

TEAM BUCCODIBEPPPO



Team Members

Eric Bruner

Chris Buehler

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100114 “House in Florida.” *Arts and Architecture* 74 (June 1957): 14.

- (14) “This house is an attempt to expand space by bending plywood in supporting it on a steel primary structure.”
- (14) “Glass areas with rolling windows sections expose most of the general living area of the house. Those portions where privacy is necessary are enclosed in concrete brick walls.”

100114 Rudolph, Paul. “Paul Rudolph: New Directions.” *Perspecta* 1 (Summer 1952): 18-25.

- (20) “Project for the Eugene Knotts Residence [...] constructed to be of plywood vaults composed of two sheets of one quarter inch plywood nailed and glued in place . . . vaults to be bent by hand on the site and let into grooves in the built-up box type beams . . . bents to be constructed of steel ‘T’ sections . . . roof to by sprayed with cacoon to eliminate the difficult flashing problems.”
- (22) on regionalism: “Many problems could be solved more adequately by using light weight synthetic materials rather than the dense, locally available materials used for the most part. Since our economic, political, and social climate has not yet made possible a high degree of industrialization of component parts for buildings, architects, paradoxically, are forced to use the means at hand (craftsmanship methods).”
- (22) on materials: “Experimentation with materials, developing their innermost potentialities has excited me. Steel when used in tension is more eloquent than used any other way (see Wheelan cottages). Any sheet material if bent will develop additional strength. In the Knott residence the bending of two pieces of one-quarter-inch plywood enables a span of seven feet six inches.”
- (22) on special qualities thereof: “These two examples possibly indicate a certain preoccupation with independent umbrella-like roofs under which partitions are moved at will. [...] My insistence on separating the roof structure from the walls and filling the void with glass has been done at the expense of controlling the natural lighting to the degree which I hope one day to achieve. I have attempted in the Knott project to create a ‘cave’ (the sunken area at the fireplace) within a ‘goldfish’ bowl.”
- (25) “The development of a new material has afforded the answer to waterproofing roof structures which are not completely rigid. Cacoon, the plastic developed by the armed forces to ‘mothball’ their material after the last war, has the unique characteristic of being stretchable to three time its original length, still returning to its normal state.”

100116 Allen, Edward and Joseph Iano. *Fundamentals of Building Construction*. Hoboken, New Jersey: John Wiley & Sons, Inc., 2004.

- (98) “Standard plywood panels are 4 by 8 feet (1220 x 2440 mm) in surface area and range in thickness from one quarter to 1 inch (6.4-25.4 mm). Longer panels are manufactured for siding and industrial use.”
- (98) “For structural uses such as subflooring and sheathing, wood panels may be specified either y thickness or by *span rating*. The span rating is determined by laboratory load testing and is given on the gradestamp on the back of the panel. [...] The designer must also select three *exposure durability classifications* for structural wood panels: *Exterior, Exposure 1*, and *Exposure 2*.”

100116 Herzog, Thomas, Roland Krippner, and Werner Lang. *Facade Construction Material*. Boston: Birkhauser, 2004.

- (125) on a molecular level: “The basic building block of wood is the cell. We distinguish between different types of cells, according to their functions within the living tree, e.g., support, conduction and storage. Most of the cells have an elongated form. They are therefore also known as fibres and lie almost exclusively in the longitudinal direction within the trunk cross-section. The exceptions are the rays, whose cells lie in the radial direction. The – in evolutionary terms – older coniferous wood has a simpler structure; it consists mainly of one type of cell, which transports water and nutrients while providing support. In deciduous wood the cells are more specialized, and vessels form. The position and direction of the cells and vessels with respect to each other, in combination with the growth rings, are responsible for giving the wood its grain structure, that important characterizing, distinctive feature of each species of wood. The elementary structure of the cell walls is instrumental in determining the strength and elasticity of the wood. The walls have four layers, which essentially consist of lignin for withstanding compressive forces and microfibrils for withstanding tensile forces. Together, the lignin and the microfibrils form an efficient composite structure.”

100116 Bell, Victoria Ballard. *Materials for Design*. New York: Princeton Architectural Press, 2006.

- (109) wood construction categories: log construction, timber-frame construction, balloon framing, and platform framing
- (111) “One of the main advantages of plywood is its high uniform strength in relation to its weight. Its unique cross-layered structure in addition to the adhesives used give it a high strength It is also less susceptible to shrinkage, swelling, and warping than a solid wood member. Plywood [...] also affords a way to create curved shapes to be framed in a project.”
- (112) “Plywood I-beams and box beams can be used in place of traditional rafters or joists for long-span framing. These manufactured components can be custom designed and use timber resources more efficiently than conventional wood components.”

100116 Ching, Francis D.K. *Building Construction Illustrated, Fourth Edition*. Hoboken, New Jersey: John Wiley & Sons, Inc., 2008.

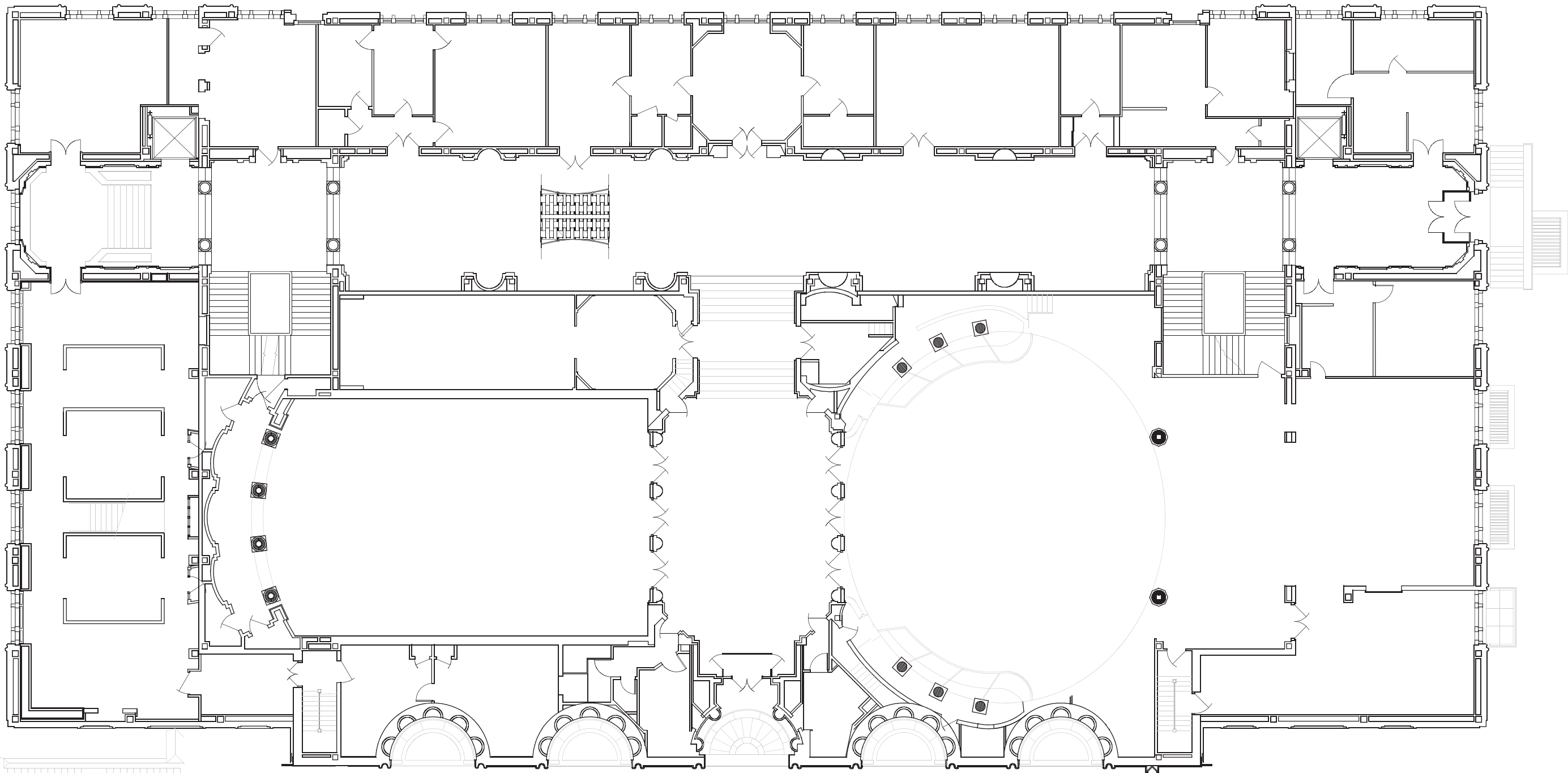
- (4.35) see diagrams on Wood Beams, Wood Beam Supports, and Wood Post-beam Connections

R 1.0

PRELIMINARY RESEARCH

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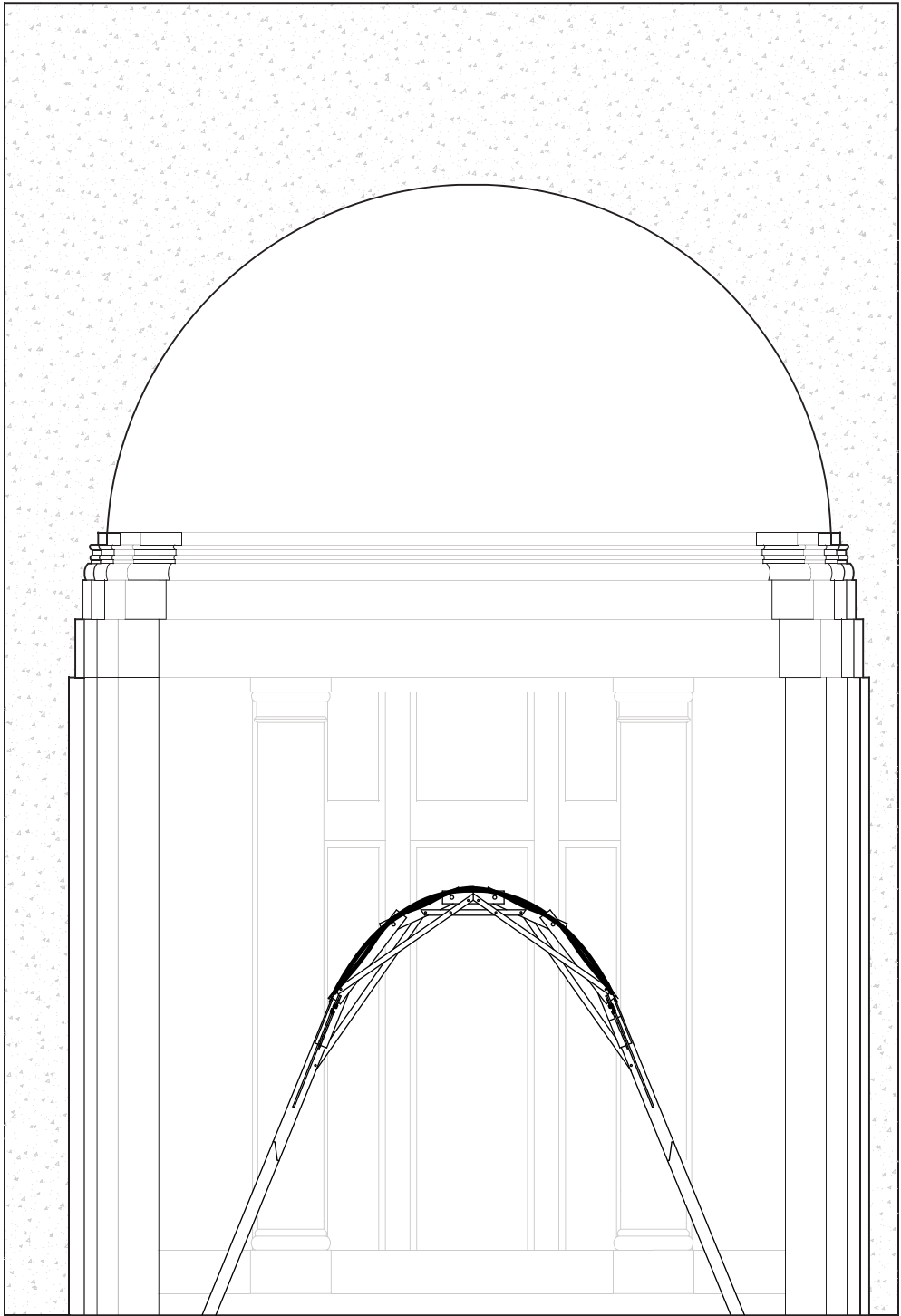
1 SITE PLAN
SCALE: 1/16" = 1'-0"

C 1.0

SITE PLAN
SCALE: 1/16" = 1' - 0"

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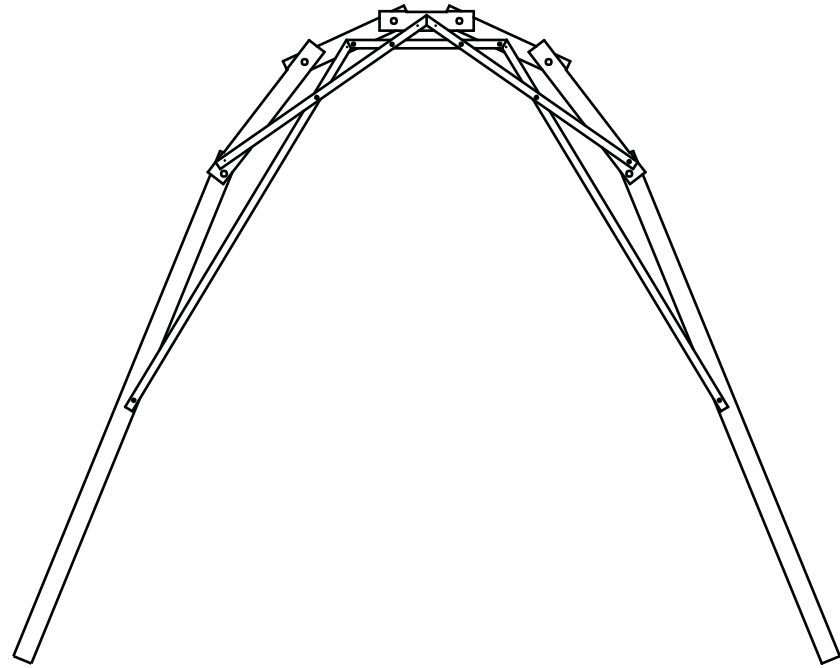
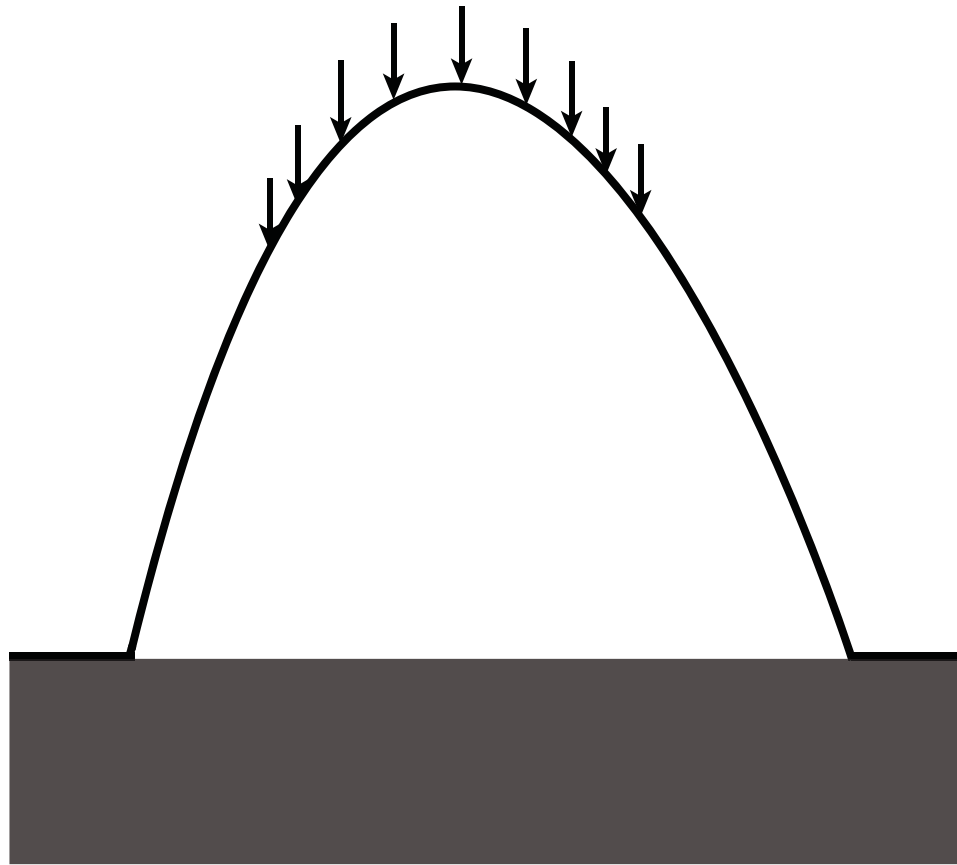
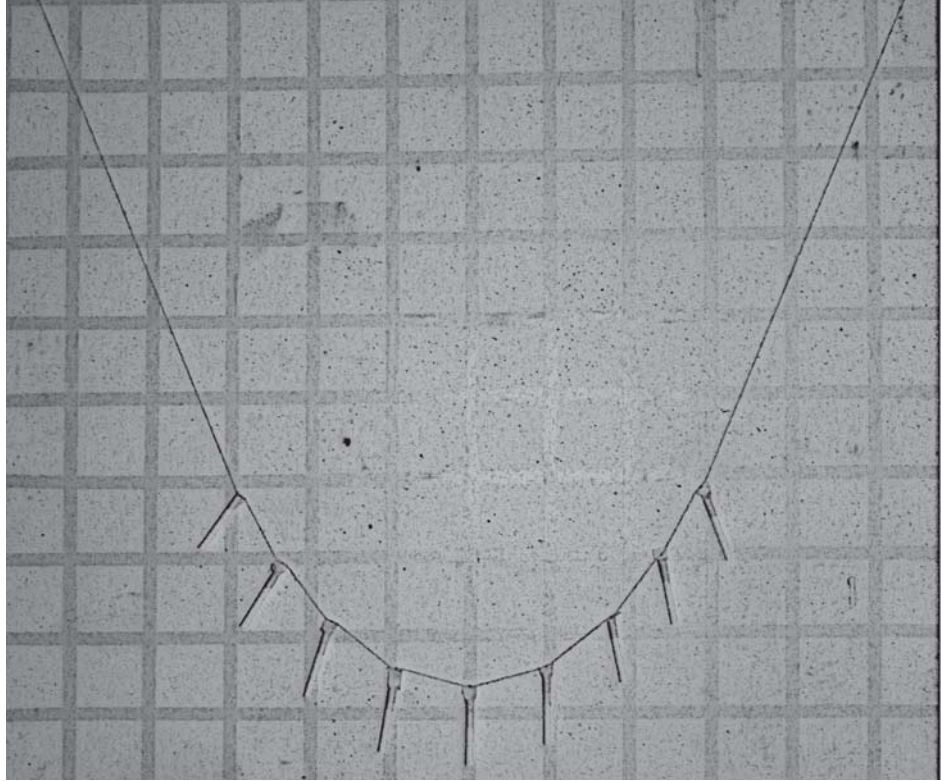
1 SITE SECTION
SCALE: 1/4" = 1'-0"

C 1.1

SITE SECTION
SCALE: 1/4" = 1'-0"

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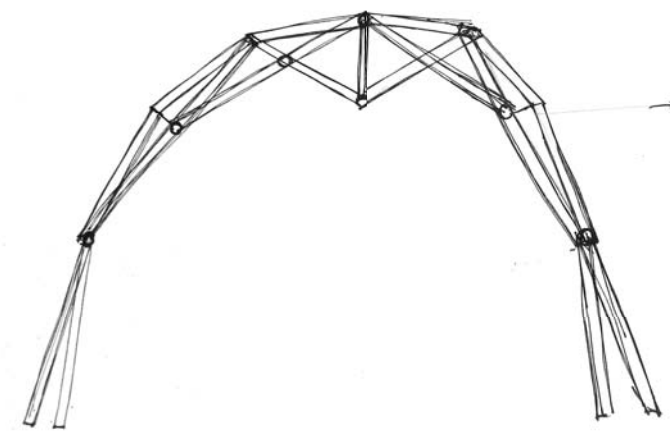


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GEOMETRIC REASONING

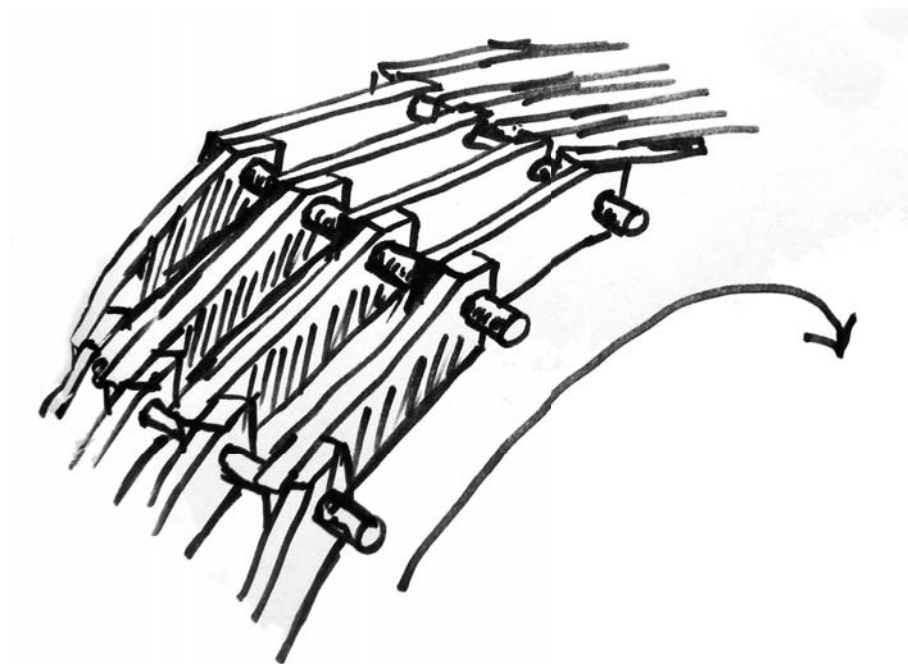
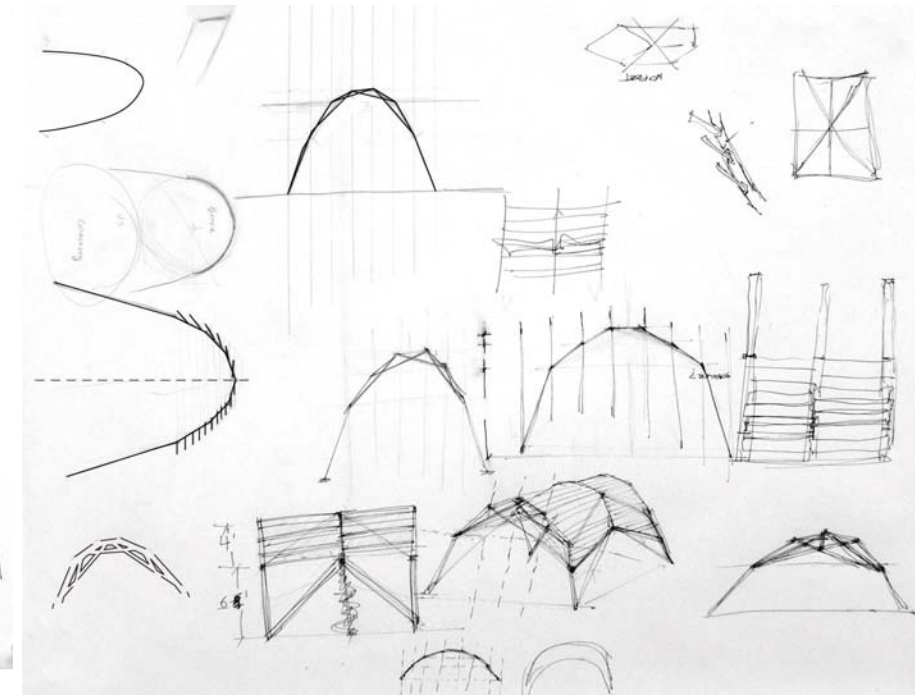
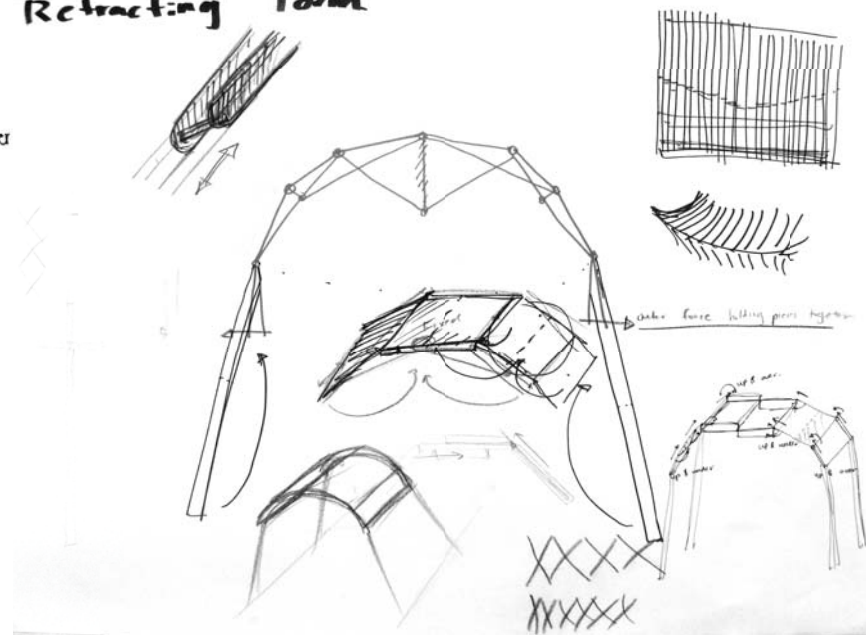
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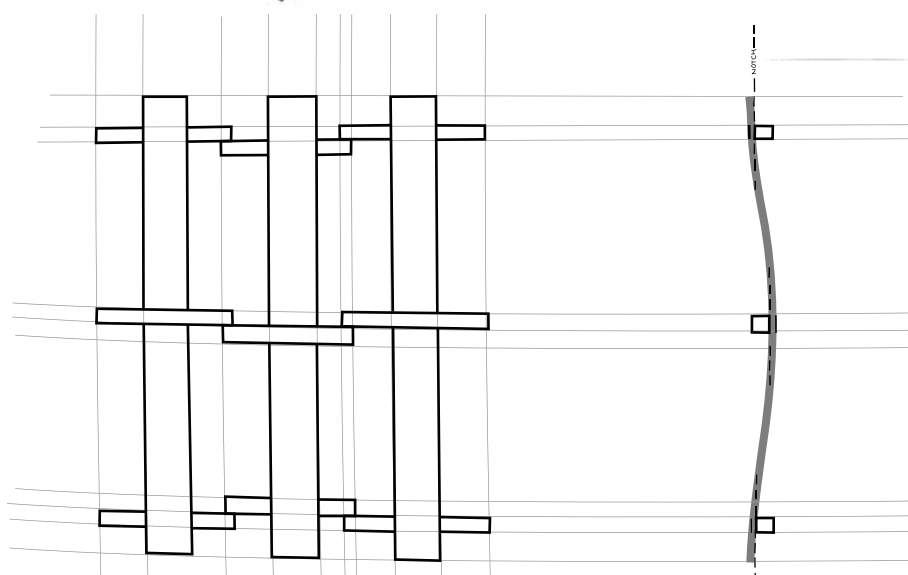
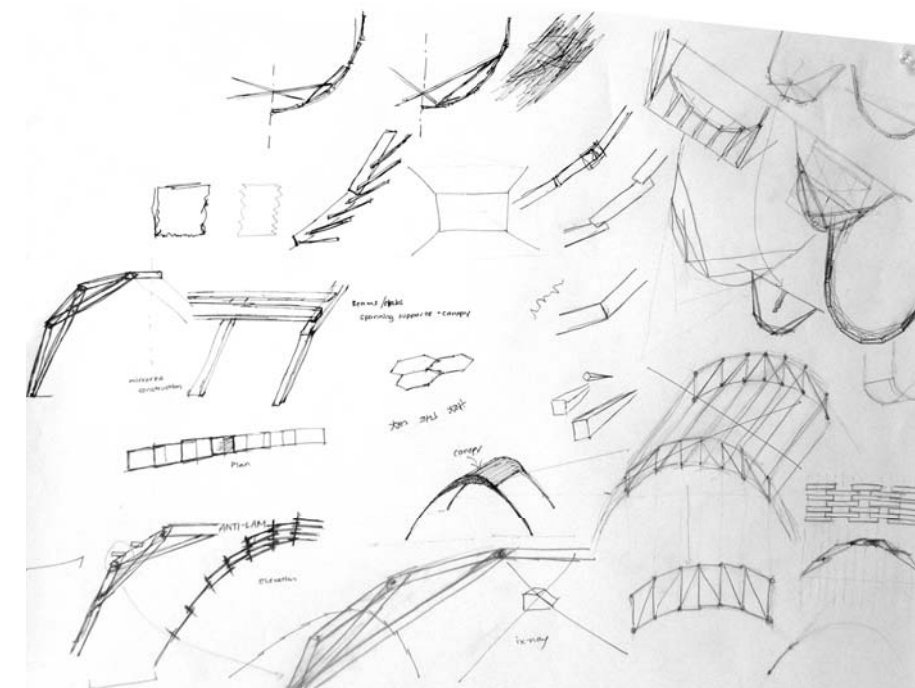
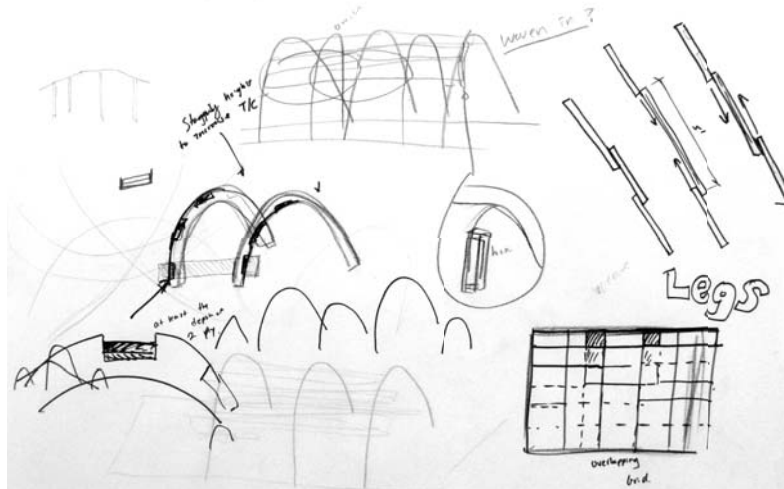


apply plywood after
is opened

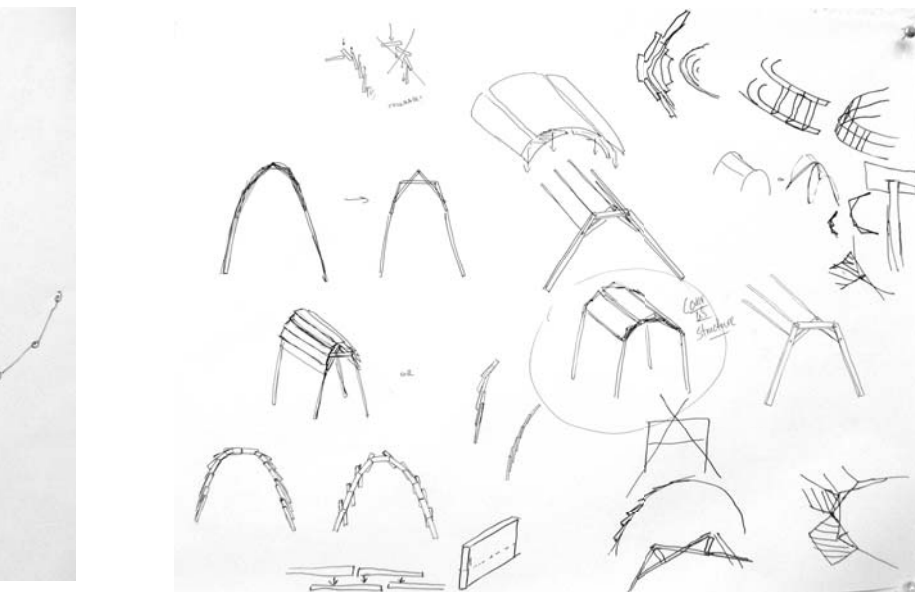
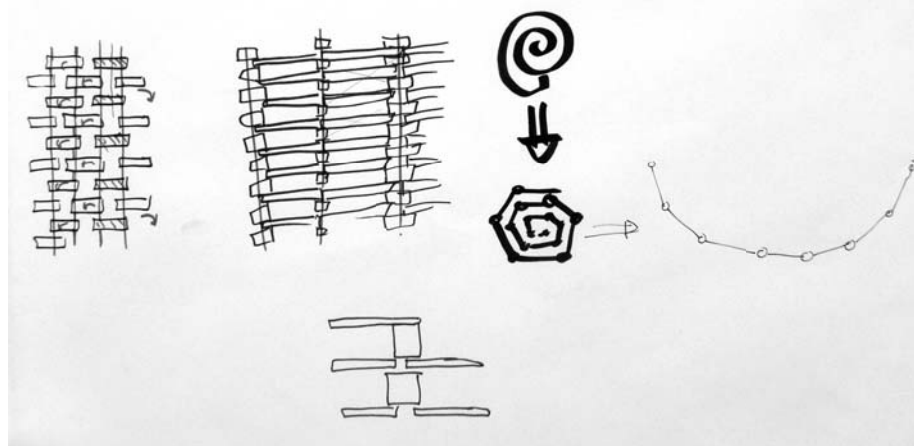
Retracting Form



