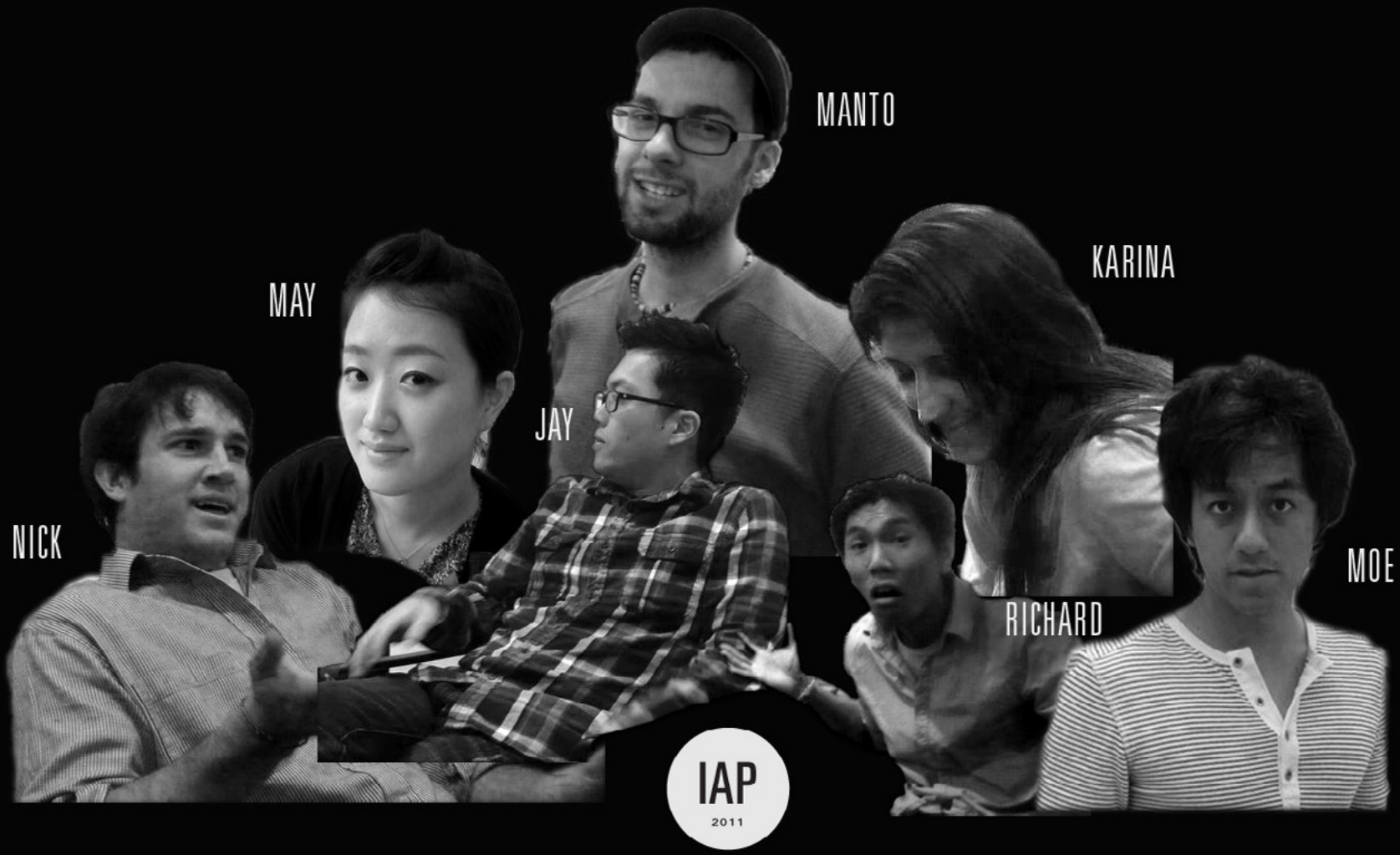


VOLTA

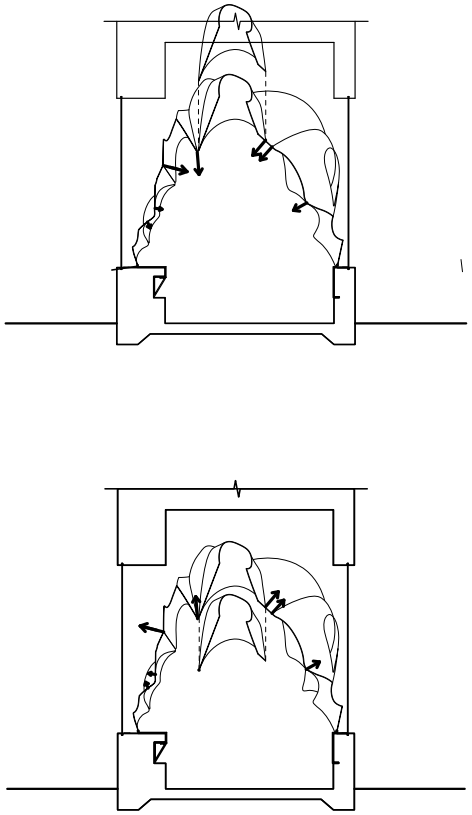
DOMINATORS

INSTRUCTOR
SKYLAR TIBBITS

Connection Parts Matrix

Different methods to resolve specific issues

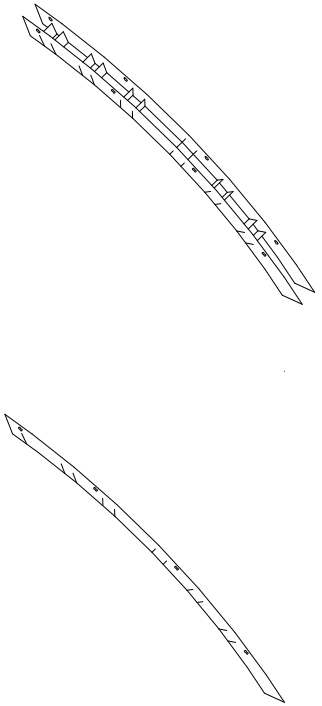
OFFSET
INSIDE / OUTSIDE



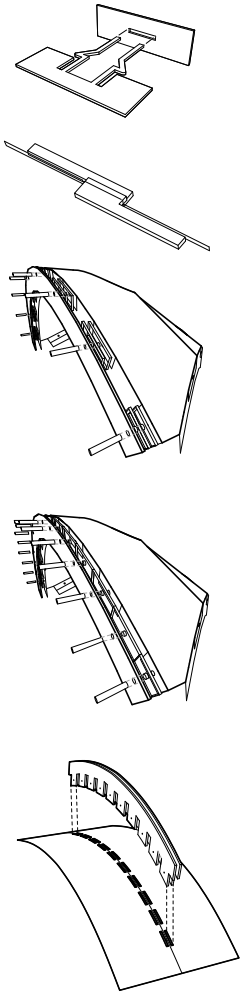
RIB LOCATION
ABOVE / BELOW

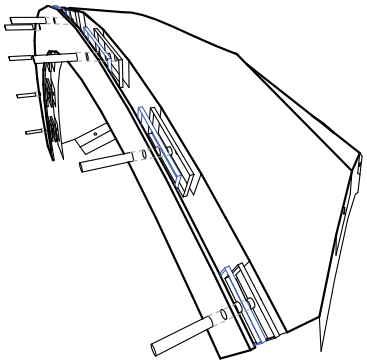
