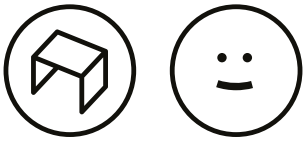
opendesk

• Design for Open Making •



Design for Open Making is a term we use to describe the principles, values, considerations and standards that should influence ones design process. We as Opendesk, want to be as unbiased as possible, whilst providing the resources and information to educate our growing community of creative followers in the principles of ‘good’ design for Open Making. This guide is our first designer resource pack. Consider it version 1 and an open conversation. Feedback from you can helps us make it better! We have compiled all the design information, experience and insights we have gained since the founding of Opendesk, and shared it publicly in the form of this guide. Why have we done this? To better serve our community of independent designer and creative boffs. Our knowledge, becomes yours!

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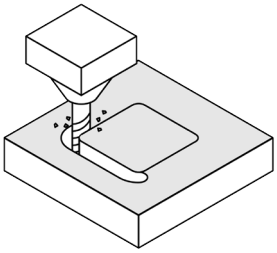
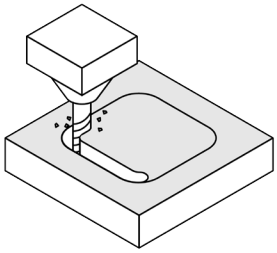
Capabilities
cut types

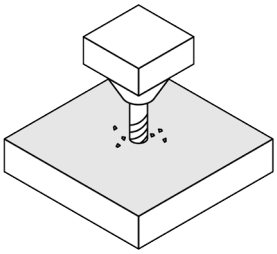
The capabilities of Digital fabrication tools, namely CNC routing, impose boundaries on ones design approach. It is essential to find ways to stay within these boundaries whilst allowing your design creativity to flourish. Listed below is a selection of common cut types you will find in Opendesk hosted design files. This is intended to give a broad overview of CNC routing and help direct design outcomes. **Refer to this section alongside the 'standards, layer naming' conventions section to understand how a cut type is indicated in your design drawing.**



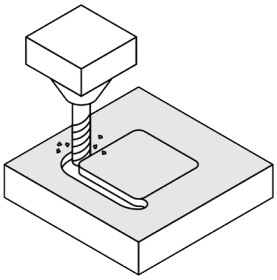
01 cut-outside-line
Tool cuts through sheet material, running along the outside of a closed vector.



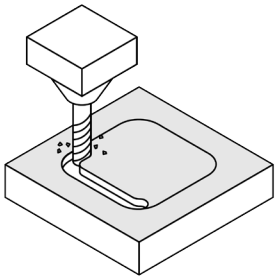
02 cut-inside-line
Tool cuts through sheet material, running along the inside of a closed vector.



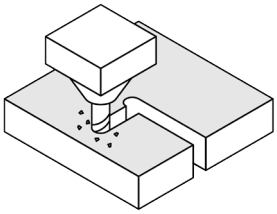
03 hole
Tool finds centre point of closed circle vector and drills to desired depth at specified diameter.



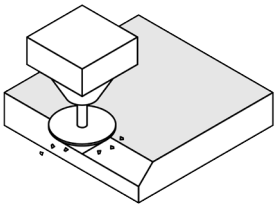
04 pocket-outside-line
Tool pockets to specified depth through sheet material, milling area outside closed vector.



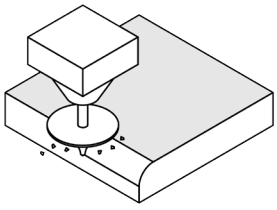
05 pocket-inside-line
Tool pockets to specified depth through sheet material, milling area inside closed vector.



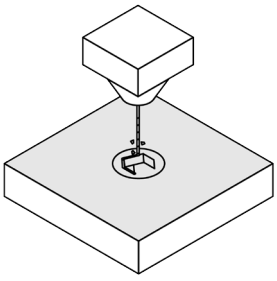
06 dog-bones*
Tool cannot cut sharp inside corners and instead must leave a semi-circle, matching the diameter of the tool.
***more on 'capabilities, dog-bones'.**



07 chamfer-online
Chamfer tool mills to desired depth and runs along an open or closed vector line, leaving a 45 degree chamfer at desired depth.



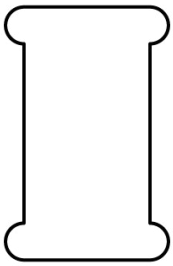
08 fillet-online
Fillet tool mills to desired depth and runs along an open or closed vector line, leaving a rounded edge at desired radius.



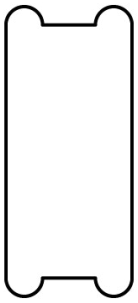
09 engrave-online
Tool of smaller diameter mills to shallow depth and follows open or closed vector lines. Often produced with a smaller tool bit (1mm / 2mm).

Capabilities
dog-bones

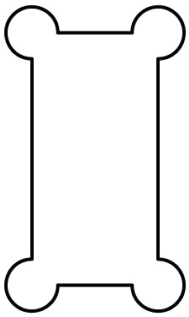
CNC routing has some ground rules. Tool bits used to cut shapes from sheet material will be round and spin axially. Therefore it is not possible to cut sharp inside corners. It is necessary to place round semi-circles on inside corners. They are commonly called dog-bones. Ask yourself - limitation or possibility? Many designers take pride stylising their own dog-bones. Illustrated below is a selection of dog-bones commonly found in Opendesk hosted designs.



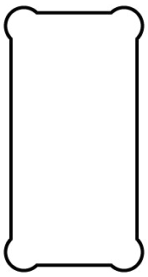
01 A simple dog-bone style, popular on concealed parts.



02 A simple dog-bone style, popular on concealed parts.



03 A more eccentric dog-bone style and a great way to celebrate them as a design feature.

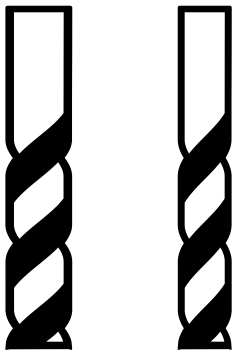


04 A more minimal dog-bone style, popular on visible faces where a larger dog-bone type **01** / **02** / **03** would be visually disruptive.

