Library Lab

Noll & Tam Architects
with Matthew Williams Design

INTRODUCTION

BASIC CONCEPT

The Digital Library needs a physical footprint for the input and output of digital information.

Our team has focused upon creating the infrastructure for the input of physical, audio, and visual information into the digital realm, and for the transfer of that digital information back into physical form of various sorts. We have conceived of a number of modules that will serve to support or contain the equipment needed for the transfer of the digital information. These modules are built with a flexible system of components that can be designed digitally, transmitted to any location, and fabricated using simple tools and methodologies. The size of the forms allows them to be fabricated from readily available standard materials such as plywood, MDF, plastics, metal, or composite materials. Our intent is that the design and fabrication techniques will be easily adaptable to individual needs, and that the processes will be open source, part of the creative commons.

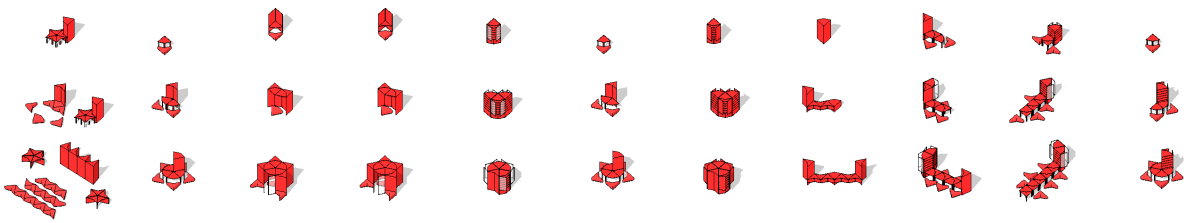
We have identified eleven basic types of modules that can serve most of the functions we envision are needed.

Each module can vary according to the need, budget, and particulars of the functions intended for it in any given location. For the purposes of this study, we have chosen to represent them in three sizes; 'minimum' 'Standard' 'Maximum'. Each 'size' is designed to correspond to different levels of financial capability, as well as frequency and quantity of use. In addition, they can be customized to easily to respond to local needs.

Noll & Tam Architects collaborated with Matthew Williams Design to create a sense of identity through bold graphics and signage. Thus, a method of interface for the digital library is introduced to the public in an easiily recognizable and accessible manner.

MODULES:

01 Collaborate
02 Scanner
03 Audio Record + Remix
04 Video Record + Remix
05 Display
06 Print
07 Hardware Checkout
08 Information
09 Digital Design
10 Book Binding
11 Curation



Noll & Tam Architects

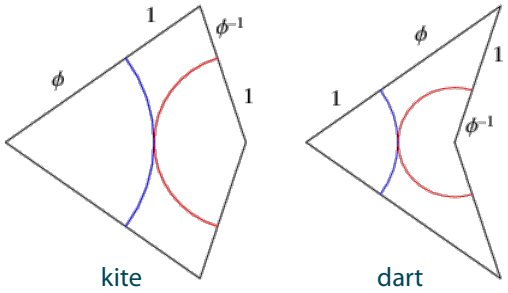
Matthew Williams Design
Architectural Signage & Graphic Design

SYSTEM DESIGN

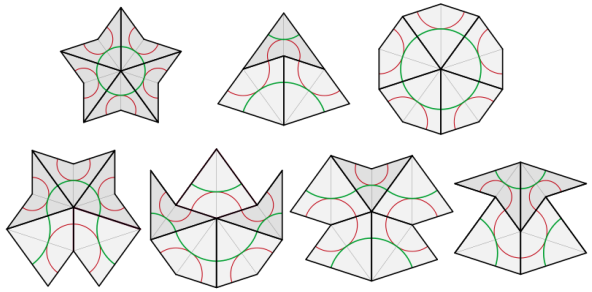
FLEXIBILITY: PENROSE TILING

The system for the module's geometry is based upon Penrose tiling, a mathematical system of two-dimensional tile shapes developed by Sir Roger Penrose. The shapes can be combined in a variety of ways to create larger forms, and are particularly flexible and useful for the purposes of our project.

