University of Huddersfield Repository

Howells, Helen

Embellishing, engraving materials using laser technology to create innovative surfaces for recycled and sustainable materials

Original Citation


This version is available at http://eprints.hud.ac.uk/id/eprint/28725/

The University Repository is a digital collection of the research output of the University, available on Open Access. Copyright and Moral Rights for the items on this site are retained by the individual author and/or other copyright owners. Users may access full items free of charge; copies of full text items generally can be reproduced, displayed or performed and given to third parties in any format or medium for personal research or study, educational or not-for-profit purposes without prior permission or charge, provided:

- The authors, title and full bibliographic details is credited in any copy;
- A hyperlink and/or URL is included for the original metadata page; and
- The content is not changed in any way.

For more information, including our policy and submission procedure, please contact the Repository Team at: E.mailbox@hud.ac.uk.

http://eprints.hud.ac.uk/
Embellishing, engraving materials using laser technology to create innovative surfaces for recycled and sustainable materials.

Helen Ann Howells

September 2015
Embellishing, engraving materials using laser technology to create innovative surfaces for recycled and sustainable materials.

Referenced photographs submitted to the University of Huddersfield in partial fulfilment of the requirements for the degree of Masters of Research.

Helen Ann Howells

September 2015
Figure 1

Howells, Helen (2015)

*Teak wood veneer weave.*

Laser cut strips of veneer into 2cms width x 25cms length. Textile process of weaving used with strips (plain weave).

Laser etched 'Time piece'design over the surface of the woven structure.

Varnish applied over surface as a protective and gloss finish.
Myers, Daniel

(2013)

*Venner trapped in resin.*

Laser cut strips of veneer into 2 cms width x 25 cms length (warp) and 2 cms x 10 cms (weft). Textile process of weaving used with strips (plain weave).

Laser etched design added before weave process.

Plastic resin applied over the whole weave structure to trap and protect the fragile sample.
Figure 3

Myers, Daniel

(2013)

*Barkweave laser engraved Cogs.*

Laser engraved over barkweave and a stitched together wood material from the Amazon.

Etched with 'Cogs' and 'Dots' design. Dark branding images of 'Cogs' overlaid fine 'Dots' design.
Recycled cork laser etched.

Recycled cork with a wood backing. Raster 'Dots' design as background and overlaid with 'Binary code' design.

Added red hues to embellish design with a rubber roller and ink.
Figure 5

Myers, Daniel

(2013)

Veneer wood with a layer of vinyl sheeting.

Laser cut strips of veneer 2cms width x 25cms lengths.

Laser etched 'Cog' design on Vinyl (70 Micron monometric) layer attached via adhesive. Laser 'burn out' to wood.
Figure 6

Myers, Daniel

(2013)

*Plain weave with vinyl layer engraved.*

Laser cut strips of veneer 2cms width x 25cms length (warp) and 2cms x10cms (weft).

Laser etched 'Cog' design on Vinyl (70 Micron monometric) layer attached via adhesive. Laser 'burn out' to wood.

Textile process of weaving used with strips (plain weave).
Howells, Helen (2015)

_Pencil shavings trapped in glue._

Pencil shavings collected from waste paper bin. Soaked in PVA glue and dried on a flat steel surface.

Laser engraved over uneven wood shavings with 'Cog' design.
Howells, Helen (2015)

*MDF raster etched wood for casting process.*

MDF raster etched wood with 'Mechanical' design. Mdf engraved areas a pale orange brown. Cut to dimensions of the design.

Sand papered edges to eliminate contamination of aluminium casting.

A mirror image of this design was also produced for the process of casting aluminium.
Myers, Daniel (2013)

Laser etched micro fibre.

Fabric sourced from an interior shop as one of a batch of fabric swatches that was destined for landfill.

Material contains 63% acrylic
21% polyester
16% viscose

Laser engraved with 'Cogs' design (laser burn).

Cut to dimensions of the design with laser cutter. Edges sealed by laser heat (melted).
Howells, Helen (2015)

*Branded Chamois leather*

Laser engraved chamois leather bought at a pound shop.

Laser vaporised surface giving the image a branded, permanent and distinctive aesthetic quality.

Different speeds and power were used over the textured surface to achieve a variation of hues.
Howells, Helen

(2015)

*Laser etched hessian sacking.*

Laser etched onto a loose weave hessian fabric 'Cog' design.

Material was washed and ironed before laser etched. Design achieves a printed effect to the surface of the material.

PVA solution added after process to give structure strength.
Figure 12

Howells, Helen

(2015)

*Blue craft ribbon 'burn through'*

Polyester craft ribbon bought at pound shop for experimentation purposes.

Laser burnt away fibres to give a 'burn out' effect similar to devoré. Some areas are totally burnt out by the laser and the fabric has a lace quality.
50mm dense Styrofoam Polystyrene Modelling Foam. Rigid Blue Extruded Polystyrene Foam used in schools for prototypes due to its versatility and can be cut, sawn, filed, drilled, sanded and shaped.

This piece of foam was an offcut that had been discarded. Laser engraved at low power as material melts quickly with the energy from the laser.
**Figure 14**

Howells, Helen

(2015)

*Aluminium casting of a laser engraved piece of MDF.*

Wood mould laser engraved and cut to dimensions of design. Wood mould used to make a imprint for the casting process.

Mould was filled with aluminium recycled materials from a local scrap yard. It was once part of a car engine.
Figure 15

Myers, Daniel

(2013)

Recycled Steel thermark marking.

Material found in artroom cupboard. Steel had some film coating on the material. Wirewool used to prepare surface for chemical compound.

Thermark chemical compound sprayed onto the material and laser etched design fusing permanent marks to the steel surface.