

drawing

STYLES



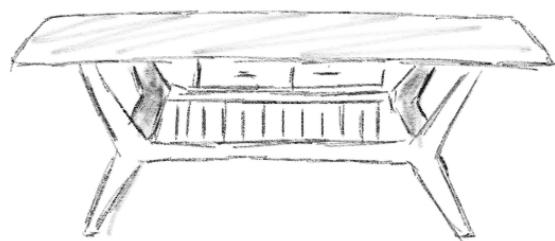
| PAPER SIZE | SCALE | DRAWING | PROJECT | DRAWN BY | DATE |
|------------|-------|---------|--------------|-----------|--------------|
| A3 | | | Coffee Table | Cam Mills | August, 2014 |

A picture tells
a thousand words.

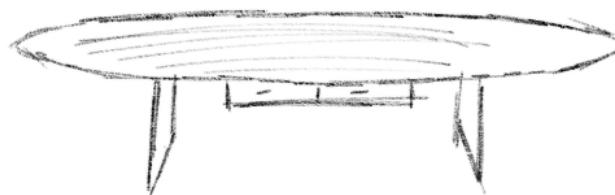
Will your drawings have an
interesting and accurate
story to tell?

Freehand Sketching

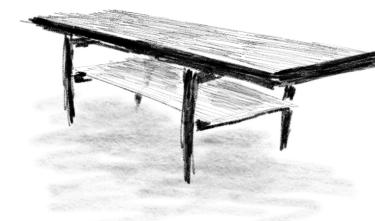
Quick rough capture and working of influential and researched items. Elements are freely identified and refined on paper, or tablet. A record of these workings is useful for ongoing evaluation and development. Below are some drawings prepared in the research of this project and my comments.



Interesting design. Ample storage, joinery construction maybe too complex. Design too retro for my taste? Dislike visible drawers and their side-by-side bulk which clashed with classic design.



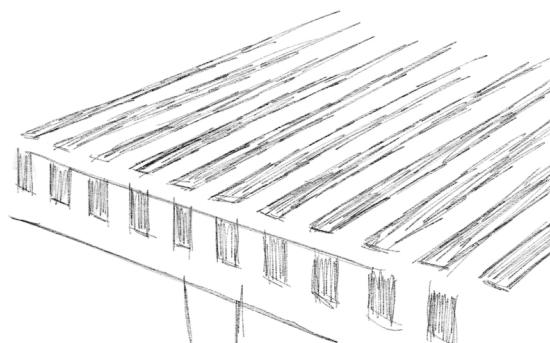
Curved surface is appealing. Same issues with bulky visible drawers. Appears structurally inadequate for my family needs.



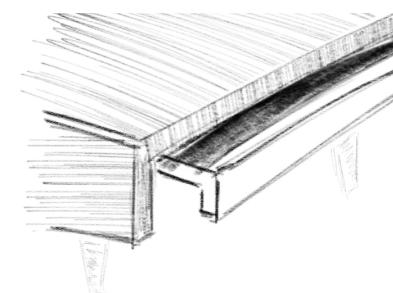
Great design, maybe too light with complex joinery. How to incorporate drawers?



Very appealing design with joinery modified to remain simple enough for production constraints. Drawers still need a location, ends? Can the bulk of 2 coplanar surfaces be minimised... ideas?



Modify this style of production joinery to build a slatted under-tray.

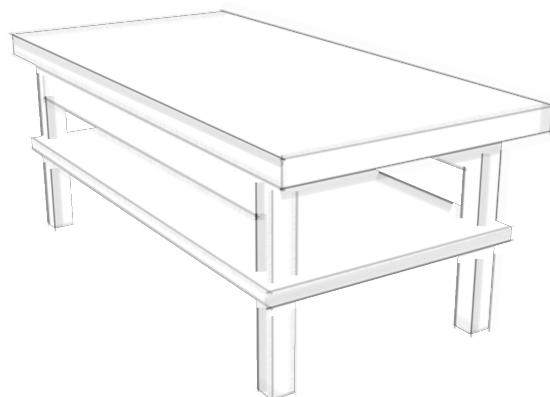


Build drawers at table ends and conceal faces. Perfect!

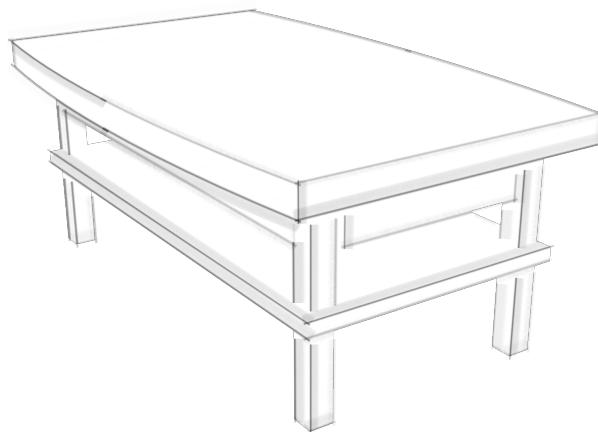
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Design Development

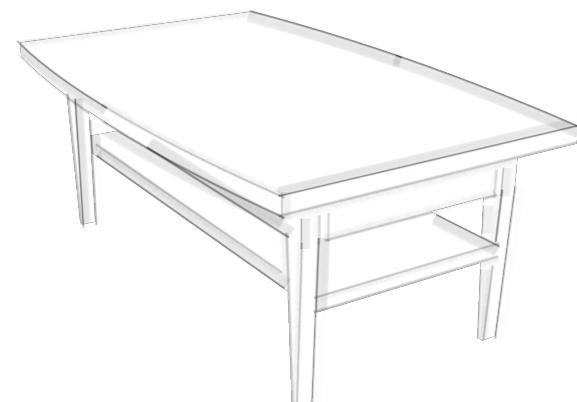
Quick rough capture and working of influential and researched items. Elements are freely identified and refined on paper, or tablet. A record of these workings is useful for ongoing evaluation and development. Below are some drawings prepared in the research of this project and my comments.



Overall size, scale & function is OK yet requires drawers and some softening curves & refinement.

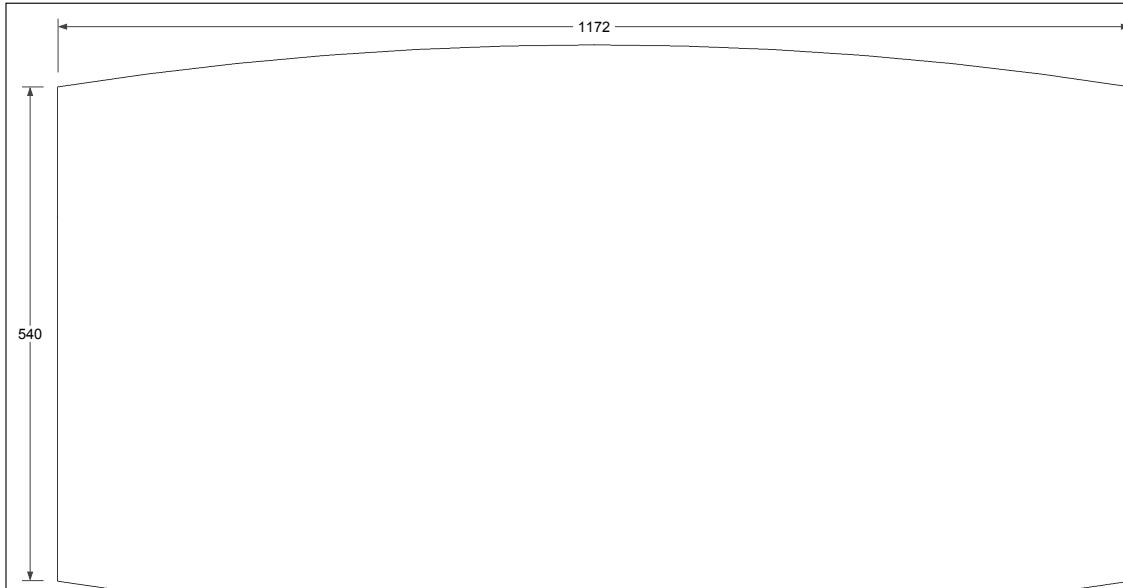


Experimentation with tabletop shape found a curve which looks appealing. Drawers work when locating at either end of table, rather than sides. Table design still looks stocky, legs and under tray needs refinement to reduce bulkiness, but retain overall strength.



