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# Climatic Data



Daylight Chart - Dawn, Dusk, Sunlight, Dark



Surface Meteorology Table - Solar Energy, Visiblity, Temperature, Wind, Precipitation

Variable	J	F	M	A	M	J	J	A	S	O	N	D
Insolation, kWh/m <sup>2</sup> /day	5.25	5.48	5.11	5.22	4.94	4.86	5.03	5.58	5.45	5.07	4.82	4.82
Clearness, 0 - 1	0.46	0.50	0.50	0.58	0.62	0.66	0.67	0.66	0.60	0.51	0.46	0.43
Temperature, °F	73.76	74.17	74.05	74.75	74.26	71.87	72.21	75.78	80.17	78.12	75.11	74.16
Wind speed, mph	9.91	11.27	9.91	10.02	10.02	10.00	10.09	9.89	9.89	9.98	9.98	10.00
Precipitation, in	9.78	8.56	7.39	4.84	1.45	0.33	0.41	0.47	1.95	6.59	9.23	10.26
Wet days, d	25.6	23.2	21.3	12.2	4.7	2.0	2.9	3.7	6.9	17.1	22.0	25.6

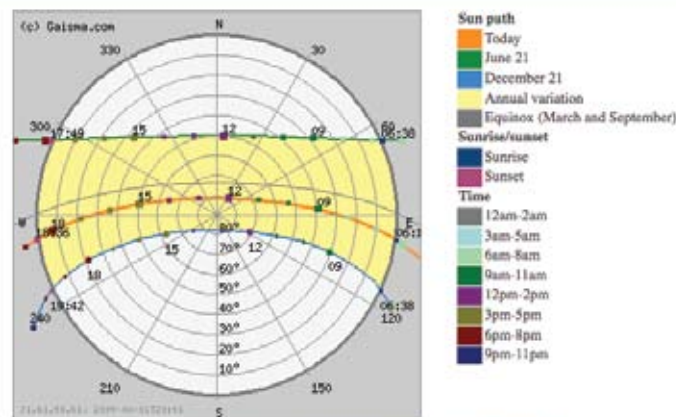
These data were obtained from the NASA Langley Research Center Atmospheric Science Data Center; New et al. 2002

Sun Table - Sunrise, Sunset, Dawn, Dusk

Date	Sunrise	Sunset	Length	Change	Dawn	Dusk	Length	Change
Today	6:12am	6:36pm	12:24		5:50am	6:57pm	13:07	
+1 day	6:12am	6:35pm	12:23	00:01 shorter	5:51am	6:57pm	13:06	00:01 shorter
+1 week	6:14am	6:31pm	12:17	00:07 shorter	5:52am	6:53pm	13:01	00:06 shorter
+2 weeks	6:15am	6:26pm	12:11	00:13 shorter	5:53am	6:47pm	12:54	00:13 shorter
+1 month	6:17am	6:14pm	11:57	00:27 shorter	5:56am	6:36pm	12:40	00:27 shorter
+2 months	6:22am	5:55pm	11:33	00:51 shorter	6:00am	6:17pm	12:17	00:50 shorter
+3 months	6:31am	5:47pm	11:16	01:08 shorter	6:08am	6:10pm	12:02	01:05 shorter
+6 months	6:19am	6:06pm	11:47	00:37 shorter	5:57am	6:27pm	12:30	00:37 shorter

Notes: Daylight saving time, \* = Next day.

Sun Path Diagram

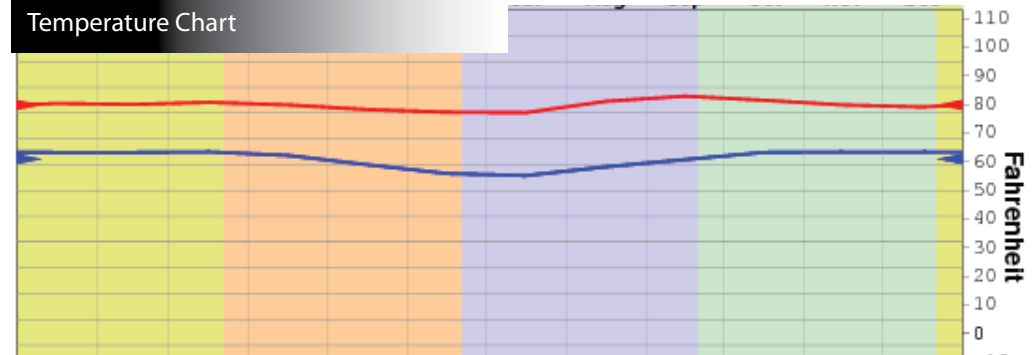


Notes: \* = Daylight saving time, \* = Next day.

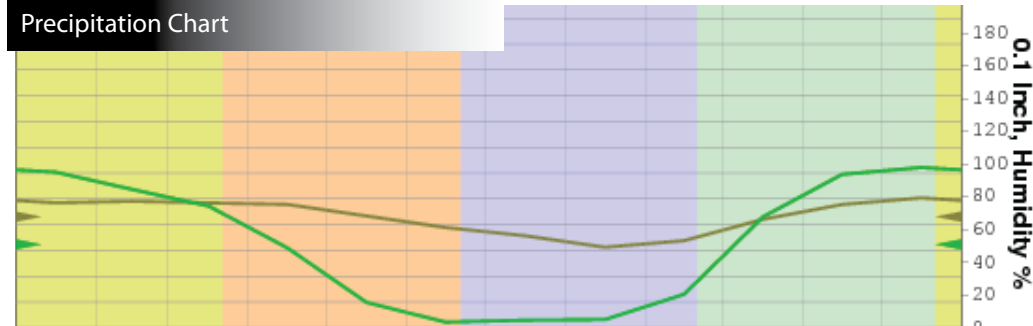
## Brasilia, Brazil

Latitude: 15°47'S Longitude: 047°56'W Elevation: 1160m Station: BZ83377

Temperature Chart



Precipitation Chart



MATERIALS AND ASSEMBLY  
HOT & HUMID  
BRASILIA, BRAZIL

G2.0  
Climate Charts

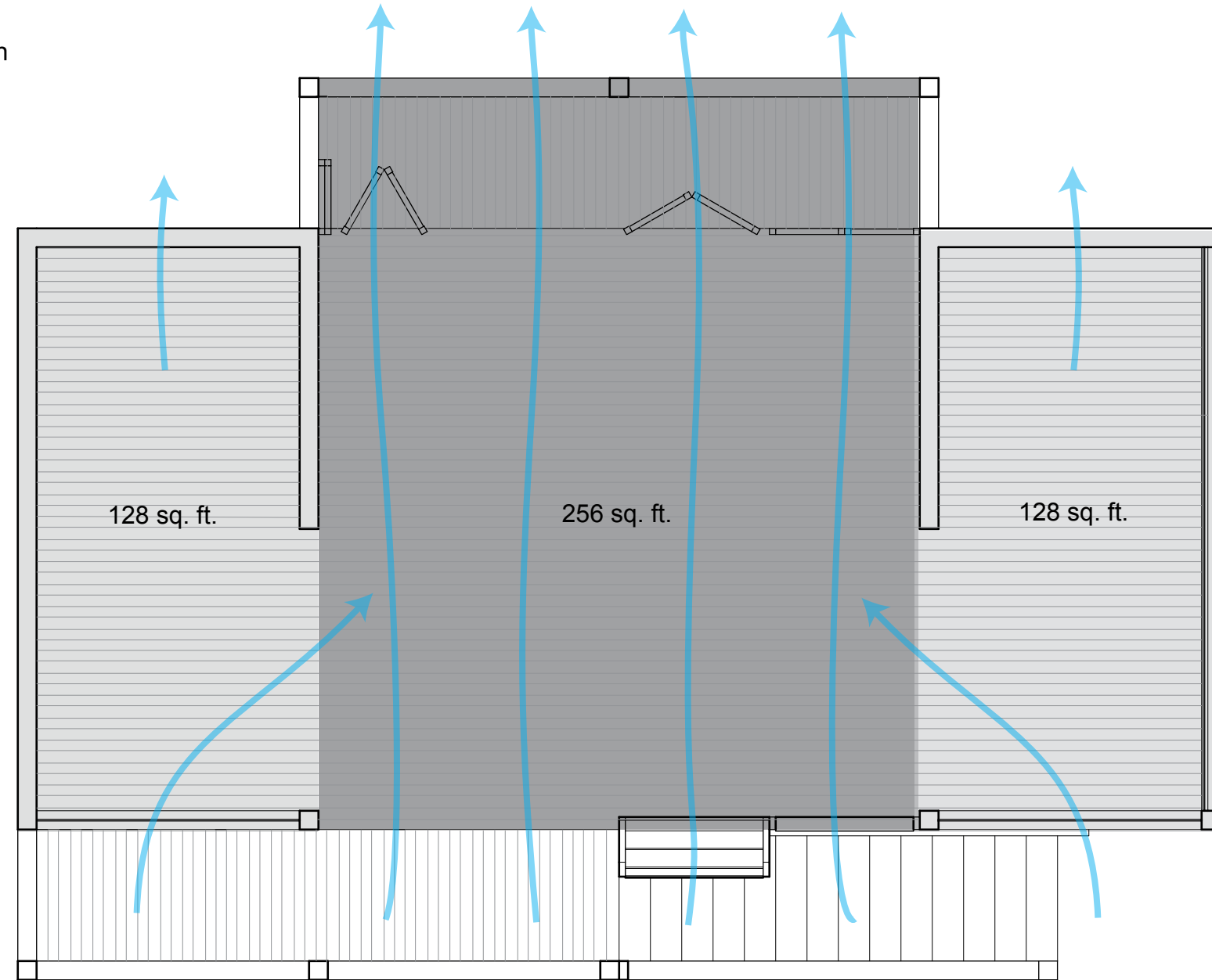
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□ Venturi effect in Low pressure area caused by cross ventilation

