

## APPENDIX 13-C

# SUPPLEMENTAL INFORMATION FOR SUBCHAPTER 13-6

### 13-C1.0 General requirements.

**13-C1.1 Baseline features.** The following features are utilized in compliance Method A of Subchapter 6 of the code as “baseline” features. These features are not code minimum efficiencies; rather, they represent standard reference design building component options utilized in establishing a budget that the building shall not exceed to comply with the code.

Windows	18% of conditioned floor area	
	Equal distribution, 8 cardinal directions	
	No overhang	
	U-factor	0.75
	SHGC	0.40
Walls, wood frame	R-11	
Doors:		
North FL	Wood	
Central, South FL	Insulated	
Ceiling, flat	R-30	
Floor, Slab-on-grade		
North, Central FL	R-3.5	
South FL	R-0	
Internal gains	Summer	Winter
South	CFA × 11.36	CFA × (-0.38)
Central	CFA × 9.14	CFA × (-1.15)
North	CFA × 6.77	CFA × (-2.72)
Cooling system	SEER 13.0	
Heating system, heat pump	HSPF 7.7	
Air distribution system	R-6 duct	
Air handler location	In the garage	
Duct sealing	Distribution system efficiency 0.80	
Service water heating, electric	EF 0.92	

**13-C1.2 Building envelope, insulation.** All *R*-values referenced in this chapter refer to the *R*-values of the added insulation only. The *R*-values of structural building materials such as framing members, concrete blocks or gypsum board shall not be included. Insulation levels shall be achieved with insulation products tested and rated according to the procedures recognized by the Federal Trade Commission (FTC) in 16 CFR Part 460.

See Section 13-104.4.3 for compliance requirements pertaining to insulation installed in locations where the *R*-value is not readily apparent or the FTC label is not affixed to the installed product.

**13-C1.2.1** When installing two layers of bulk or board insulation, the *R*-values of each material may be added together for a total *R*-value. When installing two separate reflective insulation products in layers, the total *R*-value of the system shall have been achieved by testing under FTC regulations, 16 CFR Part 460.

**13-C1.2.2** Insulation that has been compressed to 85-percent or less of the manufacturer’s rated thickness for the product shall use the *R*-values given in Table 13-6C-1 for selecting a multiplier. These values are to be used except where data developed by an independent testing laboratory is provided and approved by the Florida Building Commission.

**13-C1.2.3** The thermal insulation materials listed below shall comply with the requirements of their respective ASTM standard specification and shall be installed in accordance with their respective ASTM installation practice.

**TABLE 13-6C-1  
R-VALUES OF COMPRESSED INSULATION**

% OF ORIGINAL THICKNESS	R-5	R-7	R-11	R-14	R-19	R-30	R-38
90	5	6	10	13	18	28	36
80	4	6	10	12	17	26	33
70	4	5	9	11	15	24	30
60	3	5	8	10	14	22	27
50	3	4	7	9	12	18	24
40	2	4	6	8	10	15	20
30	2	3	4	6	8	12	16
20	2	2	3	4	7	10	10

**TABLE 13-6C-2  
INSULATION INSTALLATION STANDARDS**

Insulation Material	Standard Specification	Installation Practice
Mineral Fiber Batt/Blanket	ASTM C 665-01e1	ASTM C 1320-99
Mineral Fiber Loose Fill	ASTM C 764-02	ASTM C 1015-02
Cellulose Loose Fill	ASTM C 739-03e1	ASTM C 1015-02
Polystyrene Foam	ASTM C 578-03b	—
Polyisocyanurate Foam	ASTM C 1289-03	—
Reflective	ASTM C 1224-03	ASTM C727-01
Radiant Barrier	ASTM C 1313-00	ASTM C 1158-01
Vermiculite	ASTM C 516-02	
Perlite	ASTM C 549-02	

**13-C1.3 Interpolation from tables.**

$$M_i = \frac{M_t - [(R_i - R_t) \times (M_t - M_n)]}{R_n - R_t} \quad \text{(Equation 13-6-1)}$$

Where:

- $M_i$  = Multiplier for rating of installed component
- $M_n$  = Multiplier for next (more efficient) range
- $M_t$  = Multiplier for range within which installed component falls
- $R_i$  = Efficiency rating of installed component
- $R_n$  = Reference rating for next (more efficient) range
- $R_t$  = Reference rating for range within which installed component falls

**13-C2.0 Building envelope multipliers.**

**13-C2.1 Glass multipliers, assumptions.** Three basic underlying assumptions were used in development of the FLA/RES window load correlation coefficients:

1. Frame area equals 25 percent of the total window area.
2. Frame  $U$ -factor equals glass  $U$ -factor equals overall  $U$ -factor.
3. Interior shading factor equals 0.70 in summer and 0.9 in winter.

The general equation for determining the window point multipliers is as follows:

$$PM = A_1 \times SC_o + A_2 \times U_o + A_3 \times (SC_o \times U_o) + A_4 \times SC_o^2 + A_5 \times U_o^2 \quad \text{(Equation 13-C6-1A)}$$

Where:

- PM = Point multipliers (load coefficient in kBtu/ft<sup>2</sup> of window)
- SC<sub>o</sub> = Overall shading coefficient of entire installed system including glass, frame and sash and interior treatments.
- U<sub>o</sub> = Overall  $U$ -factor of entire installed window system, including glass, frame and sash
- A<sub>i</sub> = Regression coefficients

Coefficients A<sub>1</sub> through A<sub>5</sub> vary by (1) season of the year, (2) by climate zone and (3) and by glass orientation (8 + horizontal = 9), such that there are 54 sets of A-coefficients needed to fully describe the window point multipliers (load correlation coefficients in the *Florida Energy Code*).

The general equation for window shading is given as follows:

$$SHGC_t = (A_f \times SHGC_f + A_g \times SHGC_g) / A_w \quad \text{(Equation 13-6-1B)}$$

Where:

- SHGC<sub>t</sub> = SHGC of total window system
- A<sub>f</sub> = frame area = 0.25

SHGC<sub>f</sub> = SHGC of the frame and sash

A<sub>g</sub> = glass area = 0.75

SHGC<sub>g</sub> = SHGC of the glass

A<sub>w</sub> = total window area = 1.00

The equation for the solution of SHGC<sub>f</sub> is as follows:

$$SHGC_f = k \times a \times U_f / h_o \quad \text{(Equation 13-6-1C)}$$

Where:

SHGC<sub>f</sub> = SHGC of the window frame and sash

k = frame shape factor = 1.00

a = solar absorptance of frame = 0.77

U<sub>f</sub> = U-factor of frame and sash = U<sub>g</sub>

h<sub>o</sub> = exterior air film coefficient = 4.00 Btu/hr-ft<sup>2</sup>-F

On substitution, Equation 13-6-1C reduces to:

$$SHGC_f = 1.00 \times 0.77 \times U_g / 4.00 = 0.1925 \times U_g$$

The overall solar heat gain coefficient (SHGC<sub>o</sub>) of the installed window system and its treatments may be determined by multiplying the total solar heat gain coefficient (SHGC<sub>t</sub>) by the interior window treatment coefficient (ITC) as follows:

$$SHGC_o = SHGC_t \times ITC \quad \text{(Equation 13-6-1D)}$$

Where:

SHGC<sub>o</sub> = Combined SHGC of glass, frame, sash, interior window treatments

ITC = Interior window treatment coefficient

Combining Equation 13-6-1b thru Equation 13-6-1d yields the following simplified general equation for SHGC<sub>o</sub>:

$$SHGC_o = (0.048125 \times U_g + 0.75 \times SHGC_g) \times ITC$$

**(Equation 13-6-1E)**

A solar heat gain coefficient (SHGC<sub>i</sub>) may also be defined in terms of a corresponding shading coefficient (SC<sub>i</sub>) using the following constitutive relationship given by ASHRAE:

$$SHGC_i = SC_i \times 0.87 \quad \text{(Equation 13-6-1F)}$$

Thus, Equation 13-6-1e can be recast in terms of a glass shading coefficient (SC<sub>g</sub>) as follows:

$$SC_o = (0.55316 \times U_g + 0.75 \times SC_g) \times ITC \quad \text{(Equation 13-6-1G)}$$

Where:

SC<sub>g</sub> = Shading coefficient at the center-of-glass

Or, more simply, in terms of the most likely window manufacturer's product specification (SHGC<sub>i</sub>), the equation becomes:

$$SC_o = SHGC_i / 0.87 \times ITC \quad \text{(Equation 13-6-1H)}$$

13-C2.1.1 Glass point multipliers, Form 600A supplemental.

**TABLE 13-6C-3  
SUBSTITUTE GLASS POINT MULTIPLIERS BY GLASS SOLAR HEAT GAIN COEFFICIENT  
AND ORIENTATION FOR CLIMATE ZONES 1, 2, 3**

**NORTH FLORIDA DEFAULT WINDOW POINT MULTIPLIERS**

Single Pane: Default U-factor = 1.3								
Solar Heat Gain Coefficient	0.60-0.56	0.55-0.51	0.50-0.46	0.45-0.41	0.40-0.36	0.35-0.31	0.30-0.26	0.25-0
<b>Summer:</b>								
N	15.653	13.655	11.632	9.637	7.619	5.602	3.614	1.601
NE	25.108	22.329	19.518	16.745	13.939	11.136	8.373	5.576
E	36.576	32.840	29.057	25.325	21.545	17.768	14.041	10.267
SE	37.154	33.367	29.532	25.748	21.915	18.084	14.303	10.473
S	30.889	27.623	24.316	21.054	17.750	14.449	11.192	7.894
SW	34.846	31.256	27.621	24.035	20.403	16.773	13.193	9.567
W	33.301	29.831	26.318	22.852	19.343	15.836	12.377	8.874
NW	21.774	19.259	16.712	14.200	11.657	9.116	6.610	4.073
H	63.283	56.313	49.256	42.296	35.249	28.207	21.261	14.229
<b>Winter:</b>								
N	34.372	34.749	35.129	35.502	35.879	36.254	36.623	36.995
NE	33.421	33.874	34.331	34.782	35.236	35.690	36.136	36.586
E	28.826	29.622	30.429	31.225	32.032	32.839	33.635	34.442
SE	25.137	26.234	27.349	28.452	29.571	30.694	31.804	32.932
S	23.845	25.042	26.258	27.462	28.686	29.913	31.128	32.363
SW	26.976	27.933	28.904	29.866	30.842	31.821	32.789	33.773
W	30.859	31.523	32.195	32.857	33.527	34.196	34.856	35.523
NW	34.141	34.538	34.938	35.332	35.730	36.126	36.515	36.907
H	32.315	33.354	34.411	35.459	36.526	37.597	38.660	39.741

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**TABLE 6C-3 (continued)**  
**SUBSTITUTE GLASS POINT MULTIPLIERS BY GLASS SOLAR HEAT GAIN COEFFICIENT**  
**AND ORIENTATION FOR CLIMATE ZONES 1,2,3**  
**SKYLIGHTS**

Solar Heat Gain Coefficient	.481-.417	.416-.351	.350-.286	.285-.221	.22-.156	.155-.09	.09-.01
Summer	54.850	45.920	36.999	28.086	19.182	10.285	1.397
Winter	11.091	12.422	13.761	15.108	16.463	17.827	19.199

Double Pane: Default U-factor = 0.87								
Solar Heat Gain Coefficient	0.50-0.46	0.45-0.41	0.40-0.36	0.35-0.31	0.30-0.26	0.25-0.21	0.20-0.16	0.15-0
<b>Summer:</b>								
N	12.854	10.866	8.906	6.923	4.942	2.988	1.036	-0.965
NE	20.713	17.944	15.214	12.451	9.690	6.969	4.251	1.464
E	30.171	26.442	22.764	19.039	15.315	11.643	7.971	4.206
SE	30.708	26.929	23.201	19.425	15.650	11.926	8.202	4.381
S	25.488	22.234	19.025	15.776	12.528	9.324	6.123	2.839
SW	28.732	25.150	21.616	18.038	14.461	10.933	7.406	3.789
W	27.481	24.019	20.605	17.147	13.692	10.283	6.876	3.382
NW	17.981	15.477	13.007	10.506	8.007	5.543	3.081	0.556
H	52.565	45.607	38.743	31.794	24.851	18.002	11.158	4.138
<b>Winter:</b>								
N	25.735	26.095	26.448	26.805	27.160	27.508	27.856	28.210
NE	24.963	25.398	25.825	26.257	26.688	27.112	27.534	27.966
E	21.287	22.070	22.843	23.625	24.408	25.180	25.953	26.746
SE	18.143	19.228	20.301	21.391	22.483	23.564	24.647	25.762
S	17.052	18.238	19.413	20.607	21.805	22.991	24.180	25.405
SW	19.729	20.674	21.608	22.557	23.509	24.451	25.394	26.366
W	22.801	23.449	24.089	24.735	25.381	26.018	26.654	27.306
NW	25.522	25.903	26.278	26.656	27.033	27.403	27.771	28.148
H	23.141	24.181	25.213	26.263	27.319	28.365	29.416	30.499

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**TABLE 6C-4  
SUBSTITUTE GLASS POINT MULTIPLIERS BY GLASS SOLAR HEAT GAIN COEFFICIENT  
AND ORIENTATION FOR CLIMATE ZONES 4,5,6**