http://en.wikipedia.org/wiki/Penrose_tiling

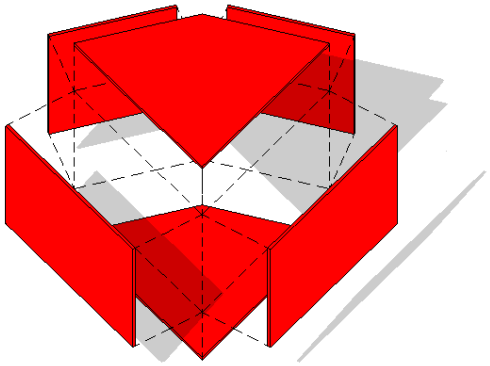


We have chosen to use the 'kite' and the 'dart' tile shapes for Library lab. Using only these two shapes, many forms useful for creating the modules we need can be easily assembled. Constructed from a minimum number of parts, the horizontal forms are combined with various vertical forms to create tall objects, work surfaces, seating, and storage elements. Several objects can be easily combined to create larger forms to serve the needed functions.



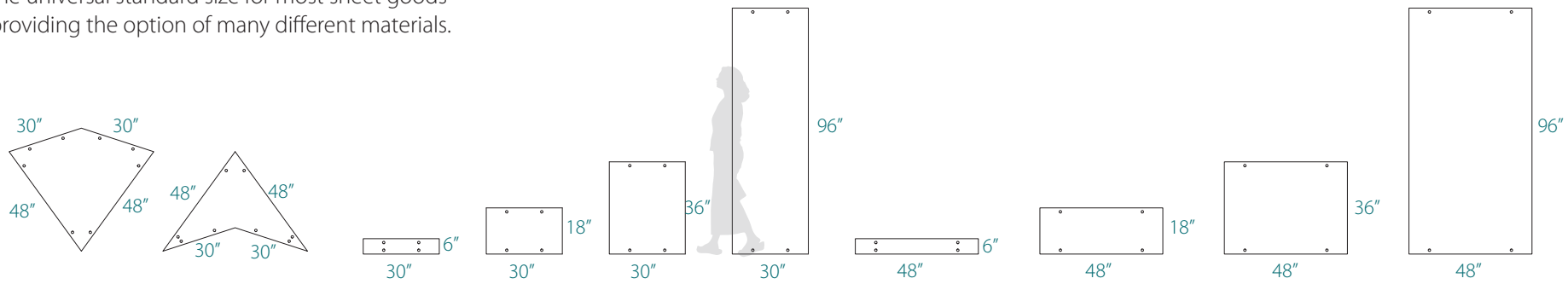
CONSTRUCTION:

The proposed system takes the two dimensional flexibility of penrose tiling and extrudes them into three dimensions. Using a relatively small number of forms, a very wide array of larger configurations are possible. There are extrusions of the Dart and Kite shapes at 6", 18", 36"(desk height), and 96" (wall height) . Padded seating (at 18"). In addition, there are Dart and Kite Table height units with legs.



BASIC PANEL SHAPES

Panels shown below would be used to create the volumetric forms. Basic shapes are cut from standard sized 4' x 8' (48" x 96") panels, which is the universal standard size for most sheet goods providing the option of many different materials.



FABRICATION AND MATERIALS:

The individual units are modular pieces of furniture which can be locally manufactured using widely available open source tools and 'Fab Lab' fabricators. 'Fab Labs' have become widespread throughout the country within the past 5 years as the cost of CNC tools has gone down.

The units may be made from whatever sheet materials are most appropriate to the end user. By designing the units in standard flat stock, any number of materials may be substituted, such as MDF, Plywood, Oriented Strand Board, as well as other composites. Units may also be modified, if the end user has the ability to do so.

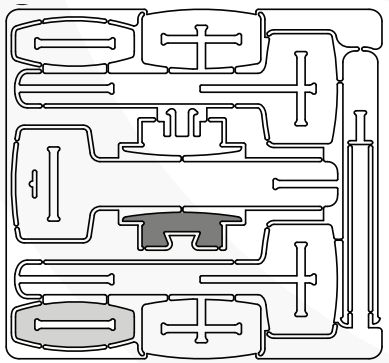
DISTRIBUTION:

The design patterns themselves will be open source, using Creative Commons licensing. Units may be shared freely, modified, but the designs themselves may not be resold.