**The diameter of a dog-bone must match the diameter of the tool used to cut a specific object / tool path.*

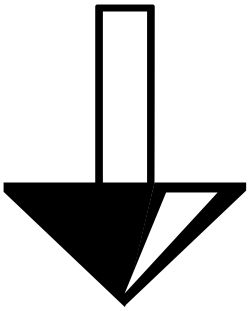
Capabilities
tool pallet

Whilst there are many different tool types, only a smaller subset consistently appear in workshops around the world. When designing your furniture piece, consider the tools a maker will need to produce every detail. Consider universal make-ability and its associated principles / values. Below is a list of tool bits that are regularly used on Opendesk hosted designs. Don't worry about the detail of the tool, such as flute type, down cut/ up cut. What's important is a general understanding of the tools, particularly diameter, the type of applications they have and how this relates to a design drawing.

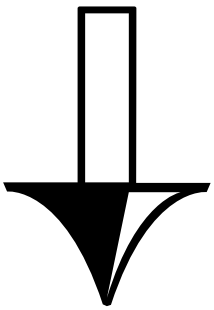


01 6mm / 8mm tool
The tool size used for cuts and pockets will reflect on the diameter of the dog-bones* in the design drawing. As a rule of thumb, tool bits can cut to a depth of X3 their diameter. Consider this when selecting a sheet thickness. **Opendesk recommends using an 8mm tool, unless the designed object is small, where a 6mm tool may be more appropriate.**

02 1mm / 2mm tool
These tools are typically used for engraving / fine details. They are delicate and should go no deeper than 3mm. Dog-bone* diameters can be much smaller as a result of the smaller tool diameter.



03 chamfer tool 45 deg.
The chamfer tool will give a consistent 45 degree angle bevel to the edge of a component. The chamfer tool should go no deeper than the thickness of the material into which it is cutting.

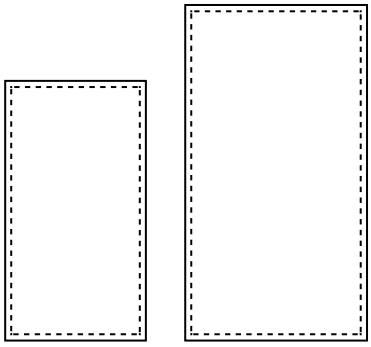


04 fillet tool
The fillet tool will give a consistent radius to the edge of a component. The fillet tool should go no deeper than 6mm. It is commonly used to softly round the edges of components such as table tops.

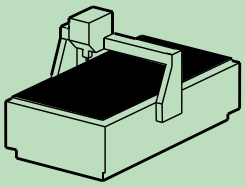
This is information should not be taken as a technical specification for tool bits.
**Dog-bones explained in section - 'capabilities, dog-bones.'*

Considerations
design considerations

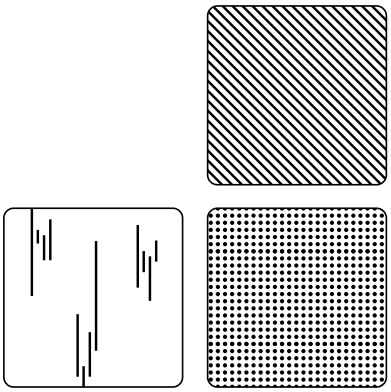
New design considerations come into play when designing for digital fabrication. Manufacturing across a distributed network of independent makers imposes new social boundaries and considerations. A designed object could be made by a fabricator on the other side of the world. We call this design for Universal make-ability and it urges design considerations around the principles of accessibility and inclusivity. In short, simple solutions are often the best. Listed below are some important considerations to take into account when designing for Open Making.



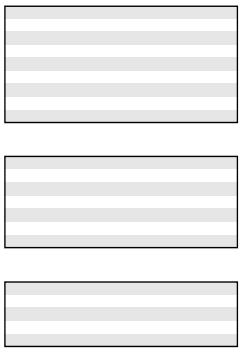
01 sheet size
Consider the size of the components that will form your furniture piece and choose a standard sheet material accordingly. 2440mm x 1220mm is the most common sheet size. Most Opendesk hosted designs nest comfortably onto this sheet size. Some larger items require a 3050mm x 1525mm sheet. They are not as widely available and less fabricators can process sheets of this size as they require larger machines. Evaluate the impact this consideration has on universal make-ability.



02 universal make-ability
This consideration underpins every other design consideration in this section. A designed object could be made by a fabricator on the other side of the world. Complex designs that use material / hardware of limited availability may alienate a large number of fabricators. Its less matter of fact and more focused on principles and values of openness, accessibility and inclusivity. This should influence your design thinking. The short but sweet response to this is - often, the simplest solutions are the best solutions and the most universally makable.



03 material
There are many sheet materials available including plywood of various types and levels of quality, laminated plywoods, and other materials such as Valcromat and Corian. You will notice almost all Opendesk hosted designs are showcased in Birch faced plywood. This is in the interests of universal make-ability. Birch faced plywood is widely available across multiple continents. This is not to say we only accept Birch faced plywood. We are expanding our library to include laminates and other veneered plywoods and want to become more experimental.



04 sheet thickness
There are many sheet thickness's available. They differ according to the material type but tend to be consistent across similar materials such as plywood. As an example, Birch face plywood is commonly available in metric thickness's of 6mm, 12mm, 18mm, 24mm. Consider the thickness of your material in line with the function of your furniture. Generally speaking, 18mm thickness is the most common and therefore the most universally available.

