

**EXPRESS TERMS
FOR
PROPOSED BUILDING STANDARDS
OF THE
CALIFORNIA BUILDING STANDARDS COMMISSION (CBSC)

REGARDING PROPOSED AMENDMENT TO THE
2010 CALIFORNIA MECHANICAL CODE (CMC) IN THE
CALIFORNIA CODE OF REGULATIONS (CCR), TITLE 24, PART 4**

<p>LEGEND FOR EXPRESS TERMS</p> <p>1. Existing California amendments or code language being modified, as well as selected terms set forth in Chapter 2, Definitions are in italics when they appear in the model code text, independent of state amended definitions: All such language appears in <i>italics</i>, modified language is <u>underlined</u>.</p> <p>2. New California amendments: All such language appears <u>underlined and in italics</u>.</p> <p>Repealed text: All such language appears in strikeout.</p>

EXPRESS TERMS:

The California Building Standards Commission proposes to amend the 2010 California Mechanical Code (CMC) as follows:

Chapter 6 of the 2010 CMC:

**MATRIX ADOPTION TABLE
Adopt Chapter 6**

Adopting Agency	BSC	COMMENTS
Adopt entire Chapter without amendments		
Adopt Entire Chapter as amended (amended sections listed below)	X	
Adopt Only those sections that are listed below and/or Adopt Only those California promulgated sections ^{1, 2, 3} listed below		
605.0	X	

CHAPTER 6

605.0 Insulation of Ducts.

Supply-, return-air ducts and plenums of a heating or cooling system shall be insulated to achieve the minimum thermal (R) value as set forth in ~~Tables 6-6 A and B SMACNA/ANSI 006-2006 HVAC Duct Construction Standards-Metal and Flexible or another approved duct construction standard.~~ **[OSHPD 1, 2, 3 & 4]** Cold air ducts shall be insulated wherever necessary or to prevent condensation problems.

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Notation

Authority: Health & Safety Code Sections 18928 and 18934.5

Reference(s): Health & Safety Code Sections 18928, 18928.1 and 18934.5

TABLE 6-6 A (I-P Units)
Minimum Duct Insulation R Value^a Cooling and Heating Only Supply Ducts and Return Ducts^{d,e}

Envelope Criteria Table	Climate Zone		Duct Location						
	HDD65	CDD50	Exterior	Ventilated Attic	Unvented Attic w/ Backloaded Ceiling	Unvented Attic w/ Roof Insulation ^a	Unconditioned Space ^b	Indirectly Conditioned Space ^c	Buried
Heating-Only Ducts									
5-1 to 5-7	0–1,800	all	none	none	none	none	none	none	none
5-8 to 5-12	1,801–3,600	all	R-3.5	none	none	none	none	none	none
5-13 to 5-15	3,601–5,400	all	R-3.5	none	none	none	none	none	none
5-16 to 5-18	5,401–7,200	all	R-6	R-3.5	none	none	none	none	R-3.5
5-19 to 5-20	7,201–9,000	all	R-6	R-6	R-3.5	none	none	none	R-3.5
5-21 to 5-22	9,001–10,800	all	R-8	R-6	R-6	none	R-3.5	none	R-3.5
5-23	10,801–12,600	all	R-8	R-6	R-6	none	R-6	none	R-6
5-24	12,601–16,200	all	R-8	R-8	R-6	none	R-6	none	R-6
5-25	16,201–19,800	all	R-10	R-8	R-8	none	R-6	none	R-6
5-26	19,801+	all	R-10	R-10	R-8	none	R-8	none	R-6
Cooling-Only Ducts									
5-15, 18, 20, 22 to 26	all	0–1,800	R-1.9	R-1.9	R-1.9	R-1.9	R-1.9	none	none
5-12, 14, 17, 19, 21	all	1,801–3,600	R-3.5	R-1.9	R-3.5	R-1.9	R-1.9	none	none
5-7, 9, 11, 13, 16	all	3,601–5,400	R-3.5	R-3.5	R-6	R-1.9	R-1.9	none	none
5-4, 6, 8, 10	all	5,401–7,200	R-6	R-6	R-6	R-3.5	R-1.9	none	none
5-3, 5-5	all	7,201–9,000	R-6	R-6	R-6	R-3.5	R-3.5	none	R-3.5
5-2	all	9,001–10,800	R-6	R-6	R-8	R-3.5	R-3.5	none	R-3.5
5-1	all	10,801+	R-8	R-8	R-8	R-3.5	R-3.5	none	R-3.5
Return Ducts									
5-15 to 5-26	all climates	R-3.5	R-3.5	R-3.5	none	none	none	none	none

Notes:

- ^a Insulation R-values, measured in (h-ft²·°F)/Btu, are for the insulation as installed and do not include film resistance. The required minimum thicknesses do not consider water vapor transmission and possible surface condensation. Where exterior walls are used as plenum walls, wall insulation shall be as required by the most restrictive condition. Insulation resistance measured on a horizontal plane in accordance with ASTM C518 at a mean temperature of 75°F (24°C) at the installed thickness.
- ^b Includes crawl spaces, both ventilated and nonventilated.
- ^c Includes return-air plenums with or without exposed roofs above.
- ^d Vapor retarders shall be installed on supply ducts in spaces vented to the outside in geographic areas where the average summer dewpoint temperature based on the 2-1/2 percent column of dry-bulb and mean coincident wet-bulb temperature exceeds 60°F (16°C).
- ^e Insulation shall have an approved weatherproof barrier.