**CENTRAL FLORIDA DEFAULT WINDOW POINT MULTIPLIERS**

Single Pane: Default U-factor = 1.3								
Solar Heat Gain Coefficient	0.60-0.56	0.55-0.51	0.50-0.46	0.45-0.41	0.40-0.36	0.35-0.31	0.30-0.26	0.25-0
<b>Summer:</b>								
N	22.362	19.786	17.179	14.608	12.007	9.408	6.846	4.253
NE	35.861	32.162	28.417	24.724	20.985	17.250	13.566	9.837
E	49.341	44.524	39.647	34.837	29.966	25.099	20.299	15.438
SE	47.026	42.405	37.726	33.112	28.441	23.774	19.171	14.511
S	36.765	32.993	29.174	25.407	21.593	17.782	14.023	10.217
SW	43.756	39.399	34.988	30.636	26.230	21.826	17.482	13.084
W	44.311	39.910	35.453	31.057	26.606	22.158	17.770	13.327
NW	30.755	27.475	24.154	20.879	17.564	14.251	10.984	7.677
H	82.534	73.595	64.543	55.616	46.577	37.544	28.634	19.613
<b>Winter:</b>								
N	15.495	15.635	15.777	15.916	16.057	16.198	16.336	16.477
NE	15.202	15.367	15.534	15.699	15.865	16.030	16.194	16.359
E	13.280	13.581	13.887	14.190	14.498	14.806	15.111	15.421
SE	11.818	12.226	12.640	13.050	13.467	13.885	14.299	14.719
S	11.246	11.693	12.147	12.597	13.055	13.514	13.968	14.430
SW	12.642	12.990	13.344	13.693	14.048	14.403	14.754	15.110
W	13.998	14.246	14.498	14.747	14.999	15.252	15.502	15.756
NW	15.426	15.575	15.726	15.874	16.024	16.173	16.320	16.468
H	15.912	16.289	16.672	17.053	17.440	17.830	18.216	18.609

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**TABLE 6C-4 (continued)**  
**SUBSTITUTE GLASS POINT MULTIPLIERS BY GLASS SOLAR HEAT GAIN COEFFICIENT**  
**AND ORIENTATION FOR CLIMATE ZONES 4,5,6**  
**SKYLIGHTS**

Solar Heat Gain Coefficient	.481-.417	.416-.351	.350-.286	.285-.221	.22-.156	.155-.09	.09-.01
Summer	70.588	59.150	47.772	36.304	24.897	13.499	2.113
Winter	5.853	6.329	6.809	7.292	7.779	8.268	8.761

Double Pane: Default U-factor = 0.87								
Solar Heat Gain Coefficient	0.50-0.46	0.45-0.41	0.40-0.36	0.35-0.31	0.30-0.26	0.25-0.21	0.20-0.16	0.15-0
<b>Summer:</b>								
N	18.078	15.517	12.993	10.438	7.886	5.370	2.857	0.280
NE	29.229	25.546	21.913	18.236	14.562	10.939	7.319	3.607
E	40.368	35.565	30.828	26.032	21.239	16.511	11.787	6.942
SE	38.495	33.888	29.346	24.747	20.152	15.620	11.092	6.449
S	29.943	26.189	22.487	18.738	14.993	11.298	7.606	3.820
SW	35.752	31.411	27.129	22.793	18.459	14.185	9.913	5.531
W	36.219	31.831	27.502	23.119	18.739	14.418	10.100	5.671
NW	25.029	21.764	18.544	15.285	12.028	8.816	5.607	2.315
H	68.105	59.186	50.389	41.482	32.581	23.801	15.028	6.030
<b>Winter:</b>								
N	11.416	11.548	11.677	11.807	11.938	12.066	12.194	12.325
NE	11.191	11.345	11.497	11.651	11.804	11.955	12.106	12.260
E	9.750	10.042	10.331	10.625	10.920	11.211	11.503	11.804
SE	8.576	8.975	9.371	9.773	10.176	10.575	10.975	11.386
S	8.142	8.584	9.021	9.466	9.912	10.353	10.797	11.253
SW	9.199	9.539	9.875	10.216	10.557	10.894	11.232	11.579
W	10.306	10.545	10.781	11.022	11.262	11.500	11.738	11.983
NW	11.350	11.489	11.625	11.763	11.900	12.035	12.169	12.307
H	11.386	11.761	12.133	12.512	12.893	13.271	13.650	14.042

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**TABLE 6C-5  
SUBSTITUTE GLASS POINT MULTIPLIERS BY GLASS SOLAR HEAT GAIN COEFFICIENT  
AND ORIENTATION FOR CLIMATE ZONES 7,8,9**

**SOUTH FLORIDA DEFAULT WINDOW POINT MULTIPLIERS**

Single Pane: Default U-factor = 1.3								
Solar Heat Gain Coefficient	0.60-0.56	0.55-0.51	0.50-0.46	0.45-0.41	0.40-0.36	0.35-0.31	0.30-0.26	0.25-0
<b>Summer:</b>								
N	26.711	23.503	20.256	17.054	13.814	10.577	7.385	4.155
NE	42.060	37.600	33.086	28.634	24.127	19.624	15.183	10.688
E	60.515	54.528	48.468	42.492	36.444	30.401	24.442	18.411
SE	61.399	55.339	49.204	43.155	37.031	30.912	24.878	18.770
S	51.083	45.869	40.591	35.387	30.118	24.854	19.664	14.409
SW	56.262	50.617	44.901	39.263	33.555	27.850	22.222	16.524
W	53.940	48.479	42.950	37.496	31.974	26.456	21.013	15.502
NW	36.260	32.258	28.208	24.213	20.169	16.128	12.143	8.109
H	100.191	89.152	77.975	66.951	55.790	44.636	33.635	22.497
<b>Winter:</b>								
N	6.142	6.177	6.211	6.245	6.279	6.313	6.345	6.377
NE	5.999	6.051	6.103	6.155	6.207	6.259	6.311	6.362
E	5.158	5.286	5.416	5.545	5.675	5.806	5.936	6.068
SE	4.696	4.855	5.019	5.181	5.347	5.515	5.682	5.853
S	4.904	5.038	5.174	5.308	5.443	5.578	5.711	5.845
SW	5.336	5.429	5.523	5.616	5.711	5.806	5.900	5.995
W	5.702	5.771	5.841	5.910	5.980	6.050	6.120	6.190
NW	6.117	6.154	6.191	6.227	6.263	6.298	6.333	6.367
H	6.690	6.789	6.890	6.989	7.090	7.191	7.291	7.392

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**TABLE 6C-5 (continued)**  
**SUBSTITUTE GLASS POINT MULTIPLIERS BY GLASS SOLAR HEAT GAIN COEFFICIENT**  
**AND ORIENTATION FOR CLIMATE ZONES 7,8,9**  
**SKYLIGHTS**

Solar Heat Gain Coefficient	.481-.417	.416-.351	.350-.286	.285-.221	.22-.156	.155-.09	.09-.01
Summer	86.556	72.430	58.316	44.216	30.129	16.055	1.994
Winter	2.633	2.761	2.889	3.017	3.145	3.273	3.401

