

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

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THE NATIONAL BUREAU OF STANDARDS  
UNITED STATES DEPARTMENT OF COMMERCE  
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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.

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<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 data collection procedures and the use of advanced analytical techniques to derive meaningful insights from the data.

3. The third part of the document focuses on the implementation of data-driven strategies. It provides a detailed overview of the key steps involved in developing and executing these strategies, from identifying opportunities to monitoring and evaluating their effectiveness.

4. The fourth part of the document discusses the challenges and risks associated with data-driven decision-making. It identifies common pitfalls and offers practical advice on how to mitigate these risks and ensure the successful implementation of data-driven strategies.

5. The fifth part of the document provides a comprehensive overview of the current state of data-driven decision-making in various industries. It highlights the latest trends and innovations, as well as the impact of these changes on the overall business landscape.

6. The sixth part of the document offers a detailed analysis of the role of data in the future of business. It explores the potential of emerging technologies and discusses the implications of these developments for organizations and society as a whole.

7. The seventh part of the document provides a summary of the key findings and conclusions of the report. It emphasizes the importance of data-driven decision-making and offers a call to action for organizations to embrace this approach and maximize their potential.

8. The eighth part of the document includes a list of references and a glossary of key terms. This section is designed to provide readers with additional resources and a clear understanding of the terminology used throughout the report.

9. The final part of the document is a concluding statement that reiterates the main message of the report and expresses the authors' confidence in the findings and recommendations. It serves as a final call to action for readers to take the necessary steps to implement the strategies discussed in the report.

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.