CELL TYPE
CLOSE / OPEN

RIB NUMBER
ONE / TWO

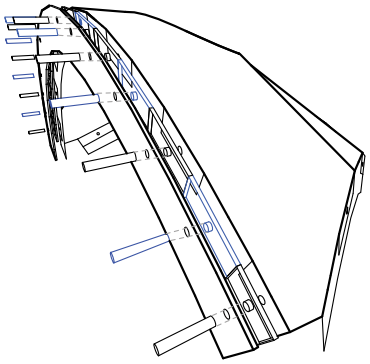


CONNECTION
VARIETY





Lapped Tabs



Alternating Tabs

01 Double Rib

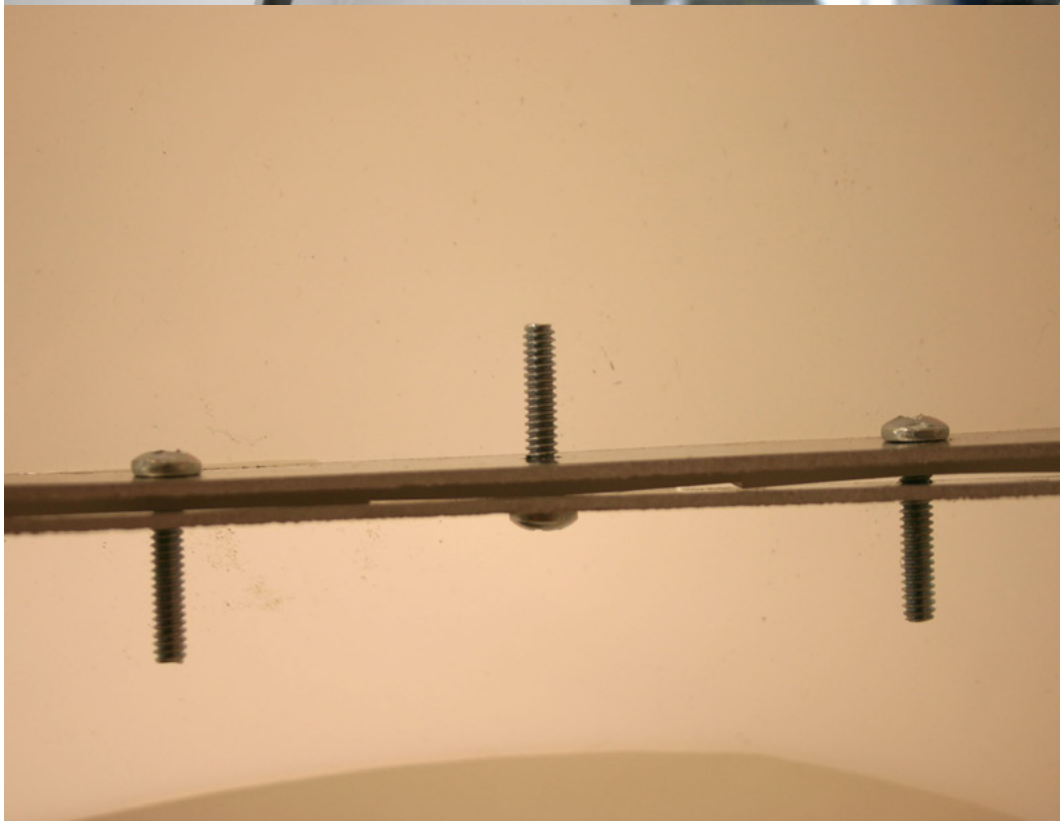
Connection Group Prototype

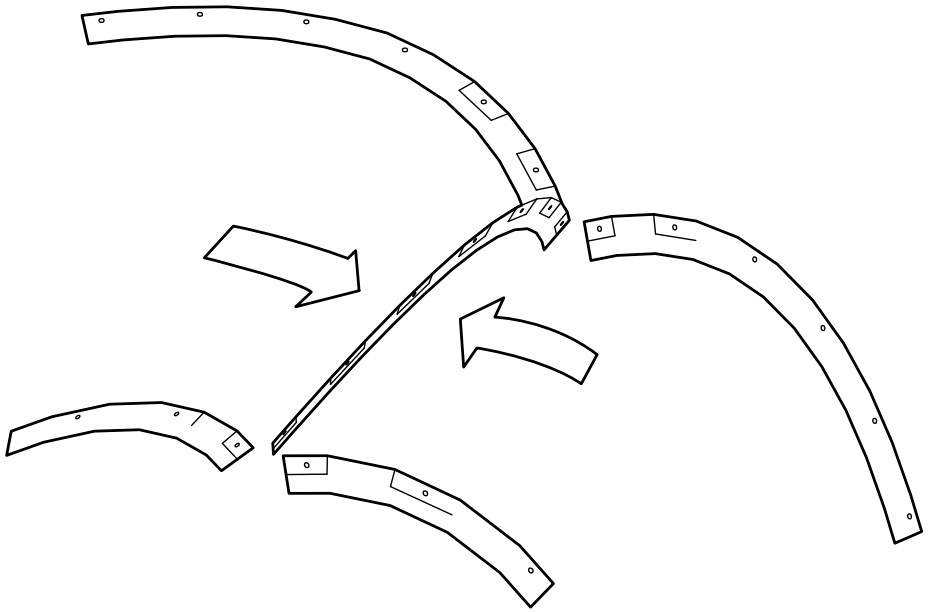
PRO

- creates truss
- maintains edge profile
- allows closed cell system
- conceals tabs

