlon

	Team	Model	Number of modules	Rated module power (W)	Array power (W)
1	Cal Poly	BP 4175	28	175	4900
2	Crowder	Sanyo HIP-190BA3	45	190	8550
3a	Colorado	Sunpower SPR-200-BLK	34	200	6800
3b	Colorado	SBM Solar Module-60	3	60	180
3	Colorado				6980
4	Canada	BP 4175	40	175	7000
5	Cornell	GEPV-110-M	56	110	6160
6a	FIU	BP 4175	42	175	7350
6b	FIU	MSK semi-transparent window BIPV	4	43	172
6	FIU				7522
7	Michigan	Sanyo HIP-190BA3	32	190	6080
8	NYIT	Sanyo HIP-200BA3 (#55 is not connected)	54	200	10800
9	Pittsburgh	BP 5170	30	170	5100
10	RISD	Sanyo HIP-190BA3	24	190	4560
11	UMassD	BP 4175	18	175	3150
12	UMD	BP 4175	51	175	8925
13a	UMR	UniSolar PVL 62 (12 V)	1	62	62
13b	UMR	UniSolar PVL 68 (12 V)	9	68	612
13c	UMR	UniSolar PVL 93 (18 V)	8	93	744
13d	UMR	UniSolar PVL 19 (24 V)	19	124	2356
13	UMR				3774
14a	Madrid	isofoton I-110/12	52	110	5720
14b	Madrid	isofoton I-55 (custom)	12	55	660
14c	Madrid	isofoton I-110/24	8	110	880
14d	Madrid	isofoton I-157 (custom)	4	157	628
14e	Madrid	isofoton I-219 (custom)	1	219	219
14	Madrid				8107
15	Puerto Rico	BP 4175	40	175	7000
16a	UT	BP 4175	42	175	7350
16b	UT	BP Romag	4	134	536
16	UT				7886
17	VT	Sunpower SPR-200-BLK	36	200	7200
18	WSU	RWE Schott ASE-300-DGF	16	300	4800

Village PV capacity	118.5 kW
Average house PV capacity	6.6 kW

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1	Auburn	BP 3160	36	160	5760
2	Carnegie Mellon	BP 5170	42	170	7140
3	Crowder	BP MST-43	78	43	3354
4	Texas A&M	ASE 300	12	300	3600
5	Tuskegee	BP 3160	38	160	6080
6	Colorado	Astropower AP-120	63	120	7560
7	Delaware	Astropower AP-120	40	120	4800
8	Maryland	BP MSX-60	96	60	5760
9	Missouri-Rolla	BP 3160	32	160	5120
10	UNC-Charlotte	ASE 300	16	300	4800
11	Puerto Rico	BP-160	26	160	4160
12a	Texas	ASE 300	6	300	1800
12b	Texas	BP-275	25	75	1875
12	Texas				3675
13	Virginia	ASE 330	16	330	5280
14	Virginia Tech	BP-275	80	75	6000

Village PV capacity	73.1 kW
Average house PV capacity	5.2 kW

Summary of Energy Storage Systems

Notes

1) This table focuses on primary electrical energy storage systems. Many houses also contain thermal energy storage systems.