Angling legs inward from about $\frac{1}{4}$ height works well although width appears unbalanced. Reduced table-top thickness combines with tray down-size reduces bulk but does little to reduce the final structural strength of the table.

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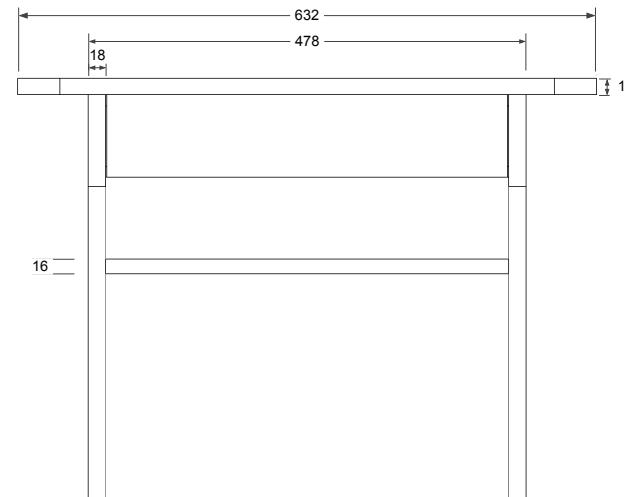


ORTHOGONAL DRAWING

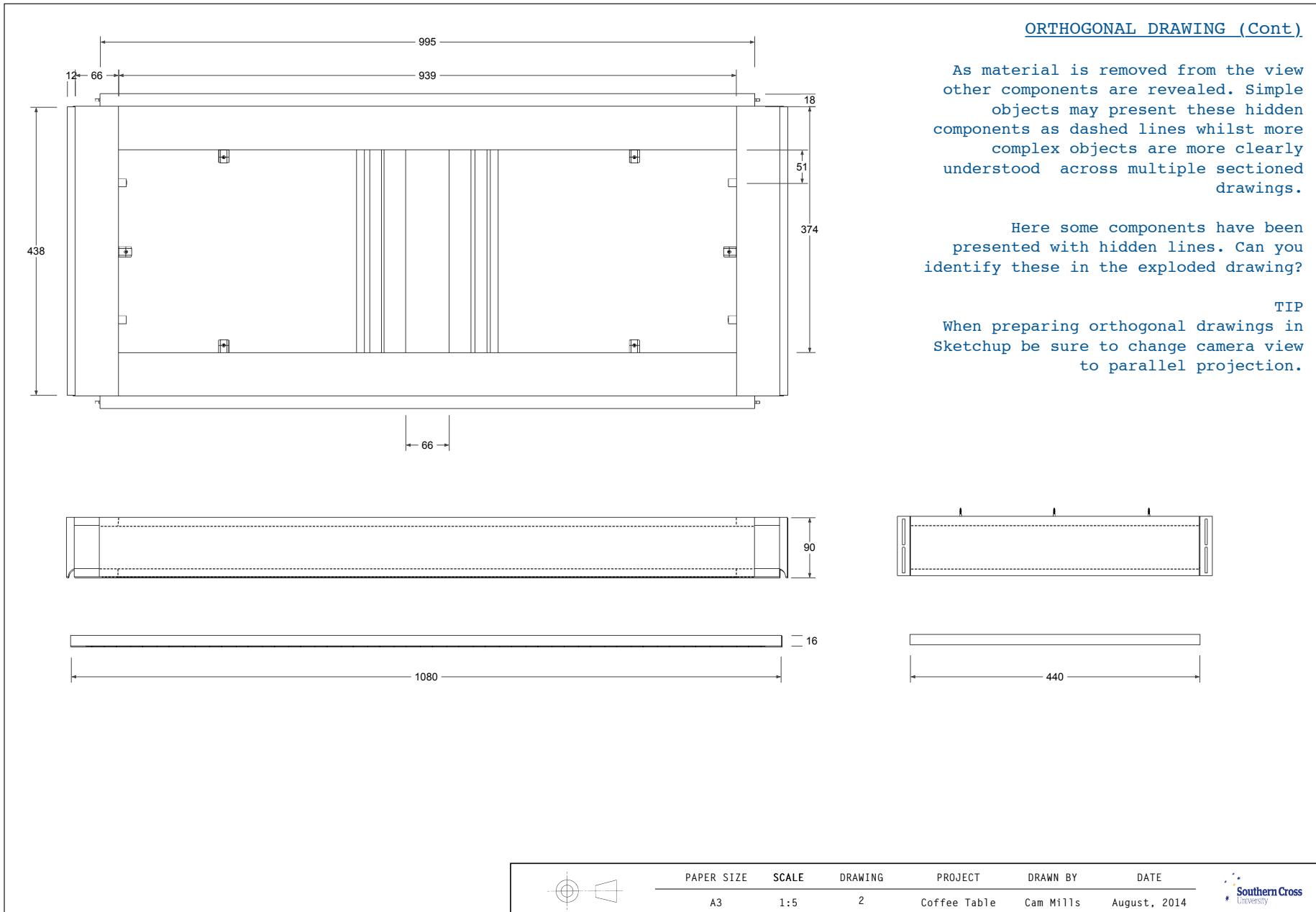
Orthogonal (also orthographic and working) drawings provide the viewer with all the information to convert a 2D object into 3D by projecting the plan, front and end views. This type of drawing is common to production, technical and engineering applications.

Standards Australia recommend 3rd Angle projection to lay out orthogonal drawings (SAA HB1-1986). The symbol in the title block below indicates 3rd angle projection and this tells the reader how the drawing is laid down.

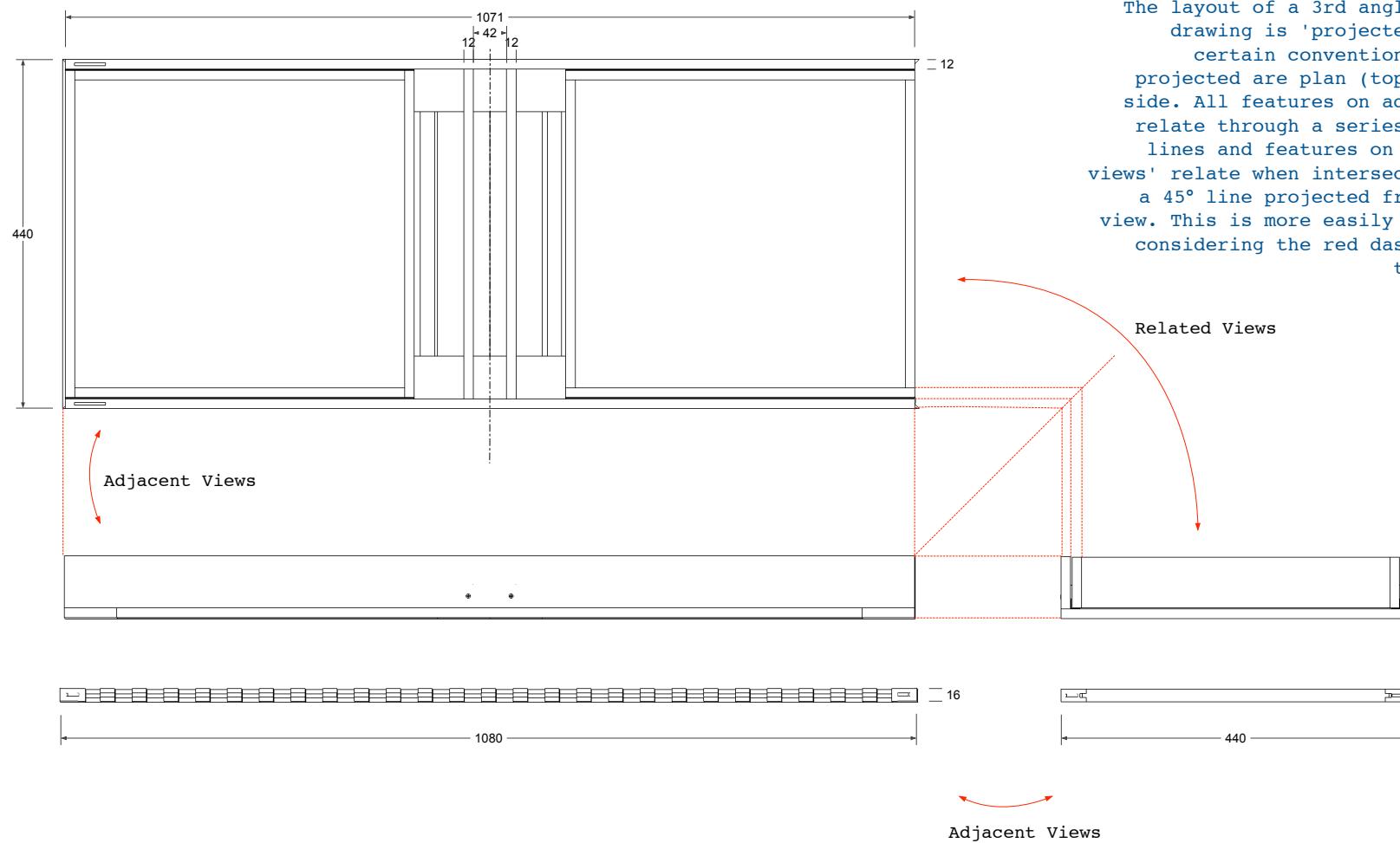
Orthogonal drawings can include hidden line geometry, section cuts and cutaway views.