CON

- more material
- heavier





02 Single Rib

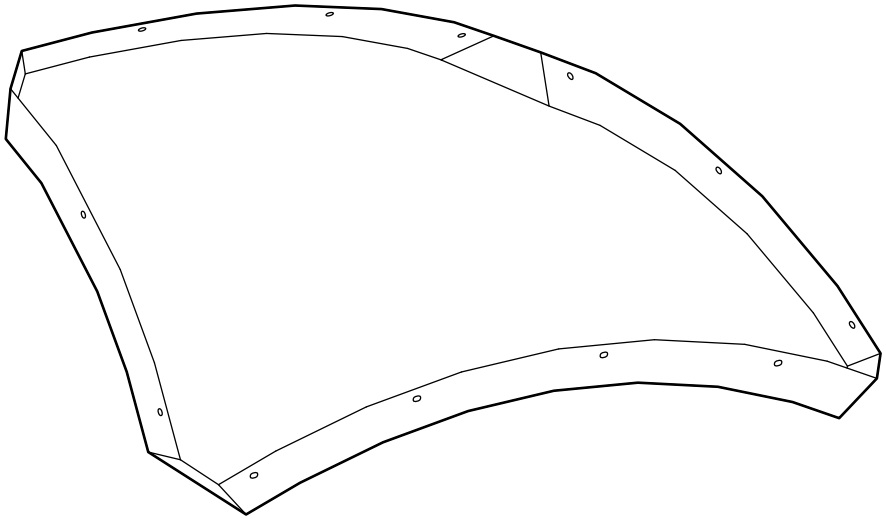
Connection Group Prototype

PRO

- slender connection
- allows nesting

CON

- doesn’t allow closed cell
- discontinuous force transfer
- exposed tabs



03 Closed Cell: Single/Double Bend

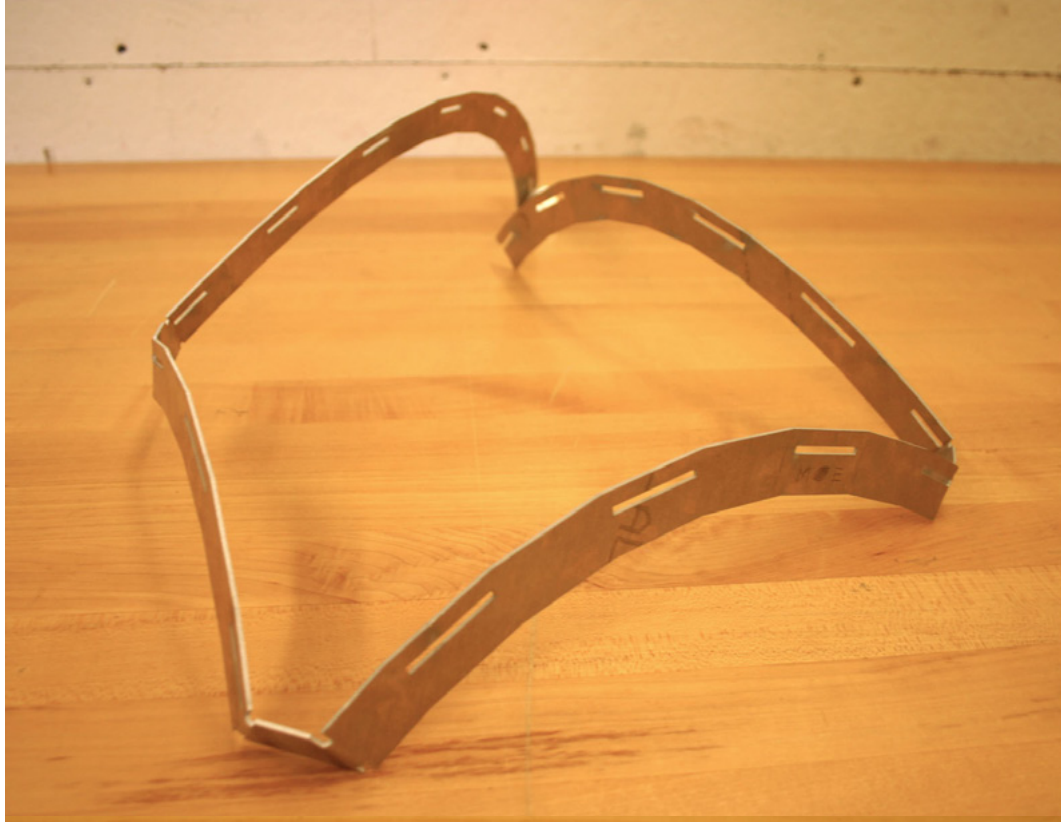
Connection Group Prototype

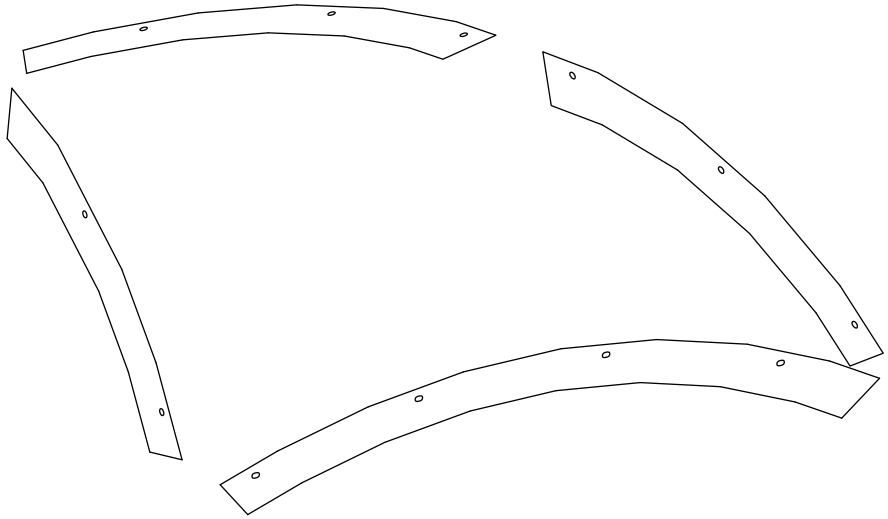
PRO

- allows panels to be assembled before connected
- continuous force transfer
- rigid in all directions, takes all force out of plastic

CON

- long strips and poor nesting
- can’t predict bend angle
- overlap creates thicker moments
- uneven corner condition_ugly