2005 Solar Decathlon

#	Team	Energy storage type	Energy storage model	System voltage	# of units	Voltage per unit	Ah	Discharge rate	Total energy storage capacity	Charge controller model	# of charge controllers	Charge controller current rating (A)	
1	Cal Poly	AGM lead acid	Trojan 8D AGM		48	24	12	230	20	66240	Outback MX60	2	60
2	Crowder												
3a	Colorado	Flooded lead acid	Deka Solar 8L16		48	40	6	370	20	88800	Outback MX60	3	60
3b	Colorado									Morningstar Prostar PS15M-48V	1	15	
4a	Canada	Flooded lead acid	Surrette 4 KS 25PS		48	12	4	1350	20	64800	Xantrex C40	4	40
4b	Canada									Blue Sky Energy SB3048	1	30	
5	Cornell	AGM lead acid	C&D Technologies msEndur AT-35		48	24	2	1985	8	95280	Outback MX60	3	60
6	FIU	AGM lead acid	Trojan 6V-AGM		48	32	6	200	20	38400	Xantrex C40	3	40
7	Michigan	AGM lead acid	Concorde SunXtender PVX-6480		48	72	2	648	24	93312	Outback MX60	3	60
8a	NYIT	AGM lead acid			48	4	12	33		1584		3	60
8b	NYIT	Low pressure hydrogen	n/a (steel cylinder)	200 psi	10	200 psi		200		15820	High pressure relief valve	1	n/a
8c	NYIT	High pressure hydrogen	n/a (steel cylinder)	2200 psi	6	2200 psi		1320		104412	High pressure relief valve	1	n/a
9	Pittsburgh	AGM lead acid	Concorde SunXtender PVX-2580L		48	12	12	258	24	37152	Xantrex C40	3	40
10	RISD	AGM lead acid	Concorde SunXtender PVX-2580L		48	16	12	258	24	49536	Outback MX60	2	60
11	UNassD	Gel lead acid	MK Battery SBD		24	10	12	225	20	27000	Xantrex C40	3	40
12	UMD	Flooded lead acid	Deka Solar 8L16		48	40	6	370	20	88800	Outback MX60	2	60
13	UMR	Flooded lead acid	Trojan L16H		48	16	6	420	20	40320	Outback MX60	4	60
14	Madrid	Flooded lead acid	Energys TYS 10		60	30	2	1120	20	67200	Sunny Island 4500	2	60
15	Puerto Rico	Gel lead acid	MK Battery SBD SLD G LTP		48	44	12	225	20	118800	Xantrex C40	4	40
16	UT	AGM lead acid	Exide Marathon AGM MFT 155AH		48	32	12	150	10	57600	Sunny Island 4500	2	40
17	VT	AGM lead acid	Concorde SunXtender PVX-2580L		48	20	12	258	24	61920	Sunny Island 4500	2	40
18	WSU	AGM lead acid	Concorde SunXtender PVX-6480T		24	48	2	648	24	62208	Outback MX60	2	60

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1	Auburn	AGM lead acid	Concorde PVX-12100		48			800		38400	Solar Boost 3048	5	30
2	Carnegie Mellon	AGM lead acid			48	16		810		38880	Trace C40	4	40
3	Crowder	AGM lead acid	Eagle-Picher		48	24		800		38400	Solar Boost 3048	4	30
4	Texas A&M	Flooded lead acid	Rolls		48			1156		65488	Trace C40	2	40
5	Tuskegee	AGM lead acid	Concorde PVX-2580L		48	40		3050		146400	Trace C40	2	40
6a	Colorado	Flooded lead acid	Deka L-16		48	32		1400		67200	Outback MX-60	1	60
6b	Colorado									Solar Boost 3048	1	30	
6c	Colorado									Trace C40	1	40	
7	Delaware	AGM lead acid	Concorde PVX-2580		48	20		1086		52128	Trace C40	4	40
8	Maryland	AGM lead acid	Concorde		48	38		800		38400	Solar Boost 50	4	50
9	Missouri-Rolla	Flooded lead acid	Trojan L-16H		48	32		1500		72000	Solar Boost 3048	4	30
10	UNC-Charlotte	AGM lead acid	MK BA4D		24	16		800		19200	Trace C60	2	60
11	Puerto Rico		Moura Clean CM-200		48	38		1900		86400	Trace C40	2	40
12	Texas	Flooded lead acid	Trojan L-16H		48	20		1975		94800	Connect Power Center PSC500		
13	Virginia	AGM lead acid	Concorde PVX-2120		24	16		2000		48000	Trace C60	4	60
14	Virginia Tech	AGM lead acid	Concorde PVX-6225		48	20		1275		61200	Solar Boost 3048	4	30