Strips/Weaving



Fragmented Pieces



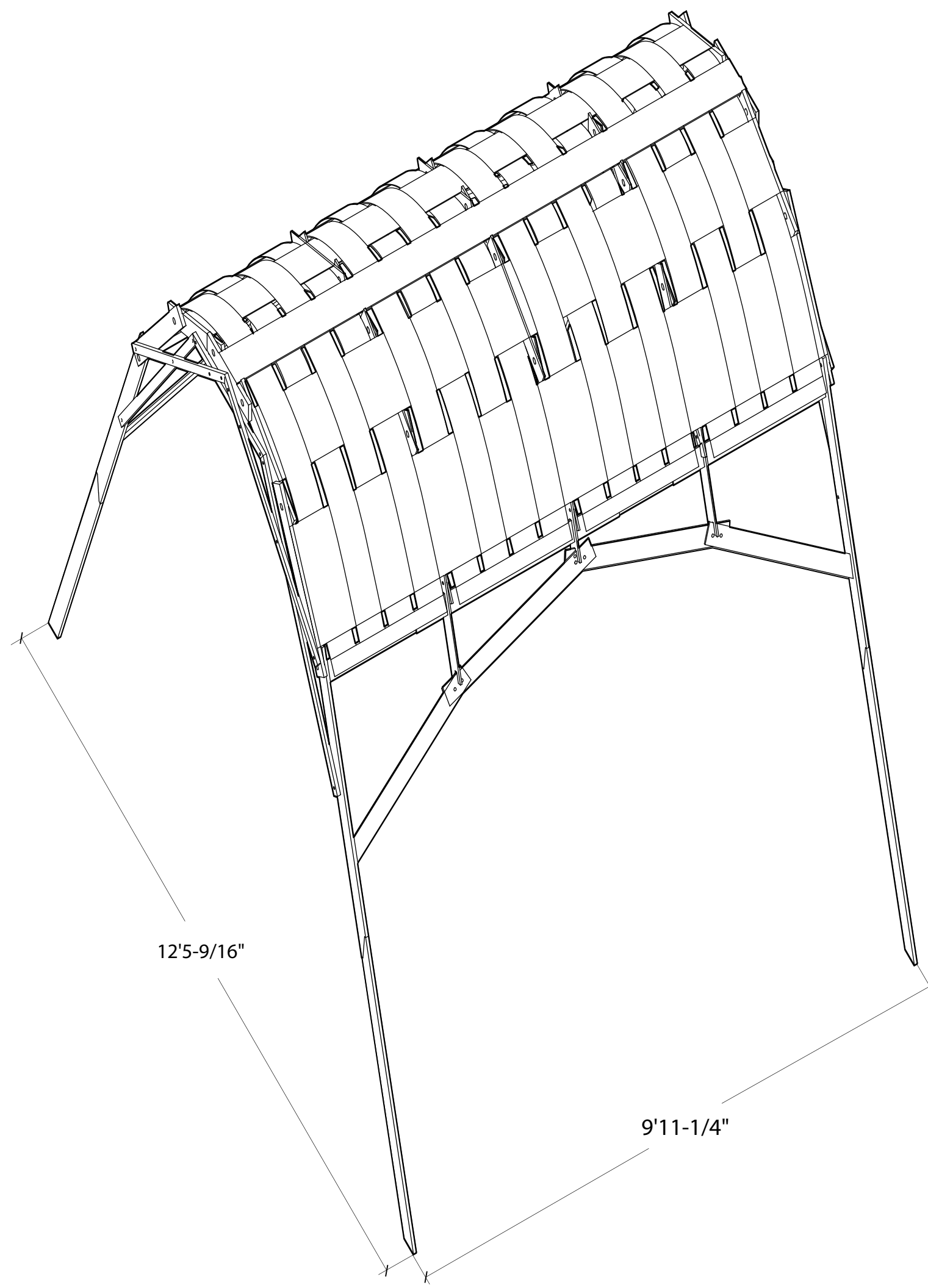
A 2.0

PROCESS SKETCHES

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1 AXONOMETRIC
SCALE: 1/2" = 1'-0"

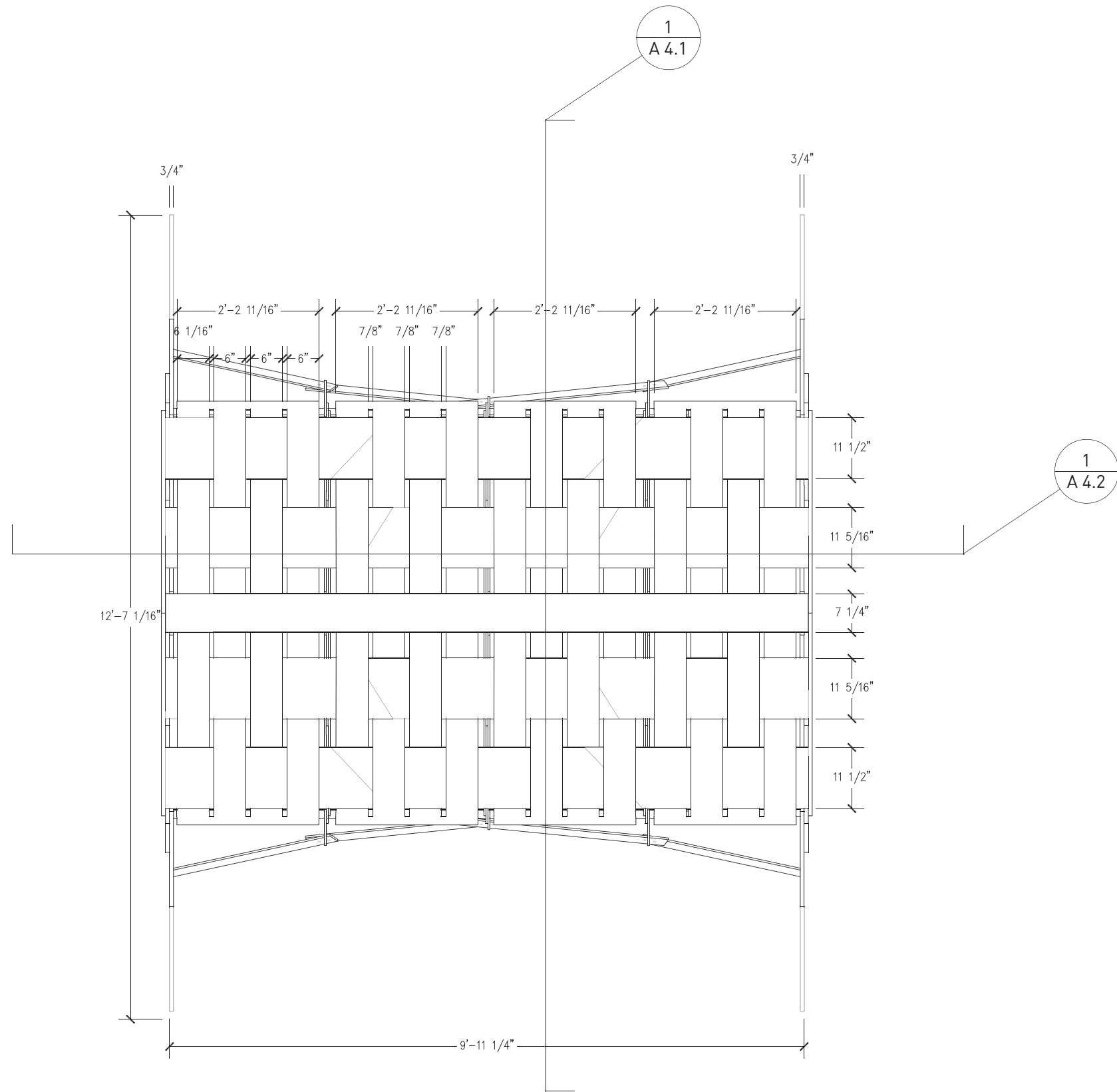


A 3.0

AXONOMETRIC
SCALE: 1/2" = 1'-0"

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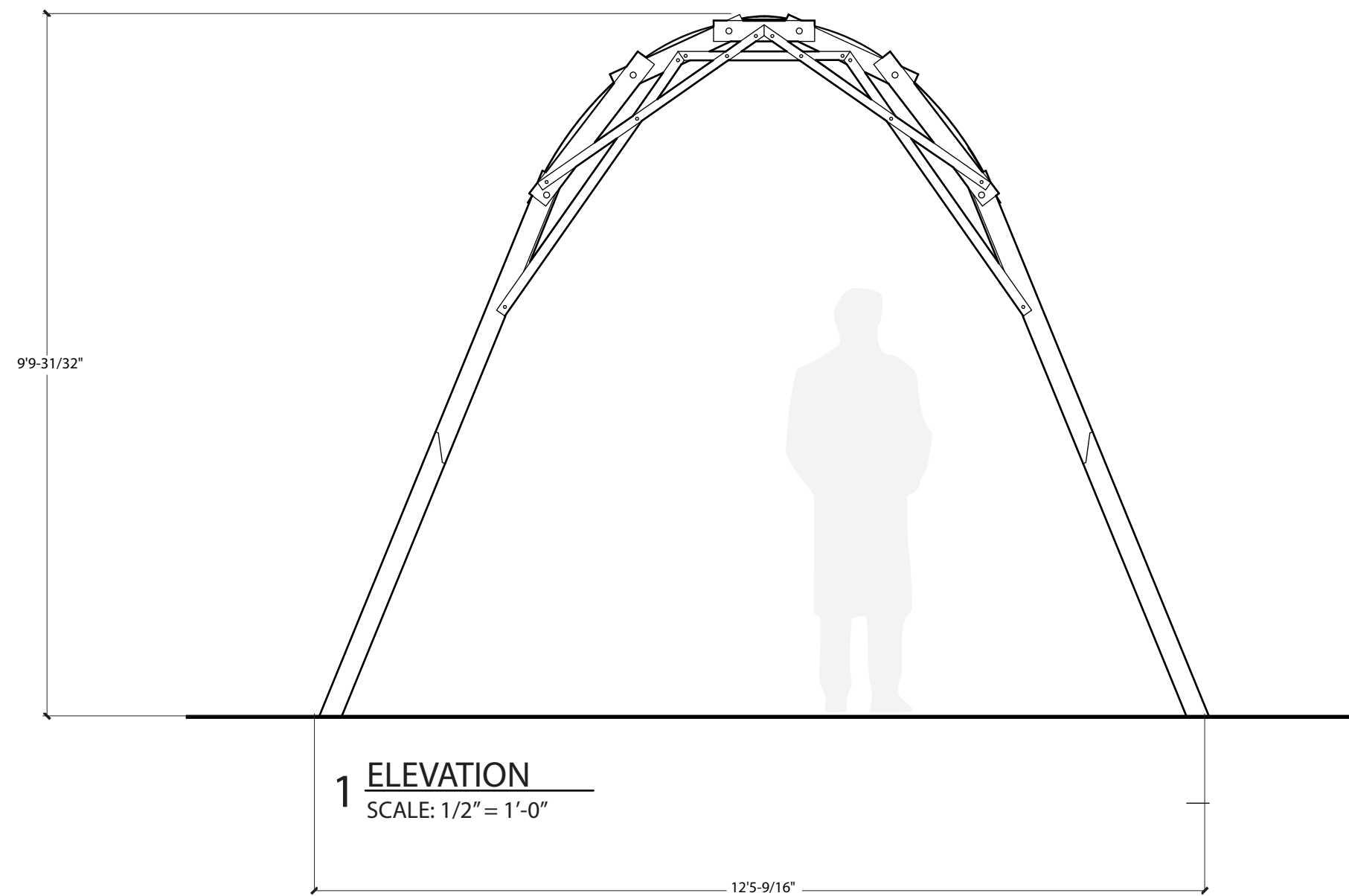
1 ROOF PLAN
SCALE: 1/2" = 1'-0"

A 3.1

ROOF PLAN
SCALE: 1/2" = 1'-0"

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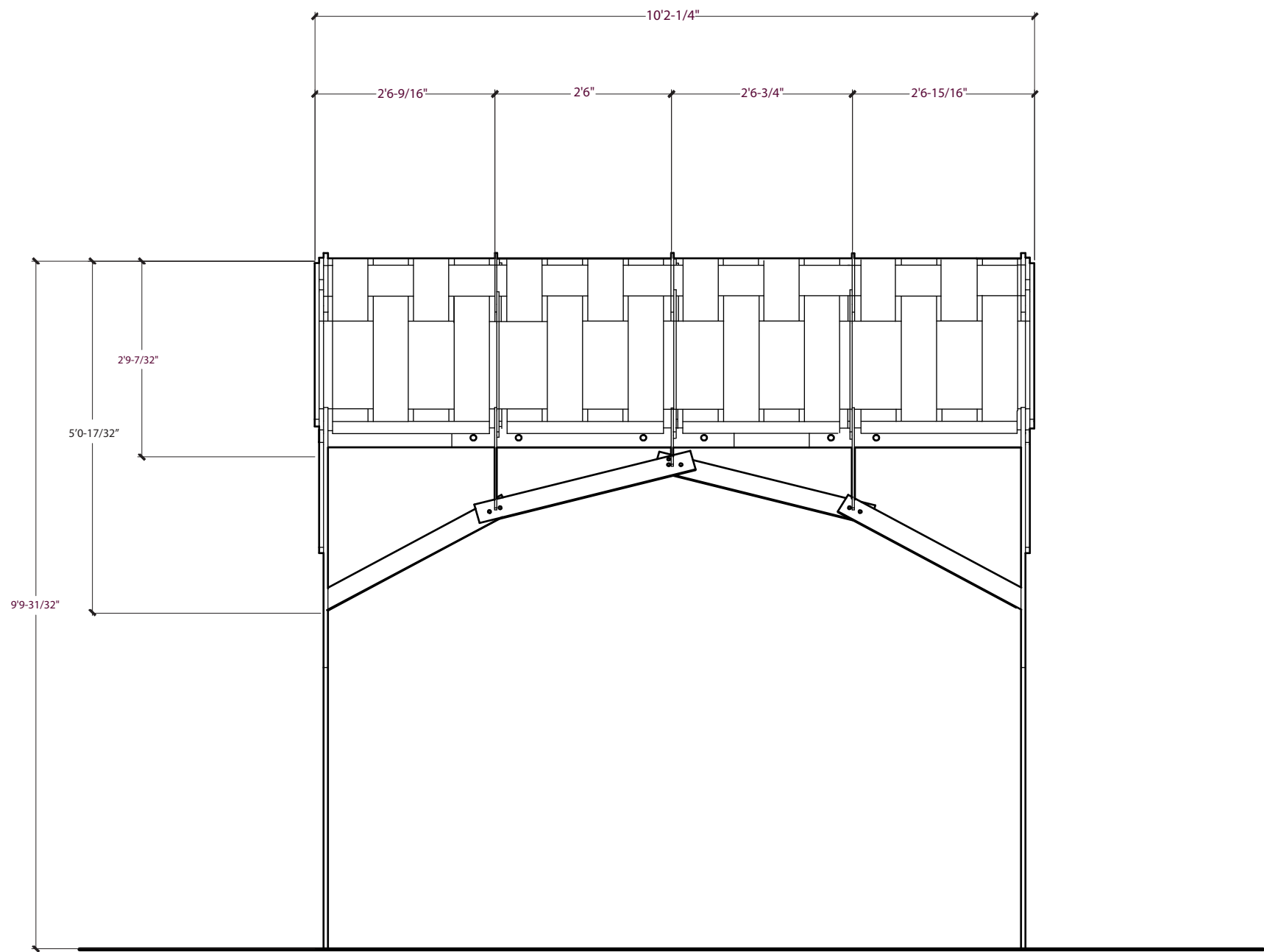


A 4.0

ELEVATION
SCALE: 1/2" = 1'-0"

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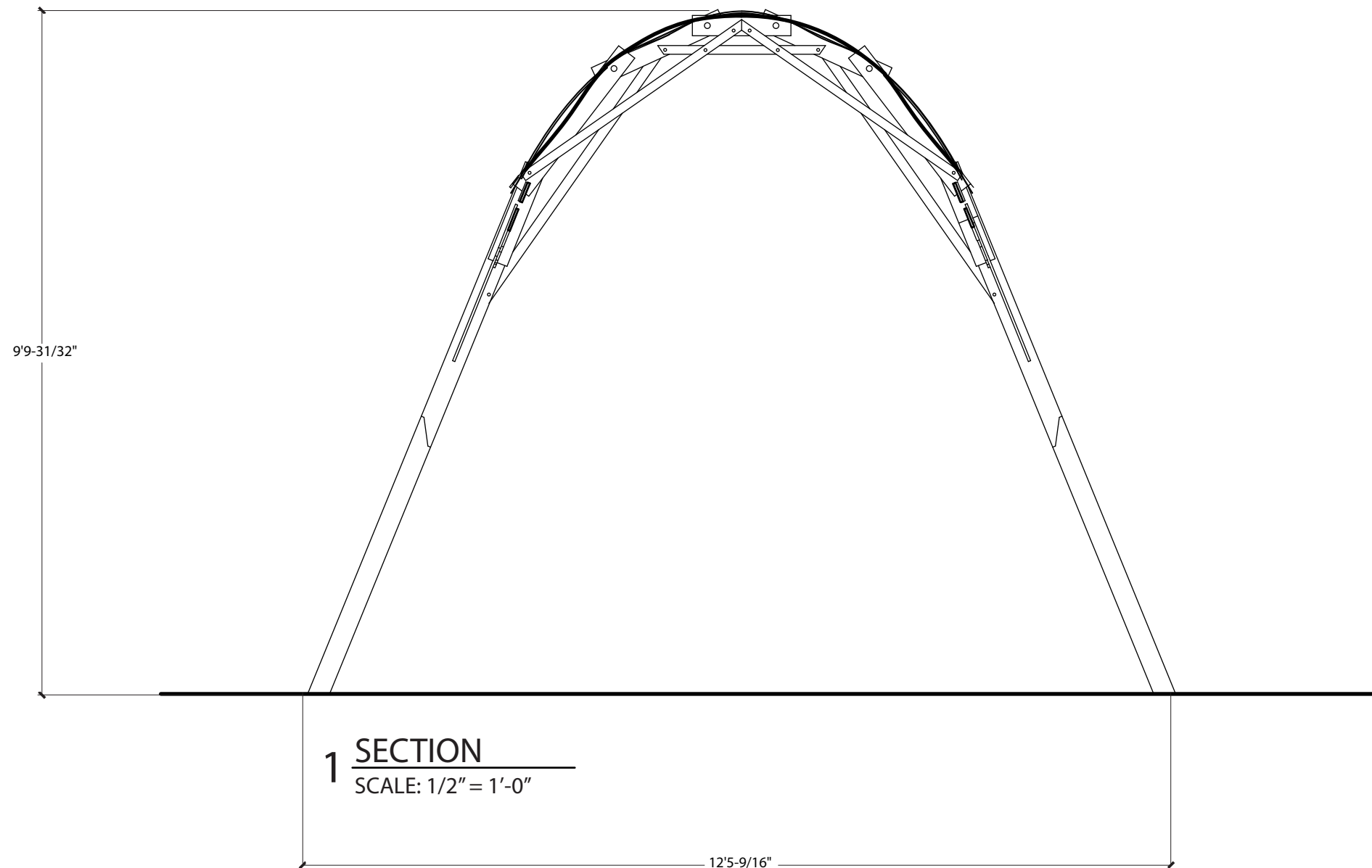
1 ELEVATION
SCALE: 1/2" = 1'-0"

A 4.0

ELEVATION
SCALE: 1/2" = 1'-0"

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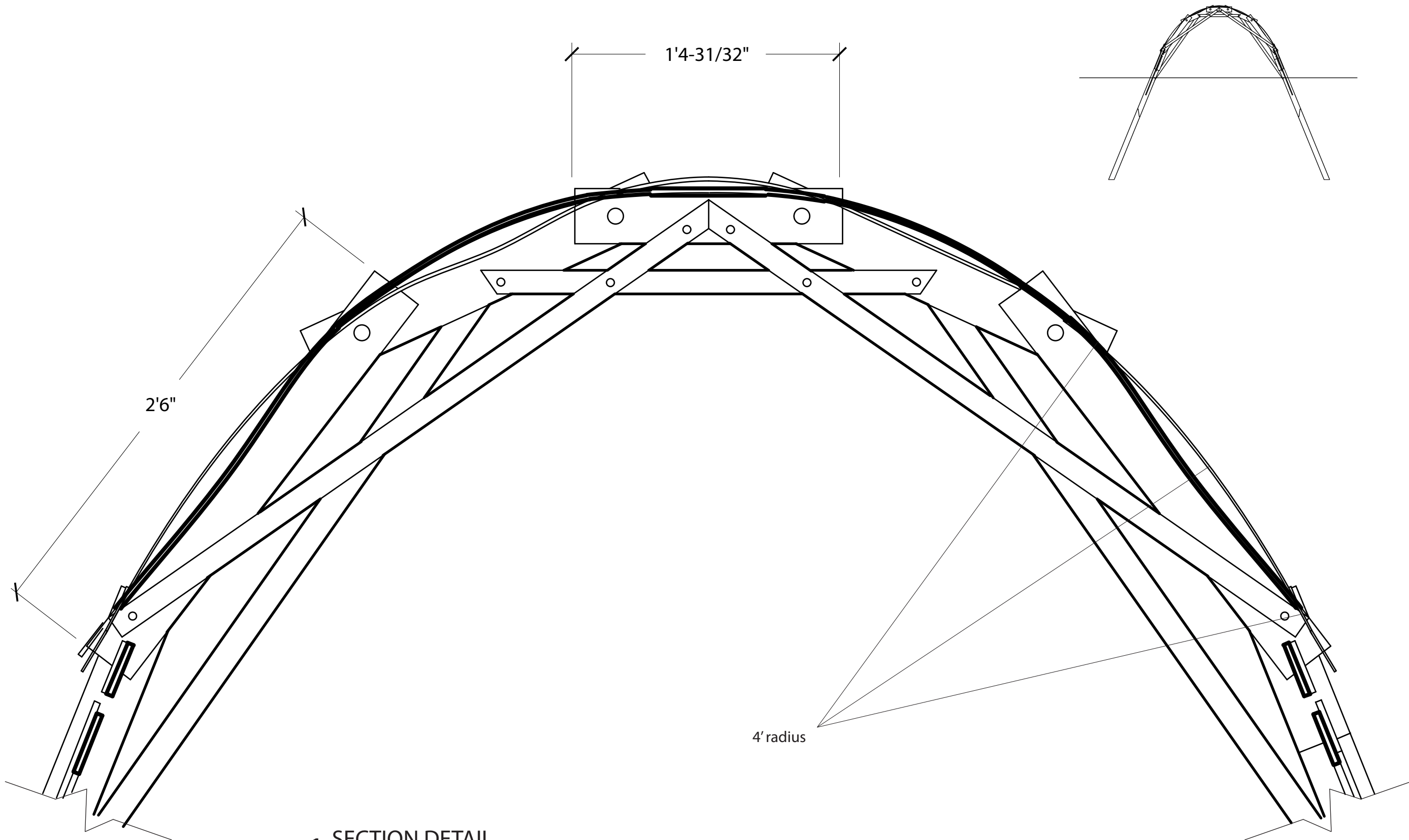


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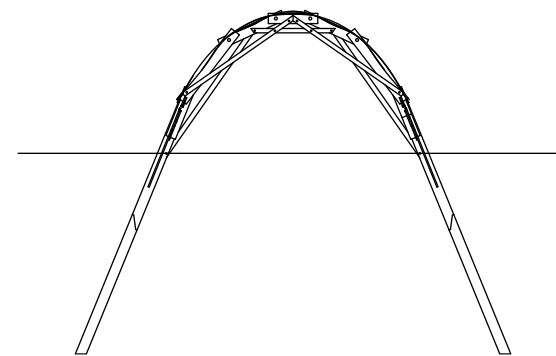
SECTION
SCALE: 1/2" = 1'-0"

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1 SECTION DETAIL
SCALE: 2" = 1'-0"

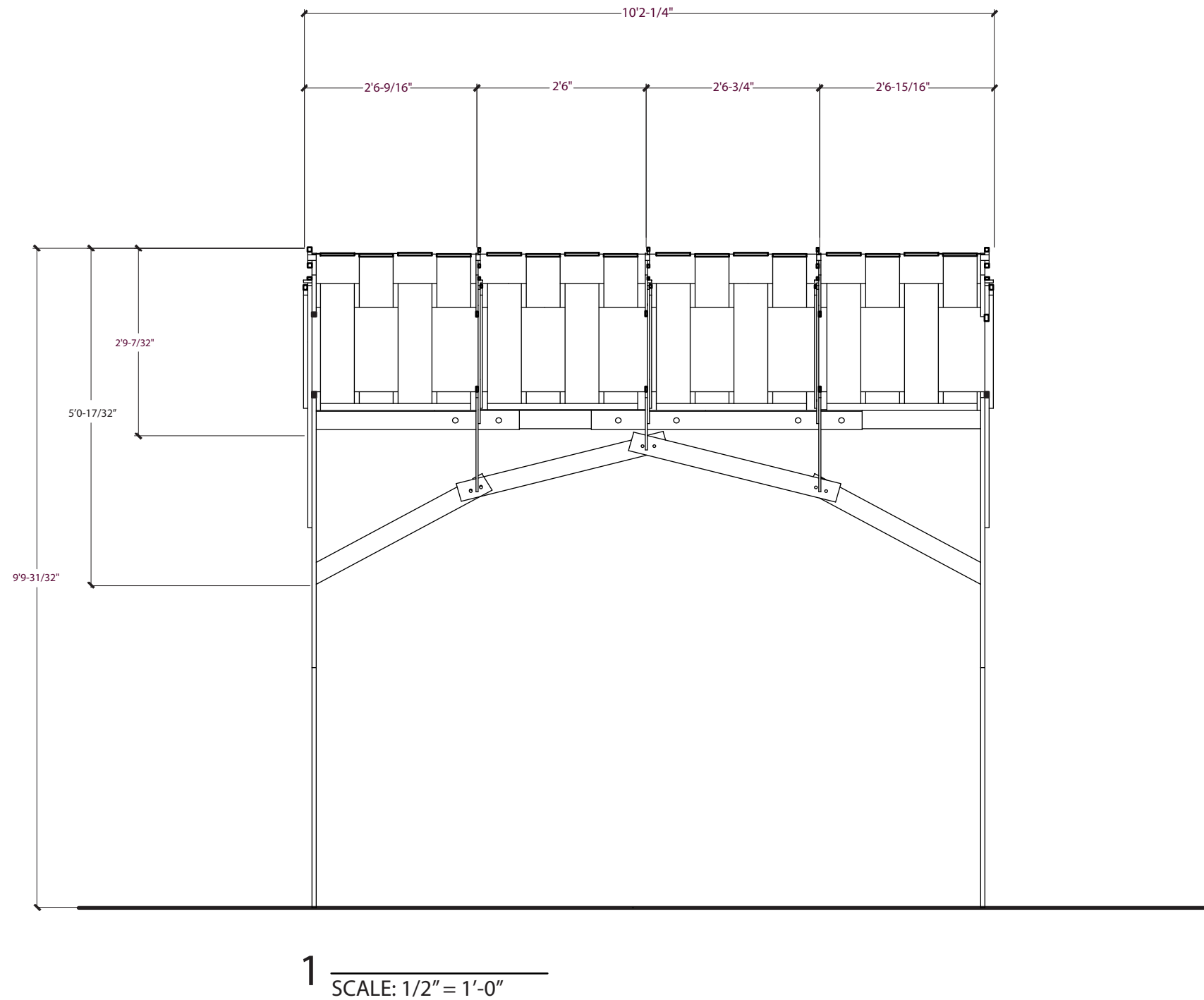


A 4.1

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SCALE: 1/2" = 1'-0"

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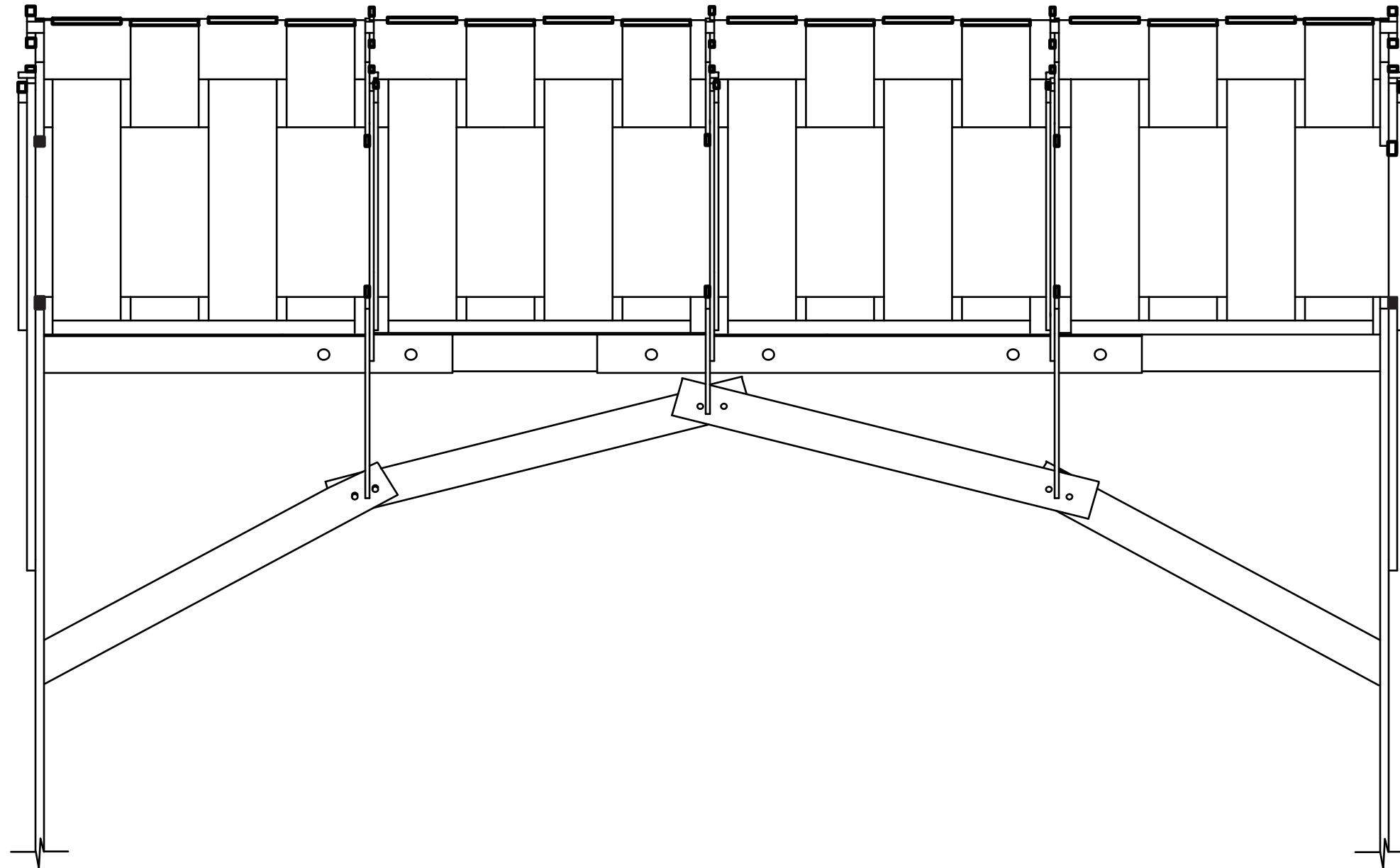


A 4.2

SECTION
SCALE: 1/2" = 1'-0"

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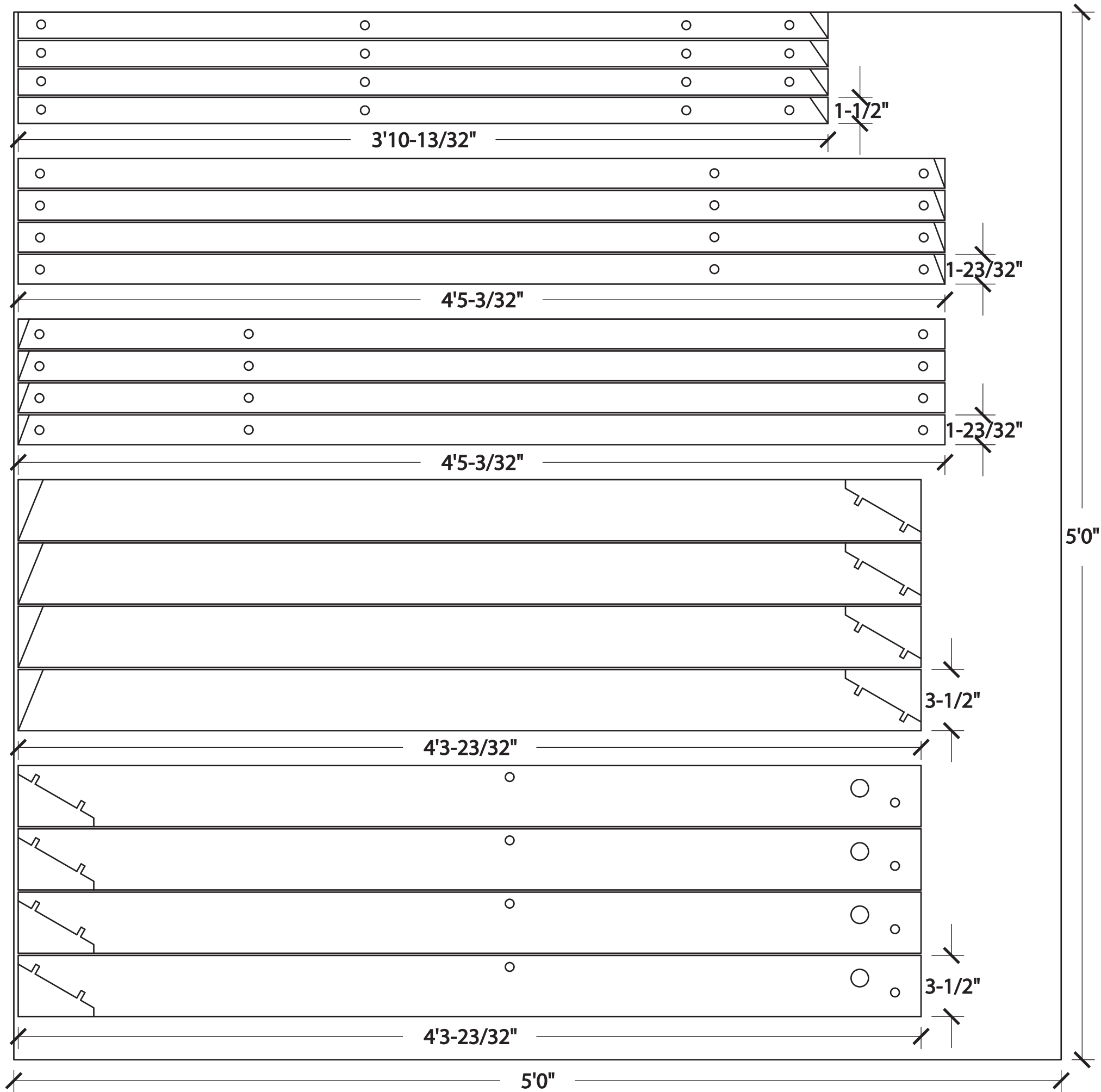
1 SECTION DETAIL
SCALE: 1" = 1'-0"