04 Open Cell

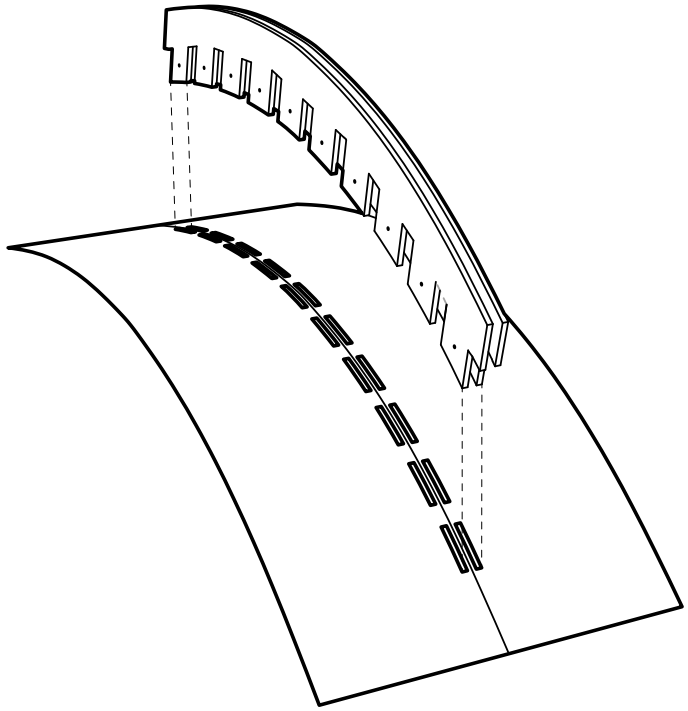
Connection Group Prototype

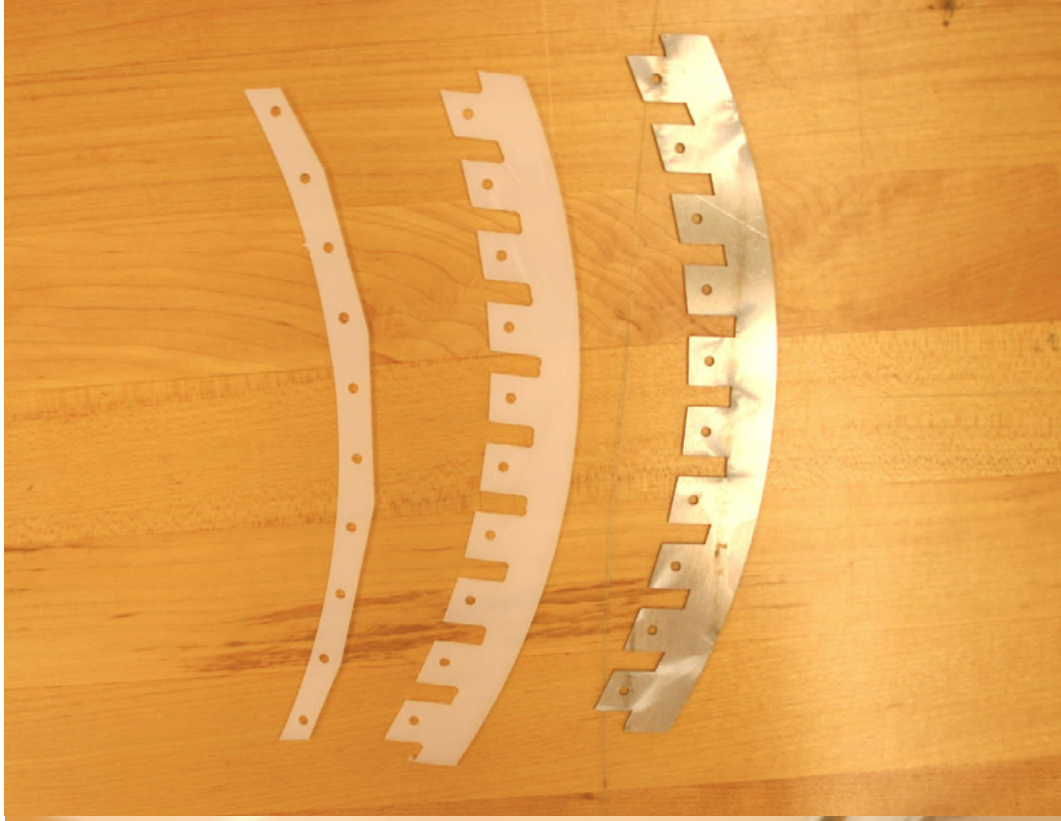
PRO

- allows single or double rib
- shorter and nests well
- no bending
- shared material properties

CON

- not rigid
- transfers load to plastic
- must assemble in place





05 Finger Joint (3 Ribs)

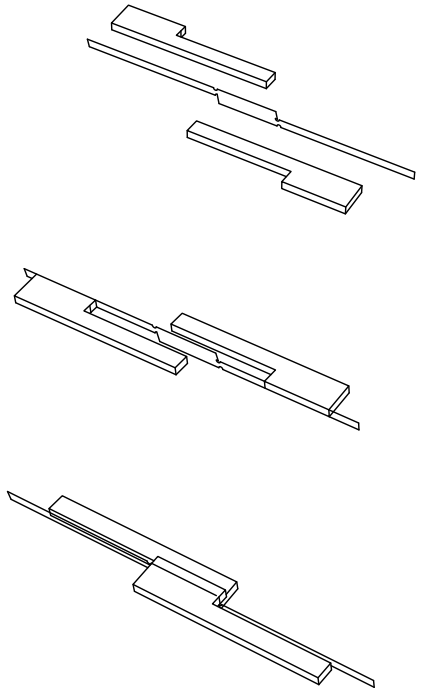
Connection Group Prototype

PRO

- super strong

CON

- too many pieces
- difficult to assemble in place
- panel angle varies, can’t predict slot dimension
- can’t be closed cell