TABLE 6-6 B (I-P Units)
Minimum Duct Insulation R Value^a Combined Heating and Cooling Ducts^{d,e}

Climate Zone			Duct Location						
Envelope Criteria Table	HDD65	CDD50	Exterior	Ventilated Attic	Unvented Attic w/ Backloaded Ceiling	Unvented Attic w/ Roof Insulation ^a	Unconditioned Space ^b	Indirectly Conditioned Space ^c	Buried
5-1	0-900	10,801+	R-8	R-6	R-8	R-3.5	R-3.5	none	R-3.5
5-2	0-900	9,001-10,800	R-6	R-6	R-8	R-3.5	R-3.5	none	R-3.5
5-3	0-900	7,201-9,000	R-6	R-6	R-6	R-3.5	R-3.5	none	R-3.5
5-4	0-900	0-7,200	R-6	R-3.5	R-6	R-3.5	R-1.9	none	R-3.5
5-5	901-1,800	7,201+	R-6	R-6	R-6	R-3.5	R-3.5	none	R-3.5
5-6	901-1,800	5,401-7,200	R-6	R-6	R-6	R-3.5	R-3.5	none	R-3.5
5-7	901-1,800	0-5,400	R-3.5	R-3.5	R-6	R-1.9	R-1.9	none	R-1.9
5-8	1,801-2,700	5,401+	R-6	R-6	R-6	R-3.5	R-3.5	none	R-3.5
5-9	1,801-2,700	0-5,400	R-6	R-3.5	R-6	R-1.9	R-1.9	none	R-1.9
5-10	2,701-3,600	5,401+	R-6	R-6	R-6	R-3.5	R-3.5	none	R-3.5
5-11	2,701-3,600	3,601-5,400	R-6	R-6	R-6	R-3.5	R-3.5	none	R-1.9
5-12	2,701-3,600	0-3,600	R-3.5	R-3.5	R-3.5	R-1.9	R-1.9	none	R-1.9
5-13	3,601-5,400	3,601+	R-6	R-6	R-6	R-3.5	R-3.5	none	R-3.5
5-14	3,601-5,400	1,801-3,600	R-6	R-3.5	R-6	R-1.9	R-3.5	none	R-1.9
5-15	3,601-5,400	0-1,800	R-3.5	R-3.5	R-3.5	R-1.9	R-1.9	none	R-1.9
5-16	5,401-7,200	3,601+	R-6	R-6	R-6	R-3.5	R-3.5	none	R-3.5
5-17	5,401-7,200	1,801-3,600	R-6	R-6	R-6	R-1.9	R-3.5	none	R-3.5
5-18	5,401-7,200	0-1,800	R-6	R-3.5	R-3.5	R-1.9	R-3.5	none	R-3.5
5-19	7,201-9,000	1,801+	R-8	R-6	R-6	R-1.9	R-3.5	none	R-3.5
5-20	7,201-9,000	0-1,800	R-6	R-6	R-6	R-1.9	R-3.5	none	R-3.5
5-21	9,001-10,800	1,801+	R-8	R-6	R-6	R-1.9	R-6	none	R-3.5
5-22	9,001-10,800	0-1,800	R-8	R-6	R-6	R-1.9	R-3.5	none	R-3.5
5-23	10,801-12,600	all	R-8	R-6	R-6	R-1.9	R-6	none	R-6
5-24	12,601-16,200	all	R-8	R-8	R-8	R-1.9	R-6	none	R-6
5-25	16,201-19,800	all	R-10	R-8	R-8	R-3.5	R-6	none	R-6
5-26	19,801+	all	R-10	R-10	R-8	R-3.5	R-8	R-3.5	R-6

Notes:

- ^a Insulation R-values, measured in (h·ft²·°F)/Btu, are for the insulation as installed and do not include film resistance. The required minimum thicknesses do not consider water vapor transmission and possible surface condensation. Where exterior walls are used as plenum walls, wall insulation shall be as required by the most restrictive condition. Insulation resistance measured on a horizontal plane in accordance with ASTM C518 at a mean temperature of 75°F (24°C) at the installed thickness.
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