South Florida Default Window Point Multipliers

Double Pane: Default U-factor = 0.87								
Solar Heat Gain Coefficient	0.50-0.46	0.45-0.41	0.40-0.36	0.35-0.31	0.30-0.26	0.25-0.21	0.20-0.16	0.15-0
<b>Summer:</b>								
N	21.754	18.568	15.427	12.247	9.071	5.939	2.811	-0.396
NE	34.356	29.913	25.531	21.096	16.664	12.294	7.927	3.450
E	49.539	43.570	37.683	31.725	25.773	19.903	14.040	8.028
SE	50.314	44.270	38.310	32.277	26.249	20.305	14.365	8.275
S	41.877	36.684	31.564	26.381	21.202	16.096	10.994	5.762
SW	46.096	40.468	34.916	29.295	23.678	18.137	12.599	6.920
W	44.221	38.777	33.407	27.970	22.536	17.177	11.821	6.328
NW	29.645	25.663	21.737	17.762	13.790	9.874	5.961	1.948
H	82.992	71.977	61.113	50.114	39.123	28.282	17.449	6.338
<b>Winter:</b>								
N	4.484	4.517	4.548	4.579	4.610	4.640	4.669	4.698
NE	4.334	4.383	4.432	4.481	4.530	4.578	4.626	4.675
E	3.679	3.799	3.917	4.037	4.158	4.278	4.397	4.520
SE	3.350	3.502	3.654	3.809	3.966	4.123	4.281	4.445
S	3.529	3.658	3.785	3.913	4.041	4.167	4.293	4.421
SW	3.915	4.004	4.092	4.181	4.271	4.360	4.448	4.540
W	4.186	4.252	4.317	4.383	4.449	4.514	4.579	4.645
NW	4.463	4.497	4.530	4.564	4.596	4.628	4.659	4.691
H	4.797	4.896	4.995	5.094	5.194	5.292	5.391	5.492

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**13-C2.2 Wall multipliers, Form 600 A supplemental.**

**13-C2.2.1** Multipliers for lightweight concrete block shall be determined from Table 13-6C-6. Light-weight block shall have an aggregate density of no greater than 105 pounds per cubic foot (1682 kg/m<sup>3</sup>).

**13-C2.2.2** Multipliers for polystyrene bead aggregate block shall be determined from Table 13-6C-7. Polystyrene bead

aggregate block shall be composed of at least 60 percent polystyrene beads by volume, and shall achieve at least an R-8 insulation value when tested to ASTM C 236.

**13-C2.3 Door multipliers.** Blank for numbering consistency.

**13-C2.4 Ceiling multipliers, Form 600A supplemental.**

**13-C2.5 Floor multipliers, Form 600A supplemental.**

**TABLE 13-6C-6  
CONCRETE BLOCK MULTIPLIERS – LIGHT WEIGHT**

R-Value	ZONES 1,2,3				ZONES 4,5,6				ZONES 7,8,9			
	Interior Insulation		Exterior Insulation		Interior Insulation		Exterior Insulation		Interior Insulation		Exterior Insulation	
	SPM	WPM	SPM	WPM	SPM	WPM	SPM	WPM	SPM	WPM	SPM	WPM
0 - 2.9	1.7	8.8	1.7	8.8	1.8	4.7	1.8	4.7	3.3	1.5	3.3	1.5
3 - 4.9	1.0	6.1	0.7	4.9	1.1	3.1	0.8	2.3	2.2	0.9	1.5	0.5
5 - 6.9	0.8	4.8	0.4	3.9	0.8	2.4	0.3	1.7	1.6	0.7	1.1	0.3
7 - 10.9	0.6	4.0	0.2	3.1	0.6	1.9	0.1	1.2	1.3	0.5	0.7	0.2
11 - 18.9	0.4	2.8	0.1	2.2	0.3	1.3	0.0	0.8	0.9	0.3	0.4	0.0
19 - 25.9	0.2	1.8	—	—	0.1	0.8	—	0.5	0.2	—	—	—
26 & up	0.1	1.3	—	—	0.0	0.5	—	—	0.3	0.1	—	—

**TABLE 13-6C-7  
CONCRETE BLOCK MULTIPLIERS POLYSTYRENE BEAD AGGREGATE**

R-Value	Zones 1,2,3		Zones 4,5,6		Zones 7,8,9	
	SPM	WPM	SPM	WPM	SPM	WPM
0 & Up	0.8	5.3	0.6	2.4	2.0	0.6

**TABLE 13-6C-8  
CEILING UNDER ATTIC SUMMER AND WINTER POINT MULTIPLIERS**

R-Value	North 1,2,3		Central 4,5,6			South 7,8,9		
	Heating Points	Cooling Points	R-Value	Heating Points	Cooling Points	R-Value	Heating Points	Cooling Points
R0	27.28	25.53	R0	10.81	30.53	R0	2.14	39.93
R5	7.44	6.80	R5	2.64	8.13	R5	0.46	10.67
R10	4.28	3.80	R10	1.46	4.60	R10	0.25	6.00
R15	3.19	2.80	R15	1.05	3.33	R15	0.18	4.40
R20	2.62	2.27	R20	0.84	2.73	R20	0.14	3.60
R25	2.28	1.93	R25	0.73	2.33	R25	0.11	3.13
R30	2.05	1.73	R30	0.64	2.13	R30	0.10	2.80
R35	1.89	1.60	R35	0.57	1.987	R35	0.09	2.53
R40	1.77	1.47	R40	0.52	1.80	R40	0.08	2.40
R45	1.66	1.40	R45	0.50	1.67	R45	0.07	2.20
R50	1.59	1.33	R50	0.48	1.60	R50	0.06	2.13

**TABLE 13-6C-9  
CEILING SINGLE ASSEMBLY SUMMER AND WINTER POINT MULTIPLIERS**

North 1,2,3			Central 4,5,6			South 7,8,9		
R-Value	Heating Points	Cooling Points	R-Value	Heating Points	Cooling Points	R-Value	Heating Points	Cooling Points
R0	16.50	41.20	R0	7.01	49.80	R0	1.21	65.50
R5	4.87	13.80	R5	1.87	16.80	R5	0.30	22.27
R10	2.87	8.40	R10	1.02	10.27	R10	0.16	13.67
R15	2.16	6.47	R15	0.75	7.93	R15	0.11	10.53
R20	1.80	5.47	R20	0.59	6.67	R20	0.10	8.87
R25	1.59	4.87	R25	0.52	5.93	R25	0.09	7.93
R30	1.43	4.40	R30	0.46	5.40	R30	0.08	7.27
R35	1.32	4.13	R35	0.41	5.07	R35	0.08	6.80
R40	1.25	3.87	R40	0.39	4.80	R40	0.08	6.40
R45	1.18	3.73	R45	0.36	4.60	R45	0.07	6.13
R50	1.14	3.60	R50	0.34	4.40	R50	0.07	6.27