06 Hooked Joint (1 Rib)

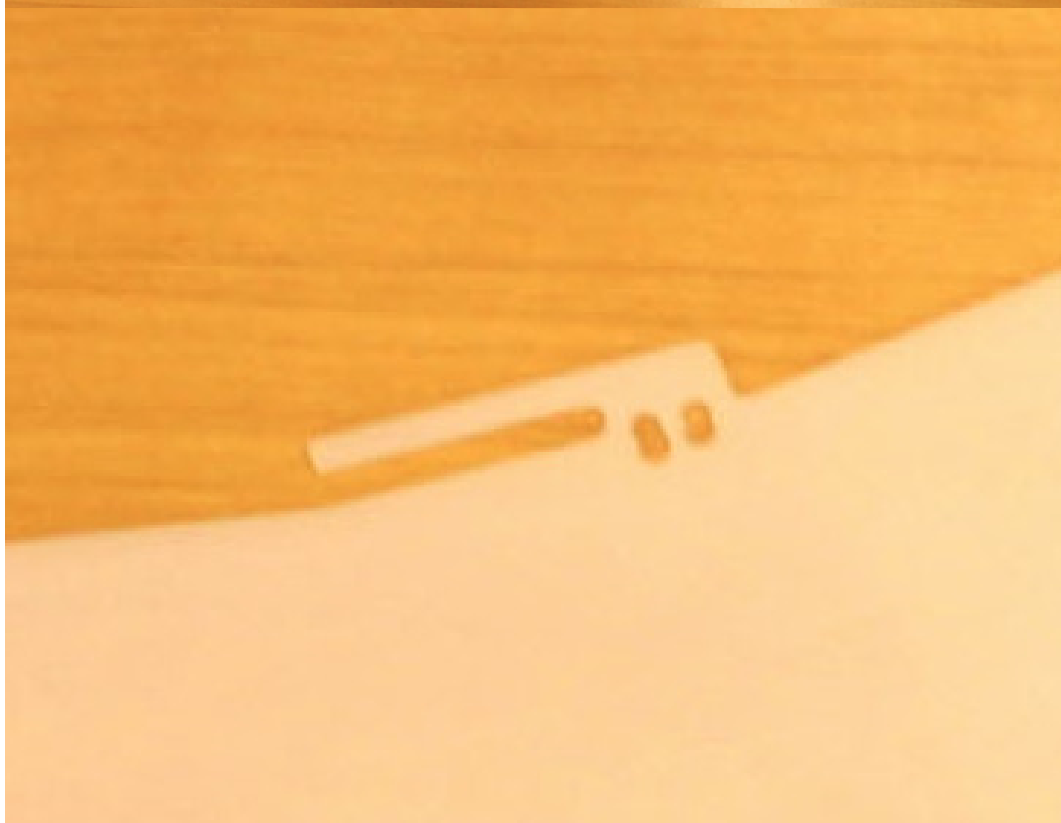
Connection Group Prototype

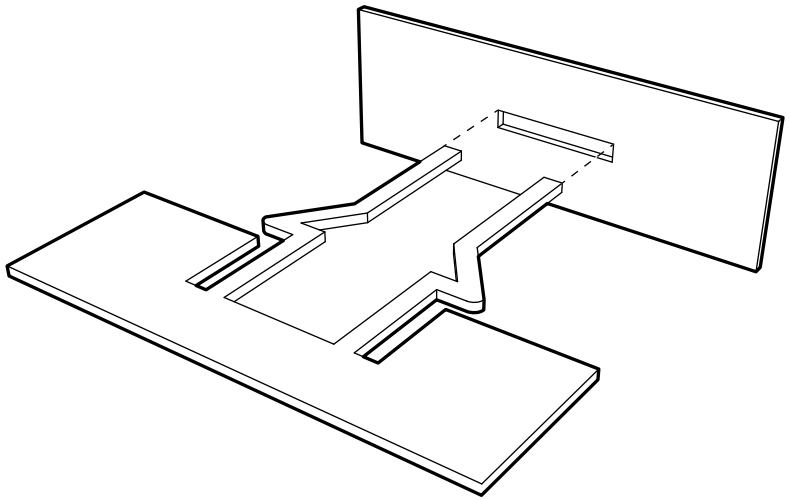
PRO

- no mechanical fastener

CON

- not rigid, too much slip
- assembly requires difficult maneuvering





07 Snap-In Clips

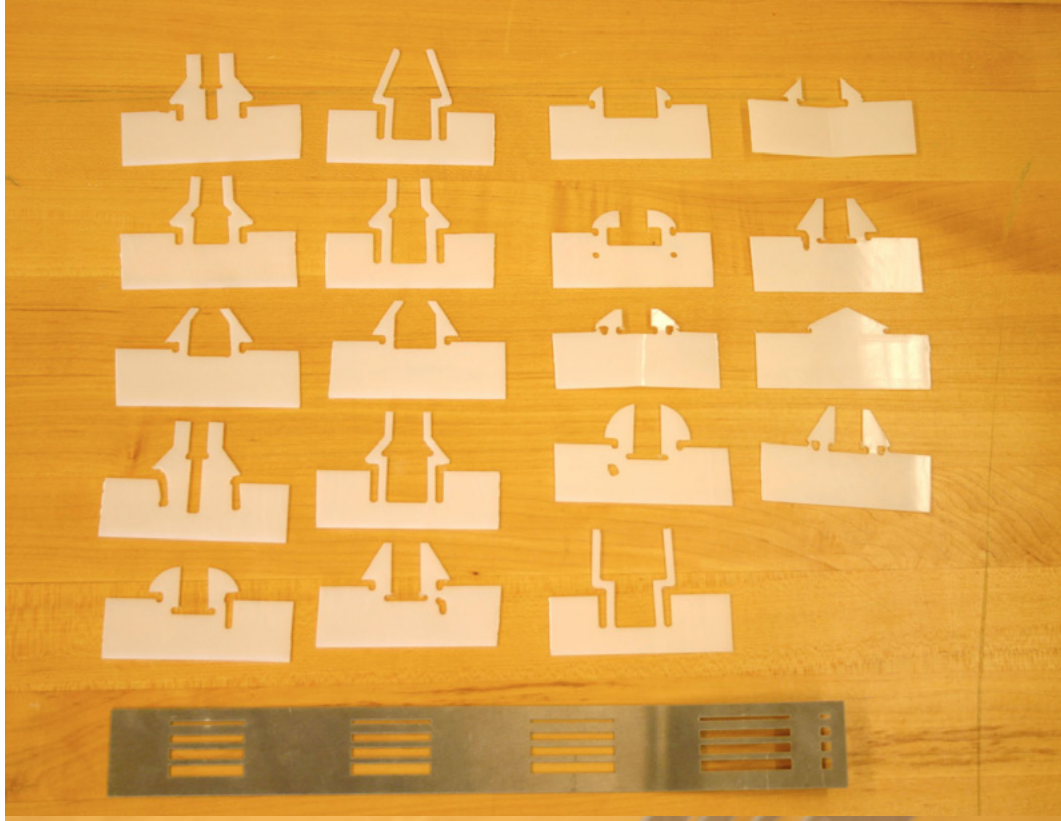
Connection Group Prototype

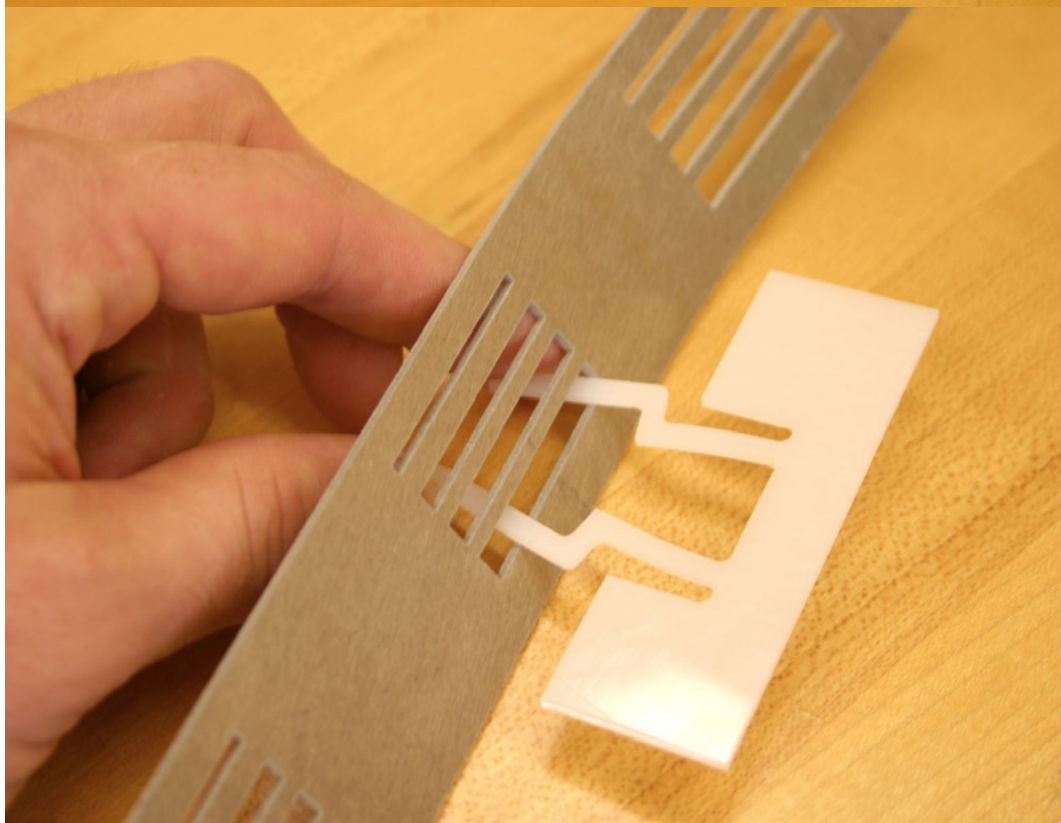
PRO

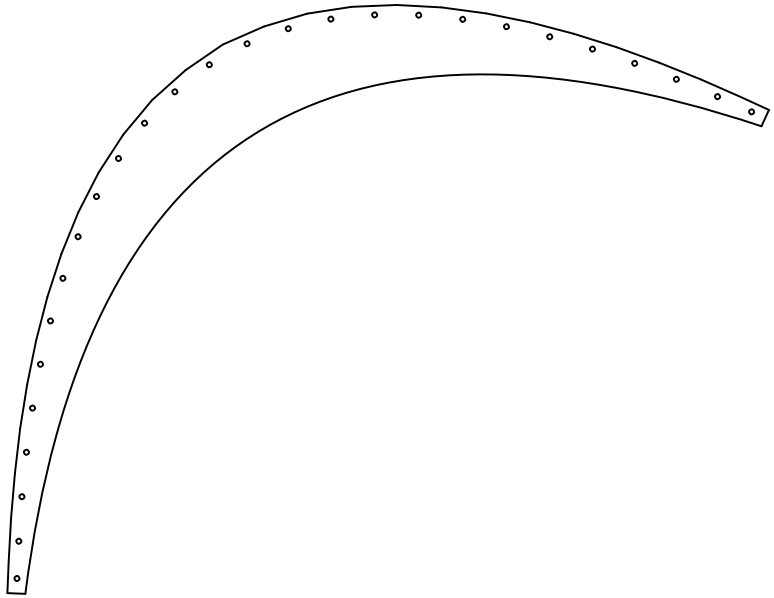
- snap fit assembly of panels
- sequence of assembly
- super sexy