| PAPER SIZE | SCALE | DRAWING | PROJECT | DRAWN BY | DATE |
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| A3 | 1:5 | 1 | Coffee Table | Cam Mills | August, 2014 |



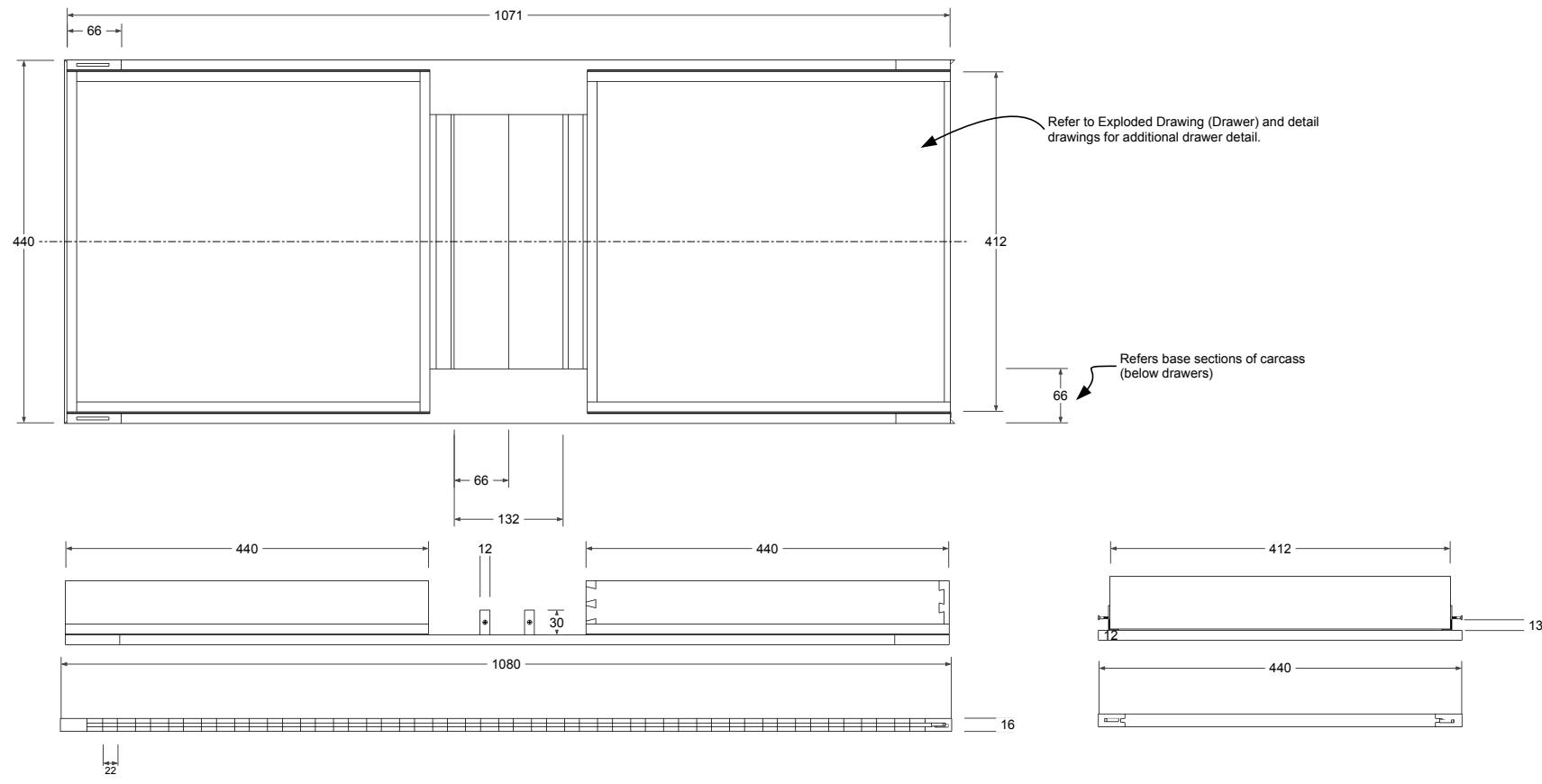
ORTHOGONAL DRAWING (Cont.)



The layout of a 3rd angle orthogonal drawing is 'projected' following certain conventions. The views projected are plan (top), front and side. All features on adjacent faces relate through a series of parallel lines and features on the 'related views' relate when intersecting through a 45° line projected from the front view. This is more easily explained by considering the red dashed lines on this drawing.

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| A3 | 1:5 | 3 | Coffee Table | Cam Mills | August, 2014 |

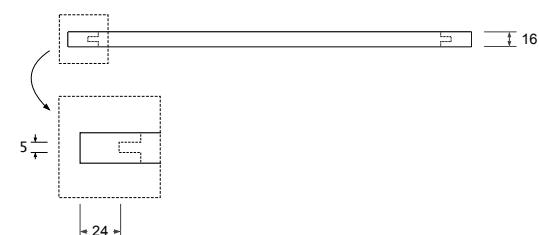
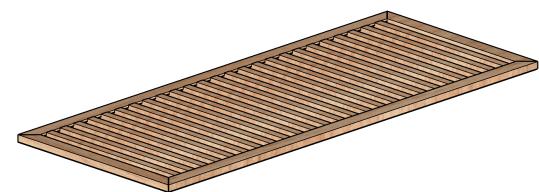
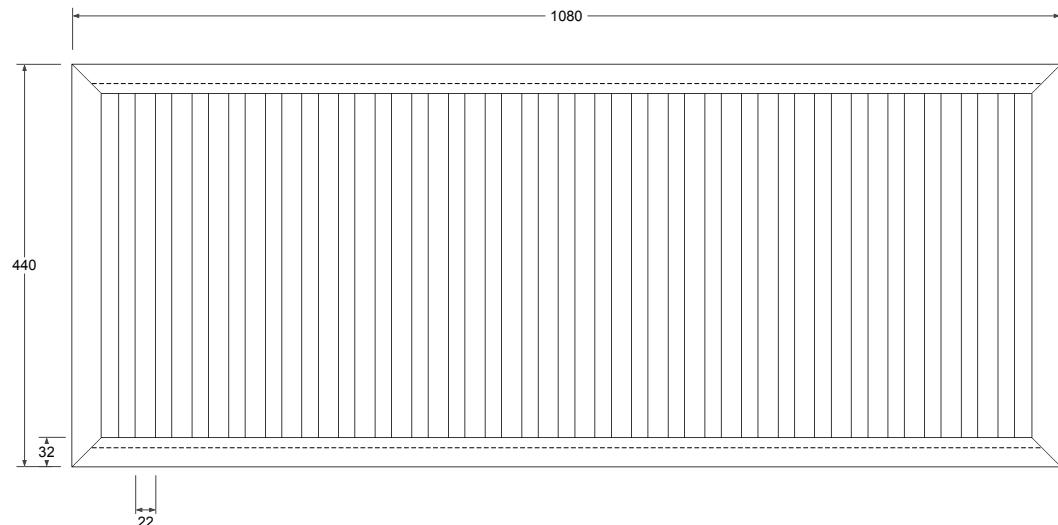
ORTHOGONAL DRAWING (Cont.)