The final designs will be able to be distributed via standard formats, such as PDF, AI, SVG, STL

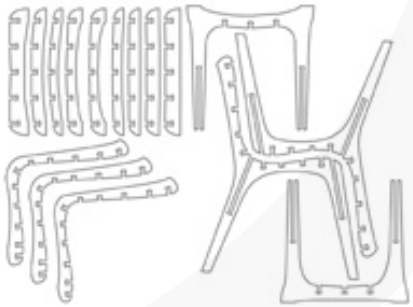
creative commons

flat pack mallet by Vert Design



flat pack mallet pattern by Vert Design

chair by Sketchchair.com

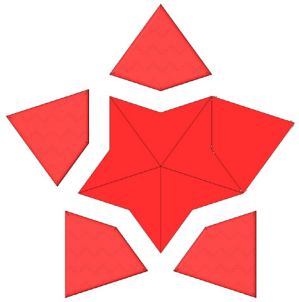


chair pattern by Sketchchair.com

COLLABORATE 01

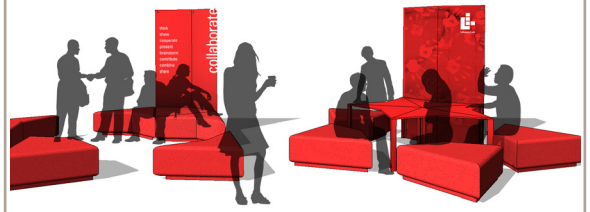
Minimum

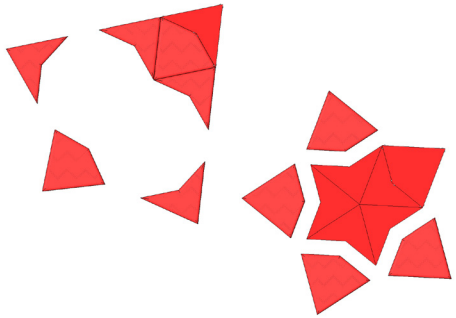
Seating for 6 at a table.



Standard

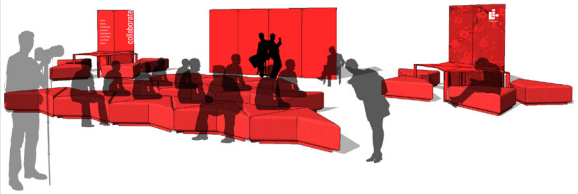
Table + seating with projection capabilities. Storage.

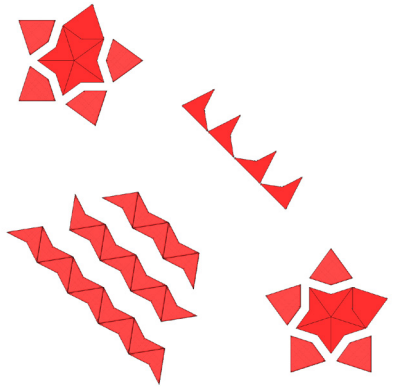




Maximum

Setup for a larger group such as panel discussion, or lecture. Camera+Projector unit for filming the meeting. Backdrop. Some basic soft seating.

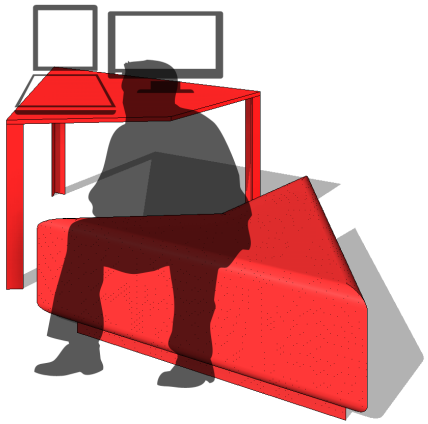




02 SCANNER

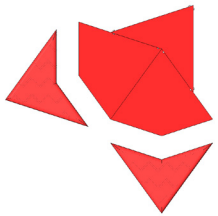
Minimum

Scanner and computer w/ photo manipulation software.



Standard

Scanner and computer w/ photo manipulation software. Photo scanner for larger items, such as maps, oversize books or physical objects.