CON

- not sandwiched
- plastic hangs from aluminum and doesn't strengthen assembly
- hurts fingers to snap into place







08 Non-Uniform Catenary Ribs

Connection Group Prototype

PRO

- traces bending moment
- eliminates facets and accentuates sexy curve
- ultra rigid

CON

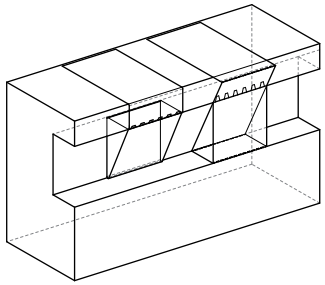
- More Material
- Heavier

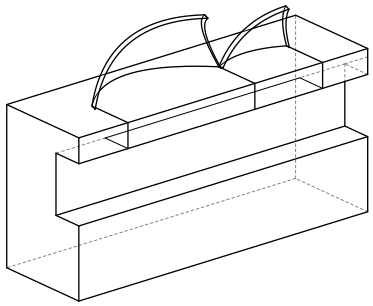
Ledge Group Tests

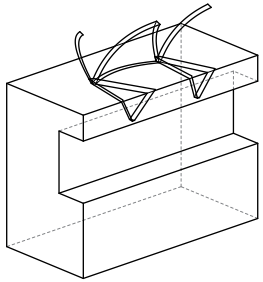
Different methods to resolve installation mounting connection

