

# Timber for Furniture

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Putra World Trade Centre (PWTC), Kuala Lumpur  
8<sup>th</sup> August 2015**

# The Malaysian Timber/Furniture Industry

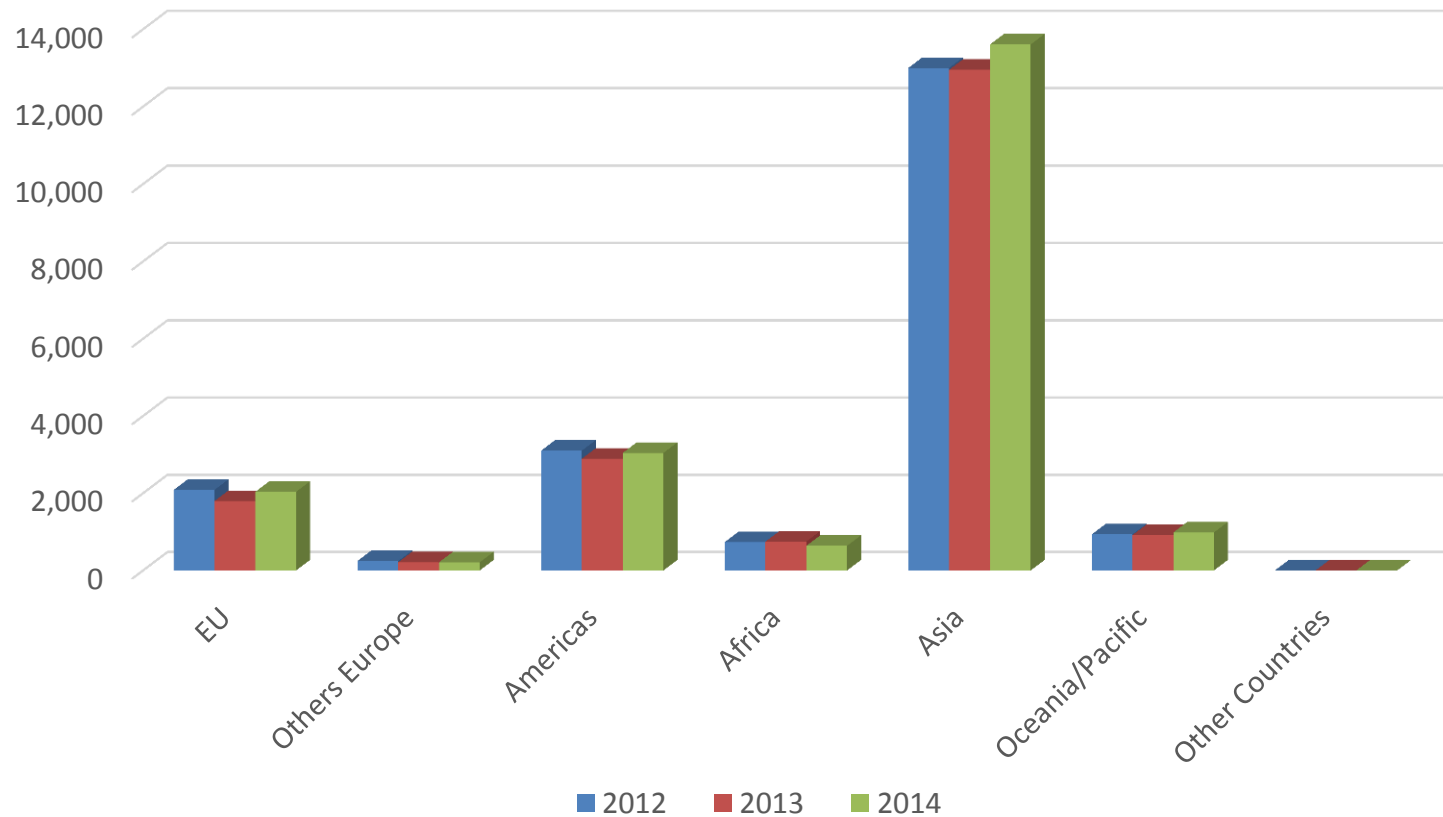


# Exports of Malaysian Timber Products by Regions (2012–2014)

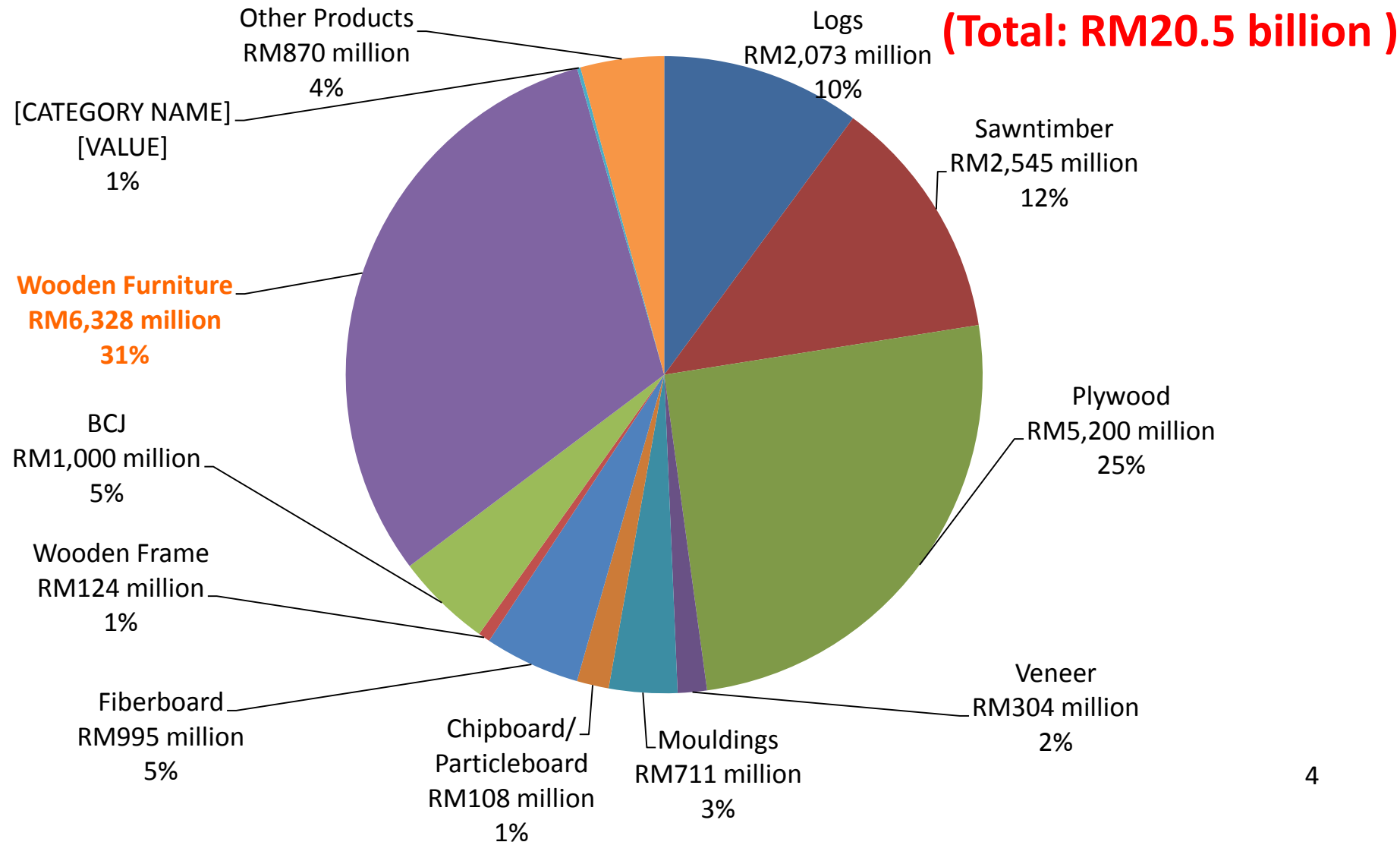
**2012 : RM20.2 billion**

**2013 : RM19.5 billion**

**2014 : RM20.5 billion**

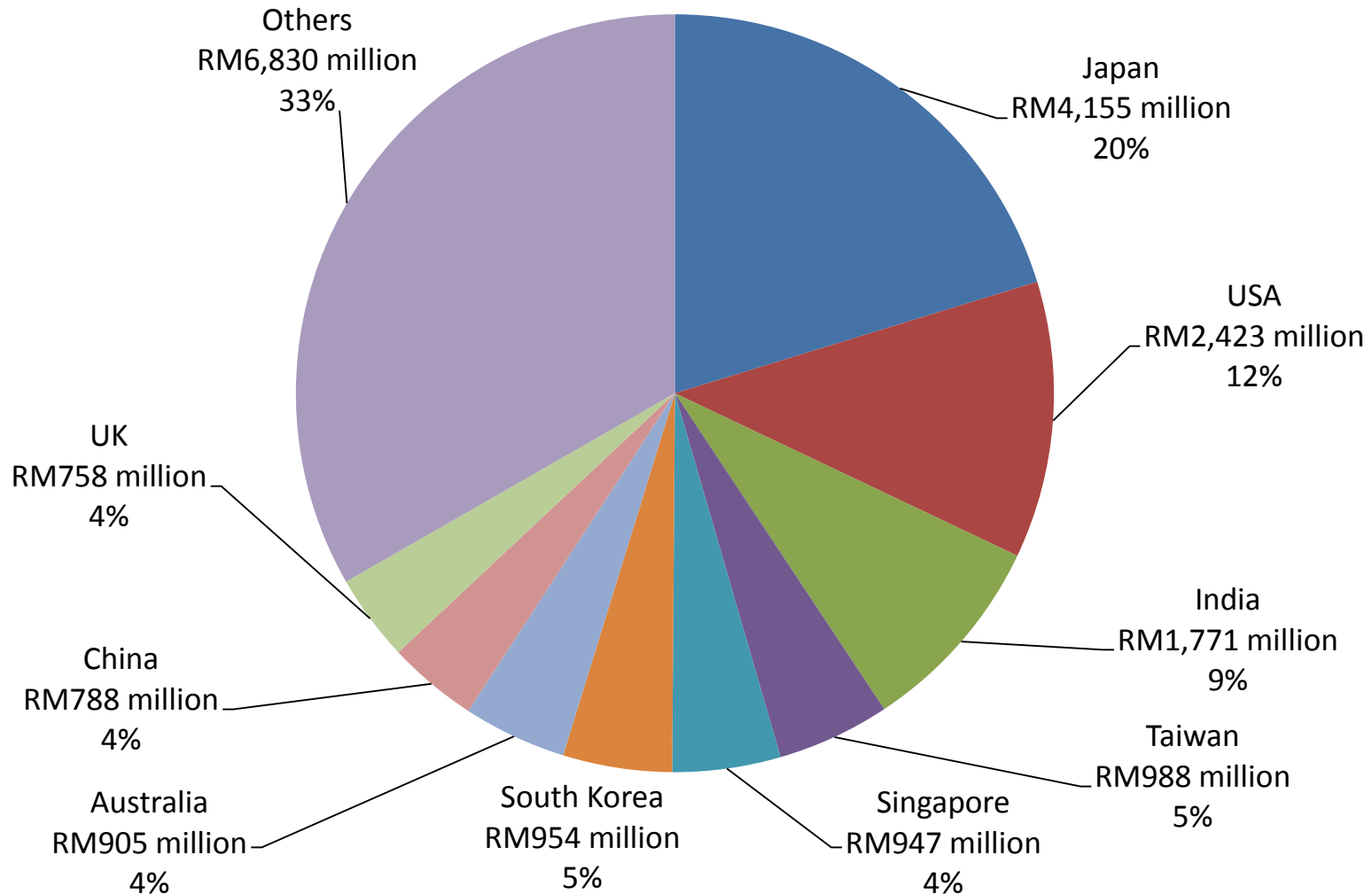


# Malaysia: Export of Major Timber Products 2014



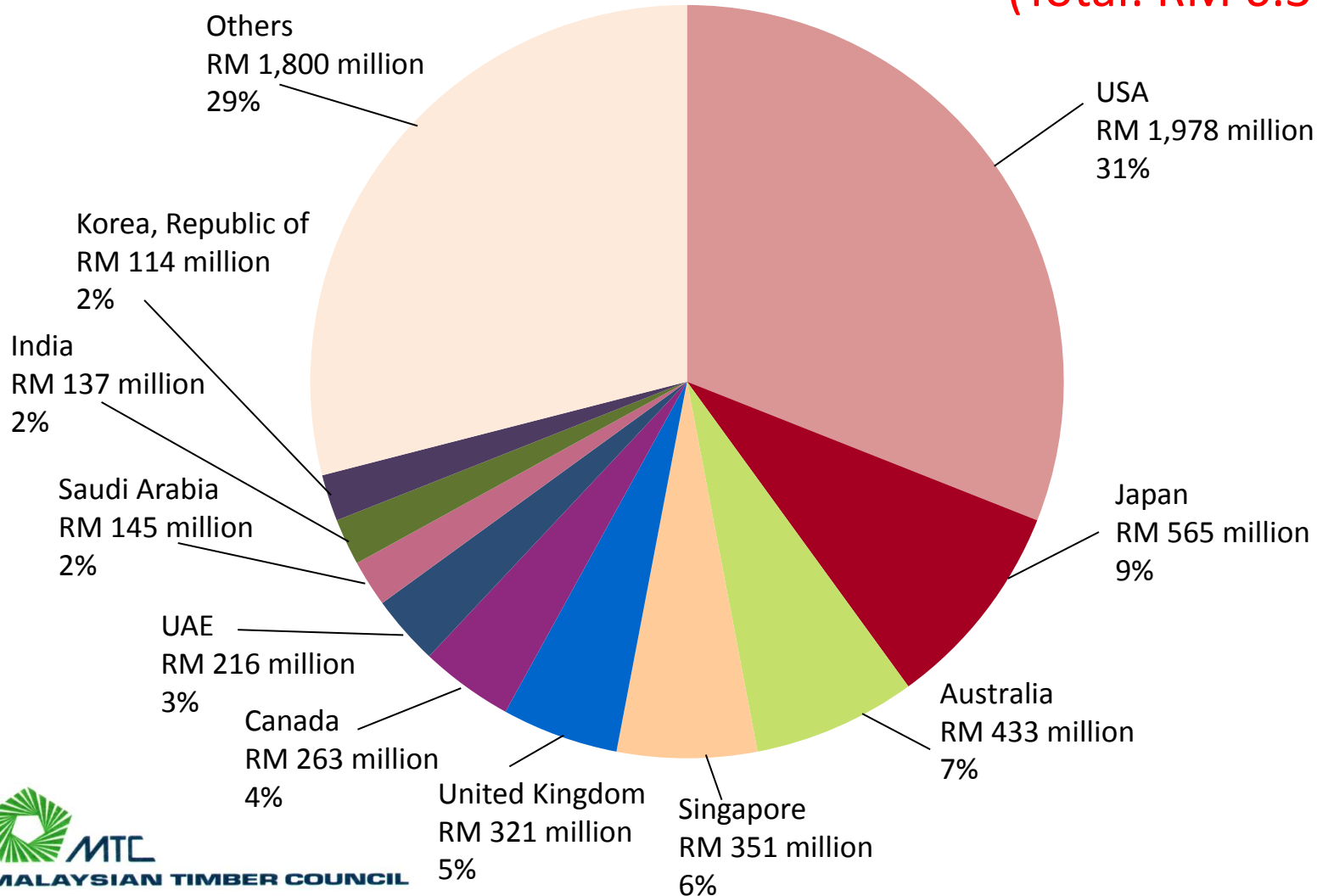