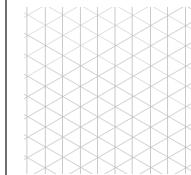
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| A3 | 1:5 | 4 | Coffee Table | Cam Mills | August, 2014 |

ORTHOGONAL DRAWING (Cont.)

It is helpful to include an isometric, or perspective view of the object being projected when presenting orthogonal drawings.



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| A3 | 1:5 | 5 | Coffee Table | Cam Mills | August, 2014 |

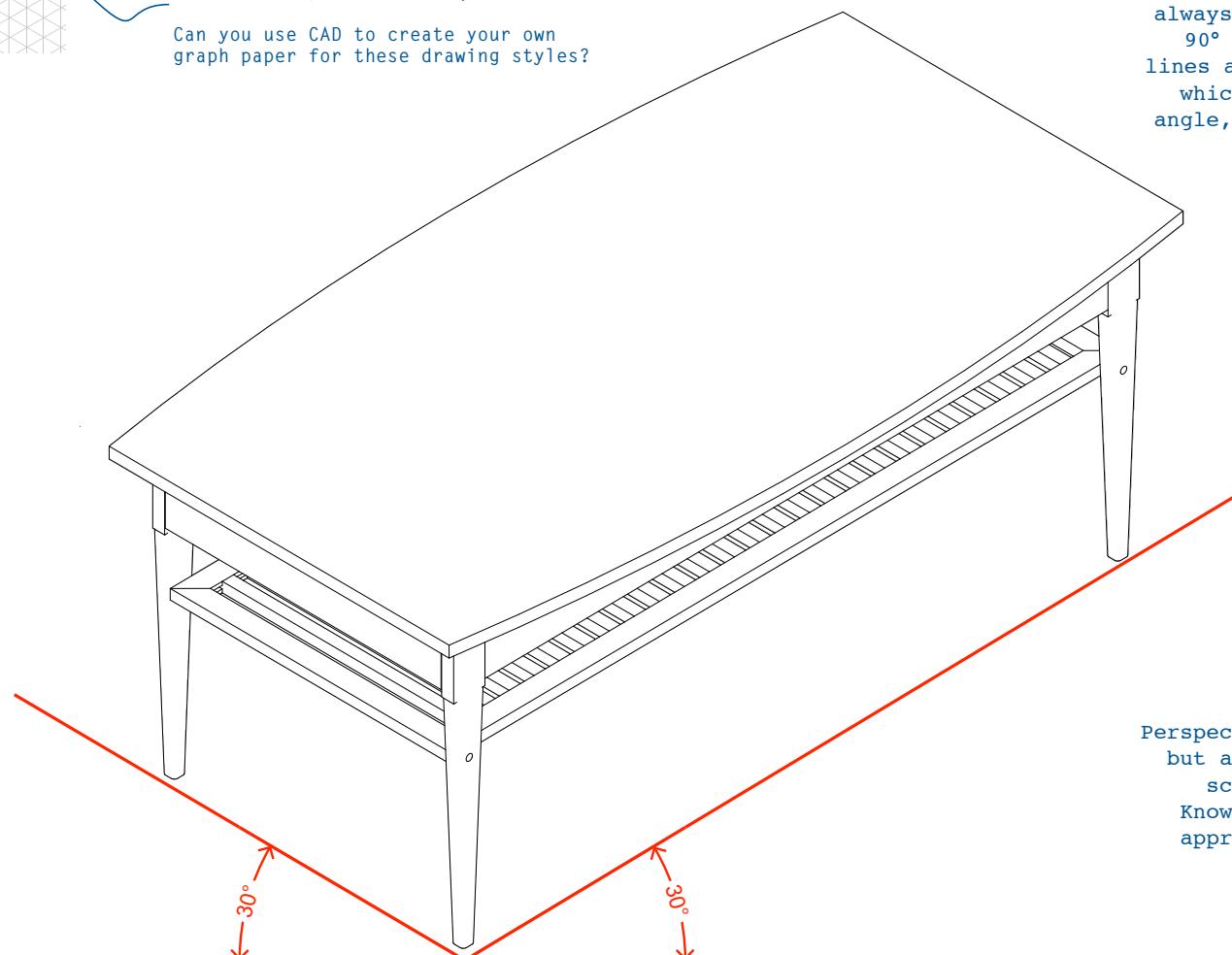


Isometric sketching & hand-drawing is aided by grid paper placed beneath the drawing. Other paraline drawing such as oblique and planometric is also aided by this technique.

Can you use CAD to create your own graph paper for these drawing styles?

ISOMETRIC PROJECTION

A style of pictorial drawing, the isometric verticals (heights) are always parallel to each other, and at 90° to the baseline. The horizontal lines are shown at 30° to the baseline which makes the object appear at an angle, showing a large section of the the topside (or underside).



TIP

An isometric view is not a perspective view. Perspective views look more realistic but are complex to hand draw to true scale, where an isometric is not. Knowing this helps you to determine appropriate uses of drawing styles.

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| A3 | 1:5 | 6 | Coffee Table | Cam Mills | August, 2014 |

RENDERED DRAWING

Rendering of a technical drawing is the process of presenting the 2D image to appear lifelike and often in 3D.

The rendered image may not be very useful for assembly or production drawings but it is critical for the designer and client to visualise the design.

A rendering usually involves creative input and therefore the designer can flavour the output as she wishes. Hyper-realistic hand or software drawn surfaces suggesting light, tone & texture are often used, and so too are sketchy, stylistic impressions that allow the viewer to add their own interpretations to the object.

This drawing uses;

- lines to define edges
- shadows to emphasise form
- photorealistic patterns to suggest colour, tone & texture
- A perspective view which adds reality.



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| A3 | NTS | 7 | Coffee Table | Cam Mills | August, 2014 |

RENDERED DRAWING (Cont.)