Considerations
design considerations

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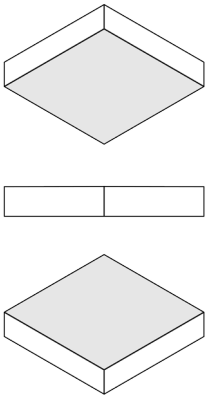
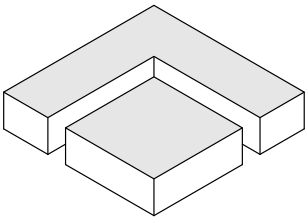
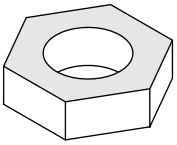


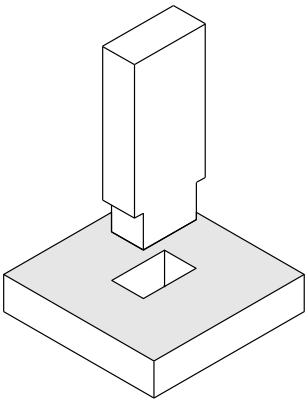
05 double sided cutting
It is possible to cut on both sides of a sheet material. This requires fabricators to flip a sheet and accurately re-locate it on the machine bed. Double sided cutting is a great way of adding detail and more complex junctions / joints, but adds to the end cost of the item. Evaluate the impact this consideration has on universal make-ability. Designs that require only single sided cutting are often regarded as more universally makable.



06 nesting
Material efficiency is an essential consideration for any designer looking to create a ethically mindful design. Designers often dedicate much of their attention to this consideration, as it is widely regarded as the most challenging. Your design process should be informed by the material from which it will be cut. The best designs, maximise material usage and leave the least possible waste material.



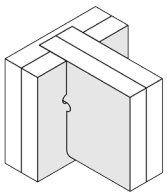
05 hardware
A smaller subset of Opendesk hosted designs incorporate hardware including (but not limited to) screws, threaded inserts and bolts. There is a huge selection of hardware available that can benefit the stability of a design. Consider universal make-ability. Hardware components often differ in size and features across different countries. Whilst hardware can result in a more sturdy end product, it will not necessarily be the most accessible / inclusive design. Opendesk is by no means against hardware. We are open to it. As a personal stand point, we are passionate about hardware-less products which we feel best celebrate values of openness, accessibility and inclusivity.

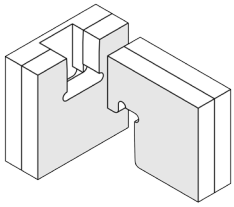


05 assembly
This consideration is often approached as an afterthought. The reality is, it should be baked into your design process. The best designs approach assembly as part and parcel of the product experience, not an irritating step to reach an end goal. Ever heard the phrase, 'its not about the destination, its the journey'. This is very relevant here. Consider the experience of assembling a design. How simple is the process, how intuitive and how enjoyable.

Considerations
joints and features

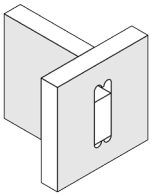
Opendesk's current manufacturing capabilities namely CNC routing, have resulted in a diverse array of joints and features. Some reference traditional wood joints and re-master them for digital fabrication. The 12 joints featured in this section have be sourced from a number of designs currently hosted on Opendesk. To learn more about each example, download the cutting files for furniture listed in the "Features in" box. **Use these joints to inform / develop your own design.**

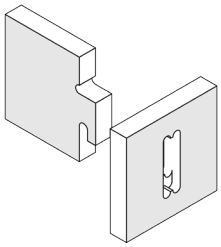




01 Beam joint
A temporary joint used to mount beams into vertical uprights such as a table leg. Illustrated with double laminated 18mm components.

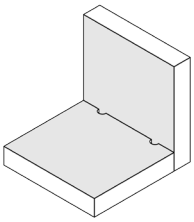
Features in : **Lean Desk, Slim Desk, Breakout Table**

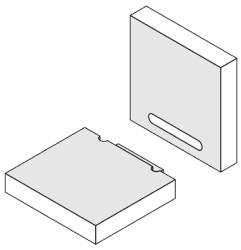




02 hook joint
A often used to mount beams into a vertical upright. Can be concealed if using double laminated material.

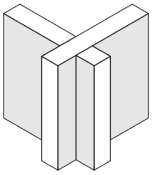
Features in : **Divide, Kuka Chair**

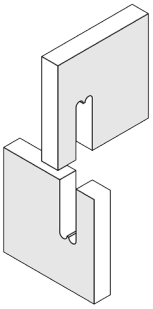




03 Hidden mortise and tenon
Used to join panels together at a 90 degree angles. Can be a permanent join if used with glue.

Features in : **Pedestal, WikiBooth**





04 Slotting joint
A simple joining solution for beams meeting at a right angle. Often combined with another joint to add rigidity.

Features in : **Layout Table, Lean Desk, Slim Desk, Valovi Chair**

Considerations
joints and features

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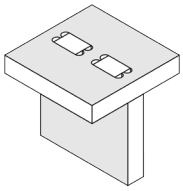
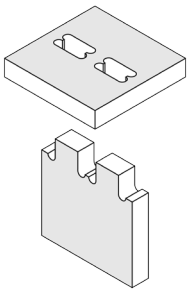
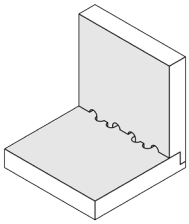
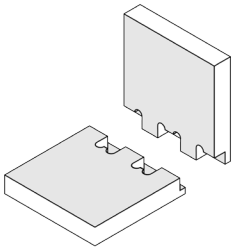




05 Throughole finger tenon joint
A simple but strong permanent join using teeth and through holes. Can be concealed by pocketing through holes and reducing height of teeth.

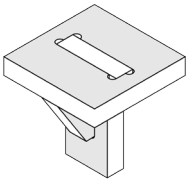
Features in : **Unit Table**

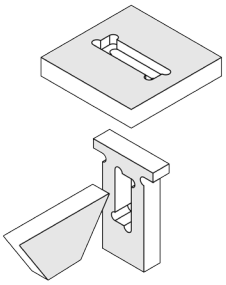




06 Hidden fingertip tenon joint
Commonly used when a user wishes to conceal joint details. Visible end grain is reduced. Provides a strong finish when glued.

