



MGBC CPD SEMINAR 2017

MS1525 & BYLAW 38A

Insulation Product Knowledge, Cost Impact &
Flexibility Of Application

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OUTLINES



- What is insulation
- What is Mineral Wool Insulation
- Composition & Manufacturing process
- How insulation works
- How much does it cost
- The importance of choosing the right insulation

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WHAT IS INSULATION



- Defined as material or combination of materials that:
 - retards the flow of heat
 - reduces sound transmission
 - slows down the spread of fire
- Materials that can be adapted to any size, shape or surface
- Can have a variety of finishes used to protect from mechanical and environmental damage and to enhance aesthetic appearance

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WHAT IS MINERAL WOOL INSULATION



- Made from molten glass, stone or slag that is spun into fibre-like strands structures
- Has a unique range of properties that can be used in:
 - ü buildings for thermal comfort & improved energy efficiency
 - ü soundproofing as a means of reducing the intensity of sound
 - ü fire protection to save lives, properties & businesses
- Comes in different forms such as blankets, slabs, rigid, loose-fill, reflective and pipe sectionals

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WHAT IS MINERAL WOOL INSULATION



STONE WOOL



GLASS WOOL

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COMPOSITION



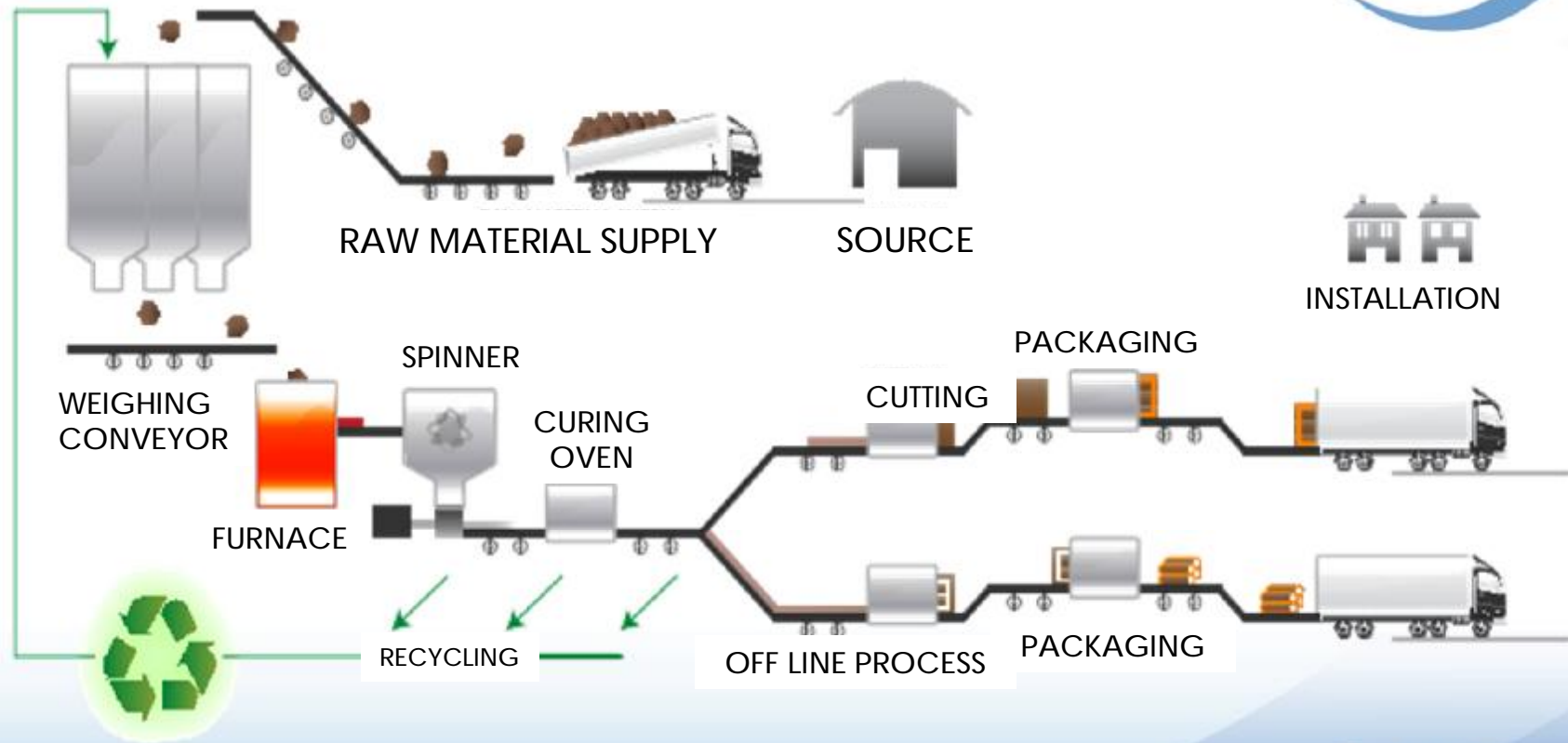
- **Glass wool** – made from recycled glass cullets