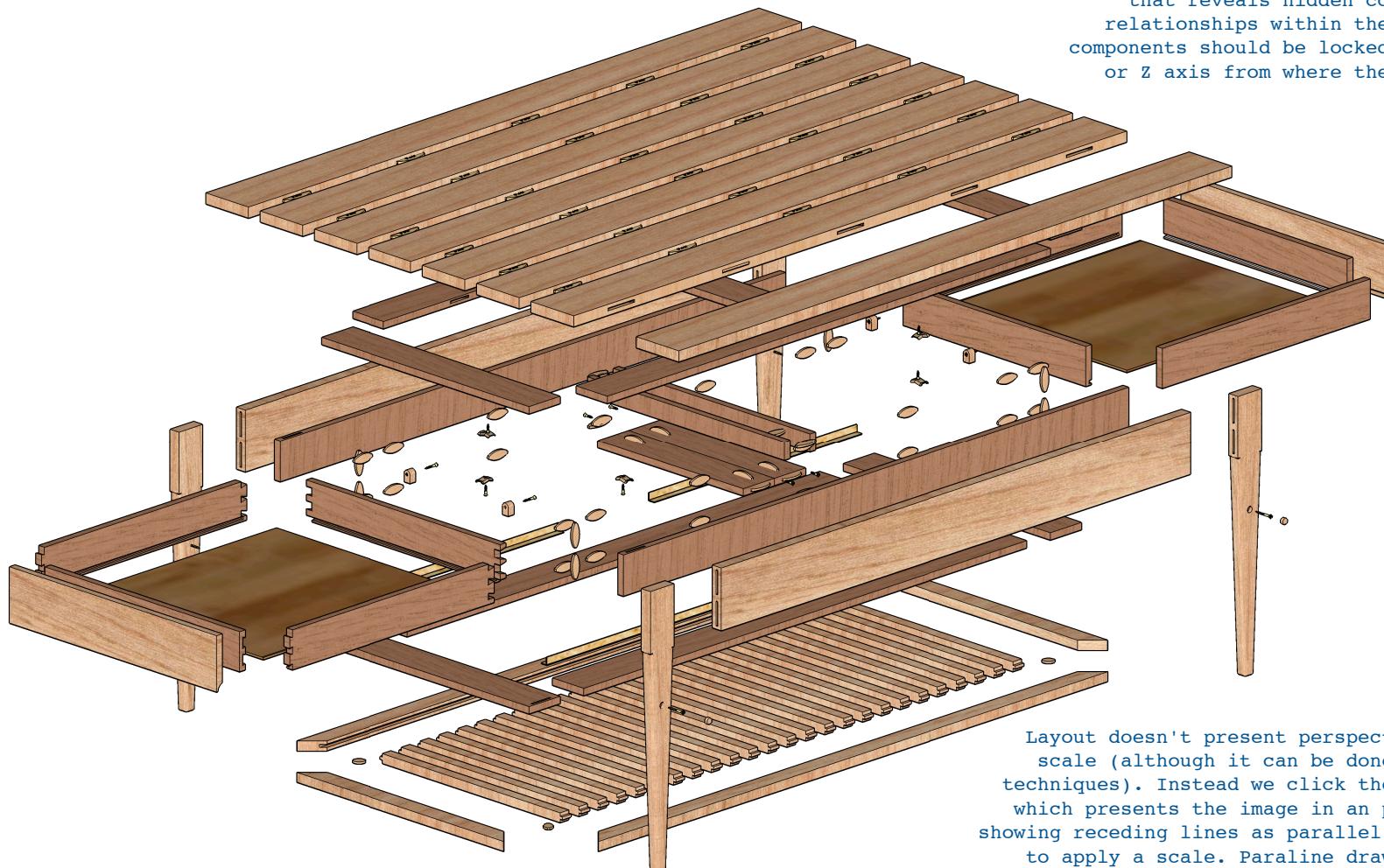
Various angles and objects states can add value to a rendered image.

Again, the rendering is a creative approach so some liberty should be allowed in presenting the object with interest. Here the magazines suggest scale and the open drawer suggests a place to find the remote!

| PAPER SIZE | SCALE | DRAWING | PROJECT | DRAWN BY | DATE |
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| A3 | NTS | 8 | Coffee Table | Cam Mills | August, 2014 |

EXPLODED DRAWING

Exploded drawings are useful as a 3D pictorial representation of a design, that reveals hidden components and relationships within the design. All components should be locked to the X, Y or Z axis from where they originate.



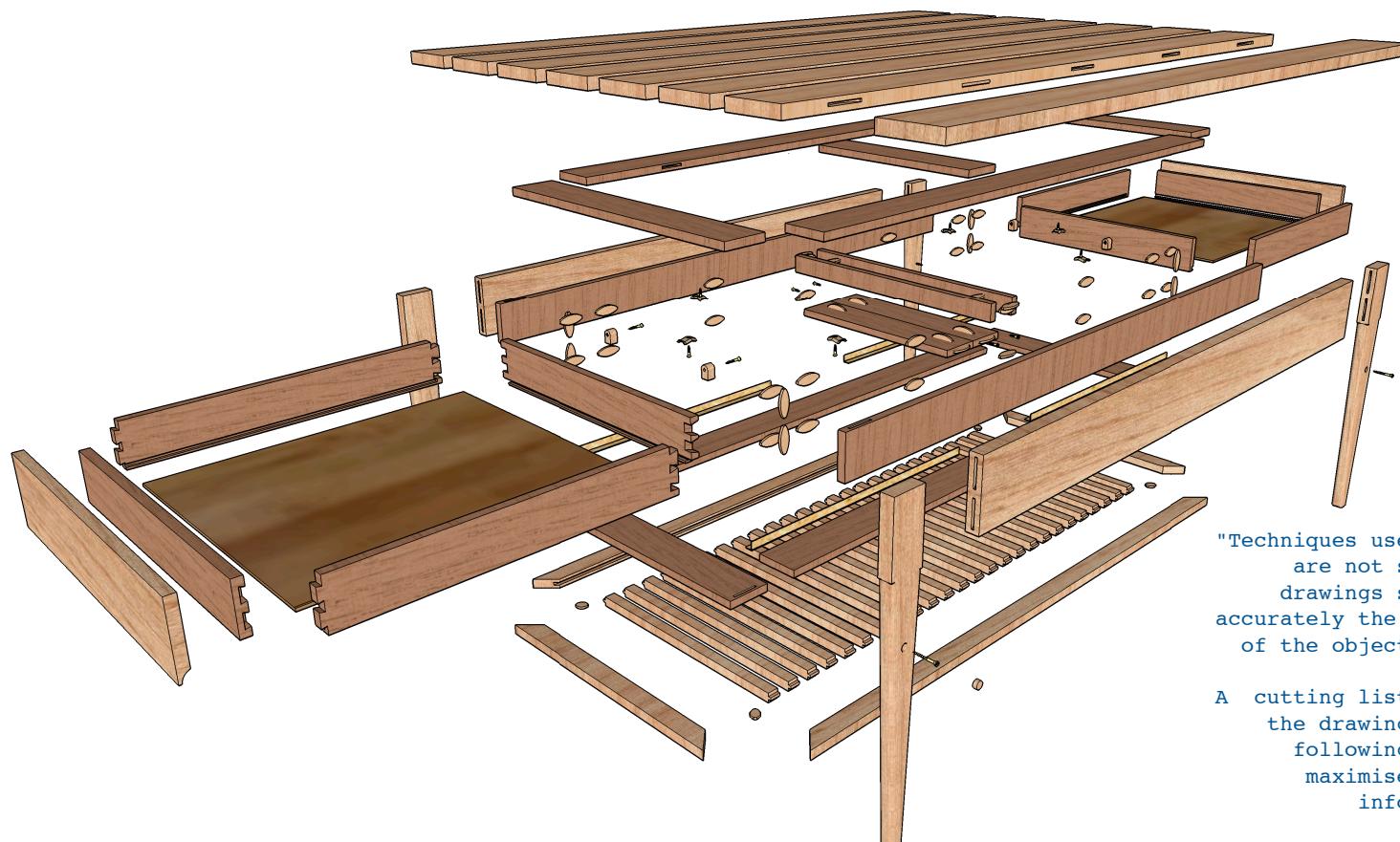
TIP

Layout doesn't present perspective views to scale (although it can be done using other techniques). Instead we click the "ortho" tab which presents the image in an paraline view showing receding lines as parallel, allowing us to apply a scale. Paraline drawings include oblique, isometric and planometric views.

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| A3 | 1:6 | 9 | Coffee Table | Cam Mills | August, 2014 |

EXPLODED DRAWING (cont.)

Using a perspective view the designer is able to present the object in a view that appears natural and most informative to human vision.