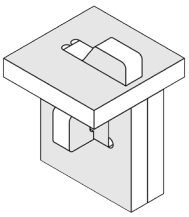
Features in : **Fin Lockers, Unit Table**

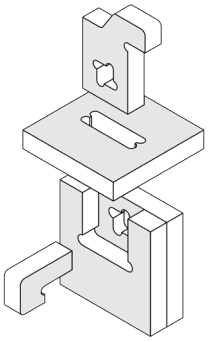




07 Wedge joint
A joint that creates tension as a wedge is crushed through a hole. Wedge will fatigue over time if furniture is regularly assembled / disassembled.

Features in : **Cafe Table**



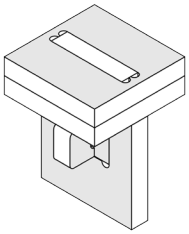


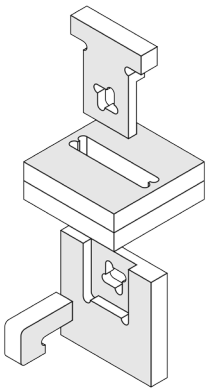
08 E-clip locking joint
Originally designed as a locking mechanism for the Lean Desk. This joint is perfect for clamping horizontal surfaces to uprights such as legs.

Features in : **Lean Desk**

Considerations
joints and features

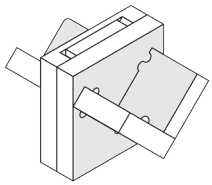
Opendesk's current manufacturing capabilities namely CNC routing, have resulted in a diverse array of joints and features. Some reference traditional wood joints and re-master them for digital fabrication. The 12 joints featured in this section have be sourced from a number of designs currently hosted on Opendesk. To learn more about each example, download the cutting files for furniture listed in the "Features in" box. **Use these joints to inform / develop your own design.**

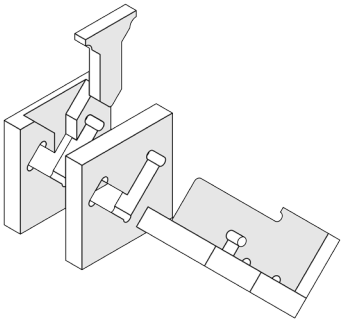




09 T-clip locking joint
Originally designed as a locking mechanism for the Lean Desk. Perfect for clamping horizontal surfaces to uprights such as legs.

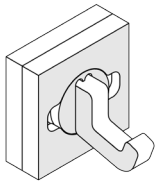
Features in : **Lean Desk**

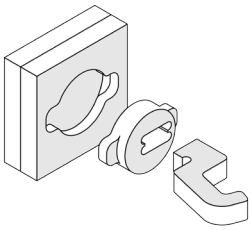




10 V-clip locking joint
Originally designed as a locking mechanism for the Lean Desk. Used to lock beams into vertical uprights such as table legs.

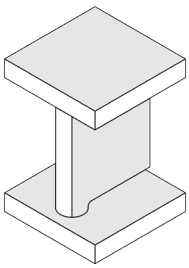
Features in : **Lean Desk, Slim Desk, Breakout Table**

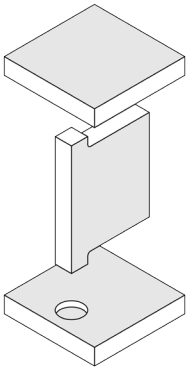




11 Key hole lock
A fun joint which can be used to add features such as hooks as illustrated here.

Features in : **Breakout Table**





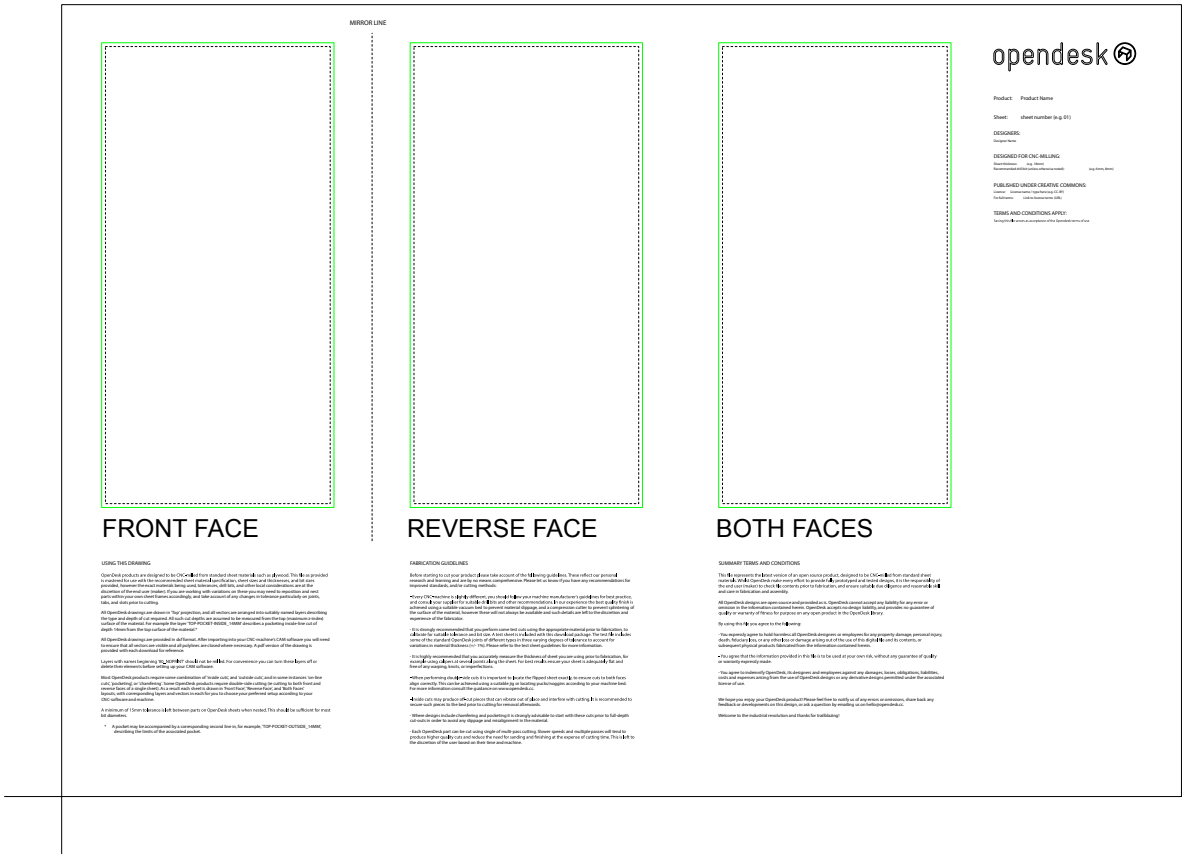
12 Hinge joint
A simple CNC hinge solution which allows square teeth to rotate within circular pockets.