# Malaysia: Top 10 Markets for Timber Products 2014

**(Total: RM20.5 billion)**



# Malaysia: Top 10 Markets for Wooden Furniture 2014

(Total: RM 6.3 billion)



# Malaysian Timber Council



# Malaysian Timber Council

# Use timber



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*love timber*

*think timber*

*dream timber*



# Malaysian Timber Council



# Timber & Timber Products for Furniture

# Designing Furniture



# Designing Furniture with Malaysian Timber Products



# Designing Furniture with Malaysian Timber Products



timber  
and timber  
products

# Raw Materials



Solid Wood



Plywood



MDF



Particleboard



LVL



Laminated Board

# Types of Timbers

## Heavy hardwood

- Balau
- Chengal
- Merbau
- Red balau

## Medium Hardwood

- Kasai
- Kelat
- Keledang
- Kempas
- Keruing
- Mengkulang
- Merpauh

## Light Hardwood

- Bintangor
- Dark Red Meranti
- Gerutu
- Kembang semangkok
- Mersawa
- Nyatoh
- Rubberwood
- Sepetir
- Yellow Meranti

## Softwood

- Pine
- Cedar
- Douglas
- Cypress
- Hemlock
- Spruce

# Timbers for Furniture



## Rubberwood

- Pale cream in colour

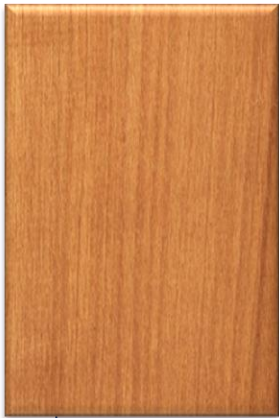


## Dark red meranti

- Medium red to deep red or deep red-brown



# Timbers for Furniture



## Nyatoh

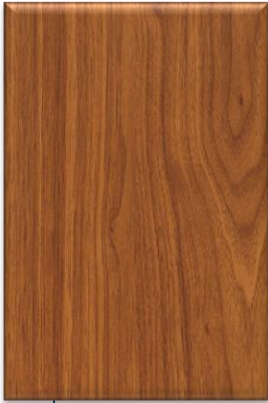
- Deep pink-red colour or red-brown with stripe