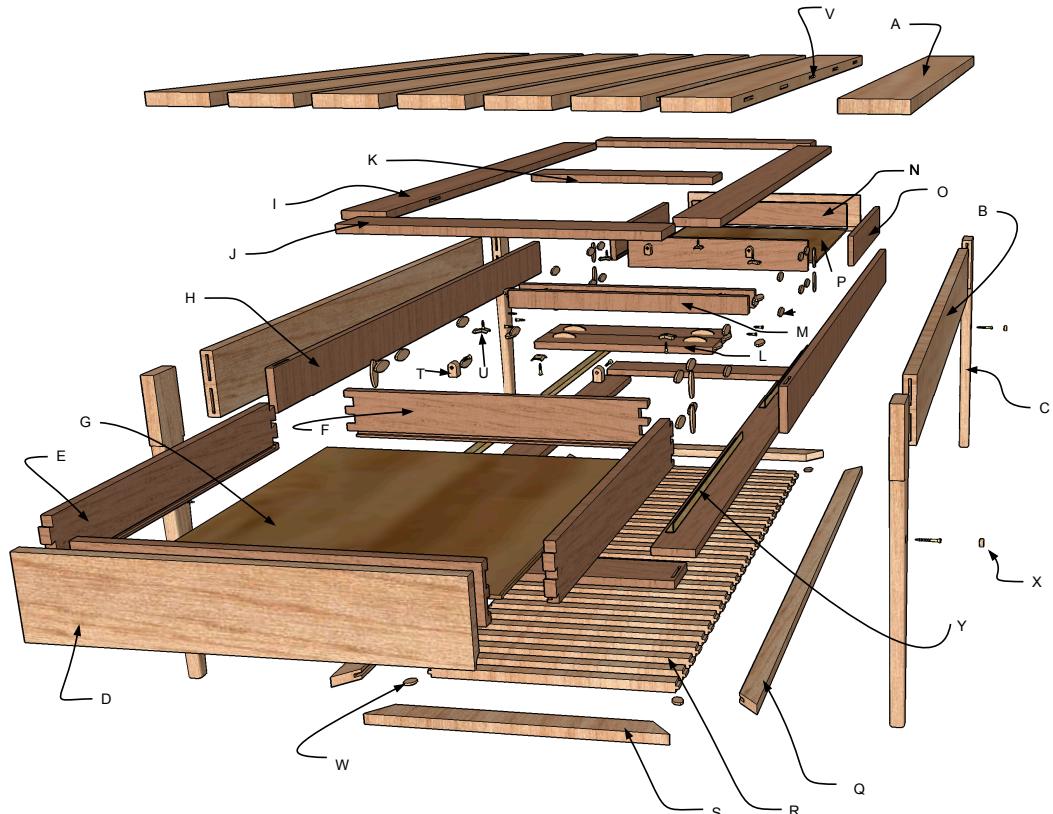


"Techniques used in pictorial drawings are not satisfactory for working drawings since they cannot convey accurately the constructional features of the object" (www.hsc.csu.edu.au).

A cutting list is an integral part of the drawing presentation. Note the following drawing is laid out to maximise space & present clear information for production.

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| A3 | NTS | 10 | Coffee Table | Cam Mills | August, 2014 |

EXPLODED DRAWING with CUTTING LIST



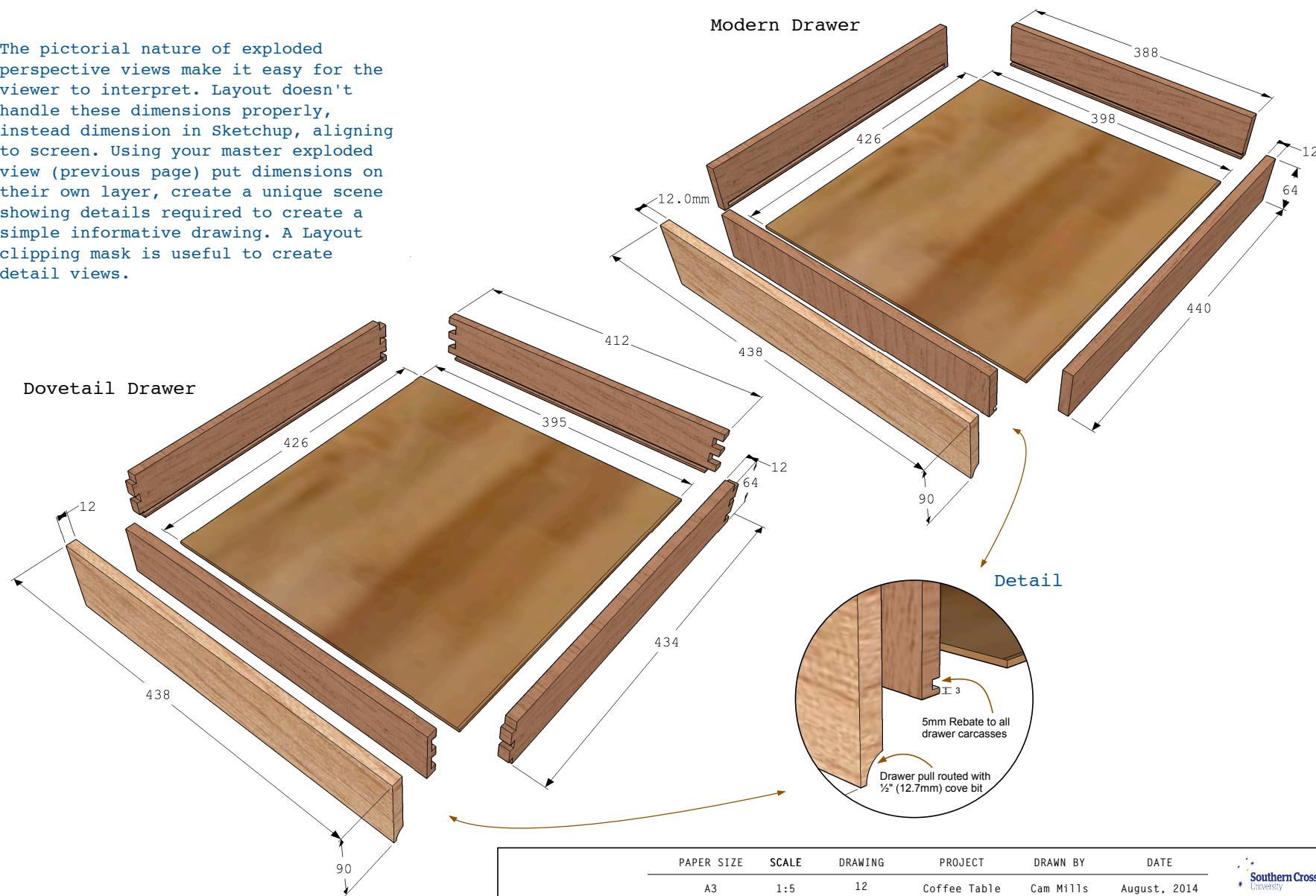
| Description | WxTxL | Qty | Material |
|-------------------|------------|-----|---------------|
| A Tabletop boards | 90x18x1172 | 8 | French Oak |
| B Aprons | 90x18x995 | 2 | French Oak |
| C Legs | 50x19x450 | 4 | French Oak |
| D Drawer Face | 90x12x438 | 2 | French Oak |
| E Dovetail Side | 64x12x434 | 2 | Meranti |
| F Dovetail Ends | 64x12x412 | 2 | Meranti |
| G Drawer Base | 426x4x398 | 1 | ply |
| H Carcase Sides | 66x12x1071 | 2 | Meranti |
| I Carcase Longs | 66x12x939 | 4 | Meranti |
| J Carcase Shorts | 66x12x440 | 4 | Meranti |
| K Carcase Midrail | 66x12x308 | 1 | Meranti |
| L Carcase Midbase | 66x12x308 | 2 | Meranti |
| M Carcase secret | 30x12x416 | 2 | Meranti |
| N mod' drw' end | 66x12x388 | 2 | Meranti |
| O mod' drw' side | 66x12x440 | 2 | Meranti |
| P Drawer Base | 426x4x398 | 1 | ply |
| Q Tray Long | 32x16x1080 | 2 | French Oak |
| R Tray Slat | 16x18x386 | 25 | French Oak |
| S Tray Short | 32x16x440 | 2 | French Oak |
| T Drawer Stop | 12x12x40 | 4 | Hardwd offcut |
| U Table Tie | | 10 | |
| V #20 Biscuit | | 100 | (allowance) |
| W Special Biscuit | 15x4x20 | 4 | Hardwd offcut |
| X Wood Plug | R5x5 | 4 | French Oak |
| Y Brass Bar | 440x12x1 | 4 | Brass |
| Z spare | | | |

* French oak recycled
from renovated
(imported) floor boards.