Features in : **Pedestal, Fin Lockers**

Standards
Opendesk drawing template

The Opendesk drawing template is designed to make it easier for designers to follow a set of conventions. These conventions are intended to bring consistency to design files, in the interest of better communication with makers. Our conventions, we hope, will make it easier of for makers to work with us, but more importantly, enjoy it!

opendesk design template **The Opendesk drawing template is shared publicly as a .dxf file, which is compatible with most CAD software packages.**



01 Opendesk drawing template - overview

Our drawing template is designed to serve both designers and fabricators, making it easier to design, and interpret Opendesk hosted designs.

Contained in the template are 3 sheets. These will match the dimensions of the material from which your design will be cut (2440mm x 1220mm , 3050mm x 1525mm). These 3 sheets in-fact represent 1 sheet. Notice how the first sheet in the order of 3 is titled **FRONT FACE**. If your design requires only single sided cutting, your vectors will appear here. The second sheet, titled **REVERSE FACE**, is used to differentiate vectors that are cut on different faces of the sheet material. If your design requires double sided cutting, some of your vectors will need to be nested on the reverse face. The mirror line (located between sheet FRONT FACE, and sheet REVERSE FACE), is used to mimic the act of flipping the sheet on a machine, and allows the maker to see how vectors nested on separate faces relate to one another. The final sheet, titled **BOTH FACES**, is used to combined the vectors on FRONT FACE and REVERSE FACE and overlay them. This is used to show how the vectors relate to one another. If a design requires only single sided cutting i.e. cutting on the FRONT FACE only, the BOTH FACES sheet will only show the vectors on the FRONT FACE.

Additional information in the template, such as the text beneath the drawing area, is for the benefit fabricators and communicates information such as maker guidelines, terms of use, and how to use the drawing.

Standards
Opendesk drawing template

The Opendesk drawing template is designed to make it easier for designers to follow a set of conventions. These conventions are intended to bring consistency to design files, in the interest of communication with makers. Our conventions, we hope, will make it easier of for makers to work with us, but more importantly, enjoy it!

opendesk information box

The information box contained in the design template .dxf file can be filled in as indicated below. Or it can be left blank and we will fill it in for you.

opendesk

Product: Product Name

- Product name e.g. Slim desk

Sheet: sheet number (e.g. 01)

- Sheet number e.g. 01 , 02 , 03

DESIGNERS:

Designer Name

- Name of designer / designers

DESIGNED FOR CNC-MILLING:

Sheet thickness: (e.g. 18mm)

Recommended drill bit (unless otherwise noted): (e.g. 6mm, 8mm)

- Thickness of sheet material e.g. 18mm , 24mm etc
- Recommended drill bit - e.g. 8mm (refer to capabilities, tool pallet).

PUBLISHED UNDER CREATIVE COMMONS:

Licence: License name / type here (e.g. CC-BY)

For full terms: Link to license terms (URL)

- Chosen design license e.g. CC - BY (refer to licensing section)

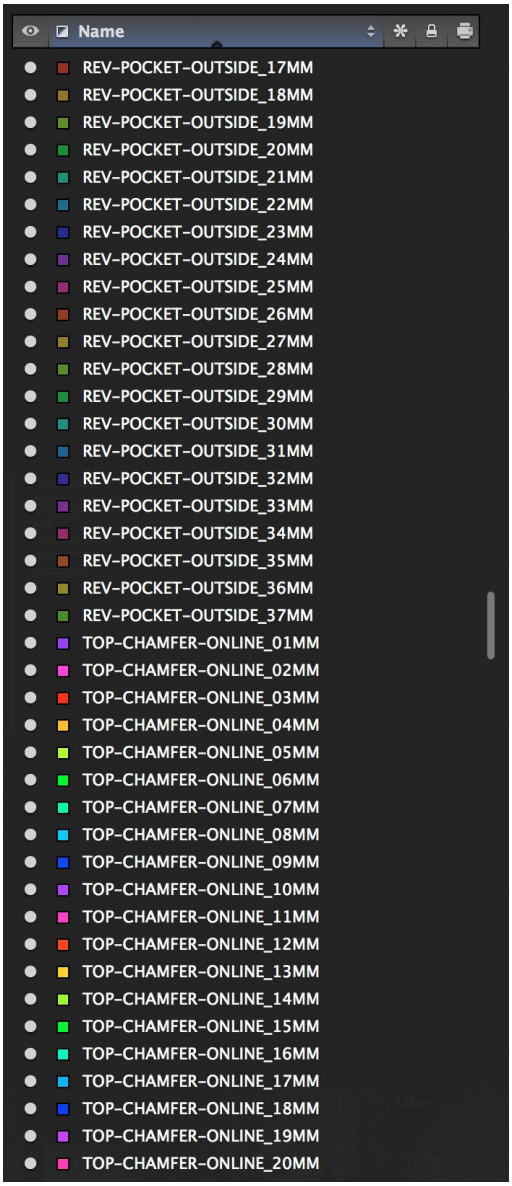
TERMS AND CONDITIONS APPLY:

Saving this file serves as acceptance of the Opendesk terms of use

Standards

Opendesk drawing template layer list

The Opendesk drawing template is designed to make it easier for designers to follow a set of conventions. These conventions are intended to bring consistency to design files, in the interest of communication with makers. Our conventions, we hope, will make it easier for makers to work with us, but more importantly, enjoy it!