A 4.2

SECTION
SCALE: 1" = 1'-0"

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Sheet size is 3/4"
baltic birch plywood

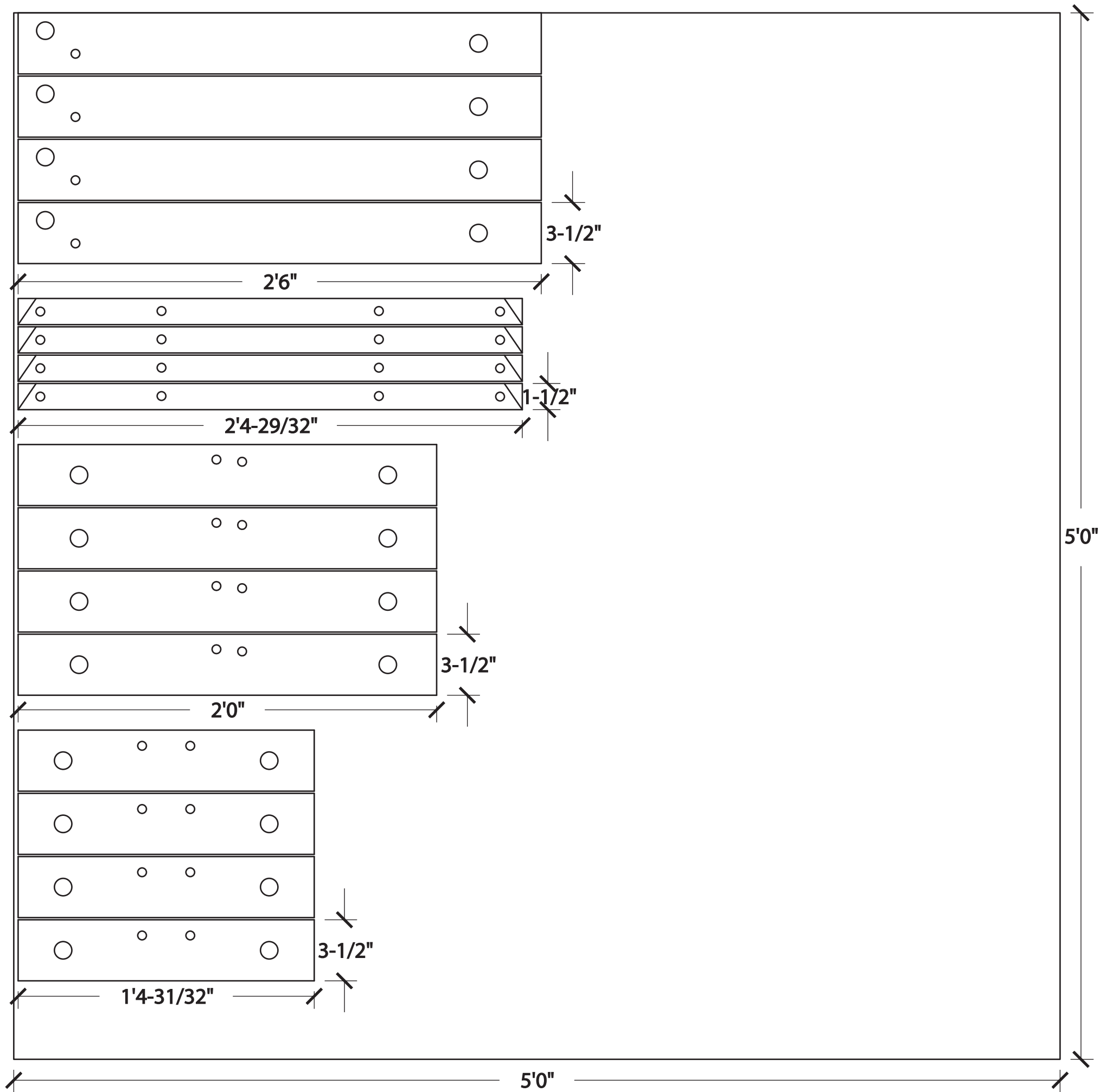
For details of secondary
cuts & dowel sizes,
see A5.10

A 5.0

MATERIAL MAPPING

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Sheet size is 3/4"
baltic birch plywood

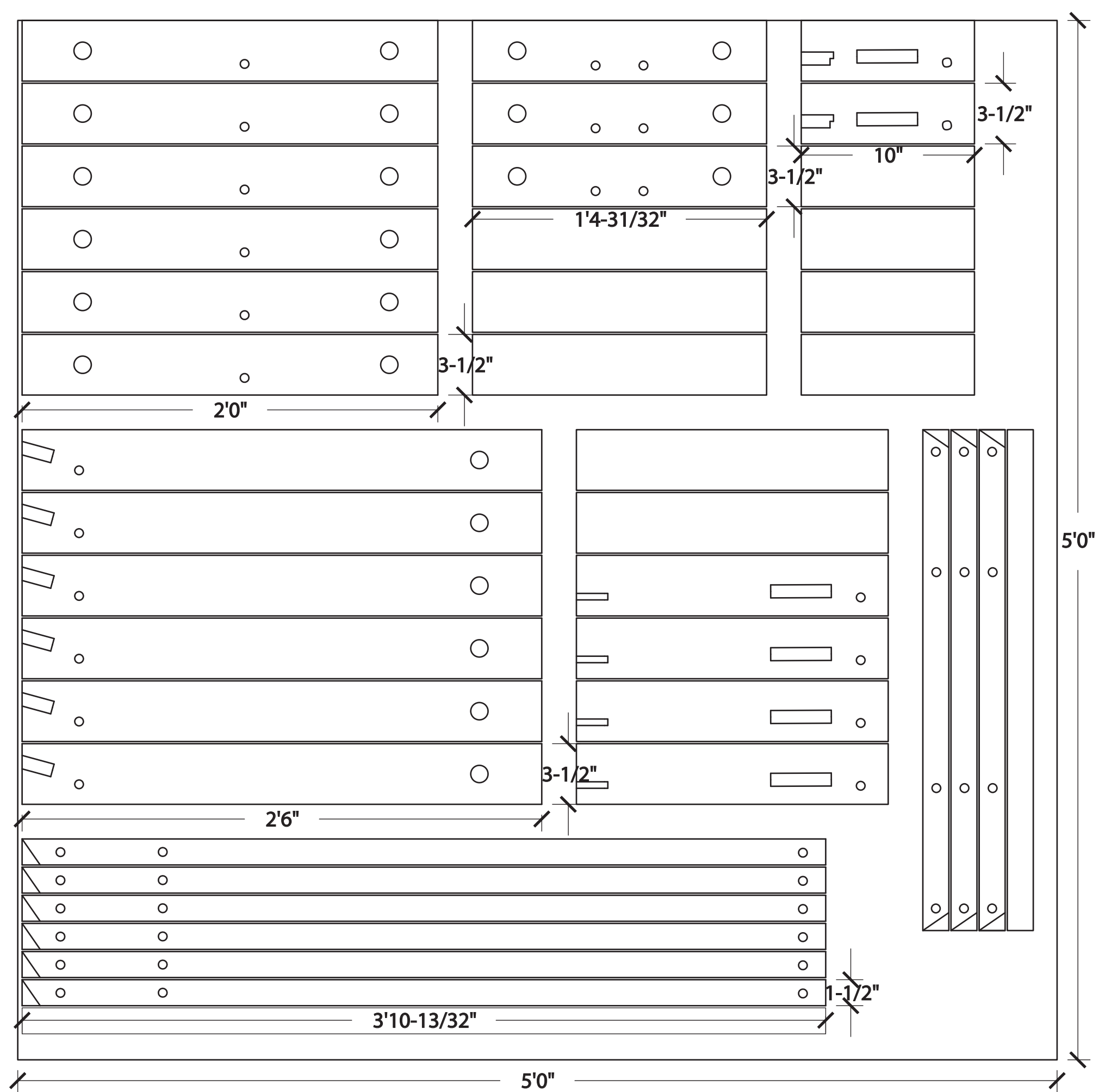
For details of secondary
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see A5.11

MATERIAL MAPPING
3/4" plywood

A 5.1

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Sheet size is 3/8"
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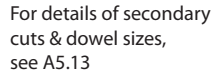
For details of secondary
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A 5.2

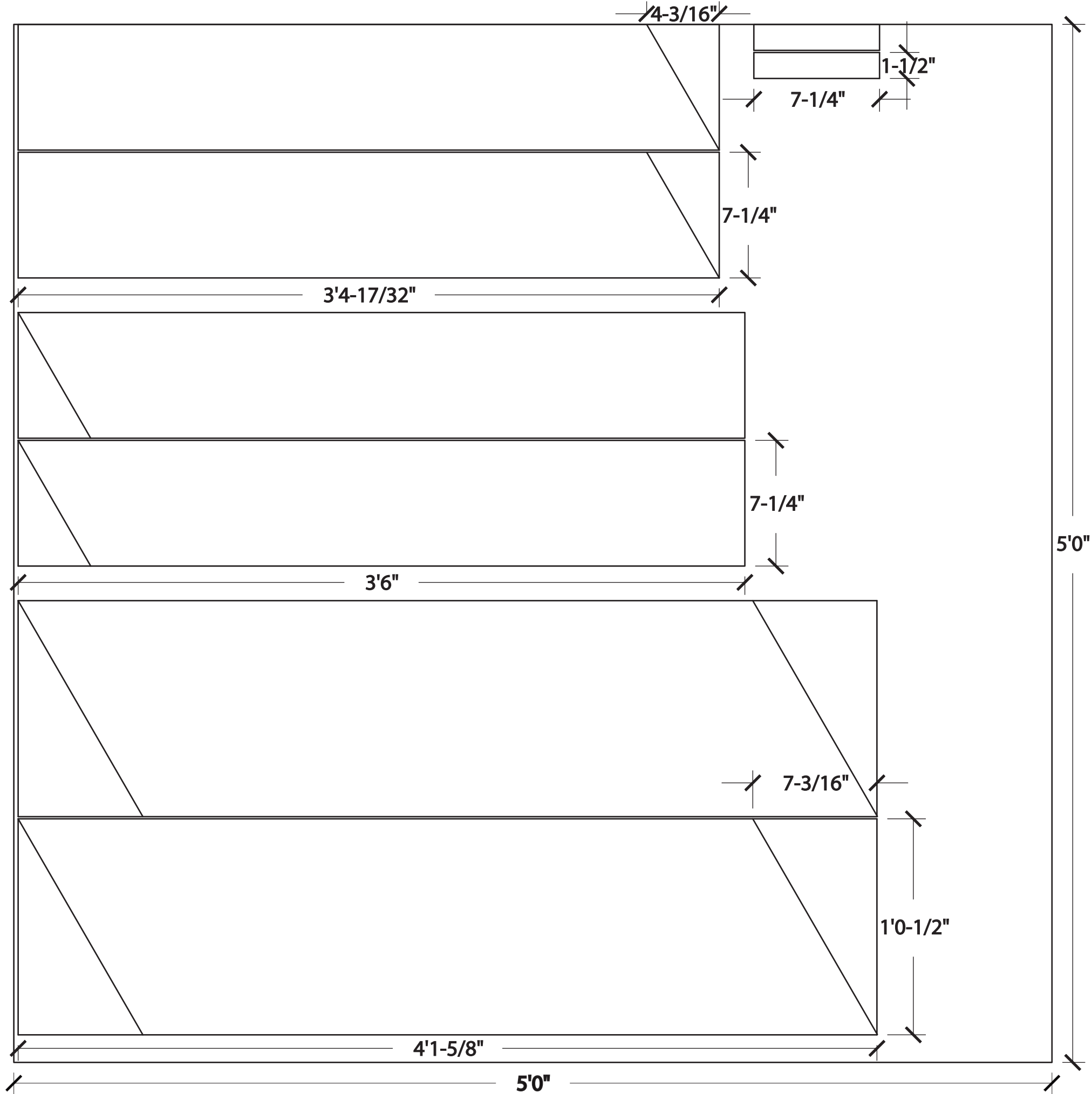
MATERIAL MAPPING
3/8" plywood



MATERIAL MAPPING
3/8" plywood

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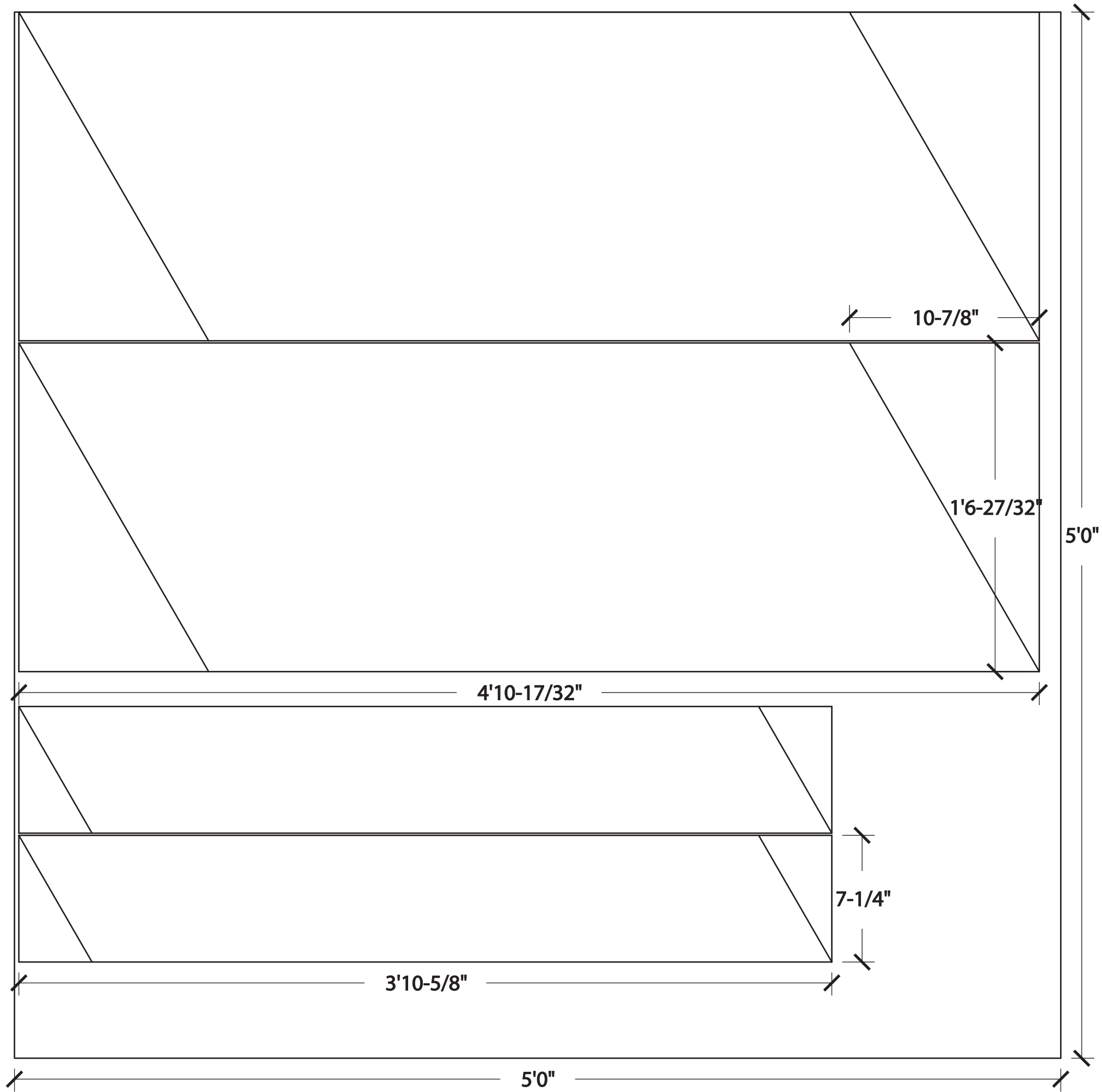


A 5.4

MATERIAL MAPPING
1/8" plywood

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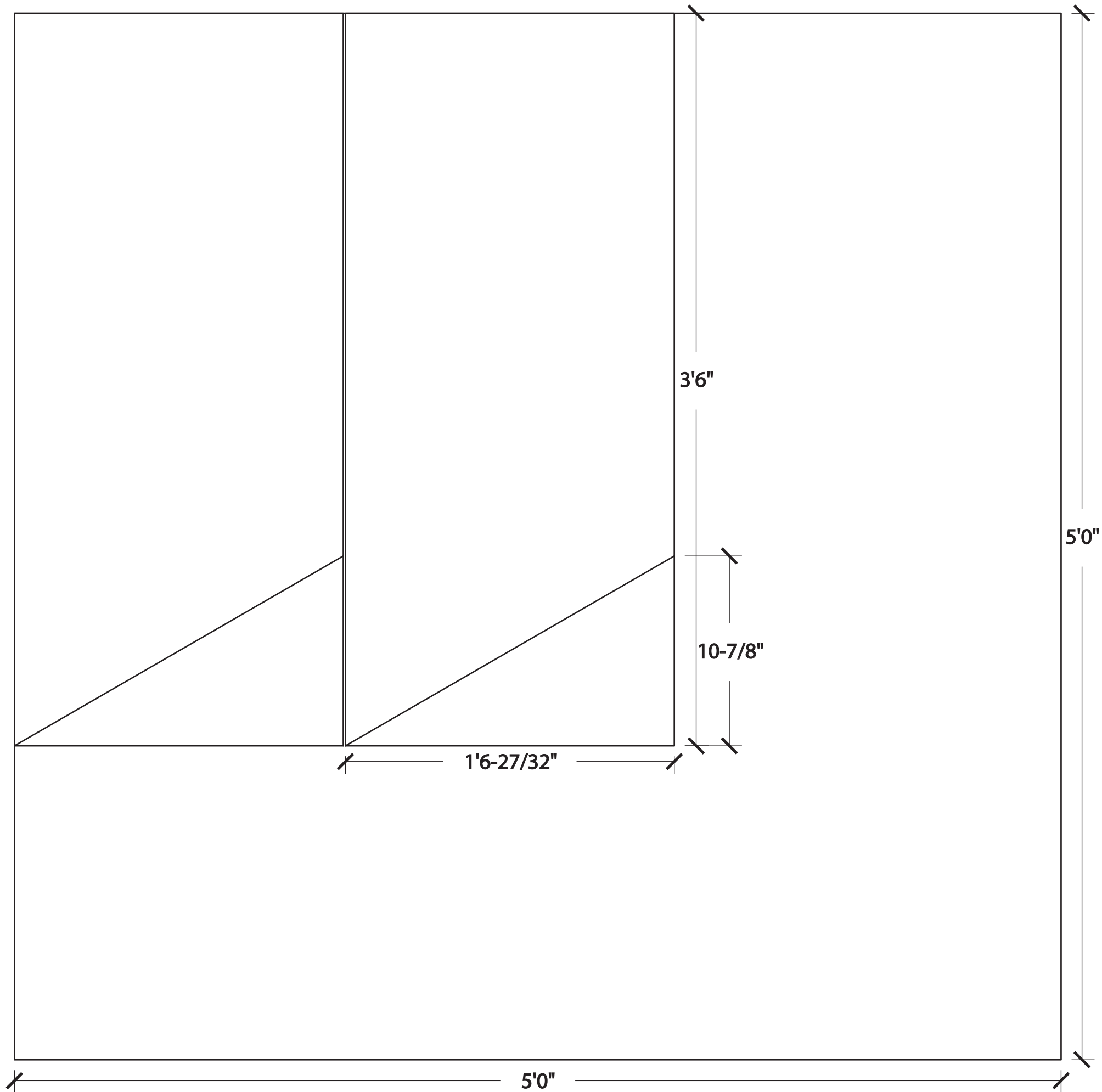
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baltic birch plywood

A 5.5

MATERIAL MAPPING
1/8" plywood

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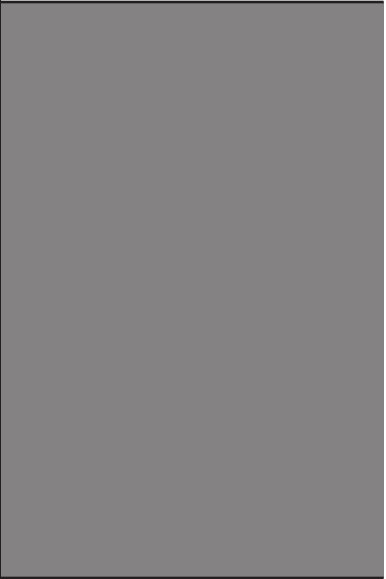
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Sheet size is 1/8"
baltic birch plywood

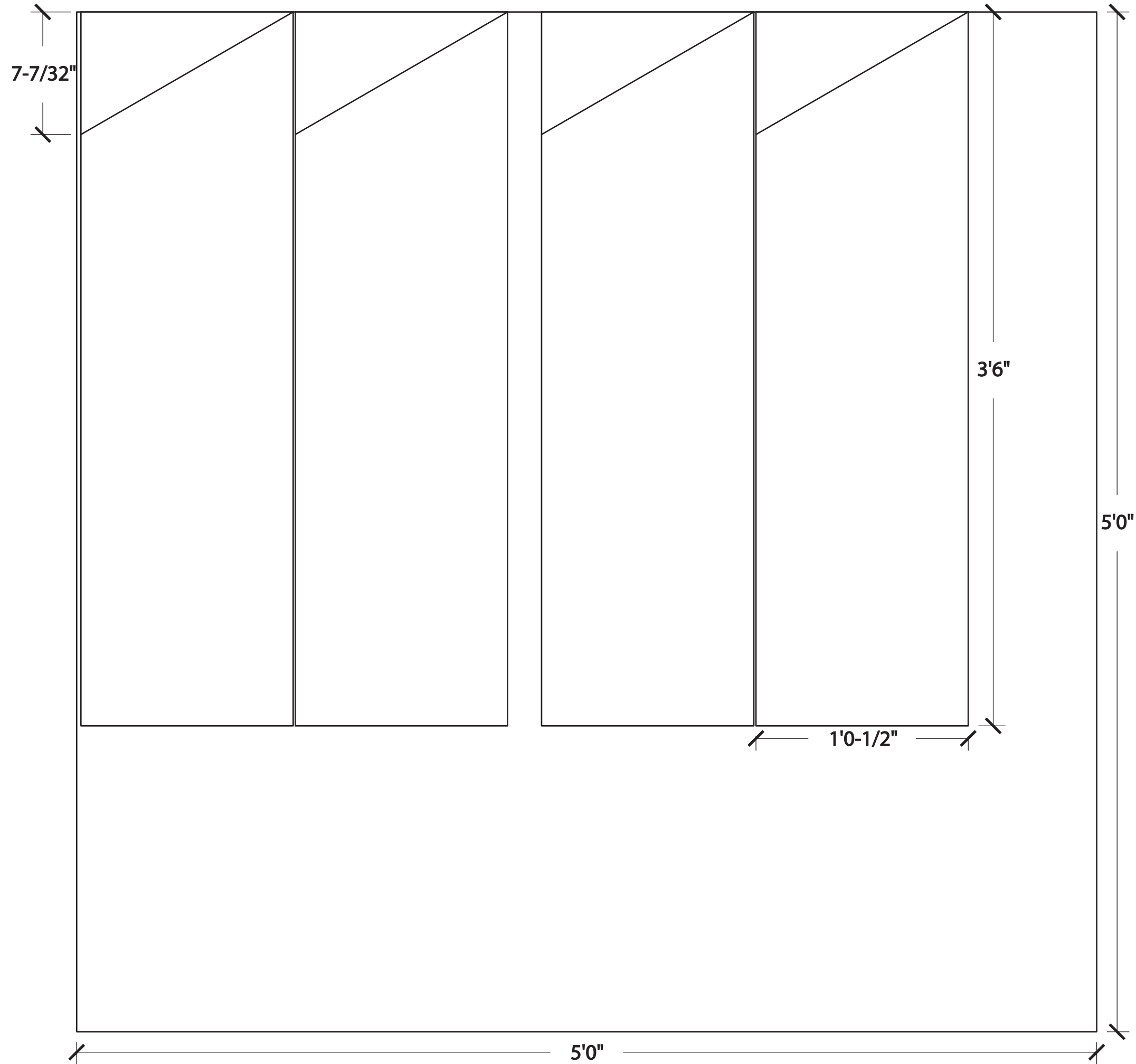
A 5.6

MATERIAL MAPPING
1/8" plywood



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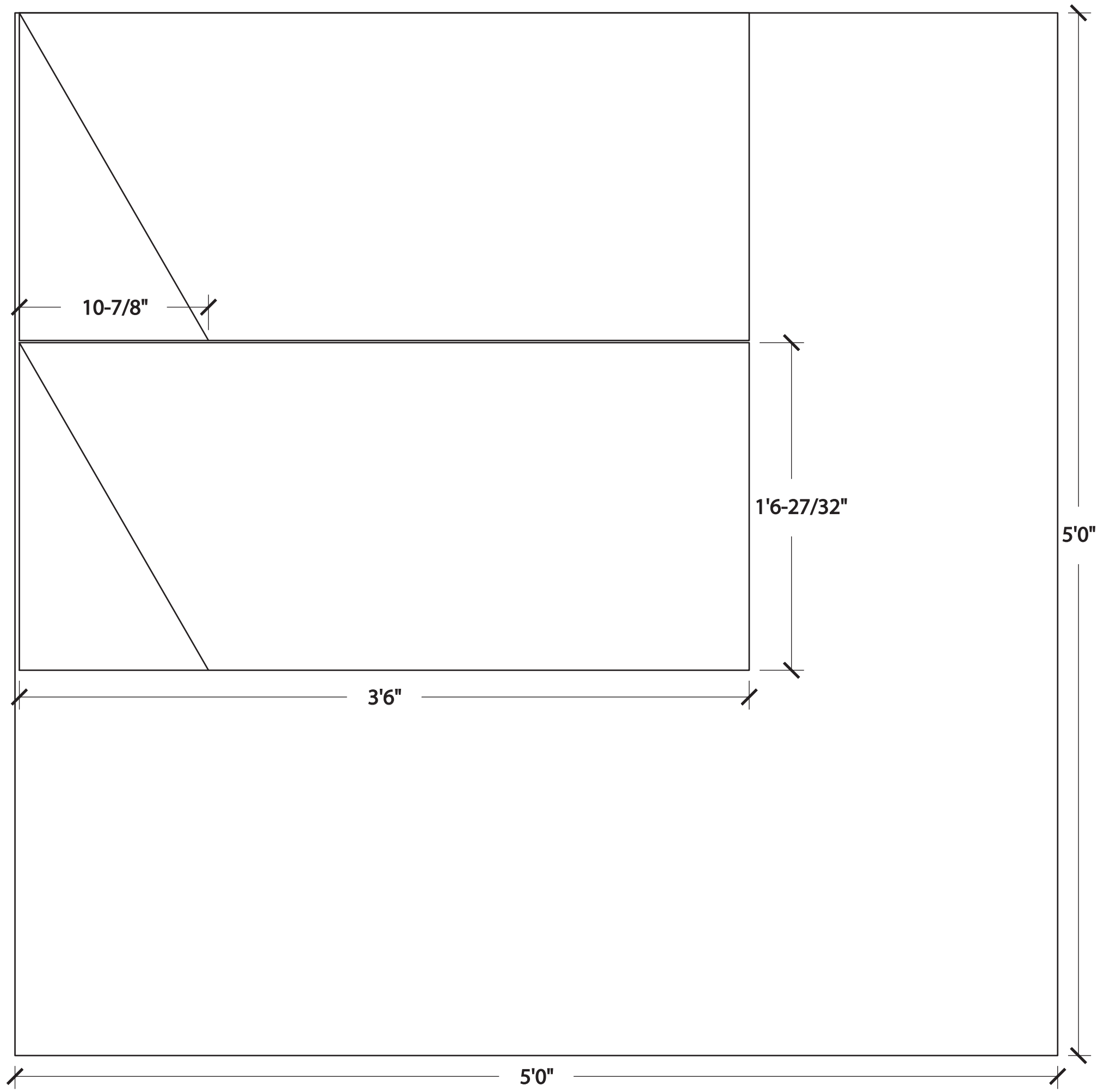
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baltic birch plywood

A 5.7

MATERIAL MAPPING
1/8" plywood

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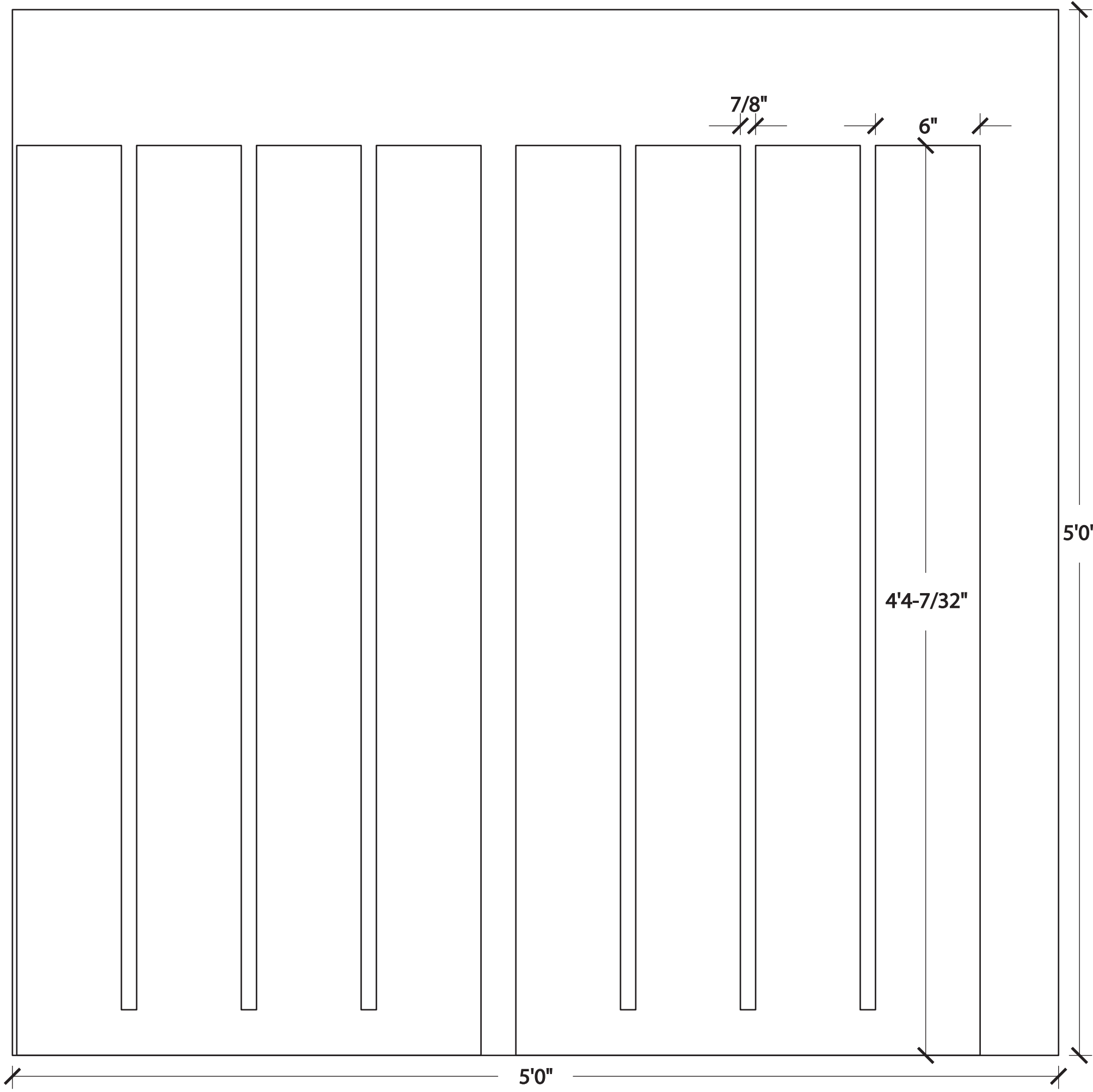
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baltic birch plywood