FIRST TESTS

Plate and extended ribs

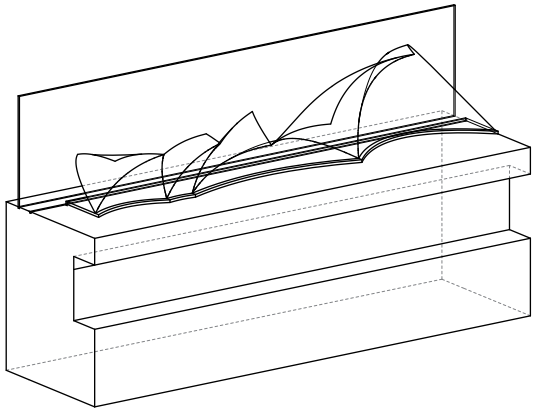


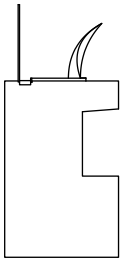


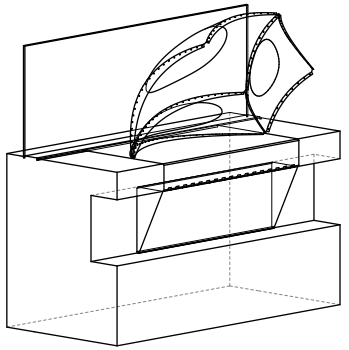


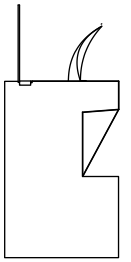
SECOND TESTS

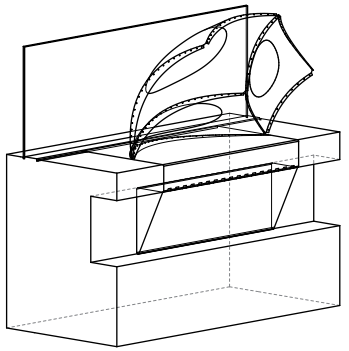
Plate and extended ribs

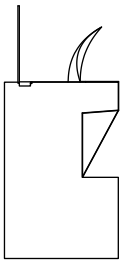








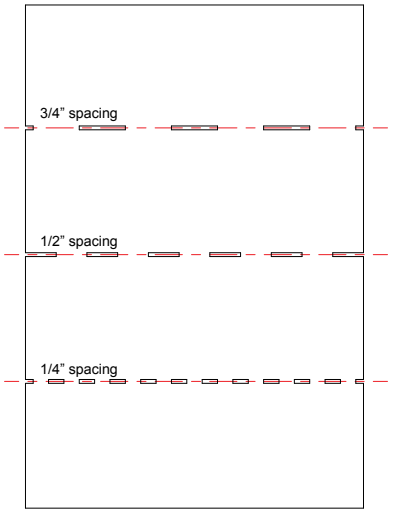




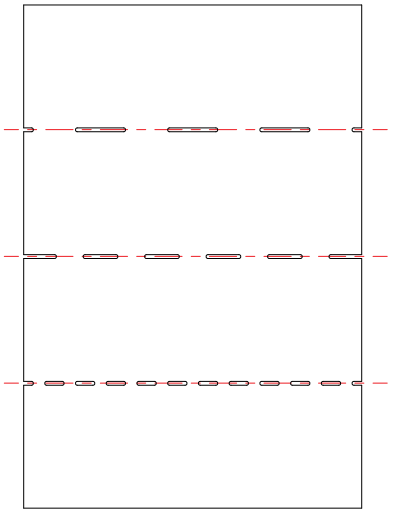
Material Test

Perforation Patterns for Breakingn Aluminum

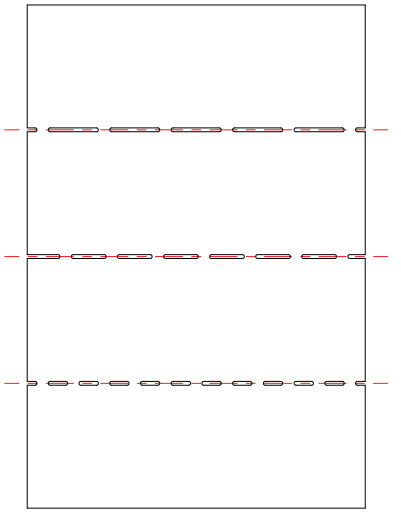
rectangle 1/16" cut



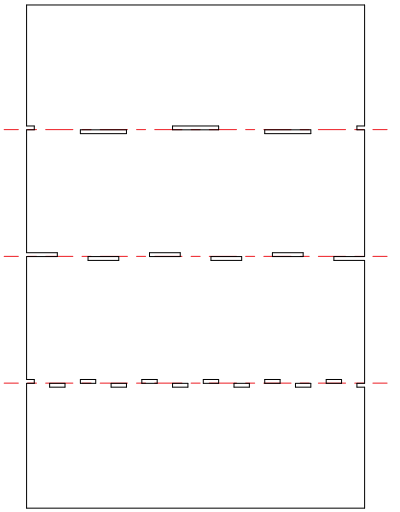
rounded (uniform) 1/16" cut



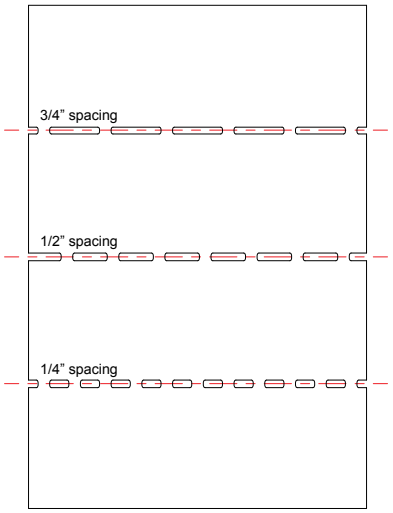
rounded (non-uniform) 1/16" cut



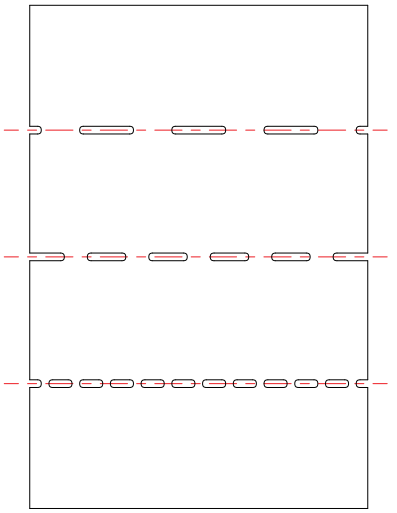
rec. staggered 1/16" cut



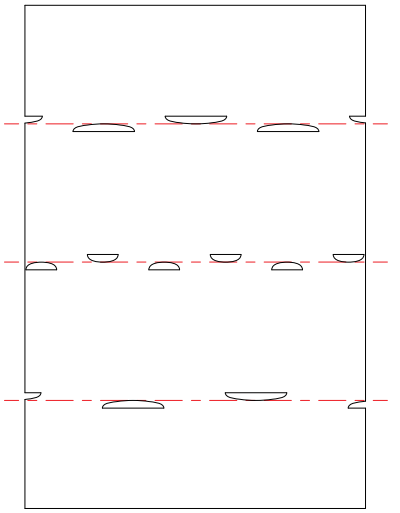
rounded (non-uniform) 1/8" cut



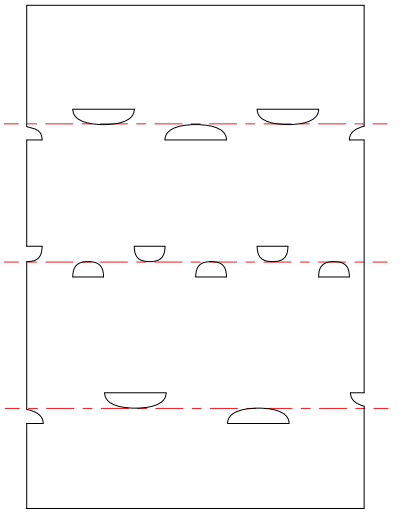
rounded (uniform) 1/8" cut