- **Stone wool** – made from volcanic rock, typically basalt, and dolomite



MANUFACTURING PROCCESS **MIMG**



INSTALLATION

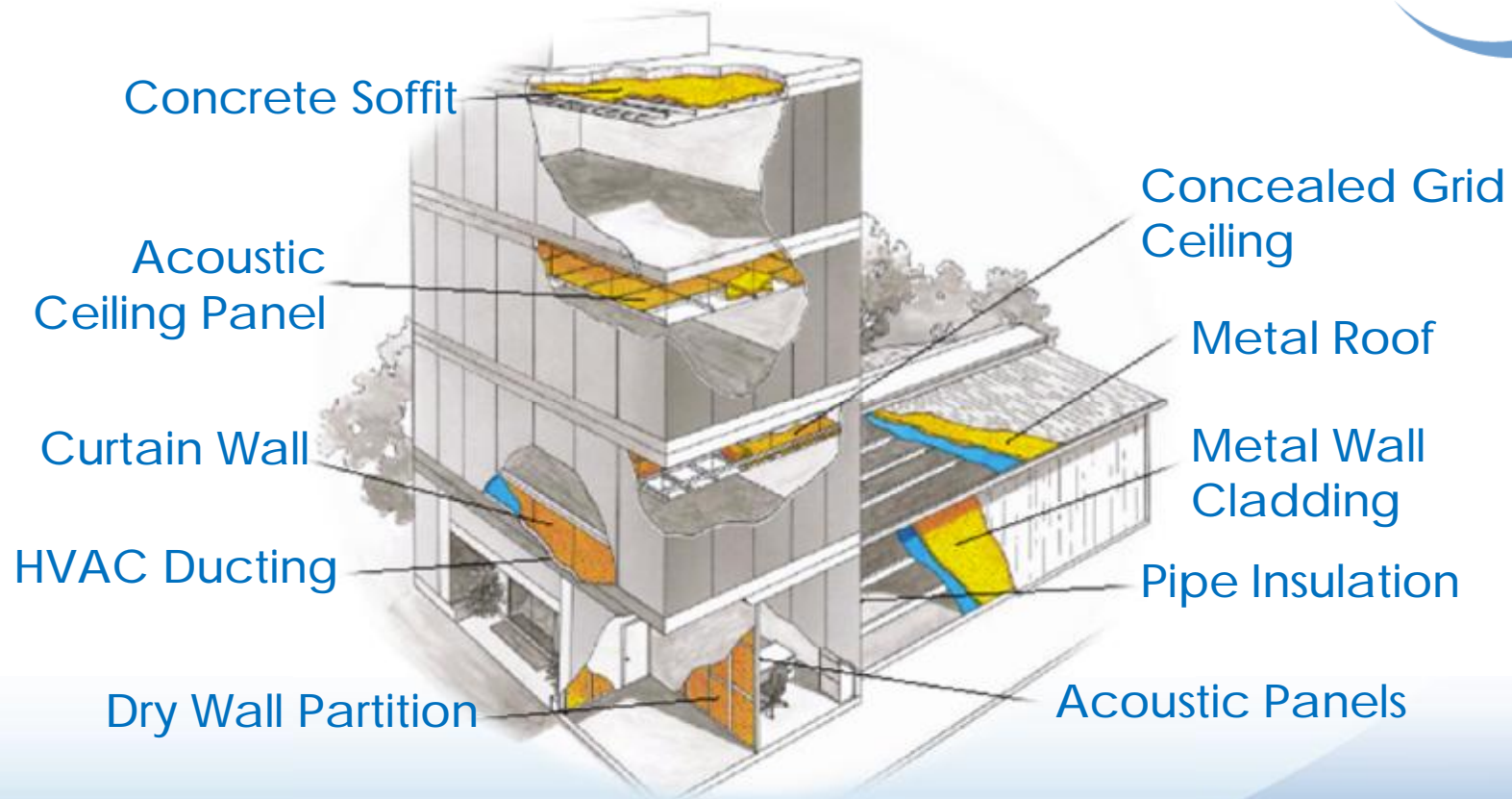
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HOW INSULATION WORKS?