■ Cross ventilation



MATERIALS AND ASSEMBLY  
HOT & HUMID  
BRASILIA, BRAZIL

G3.0  
Area Calculations

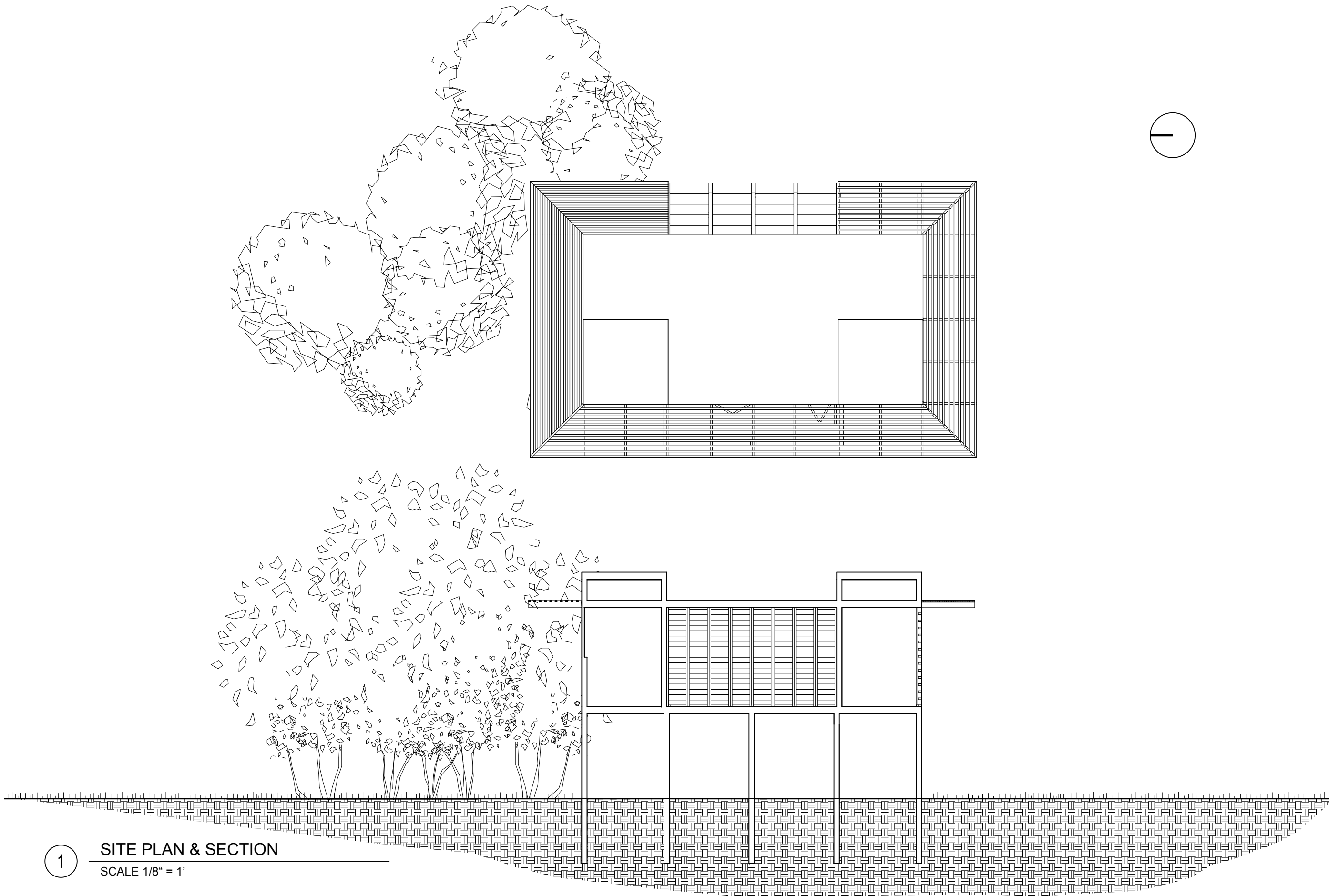
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1 AREA CALCULATIONS

SCALE 1/4" = 1'



1

SITE PLAN & SECTION

SCALE 1/8" = 1'