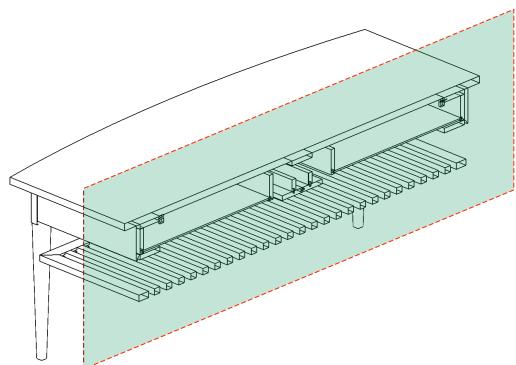
| PAPER SIZE | SCALE | DRAWING | PROJECT | DRAWN BY | DATE |
|------------|-------|---------|--------------|-----------|--------------|
| A3 | NTS | 11 | Coffee Table | Cam Mills | August, 2014 |

EXPLODED DRAWING (cont.)

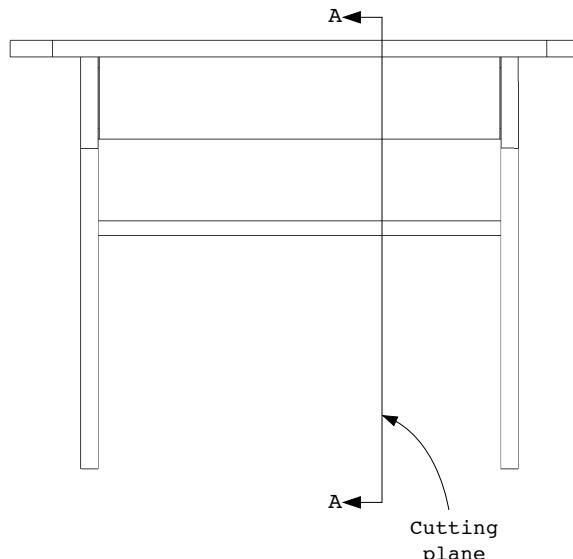
The pictorial nature of exploded perspective views make it easy for the viewer to interpret. Layout doesn't handle these dimensions properly, instead dimension in Sketchup, aligning to screen. Using your master exploded view (previous page) put dimensions on their own layer, create a unique scene showing details required to create a simple informative drawing. A Layout clipping mask is useful to create detail views.



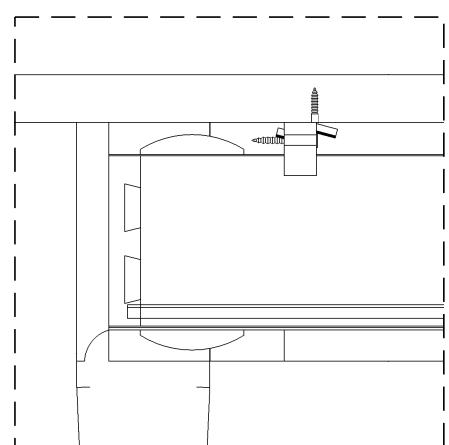
SECTIONED DRAWING



SECTION A-A
Isometric View including imaginary
'cutting-plane' revealing elevation
view shown as Section A-A

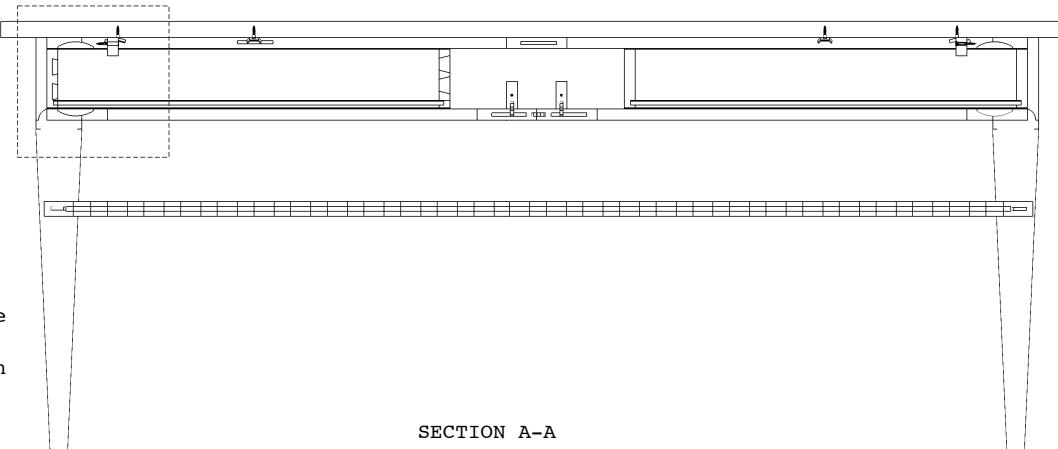


Cutting plane



Detail including
dovetail, drawer
stop, table ties,
biscuits, drawer
front and legs are
all apparent with
the use of section
cuts.

Did you spot the
secret compartment?



SECTION A-A
Elevation View - Side

A sectioned drawing allows the viewer
to look within a design to see
information that is normally obscured.

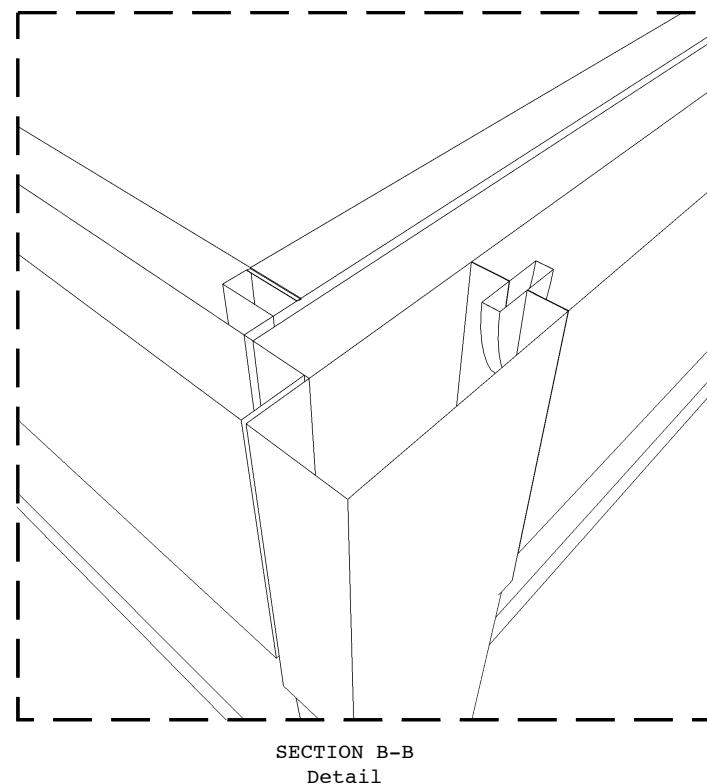
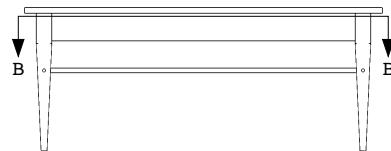
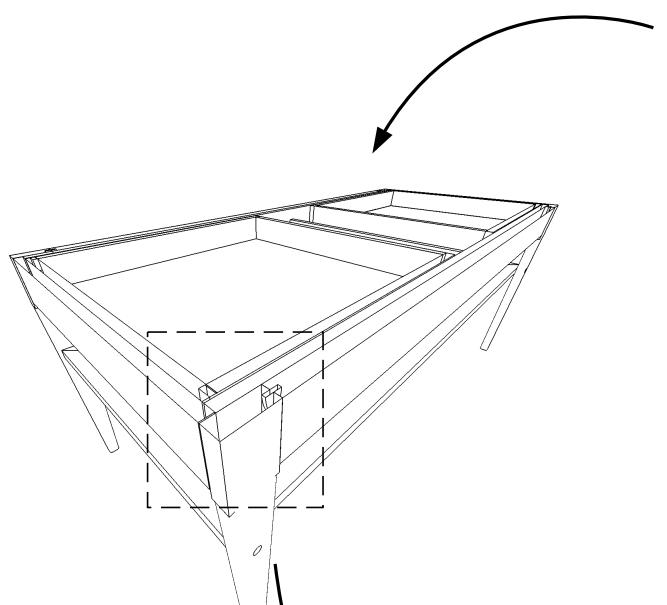
Two pieces of information are required
to inform the viewer how to interpret a
section view:

- The cutting plane line with arrows
pointing the the direction of the
object that remains,
- The section plane or drawing
projected in a range of possible views
(iso, elevation etc) with material
exposed at the point of the cutting
plane line.