**TABLE 13-6C-10  
CONCRETE DECK ROOF: EXPOSED SUMMER AND WINTER POINT MULTIPLIERS**

North 1,2,3			Central 4,5,6			South 7,8,9		
R-Value	Heating Points	Cooling Points	R-Value	Heating Points	Cooling Points	R-Value	Heating Points	Cooling Points
R0	23.28	54.20	R0	9.99	65.67	R0	1.82	86.67
R5	6.01	16.40	R5	2.30	20.00	R5	0.36	26.33
R10	3.16	9.13	R10	1.16	11.13	R10	0.18	14.73
R15	2.18	6.47	R15	0.77	7.93	R15	0.14	10.53
R20	1.66	5.13	R20	0.59	6.27	R20	0.09	8.33
R25	1.37	4.33	R25	0.48	5.27	R25	0.08	7.00
R30	1.16	3.80	R30	0.39	4.60	R30	0.07	6.13
R35	1.02	3.40	R35	0.34	4.13	R35	0.06	5.47
R40	0.91	3.07	R40	0.30	3.73	R40	0.05	5.00
R45	0.82	2.87	R45	0.25	3.47	R45	0.05	4.60
R50	0.75	2.67	R50	0.23	3.27	R50	0.05	4.33

**TABLE 13-6C-11  
CONCRETE ROOF DECK: DROPPED SUMMER AND WINTER POINT MULTIPLIERS**

North 1,2,3			Central 4,5,6			South 7,8,9		
R-Value	Heating Points	Cooling Points	R-Value	Heating Points	Cooling Points	R-Value	Heating Points	Cooling Points
R0	20.09	48.53	R0	8.26	58.00	R0	1.43	76.53
R5	5.42	15.0	R5	2.05	13.88	R5	0.32	24.13
R10	2.91	8.47	R10	1.05	10.40	R10	0.16	13.67
R15	2.00	6.07	R15	0.71	7.47	R15	0.11	9.87
R20	1.57	4.87	R20	0.57	6.20	R20	0.09	7.87
R25	1.30	4.07	R25	0.43	5.07	R25	0.07	6.67
R30	1.09	3.60	R30	0.36	4.47	R30	0.06	5.87
R35	0.98	3.27	R35	0.32	4.00	R35	0.05	5.27
R40	0.86	2.93	R40	0.27	3.67	R40	0.04	4.87
R45	0.80	2.73	R45	0.25	3.40	R45	0.04	4.47

**TABLE 13-6C-12  
FLOORS MULTIPLIERS FOR STEM WALL WITH STEM WALL INSULATION**

R-Value	ZONES 1,2,3		ZONES 4,5,6		ZONES 7,8,9	
	SPM	WPM	SPM	WPM	SPM	WPM
0	-4.7	3.5	-5.8	1.8	-4.2	0.3
3.5	-4.7	2.6	-5.8	1.4	-4.5	0.2
7	-4.7	2.4	-5.8	1.3	-4.6	0.2
11	-4.7	2.3	-5.8	1.3	-4.7	0.2

**13-C3.0 Blank for numbering consistency.**

**13-C4.1 Infiltration barriers for frame construction.** The following building materials and systems qualify as infiltration barriers when installed on the exterior of frame wall construction. Analogous methods apply to raised floor and ceiling construction.

**13-C4.1.1 Plastic sheathing.** Plastic sheathing products shall be considered air infiltration barriers when applied to a frame wall underneath an exterior finish and the following sealing requirements are met:

1. Sheeting shall be attached to the top plate by either:
  - a. Mechanical fasteners and mastic, or
  - b. Wrapping the sheeting over the top plate, then mechanically fastening it to the indoor faces of the plates. Sheeting shall be wrapped over the top plate prior to the trusses being set.
2. Sheeting shall be attached to the bottom plate by either:
  - a. Mechanical fasteners and mastic to the bottom plate, foundation wall, header and end joists, floor deck or slab edge, or
  - b. Wrapping the sheeting under the bottom plate, then mechanically fastening it to the indoor faces of the plates.
3. Sheeting shall be attached around doors and windows by either:
4. Sheeting shall be attached with mechanical fasteners at all seams. All seams shall be sealed by either applying a mastic or a pressure sensitive tape with acrylic adhesive to the lapped ends. Rubber-based adhesive tapes shall not be used for this purpose.

Tapes of any type are not acceptable for sealing plastic sheeting to wood or masonry building components.

**13-C4.1.2 Wood sheathing.** Wood sheathing panels shall be considered air infiltration barriers when applied to a frame wall underneath an exterior finish and the following sealing requirements are met:

1. Joints formed by the square edges of adjoining panels shall be backed by a framing member. The joints between panels shall be sealed, or both adjoining panels sealed to the framing member using a mastic. For joints formed by tongue and groove edges, the

groove of the panels shall be filled with mastic prior to mating the panels.

2. The panels shall be sealed to the top plate using a mastic.
3. The panels shall be sealed to the bottom plate, floor deck, or header and end joists using mastic.
4. The panels shall be sealed to the jambs or mounting fins of doors and windows using a mastic.

Tapes of any type are not acceptable sealants for sealing wood sheathing to wood members, mounting fins, or masonry.

**13-C4.1.3 Nonwood sheathing.** Nonwood sheathing panels including foam insulation boards, and foil or plastic faced boards of other materials, shall be considered air infiltration barriers when applied to a frame wall underneath an exterior finish and the following sealing requirements are met:

1. Joints between adjoining panels shall be sealed using one of the methods given for wood sheathing boards in Section 13-C4.1.2(1) above or, joints between adjoining panels shall be sealed by pressure sensitive tape with acrylic adhesive. Rubber-based adhesive tapes shall not be used for this purpose.
2. The panels shall be sealed to the top plate using a mastic.
3. The panels shall be sealed to the bottom plate, foundation wall, header and end joists, floor deck, or slab using mastic.
4. The panels shall be sealed to the jams or mounting fins of doors and windows using a mastic. Acrylic-based tape may be used to seal metal and plastic door and window mounting fins to the sheathing panels.

Tapes of any type are not acceptable sealants for sealing nonwood sheathing to wood or masonry building components.

**13-C4.1.4 Stucco infiltration barrier.** Stucco on exterior frame walls shall may qualify as an infiltration barrier if the following conditions are met:

1. Top plates, sill plates and sole plates or foundation joints to the stucco shall be sealed.
2. All holes in the outer wall face shall be patched. The entire exterior wall shall be coated with a

weather-resistant stucco layer of at least a 5/8 inch (16 mm) thickness for cementitious stucco or 1/2 inch (12.7 mm) for polymeric stucco.

**13-C4.2 Infiltration criteria for log wall construction.** The following building materials, systems, or testing qualify as meeting the infiltration criteria for log wall construction:

**13-C4.2.1 Continuous groove logs.** A continuous spline shall be caulked in place, or sealed with compressible foam gasket tape.