MATERIALS AND ASSEMBLY  
HOT & HUMID  
BRASILIA, BRAZIL

C1.1  
Site Plan & Section

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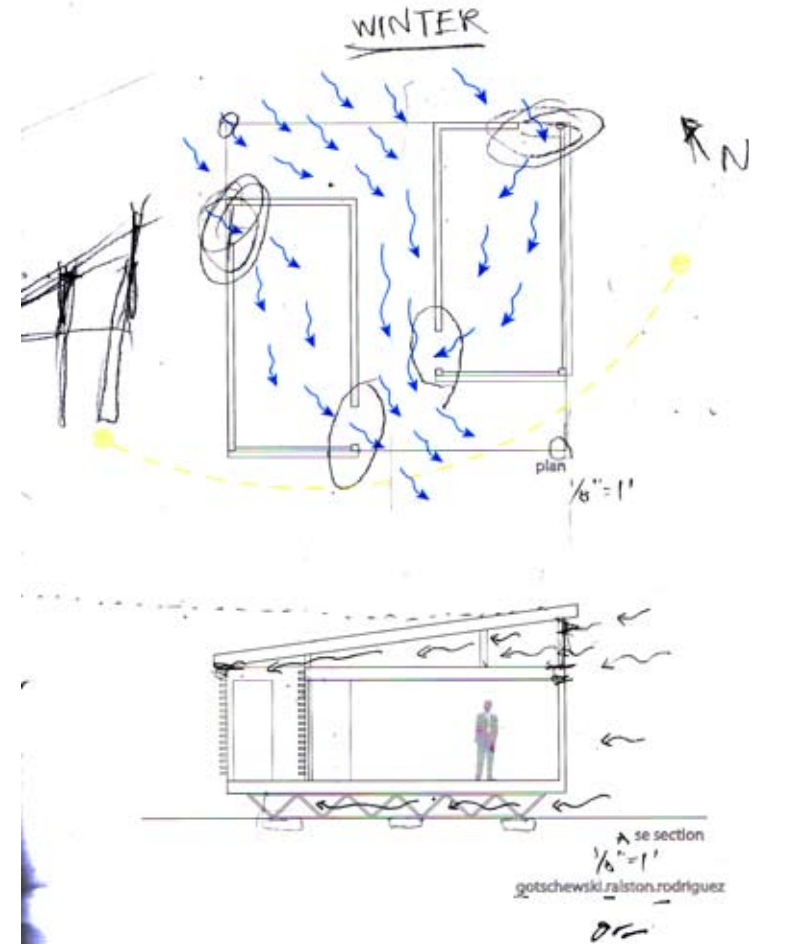
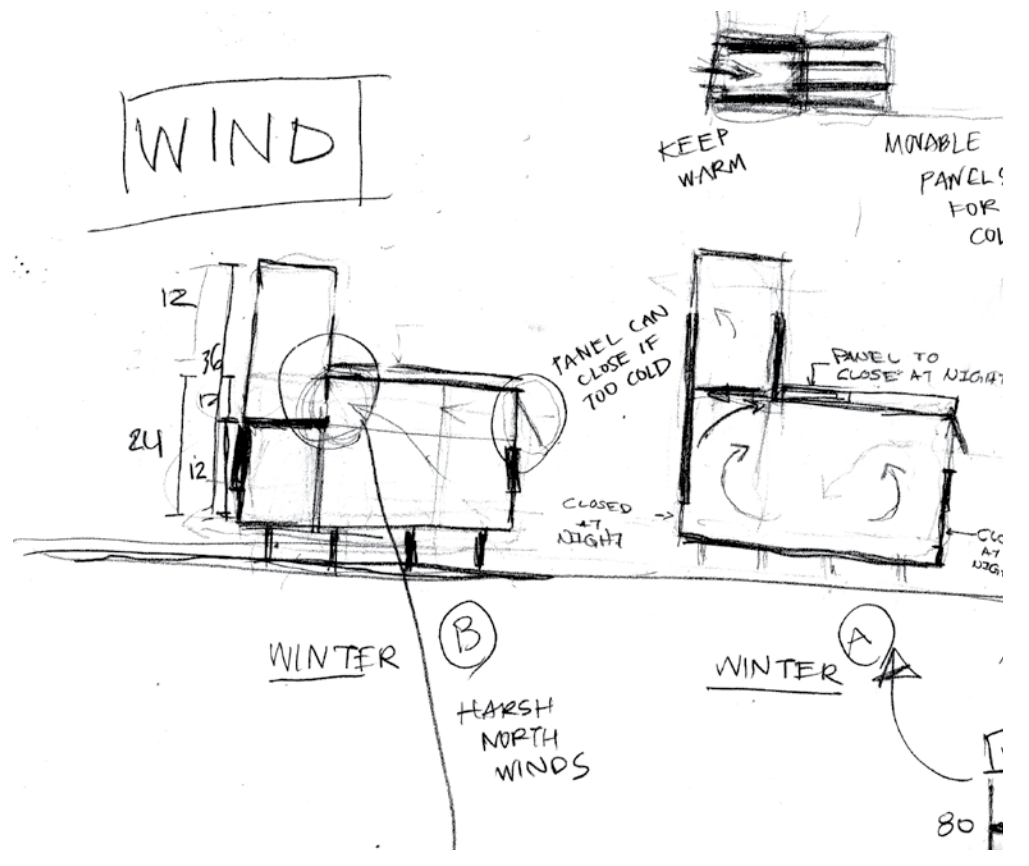
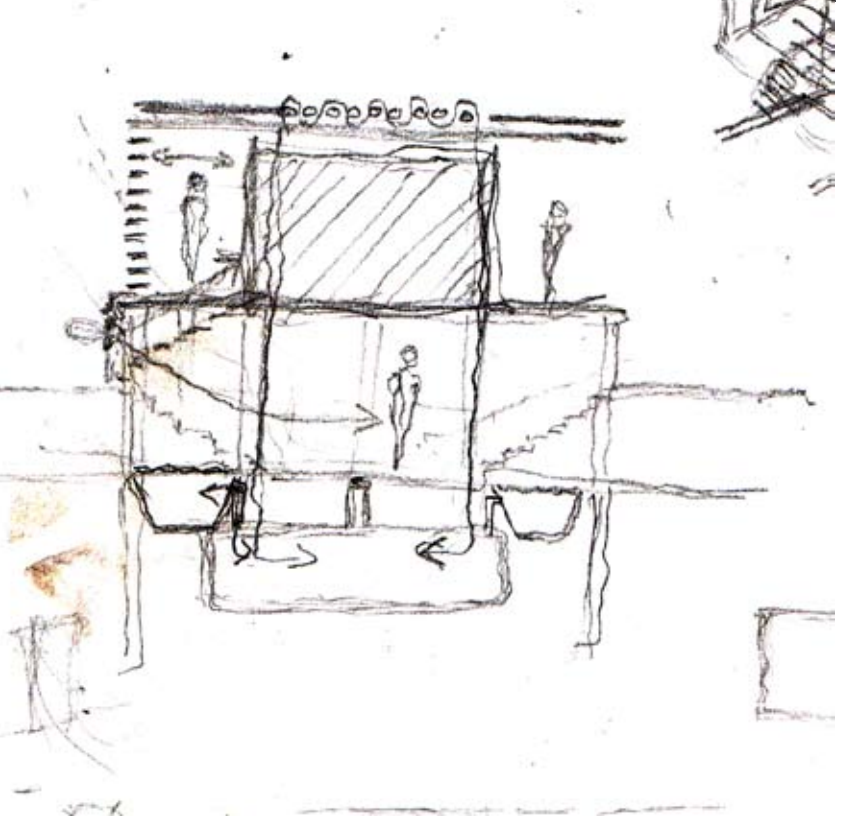
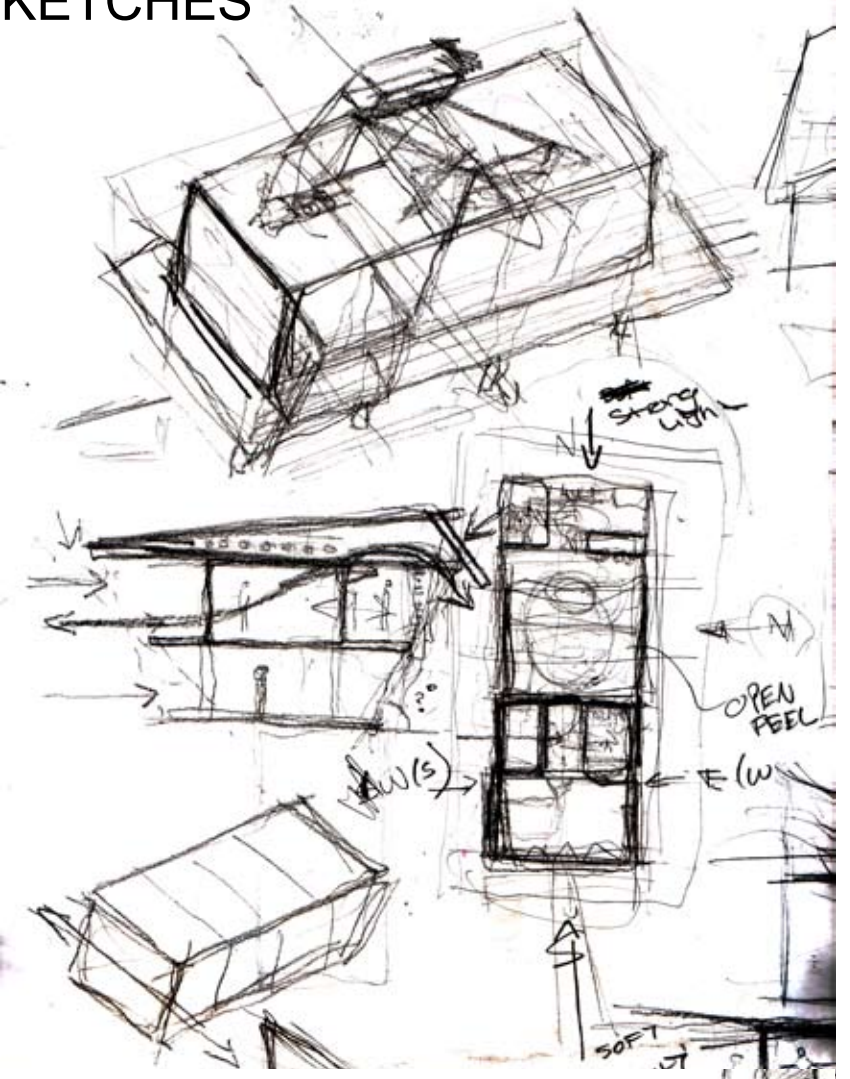
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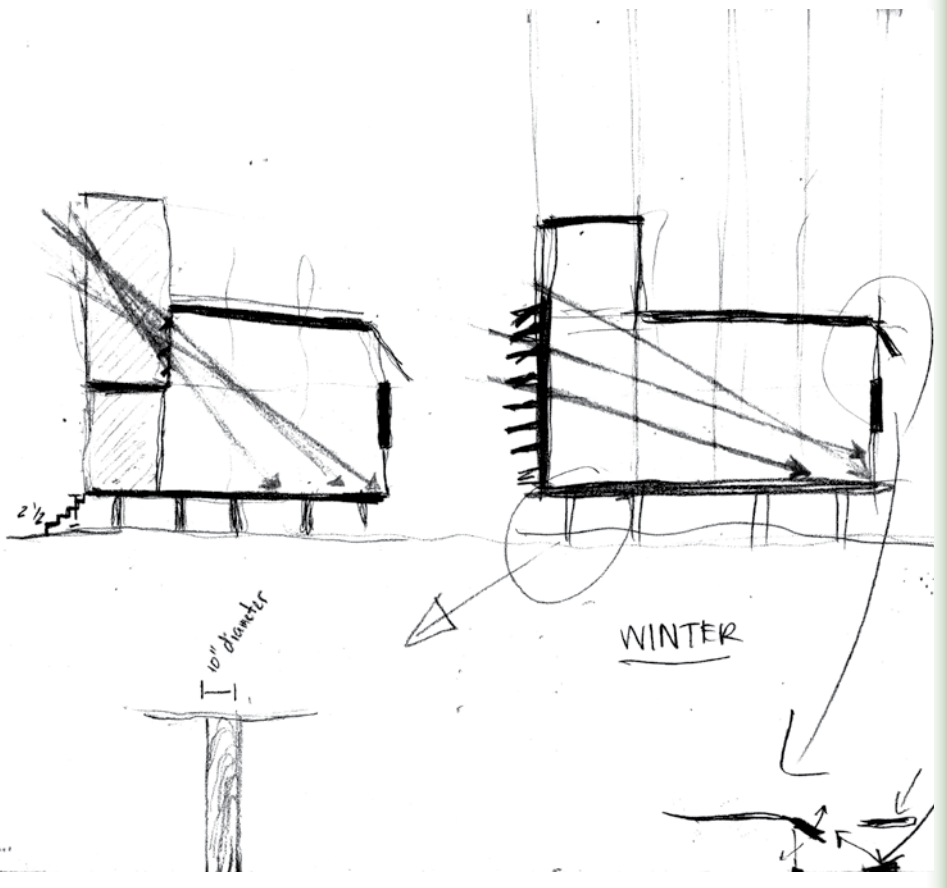
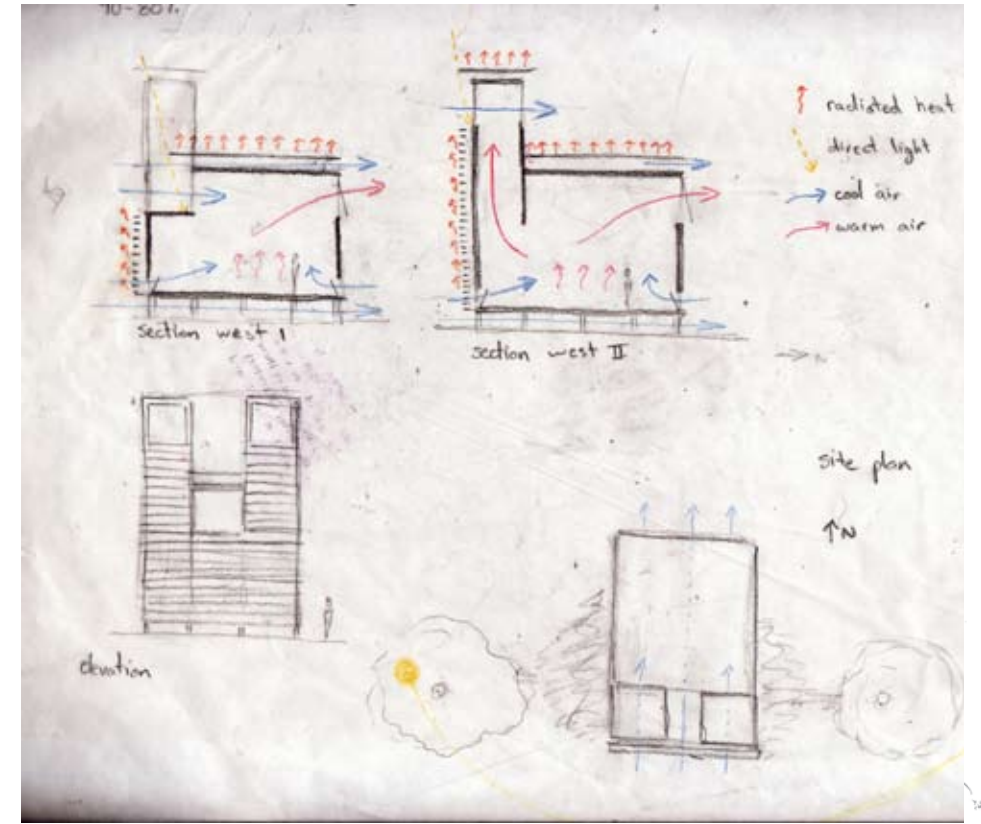
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# INITIAL CONCEPTS AND SKETCHES