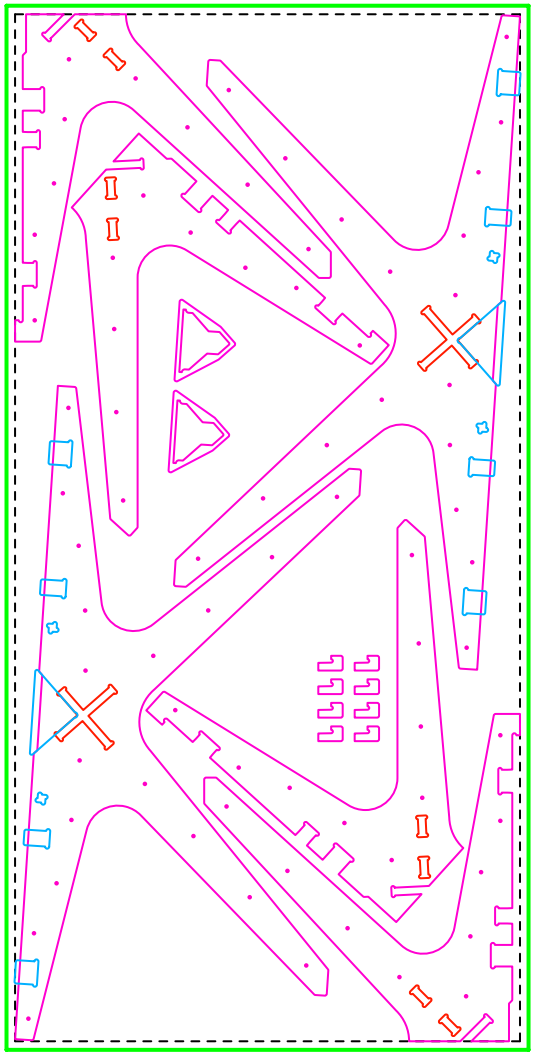
01 Opendesk drawing template - layer list

Contained in our template is a large layer list. This list enables you to select a layer from the list and easily associate the layer information with vectors in your design. Included in this list is the Opendesk layer naming convention and colour scheme. **Just scroll, pick your layer and associate it with a vector in your drawing!**

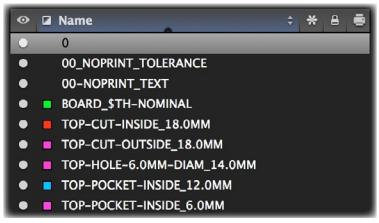
Standards

Example drawing layering

Designs hosted on Opendesk are very different and often authored by individuals on separate continents. Despite this, all designs adhere to the same drawing standards / conventions. Shown in this section is an example drawing from the Lean desk, the original Opendesk.



TOP FACE



01 example drawing
Each vector line contained in the drawing is associated with a layer. A layer contains information including the Opendesk layer naming convention, and the Opendesk colour scheme. These layers tell a maker how to interpret vectors when programming his/her CNC machine. **Refer to this section alongside the Opendesk drawing template .dxf file.**

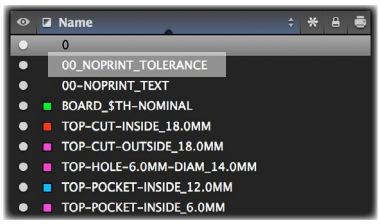
Colours are associated with every layer in the Opendesk drawing template .dxf and are consistent across every Opendesk hosted design.

Standards
layer naming conventions

Working with multiple makes around the world has enabled us to create a set of drawing standards, informed by the people we are trying to serve - makers. These enable us to better design for those who will be manufacturing our designs. A single design file may have to be interpreted by makers on opposite sides of the world. These standards have been created in the interests of communication and consistency. Outlined in this section are essential standards that should be followed in the interests of Open making, and independent workshops around the world.

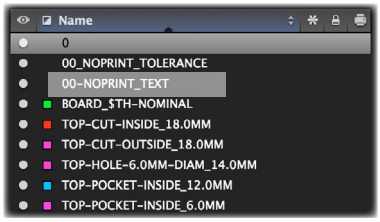
layer naming

Layer names are applied to vector lines within your CAD programme that form your design (or) components of your design.



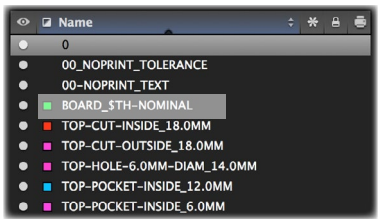
00_NOPRINT_TOLERANCE

This layer refers to the tolerance (20mm) which must be left around the perimeter of the sheet material.



00-NOPRINT_TEXT

This layer refers to all the information contained in the Opendesk template such as text, icons etc.



BOARD_$TH-NOMINAL

This layer refers to the sheet material (either 2440mm x 1220mm or 3050 x 1525mm if standard size plywood). The **$TH** field requires input as shown.

BOARD _ **$TH** - **NOMINAL**

Refers to the sheet material from which a design will be cut.