**13-C4.2.2 Single, double and/or multiple tongue and groove joints.** Tongue and groove joints shall be caulked in place or sealed with compressible foam gasket tape.

**13-C4.2.3 Testing.** The wall system shall have been tested by either a whole house air infiltration test procedure approved by the Department of Community Affairs or by ASTM E 283 to demonstrate a maximum air change per hour (ACH) rate of 17.5 at 50 pascals of pressure difference. Air flow rates in cubic feet per minute (CFM) shall be converted to air changes per hour (ACH).

**13-C5.1 HVAC Multipliers, Form 600A, supplemental.**

**13-C5.1.1 Gas fueled heat pumps.** See Tables 13-6C-13 and 13-6C-14.

**13-C5.1.2 Combination gas hydronic systems.**

**TABLE 13-6C-15  
HEATING SYSTEM CREDIT MULTIPLIERS FOR COMBINED  
HYDRONIC SPACE GAS WATER HEATING WITH A STORAGE TANK**

Gas Water Heater Recovery Efficiency	Zones 1,2,3	Zones 4,5,6	Zones 7,8,9
0.76	0.54	0.56	0.52
0.83	0.49	0.51	0.47
0.94	0.44	0.45	0.42

**TABLE 13-6C-15.1  
HEATING SYSTEM CREDIT MULTIPLIERS FOR COMBINED  
HYDRONIC INSTANTANEOUS (TANKLESS) GAS WATER  
HEATING**

Tankless Water Heater Thermal Efficiency (E <sub>t</sub> )	Zones 1,2,3	Zones 4,5,6	Zones 7,8,9
.78	.52	.55	.57
.80	.51	.54	.57
.84 and up	.49	.52	.56

**13-C5.2 Multiple heating, cooling or water heating systems.**

$$ER_{new} = \frac{(CR_b \times ER_b)}{CR_t} + \frac{(CR_a \times ER_a)}{CR_t} \quad \text{(Equation 13-6-2)}$$

Where:

ER<sub>new</sub> = Efficiency to be used in selecting multiplier

CR<sub>a</sub> = Capacity Rating of system A

CR<sub>b</sub> = Capacity Rating of system B

CR<sub>t</sub> = Combined capacity of both systems

ER<sub>a</sub> = Efficiency rating of system A

ER<sub>b</sub> = Efficiency rating of system B

**TABLE 13-6C-13  
COOLING SYSTEM MULTIPLIERS GAS FUELED AIR CONDITIONERS**

Natural Gas										
COP	.4-.49	.5-.59	.6-.69	.7-.79	.8-.89	.9-.99	1.0-1.09	1.1-1.19	1.2-1.29	1.3&Up
Zones 1,2,3	0.99	0.79	0.66	0.57	0.50	0.44	0.40	0.36	0.33	0.31
Zones 4,5,6	1.03	0.82	0.69	0.59	0.52	0.46	0.41	0.37	0.34	0.32
Zones 7,8,9	0.95	0.76	0.64	0.54	0.48	0.42	0.38	0.35	0.32	0.29

LP Gas										
COP	.4-.49	.5-.59	.6-.69	.7-.79	.8-.89	.9-.99	1.0-1.09	1.1-1.19	1.2-1.29	1.3&Up
Zones 1,2,3	1.35	1.08	0.90	0.77	0.67	0.60	0.54	0.49	0.45	0.41
Zones 4,5,6	1.26	1.01	0.84	0.72	0.63	0.56	0.50	0.46	0.42	0.39
Zones 7,8,9	1.21	0.97	0.81	0.69	0.61	0.54	0.49	0.44	0.40	0.37

**TABLE 13-6C-14  
HEATING SYSTEM MULTIPLIERS GAS FUELED HEAT PUMPS**

COP	Natural Gas		LP Gas	
	1.25	1.30	1.25	1.30
Climate Zones 1,2,3	0.32	0.31	0.43	0.41
Climate Zones 4,5,6	0.33	0.32	0.40	0.39
Climate Zones 7,8,9	0.30	0.29	0.39	0.37

13-C5.3 HVAC multipliers for existing systems.

**TABLE 13-6C-16  
COOLING SYSTEM MULTIPLIER ASSUMED  
MINIMUM RATINGS BY DATE PERMITTED  
AIR CONDITIONERS**

Date Building Permitted	Assumed Rating	Cooling System Multiplier (all zones)
Prior to 1979, average	EER 6.1	0.56
3/15/79 - 8/31/82	EER 6.1	0.56
9/1/82 - 5/31/84	EER 6.8	0.50
1/1/84 - 12/30/88	SEER 7.8	0.44
1/1/89 - 12/30/90	SEER 7.8	0.40
1/1/91 - 12/30/91	SEER 8.9	0.38
1/1/92 - present	SEER 10.0	0.34

**TABLE 13-6C-17  
HEATING SYSTEM MULTIPLIER ASSUMED  
MINIMUM RATINGS BY DATE PERMITTED  
HEAT PUMPS**

Date Building Permitted	Assumed Rating	Heating System Multiplier		
		North	Central	South
Prior to 1979, average	COP 2.2	0.63	0.63	0.63
3/15/79 - 8/31/82	COP 2.2	0.63	0.63	0.63
9/1/82 - 5/31/84	COP 2.2	0.63	0.63	0.63
6/1/84 - 12/31/86	COP 2.5	0.56	0.54	0.53
1/1/87 - 12/30/90	COP 2.7	0.52	0.50	0.49
1/1/91 - 12/30/91	HSPF 6.4	0.53	0.53	0.53
1/1/92 - present	HSPF 6.8	0.50	0.50	0.50

13-C5.4 Duct systems.

13-C5.4.1 Multiple duct systems.

$$DM_{\text{new}} = \frac{L_1}{L_t} \times DM_1 + \frac{L_2}{L_t} \times DM_2 \quad \text{(Equation 13-6-3)}$$

Where:

$DM_{\text{new}}$  = duct multiplier to be used with total gross points

$L_1$  = length at  $R$ -value 1

$L_2$  = length at  $R$ -value 2

$DM_1$  = duct multiplier for  $R$ -value 1

$DM_2$  = duct multiplier for  $R$ -value 2

$L_t = L_1 + L_2$

13-C5.4.2 Duct multipliers, Form 600A supplemental.