Maximum

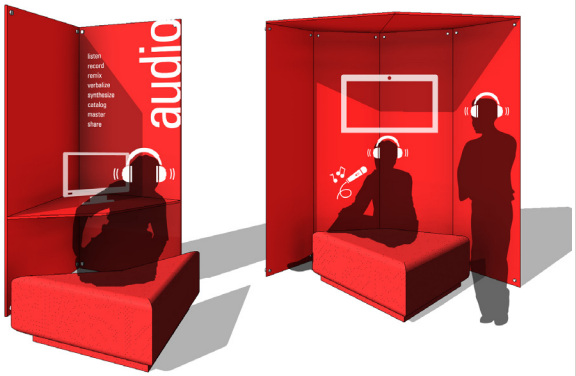
Bulk scanning of materials. Includes storage for larger projects. 2-camera scanner for high capacity scanning of whole books. OCR software for conversion to text.

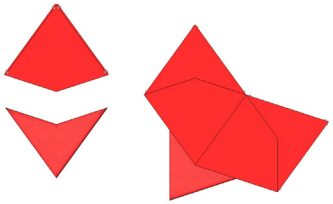
Minimum

Computer, microphone, and mixing sofware. (Radio, podcasting, music mixing.)

Standard

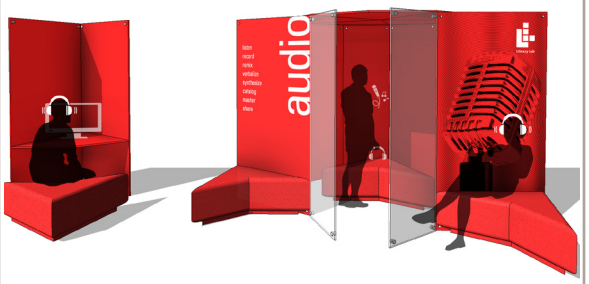
More acoustically separated for individual recording. Sort of like a personal audio-booth. Additional headphones for group listening.

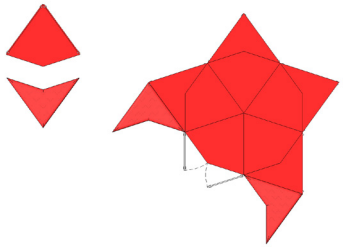




Maximum

Miniature recording studio: acoustically separated. Higher quality recording microphone, and mixing. Allows for group projects or classes.





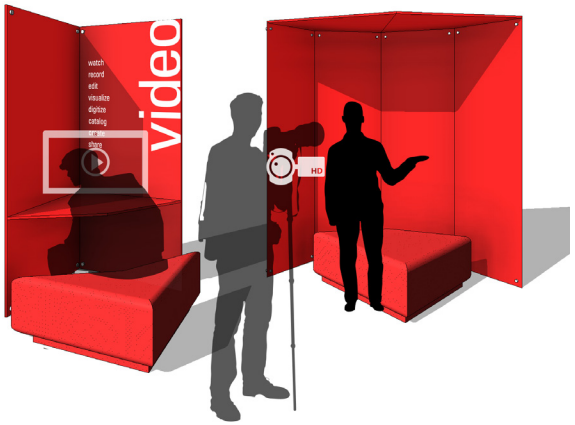
04 VIDEO RECORD AND REMIX

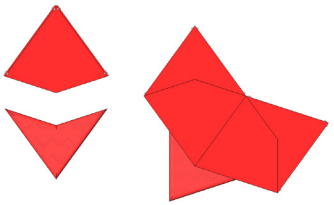
Minimum

Computer with video remixing equipment.

Standard

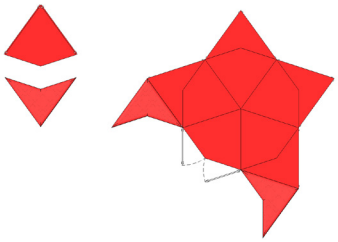
Video booth. Includes Green screen + some basic lighting.





Maximum

Larger green screen, lighting, and camera setup. Allows group or performance projects.

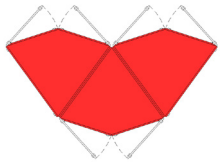


Minimum

Display for books and small objects.

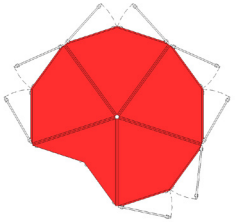
Standard

Display for medium size objects.



