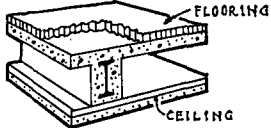


TABLE 9. COEFFICIENTS OF TRANSMISSION ( $U$ ) OF CONCRETE CONSTRUCTION FLOORS AND CEILINGS<sup>a</sup>  
Coefficients are expressed in Btu per hour per square foot per degree Fahrenheit difference in temperature between the air on the two sides, and are based on still air (no wind) conditions on both sides.

| TYPICAL CONSTRUCTION<br> | THICKNESS OF CONCRETE (INCHES) | No. | TYPE OF FLOORING                         |                                                                                      |                                                                                                                   |                                                    |                                                  |
|-----------------------------------------------------------------------------------------------------------|--------------------------------|-----|------------------------------------------|--------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|--------------------------------------------------|
|                                                                                                           |                                |     | No Flooring (Concrete Bare) <sup>b</sup> | Yellow Pine Flooring <sup>c</sup> on Wood Sleepers Embedded in Concrete <sup>d</sup> | Maple or Oak Flooring <sup>e</sup> on Yellow Pine Sub-Flooring <sup>f</sup> on Wood Sleepers Embedded in Concrete | Tile or Terrazzo <sup>g</sup> Flooring on Concrete | 1/4-in. Battleship Linoleum Directly on Concrete |
| TYPE OF CEILING                                                                                           |                                |     | A                                        | B                                                                                    | C                                                                                                                 | D                                                  | E                                                |
| No Ceiling                                                                                                | 4                              | 1   | 0.65                                     | 0.40                                                                                 | 0.31                                                                                                              | 0.61                                               | 0.44                                             |
|                                                                                                           | 6                              | 2   | 0.59                                     | 0.37                                                                                 | 0.30                                                                                                              | 0.56                                               | 0.41                                             |
|                                                                                                           | 8                              | 3   | 0.53                                     | 0.35                                                                                 | 0.28                                                                                                              | 0.51                                               | 0.38                                             |
|                                                                                                           | 10                             | 4   | 0.49                                     | 0.33                                                                                 | 0.27                                                                                                              | 0.47                                               | 0.36                                             |
| 1/2 in. Plaster Applied Directly to Under Side of Concrete                                                | 4                              | 5   | 0.59                                     | 0.38                                                                                 | 0.30                                                                                                              | 0.56                                               | 0.41                                             |
|                                                                                                           | 6                              | 6   | 0.54                                     | 0.35                                                                                 | 0.28                                                                                                              | 0.52                                               | 0.38                                             |
|                                                                                                           | 8                              | 7   | 0.50                                     | 0.33                                                                                 | 0.27                                                                                                              | 0.47                                               | 0.36                                             |
|                                                                                                           | 10                             | 8   | 0.45                                     | 0.32                                                                                 | 0.26                                                                                                              | 0.44                                               | 0.34                                             |
| Suspended or Furred Metal Lath and Plaster (3/4 in.) Ceiling                                              | 4                              | 9   | 0.37                                     | 0.28                                                                                 | 0.23                                                                                                              | 0.36                                               | 0.29                                             |
|                                                                                                           | 6                              | 10  | 0.35                                     | 0.26                                                                                 | 0.22                                                                                                              | 0.34                                               | 0.28                                             |
|                                                                                                           | 8                              | 11  | 0.33                                     | 0.25                                                                                 | 0.21                                                                                                              | 0.32                                               | 0.27                                             |
|                                                                                                           | 10                             | 12  | 0.32                                     | 0.24                                                                                 | 0.21                                                                                                              | 0.31                                               | 0.25                                             |
| Suspended or Furred Ceiling of Plaster Board (3/4 in.) and Plaster (1/2 in.)                              | 4                              | 13  | 0.35                                     | 0.26                                                                                 | 0.22                                                                                                              | 0.34                                               | 0.28                                             |
|                                                                                                           | 6                              | 14  | 0.33                                     | 0.25                                                                                 | 0.21                                                                                                              | 0.32                                               | 0.26                                             |
|                                                                                                           | 8                              | 15  | 0.31                                     | 0.24                                                                                 | 0.21                                                                                                              | 0.30                                               | 0.25                                             |
|                                                                                                           | 10                             | 16  | 0.30                                     | 0.23                                                                                 | 0.20                                                                                                              | 0.29                                               | 0.24                                             |
| Suspended or Furred Ceiling of Rigid Insulation (1/2 in.) and Plaster (1/2 in.)                           | 4                              | 17  | 0.24                                     | 0.20                                                                                 | 0.17                                                                                                              | 0.24                                               | 0.21                                             |
|                                                                                                           | 6                              | 18  | 0.23                                     | 0.19                                                                                 | 0.17                                                                                                              | 0.23                                               | 0.20                                             |
|                                                                                                           | 8                              | 19  | 0.22                                     | 0.18                                                                                 | 0.16                                                                                                              | 0.22                                               | 0.19                                             |
|                                                                                                           | 10                             | 20  | 0.22                                     | 0.18                                                                                 | 0.16                                                                                                              | 0.21                                               | 0.19                                             |
| Plaster (1/2 in.) on Corkboard (1 1/2 in.) Set in Cement Mortar (1/2 in.) on Concrete                     | 4                              | 21  | 0.15                                     | 0.13                                                                                 | 0.12                                                                                                              | 0.14                                               | 0.14                                             |
|                                                                                                           | 6                              | 22  | 0.14                                     | 0.13                                                                                 | 0.12                                                                                                              | 0.14                                               | 0.13                                             |
|                                                                                                           | 8                              | 23  | 0.14                                     | 0.12                                                                                 | 0.11                                                                                                              | 0.14                                               | 0.13                                             |
|                                                                                                           | 10                             | 24  | 0.14                                     | 0.12                                                                                 | 0.11                                                                                                              | 0.14                                               | 0.13                                             |