The example shows letters AA at each
end of the cutting plane line and these
match the title "Section AA" so the
viewer knows which section to relate
when more than one exist.

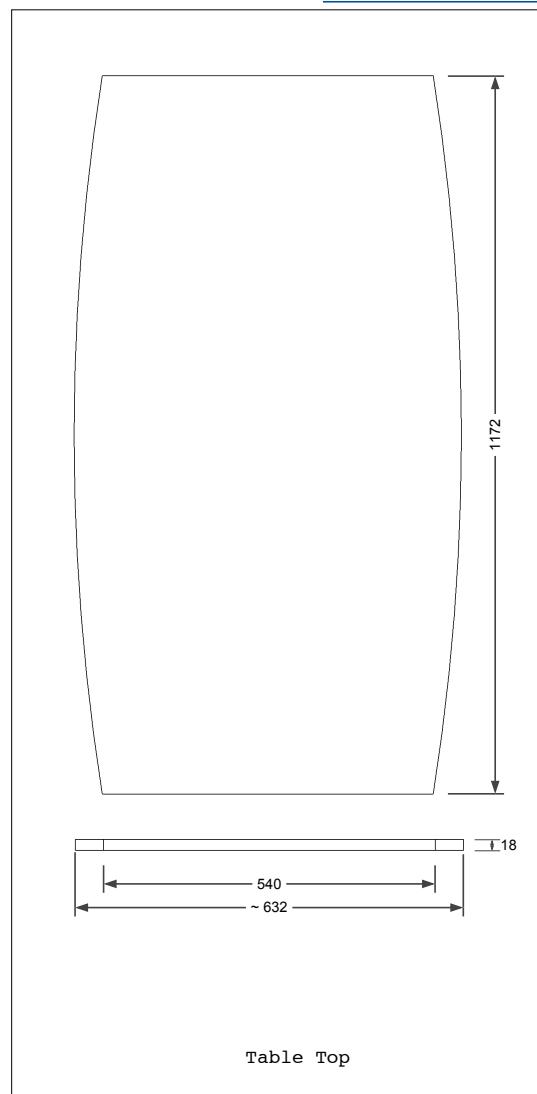
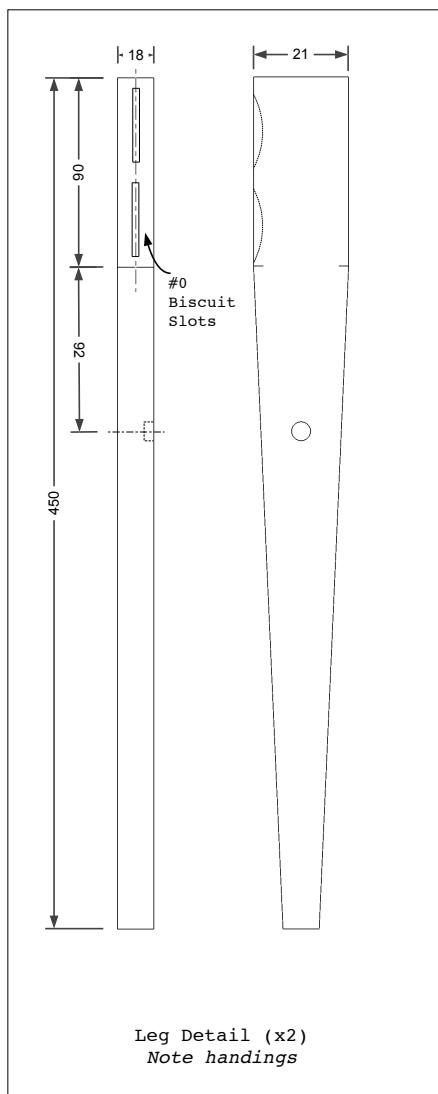
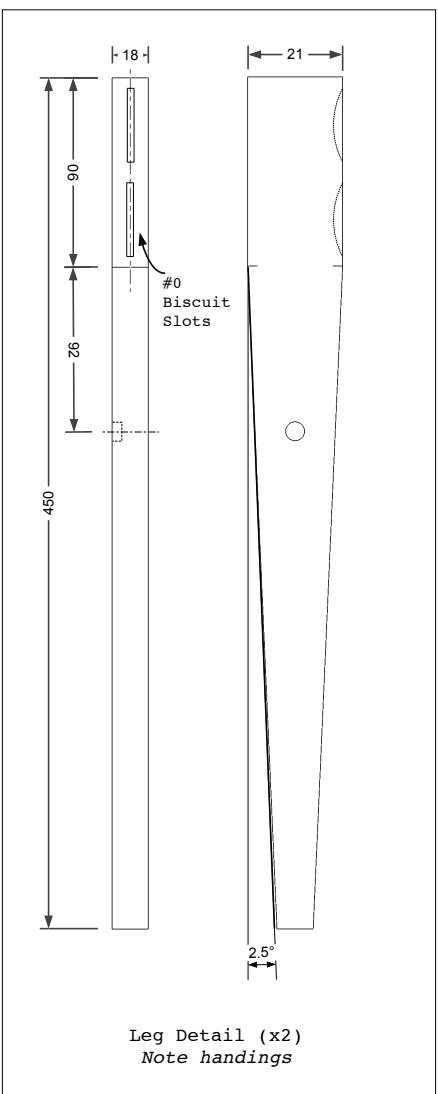
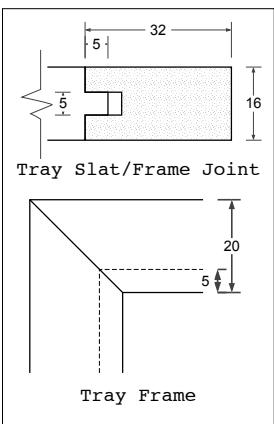
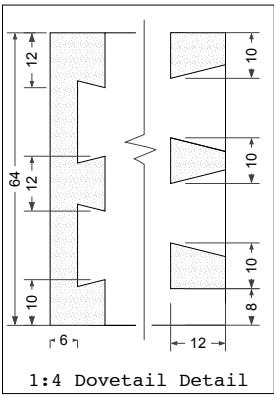
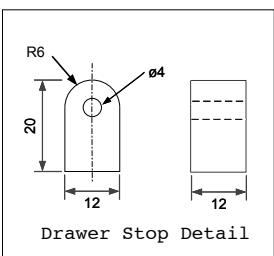
| PAPER SIZE | SCALE | DRAWING | PROJECT | DRAWN BY | DATE |
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| A3 | NTS | 13 | Coffee Table | Cam Mills | August, 2014 |

SECTIONED DRAWING WITH DETAIL



| PAPER SIZE | SCALE | DRAWING | PROJECT | DRAWN BY | DATE |
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DETAIL DRAWING



TIP

Dotted lines indicate hidden geometry that is relative to the component in view.

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| A3 | NTS | 15 | Coffee Table | Cam Mills | August, 2014 |

References

http://www.hsc.csu.edu.au/ind_tech/design/2418/types_of_drawings.html

http://www.engineeringessentials.com/ege/ortho/ortho_page7.htm

http://www.engineeringessentials.com/ege/pic/pic_page2.htm

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Technical Drawing An Australian Course in Graphics. Third Edition Boundy & Hass P264

<http://www.wordle.net/create>

<http://www.formfett.net/tusj-one-handwritten-font/>

3D Warehouse;

“Remote” by Nathan.

“InStyle Magazine Stack” by Graham K.