Maximum

Large format display



06 PRINT

Minimum

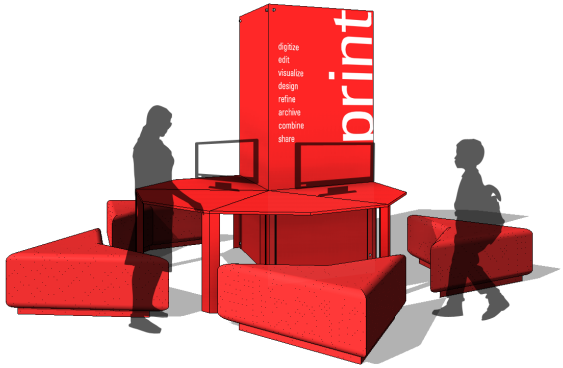
Basic xerox printer.

Standard

Additional work station combined with higher quality/larger format printer.

Maximum

Multiple workstations with higher quality/ larger format printer.

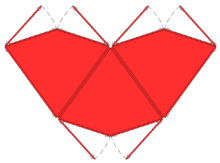


Minimum

Equipment storage: electronic equipment, cameras, recorders, laptops.

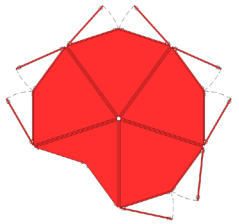
Standard

Storage for medium sized items and tools. Musical instruments: Guitars, trombones. Home improvement tools: saws-all, drills, saws.



Maximum

Storage for heavy equipment. Concrete mixer, jackhammer.



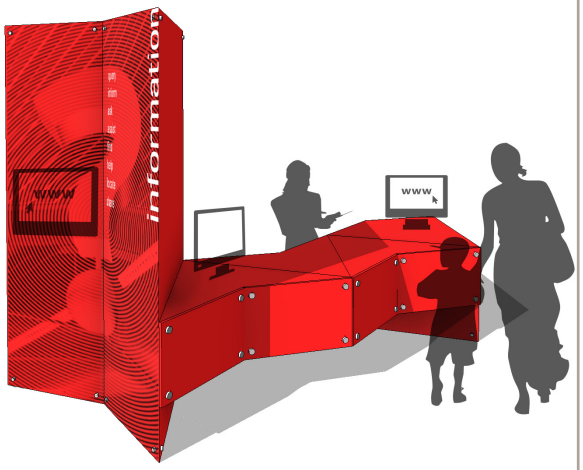
08 INFORMATION DESK

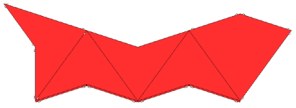
Minimum

Small podium w/monitor and directional information.

Standard

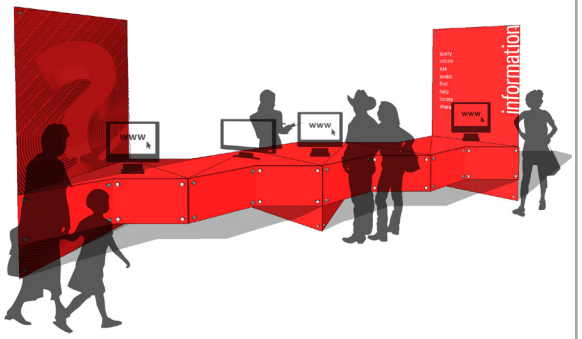
Small desk w/ storage allowing staff to check items in and out.

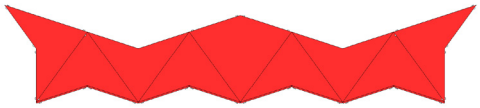




Maximum

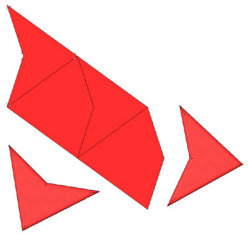
Large desk w/ storage allowing staff to check items in and out.