## Kembang semangkok

- Yellow-brown or light brown

# Timbers for Furniture



## Walnut

- Dark chocolate-brown to purplish-black



## Teak

- Golden or medium brown

# Timbers for Furniture



## Oak

- White oak and red oak



## Cherry

- Reddish timber

# SOLID WOOD



# SOLID WOOD - properties



Ease of  
Planing

Quality of  
Finishing

Ease of  
Boring

Ease of  
Turning

Quality of  
Nailing

Ease of  
Treatability

# SOLID WOOD - colours

red

yellow

brown

white

light

dark



# Colours



Rubberwood



Bintangor



Dark red meranti



Nyatoh

# Other properties – cutting patterns



Oak flat sawn



Oak end grain



Oak quarter sawn



Other properties – dimensional stability

# moisture content



# COMPOSITE WOOD



Plywood



MDF



Particleboard



Laminated board

# Plywood

- 3mm – 35mm

## Thickness

- Veneer
- Paper laminate

## Surface

- Not easy to bent

## Shape

# Particleboard



# Particleboard

## Thickness

- 9mm – 36mm

## Surface

- Plastic laminate
- Not suitable with veneer

## Shape

- Not easy to bent

# Medium Density Fiber Board (MDF)



# Medium Density Fiber Board (MDF)

## Thickness

- 6mm – 25mm

## Surface

- High-end paints
- Veneer

## Shape

- Not easy to bent

# Medium Density Fiber Board (MDF)

heavy

straight

porous

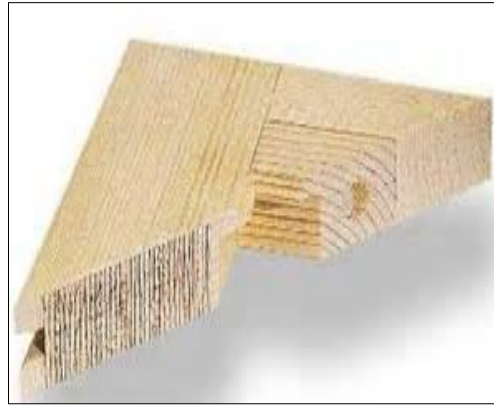
swells

fasteners

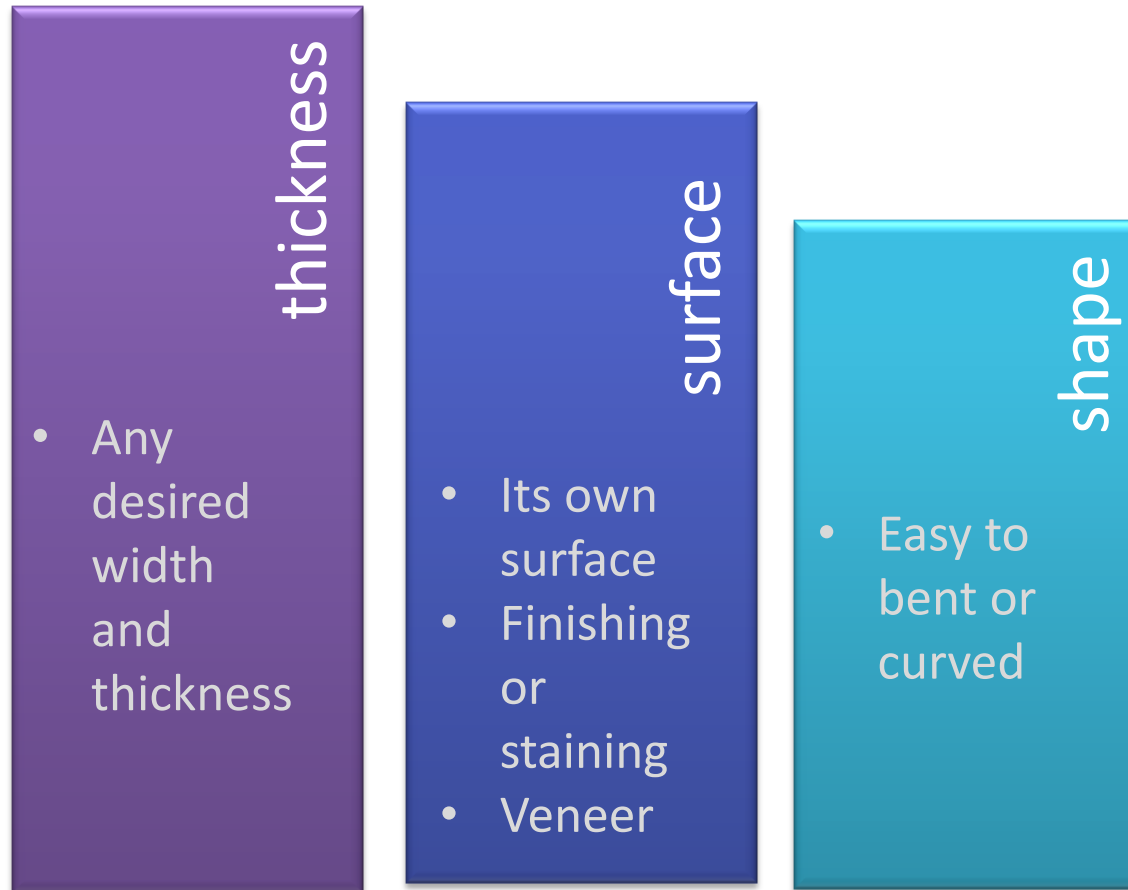




# Laminated Veneer Lumber (LVL)



# Laminated Veneer Lumber (LVL)



# Laminated Veneer Lumber (LVL)

- ‘Almost-like’ solid wood with smooth surface
- Can be engineered to meet specified technical and strength requirements
- It can be dimensioned into any desired width and thickness
- Possibility of curved laminated parts



# Laminated Board



# Furniture Manufacturing Process



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# Furniture Manufacturing Process



# Tools



Tablesaw – crosscuts, ripping, cutting several types of joint



Bandsaw – crosscuts, ripping, resaw



Router – cut joints and decorative shapes



Carving tools – to do shaping and decorative designs

# Cutting to Shape & Joints

## TYPES OF CUTTING

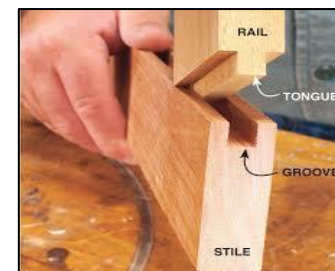
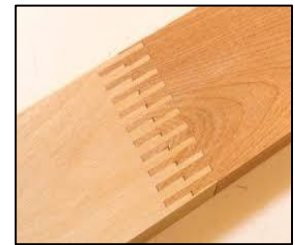
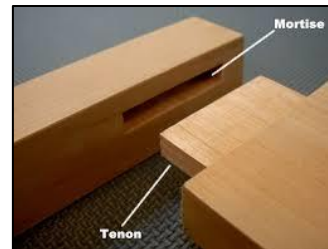
- Cut to width
- Cut to length
- Surface planing

## TYPES OF JOINTS

- Dovetails
- Butt joint
- Tongue and groove
- Mortise & tenon
- Rabbet
- Dadoes
- Finger-joint

## SELECTING RIGHT JOINTS

- Strength
- Appearance
- Construction





# Drilling, Sanding & Assembly

## DRILLING

- To make holes for dowel joints, for decoration purpose and to fasten wood with screws

## SANDING

- Smooth the surface of wood prior to finishing
- Using stationary or portable sanding machine