# LOOKING AT WIND AND HOW WE COULD USE VENTILATION TO REDUCE HUMIDITY



# SUN ANGLES AND DEVELOPING LOUVRE SYSTEMS



MATERIALS AND ASSEMBLY  
HOT & HUMID  
BRASILIA, BRAZIL

A0.0  
Diagrams & Sketches

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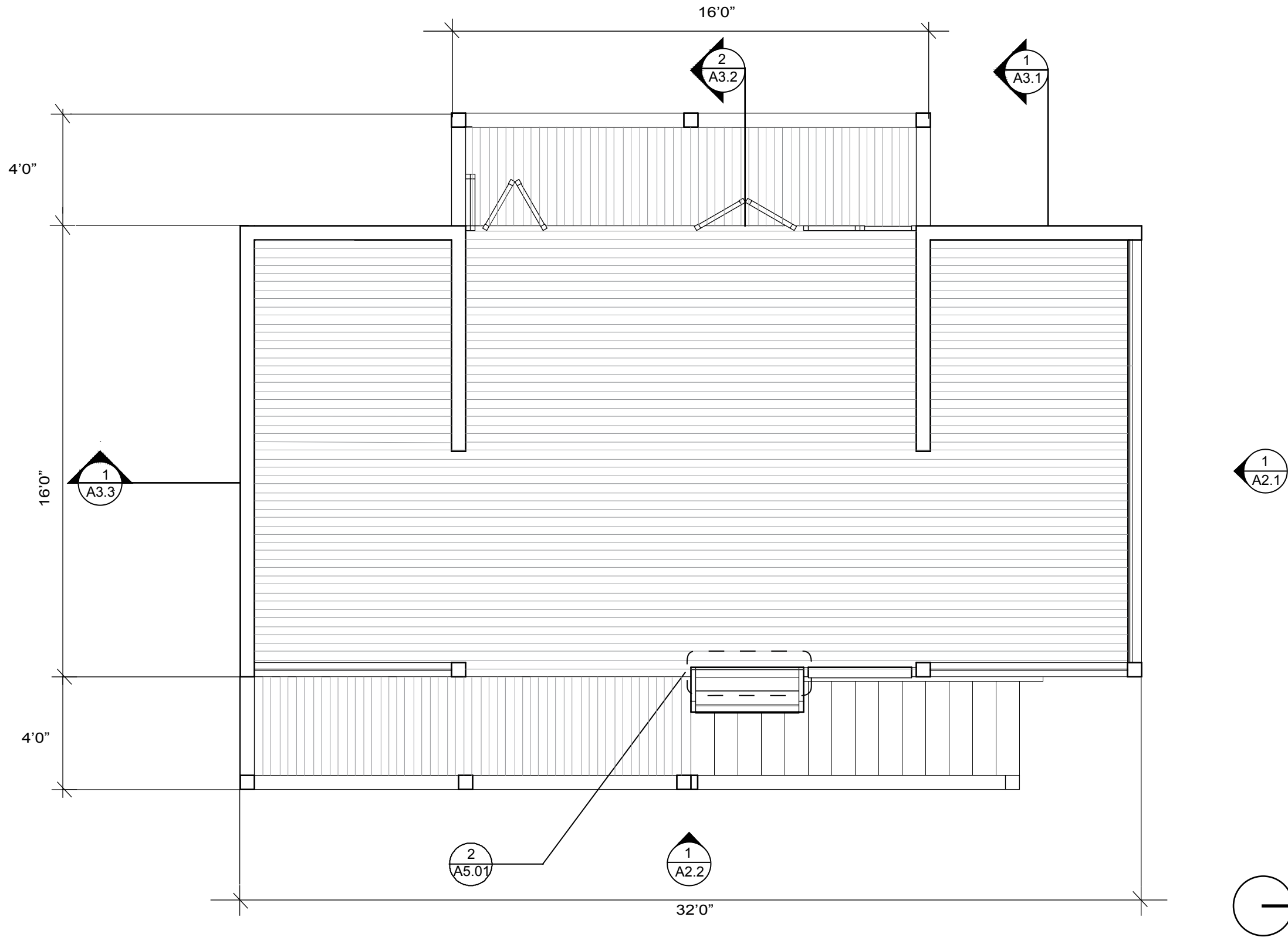
MATERIALS AND ASSEMBLY  
HOT & HUMID  
BRASILIA, BRAZIL