A 5.8

MATERIAL MAPPING
1/8" plywood

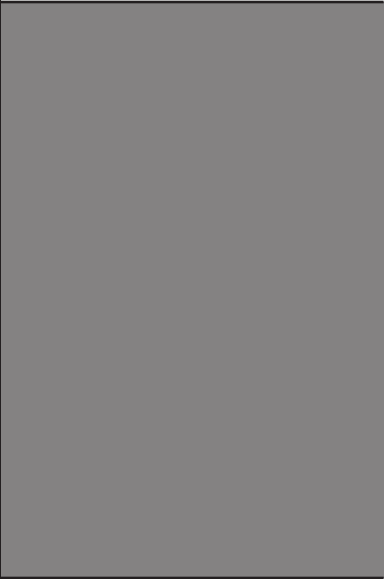
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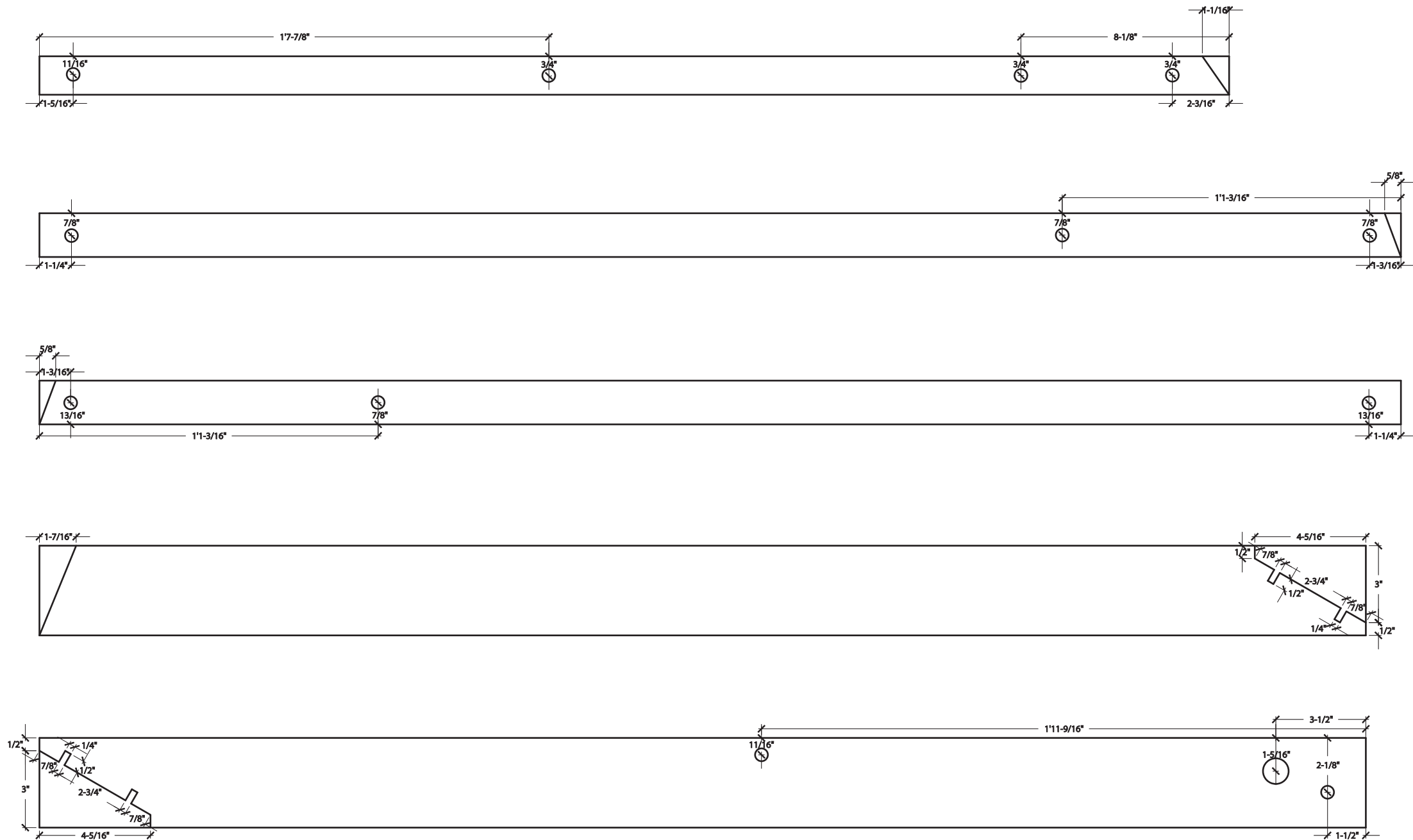
A 5.9

MATERIAL MAPPING
1/8" plywood



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1 DETAIL OF MATERIAL MAPPING COMPONENTS

SCALE: 2/1" = 1'-0"

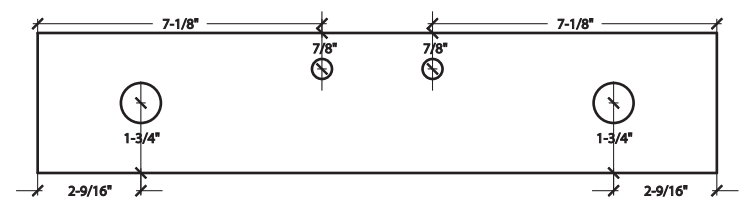
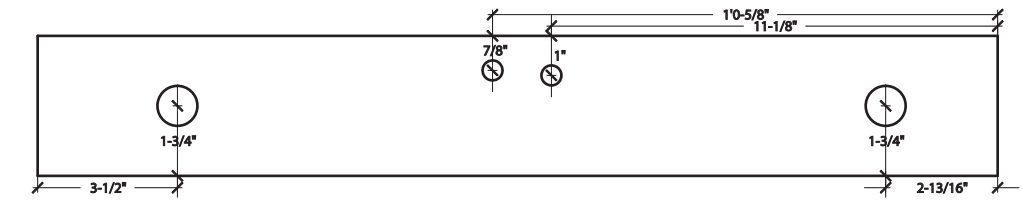
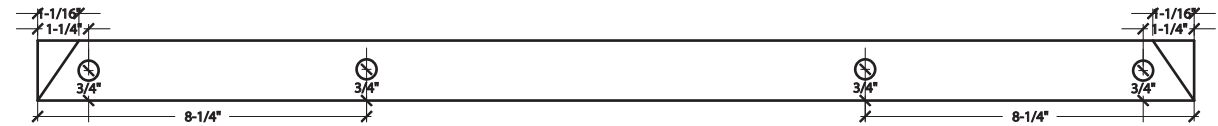
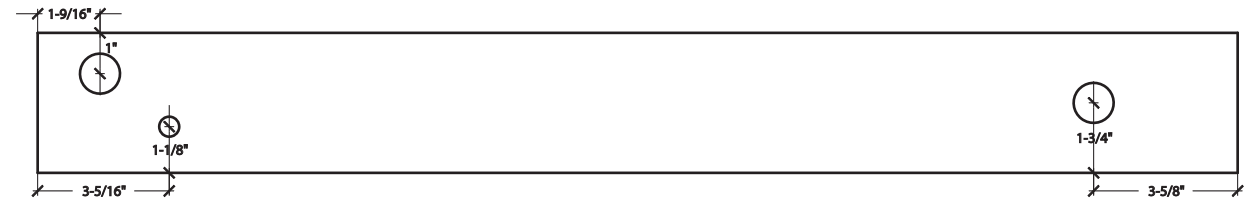
From sheet A5.0

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A 5.10

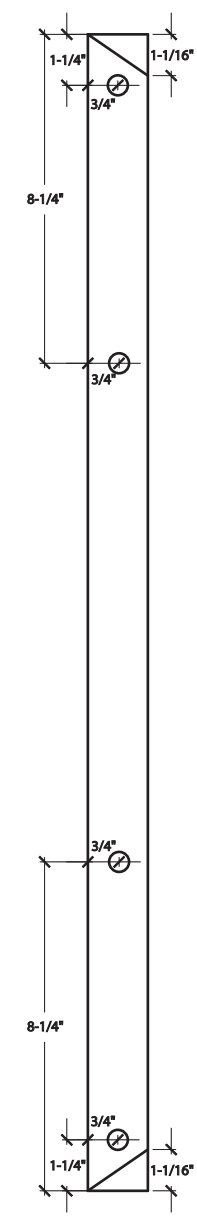
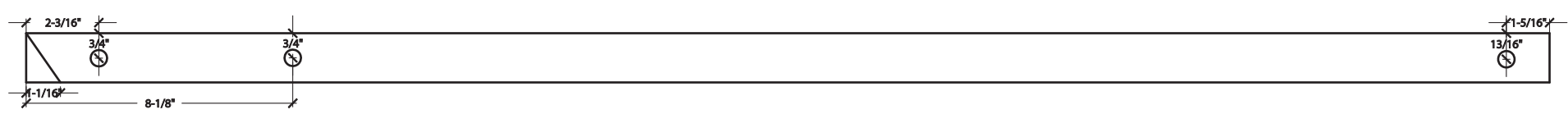
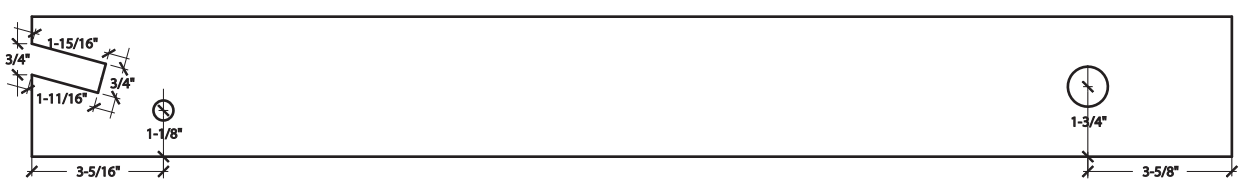
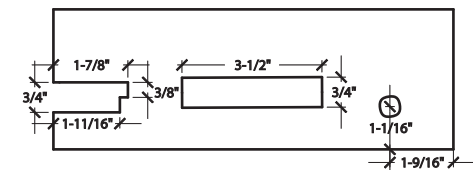
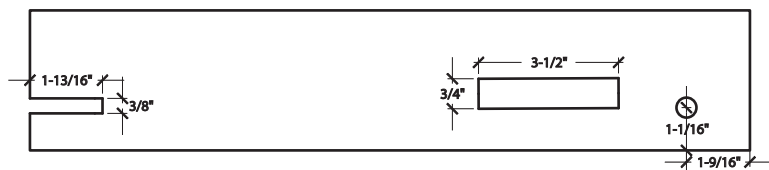
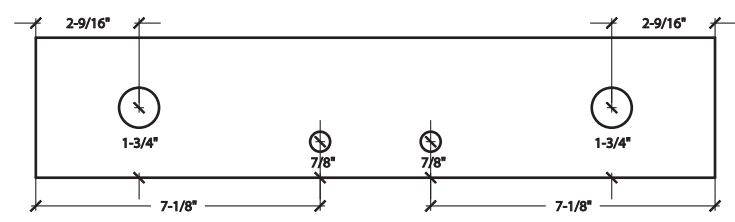
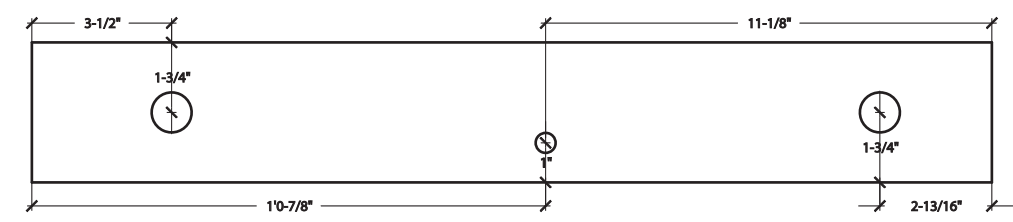
MATERIAL MAPPING



1 DETAIL OF MATERIAL MAPPING COMPONENTS

SCALE: $2/1" = 1'-0"$

From sheet A5.1



1 DETAIL OF MATERIAL MAPPING COMPONENTS

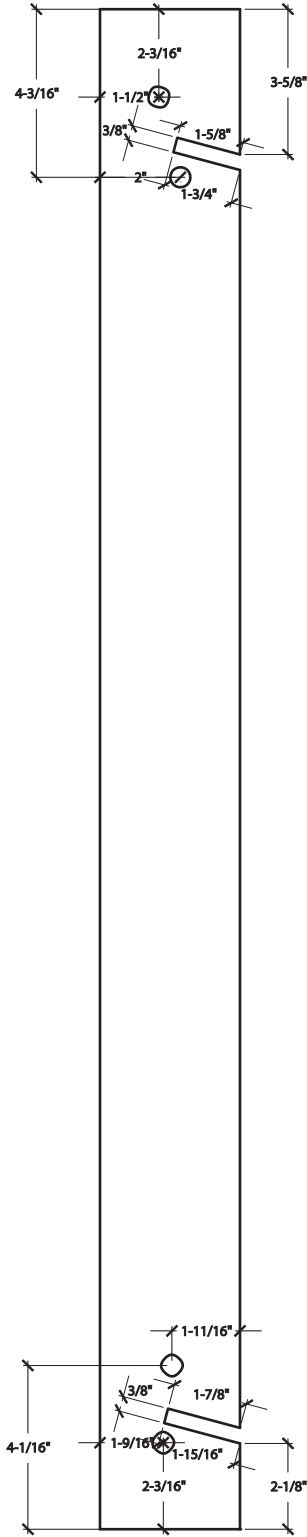
SCALE: 2/1" = 1'-0"

From sheet A5.2

A 5.12 MATERIAL MAPPING

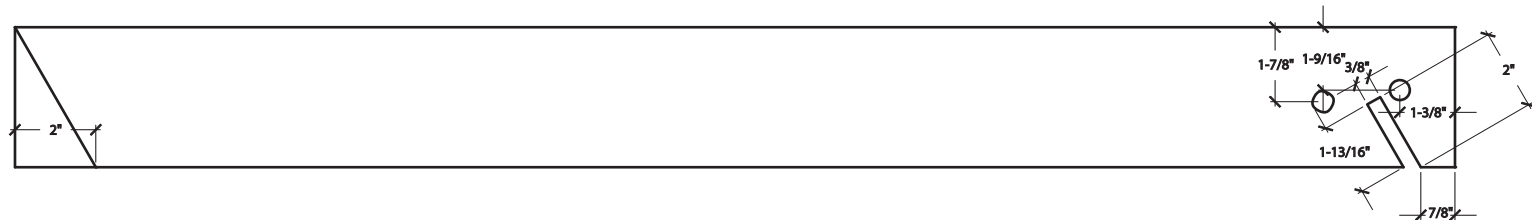
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1 DETAIL OF MATERIAL MAPPING COMPONENTS

SCALE: 2/1" = 1'-0"



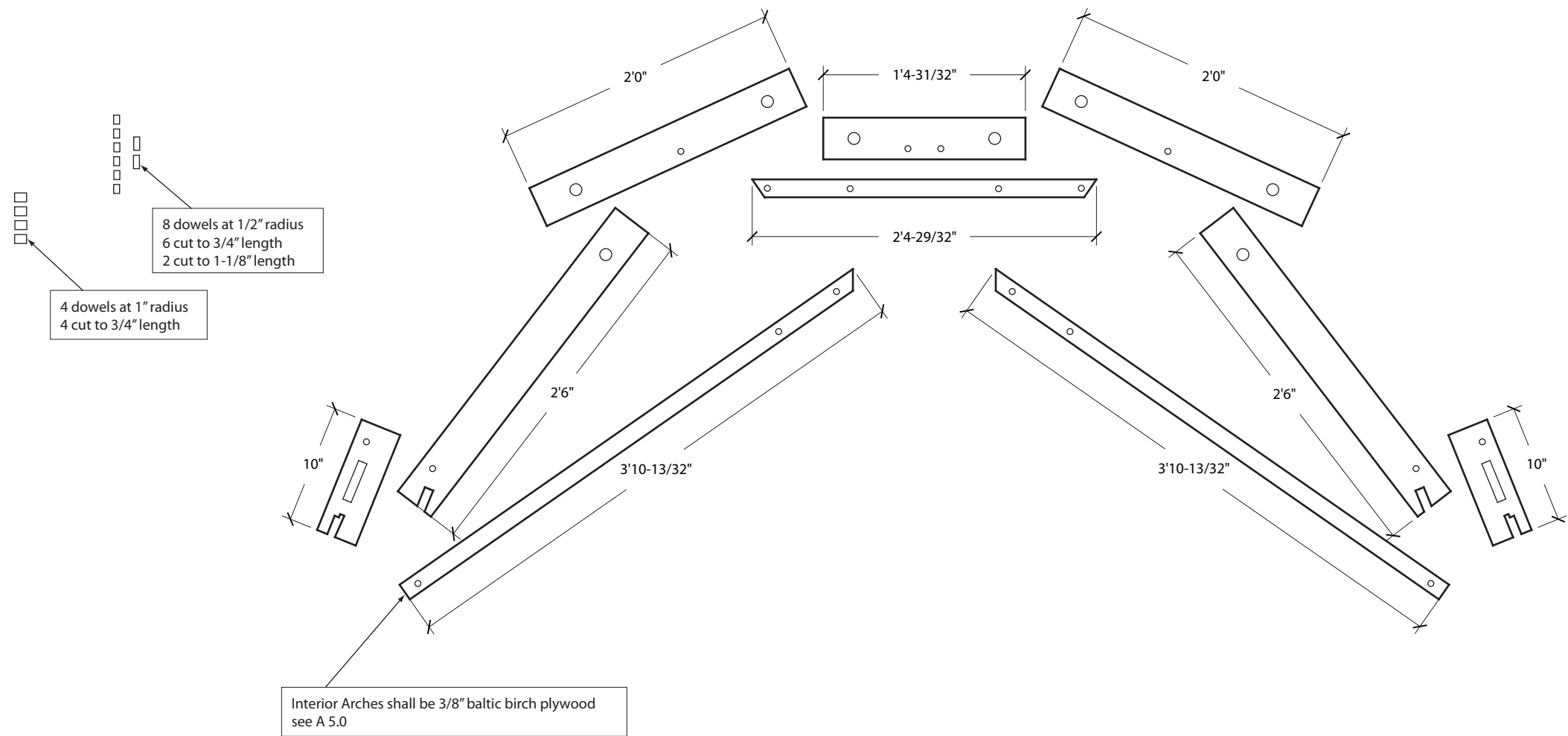
From sheet A5.3

A 5.13

MATERIAL MAPPING

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1 COMPONENT LAYOUT INTERIOR CENTER ARCH
SCALE: 1/1" = 1'-0"

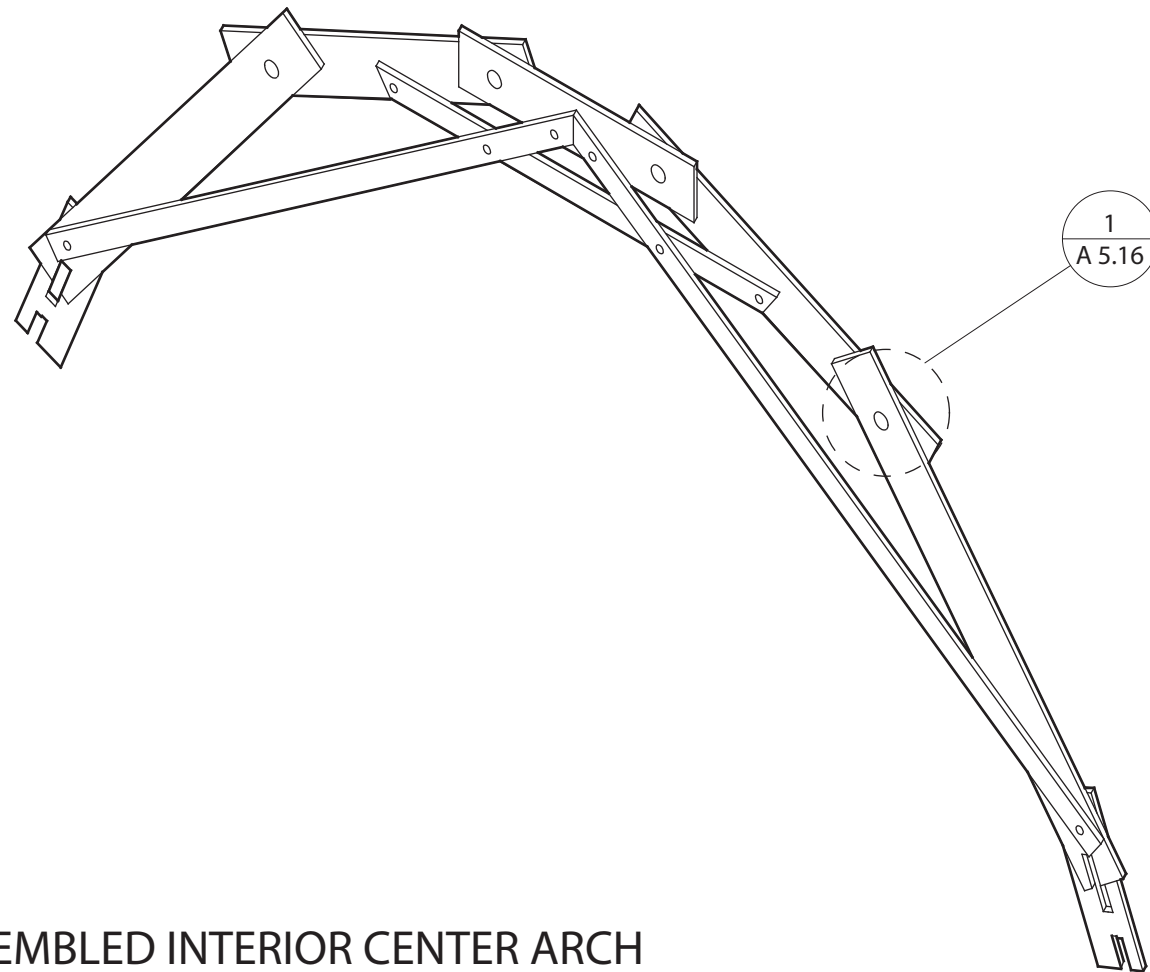
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ASSEMBLY DRAWINGS

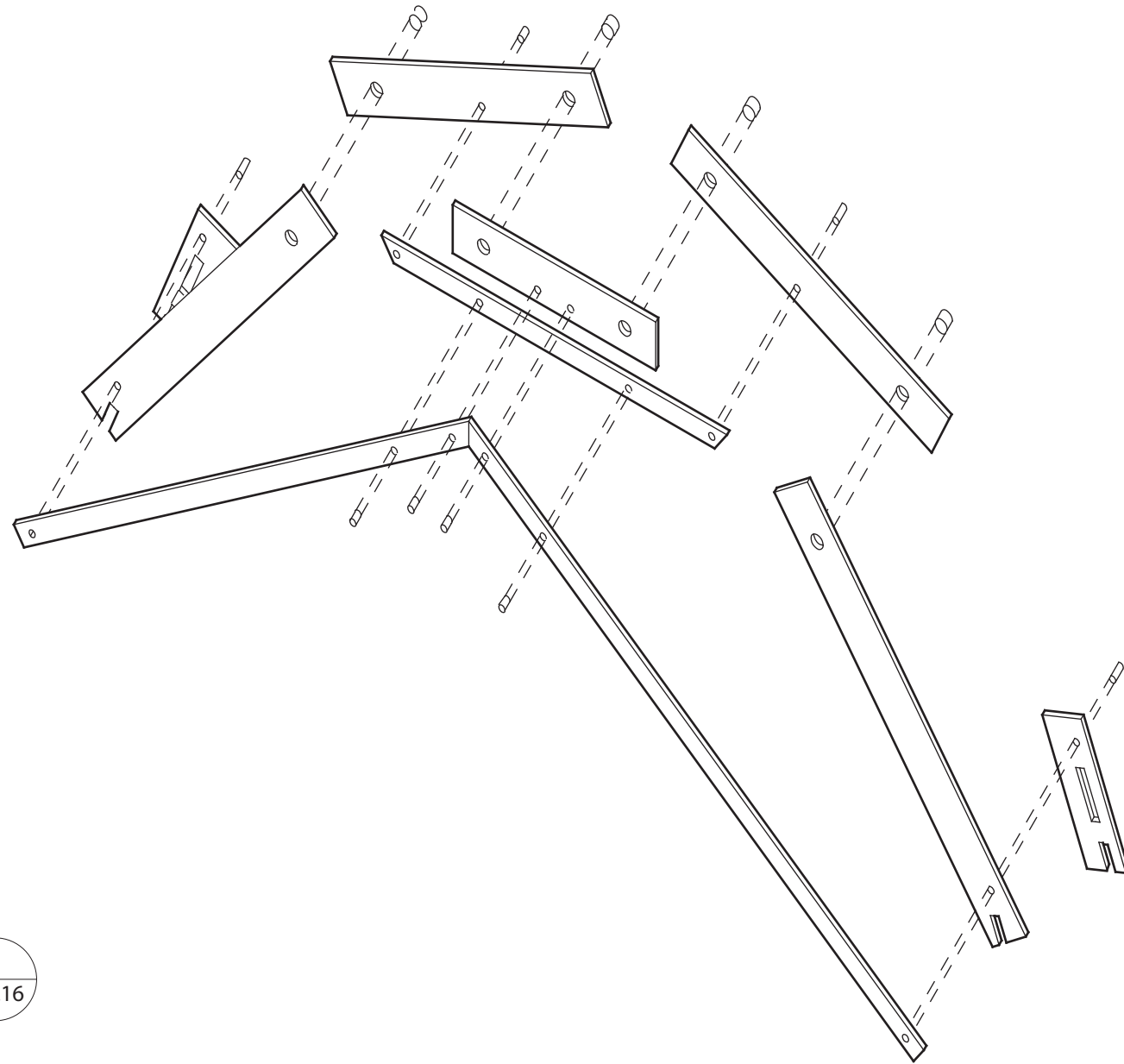
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2 ASSEMBLED INTERIOR CENTER ARCH
SCALE: 1/1" = 1'-0"



1 EXPLODED ASSEMBLY INTERIOR CENTER ARCH
SCALE: 1/1" = 1'-0"



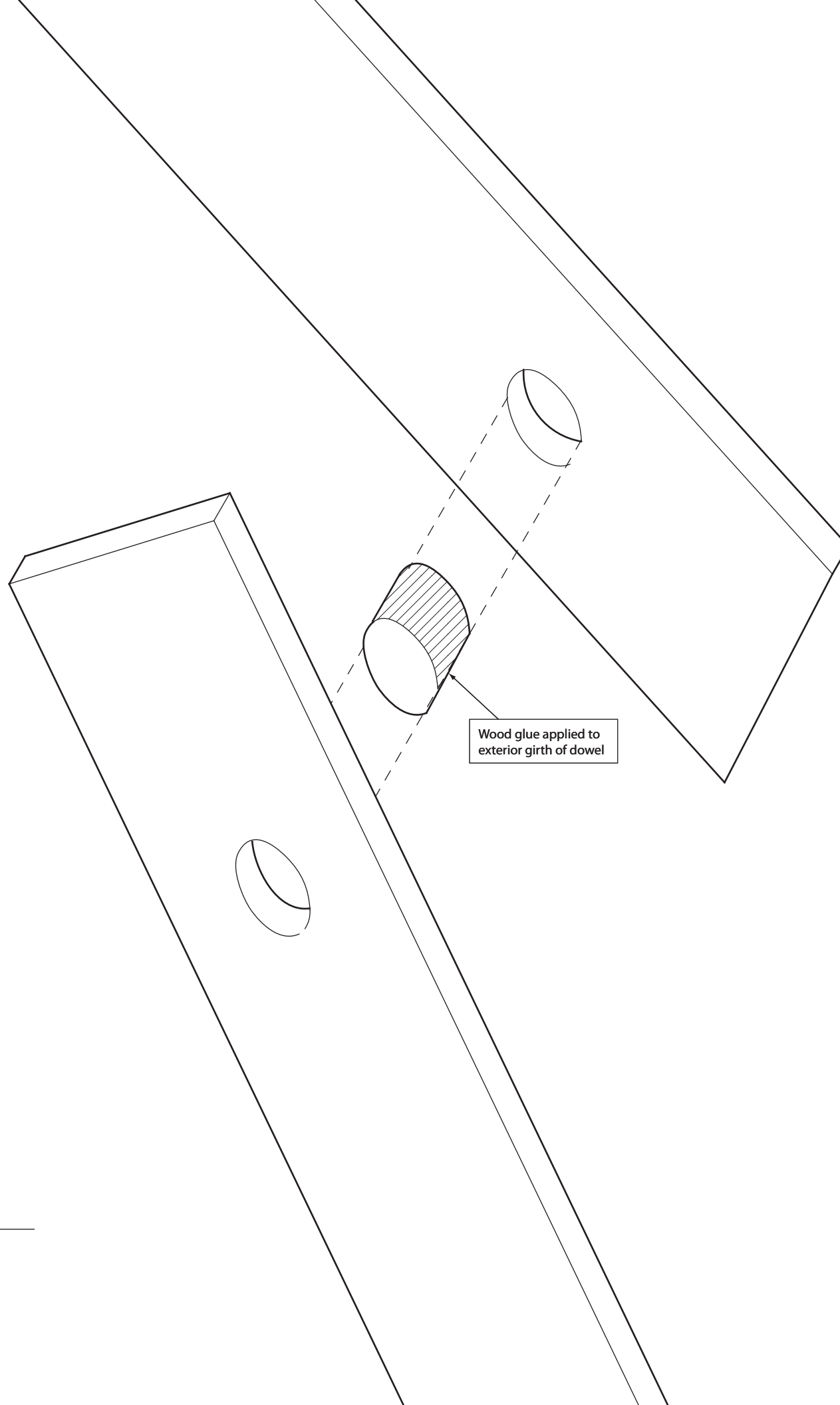
A 5.15

ASSEMBLY DRAWINGS

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1 CRITICAL DETAIL DOWEL JOINT
SCALE: 8/1" = 1'-0"

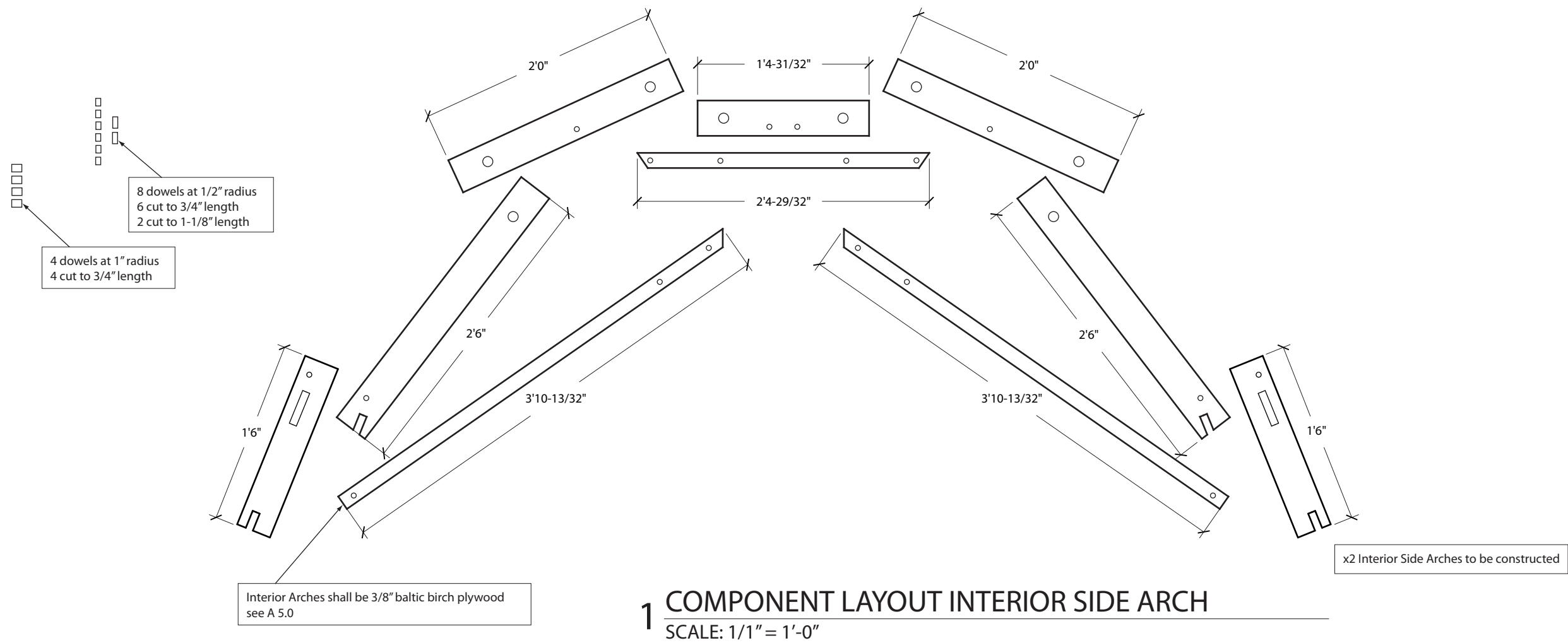


A 5.16

ASSEMBLY DRAWINGS

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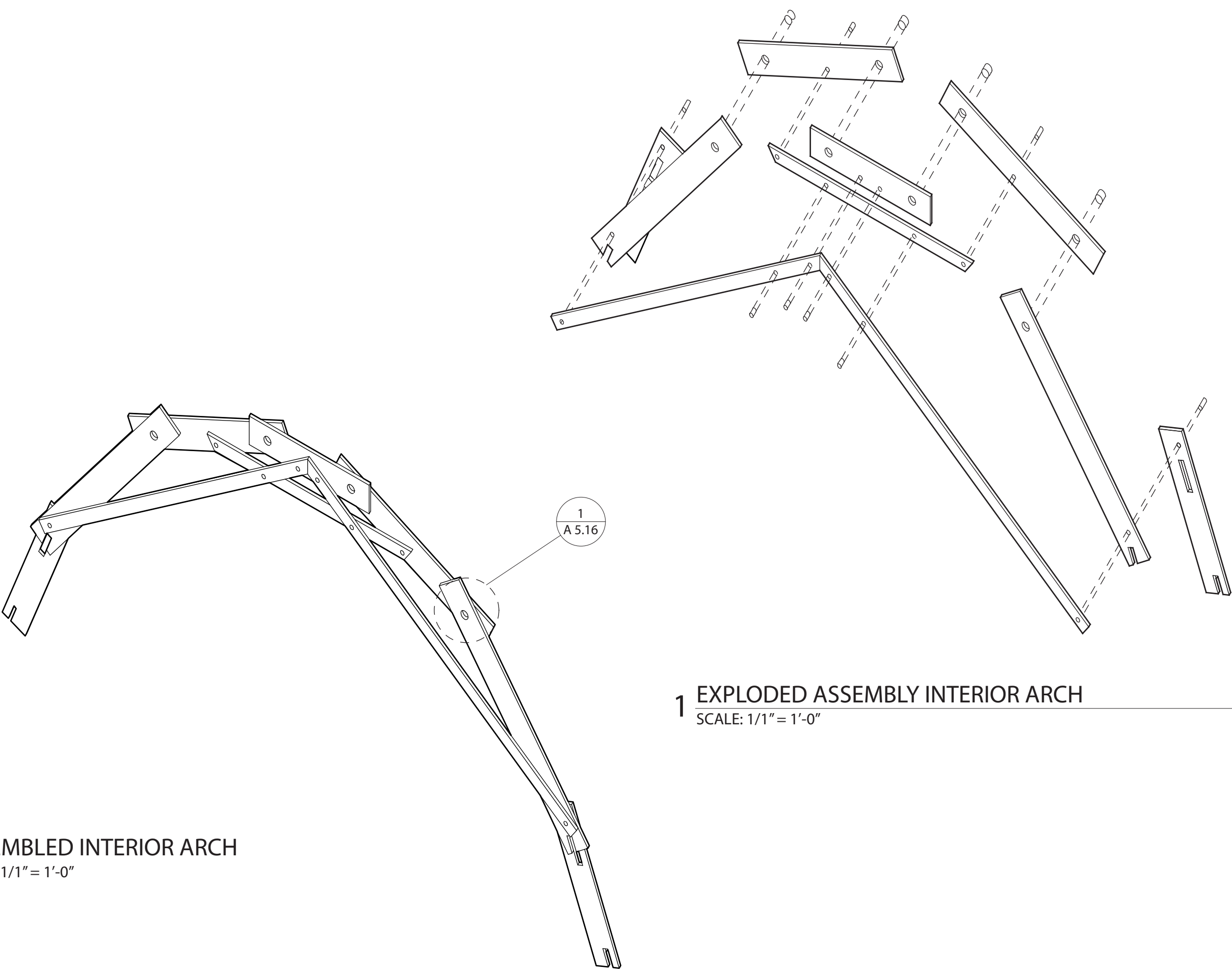


