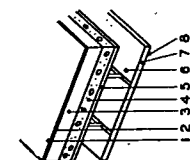


TABLE 13A. COEFFICIENTS OF TRANSMISSION (U) OF FLAT MASONRY ROOFS WITH BUILT-UP ROOFING, WITH AND WITHOUT SUSPENDED CEILINGS^a

These coefficients are expressed in Btu per (hour) (square foot) (Fahrenheit degree difference in temperature between the air on the two sides), and are based on an outside wind velocity of 15 mph.

EXAMPLE



Resistances used are given below in this table or in Table 3 or 4. Resistances used are given below in this table or in Table 3 or 4. Construction (heat flow up) Resistance (R) Replace items 4 and 5 with 4 in. concrete slab (gravel agg.) and roof insulation ($C = 0.34$) on top of slab. 4.66

1. Outside surface (15 mph wind) 0.17
2. Built-up roofing— $\frac{3}{8}$ in. 0.53
3. Roof insulation (none) 0.53
4. Concrete slab (lt. wt. agg.) 2 in. 2.88
5. Air space 0.85
6. Corrugated metal 0.47
7. Metal lath and $\frac{3}{4}$ in. plas. (lt. wt. agg.) 0.61
8. Inside surface (still air) 0.61

Total resistance $U = 1/R = 1/4.66 = 0.22$
See value 0.22 in bold face type in table below.

TO ADJUST U VALUES FOR CONSTRUCTION WITH ADDED INSULATION IN AIR SPACE, SEE TABLE 16.

EXAMPLE OF SUBSTITUTION

Resistances used are given below in this table or in Table 3 or 4. Resistances used are given below in this table or in Table 3 or 4. Construction (heat flow up) Resistance (R) Replace items 4 and 5 with 4 in. concrete slab (gravel agg.) and roof insulation ($C = 0.34$) on top of slab. 4.66

1. Outside surface (15 mph wind) 0.17
2. Built-up roofing— $\frac{3}{8}$ in. 0.53
3. Roof insulation (none) 0.53
4. Concrete slab (lt. wt. agg.) (3 in.) 2.88
5. Air space 0.85
6. Corrugated metal 0.47
7. Metal lath and $\frac{3}{4}$ in. plas. (lt. wt. agg.) 0.61
8. Inside surface (still air) 0.61

Total resistance $U = 1/R = 1/4.66 = 0.22$
See value 0.22 in bold face type in table below.

TO ADJUST U VALUES FOR CONSTRUCTION WITH ADDED INSULATION IN AIR SPACE, SEE TABLE 16.

DIRECTION OF HEAT FLOW

UPWARD FLOW (WINTER CONDITIONS)

TYPE OF DECK	RESISTANCE		TYPE OF CEILING		ACoustical TILE	
	MATERIAL	R	Roof Insulation No Ceiling	SUSPENDED CEILING ^b	On Fur- ring or Gypsum Chan- nel (% in.)	On Gypsum Bd. (% in.)
Concrete slab ^d Gravel agg. (4 in.) 0.39 (6 in.) 0.48 (8 in.) 0.64 Lt. wt. agg. ^e (3 in.) 2.88	Corrugated metal ^f	0.70	0.70	0.70	0.70	0.70
	Insulation bd. (1 in.)	0.13	0.13	0.13	0.13	0.13
	Glass fiber bd. (1 in.)	0.13	0.13	0.13	0.13	0.13
	Insulation bd. (1 in.)	0.13	0.13	0.13	0.13	0.13
(3 in.) 0.39 (6 in.) 0.48 (8 in.) 0.64 Lt. wt. agg. ^e (3 in.) 2.88	Corrugated metal ^f	0.70	0.70	0.70	0.70	0.70
	Insulation bd. (1 in.)	0.13	0.13	0.13	0.13	0.13
	Glass fiber bd. (1 in.)	0.13	0.13	0.13	0.13	0.13
	Insulation bd. (1 in.)	0.13	0.13	0.13	0.13	0.13
(4 in.) 0.44 (6 in.) 0.64 (8 in.) 0.84 Lt. wt. agg. ^e (4 in.) 3.52	Corrugated metal ^f	0.70	0.70	0.70	0.70	0.70
	Insulation bd. (1 in.)	0.13	0.13	0.13	0.13	0.13
	Glass fiber bd. (1 in.)	0.13	0.13	0.13	0.13	0.13
	Insulation bd. (1 in.)	0.13	0.13	0.13	0.13	0.13
Gypsum slab ^g (3 in.) 1.80 (4 in.) 2.40 (6 in.) 3.60 (8 in.) 4.80	Corrugated metal ^f	0.70	0.70	0.70	0.70	0.70
	Insulation bd. (1 in.)	0.13	0.13	0.13	0.13	0.13
	Glass fiber bd. (1 in.)	0.13	0.13	0.13	0.13	0.13
	Insulation bd. (1 in.)	0.13	0.13	0.13	0.13	0.13