A1.1  
Floor Plan

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1

PLAN

SCALE 1/4" = 1'

Top of Tower  
22'0"

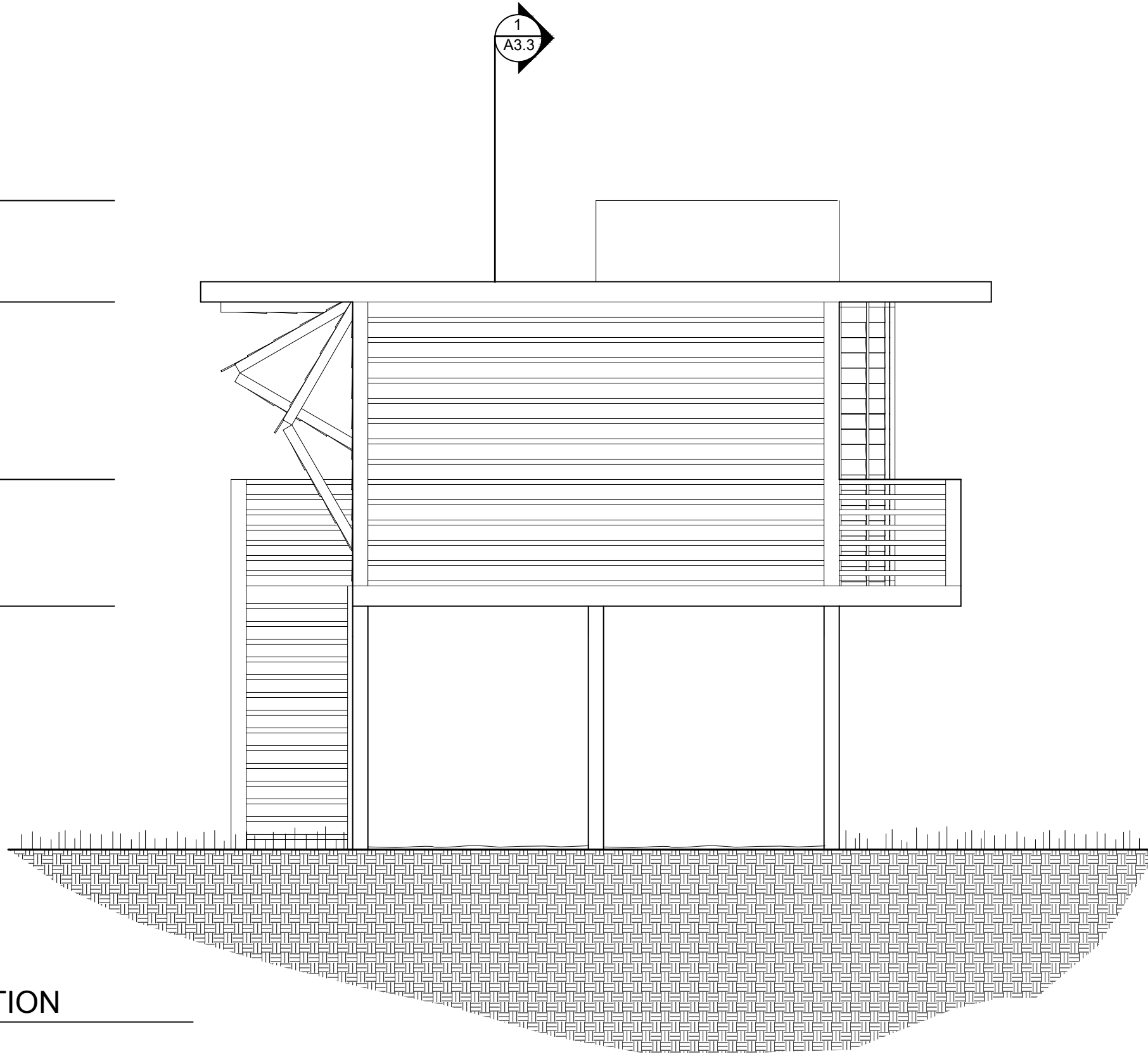
Ceiling  
19'0"

Top of Railing  
12'2"

Bottom of Balcony  
8'0"

Ground Level  
0'0"

1  
A3.3



1 SOUTH ELEVATION  
SCALE 1/4" = 1'

MATERIALS AND ASSEMBLY  
HOT & HUMID  
BRASILIA, BRAZIL

A 2.1  
Elevation

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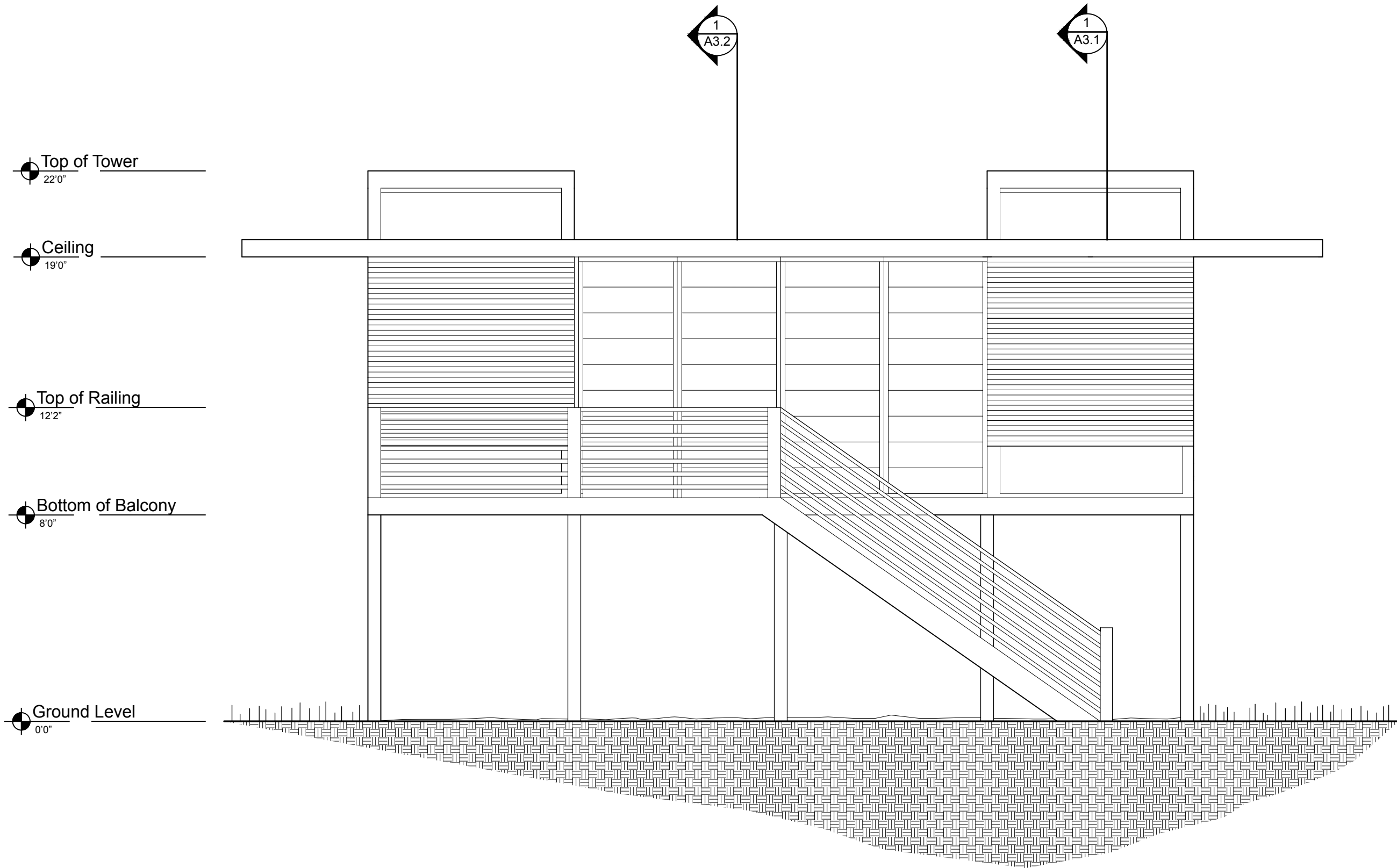
MATERIALS AND ASSEMBLY  
HOT & HUMID  
BRASILIA, BRAZIL