**TABLE 13-6C-18  
DUCT MULTIPLIERS NORTH FLORIDA**

Supply duct location	Duct R-value	Return Duct Location					
		Unconditioned		Attic w/RBS		Attic w/white roof	
		WDM	SDM	WDM	SDM	WDM	SDM
Unconditioned space	0.0	1.497	1.382	1.454	1.382	1.480	1.384
	2.0	1.164	1.189	1.150	1.180	1.157	1.180
	4.2	1.093	1.118	1.086	1.111	1.089	1.111
	6.0	1.069	1.090	1.064	1.084	1.066	1.084
	8.0	1.053	1.071	1.049	1.066	1.051	1.066
	10.0	1.044	1.059	1.041	1.055	1.042	1.054
Attic w/RBS	0.0	1.237	1.222	1.197	1.190	—	—
	2.0	1.107	1.113	1.093	1.102	—	—
	4.2	1.067	1.072	1.059	1.066	—	—
	6.0	1.051	1.056	1.045	1.051	—	—
	8.0	1.040	1.045	1.036	1.041	—	—
	10.0	1.034	1.037	1.030	1.034	—	—
Attic w/white roof	0.0	1.552	1.256	—	—	1.512	1.224
	2.0	1.182	1.113	—	—	1.169	1.102
	4.2	1.104	1.068	—	—	1.096	1.062
	6.0	1.076	1.051	—	—	1.071	1.047
	8.0	1.059	1.040	—	—	1.055	1.036
	10.0	1.049	1.033	—	—	1.045	1.030
Attic w/ IRCC	0.0	1.406	1.289	—	—	—	—
	2.0	1.161	1.153	—	—	—	—
	4.2	1.096	1.099	—	—	—	—
	6.0	1.072	1.076	—	—	—	—
	8.0	1.056	1.061	—	—	—	—
	10.0	1.047	1.051	—	—	—	—
Conditioned space	0.0	1.040	1.032	1.029	1.021	1.040	1.014
	2.0	1.014	1.011	1.012	1.009	1.014	1.005
	4.2	1.008	1.006	1.007	1.005	1.008	1.003
	6.0	1.006	1.005	1.005	1.004	1.006	1.002
	8.0	1.005	1.004	1.004	1.003	1.005	1.002
	10.0	1.004	1.003	1.003	1.003	1.004	1.001

(continued)

**TABLE 13-6C-18  
DUCT MULTIPLIERS NORTH FLORIDA  
(continued)**

Supply duct location	Duct R-value	Return Duct Location			
		Attic w/ IRCC		Conditioned Space	
		WDM	SDM	WDM	SDM
Unconditioned space	0.0	1.468	1.387	1.438	1.366
	2.0	1.155	1.182	1.143	1.174
	4.2	1.088	1.112	1.081	1.107
	6.0	1.065	1.085	1.060	1.081
	8.0	1.051	1.067	1.046	1.064
	10.0	1.042	1.055	1.038	1.053
Attic w/RBS	0.0	—	—	1.180	1.185
	2.0	—	—	1.083	1.095
	4.2	—	—	1.052	1.061
	6.0	—	—	1.040	1.047
	8.0	—	—	1.032	1.037
	10.0	—	—	1.026	1.031
Attic w/white roof	0.0	—	—	1.452	1.219
	2.0	—	—	1.147	1.096
	4.2	—	—	1.083	1.057
	6.0	—	—	1.061	1.043
	8.0	—	—	1.048	1.034
	10.0	—	—	1.039	1.028
Attic w/ IRCC	0.0	1.366	1.257	1.327	1.248
	2.0	1.148	1.141	1.129	1.132
	4.2	1.088	1.092	1.077	1.084
	6.0	1.066	1.071	1.057	1.065
	8.0	1.052	1.057	1.045	1.052
	10.0	1.043	1.048	1.037	1.043
Conditioned space	0.0	1.042	1.029	1.000	1.000
	2.0	1.016	1.011	1.000	1.000
	4.2	1.010	1.007	1.000	1.000
	6.0	1.007	1.005	1.000	1.000
	8.0	1.006	1.004	1.000	1.000
	10.0	1.005	1.003	1.000	1.000

TABLE 13-6C-19  
DUCT MULTIPLIERS CENTRAL FLORIDA

Supply duct location	Duct R-value	Return Duct Location					
		Unconditioned		Attic w/RBS		Attic w/white roof	
		WDM	SDM	WDM	SDM	WDM	SDM
Unconditioned space	0.0	1.589	1.334	1.536	1.339	1.566	1.342
	2.0	1.190	1.176	1.173	1.169	1.180	1.169
	4.2	1.107	1.113	1.098	1.107	1.102	1.107
	6.0	1.078	1.087	1.072	1.081	1.075	1.081
	8.0	1.061	1.069	1.056	1.064	1.058	1.064
	10.0	1.050	1.057	1.046	1.054	1.048	1.053
Attic w/RBS	0.0	1.277	1.212	1.230	1.181	—	—
	2.0	1.123	1.111	1.107	1.100	—	—
	4.2	1.076	1.072	1.067	1.066	—	—
	6.0	1.058	1.056	1.051	1.051	—	—
	8.0	1.046	1.045	1.041	1.041	—	—
	10.0	1.038	1.038	1.034	1.034	—	—
Attic w/white roof	0.0	1.661	1.246	—	—	1.614	1.214
	2.0	1.213	1.113	—	—	1.197	1.102
	4.2	1.119	1.069	—	—	1.110	1.063
	6.0	1.088	1.052	—	—	1.081	1.047
	8.0	1.068	1.041	—	—	1.063	1.037
	10.0	1.056	1.034	—	—	1.051	1.031
Attic w/IRCC	0.0	1.413	1.288	—	—	—	—
	2.0	1.164	1.152	—	—	—	—
	4.2	1.097	1.098	—	—	—	—
	6.0	1.073	1.076	—	—	—	—
	8.0	1.057	1.060	—	—	—	—
	10.0	1.047	1.051	—	—	—	—
Conditioned space	0.0	1.047	1.031	1.034	1.02	1.047	1.014
	2.0	1.016	1.011	1.014	1.00	1.016	1.005
	4.2	1.009	1.006	1.008	1.00	1.009	1.003
	6.0	1.007	1.005	1.006	1.00	1.007	1.002
	8.0	1.005	1.004	1.005	1.00	1.005	1.002
	10.0	1.004	1.003	1.004	1.00	1.004	1.001

(continued)

**TABLE 13-6C-19  
DUCT MULTIPLIERS CENTRAL FLORIDA  
(continued)**

Supply duct location	Duct R-value	Return Duct Location			
		Attic w/ IRCC		Conditioned Space	
		WDM	SDM	WDM	SDM
Unconditioned space	0.0	1.546	1.346	1.517	1.322
	2.0	1.176	1.172	1.164	1.163
	4.2	1.100	1.108	1.092	1.103
	6.0	1.074	1.083	1.068	1.079
	8.0	1.057	1.065	1.052	1.062
	10.0	1.047	1.054	1.043	1.052
Attic w/RBS	0.0	—	—	1.209	1.177
	2.0	—	—	1.095	1.094
	4.2	—	—	1.059	1.061
	6.0	—	—	1.045	1.047
	8.0	—	—	1.036	1.041
	10.0	—	—	1.030	1.032
Attic w/white roof	0.0	—	—	1.540	1.211
	2.0	—	—	1.170	1.096
	4.2	—	—	1.095	1.058
	6.0	—	—	1.070	1.044
	8.0	—	—	1.054	1.034
	10.0	—	—	1.045	1.028
Attic w/ IRCC	0.0	1.366	1.257	1.327	1.248
	2.0	1.148	1.141	1.129	1.132
	4.2	1.088	1.092	1.077	1.084
	6.0	1.066	1.071	1.057	1.065
	8.0	1.052	1.057	1.045	1.052
	10.0	1.043	1.048	1.037	1.043
Conditioned space	0.0	1.042	1.029	1.000	1.000
	2.0	1.016	1.011	1.000	1.000
	4.2	1.010	1.007	1.000	1.000
	6.0	1.007	1.005	1.000	1.000
	8.0	1.006	1.004	1.000	1.000
	10.0	1.005	1.003	1.000	1.000