TO ADJUST U VALUES FOR CONSTRUCTION WITH ADDED INSULATION IN AIR SPACE, SEE TABLE 16.

RESISTANCE		TYPE OF CEILING		ACoustical TILE	
MATERIAL	R	Roof Insulation No Ceiling	SUSPENDED CEILING ^b	On Fur- ring or Gypsum Chan- nel (% in.)	On Gypsum Bd. (% in.)
Concrete slab ^d Gravel agg. (4 in.) 0.39 (6 in.) 0.48 (8 in.) 0.64 Lt. wt. agg. ^e (3 in.) 2.88	Corrugated metal ^f	0.70	0.70	0.70	0.70
	Insulation bd. (1 in.)	0.13	0.13	0.13	0.13
	Glass fiber bd. (1 in.)	0.13	0.13	0.13	0.13
	Insulation bd. (1 in.)	0.13	0.13	0.13	0.13
(3 in.) 0.39 (6 in.) 0.48 (8 in.) 0.64 Lt. wt. agg. ^e (3 in.) 2.88	Corrugated metal ^f	0.70	0.70	0.70	0.70
	Insulation bd. (1 in.)	0.13	0.13	0.13	0.13
	Glass fiber bd. (1 in.)	0.13	0.13	0.13	0.13
	Insulation bd. (1 in.)	0.13	0.13	0.13	0.13
(4 in.) 0.44 (6 in.) 0.64 (8 in.) 0.84 Lt. wt. agg. ^e (4 in.) 3.52	Corrugated metal ^f	0.70	0.70	0.70	0.70
	Insulation bd. (1 in.)	0.13	0.13	0.13	0.13
	Glass fiber bd. (1 in.)	0.13	0.13	0.13	0.13
	Insulation bd. (1 in.)	0.13	0.13	0.13	0.13
Gypsum slab ^g (3 in.) 1.80 (4 in.) 2.40 (6 in.) 3.60 (8 in.) 4.80	Corrugated metal ^f	0.70	0.70	0.70	0.70
	Insulation bd. (1 in.)	0.13	0.13	0.13	0.13
	Glass fiber bd. (1 in.)	0.13	0.13	0.13	0.13
	Insulation bd. (1 in.)	0.13	0.13	0.13	0.13

^a See text section Calculating Overall Coefficients for basis of calculations.

^b To adjust U values see note just above this table.

^c U values would also apply if slab were poured on metal lath, paper-backed wire, fabric, or asbestos-cement board (4 in.).

^d Concrete assumed to have a thermal conductivity k of 12.0 and a density of 140 lb per cu ft.

^e Concrete assumed to have a thermal conductivity k of 0.90 and a density of 30 lb per cu ft.

^f Gypsum slab 3/4 in. thick since this is recommended practice.

^g Gypsum fiber concrete with 12½ percent wood chips (thermal conductivity $k = 1.60$).

^h See Table 16 E for U value of roof and ceiling construction with roof insulation added to roof deck.