## ASSEMBLY

- Assemble accordingly with each parts and joints

# Finishing & Packaging

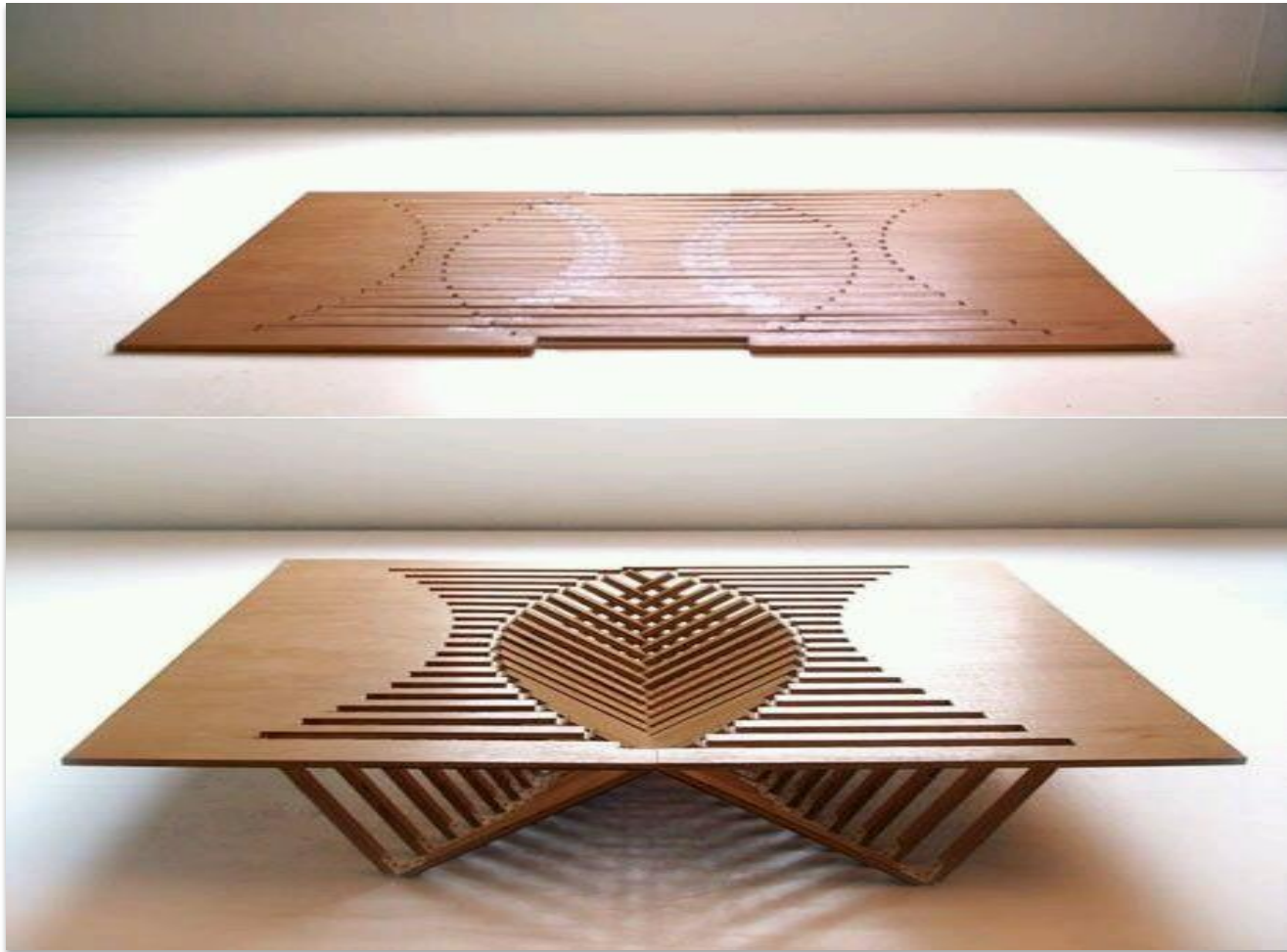
## FINISHES SELECTION

- **Protection** – How and Where the furniture will be used (e.g: table top must be protected against spills and bumps)
- **Appearance** – almost any appearance
  - Clear finish → highlight wood grain
  - Paint and enamel → cover up unattractive surface
  - Stains and bleaches → wood lighter or darker
  - Varnish → surface shiny
- **Application** – Some applied quickly and simply / more difficult & time consuming.