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INSULATION IN BUILDING APPLICATION **MIMG**



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SMK SRI PERMATA : insulation vs uninsulated

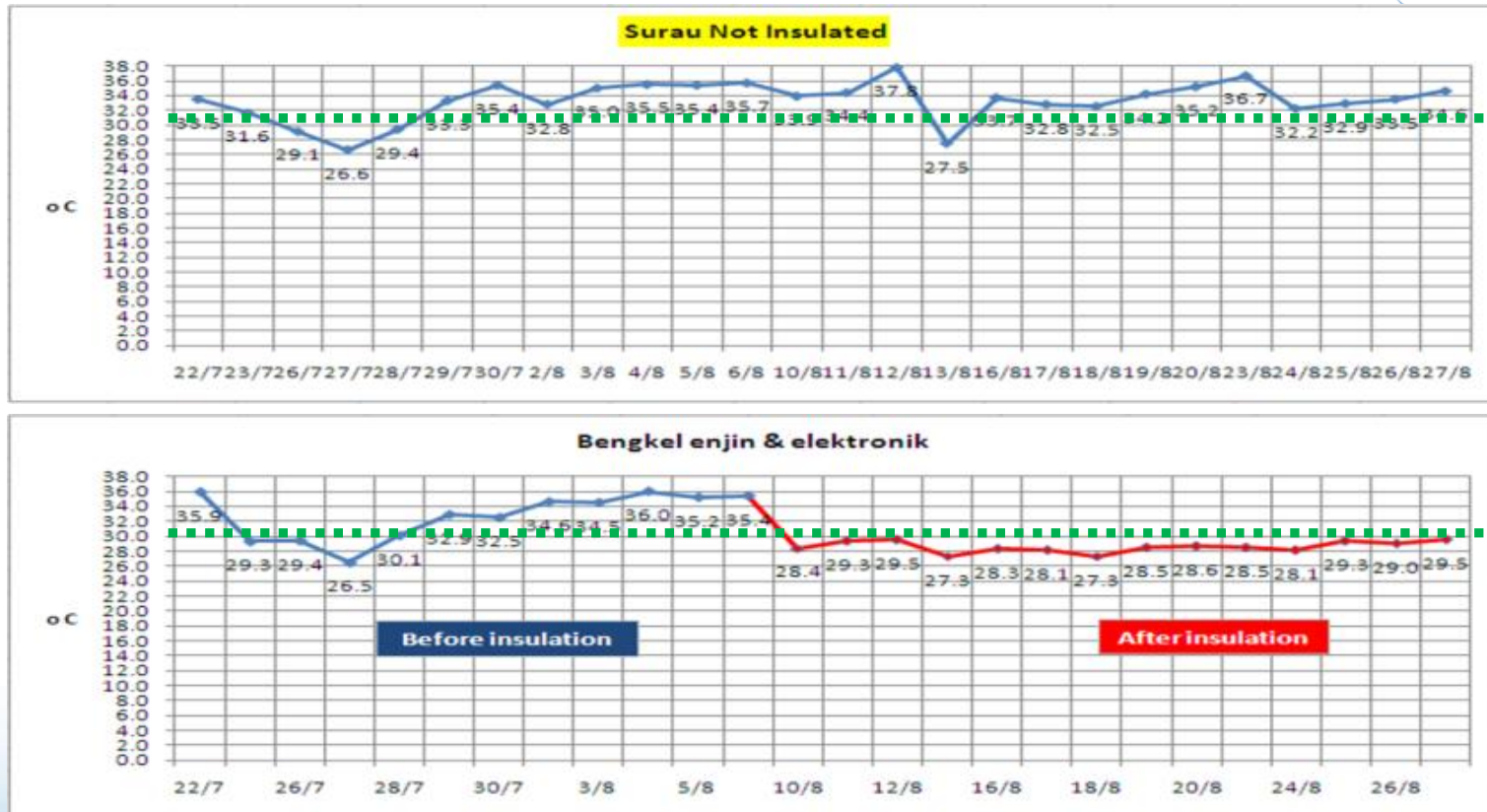


Source:

<http://smksripermata.wordpress.com/2010/08/30/roof-insulation-bengkel-khb/>

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The importance of choosing the right insulation