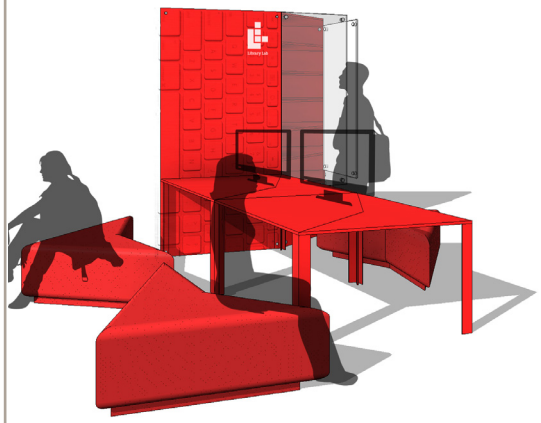
Minimum

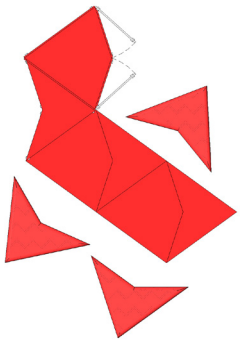
Computer with 2d digital design tools. Layout space. (Desktop publishing, graphic design, make EPUB books.)



Standard

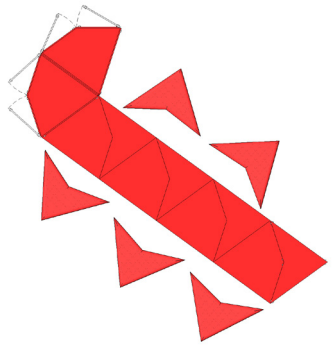
Computer with 3d digital design tools: Wacom tablet. Fabrication design software, Sketchup, Autodesk123D, Blender.





Maximum

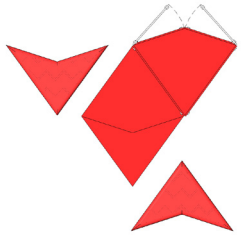
Digital fabrication: There are many tools which could be added: Digital 3d object scanner. CNC Paper cutter. 3D object printer.



10 BOOK BINDING

Minimum

Paper cutter, presses. Assorted wood table top equipment and tools.

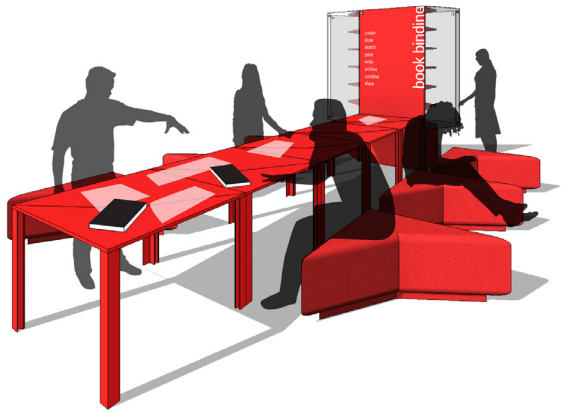


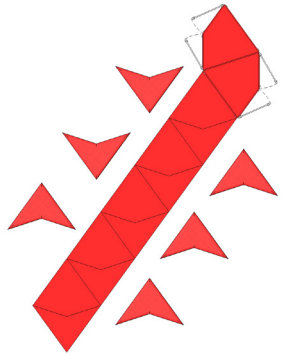
Standard

Paper cutter, presses. Assorted wood table top equipment and tools. Binding equipment.

Maximum

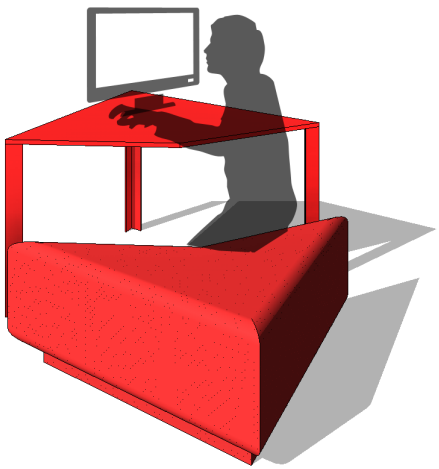
Paper cutter, presses. Assorted wood table top equipment and tools. Binding equipment. Espresso (TM) Print on Demand machine.





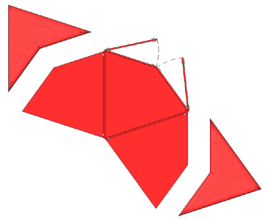
Minimum

Desk w/ computer.



Standard

Multiple workstations with signage.



Maximum

Multiple workstations with signage.