A2.2  
Elevation

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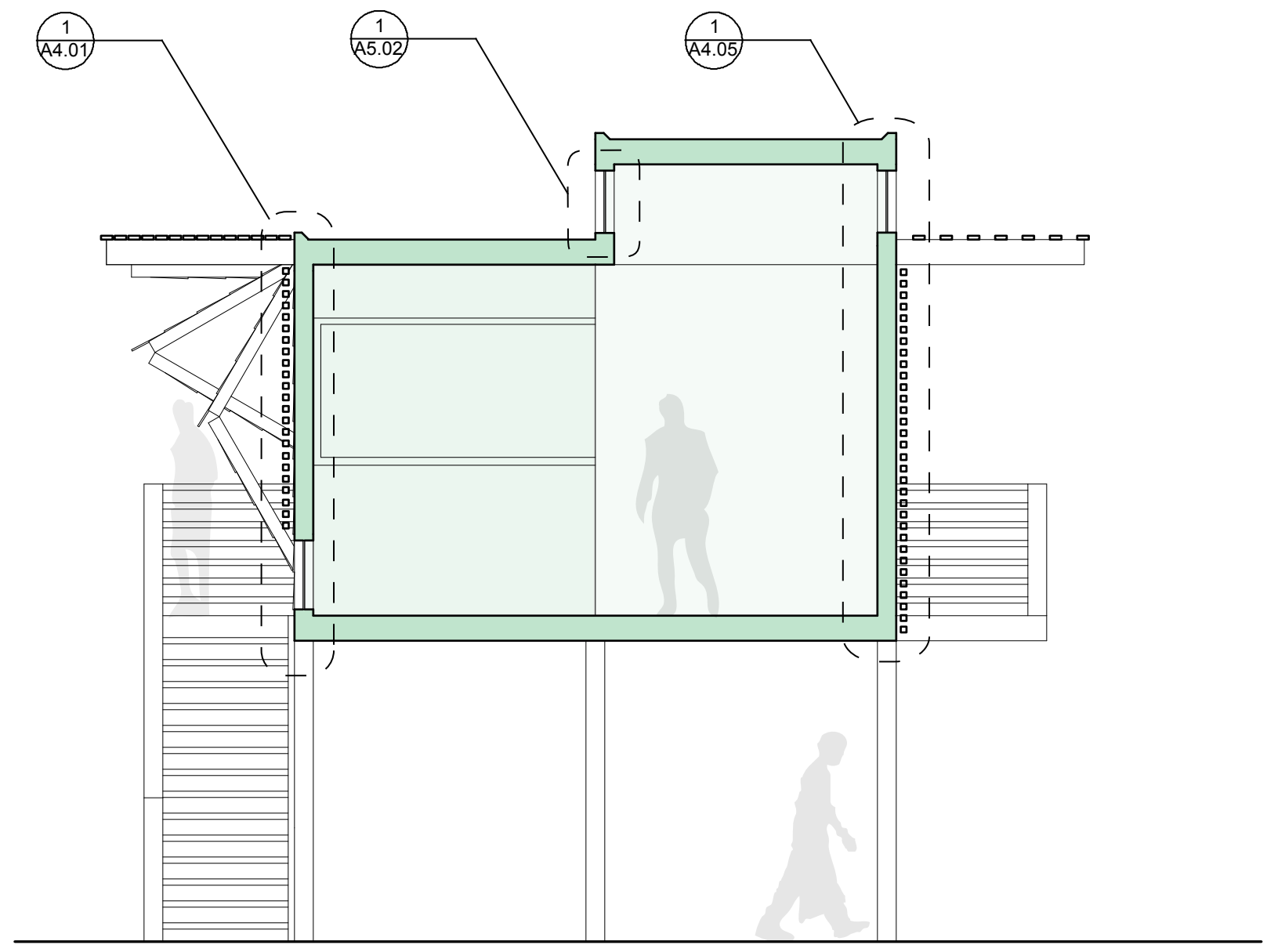
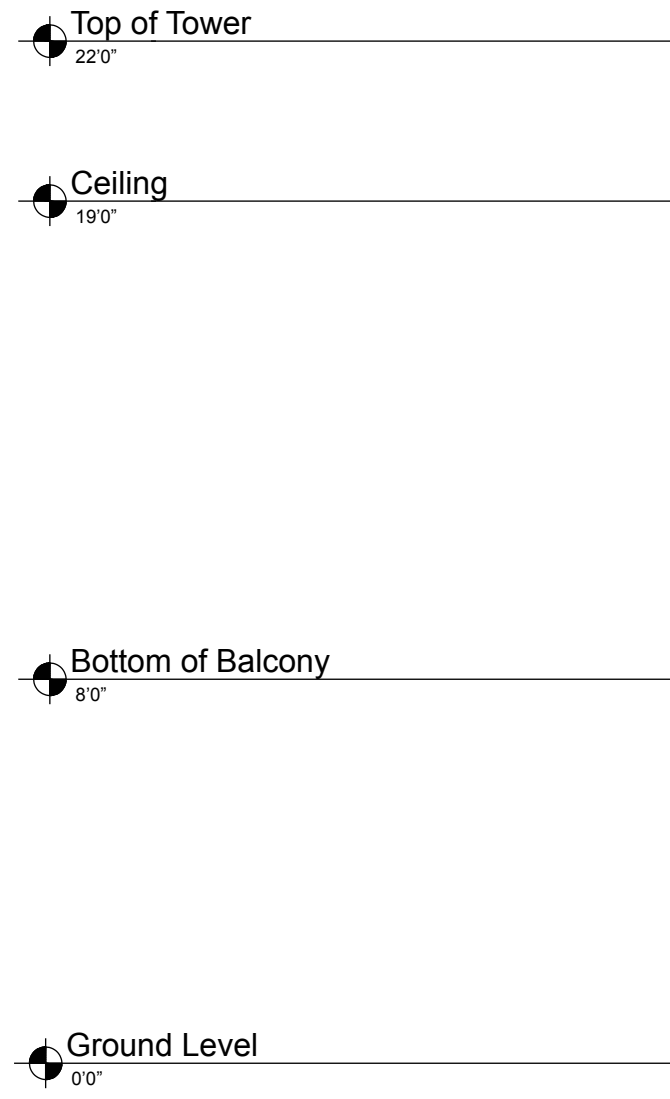
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1 EAST ELEVATION  
SCALE 1/4" = 1'