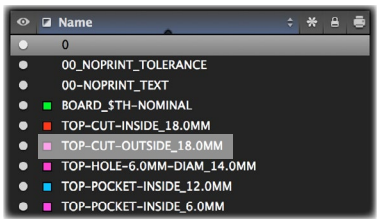
Thickness of the sheet material to be entered by the designer e.g. 18mm

nominal - refers to the material thickness as sold by the supplier (not taking into account variation in actual thickness)

**Note - the layer list as illustrated in this guide is taken from AutoCad and will look different in other software packages. The logic and general layout should be similar.*

Standards
layer naming conventions

Working with multiple makes around the world has enabled us to create a set of drawing standards, informed by the people we are trying to serve - makers. These enable us to better design for those who will be manufacturing our designs. A single design file may have to be interpreted by makers on opposite sides of the world. These standards have been created in the interests of communication and consistency. Outlined in this section are some essential standards that should be followed in the interests of Open making, and independent workshops around the world.



TOP-CUT-OUTSIDE_18.00MM

This layer refers to a specific vector line and provides information on how it should be interpreted as a tool-path. All layers follow the same logic as outlined below, excluding holes which are explained separately.

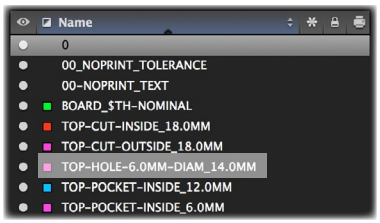
TOP _ **CUT** - **OUTSIDE** - **18.00MM**

Refers to which face of the material a vector line drawn is drawn. Options include: **TOP** or **REV** (reverse face). REV is used when double sided cutting is required.

refers to the type of tool-path that should be applied to a vector line. Cut types include: **CUT, POCKET, ENGRAVE, CHAMFER, FILLET.**

refers to which side of a closed vector line a tool bit should run. Options include: **INSIDE**, **OUTSIDE.**

refers to the depth of the cut, pocket, engraving, chamfer, or fillet. **Can be any metric value.**



TOP-HOLE-6.00MM_DIAM_14.00MM

This layer refers to a specific closed circle vector line that should be interpreted as a hole which should be drilled. This is often used to identify dowel hole, for components that need to be glued together.

TOP _ **HOLE** - **6.00MM** - **DIAM** - **14.00MM**

refers to which face of the material a vector line drawn is drawn. Options include: **TOP** or **REV** (reverse face). REV is used when double sided cutting is required.

refers specifically to a closed circle vector which should be interpreted as a drill hole.

refers to the required diameter of the hole. **Can be any metric value.**

DIAM = diameter

refers to the depth of the hole. **Can be any metric value.**

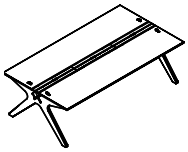
**Note - the layer list as illustrated in this guide is taken from AutoCad and will look different in other software packages. The logic and general layout should be similar.*

Standards
good practice

Outlined here is a set of processes that we as Opendesk regularly use to inform our design process, the result being a better end product. These are by no means rules, every designer has their own process and way of doing things. This is our way of doing things. By sharing it, we hope it can help others without dictating a design work-flow.

01 3D model
Its always a good idea to test the construction of your design by 3D modelling it. This is a great way to check connections and the assembly process. We as Opendesk 3D model throughout our design process. Their are many CAD programmes you can 3D model in. SketchUp Make* is popular for its simple user interface and the availability of a free version.

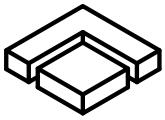
01 model making
Get some cardboard or foam board and mock up your design at a smaller scale. Its a great way of testing the viability of your design. You will better understand proportions and fitness for purpose by doing this. Laser cutting is also a great way of making accurate scale models of your design.



01 prototype
Not everyone will have access to CNC routers so, whilst making a full size prototype is good practice, it is not essential. Its a great way to really interrogate your design and do some all important user testing. If prototyping is not possible, other techniques such as model making should be given more attention.

01 Sketching
It sounds obvious but its easy to undervalue sketching when designing for digital fabrication. Whilst CAD will likely dominate ones design process, try to keep sketching as this is where genuinely novel ideas are uncovered. The boundaries imposed by CAD software can limit ones creativity.

01 checks
Having a check protocol is an excellent way of confirming your design is mistake-free. See the standards checks section on the following page.

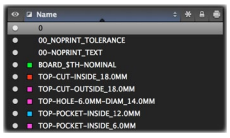


01 Nesting
The components that form a design should be nested as efficiently as possible to minimise material wastage. Refer to **Standards, checks** and **Considerations, nesting** for more information on the importance of this.

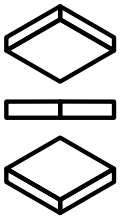
*SketchUp Make is available to download for free at : **https://www.sketchup.com/products/sketchup-make**

Standards
checks

Outlined here is the check protocol we use at Opendesk to verify our design files are ready for manufacture / sharing. These are intended as guideline. We would suggest going through these check points once your have finished your design.



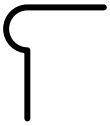
01 layers
Go through your layer list and check the layer information. Use the visibility button (common in most CAD software) to activate and de-activate layers individually and check vectors have been assigned to the correct layer.



02 double sided cutting
Designs that require double sided cutting should be checked to ensure vectors on the reverse face are positioned relevant to corresponding vectors on the top face.

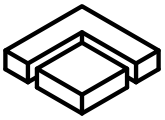
03 faceting
Faceting is a common problem and often occurs when exporting your drawing. Some CAD software packages are unable to export curves. They interpret them as multiple straight lines. This is particularly apparent on dog-bones. Drawings that are faceted are generally deemed unsuitable for manufacturing. Its vital that drawings are checked for this.

04 exports
Export your final drawing as a .dxf file. Their are a number of format options within the .dxf file type. We recommend saving in **R12** and **autoCAD 2000/LT2000** format. Different software packages offer different options, some may not offer any options.



05 dog-bones
Check all inside corners have dog-bones that matches the diameter of the tool that will be used during manufacturing.

06 polylines
The way polylines are drawn is very important. Polylines will run between points. Ensure that your lines are drawn correctly and do not contain extra points.



07 nesting
Components should be nested with a minimum gap of 20mm between parts. Its also important to leave a 20mm gap between components and the material edge as indicated by the tolerance line in the Opendesk drawing template.

