

TECHNICAL INFORMATION ON BUILDING MATERIALS  
FOR USE IN THE DESIGN OF LOW-COST HOUSING

TIBM-15

\*\*\*\*\*

THE NATIONAL BUREAU OF STANDARDS  
UNITED STATES DEPARTMENT OF COMMERCE  
WASHINGTON, D. C.

---

May 18, 1936.

---

THERMAL INSULATION

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

This is a brief presentation of calculated thermal insulating values for frame wall construction--wood shingles 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);<sup>1</sup> and Bureau of Standards Research Paper No. 291, "Heat Transfer Through Building Walls", (August 6, 1930),<sup>2</sup> by M. S. Van Dusen and J. L. Finck.

---

<sup>1</sup>Out of print.

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

1. The first part of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes that this is essential for ensuring transparency and accountability in the organization's operations.

2. The second part of the document outlines the various methods and tools used to collect and analyze data. It highlights the need for consistent and reliable data collection processes to support effective decision-making and strategic planning.

3. The third part of the document focuses on the role of technology in modern data management. It discusses how advanced software solutions and digital tools can streamline data collection, storage, and analysis, leading to more efficient and accurate results.

4. The fourth part of the document addresses the challenges associated with data management, such as data quality, security, and privacy. It provides strategies and best practices to overcome these challenges and ensure that data is used responsibly and effectively.

5. The fifth part of the document discusses the importance of data governance and the role of leadership in establishing a strong data management culture. It emphasizes that clear policies and standards are necessary to ensure data is used consistently and ethically across the organization.

6. The sixth part of the document explores the future of data management, including emerging trends such as artificial intelligence, big data, and cloud computing. It discusses how these technologies will continue to shape the way organizations collect, store, and analyze data.

7. The seventh part of the document provides a summary of the key points discussed throughout the document. It reiterates the importance of data management and the need for a proactive and strategic approach to ensure long-term success and growth.

8. The eighth part of the document includes a list of references and resources for further reading. It provides links to relevant articles, books, and industry reports that offer additional insights and information on data management topics.

9. The final part of the document is a conclusion that summarizes the overall message and provides a call to action. It encourages organizations to take a proactive and strategic approach to data management to maximize their potential and achieve their goals.

COMPARATIVE INSULATING VALUES (I.V.) FOR FRAME WALL, CONSTRUCTION--  
WOOD SHINGLES WITH VARIOUS TYPES OF INTERIOR FINISHES<sup>1</sup>

Exterior Wall Construction	Commercial Insulating Materials	Interior Finish
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; Board or Wall Board <sup>2</sup> alone
Finish		1/2" : 3/4" : 1"
Wood Shingles and (If shingles are applied on wood strips forming 7/8" air space, add 1.03)	Type	I.V. <sup>1</sup> : I.V. <sup>1</sup> : I.V. <sup>1</sup>
	Unfilled Air Space	4.6 : 4.8 : 6.0
	Flexible Insulation	6.4 : 6.6 : 7.8
	Placed against one side, with one air space	7.4 : 7.6 : 8.8
		8.3 : 8.5 : 9.7
		12.0 : 12.2 : 13.4
	Rigid Insulation Board	6.8 : 7.0 : 8.2
	Centered, with 2 air spaces of equal thickness	7.6 : 7.8 : 9.0
		8.3 : 8.5 : 9.7
	Flexible Insulation	7.1 : 7.3 : 8.5
	Centered, with 2 air spaces of equal thickness	8.1 : 8.3 : 9.5
		9.0 : 9.2 : 10.4
		12.7 : 12.9 : 14.1
	"Fill" Insulation	16.0 : 16.2 : 17.4
	Flexible Insulation	16.9 : 17.1 : 18.1
		18.3 : 19.0 : 19.8

<sup>1</sup>The 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.

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

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

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

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