A 5.17

ASSEMBLY DRAWINGS

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2 ASSEMBLED INTERIOR ARCH
SCALE: 1/1" = 1'-0"

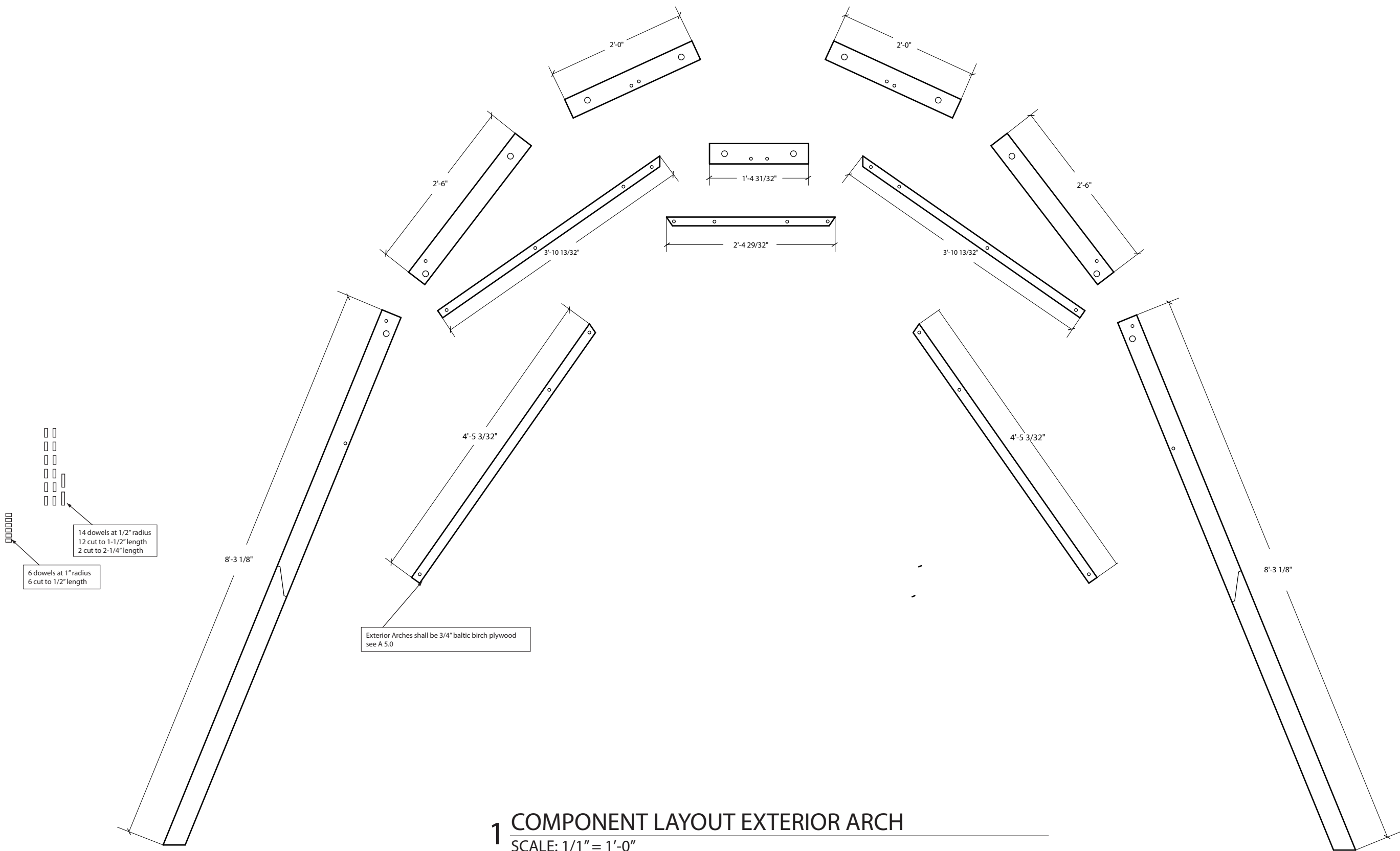
1 EXPLODED ASSEMBLY INTERIOR ARCH
SCALE: 1/1" = 1'-0"

A 5.18

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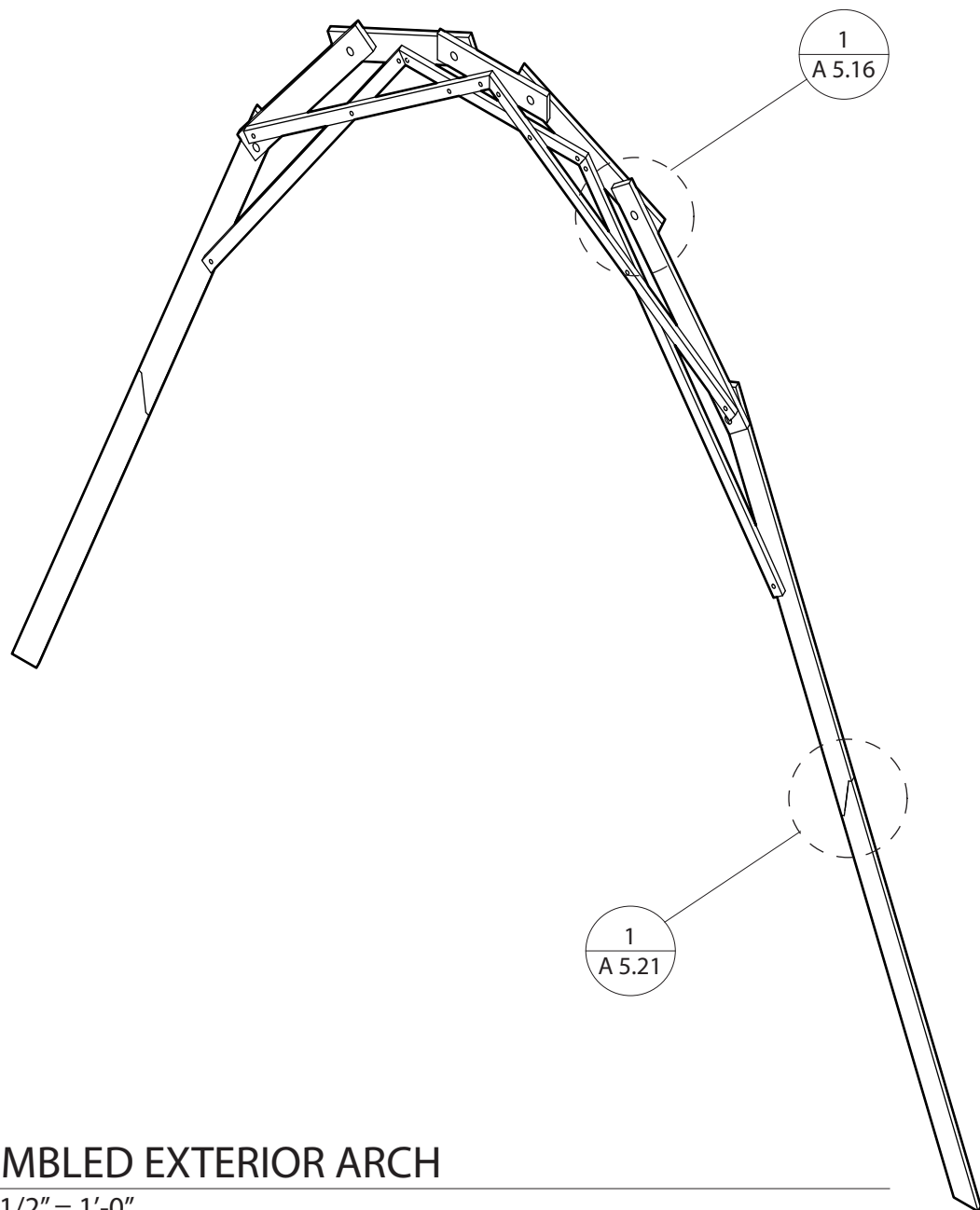
1 COMPONENT LAYOUT EXTERIOR ARCH
SCALE: 1/1" = 1'-0"

A 5.19

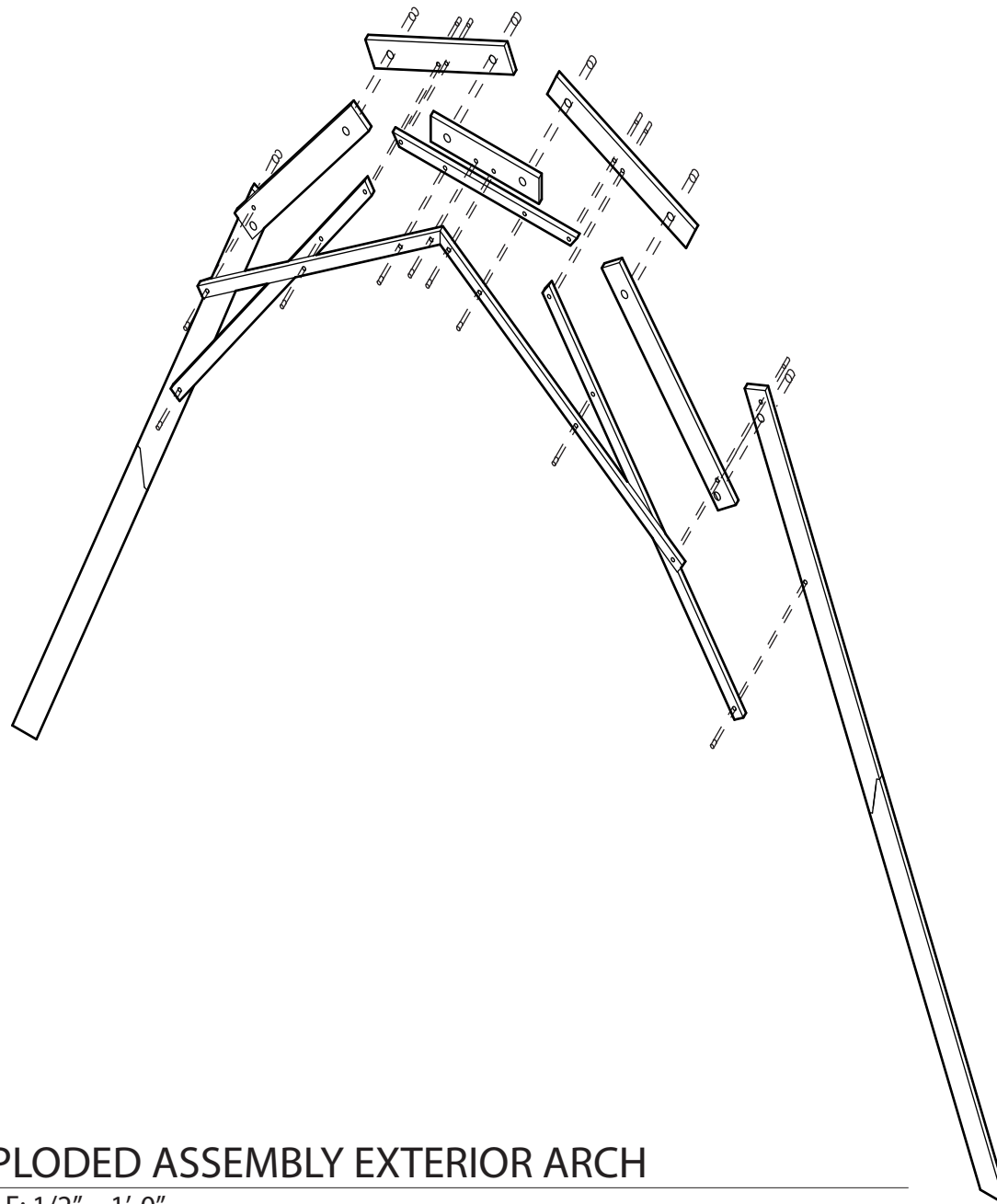
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2 ASSEMBLED EXTERIOR ARCH
SCALE: 1/2" = 1'-0"



1 EXPLODED ASSEMBLY EXTERIOR ARCH
SCALE: 1/2" = 1'-0"

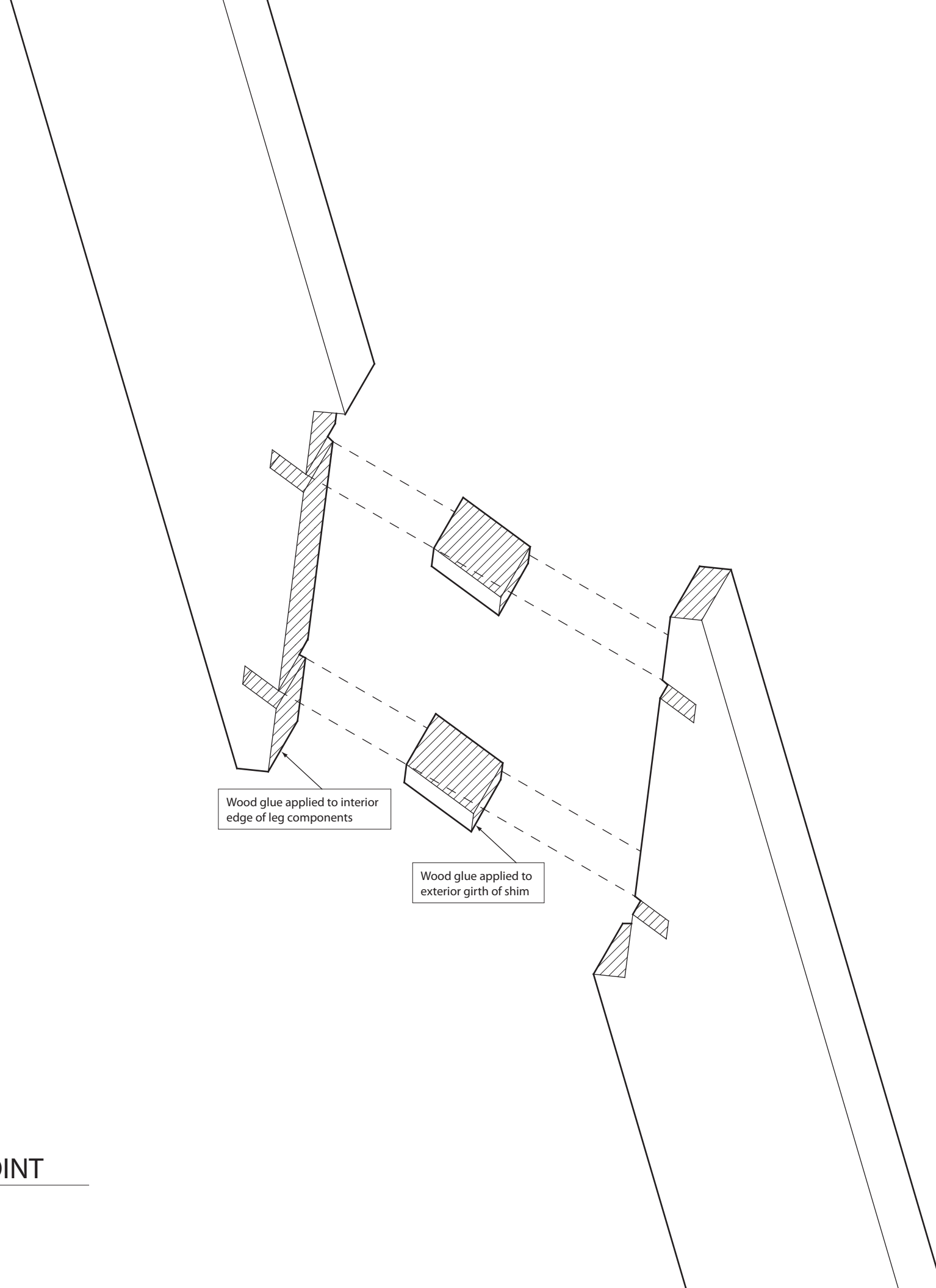
A 5.20

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1 CRITICAL DETAIL LEG JOINT
SCALE: 8/1" = 1'-0"

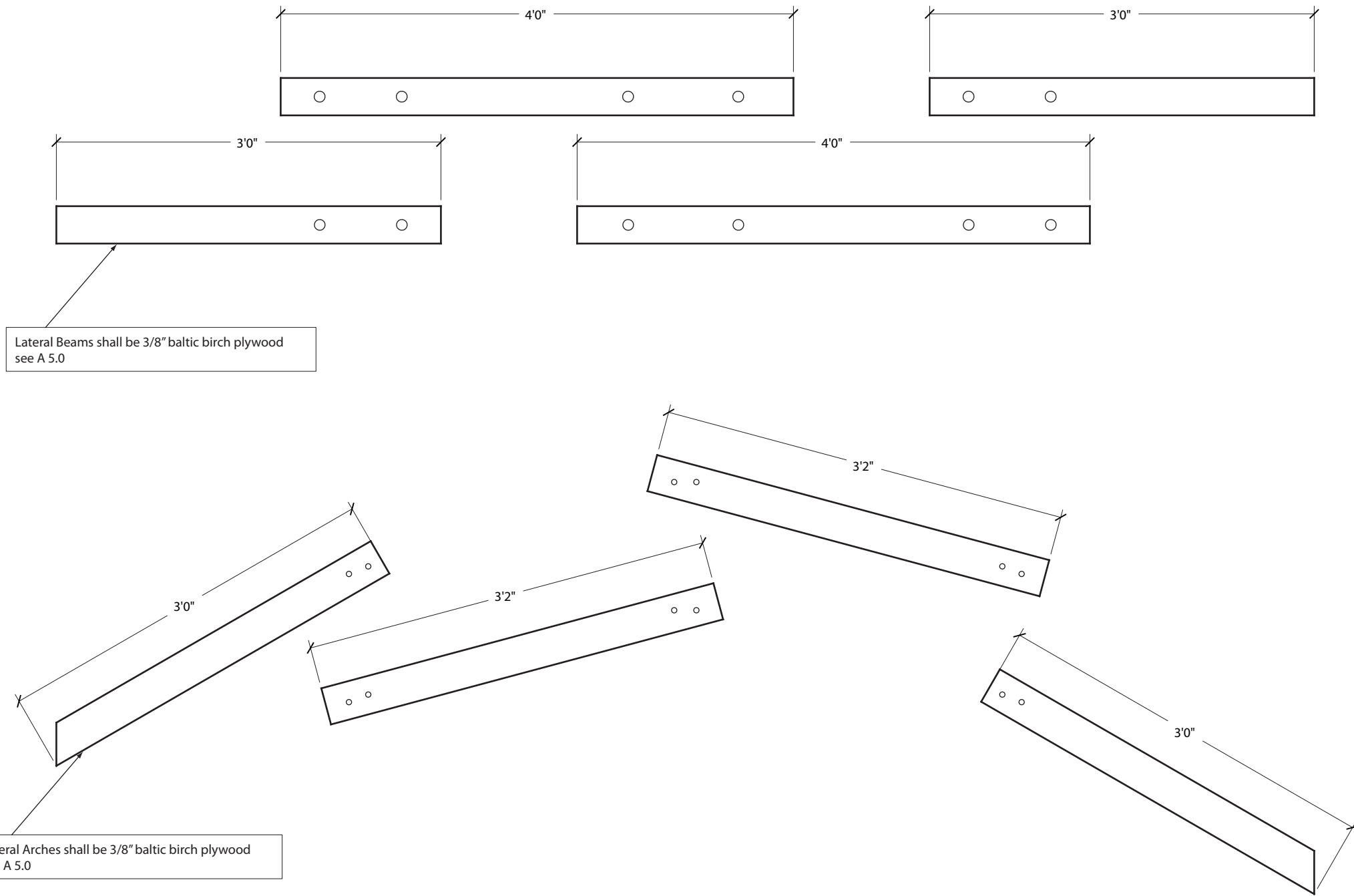
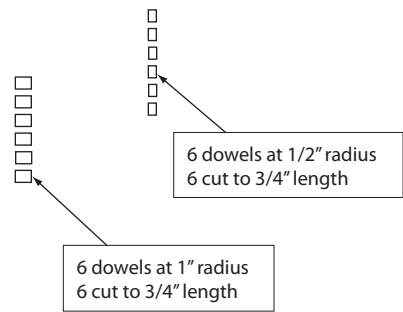


A 5.21

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This page represents the composition for one side;
materials should be doubled for full structure.

1 COMPONENT LAYOUT LATERAL BEAM & ARCH

SCALE: 1/1" = 1'-0"

A 5.22

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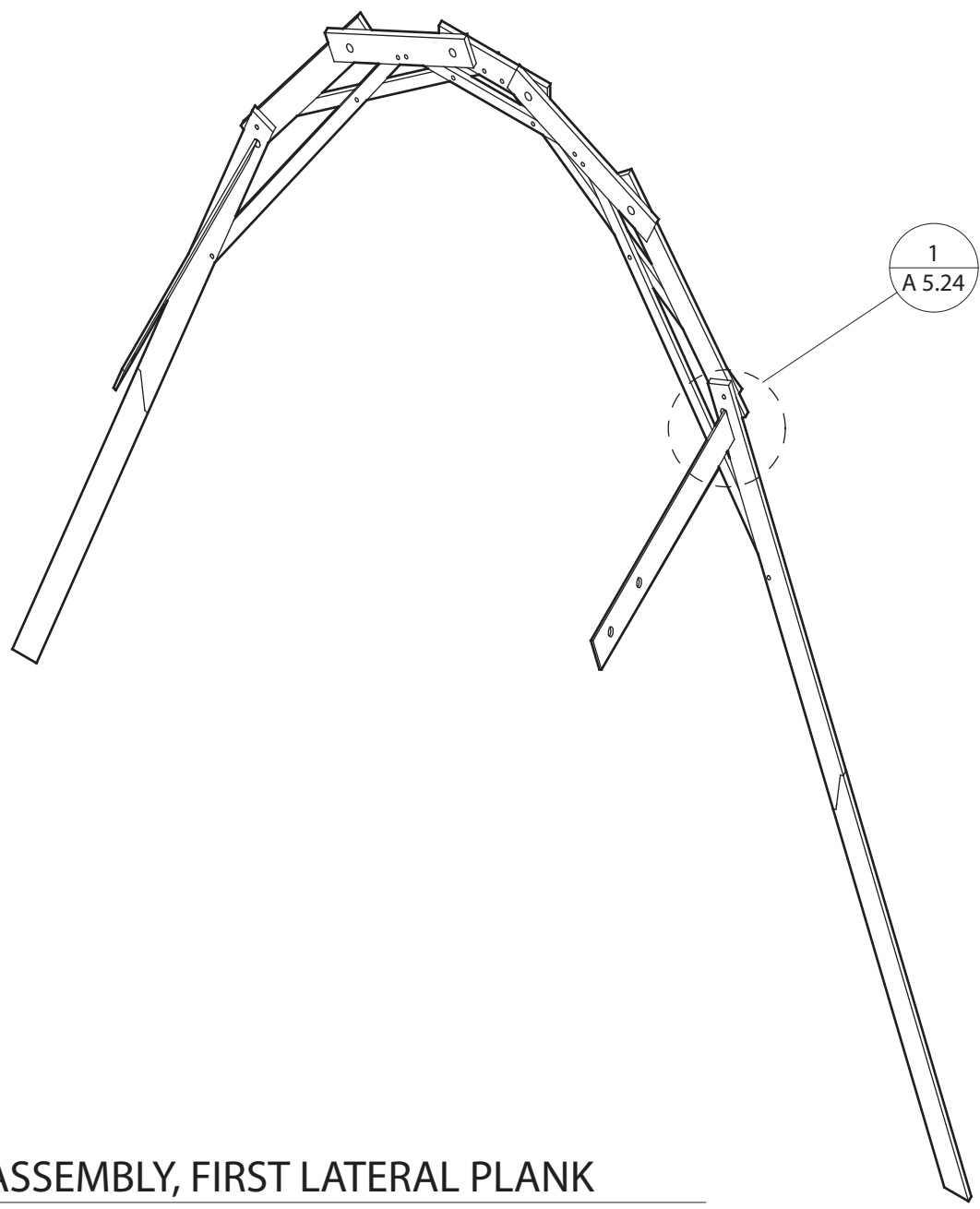
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A 5.23

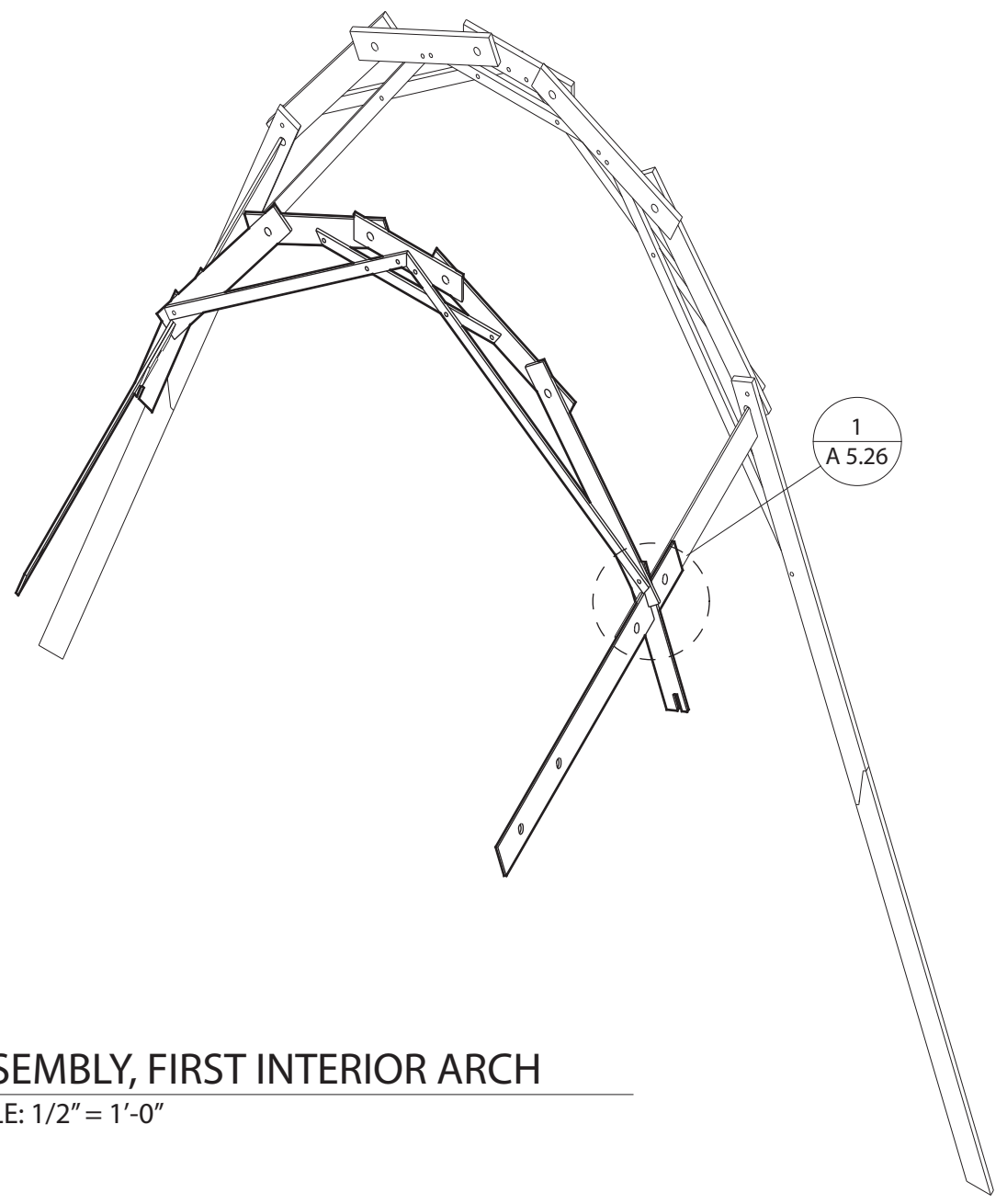
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1 ASSEMBLY, FIRST LATERAL PLANK
SCALE: 1/2" = 1'-0"



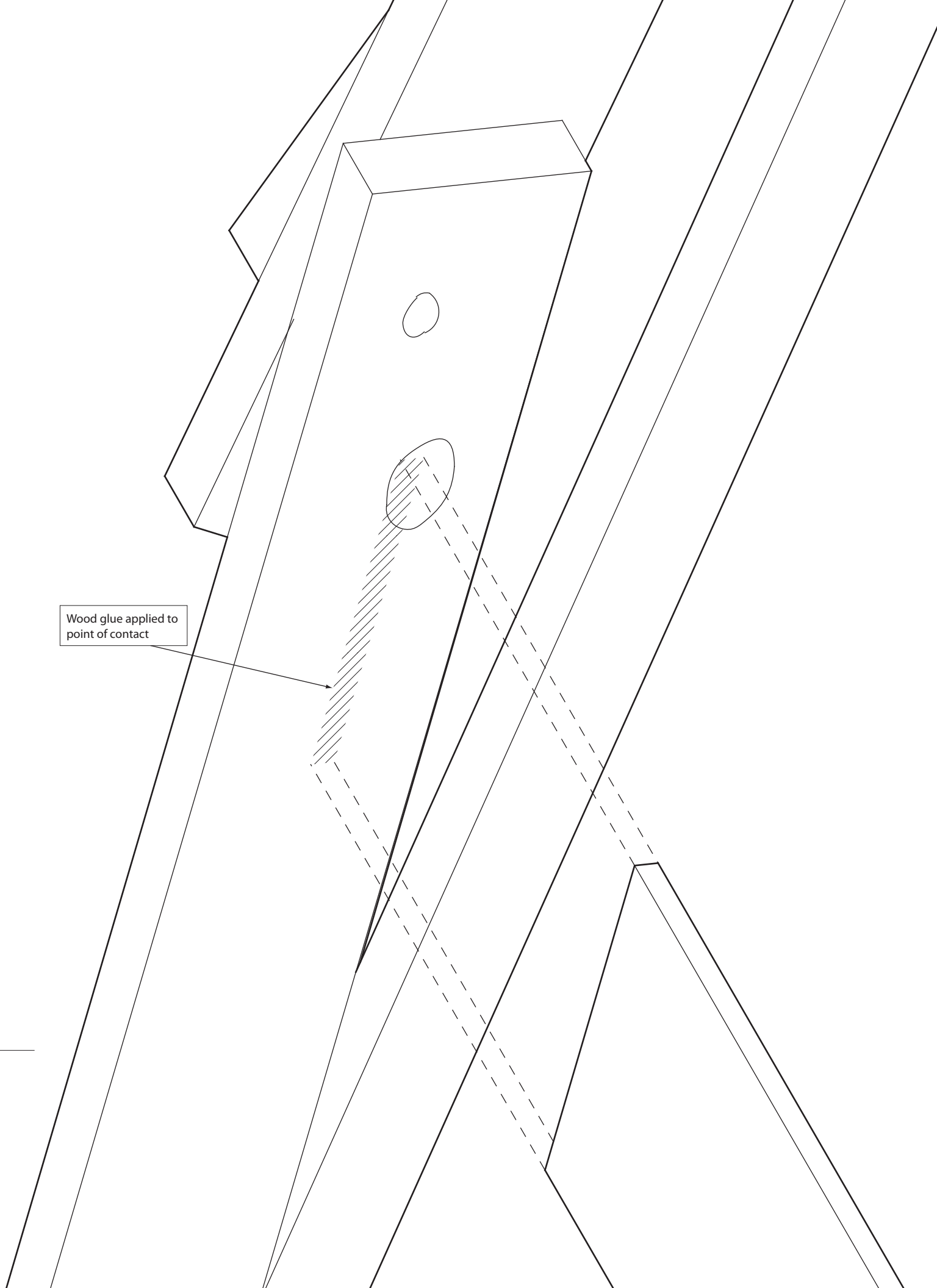
2 ASSEMBLY, FIRST INTERIOR ARCH
SCALE: 1/2" = 1'-0"

1

CRITICAL DETAIL LATERAL RENDEZVOUS

SCALE: 8/1" = 1'-0"

Wood glue applied to
point of contact



A 5.24

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1 CRITICAL DETAIL MOMENT CONNECTION
SCALE: 8/1" = 1'-0"

Moment connection
using metal fastener,
specs, drive!