1 TRANSVERSE SECTION 1  
SCALE 1/4" = 1'

MATERIALS AND ASSEMBLY  
HOT & HUMID  
BRASILIA, BRAZIL

A3.1  
Transverse Section

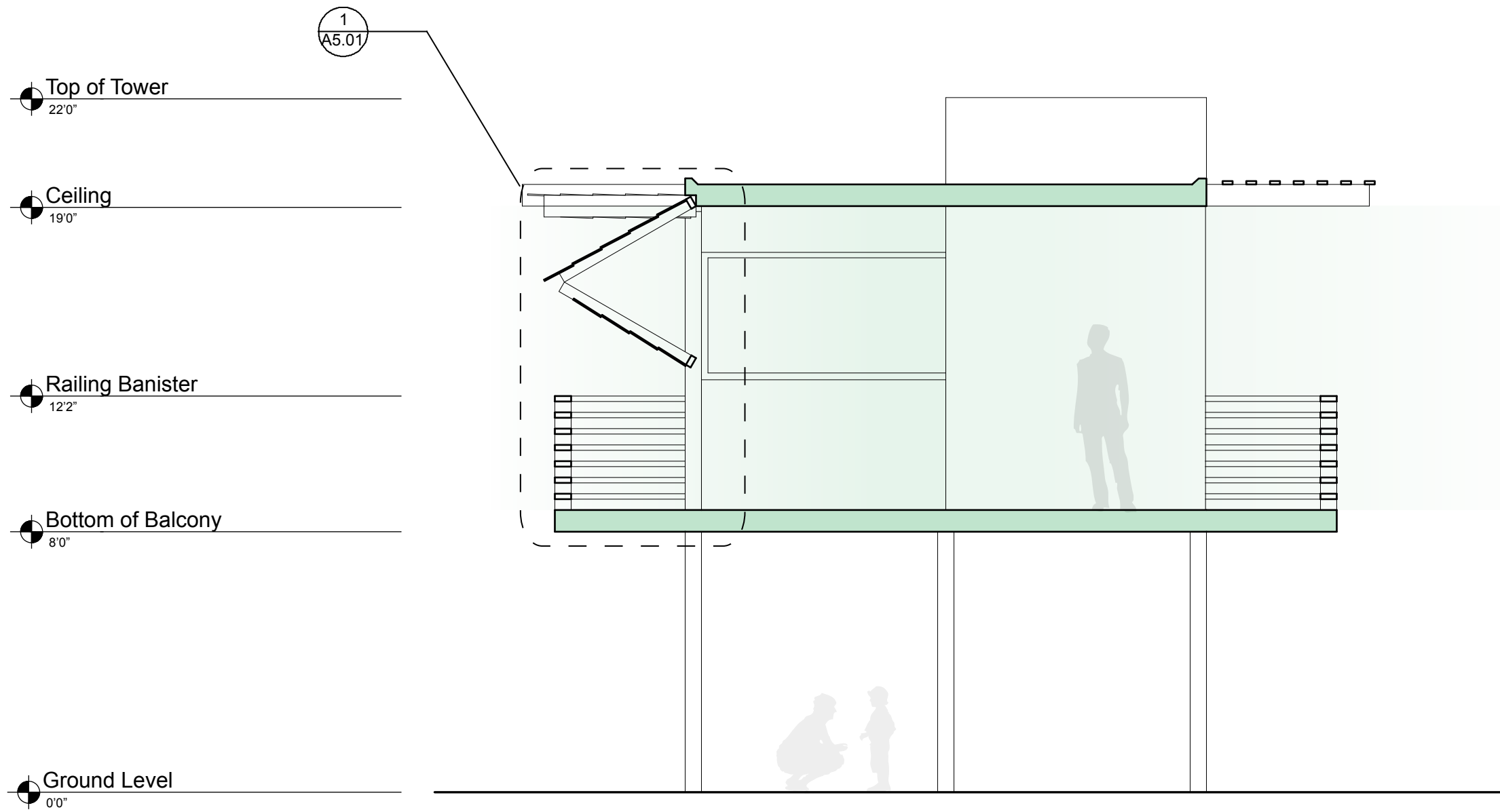
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1

**TRANSVERSE SECTION 2**

SCALE 1/4" = 1'

**MATERIALS AND ASSEMBLY  
HOT & HUMID  
BRASILIA, BRAZIL**

**A3.2**  
Transverse Section

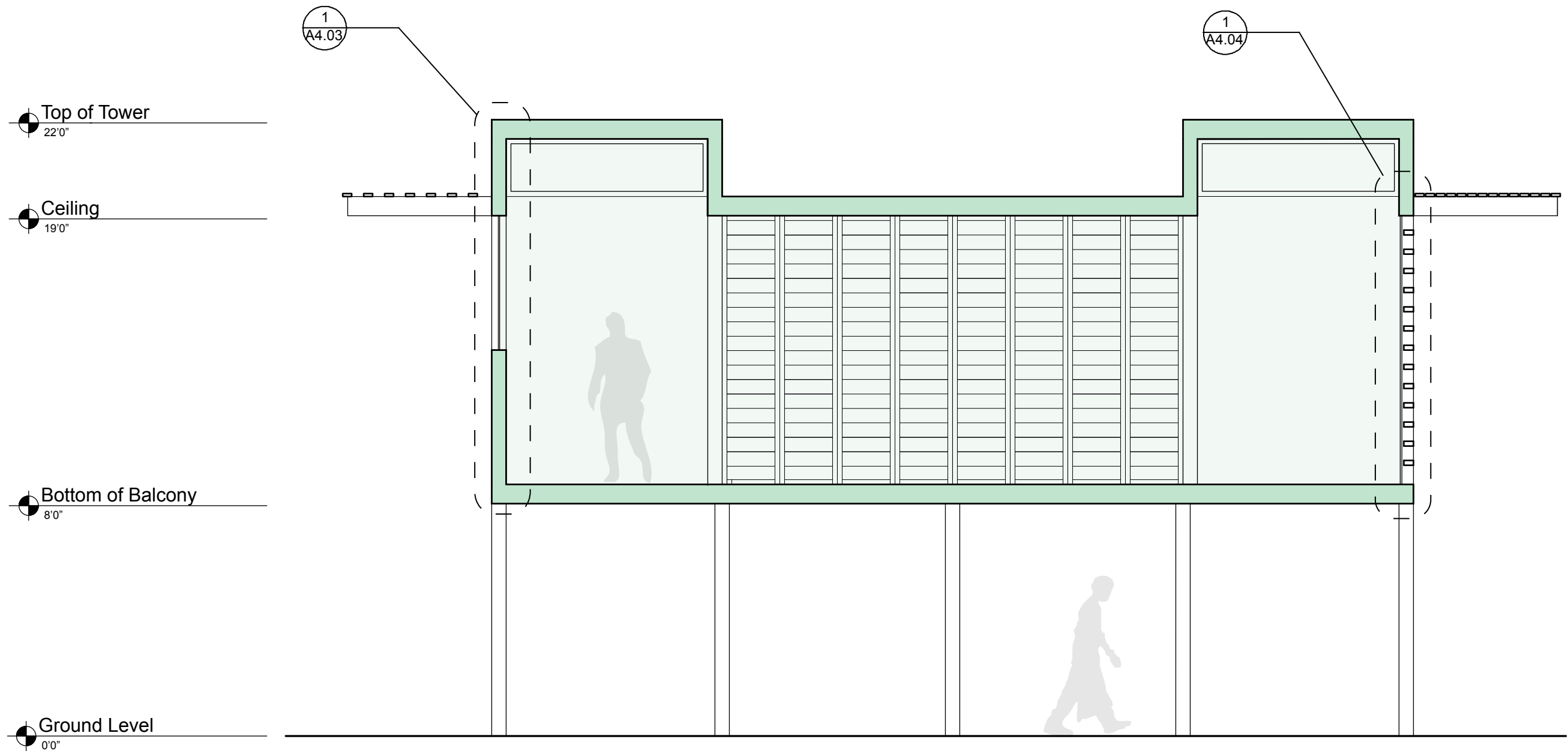
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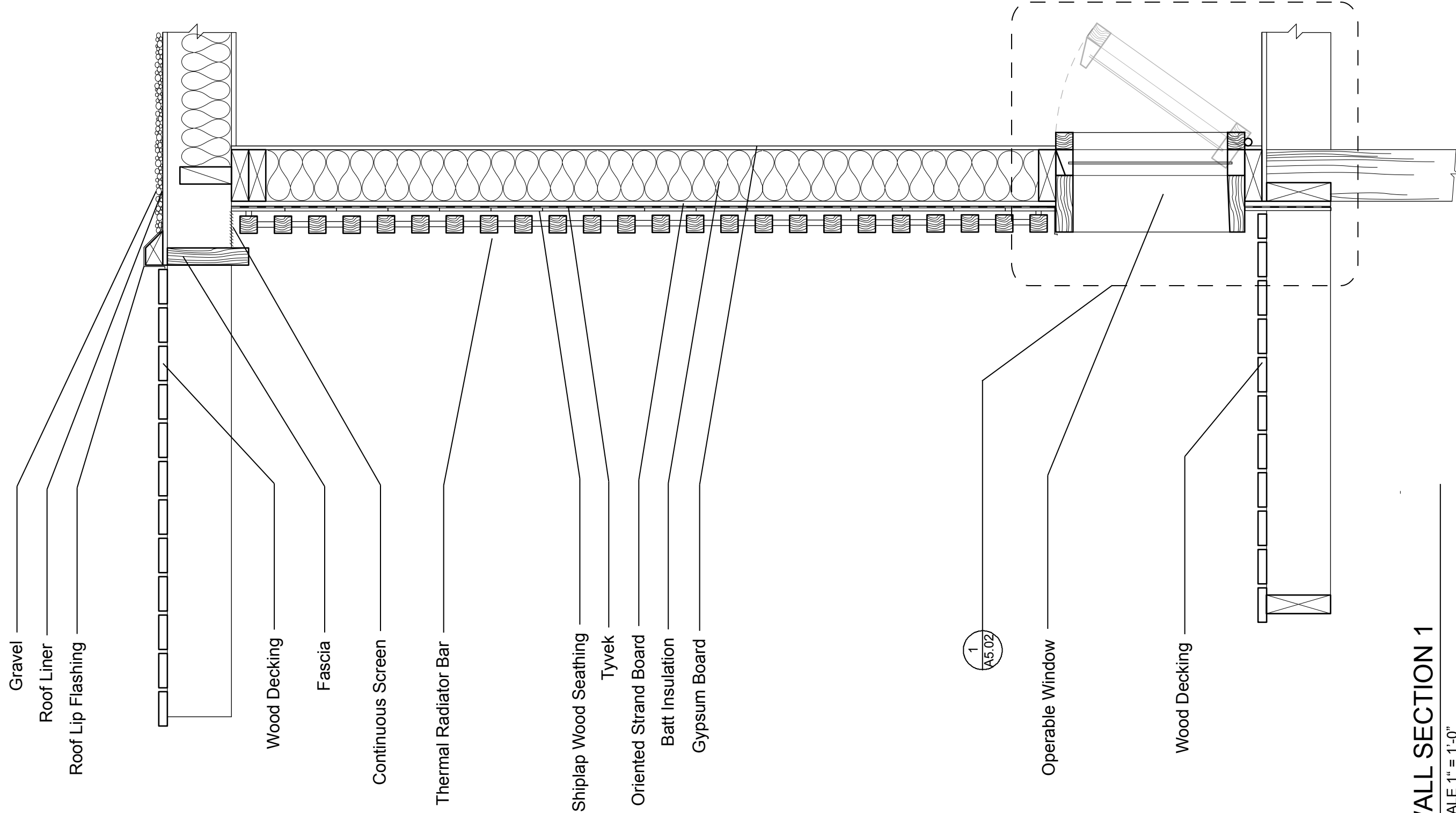
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 HOT & HUMID  
 BRASILIA, BRAZIL