Summary of Electrical Conversion Systems

2005 Solar Decathlon

#	Team	Electrical conversion type	Model	Quantity	Capacity per unit (VA)	Total capacity (VA)
1	Cal Poly	Inverters	Xantrex SW5548	2	5500	11000
2	Crowder					
3	Colorado	Inverters	Outback VFX3648	2	3600	7200
4	Canada	Inverters	Xantrex SW4048	2	4000	8000
5	Cornell	Inverters	Xantrex SW5548	2	5500	11000
6	FIU	Inverters	Xantrex SW5548	2	5500	11000
7	Michigan	Inverters	Outback VFX3648	2	3600	7200
8a	NYIT	Inverters		2	5000	10000
8b	NYIT	Fuel cell	Plug Power GenCore 5T48	1	5000	5000
8c	NYIT	Hydrogen generator	Proton Energy Systems HOGEN RE	1	13072	13072
9	Pittsburgh	Inverters	Xantrex SW5548	2	5500	11000
10	RISD	Inverters	Outback (model number not specified)	2		
11	UMassD	Inverters	Xantrex SW4024	2	4000	8000
12	UMD	Inverters	Outback VFX3648	4	3600	14400
13	UMR	Inverters	Outback VFX3648	2	3600	7200
14a	Madrid	Inverters	SMA Sunny Boy 1700E (grid-tie)	4	1700	6800
14b	Madrid	Inverters	SMA Sunny Boy 1100E (grid-tie)	1	1100	1100
14c	Madrid	Inverters	SMA Sunny Boy 700 (grid-tie)	1	700	700
14d	Madrid	Inverters	SMA Sunny Island 4500	2	4500	9000
15	Puerto Rico	Inverters	Xantrex SW5548	2	5500	11000
16a	UT	Inverters	SMA Sunny Boy 6000 (grid-tie)	1	6000	6000
16b	UT	Inverters	SMA Sunny Boy 2500 (grid-tie)	1	2500	2500
16c	UT	Inverters	SMA Sunny Island 4248	2	4200	8400
17a	VT	Inverters	SMA Sunny Boy 2500 (grid-tie)	3	2500	7500
17b	VT	Inverters	SMA Sunny Boy 1800 (grid-tie)	1	1800	1800
17c	VT	Inverters	SMA Sunny Island 4248	2	4200	8400
18	WSU	Inverters	Outback VFX3624	2	3600	7200

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1	Auburn	Inverters	Trace SW5548	2	5500	11000
2	Carnegie Mellon	Inverters	Trace SW5548	2	5500	11000
3	Crowder	Inverters	Trace SW4048	2	4000	8000
4	Texas A&M	Inverters	Trace SW5548	2	5500	11000
5	Tuskegee	Inverters	Trace SW4048	2	4000	8000
6	Colorado	Inverters	Trace SW5548	2	5500	11000
7	Delaware	Inverters	Trace SW5548	2	5500	11000
8	Maryland	Inverters	Trace SW5548	2	5500	11000
9	Missouri-Rolla	Inverters	Trace SW5548	2	5500	11000
10	UNC-Charlotte	Inverters	Trace SW4024	2	4000	8000
11	Puerto Rico	Inverters	Trace SW5548	2	5500	11000
12	Texas	Inverters	Trace SW5548	2	5500	11000
13	Virginia	Inverters	Trace SW4024	2	4000	8000
14	Virginia Tech	Inverters	Trace SW4048	2	4000	8000

Summary of Water Heating Systems

Notes

- 1) Many systems were backed up by electric resistant heating elements located in the tanks.
- 2) Due to shipping problems, the Pittsburgh team did not use their solar water heating system during the 2005 competition.

2005 Solar Decathlon

#	Team	Collector type	Collector model	Quantity	Nominal size	Area per unit (sq ft)	Total area (sq ft)
1	Cal Poly	Flat plate	Heliodyne Gobi 410		2 4' X 10'	40.1	80.2
2	Crowder						
3	Colorado	Evacuated tube	Thermomax MAZ20		4 59" X 80"	32.8	131.2
4	Canada	Evacuated tube	CarEarth SJRQ70-1900-10		2 1905 mm X 1000 mm	20.5	41
5	Cornell	Evacuated tube	SUNDA Seido 5-16		2 2110 mm X 1920 mm	43.6	87.2
6	FIU	Integrated Collector Storage (ICS)	TCT ProgressivTube PT-50		1 97.44" X 47.44"	32.1	32.1
7	Michigan	Evacuated tube	Viessman Vitosol 300-H20		2 57" X 80"	31.7	63.4
8	NYIT	Evacuated tube	Thermomax MAZ30		1 87" X 80"	48.3	48.3
9a	Pittsburgh (primary)	Evacuated tube	Viessman Vitosol 300-H20		4 57" X 80"	31.7	126.8
9b	Pittsburgh (secondary)	None (electric water heater)	n/a		1 4500 W	n/a	n/a
10	RISD	Evacuated tube	Viessman Vitosol 300-H30		2 87" X 80"	48.3	96.6
11	UMassD	Evacuated tube	Viessman Vitosol 300-H30		1 87" X 80"	48.3	48.3
12	UMD	Evacuated tube	Focus Technology Co. Apricus AP-30		2 77.9" X 86.4"	46.8	93.6
13a	UMR (primary)	PV thermal	Custom (they call it S.T.E.P.)	n/a	n/a	n/a	n/a
13b	UMR (secondary)	None (Seisco tankless electric water heater)	n/a		1 n/a	n/a	n/a
14	Madrid	Evacuated tube	Viessman Vitosol 250 (20 tubes)		4 961 mm X 1735 mm	18	72
15	Puerto Rico	Evacuated tube	20-tube collector (manufacturer unknown)		4		
16	UT	Evacuated tube	SUNDA Seido 5-16		2 2110 mm X 1920 mm	43.6	87.2
17	VT	None (FHP Manufacturing WH018 electric water-to-water heat pump)	n/a		1 n/a	n/a	n/a
18	WSU	Evacuated tube	Thermomax 15-tube (model number not provided)		2		