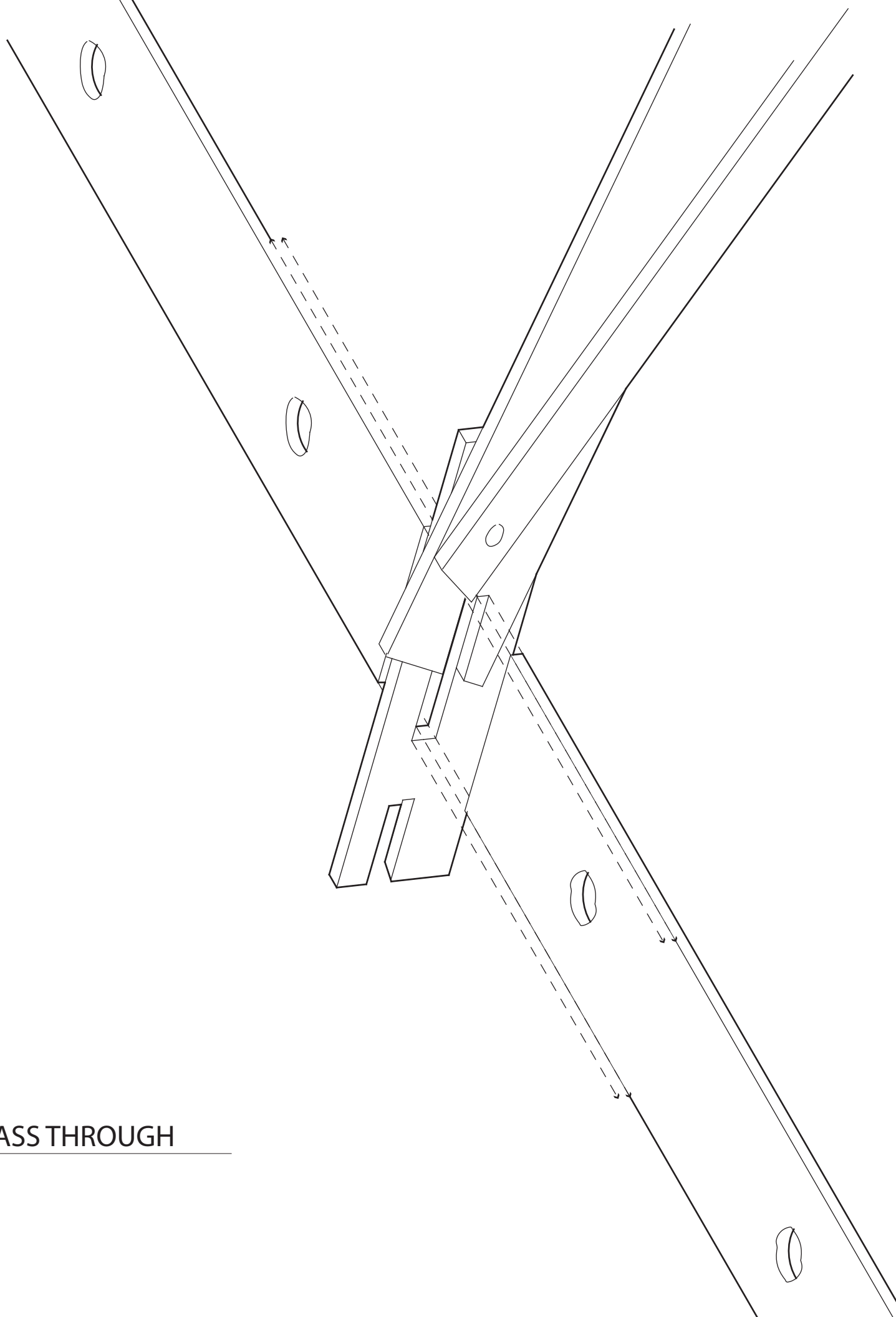
A 5.25

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1 CRITICAL DETAIL PASS THROUGH
SCALE: 8/1" = 1'-0"



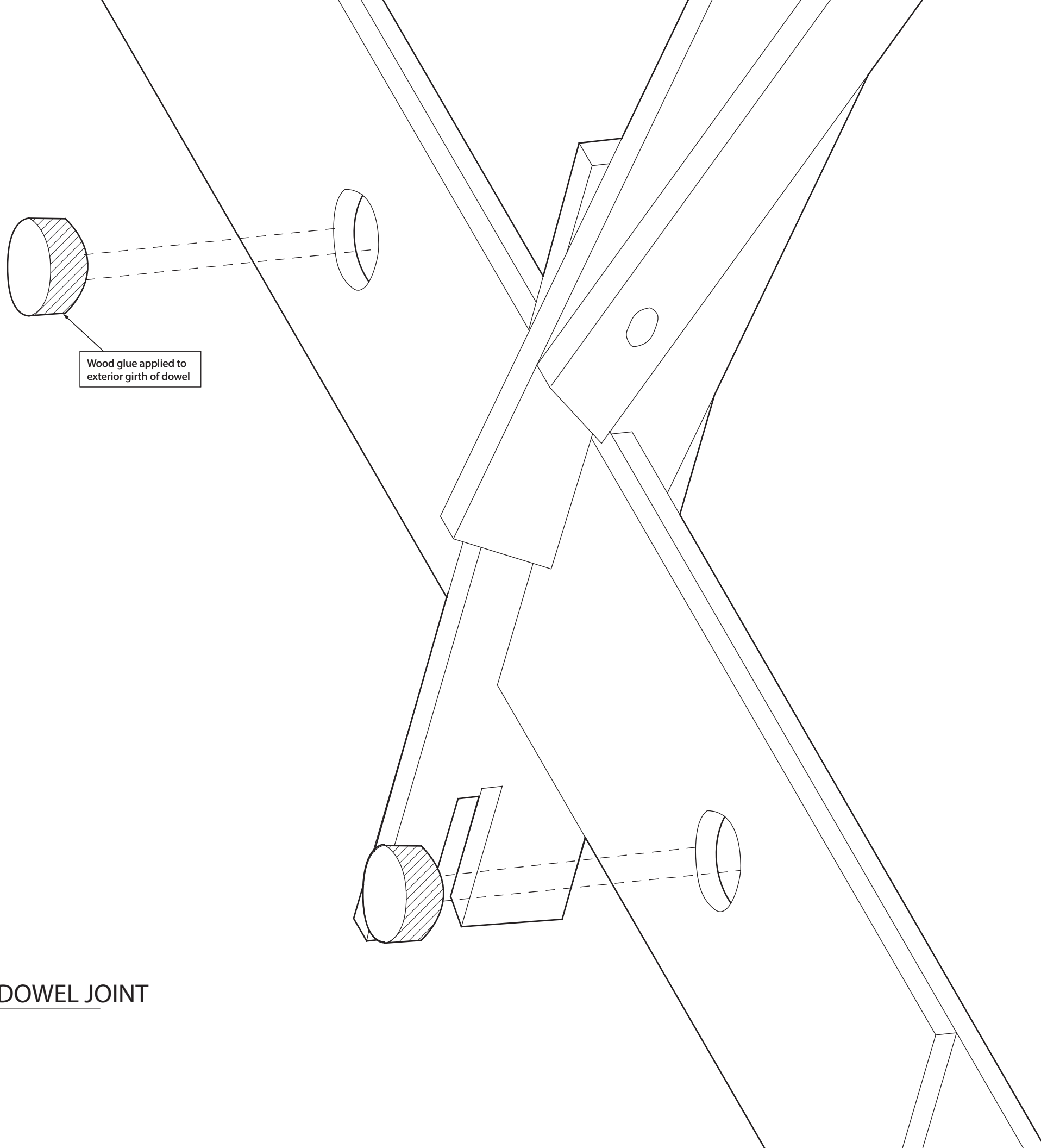
A 5.26

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1 CRITICAL DETAIL DOUBLE DOWEL JOINT
SCALE: 8/1" = 1'-0"

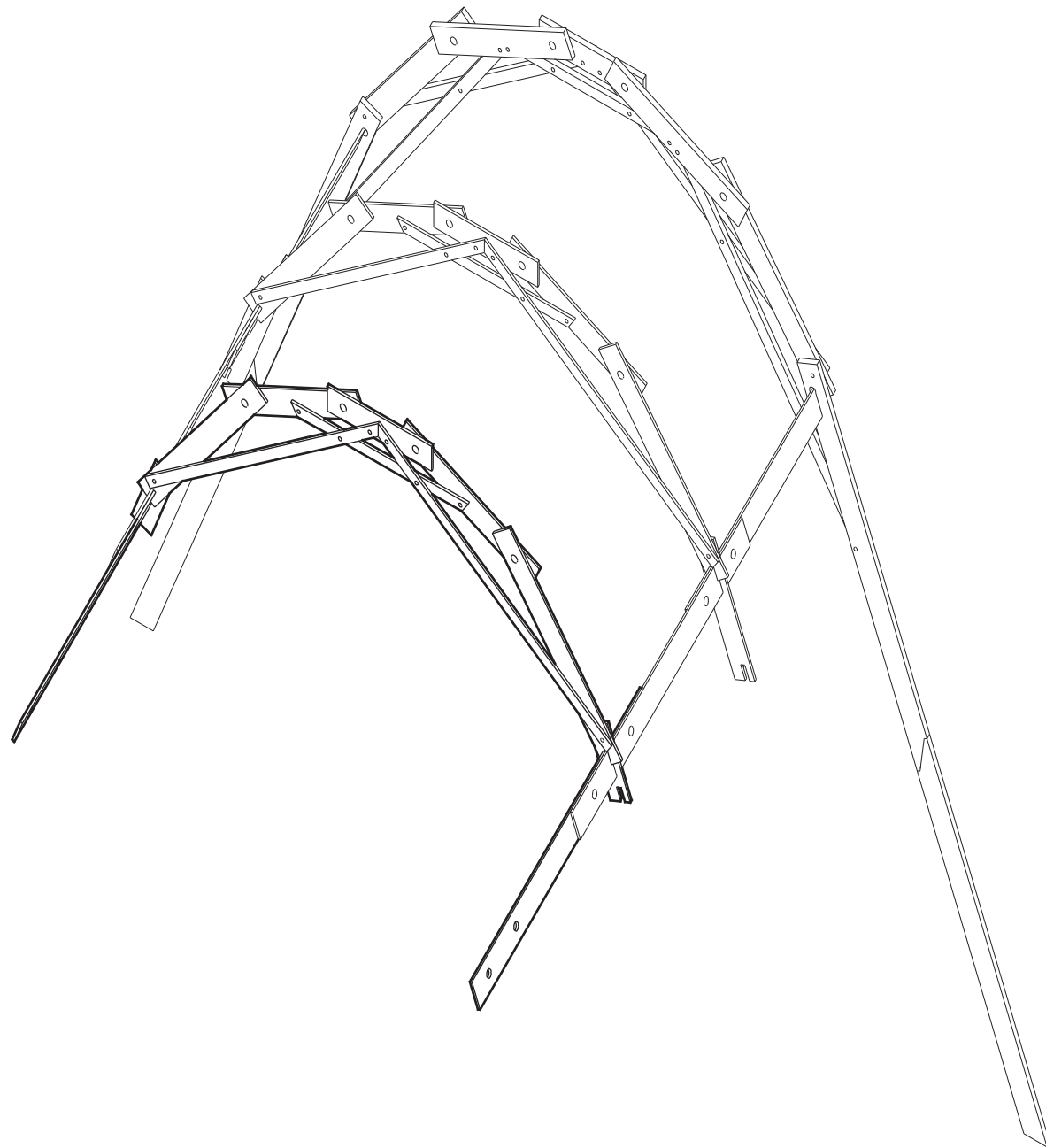


A 5.27

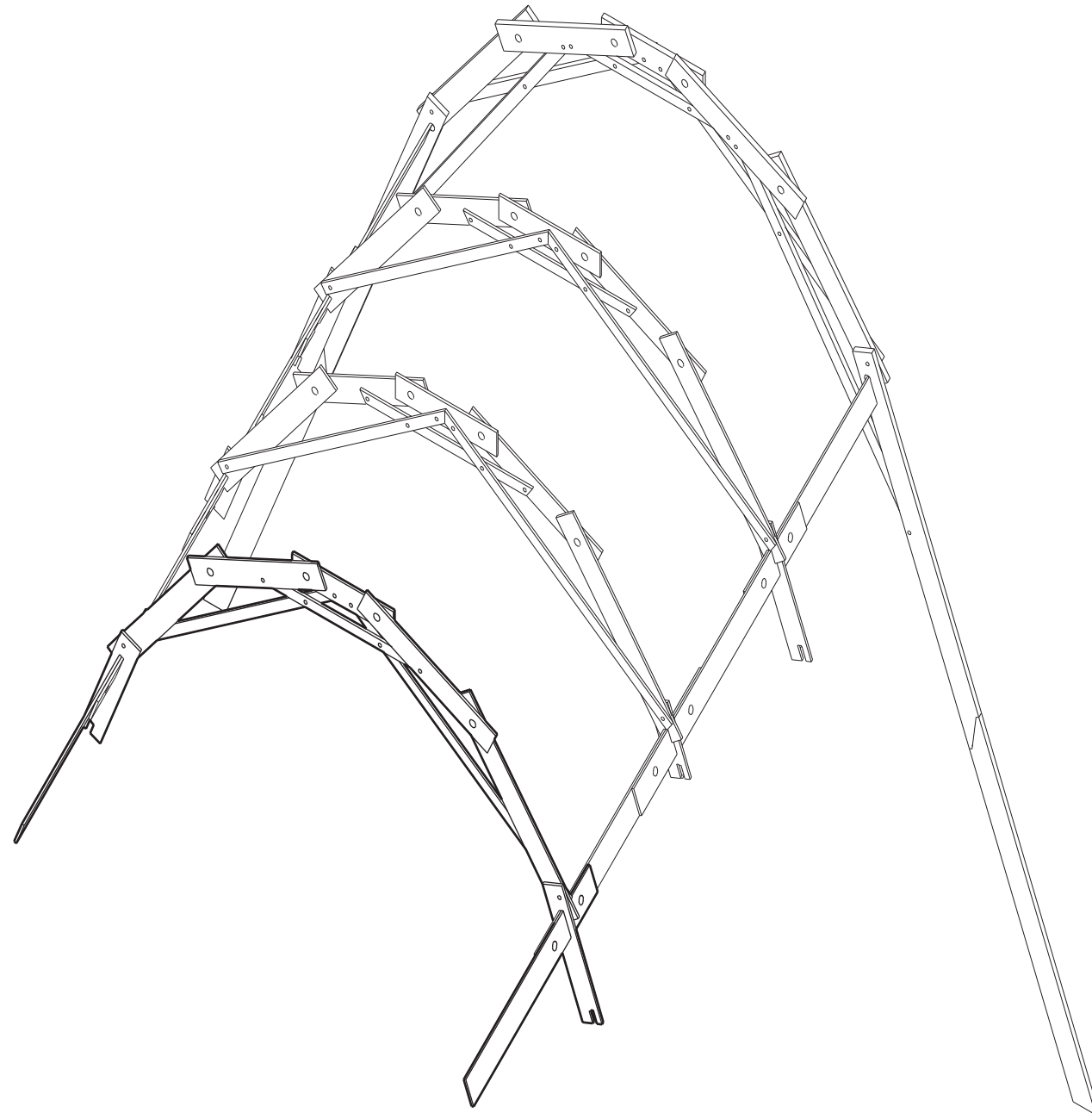
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1 ASSEMBLY, CENTER INTERIOR ARCH
SCALE: 1/2" = 1'-0"



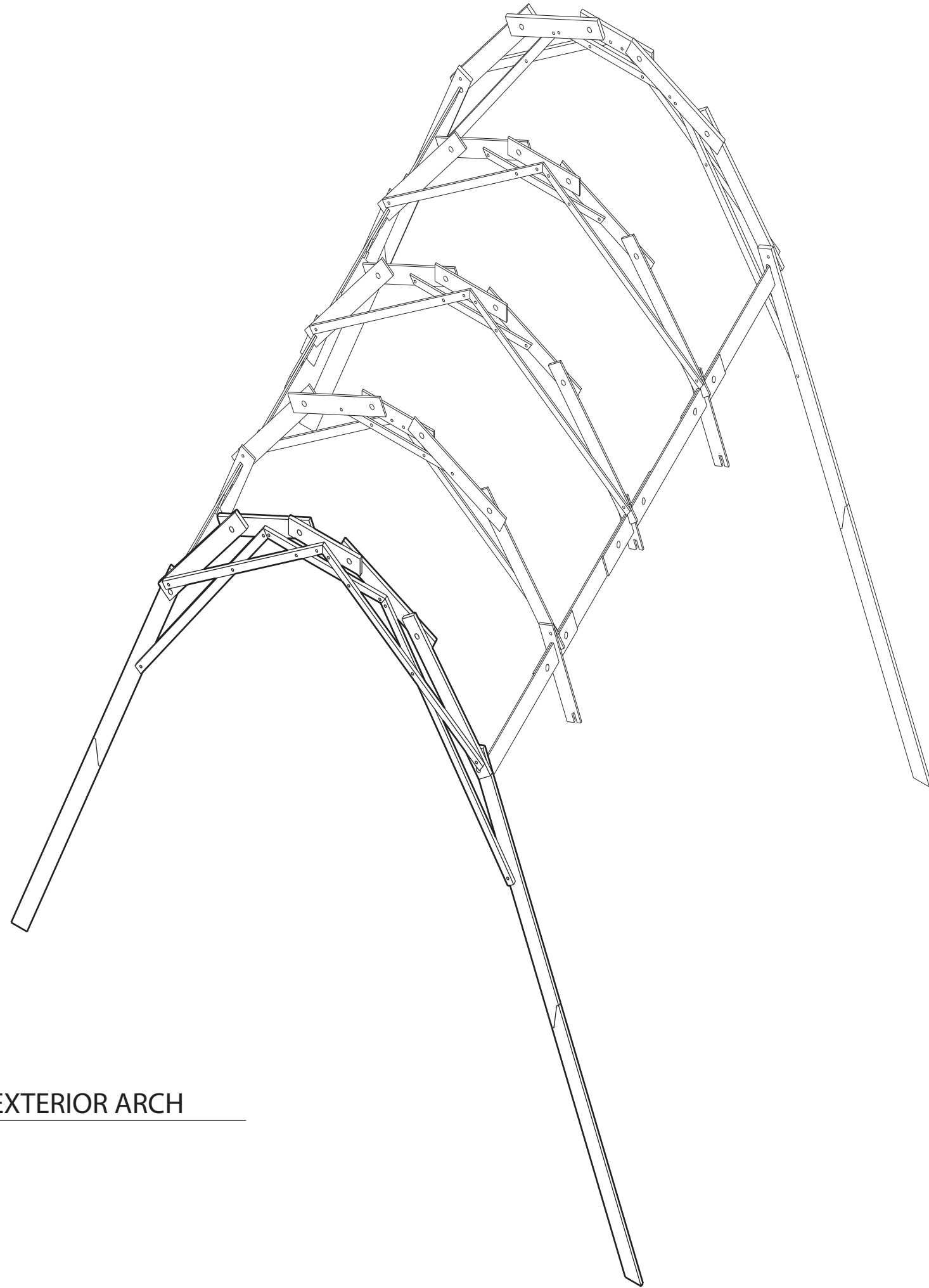
2 ASSEMBLY, THIRD INTERIOR ARCH
SCALE: 1/2" = 1'-0"

A 5.28

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1 ASSEMBLY, SECOND EXTERIOR ARCH
SCALE: 1/2" = 1'-0"

A 5.29

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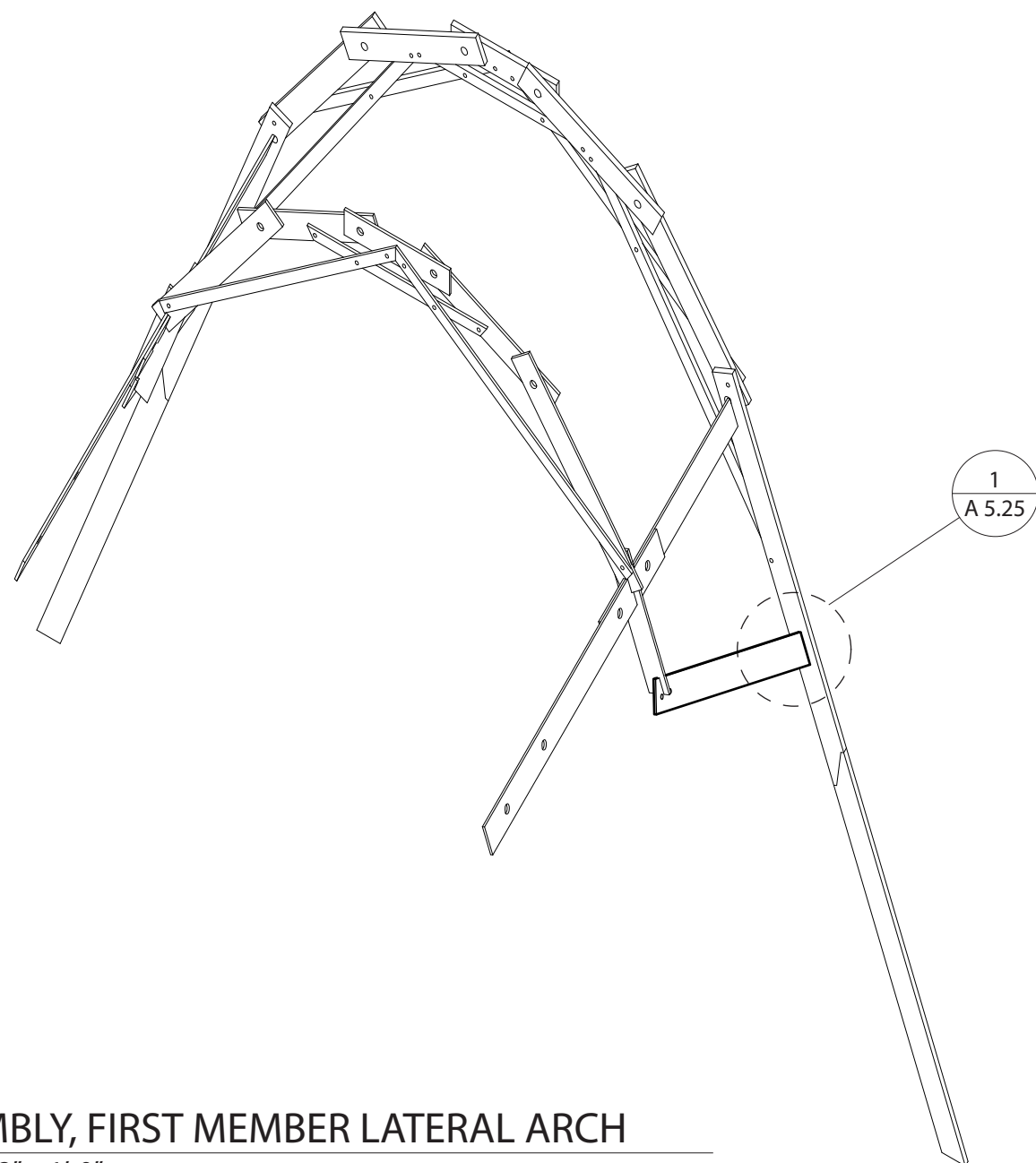
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A 5.30

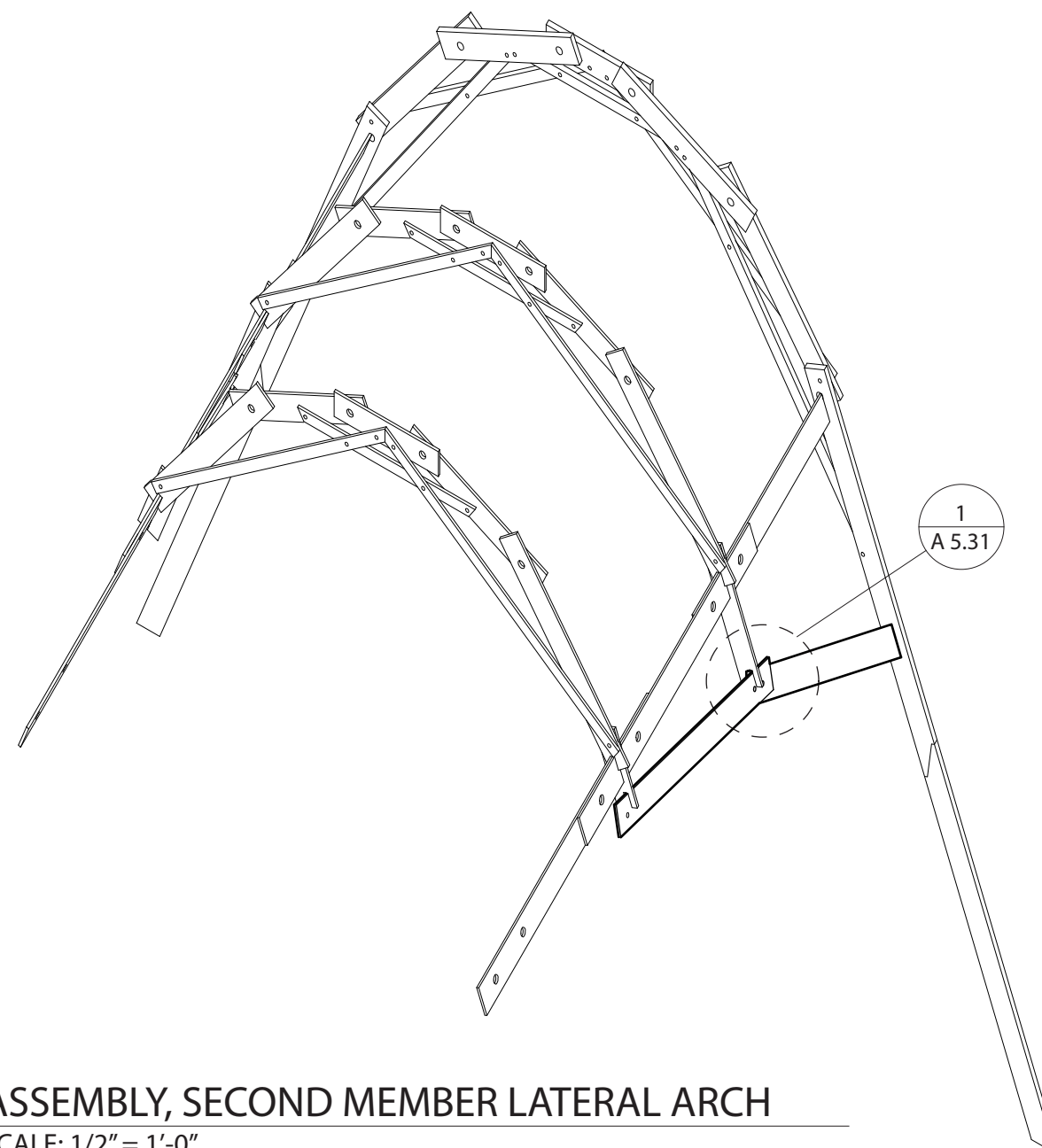
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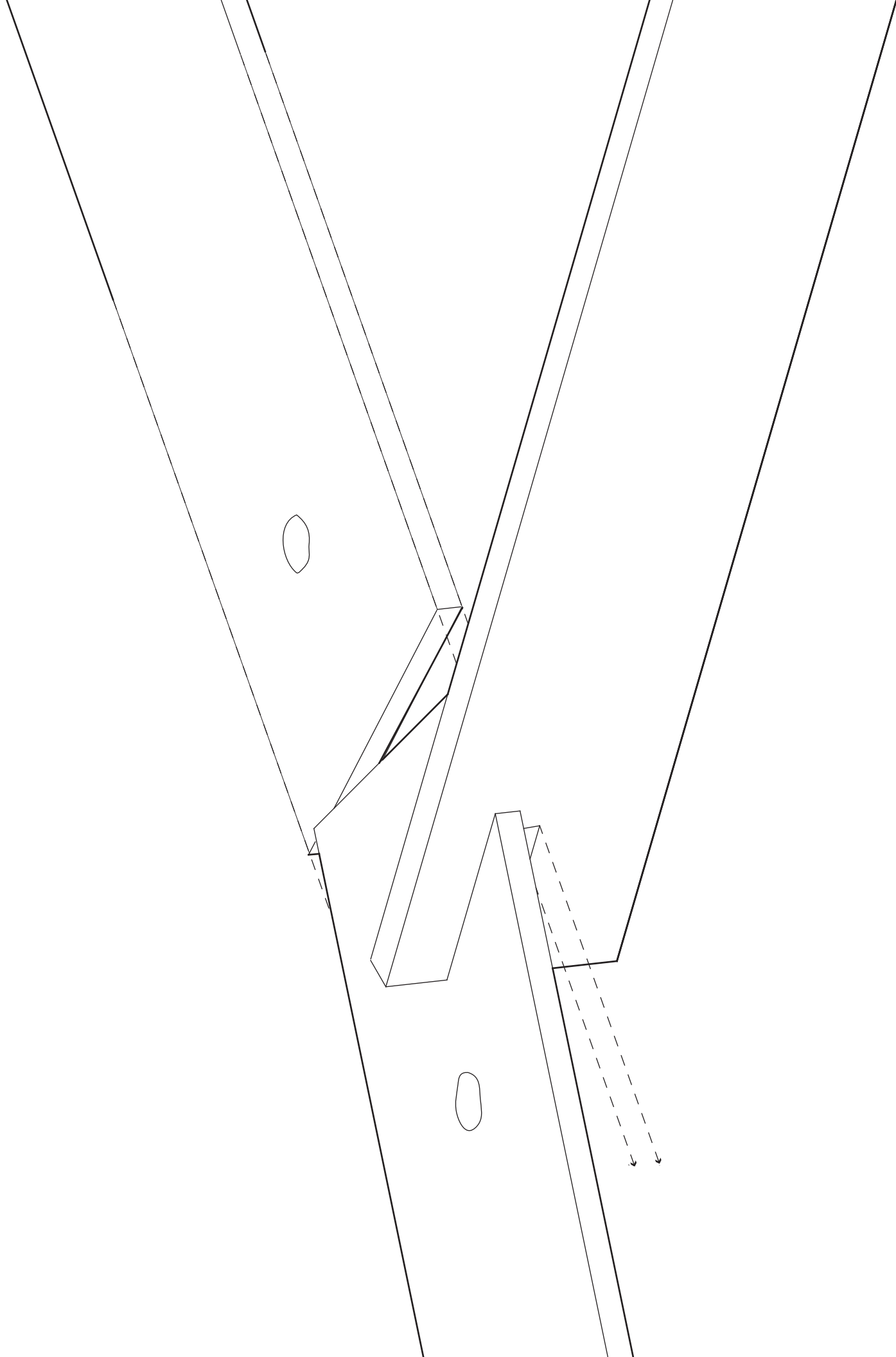
1 ASSEMBLY, FIRST MEMBER LATERAL ARCH
SCALE: 1/2" = 1'-0"



2 ASSEMBLY, SECOND MEMBER LATERAL ARCH
SCALE: 1/2" = 1'-0"

1 CRITICAL DETAIL SLIDE INTO NOTCH

SCALE: 8/1" = 1'-0"



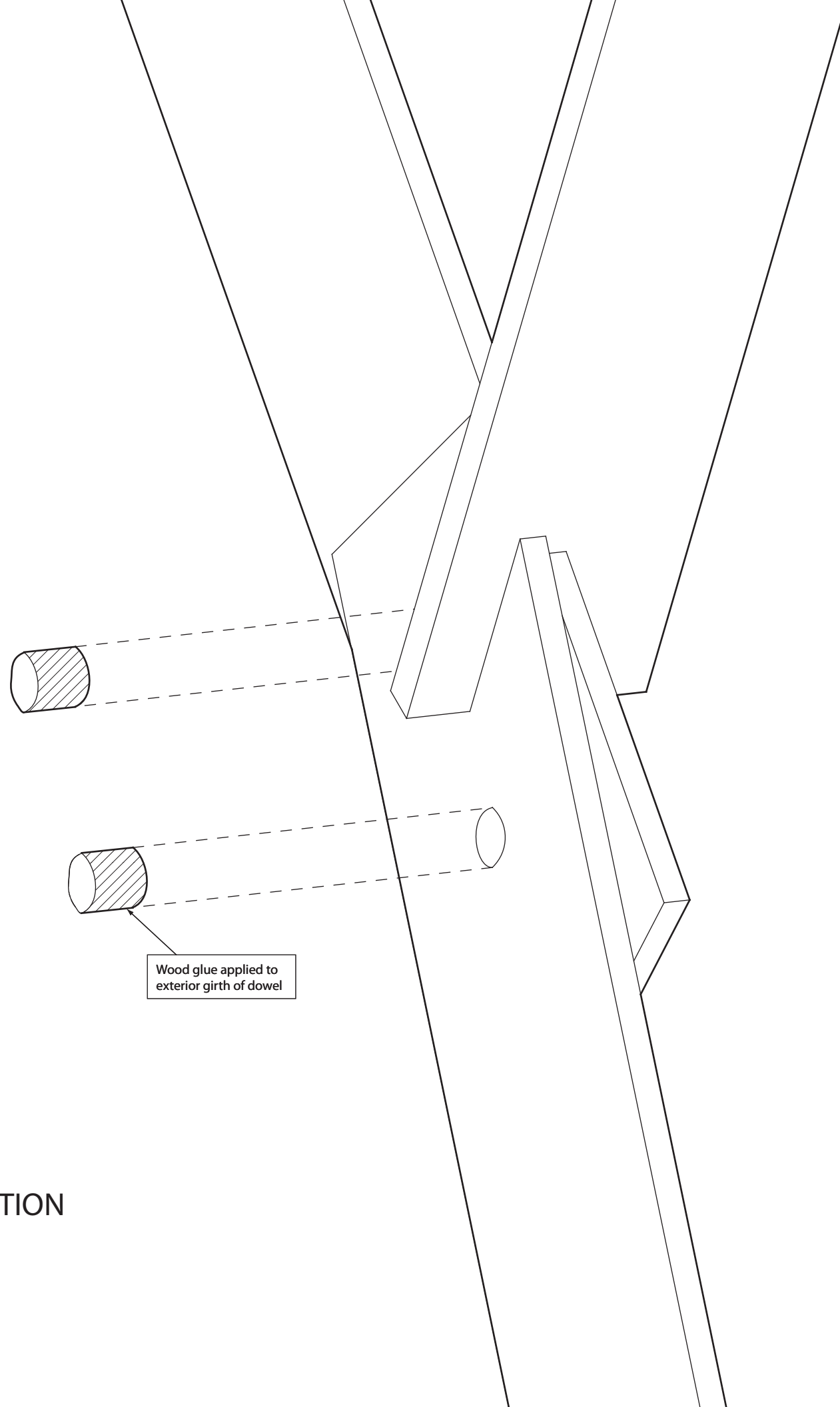
A 5.31

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1 CRITICAL DETAIL LATERAL ARCH DOWEL CONNECTION
SCALE: 8/1" = 1'-0"

