Computational Design + Fabrication: 2D Design

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Today

- News
- 2D CNC
- 2D Joinery
- Lab 2 Review
- lab out today due next thursday
- reading 3 out question due next tuesday
- section tomorrow 11a-12p in jacobs 220
- please do jacobs online training
- please do invention lab training
- cutters – all or nothing cuts
- mills – z axis
Laser Cutter

- takes in SVG files
- control power / speed through line colors
- burns materials
- thin kerf
- wood + cardboard + textiles + leather + composites + vinyl* + metal*

Universal Laser Cutter
- Takes in SVG files
- Cardboard + textiles + leather + composites + vinyl
- Expensive
- takes in SVG files
- limited to vinyl
- inexpensive
- can print and cut
- limited to thin vinyl
- thick hard materials
- hard to automate motion planning
- lead-in lead-outs
3 Axis Mill

- controlled depth
- wood / plastics / metal
- multipass
- bigger kerf
- multiple bits

ShopBot
- circuit boards
- inexpensive
- simple connectors for simple parts
- seams for bending part
- simple connectors for simple parts
- seams for bending part
Joinery/Seam Categories

- 1 D
- 2 D
- 2.5 D
- 3 axis
- 3 D
Desireables

- unobtrusive / fidelity
- beauty
- strength
- simplicity
- cost
- number of parts
- fool proof assembly
- reassembly
- reconfiguration
- hardware
- alignment
Für Nr. 509a ROCKBAHNEN um etwa 30 cm verlängern.
Sewing Construction Marks

common pattern construction symbols

Shown here are the most-used symbols and instructions found on grouped-construction pattern pieces for guiding your cutting and sewing. Sometimes other pattern pieces may have additional, less-used symbols.

- Top-of-sleeve mark
- Darts for adjusting sleeve ease
- Seams to match to shoulder seams
- Arrows show cutting line stitching direction
- Place on-fabric fold mark
- 1/4 seam allowance
- Line for adjusting sleeve ease
- Matches numbered in sequence of matching
- Seam line (broken inside line)
- Alteration lines
- Dart outlines
- Location lines for buttonholes, welts, pockets, etc.
- Center lines
- Straight grain of fabric line
- Outside margin
- Neckline dart

Sew Craftful

sewcraftful.com
flexural-mechanism
図 円弧切欠きを持つ弾性ヒンジ
living-hinge
Hippo + Elephant
Electrabrake Manual Folder
Press & Shear
Luxury and Elegant Home Design In The World / designinteriorart.com July 2011
"Flat-Pack Furniture"  dornob
metal-origami-triangle
metal-origami
“Sheetseat”
Ufuk Keskin & Efecem Kutuk
2009
“Folded Steel Design Furniture Ideas: Unique Coffee Table”
Home Gallery Design
October 2010
“Curved Folded Steel Table”
Tomohiro Tachi, 2008
Metal Elephant
Cheaper Attachments
- additional hardware to join pieces together
split pins
cotter pin
twist tie
zip tie
zipper
Lacing and Zip Ties
Post-caps

Pilot holes for manufacturing purposes (Do not install bolts) (Typ.)

Beam Flanges

BC4 Cap/Base (BC6 similar)

BC8 Cap/Base

BC60 Half Base (other similar)

BCS2-2/4

Typical BCS Installation
Rigid Tie® Connectors

RTC2Z Rigid Tie® Connector
The new RTC2Z Rigid Tie® corner connector connects a 2x2, 2x3 or 2x4 vertical member to two 2x3 or greater horizontal members, forming a 90° corner.

WBSK Workbench and Shelving Hardware Kit
Hardware Kit contains complete hardware, fasteners and plans to build a workbench or shelving unit.

RTB22 Rigid Tie® Bracket
Provides a strong 90° connection between 2x2 members. Stronger than angled nailing or screw fastening. Ideal for home projects and repair.

RTC Rigid Tie® Corner Connectors
Provides a strong 90° connection between two 2x2s and a 2x2 post, forming a corner. Allows the fastening of smaller lumber without angled cuts or angled fastening that can split the wood. Ideal for the construction of workbenches and storage shelving units.

RTF Rigid Tie® Connectors
Provides a strong 90° connection between a 2x4 post and 2x cross-members. Eliminates angled fastening. Grips the cross-members on three sides for a sturdy connection.
CNC Panel Joinery Notebook

By Sean Michael Ragan  April 13th, 2012 9:00 am  Category 3D Printing, Woodworking, Workshop
cross-x-joints-irreversible
cross-x-joints-radial-interlocking-biased

Sean Michael Ragan
cross-x-joints-radial-snaps

Sean Michael Ragan
flexure-joints-zig
Sean Michael Ragan
Next Time Layout and 3D

- 2D Layout
- 3D Design and Geometry
- Review Reading 3
- *CNC Panel Joinery Notebook* by Sean Michael Ragan