– reduces indoor temperature



Temperature (°C)	Workshop of a school
Before insulation	32.6
After insulation	28.4
Temperature difference	4.2

By 3°C to 5°C

Source:

Temperature monitoring and insulation project of a school in Petaling Jaya (July/August 2010)

The importance of choosing the right insulation

– reduces electricity used for cooling



Energy consumption	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
Non-insulated room (kWh)	7.54	5.65	6.88	6.77	7.50	6.47	8.25
Insulated room (kWh)	6.35	4.70	5.91	5.88	6.40	5.41	7.00
Savings of kWh in %	15.78	16.81	14.10	13.15	14.67	16.38	15.15

Up to 16% of electricity saved

Source:

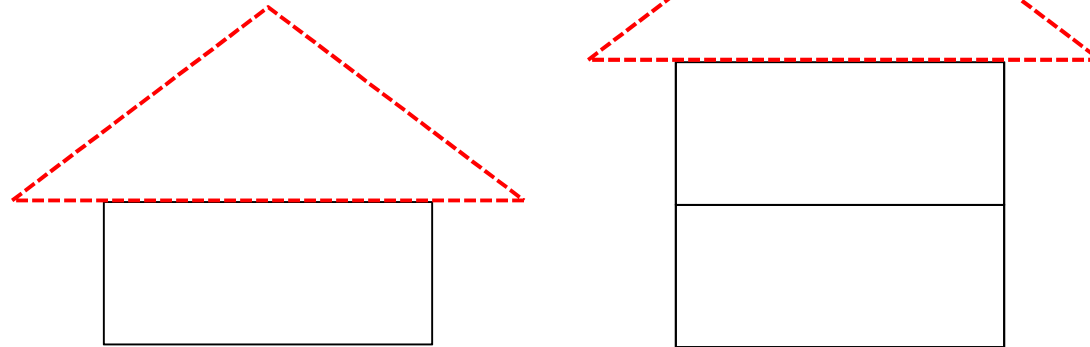
Thermal and Energy Performance of Mineral Wool Insulation Materials in the Malaysian Climate Condition study conducted by Universiti Teknologi MARA (UiTM), Shah Alam (Q1, 2010)

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HOW MUCH DOES IT COST?



- Around 1 to 2% of the cost of the house (normal intermediate terrace house) – insulation & supporting structure



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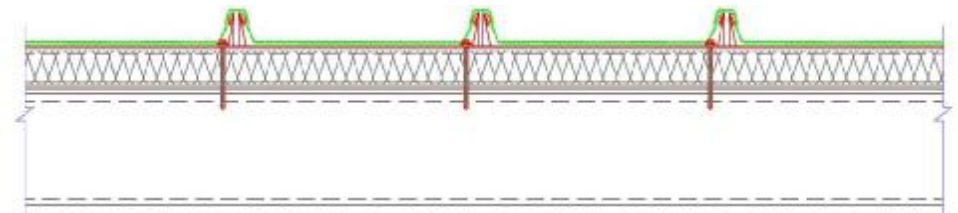
The importance of choosing the right insulation



- Performance
 - ü Valid test report/certificate?
 - ü Performance over time?
 - ü Construction method as recommended?
- Safety
 - ü Reaction to Fire?
 - ü Toxicity?
 - ü Gases released during its life time?
- Quality
 - ü Consistent quality?
 - ü Product Certification?



Description	Thermal Resistance
Outside air film	0.055
Metal roof deck	0.00001
Mineral Wool Insulation	2.5
Internal air film	0.162
Σ Thermal Resistance (R Value)	2.717
<i>U Value (1/R)</i>	0.368

