GLOBAL BUILDING SYSTEMS

June 29, 2007

William Pennington, Chris Gekas
California Energy Commission
1516 Ninth Street, MS-28
Sacramento, CA 95814-5512

RE: Docket #05-BSTD-2, 2008 Building Energy Efficiency Standards (Comments)

Gentlemen,

This letter is in response to the Proposed changes in Joint Appendices 4 as they relate to U-Factors for Metal Framed Walls for Residential Construction and Commercial Construction. There appears to be a serious oversight on the Commissions part to limit the upper range of R-Values of Continuous Insulation per chart 4.3.4 at R-7. (See Attached) In the 2005 standards, JA4, Table IV.11, the upper limit was R-14. The commission appears to continue using the data in this table but for non-residential Construction only. (See Attached)

I would request that staff review our request to increase the upper limit for Continuous Insulation R values on table 4.3.4 to R-15, as our testing data reveals. As well, please **recalculate and include the data for Foamed Plastic or Cellulose Insulation, through this extension.** This table is incomplete and clearly not indicative of the advances in building materials and methods that are available today.

Since there are no provisions in these tables for hybrid technologies incorporating thermally isolated/coated steel frames, and monocoque walls with superior performance capabilities, we request that the Commission consider and include these as well, in writing.

2505 Delmar Avenue ♦ Penryn, CA 95663 USA ♦ 916.652.1223 ♦ FAX 916.652.1278
globalbuildingsystemsLLC@yahoo.com

The commission does a better job addressing this concept in its treatment of SIPS (JA4, Table 4.2.3), but this section 4.3.4 is woefully inadequate. We welcome the opportunity to review this in person with you and to address any questions regarding details you may have.

In support of the letter dated June 11, 2007, from John Evans of Icynene Inc, we know that Foam Plastics have properties that allow for tighter duct systems, and the U-factors inherent in these materials are conducive to meeting the needs of Residential Distribution System Leakage in cost effective manners. We request that the Commission consider and include hybrid ducts utilizing Rigid EPS, as alternatives to Insulated Flex, Sheet Metal, and Sealed Duct Board.

We would like to thank you for the opportunity to submit these corrections and additions to the 2008 Title 24 Efficiency Standards, and look forward to discussing them with you in person at your earliest convenience.

Sincerely,

Roy H. Hibdon
Civil Engineering Consultants

Roy H. Hibdon, PE

2505 Delmar Avenue ♦ Penryn, CA 95663 USA ♦ 916.652.1223 ♦ FAX 916.652.1278
globalbuildingsystemsLLC@yahoo.com

Table ~~IV4.3.311NR~~ – U-factors of Metal Framed Walls for Nonresidential Construction

Spacing	Cavity Insulation R-Value:	Nominal Framing Size		Rated R-value of Continuous Insulation [2]							
				R-0	R-2	R-4	R-6	R-7	R-8	R-10	R-14
				A	B	C	D	E	F	G	H
16 in. OC	None	Any	1	0.458	0.239	0.162	0.122	0.109	0.098	0.082	0.062
	R-11	2x4	2	0.224	0.155	0.118	0.096	0.087	0.080	0.069	0.054
	R-13	2x4	3	0.217	0.151	0.116	0.094	0.086	0.079	0.068	0.054
	R-15	2x4	4	0.211	0.148	0.114	0.093	0.085	0.078	0.068	0.053
	R-19	2x6	5	0.183	0.134	0.106	0.087	0.080	0.074	0.065	0.051
	R-21[1]	2x6	6	0.178	0.131	0.104	0.086	0.079	0.073	0.064	0.051
	R-19	2x8	7	0.164	0.123	0.099	0.083	0.076	0.071	0.062	0.050
	R-22	2x8	8	0.160	0.121	0.098	0.082	0.075	0.070	0.062	0.049
	R-25	2x8	9	0.158	0.120	0.097	0.081	0.075	0.070	0.061	0.049
	R-30[1]	2x8	10	0.157	0.119	0.096	0.081	0.075	0.070	0.061	0.049
	R-30	2x10	11	0.140	0.109	0.090	0.076	0.071	0.066	0.058	0.047
	R-38[1]	2x10	12	0.139	0.109	0.089	0.076	0.070	0.066	0.058	0.047
	R-38	2 x 12	13	0.124	0.099	0.083	0.071	0.066	0.062	0.055	0.045
	Foamed Plastic or Cellulose Insulation[3]	2 x 4	14	0.218	0.152	0.116	0.094	0.086	0.079	0.069	0.054
		2 x 6	15	0.179	0.132	0.104	0.086	0.079	0.074	0.064	0.051
		2 x 8	16	0.157	0.119	0.096	0.081	0.075	0.070	0.061	0.049
		2 x 10	17	0.138	0.108	0.089	0.075	0.070	0.066	0.058	0.047
		2 x 12	18	0.123	0.099	0.082	0.071	0.066	0.062	0.055	0.045
24 in. OC	None	Any	24	0.455	0.238	0.161	0.122	0.109	0.098	0.082	0.062
	R-11	2x4	25	0.210	0.148	0.114	0.093	0.085	0.078	0.068	0.053
	R-13	2x4	26	0.203	0.144	0.112	0.092	0.084	0.077	0.067	0.053
	R-15	2x4	27	0.197	0.141	0.110	0.090	0.083	0.076	0.066	0.052
	R-19	2x6	28	0.164	0.123	0.099	0.083	0.076	0.071	0.062	0.050
	R-21[1]	2x6	29	0.161	0.122	0.098	0.082	0.076	0.070	0.062	0.049
	R-19	2x8	30	0.153	0.117	0.095	0.080	0.074	0.069	0.060	0.049
	R-22	2x8	21	0.149	0.115	0.093	0.079	0.073	0.068	0.060	0.048
	R-25	2x8	32	0.147	0.114	0.093	0.078	0.072	0.068	0.060	0.048
	R-30[1]	2x8	33	0.146	0.113	0.092	0.078	0.072	0.067	0.059	0.048
	R-30	2x10	34	0.130	0.103	0.086	0.073	0.068	0.064	0.057	0.046
	R-38[1]	2x10	35	0.128	0.102	0.085	0.072	0.068	0.063	0.056	0.046
	R-38	2 x 12	36	0.115	0.093	0.079	0.068	0.064	0.060	0.053	0.044
	Foamed Plastic or Cellulose Insulation[3]	2 x 4	37	0.204	0.145	0.112	0.092	0.084	0.078	0.067	0.053
		2 x 6	38	0.167	0.125	0.100	0.083	0.077	0.071	0.063	0.050
		2 x 8	39	0.146	0.113	0.092	0.078	0.072	0.067	0.059	0.048
		2 x 10	40	0.128	0.102	0.085	0.072	0.068	0.063	0.056	0.046
		2 x 12	41	0.114	0.093	0.078	0.068	0.063	0.060	0.053	0.044