TABLE 13-6C-20  
DUCT MULTIPLIERS SOUTH FLORIDA

Supply duct location	Duct R-value	Return Duct Location					
		Unconditioned		Attic w/RBS		Attic w/white roof	
		WDM	SDM	WDM	SDM	WDM	SDM
Unconditioned space	0.0	1.765	1.296	1.694	1.299	1.734	1.302
	2.0	1.244	1.150	1.220	1.144	1.229	1.144
	4.2	1.135	1.095	1.123	1.090	1.128	1.090
	6.0	1.099	1.073	1.091	1.069	1.094	1.069
	8.0	1.076	1.058	1.070	1.055	1.073	1.055
	10.0	1.063	1.049	1.058	1.046	1.060	1.046
Attic w/RBS	0.0	1.349	1.178	1.289	1.153	—	—
	2.0	1.154	1.094	1.134	1.085	—	—
	4.2	1.095	1.062	1.083	1.057	—	—
	6.0	1.072	1.048	1.063	1.044	—	—
	8.0	1.057	1.039	1.050	1.036	—	—
	10.0	1.048	1.032	1.042	1.030	—	—
Attic w/white roof	0.0	1.860	1.205	—	—	1.800	1.180
	2.0	1.273	1.095	—	—	1.252	1.086
	4.2	1.151	1.059	—	—	1.139	1.054
	6.0	1.111	1.045	—	—	1.102	1.041
	8.0	1.085	1.035	—	—	1.078	1.032
	10.0	1.070	1.029	—	—	1.064	1.027
Attic w/IRCC	0.0	1.531	1.249	—	—	—	—
	2.0	1.207	1.128	—	—	—	—
	4.2	1.122	1.083	—	—	—	—
	6.0	1.091	1.064	—	—	—	—
	8.0	1.071	1.052	—	—	—	—
	10.0	1.059	1.043	—	—	—	—
Conditioned space	0.0	1.060	1.025	1.043	1.017	1.060	1.011
	2.0	1.020	1.009	1.017	1.007	1.020	1.004
	4.2	1.012	1.005	1.010	1.004	1.012	1.002
	6.0	1.009	1.004	1.008	1.003	1.009	1.002
	8.0	1.007	1.003	1.006	1.003	1.007	1.001
	10.0	1.006	1.003	1.005	1.002	1.006	1.001

(continued)

**TABLE 13-6C-20  
DUCT MULTIPLIERS SOUTH FLORIDA  
(continued)**

Supply duct location	Duct R-value	Return Duct Location			
		Attic w/ IRCC		Conditioned Space	
		WDM	SDM	WDM	SDM
Unconditioned space	0.0	1.708	1.305	1.671	1.286
	2.0	1.224	1.146	1.209	1.139
	4.2	1.125	1.091	1.116	1.087
	6.0	1.092	1.070	1.085	1.067
	8.0	1.071	1.055	1.066	1.053
	10.0	1.059	1.046	1.054	1.044
Attic w/RBS	0.0	—	—	1.262	1.150
	2.0	—	—	1.118	1.081
	4.2	—	—	1.073	1.053
	6.0	—	—	1.056	1.041
	8.0	—	—	1.044	1.033
	10.0	—	—	1.037	1.028
Attic w/white roof	0.0	—	—	1.702	1.178
	2.0	—	—	1.216	1.082
	4.2	—	—	1.120	1.051
	6.0	—	—	1.088	1.038
	8.0	—	—	1.068	1.030
	10.0	—	—	1.056	1.025
Attic w/ IRCC	0.0	1.471	1.224	1.149	1.217
	2.0	1.187	1.119	1.162	1.111
	4.2	1.110	1.078	1.096	1.072
	6.0	1.083	1.061	1.072	1.056
	8.0	1.065	1.049	1.056	1.045
	10.0	1.054	1.041	1.046	1.037
Conditioned space	0.0	1.054	1.024	1.000	1.000
	2.0	1.020	1.009	1.000	1.000
	4.2	1.012	1.006	1.000	1.000
	6.0	1.009	1.004	1.000	1.000
	8.0	1.007	1.003	1.000	1.000
	10.0	1.006	1.003	1.000	1.000

**13-C6.1 Service hot water multipliers, Form 600A, supplemental.**  
**13-C6.1.1 Gas instantaneous (tankless) water heater multipliers.**

**TABLE 13-6C-21**  
**GAS INSTANTANEOUS (TANKLESS) WATER HEATER MULTIPLIERS**

<b>CLIMATE ZONE 123</b>	<b>HOT WATER MULTIPLIERS (HWM)</b>													
<b>EF</b>	.60-.61	.62-.63	.64-.65	.66-.67	.68-.69	.70-.71	.72-.73	.74-.75	.76-.77	.78-.79	.80-.81	.82-.83	.84-.85	0.86 & Up
Natural Gas HWM	1599	1547	1498	1453	1412	1375	1341	1309	1279	1252	1226	1202	1179	1157
Propane Gas HWM	2171	2101	2035	1973	1920	1869	1821	1776	1735	1696	1660	1626	1594	1564
<b>CLIMATE ZONE 456</b>														
<b>EF</b>	.60-.61	.62-.63	.64-.65	.66-.67	.68-.69	.70-.71	.72-.73	.74-.75	.76-.77	.78-.79	.80-.81	.82-.83	.84-.85	0.86 & Up
Natural Gas HWM	1549	1499	1452	1408	1367	1328	1293	1261	1231	1205	1183	1164	1148	1137
Propane Gas HWM	1895	1834	1776	1722	1676	1631	1588	1549	1513	1478	1446	1417	1389	1362
<b>CLIMATE ZONE 789</b>														
<b>EF</b>	.60-.61	.62-.63	.64-.65	.66-.67	.68-.69	.70-.71	.72-.73	.74-.75	.76-.77	.78-.79	.80-.81	.82-.83	.84-.85	0.86 & Up
Natural Gas HWM	1324	1281	1241	1203	1167	1134	1103	1073	1046	1020	997	975	956	938
Propane Gas HWM	1686	1631	1581	1533	1492	1452	1415	1380	1348	1318	1290	1264	1239	1216

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