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1	Auburn	Flat plate	Heliodyne Gobi		2 4' X 8'	32	64
2	Carnegie Mellon	Evacuated tubes	Viessman Vitosol H30		2 87" X 80"	48.3	96.6
3	Crowder	PV thermal	Custom	12 PV modules			
4	Texas A&M	Integrated Collector Storage (ICS)	TCT Progressive Tube				
5	Tuskegee	Flat plate			1 4' X 10'	40	40
6	Colorado	Evacuated tubes	Sun Utility Network SunTube DP4-2800		3 2.5' X 10'	25	75
7	Delaware	Evacuated tubes	Thermomax 40-tube				
8	Maryland	Evacuated tubes	Thermomax 40-tube				
9	Missouri-Rolla	Evacuated tubes	Thermomax 20-tube				
10	UNC-Charlotte	Flat plate			1 3' X 6'	18	18
11	Puerto Rico	Evacuated tubes	Solatron		1		
12	Texas	Evacuated tubes	Thermomax 30-tube				
13	Virginia	Flat plate	AET		5		
14	Virginia Tech	Flat plate	SunEarth				140

Summary of Building Envelope Systems

Notes

1) This table focuses on primary building envelope characteristics. Specific R-values for wall, ceiling, and floor assemblies are not presented because they depend on much more than just the primary envelope system.

2005 Solar Decathlon

#	Team	Primary structural product	Primary insulation product
1	Cal Poly	SIP	Expanded polystyrene
2	Crowder		
3	Colorado	SIP	Rigid foam (partial soy content)
4	Canada	Wood frame	Mineral wool
5	Cornell	SIP	Expanded polystyrene
6	FIU	Steel frame	Expanded polystyrene
7a	Michigan	SIP	Expanded polystyrene
7b	Michigan	Aluminum monocoque frame	Polyisocyanurate foam (15% soy derived)
8	NYIT	SIP	Pressed agricultural products
9	Pittsburgh	SIP	Expanded polystyrene
10	RISD	SIP	Expanded polystyrene
11	UMassD	SIP	Expanded polystyrene
12	UMD	Wood frame	Spray-in fiberglass insulation
13	UMR	SIP	Polyurethane foam
14	Madrid	Steel frame	Rock wool
15	Puerto Rico	Steel frame	Foam (type?)
16	UT	SIP	Expanded polystyrene
17a	VT	Wood frame	"Aerogel"
17b	VT	SIP	Expanded polystyrene
18	WSU	SIP	Expanded polystyrene

2002 Solar Decathlon

1	Auburn	SIP	
2	Carnegie Mellon	SIP	
3	Crowder	Wood frame	Fiberglass batts
4	Texas A&M	SIP	
5	Tuskegee	Wood frame	Fiberglass batts
6	Colorado	SIP	EPS foam
7	Delaware	SIP	
8	Maryland	SIP	Polyurethane foam
9	Missouri-Rolla	Steel frame	XPS rigid foam
10	UNC-Charlotte	SIP	
11	Puerto Rico	Steel frame	Polystyrene
12	Texas	Steel frame	SIP "infill"
13	Virginia	Wood frame	Foam
14	Virginia Tech		