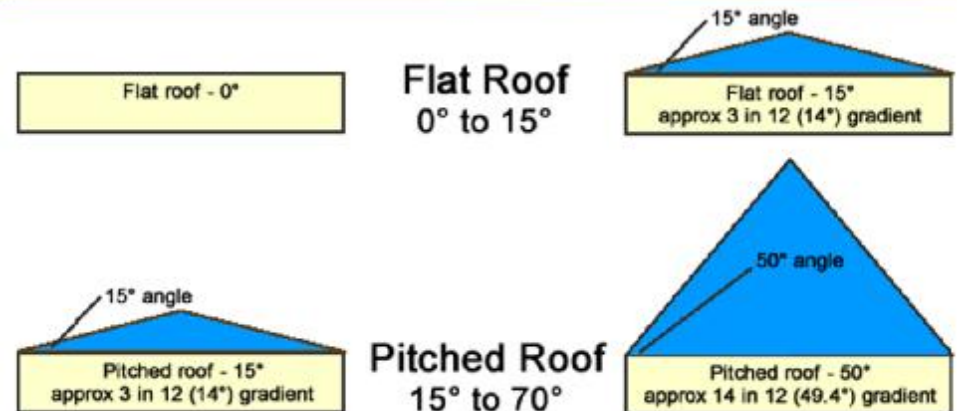


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Description	Thermal Resistance
Outside air film	0.055
Metal roof deck	0.00001
?(Air Gap)?	
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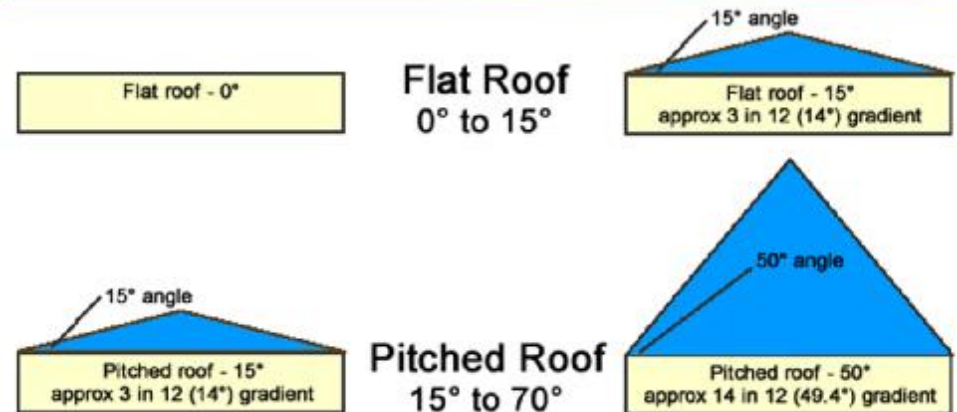
Roof Definitions





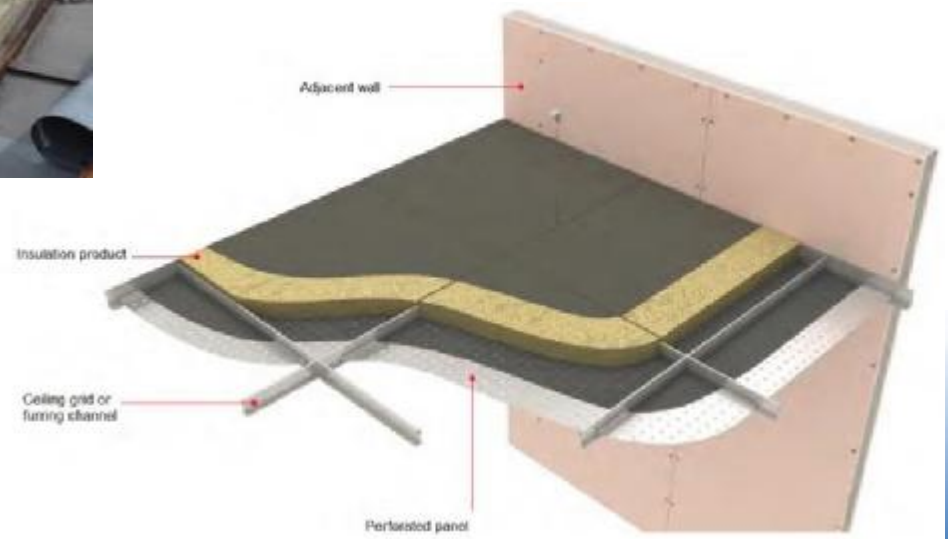
Description	Thermal Resistance
Outside air film	0.055
Metal roof deck	0.00001
?(Air Gap)?	
???	
Internal air film	0.162
Σ Thermal Resistance (R Value)	0.217
U Value (1/R)	4.608

Roof Definitions



INSULATION

– Versatile application – soft enough to be adapted to any size, shape & surface



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INSULATION

– FOR GREAT INVESTMENT VALUE



1. Low investment cost – 1% of the total cost of the intermediate link house.
2. Higher value for potential building/ house owners – savings in cooling costs, improved indoor comfort and healthier environment.
3. Safe to use, maintenance free and easily installed on existing building.
4. Improves energy efficiency – an important criteria in GBI certification for green buildings.



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THANK YOU

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