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TECHNICAL INFORMATION ON BUILDING MATERIALS
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THE NATIONAL BUREAU OF STANDARDS
UNITED STATES DEPARTMENT OF COMMERCE
WASHINGTON, D. C.



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THERMAL INSULATION

Insulating Values for Frame Wall Construction--
Stucco with Various Types of Interior Finishes

This is a brief presentation of calculated thermal insulating values for frame wall construction--stucco with various types of interior finishes, based on tests conducted by the National Bureau of Standards and presented in detail in former Letter Circular No. 227, "Thermal Insulation", (April 19, 1927);¹ and Bureau of Standards Research Paper No. 291, "Heat Transfer Through Building Walls", (August 6, 1930),² by M. S. Van Dusen and J. L. Finck.

¹ Out of print.

² Out of print and not available by purchase but may be consulted in Government depository libraries.

COMPARATIVE INSULATING VALUES (I.V.) FOR FRAME WALL CONSTRUCTION--
STUCCO WITH VARIOUS TYPES OF INTERIOR FINISHES¹

Exterior Wall Construction	Commercial Insulating Materials	Interior Finish	
		Plaster	Plaster Applied on Rigid Insulation Boards
Type of Sheathing	Placed Between 2" x 4" Studding (1 5/8" x 3 5/8" Dressed)	3/4" Plaster and Metal Lath or 1/2" Plaster	1/2" Plaster
Finish	Board or Wall	Board ² alone	Thickness of Board
	Type	Thick- ness Inches	I.V. ¹
	Unfilled Air Space	3 5/8"	4.8
	Flexible Insulation	1/2"	5.4
	Placed against one side, with one air space	3/4"	6.4
		1	7.3
		2	10.8
3/4" Stucco and Metal Lath	Rigid Insulation Board Centered, with 2 air spaces of equal thick- ness	1/2"	5.6
		3/4"	6.4
		1	7.1
(If Wood Lath is used, add C.3)	Building Paper ^{3,4,5}	1/2"	5.9
		3/4"	6.9
	spaces of equal thick- ness	1	7.8
		2	11.5
	"Fill" Insulation	3 5/8"	14.8
	Flexible Insulation	3 5/8"	15.7
			15.9
			17.1
			17.8
			18.6

¹The insulating value is defined as the number of hours required for the passage of 1 Btu of heat through 1 square foot of wall area, per degree Fahrenheit temperature difference between the air on one side of the wall and the air on the other.

²If 1/2" plaster is applied to plaster board or wall board, add 0.22.

³If wood sheathing is replaced by 1/2", 3/4", or 1" rigid insulation boards, add 0.77, 1.52, or 2.28 respectively.

⁴If 1/2", 3/4", or 1" rigid insulation board is used with wood sheathing, add 1.52, 2.27, or 3.03 respectively.

⁵If 1/2", 3/4", or 1" flexible insulation is used with wood sheathing, add 1.85, 2.78, or 3.70 respectively.