Licensing
license types

Our mission is to create a business model for Open Making, which seeks to remunerate makers, designers and the platform (or third party channels respectively) to a proportional level. This business model for Open Making operates independently of the underlying license chosen by the designer. What this means, is that a design downloaded from Opendesk is available to be made subject to the terms of the published design license. However, any time a customer chooses to work with a maker in the Opendesk network or buy a product via Opendesk, they are committing to support the Opendesk model. Specifically, whenever a maker is paid for materials and machining, we ask that the right of the designer and the platform to also be paid is respected. Our model of Open Making seeks to remunerate designers for their work, regardless of the chosen design license, whether a fully open source license, or closed license. **Outlined in this section are common license types some of which can be found on Opendesk. Choice of license is not limited to the options listed below. We are huge fans of open source, but we are fundamentally open to the designer's choice so long as a license does not conflict with the terms of our designer agreement.**

Copyleft	Practice of giving people the right to freely distribute copies and derivatives of works, with the precondition that the same rights be maintained in additional copies of derivative work.
OSI - Approved	Licenses that are listed on the OSI website as approved by the Open source initiative (http://opensource.org/licenses/alphabetical)
Permissive	A non-copyleft open source license that guarantees the freedoms to use, modify and redistribute work. Crucially, permissive licenses permit proprietary derivative works.
Weak Copyleft	The "strength" of a copyleft license is an expression as to the extent that copyleft provisions can be imposed on derivative works.
Viral	A reference to copyleft licenses that allow derivative work under the pre-condition that such works preserve the conditions of the original license.
Public Domain	Licenses that give rights to the public as a whole, and not to copyright.
Proprietary	Proprietary licenses are often owned by an individual or a company (usually the one that developed it). There are usually major restrictions on its use, and its source code is almost always kept private.
Creative commons	A collection of licenses by the Creative Commons to help creative content creators control how their work is used. **Currently used on all Opendesk hosted designs**.

There are many licenses available which dictate differing levels of 'control' over the distribution of material. Many of the license types listed above have been created with software in mind and have differing levels of compatibility / relevance to Opendesk.

sources referenced:
https://tldrlegal.com
https://opensource.org/licenses
https://creativecommons.org
http://www.gnu.org

Licensing
creative commons

Currently, all designs currently hosted on opendesk.cc are shared under the creative commons licensing system. Creative Commons is our preferred license type, but we are open to whatever a designer wants (within reason!). We are huge fans of open source, but are fundamentally open to the designer's choice around licenses so long a license does not conflict with our principles and designer agreement.

"The Creative Commons copyright licenses and tools forge a balance inside the traditional "all rights reserved" setting that copyright law creates. Our tools give everyone from individual creators to large companies and institutions a simple, standardized way to grant copyright permissions to their creative work. The combination of our tools and our users is a vast and growing digital commons, a pool of content that can be copied, distributed, edited, remixed, and built upon, all within the boundaries of copyright law." *ref. About The Licenses - Creative Commons. 2016. About The Licenses - Creative Commons. [ONLINE] Available at: https://creativecommons.org/licenses/.*

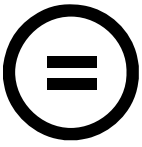
Learn more about creative commons licensing : https://creativecommons.org/licenses/

The terminology outlined below appears in the creative commons licensing system and permit certain behaviours which are explained on 'Licensing - creative commons licensing types'.

01 attribution
To attribute and establish a particular person as the creator of a work.

02 non-commercial
Not having a commercial objective; not intended to make a profit / commercial gain.

03 share-alike
Copies or adaptations of work must be released under the same terms / licence as the original.



04 no-derivatives
No derivative (something that is based on another source) works to be created and shared.

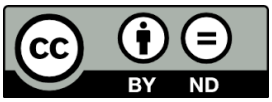
sources referenced:
https://creativecommons.org

Licensing
creative commons license types

Different creative commons licenses exist which impose different boundaries on the use of shared material. Terminology used in the licenses aims to be as human readable as possible, catering for those they are addressing. Creative commons public copyright licenses incorporate a unique "three-layer design, including a legal code, human readable element (outlined here) and machine readable element. Learn more at : https://creativecommons.org/licenses/ **Outlined below are the different creative commons licenses available many of which are currently in use on opendesk.cc**

01 creative commons - attribution (CC - BY)
This license lets others distribute, remix, tweak, and build upon your work, even commercially, as long as they credit you for the original creation. This is the most accommodating of licenses offered. Recommended for maximum dissemination and use of licensed materials. **Currently the most popular license on opendesk.**

02 creative commons - attribution - share alike (CC - BY - SA)
This license lets others remix, tweak, and build upon your work even for commercial purposes, as long as they credit you and license their new creations under the identical terms. This license is often compared to "copyleft" free and open source software licenses. All new works based on yours will carry the same license, so any derivatives will also allow commercial use. This is the license used by Wikipedia, and is recommended for materials that would benefit from incorporating content from Wikipedia and similarly licensed projects.



03 creative commons - attribution - no derivatives (CC - BY - ND)
This license allows for redistribution, commercial and non-commercial, as long as it is passed along unchanged and in whole, with credit to you.

04 creative commons - attribution - non commercial (CC - BY - NC)
This license lets others remix, tweak, and build upon your work non-commercially, and although their new works must also acknowledge you and be non-commercial, they don't have to license their derivative works on the same terms.

05 creative commons - attribution - non commercial - share alike (CC - BY - NC - SA)
This license lets others remix, tweak, and build upon your work non-commercially, as long as they credit you and license their new creations under identical terms.

05 creative commons - attribution - non commercial - no derivatives (CC - BY - NC - ND)
This license is the most restrictive of our six main licenses, only allowing others to download your works and share them with others as long as they credit you, but they can't change them in any way or use them commercially.

**For detailed information on creative commons licensing, go to - https://creativecommons.org/licenses/*

sources referenced:
https://creativecommons.org/ licenses