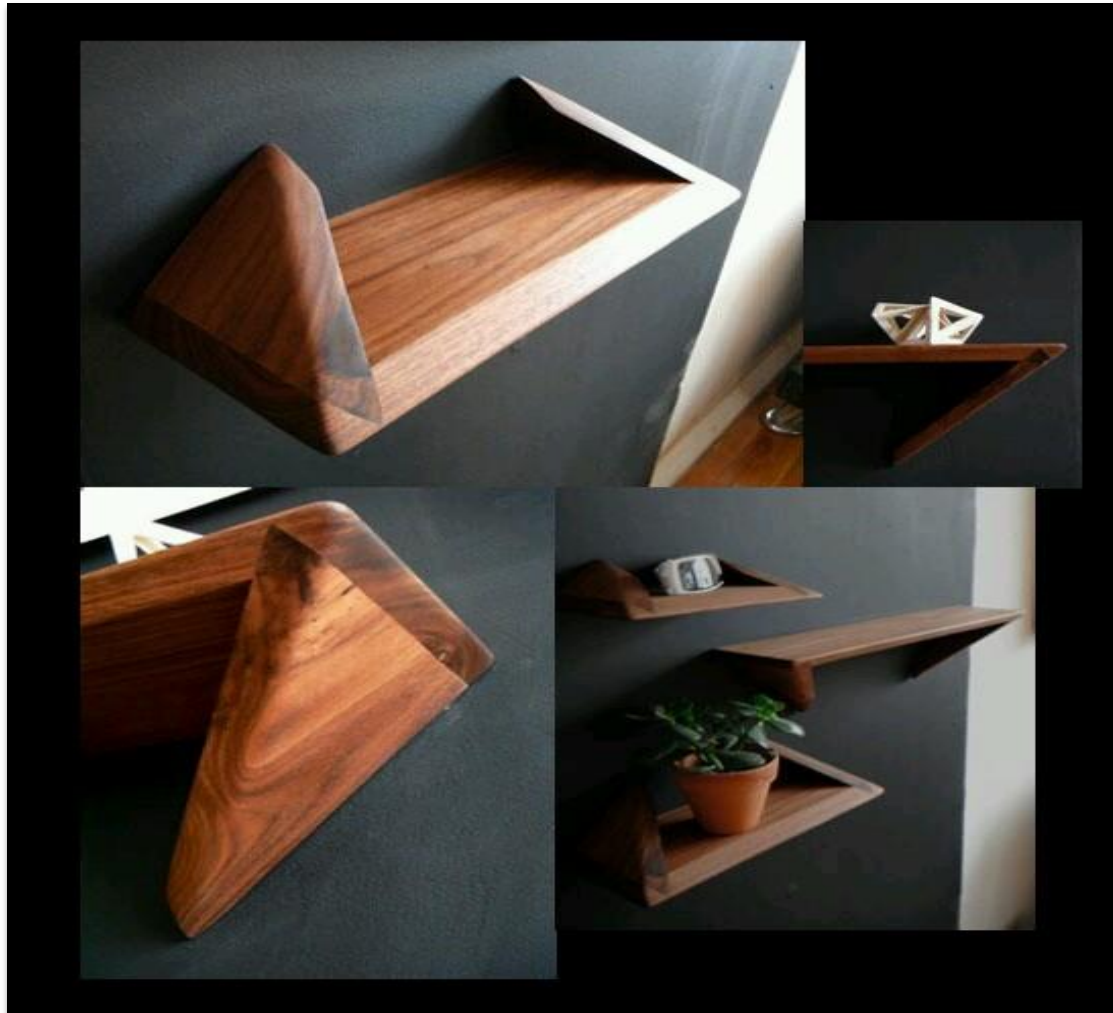
## PACKAGING

- Use robust material that can protect the furniture from any damage

# Example of furniture



# Example of furniture



# Example of furniture



# Example of furniture



# Example of furniture



# Example of furniture





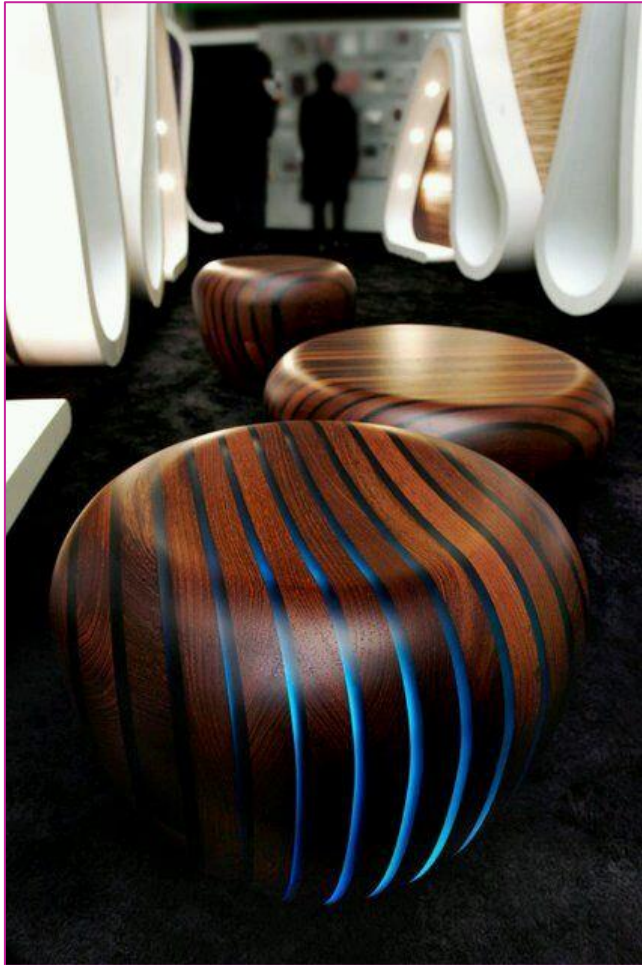
# Example of furniture



# Example of furniture



# Example of furniture



# Example of furniture



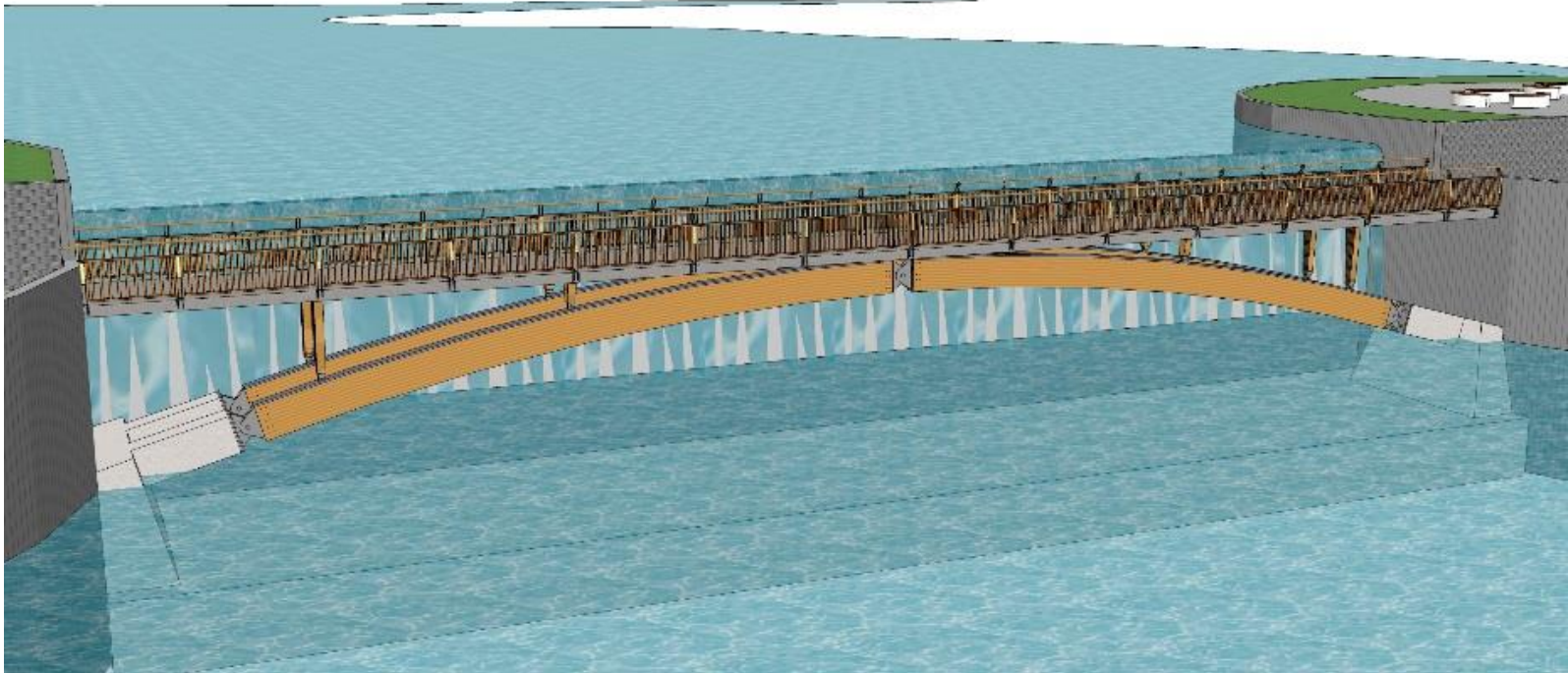
# Example of furniture



# MTC – Other Things We Do



# Project: MTC Glulam Bridge in Putrajaya



- ✓ Span – 40m; Width – 3m
- ✓ Super structure – Mengkulang Glulam
- ✓ Cost: RM1.789 million
- ✓ Developer: myGlam Sdn. Bhd.
- ✓ Engineering detail : SWECO, Norway

# Project: Fire Performance Test

## Fire Performance Test



- ✓ 5 species were tested for charring rate
  - DRM
  - Mengkulang
  - Damar Hitam
  - Merpauh
  - Kapur
  