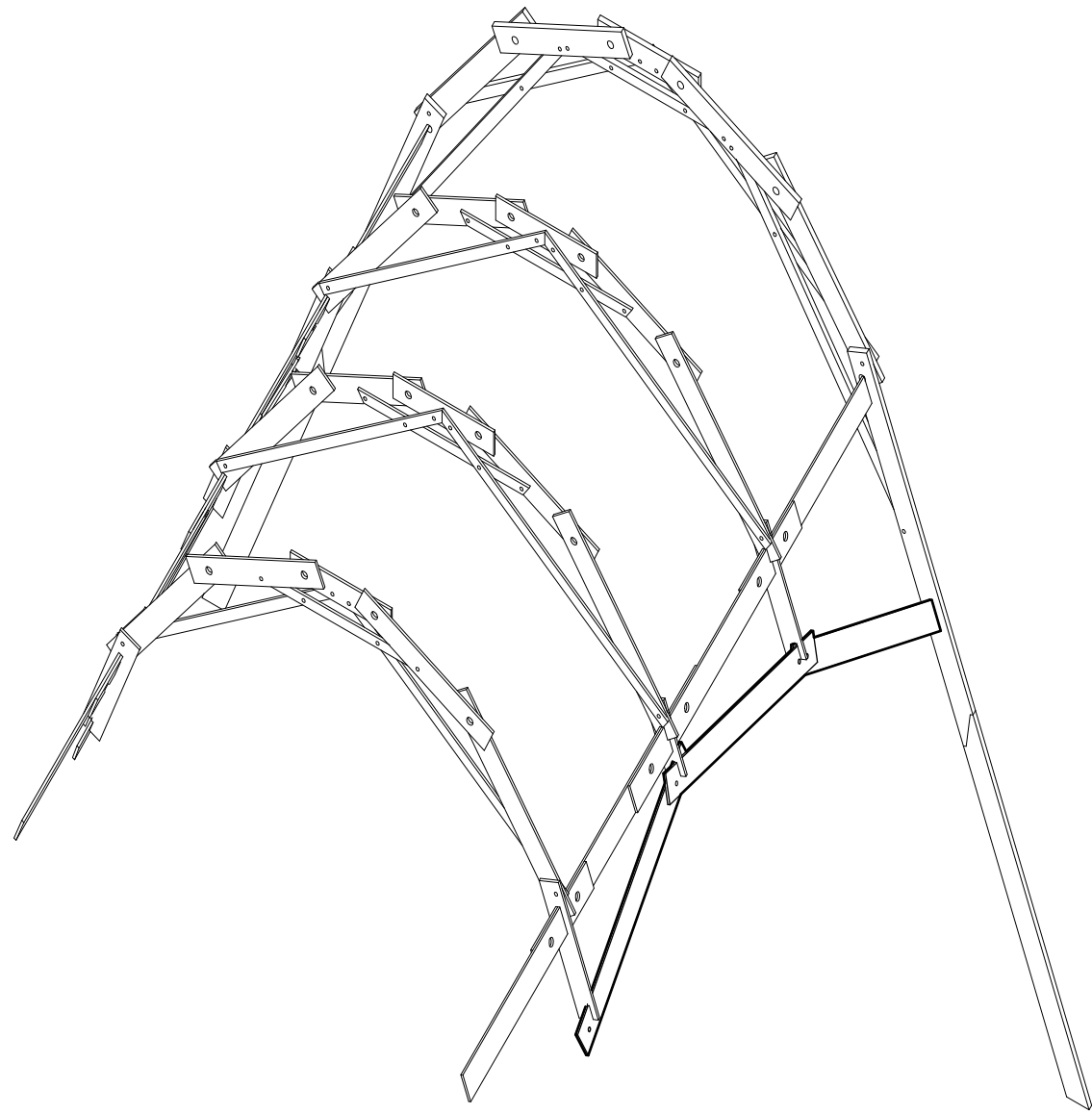


A 5.32

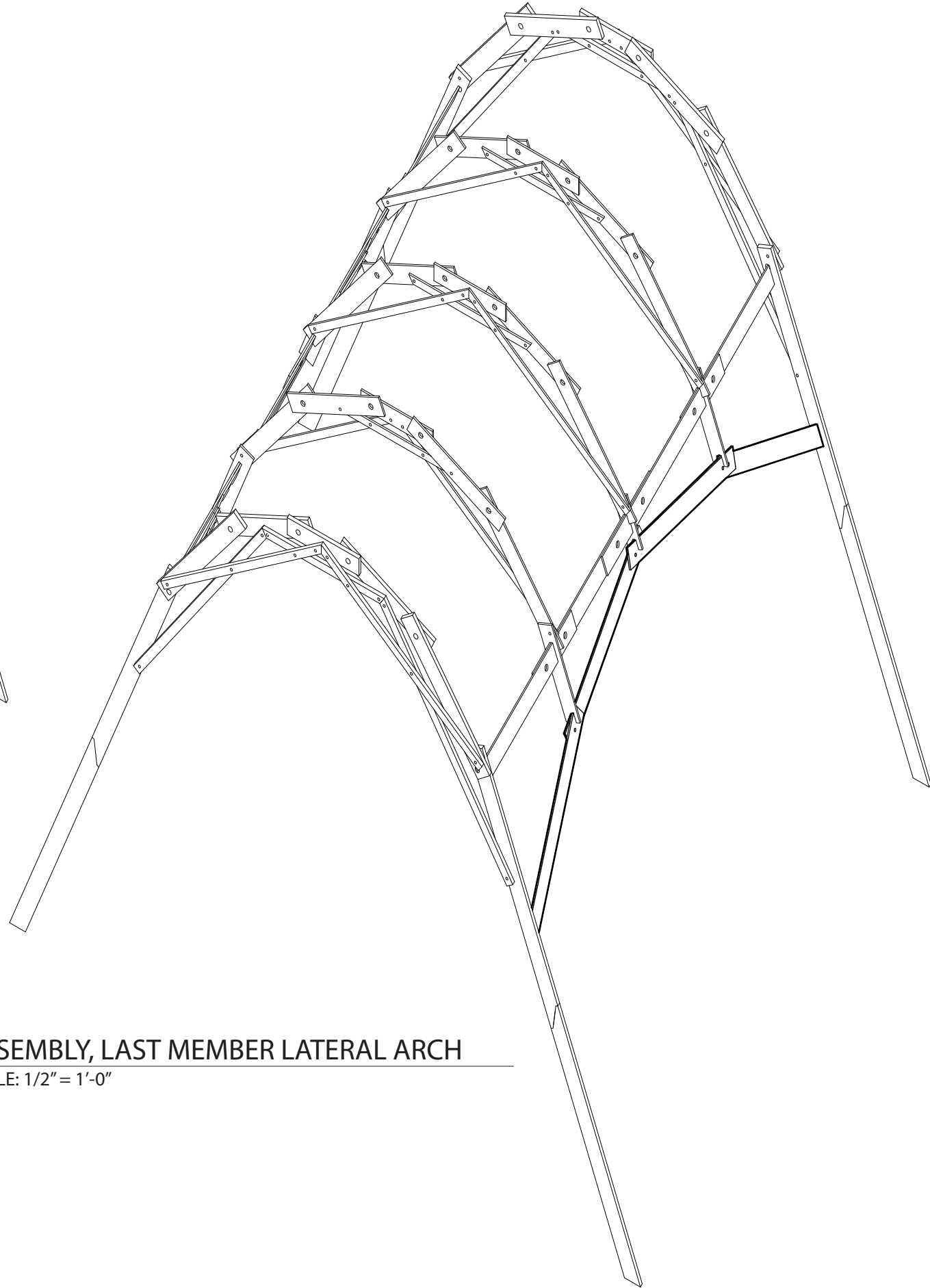
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1 ASSEMBLY, THIRD MEMBER LATERAL ARCH
SCALE: 1/2" = 1'-0"



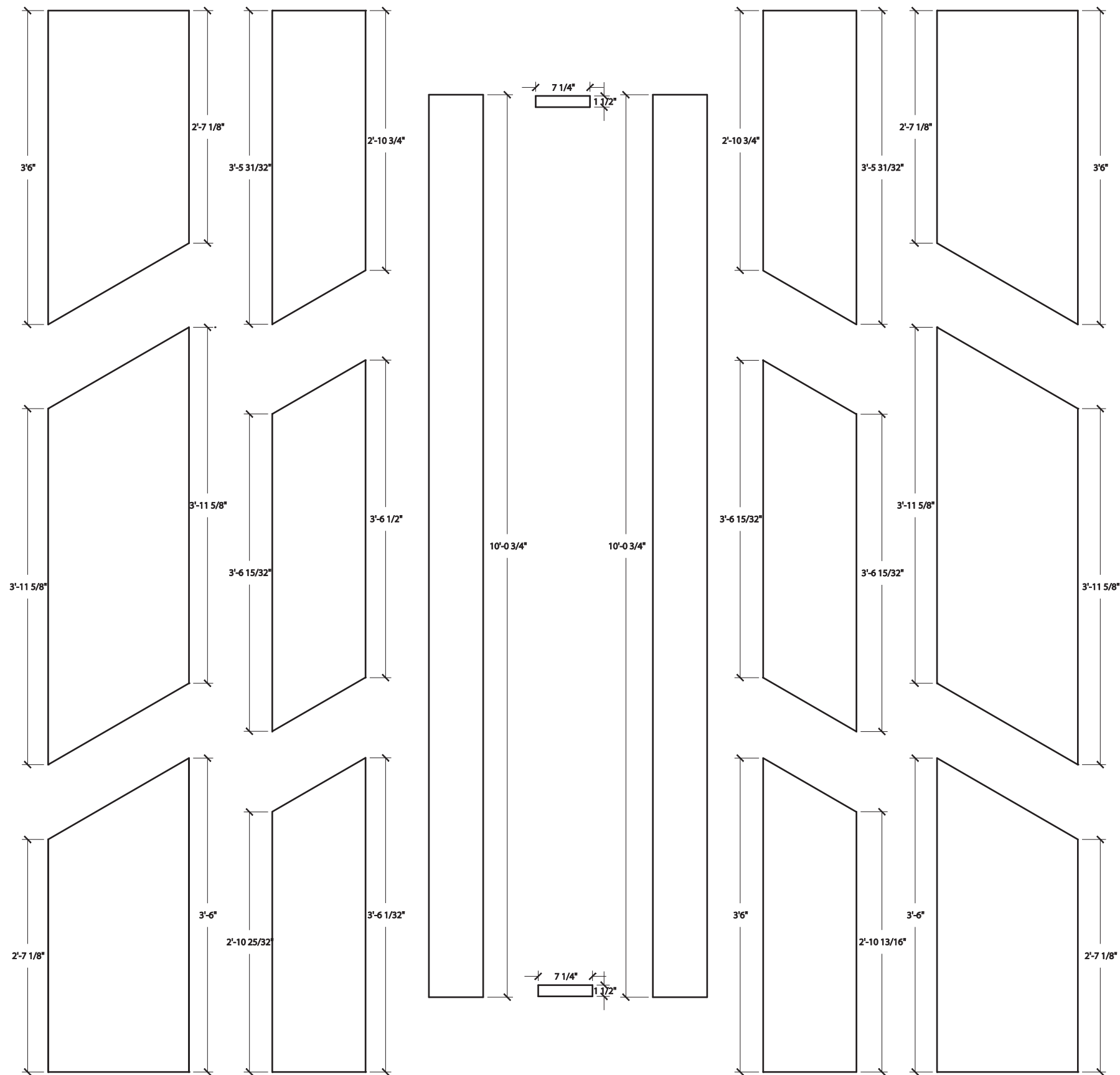
2 ASSEMBLY, LAST MEMBER LATERAL ARCH
SCALE: 1/2" = 1'-0"

A 5.33

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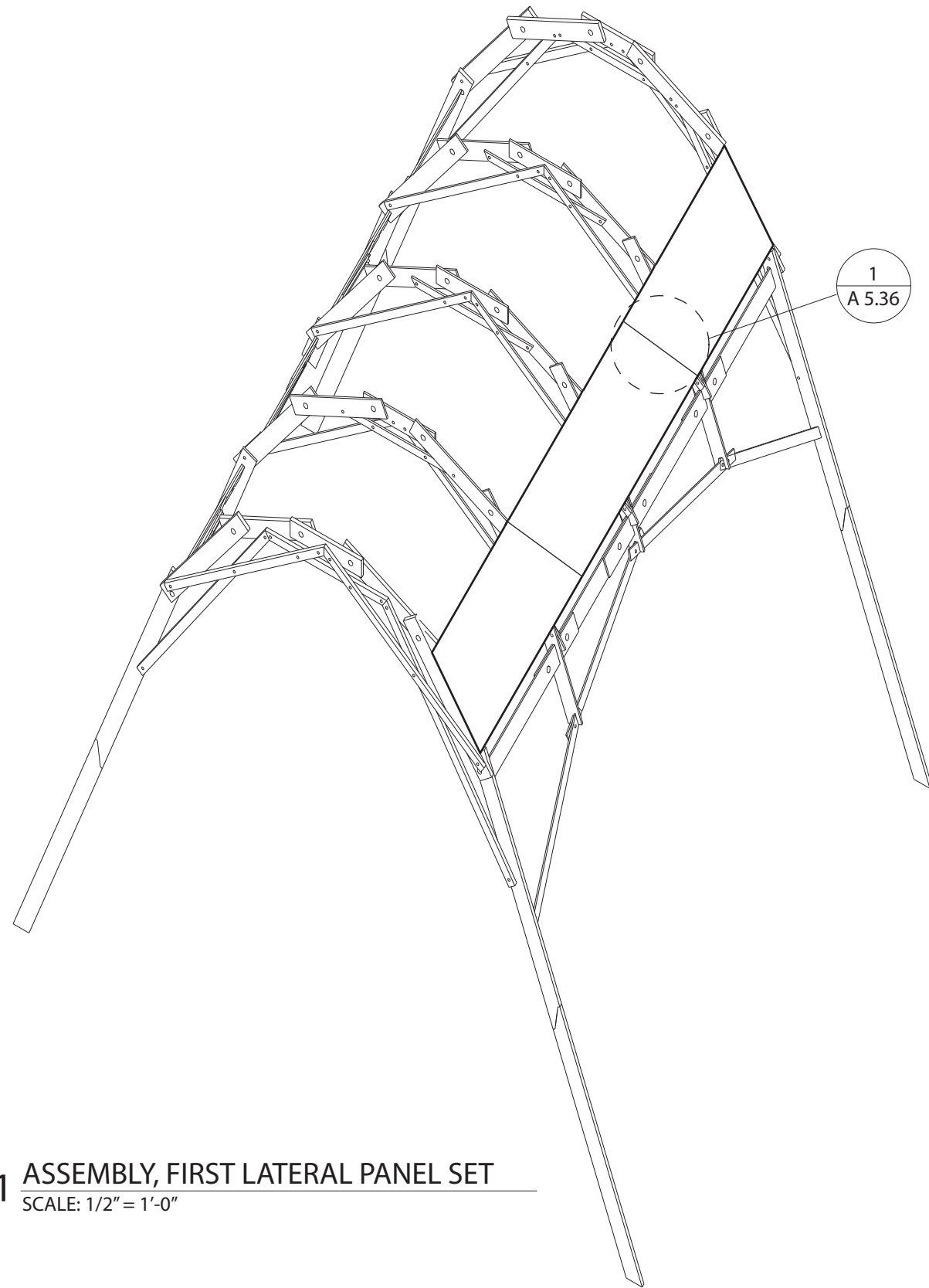
1 COMPONENT LAYOUT LATERAL PANELS
SCALE: 3/4" = 1'-0"

A 5.34

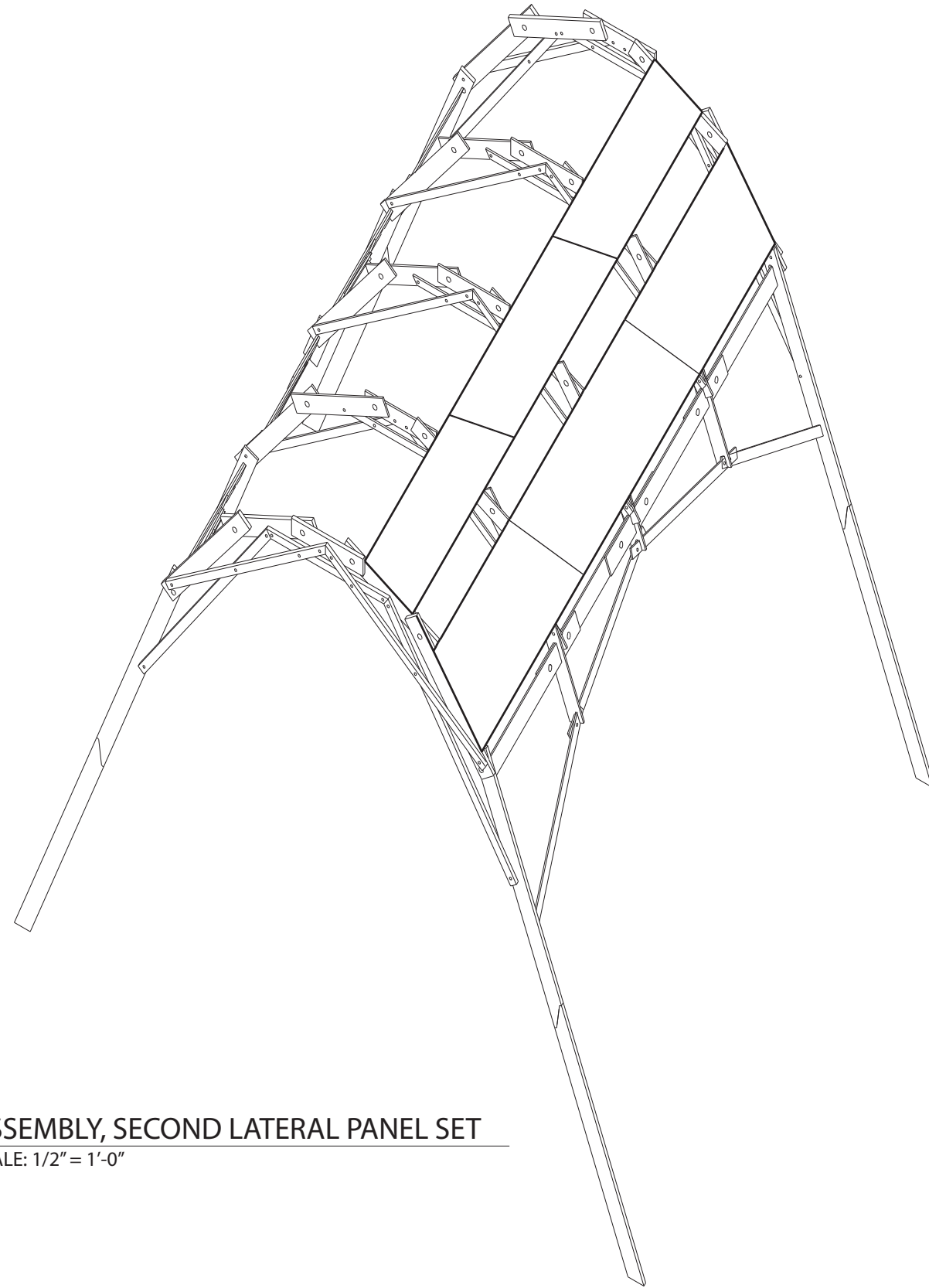
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1 ASSEMBLY, FIRST LATERAL PANEL SET
SCALE: 1/2" = 1'-0"



2 ASSEMBLY, SECOND LATERAL PANEL SET
SCALE: 1/2" = 1'-0"

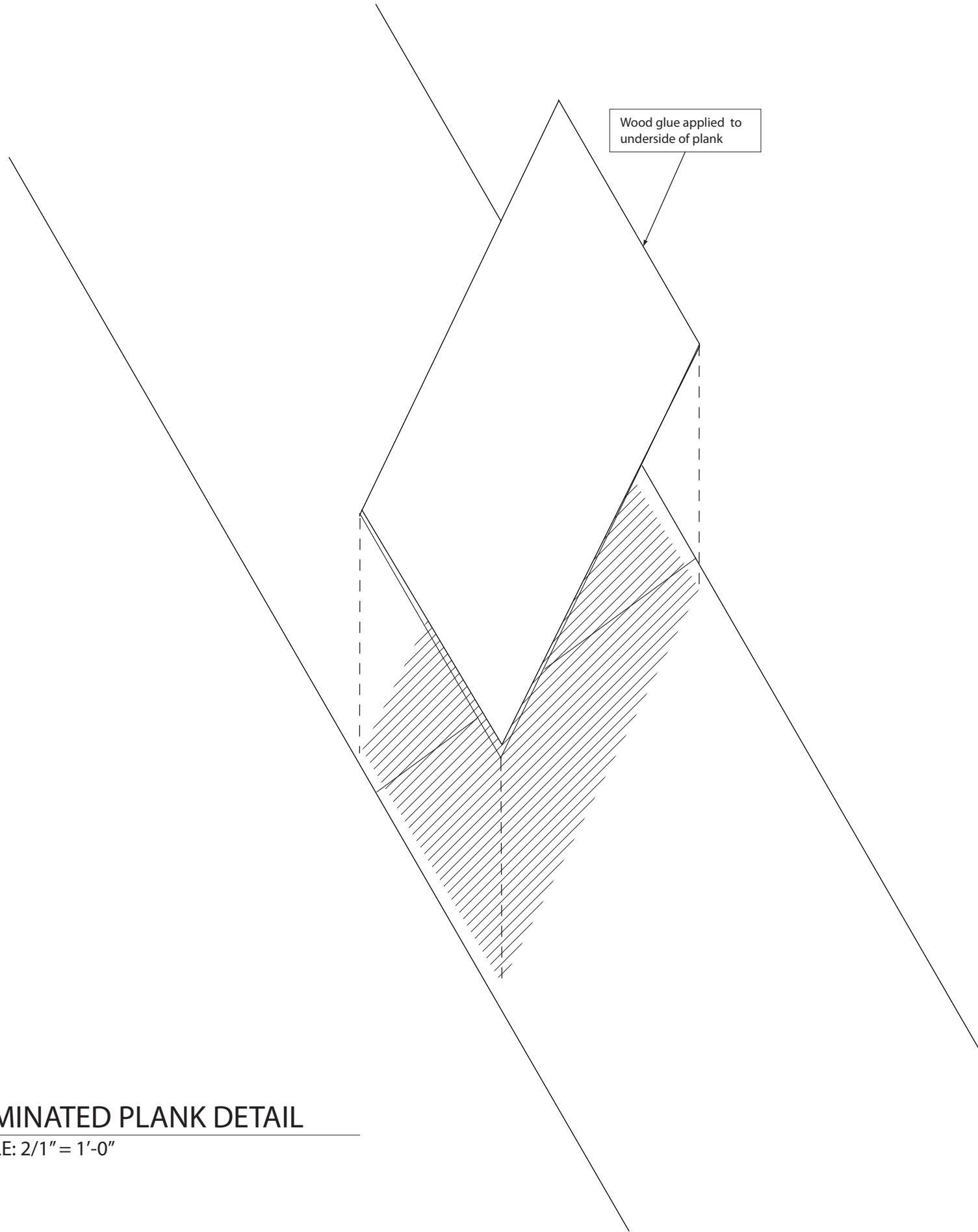
A 5.35

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1 LAMINATED PLANK DETAIL
SCALE: 2/1" = 1'-0"

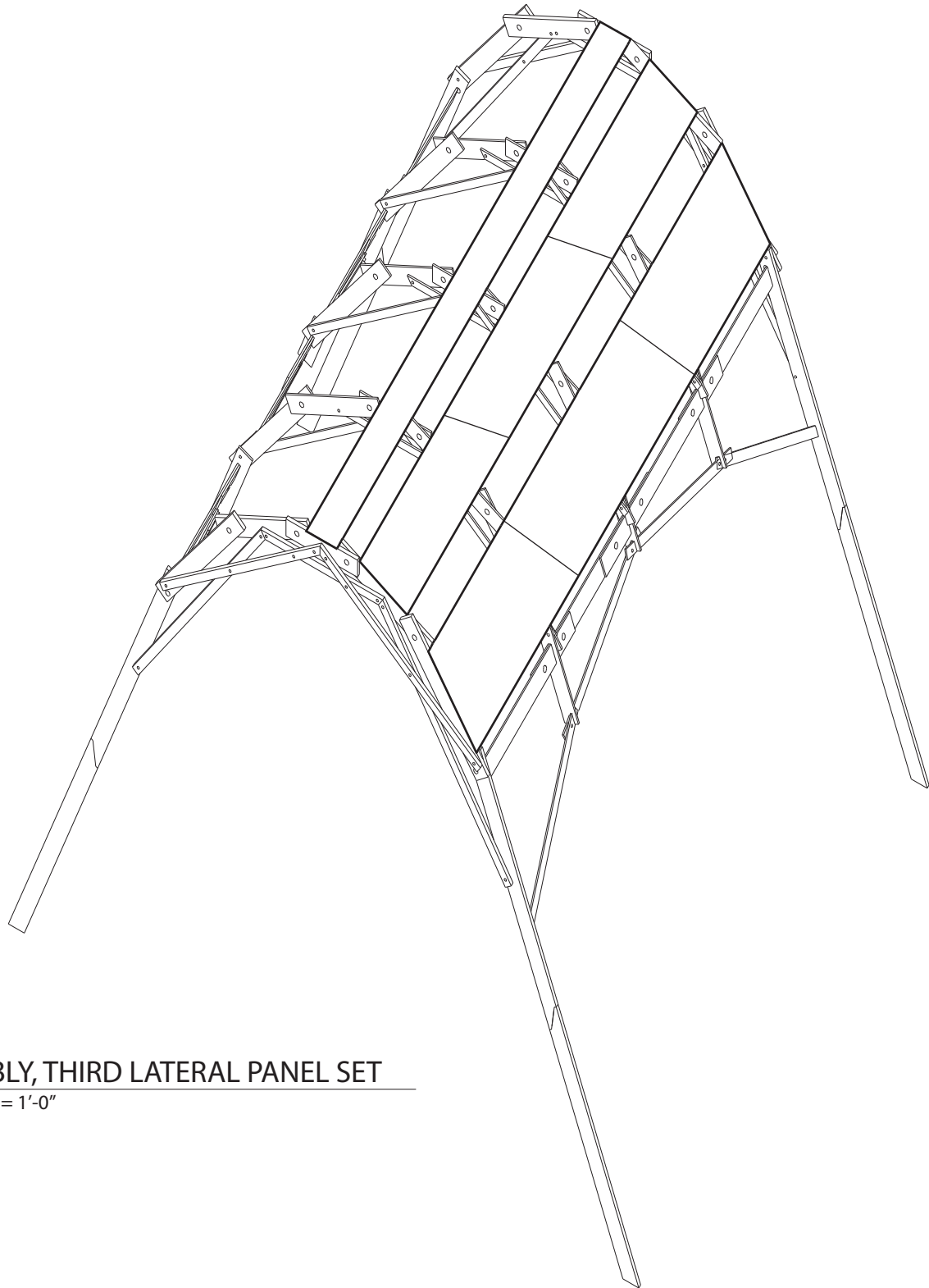


A 5.36

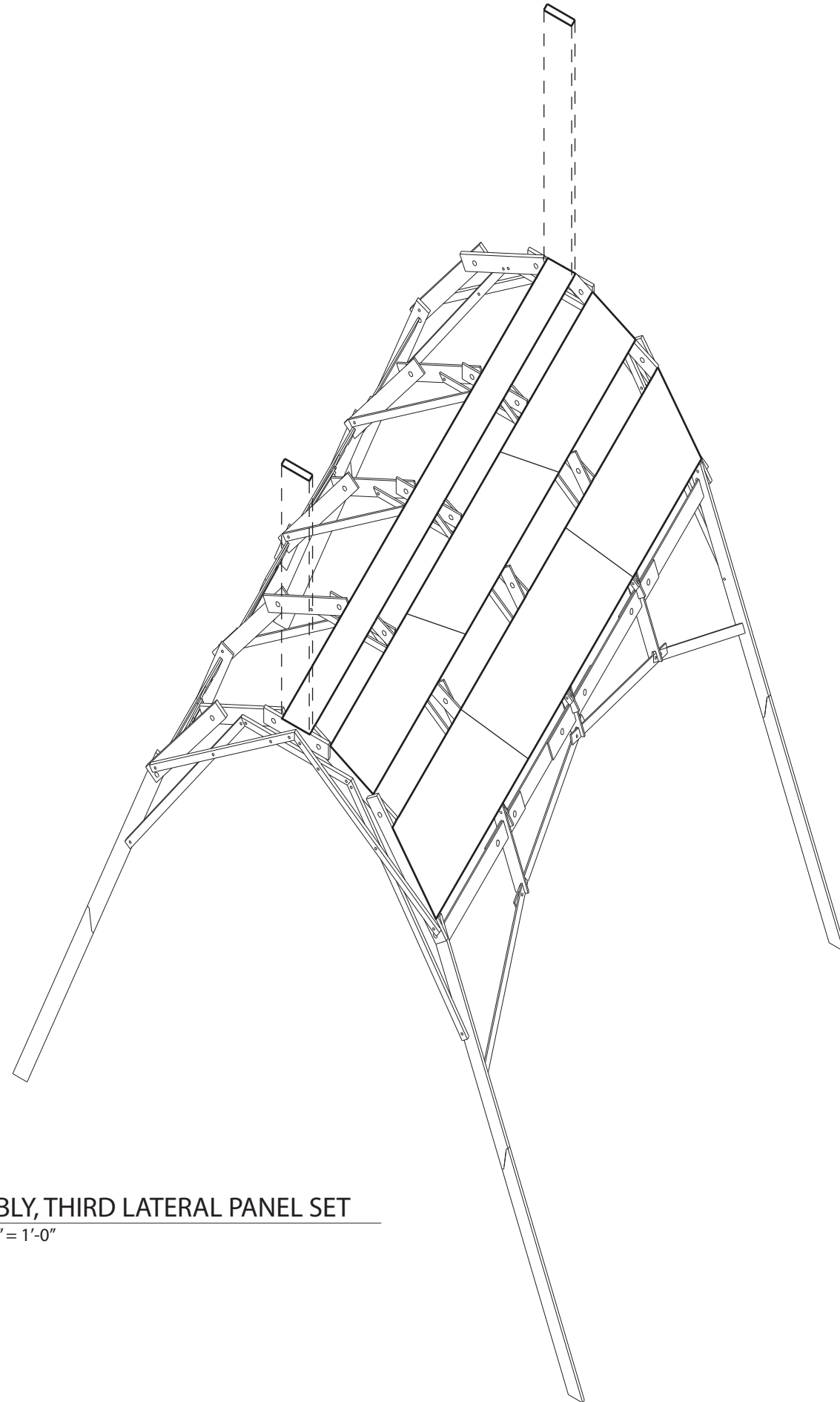
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1 ASSEMBLY, THIRD LATERAL PANEL SET
SCALE: 1/2" = 1'-0"