<sup>a</sup>Computed from factors marked by \* in Table 2.

<sup>b</sup>The figures in COLUMN A may be used with sufficient accuracy for concrete floors covered with carpet.

<sup>c</sup>Thickness of yellow pine flooring assumed to be 3/4 in.

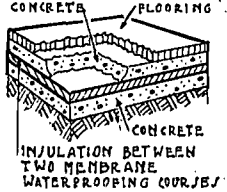
<sup>d</sup>The figures in COLUMN B may be used with sufficient accuracy for maple or oak flooring<sup>e</sup> applied directly over the concrete on wood sleepers.

<sup>e</sup>Thickness of maple or oak flooring assumed to be 3/4 in.

<sup>f</sup>Thickness of tile or terrazzo assumed 1 in.

TABLE 10. COEFFICIENTS OF TRANSMISSION ( $U$ ) OF CONCRETE FLOORS ON GROUND WITH VARIOUS TYPES OF FINISH FLOORINGS.<sup>a</sup>

Coefficients are expressed in Btu per hour per square foot per degree Fahrenheit difference in temperature between the ground and the air over the floor, and are based on still air (no wind) conditions.

| TYPICAL CONSTRUCTION<br> | THICKNESS OF CONCRETE (INCHES) | No. | TYPE OF FINISH FLOORING     |                                                                        |                                                                                                     |                                           |                                                  |
|-------------------------------------------------------------------------------------------------------------|--------------------------------|-----|-----------------------------|------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|-------------------------------------------|--------------------------------------------------|
|                                                                                                             |                                |     | No Flooring (Concrete Bare) | Yellow Pine Flooring <sup>b</sup> on Wood Sleepers Resting on Concrete | Maple or Oak Flooring <sup>c</sup> on Yellow Pine Sub-Flooring on Wood Sleepers Resting on Concrete | Tile or Terrazzo <sup>d</sup> on Concrete | 1/4-in. Battleship Linoleum Directly on Concrete |
| TYPE AND THICKNESS OF INSULATION                                                                            |                                |     | A                           | B                                                                      | C                                                                                                   | D                                         | E                                                |
| None                                                                                                        | 4                              | 1   | 1.07                        | 0.35                                                                   | 0.28                                                                                                | 0.98                                      | 0.60                                             |
|                                                                                                             | 6                              | 2   | 0.90                        | 0.33                                                                   | 0.27                                                                                                | 0.84                                      | 0.54                                             |
|                                                                                                             | 8                              | 3   | 0.79                        | 0.32                                                                   | 0.26                                                                                                | 0.74                                      | 0.50                                             |
|                                                                                                             | 10                             | 4   | 0.70                        | 0.30                                                                   | 0.25                                                                                                | 0.66                                      | 0.46                                             |
| None <sup>e</sup>                                                                                           | 4                              | 5   | 0.66                        | 0.29                                                                   | 0.24                                                                                                | 0.63                                      | 0.44                                             |
|                                                                                                             | 8                              | 6   | 0.54                        | 0.27                                                                   | 0.23                                                                                                | 0.52                                      | 0.39                                             |
| 1 in. Rigid Insulation <sup>f</sup>                                                                         | 4                              | 7   | 0.22                        | 0.16                                                                   | 0.14                                                                                                | 0.22                                      | 0.19                                             |
| 1 in. Rigid Insulation <sup>f</sup>                                                                         | 8                              | 8   | 0.21                        | 0.15                                                                   | 0.13                                                                                                | 0.20                                      | 0.18                                             |
| 2 in. Corkboard <sup>g</sup>                                                                                | 4                              | 9   | 0.12                        | 0.099                                                                  | 0.093                                                                                               | 0.12                                      | 0.11                                             |
| 2 in. Corkboard <sup>g</sup>                                                                                | 8                              | 10  | 0.12                        | 0.098                                                                  | 0.090                                                                                               | 0.12                                      | 0.11                                             |

<sup>a</sup>Computed from factors marked by \* in Table 2.

<sup>b</sup>Assumed 3/4 in. thick.

<sup>c</sup>Assumed 3/4 in. thick.

<sup>d</sup>Assumed 1 in. thick.

<sup>e</sup>The figures for Nos. 5 to 10, inclusive, include 3-in. cinder concrete placed directly on the ground. The insulation is applied between the cinder concrete and the stone concrete. Usually the insulation is protected on both sides by a waterproof membrane, but this is not considered in the calculations.