Notes

1. Higher density fiberglass batt is required in these cases.
2. Continuous insulation may be installed on either the inside or the exterior of the wall, or both.
3. Foamed plastic and cellulose shall fill the entire cavity. Cellulose shall have a binder to prevent sagging.

This table contains U-factors for steel or metal-framed walls, which are typical of nonresidential buildings. The table may be used for any construction assembly where the primary insulation is installed in a metal-framed wall, e.g. uninsulated curtain walls with metal furring on the inside.

2505 Delmar Avenue ♦ Penryn, CA 95663 USA ♦ 916.652.1223 ♦ FAX 916.652.1278
globalbuildingsystemsLLC@yahoo.com

Table 4.3.4 – U-factors of Metal Framed Walls for Residential Construction

Spacing	Cavity Insulation R-Value:	Nominal Framing Size		R-0	R-2	R-4	R-5	R-6	R-7
				A	B	C	D	E	F
16 in. OC	None	Any	1	NA	NA	NA	NA	NA	NA
	R-11	2x4	2	0.200	0.137	0.107	0.097	0.088	0.081
	R-13	2x4	3	0.192	0.132	0.105	0.095	0.087	0.080
	R-15	2x4	4	0.186	0.129	0.102	0.093	0.085	0.078
	R-19	2x6	5	0.154	0.112	0.092	0.084	0.077	0.072
	R-21[1]	2x6	6	0.151	0.110	0.090	0.083	0.076	0.071
	R-19	2x8	7	0.134	0.102	0.085	0.078	0.072	0.067
	R-22	2x8	8	0.129	0.099	0.082	0.076	0.071	0.066
	R-25	2x8	9	0.125	0.096	0.081	0.075	0.069	0.065
	R-30[1]	2x8	10	0.120	0.093	0.078	0.073	0.068	0.063
	R-30	2x10	11	0.109	0.086	0.073	0.068	0.064	0.060
	R-38[1]	2x10	12	0.104	0.082	0.071	0.066	0.062	0.058
	R-38	2 x 12	13	0.095	0.077	0.067	0.062	0.059	0.055
	Foamed Plastic or Cellulose Insulation[3]	2 x 4	14	NA	NA	NA	NA	NA	NA
		2 x 6	15	NA	NA	NA	NA	NA	NA
		2 x 8	16	NA	NA	NA	NA	NA	NA
		2 x 10	17	NA	NA	NA	NA	NA	NA
		2 x 12	18	NA	NA	NA	NA	NA	NA
24 in. OC	None	Any	24	NA	NA	NA	NA	NA	NA
	R-11	2x4	25	0.189	0.131	0.104	0.094	0.086	0.079
	R-13	2x4	26	0.181	0.127	0.101	0.092	0.084	0.078
	R-15	2x4	27	0.175	0.123	0.099	0.090	0.082	0.076
	R-19	2x6	28	0.144	0.107	0.088	0.081	0.075	0.070
	R-21[1]	2x6	29	0.141	0.105	0.086	0.080	0.074	0.069
	R-19	2x8	30	0.126	0.097	0.081	0.075	0.070	0.065
	R-22	2x8	31	0.121	0.094	0.079	0.073	0.068	0.064
	R-25	2x8	32	0.117	0.091	0.077	0.071	0.067	0.063
	R-30[1]	2x8	33	0.112	0.088	0.075	0.069	0.065	0.061
	R-30	2x10	34	0.102	0.081	0.070	0.065	0.061	0.058
	R-38[1]	2x10	35	0.096	0.077	0.067	0063	0.059	0.056
	R-38	2 x 12	36	0.088	0.072	0.063	0.059	0.056	0.053
	Foamed Plastic or Cellulose Insulation[3]	2 x 4	37	NA	NA	NA	NA	NA	NA
		2 x 6	38	NA	NA	NA	NA	NA	NA
		2 x 8	39	NA	NA	NA	NA	NA	NA
		2 x 10	40	NA	NA	NA	NA	NA	NA
		2 x 12	41	NA	NA	NA	NA	NA	NA

2505 Delmar Avenue ♦ Penryn, CA 95663 USA ♦ 916.652.1223 ♦ FAX 916.652.1278
globalbuildingsystemsLLC@yahoo.com