- ✓ Mengkulang shows the lowest charring rate of 0.50 mm/min
  
- ✓ A full size beam will be sent to BRANZ, New Zealand for a full fire test



# Timber-Related Projects

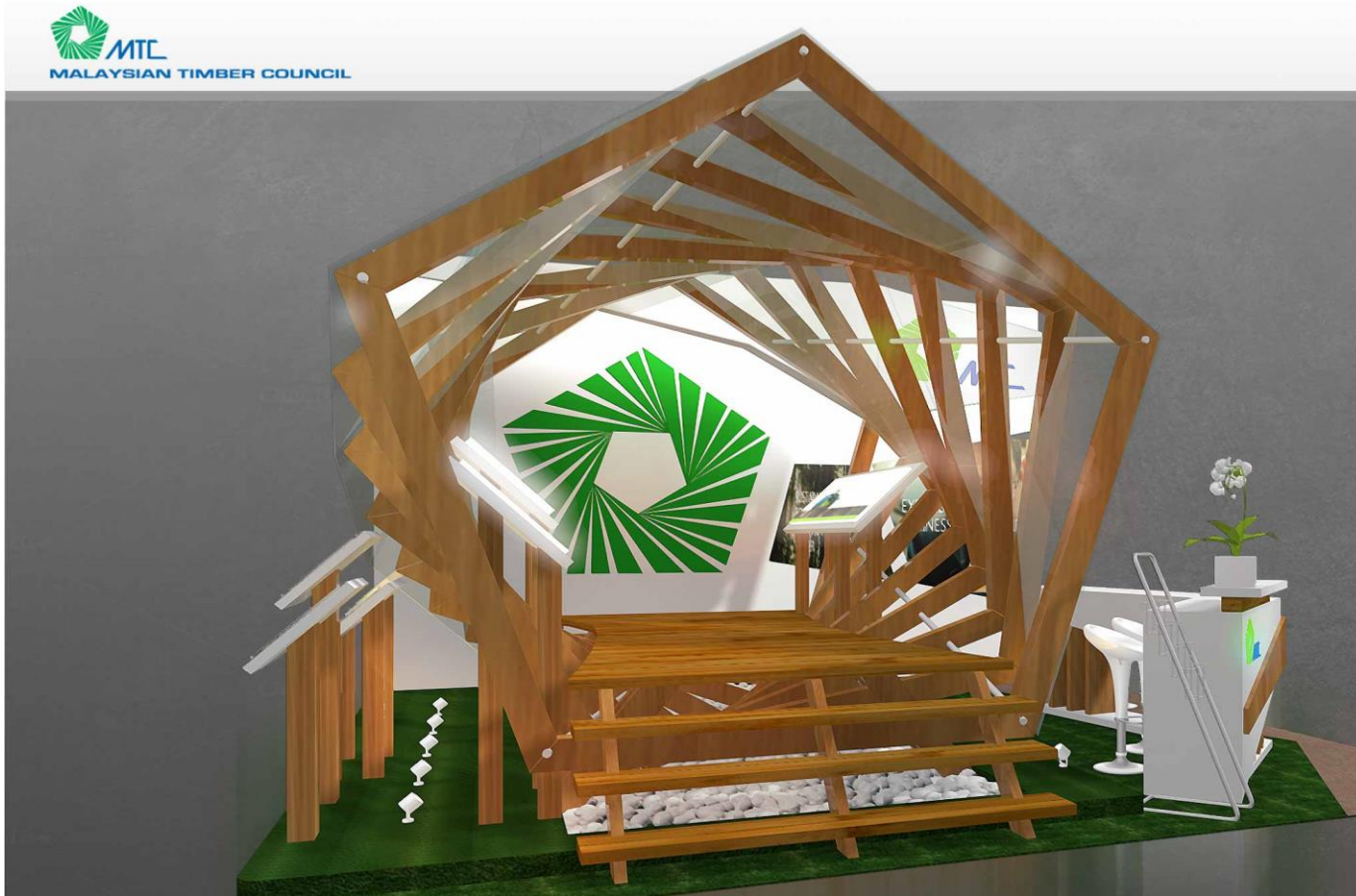
## Timber Frame Housing



### Current progress

- ✓ Ministry of Housing (KPKT) is looking into using timber frame system for some of their housing projects

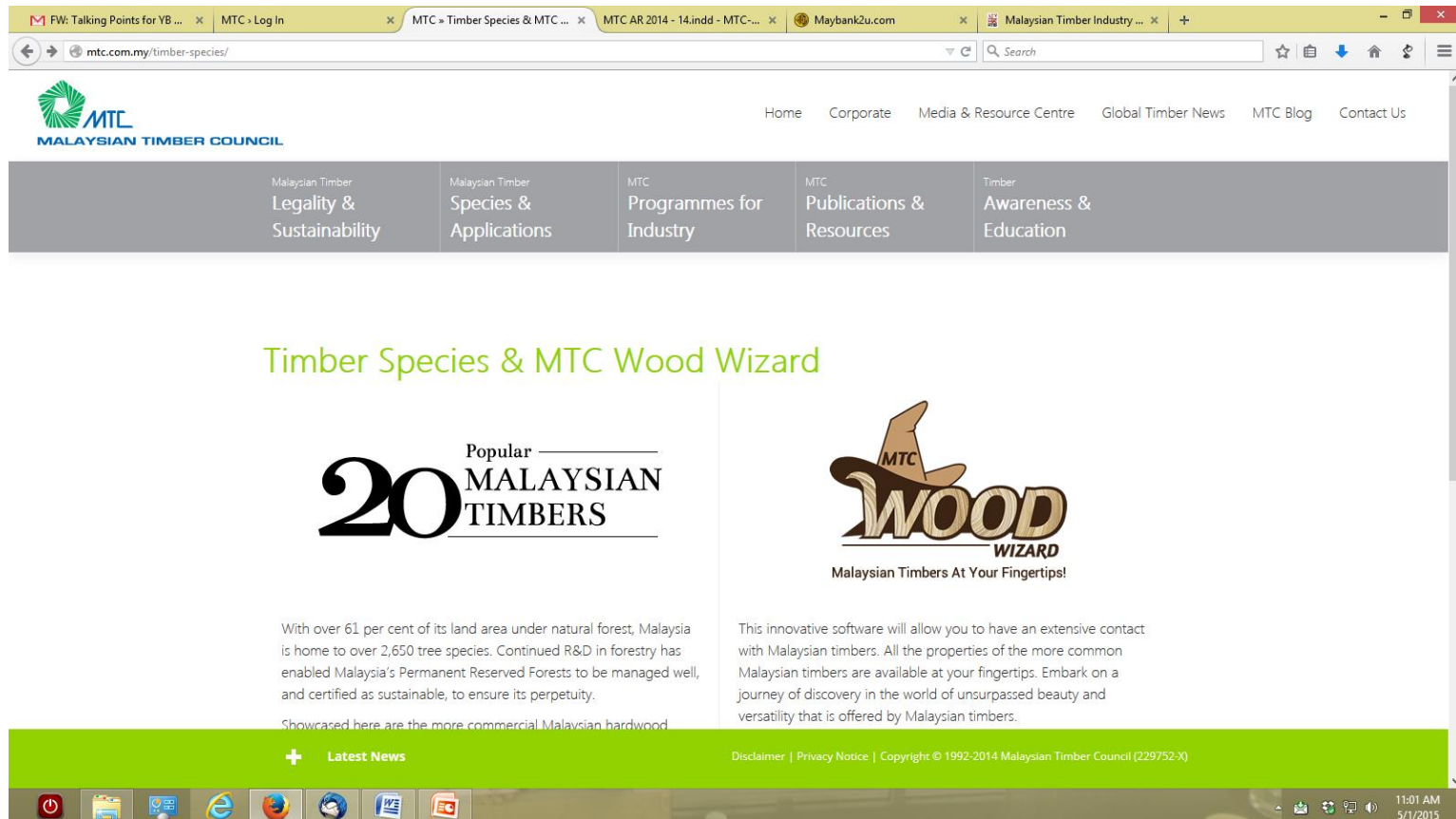
# Visit us at Archidex Fair (12 – 15 Aug 2015)





# MTC Wood Wizard

## Technical properties and applications of a comprehensive list of Malaysian timbers




The screenshot shows a web browser window displaying the MTC website. The address bar shows the URL [mtc.com.my/timber-species/](http://mtc.com.my/timber-species/). The page features the MTC logo and a navigation menu with links for Home, Corporate, Media & Resource Centre, Global Timber News, MTC Blog, and Contact Us. A horizontal menu below the navigation lists: Malaysian Timber Legality & Sustainability, Malaysian Timber Species & Applications, MTC Programmes for Industry, MTC Publications & Resources, and Timber Awareness & Education.