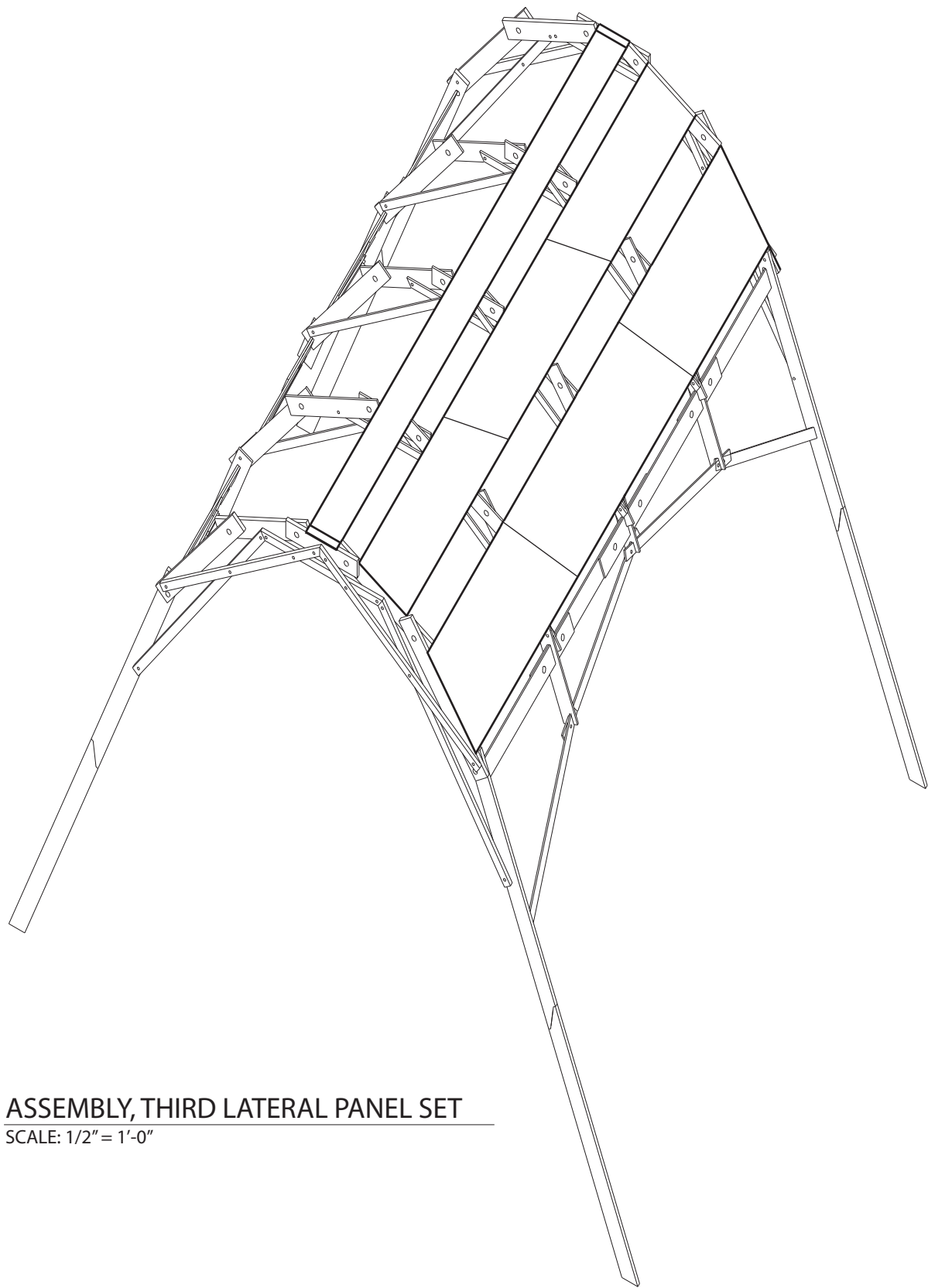
2 ASSEMBLY, THIRD LATERAL PANEL SET
SCALE: 1/2" = 1'-0"

A 5.37

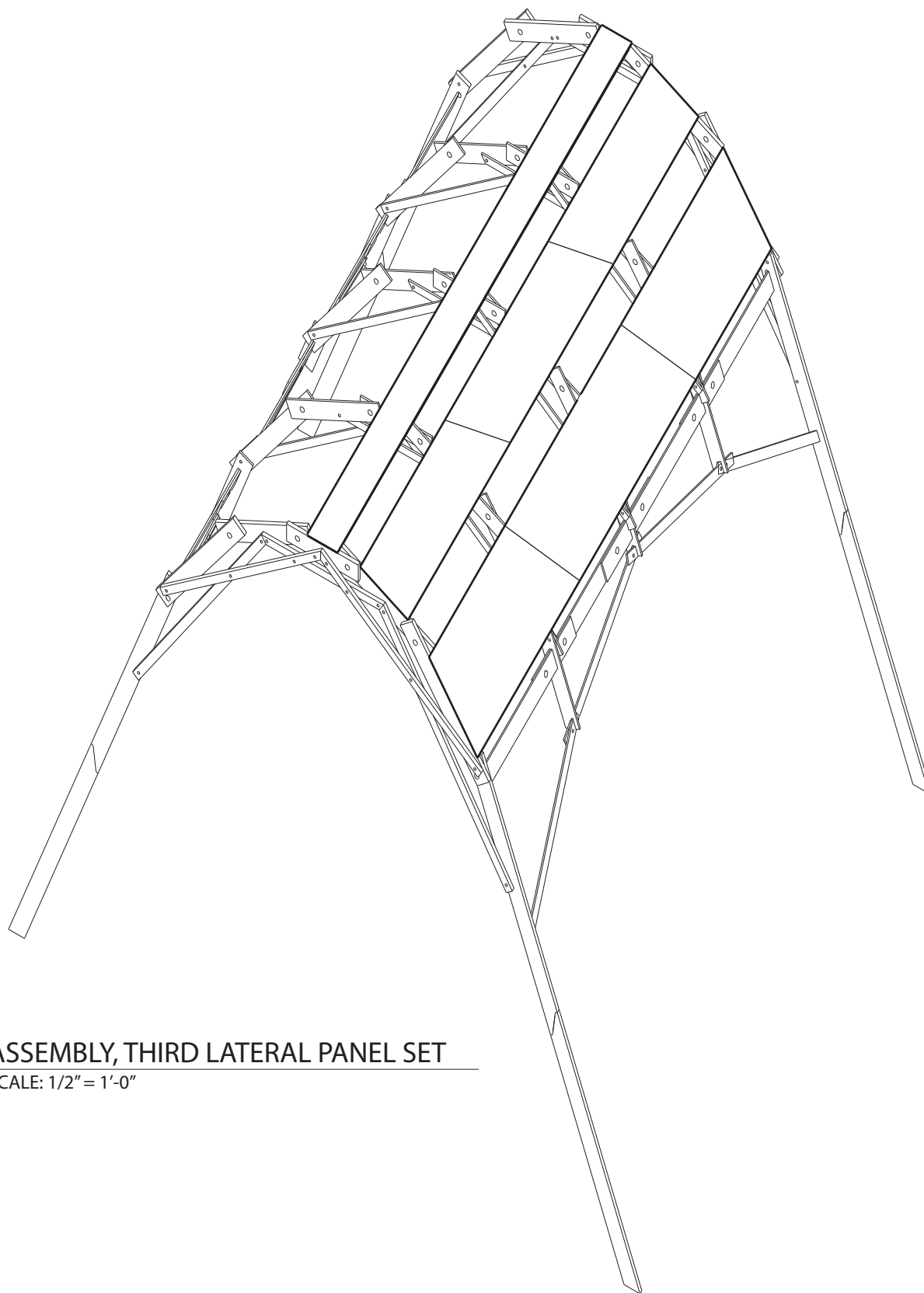
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1 ASSEMBLY, THIRD LATERAL PANEL SET
SCALE: 1/2" = 1'-0"



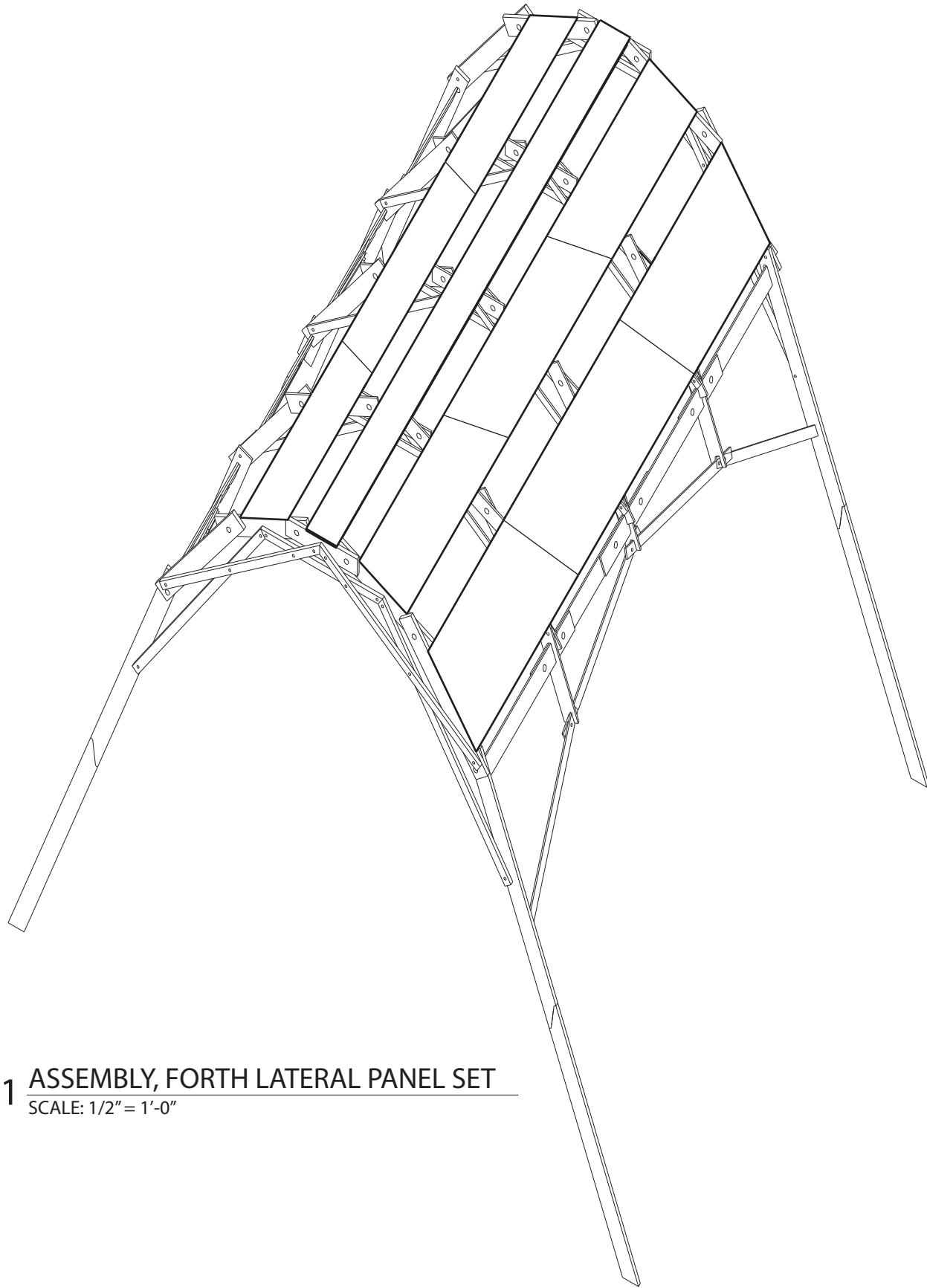
1 ASSEMBLY, THIRD LATERAL PANEL SET
SCALE: 1/2" = 1'-0"

A 5.38

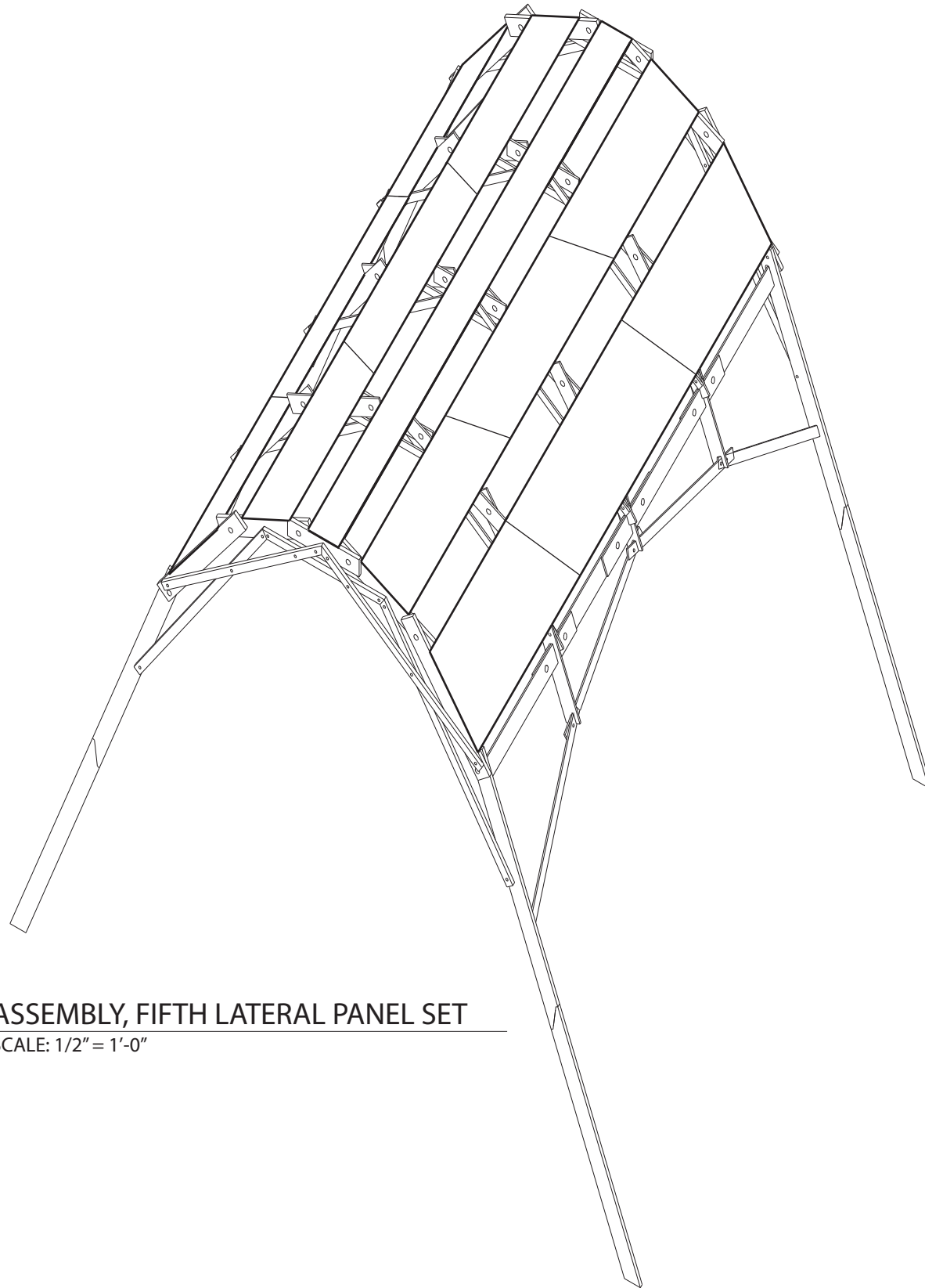
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1 ASSEMBLY, FORTH LATERAL PANEL SET
SCALE: 1/2" = 1'-0"



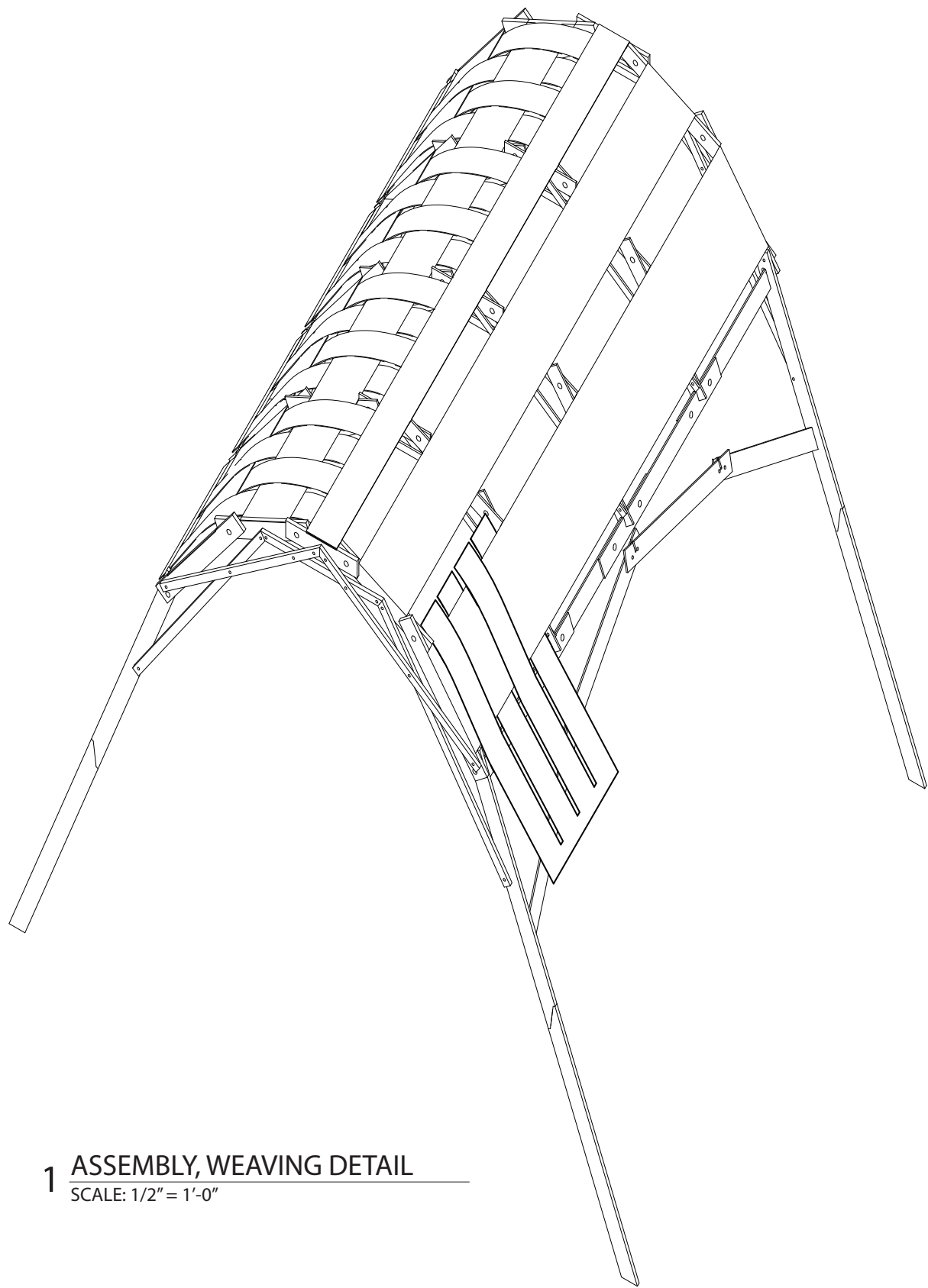
1 ASSEMBLY, FIFTH LATERAL PANEL SET
SCALE: 1/2" = 1'-0"

A 5.39

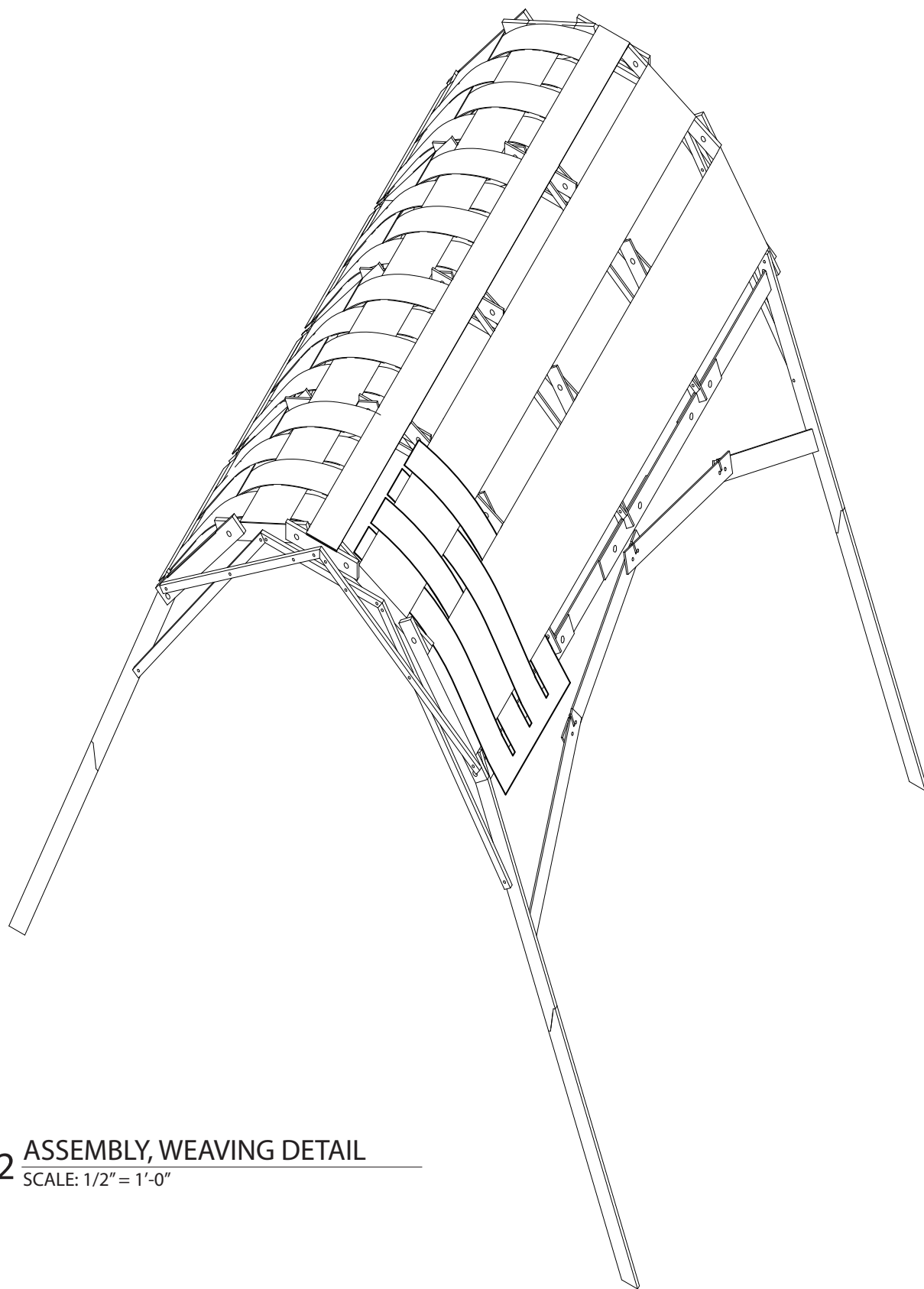
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1 ASSEMBLY, WEAVING DETAIL
SCALE: 1/2" = 1'-0"



2 ASSEMBLY, WEAVING DETAIL
SCALE: 1/2" = 1'-0"

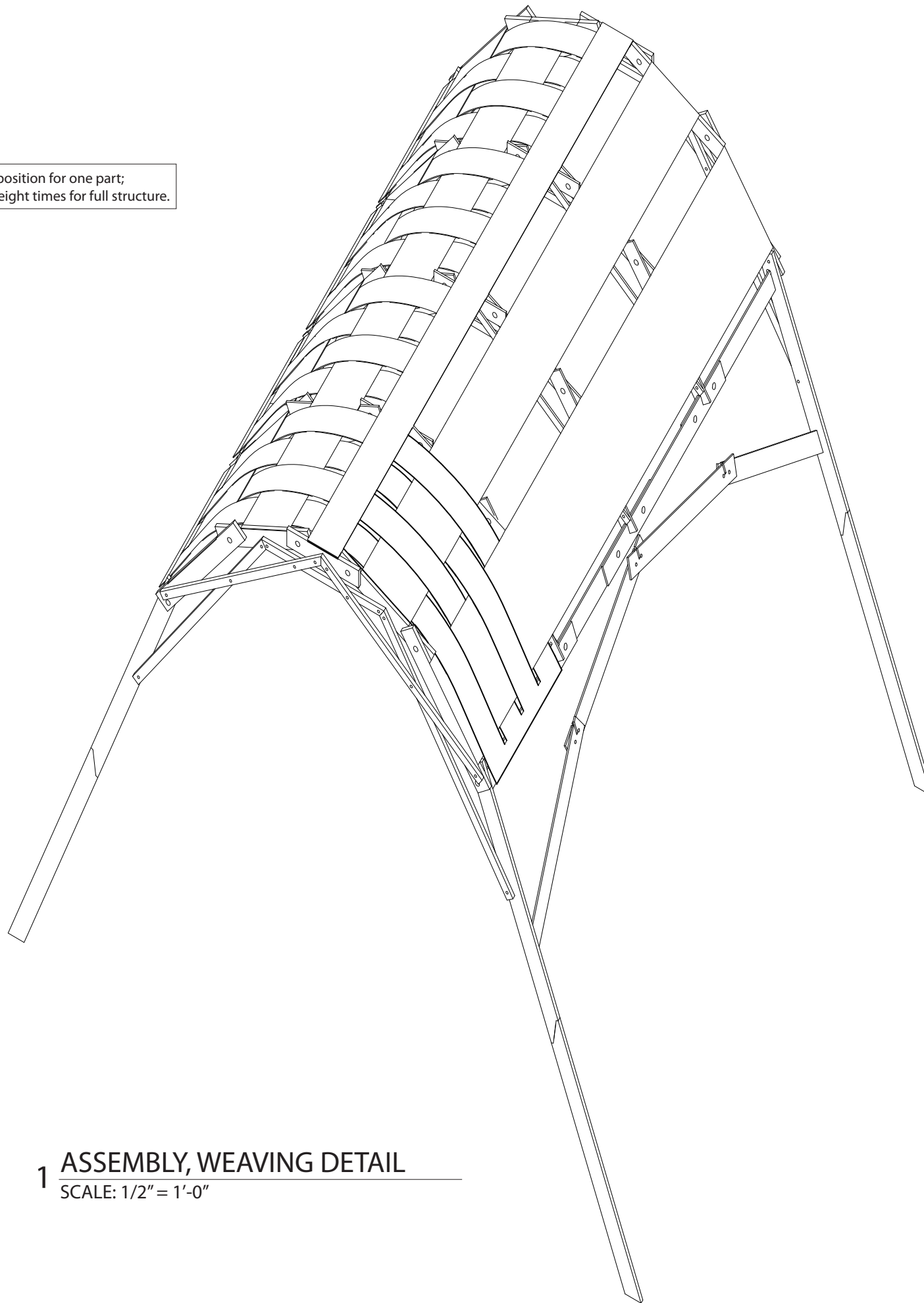
A 5.40

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This page represents the composition for one part;
materials should be repeated eight times for full structure.



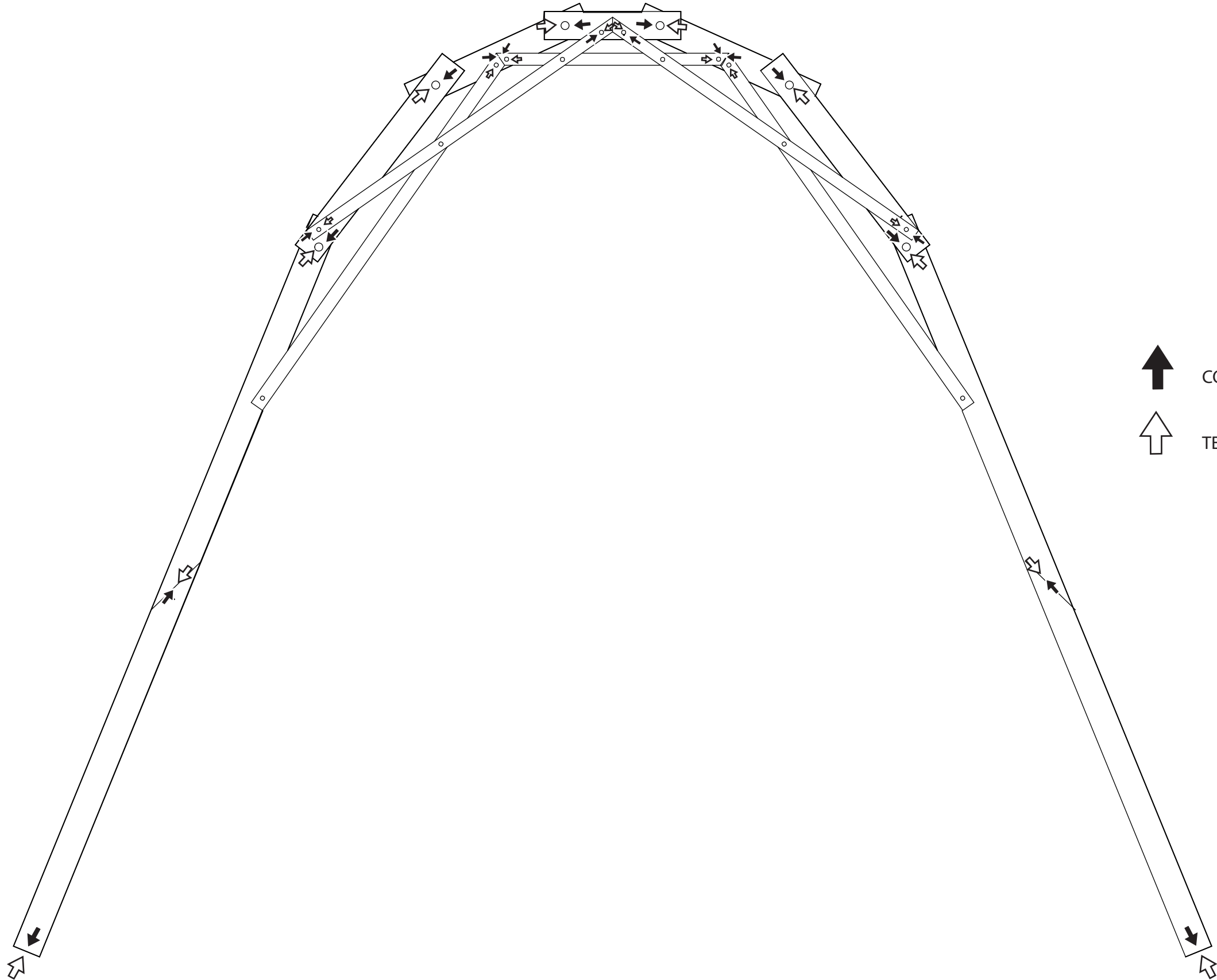
1 ASSEMBLY, WEAVING DETAIL
SCALE: 1/2" = 1'-0"



A 5.41

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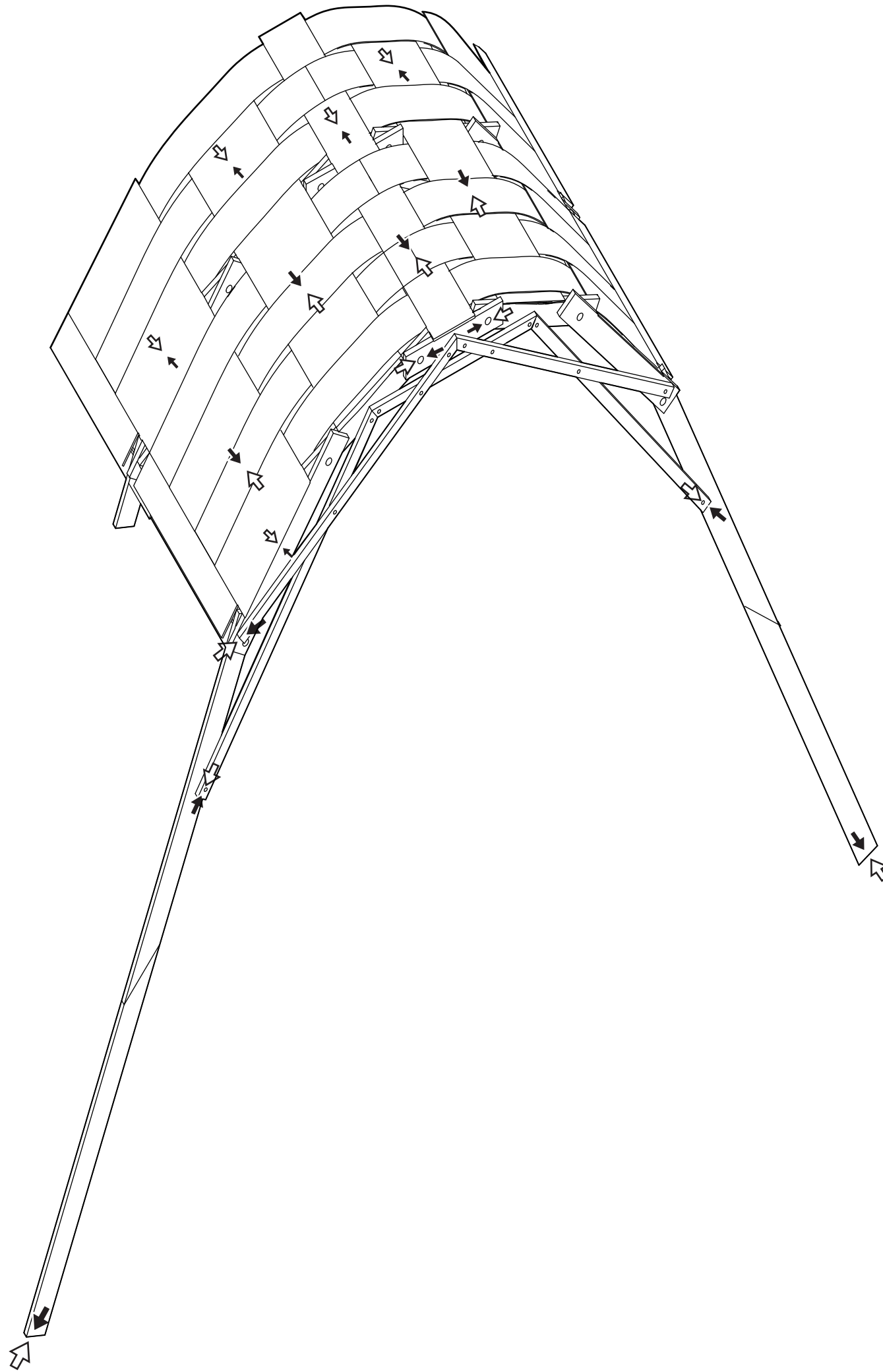
 COMPRESSION
 TENSION



S1.0

FORCE RESOLUTION

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 COMPRESSION
 TENSION

S1.1

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