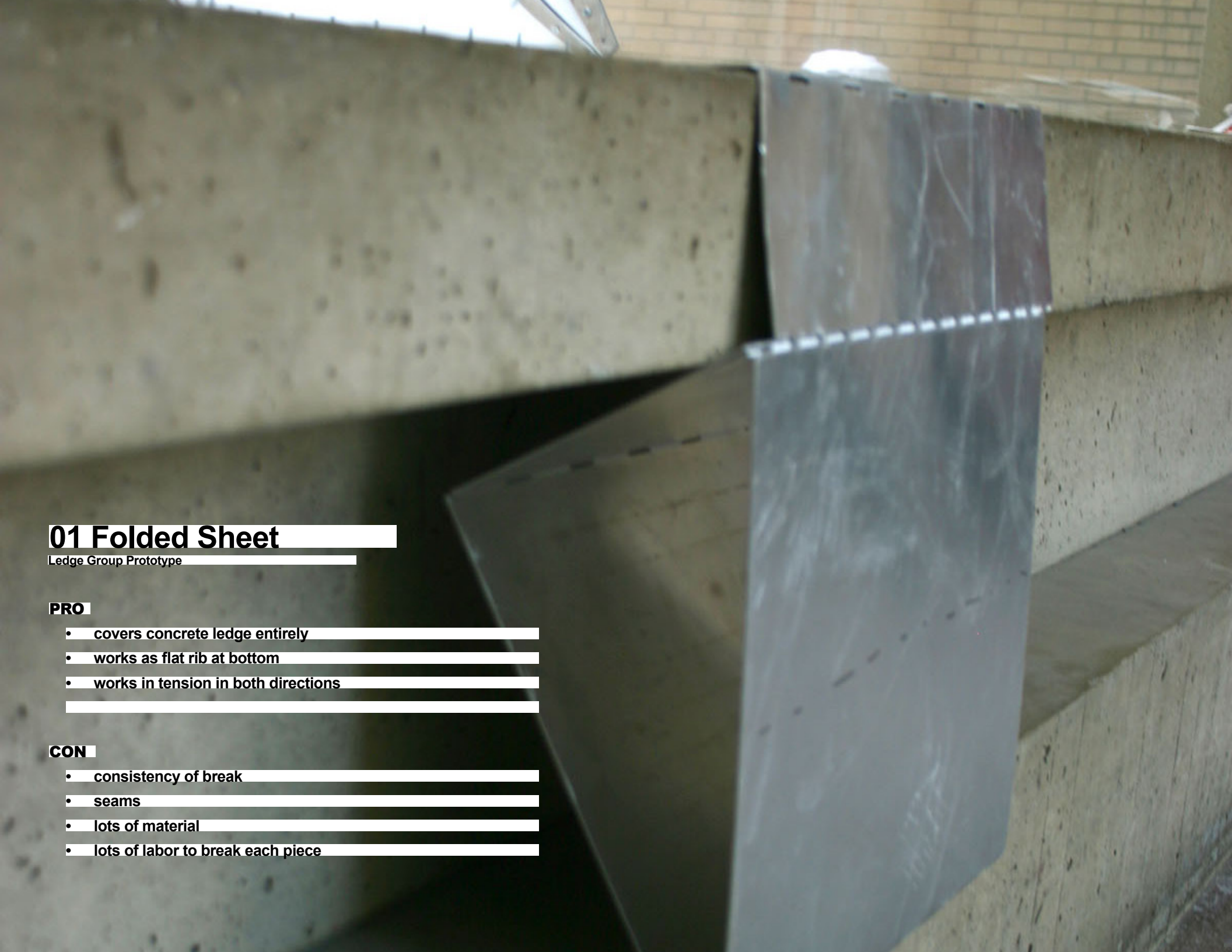


half-elipse 1/8" cut



half-elipse 1/4" cut





01 Folded Sheet

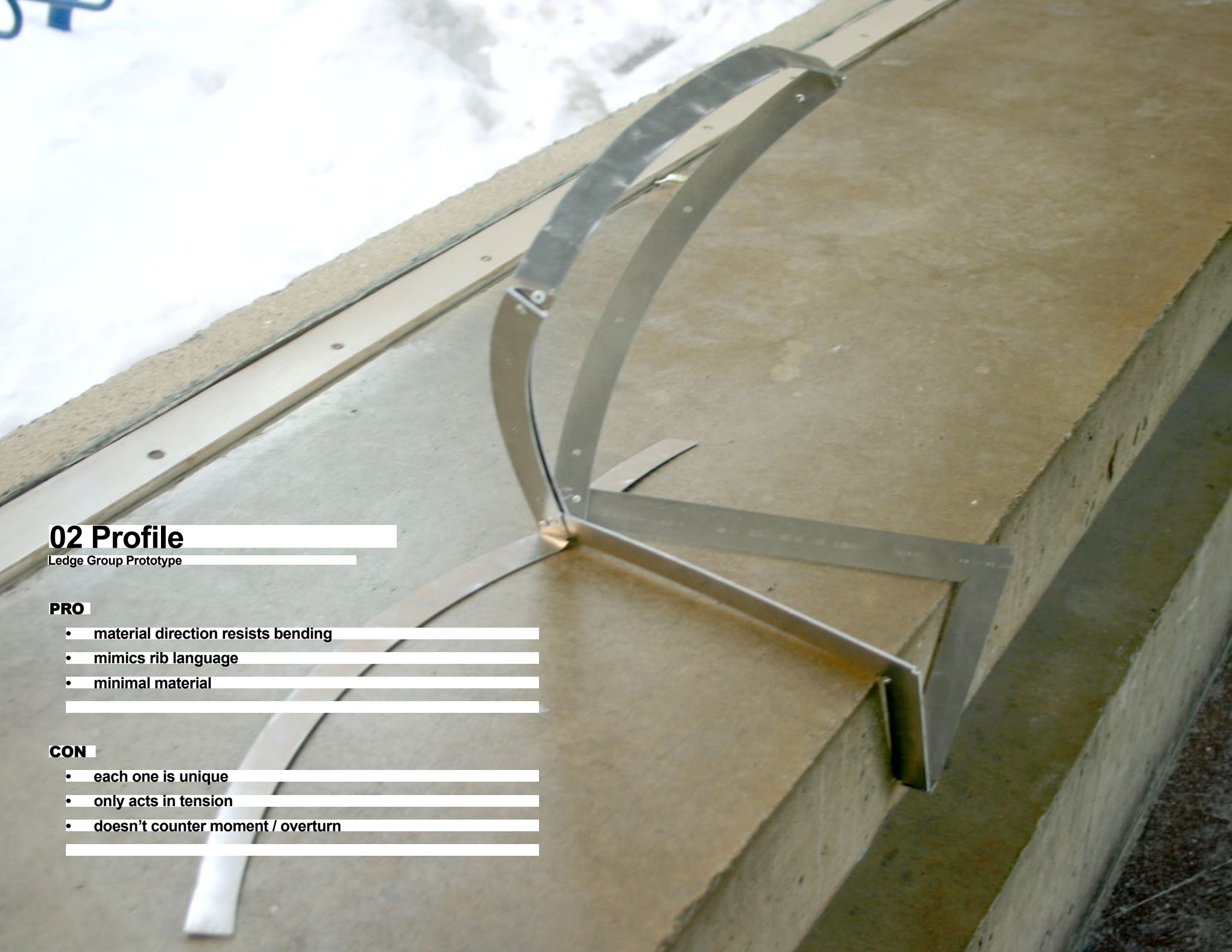
Ledge Group Prototype

PRO

- covers concrete ledge entirely
- works as flat rib at bottom
- works in tension in both directions

CON

- consistency of break
- seams
- lots of material
- lots of labor to break each piece



02 Profile

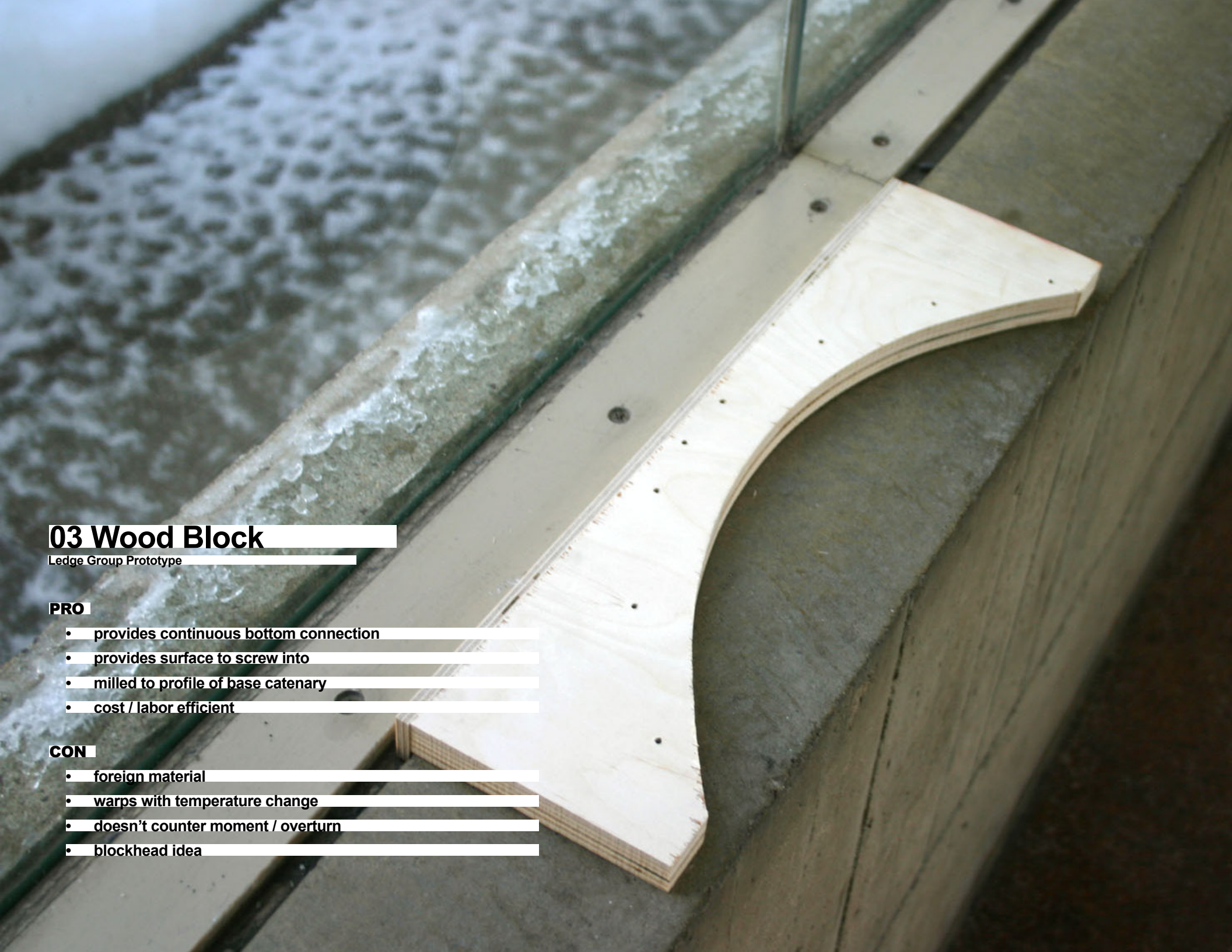
Ledge Group Prototype

PRO

- material direction resists bending
- mimics rib language
- minimal material

CON

- each one is unique
- only acts in tension
- doesn’t counter moment / overturn



03 Wood Block

Ledge Group Prototype

PRO

- provides continuous bottom connection
- provides surface to screw into
- milled to profile of base catenary
- cost / labor efficient

CON

- foreign material
- warps with temperature change
- doesn’t counter moment / overturn
- blockhead idea