### Timber Species & MTC Wood Wizard

**Popular**  
**20 MALAYSIAN TIMBERS**

With over 61 per cent of its land area under natural forest, Malaysia is home to over 2,650 tree species. Continued R&D in forestry has enabled Malaysia's Permanent Reserved Forests to be managed well, and certified as sustainable, to ensure its perpetuity.

Showcased here are the more commercial Malaysian hardwood



**MTC WOOD WIZARD**  
Malaysian Timbers At Your Fingertips!

This innovative software will allow you to have an extensive contact with Malaysian timbers. All the properties of the more common Malaysian timbers are available at your fingertips. Embark on a journey of discovery in the world of unsurpassed beauty and versatility that is offered by Malaysian timbers.

Latest News

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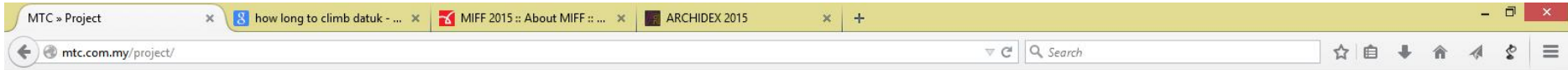
# Species Guide

The screenshot shows a web browser window with the URL [mtc.com.my/timber-species/](http://mtc.com.my/timber-species/). The browser tabs include "MTC Timber Species & MTC...", "how long to climb datuk...", "MIFF 2015 :: About MIFF :: ...", and "ARCHIDEX 2015". The page features the MTC logo and a navigation menu with links for Home, Corporate, Media & Resource Centre, Global Timber News, MTC Blog, and Contact Us. A secondary menu lists categories: Malaysian Timber Legality & Sustainability, Malaysian Timber Species & Applications, MTC Programmes for Industry, MTC Publications & Resources, and Timber Awareness & Education. The main content area is titled "Medium Hardwoods" and displays a grid of seven wood samples, each with a name and family:

- Kasai** (Sapindaceae)
- Kelat** (Myrtaceae)
- Keledang** (Moraceae)
- Kempas** (Leguminosae)
- Keruing** (Dipterocarpaceae)
- Mengkulang** (Sterculiaceae)
- Merpauh** (Anacardiaceae)

At the bottom of the page, there is a "Latest News" section with a plus icon, a disclaimer, and a copyright notice: "Disclaimer | Privacy Notice | Copyright © 1992-2014 Malaysian Timber Council (229752-X)". The system tray at the bottom right shows the time as 12:22 PM on 13/2/2015.

# Projects



Malaysian Timber  
[Legality & Sustainability](#)

Malaysian Timber  
[Species & Applications](#)

MTC  
[Programmes for Industry](#)

MTC  
[Publications & Resources](#)

Timber  
[Awareness & Education](#)

## Projects Using Malaysian Timber

Explore the wonderful world of Malaysian timbers through various applications, as shown here in various luxury resorts, residences and commercial spaces.



[Park Hyatt Hadahaa](#)



[Ting Residence](#)



[Khoo Kongsi](#)



[Cheong Fatt Tze Mansion](#)



[Chef Shukri's House Langkawi](#)



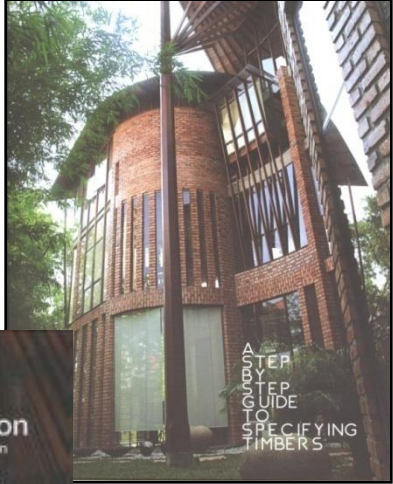
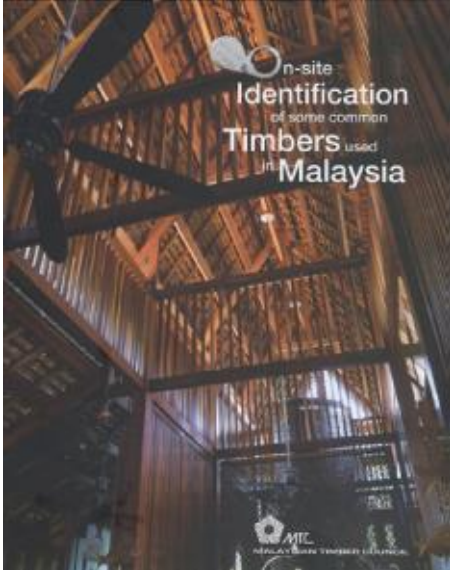
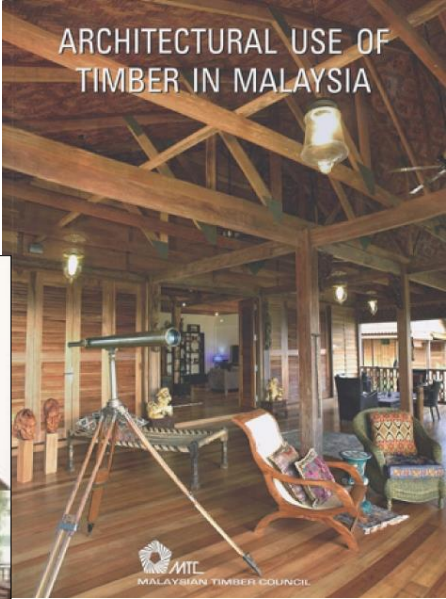
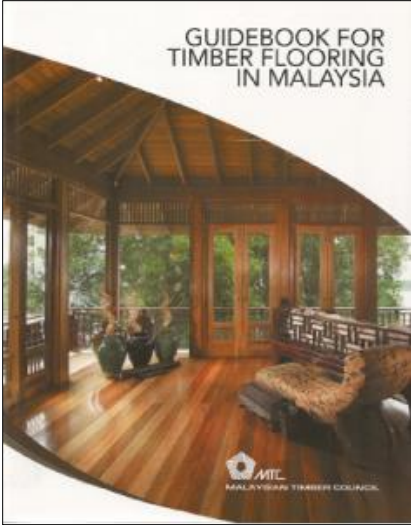
[Coco Palm Bodu Hithi Maldives](#)

[+ Latest News](#)

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# MTC Technical Guidebooks





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**Thank you**