

# Durra Panel

## ESD Report



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ESD REPORT

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Ortech Industries is committed to environmental responsibility within the construction industry. The responsibility for ensuring Environmental Sustainable Design in building construction rests with us all as we move forward in the new millennium and Ortech Industries is an integral part of this process.

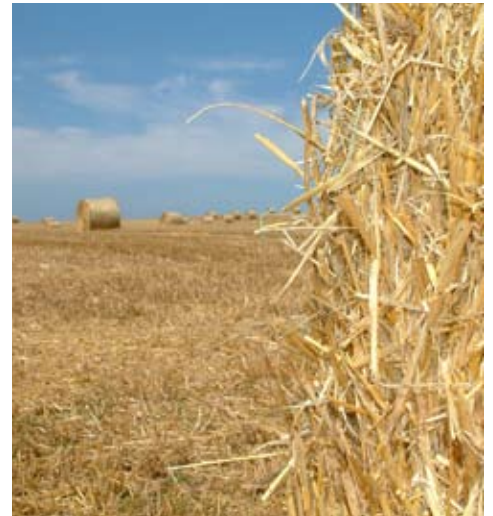
The environmental benefits of specifying the use of Durra Panel in your project are well documented. Durra Panel is a clean, green, environmentally friendly product with a proven track record throughout Australia and around the world, suitable for commercial, industrial and residential applications.

## Materials

Durra Panels consist of the following materials:

- Wheat or Rice straw fibres
- Kraft paper liner
- PVA Glue (water based)

The wheat and rice straw fibre, a renewable resource, is a waste by-product of farming that is in plentiful supply but usually burned after grain harvest which releases carbon dioxide into the atmosphere. Our unique dry-extrusion process locks this carbon away in the form of a highly fire-resistant building material with exceptionally low embodied energy.



## Production

Durra Panel is produced by a unique dry-extrusion process which uses a combination of heat and pressure to form the product. During this manufacturing process, a natural plant polymer extruded from the straw fuses the fibres together to form the dense core of the panels. The panels are finished with recycled Kraft paper liner which is bonded to the core with water based PVA glue. The result is zero toxic waste.

## Transport

In order to minimize transport energy and costs, Ortech Industries' manufacturing facilities are located in Bendigo which is located close to Victoria's Mallee and Wimmera regions from which the raw material is sourced.

## Volatile Organic Compounds (VOCs)

A major issue in the building industry is the impact that emissions of Volatile Organic Compounds (VOCs) have on indoor air quality. VOCs are emitted from glues, paints, binders (eg formaldehyde) and plastics. Durra Panel contains no formaldehyde or additional chemical binders and instead uses water based glue to bond the Kraft paper liner to the panel core. The use of water based glue eliminates potential VOC emissions.





## Re-Use and Waste Disposal

Waste off-cuts from Durra Panels will biodegrade rapidly and can be safely disposed of to landfill. It may also be used as mulch.

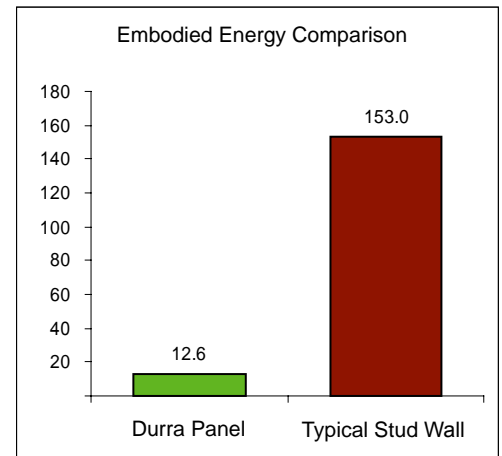
Depending on design and installation, these robust and durable panels can be reused.

## Embodied Energy

By virtue of the natural fibre content and efficient manufacturing process, Durra Panels have low embodied energy in comparison to alternative building materials. Embodied Energy is the energy consumed by all of the processes associated with the manufacture and delivery of the product to site. The result of an analysis of embodied energy shows that a wall constructed from Durra Panel has an embodied energy content of 12.6MJ/m<sup>2</sup> which is only one twelfth (or 8%) that of the typical plasterboard stud wall alternative.

*This is illustrated in Chart A.*

*Chart B shows the distribution of embodied energy for the different components of the manufacturing process.*

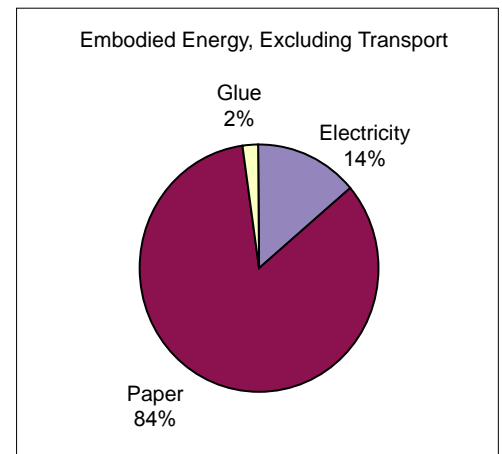


**Chart A**

## Embodied Energy Data

The following data (p.a.) was used to calculate the embodied energy:

- Actual billing data for Electricity and Water
- Actual materials used (Straw, Glue, Paper)
- Total m<sup>2</sup> of board produced
- Greenhouse Gas coefficients for Victoria (AGO 2004)
- Embodied energy values for raw materials (Straw, Glue, Paper)



**Chart B**



## Green Star Credits

The Green Star environmental rating system, developed by the Green Building Council, has been recognised by the property industry as a key measure of sustainability and is now becoming widely adopted as a performance standard for commercial buildings. The use of Durra Panels may assist in meeting Office Interior Design Green Star credits MAT-3 and INN-3. Further information on Green Star may be obtained from the Green Building Council website.

[www.gbcaus.org.au](http://www.gbcaus.org.au)

## References

AGO Factors and Methods Workbook, Australian Greenhouse Office, Australian Government, August 2004

Embodied Energy, Measures for Sustainability, Canadian Architect, Online:

[http://www.cdnarchitect.com/asf/perspectives\\_sustainability/measures\\_of\\_sustainability/measures\\_of\\_sustainability\\_embodied.htm](http://www.cdnarchitect.com/asf/perspectives_sustainability/measures_of_sustainability/measures_of_sustainability_embodied.htm), sighted June 05

Embodied Energy Coefficients, Victoria University Wellington, Online:

<http://www.vuw.ac.nz/cbpr/documents/pdfs/ee-coefficients.pdf>, sighted June 05

Green Building Council Green Star  
[www.gbcaus.org.au](http://www.gbcaus.org.au)



*Rabobank - Office Fitout - Darling Park, Sydney*

*“Our analysis indicates that Durra Panels have an embodied energy of 12.6MJ/m<sup>2</sup>.*

*This is significantly lower than conventional building materials and is equivalent to only one twelfth (or 8%) the embodied energy of a typical plasterboard and timber stud wall.”*

*Jan Talacko – ESD Consultant, Ark Resouces*