**A3.3**  
 Longitudinal Section

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Gravel

Roof Liner

Roof Lip Flashing

Wood Decking

Fascia

Continuous Screen

Thermal Radiator Bar

Shiplap Wood Seathing

Tyvek

Oriented Strand Board

Batt Insulation

Gypsum Board

1  
A5.02

Operable Window

Wood Decking

1 WALL SECTION 1

SCALE 1" = 1'-0"

MATERIALS AND ASSEMBLY  
HOT & HUMID  
BRASILIA, BRAZIL

A4.01  
Wall Section

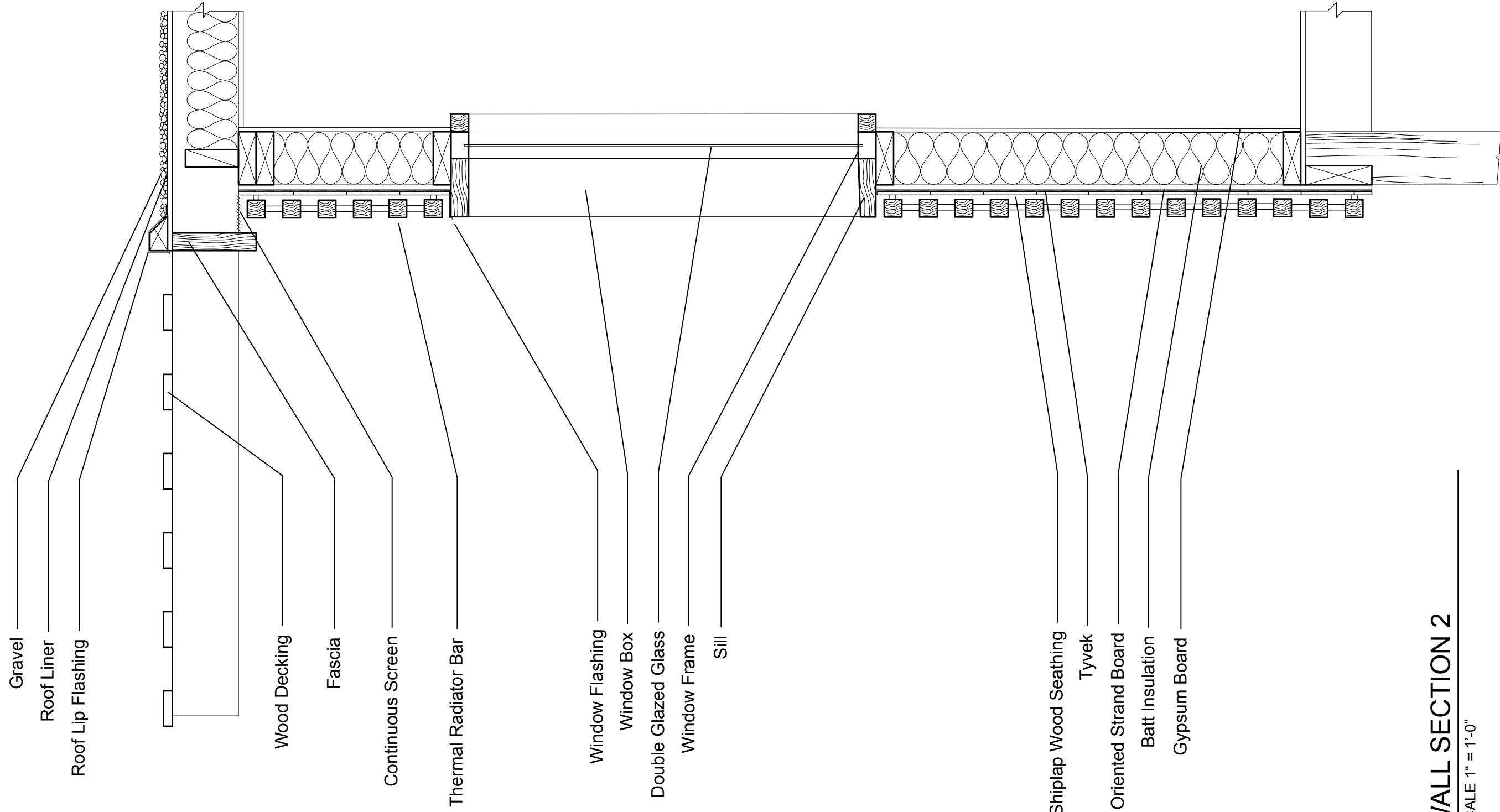
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Gravel  
 Roof Liner  
 Roof Lip Flashing

Wood Decking  
 Fascia

Continuous Screen  
 Thermal Radiator Bar

Window Flashing  
 Window Box  
 Double Glazed Glass  
 Window Frame  
 Sill

Shiplap Wood Seathing  
 Tyvek  
 Oriented Strand Board  
 Batt Insulation  
 Gypsum Board

1 WALL SECTION 2

SCALE 1" = 1'-0"

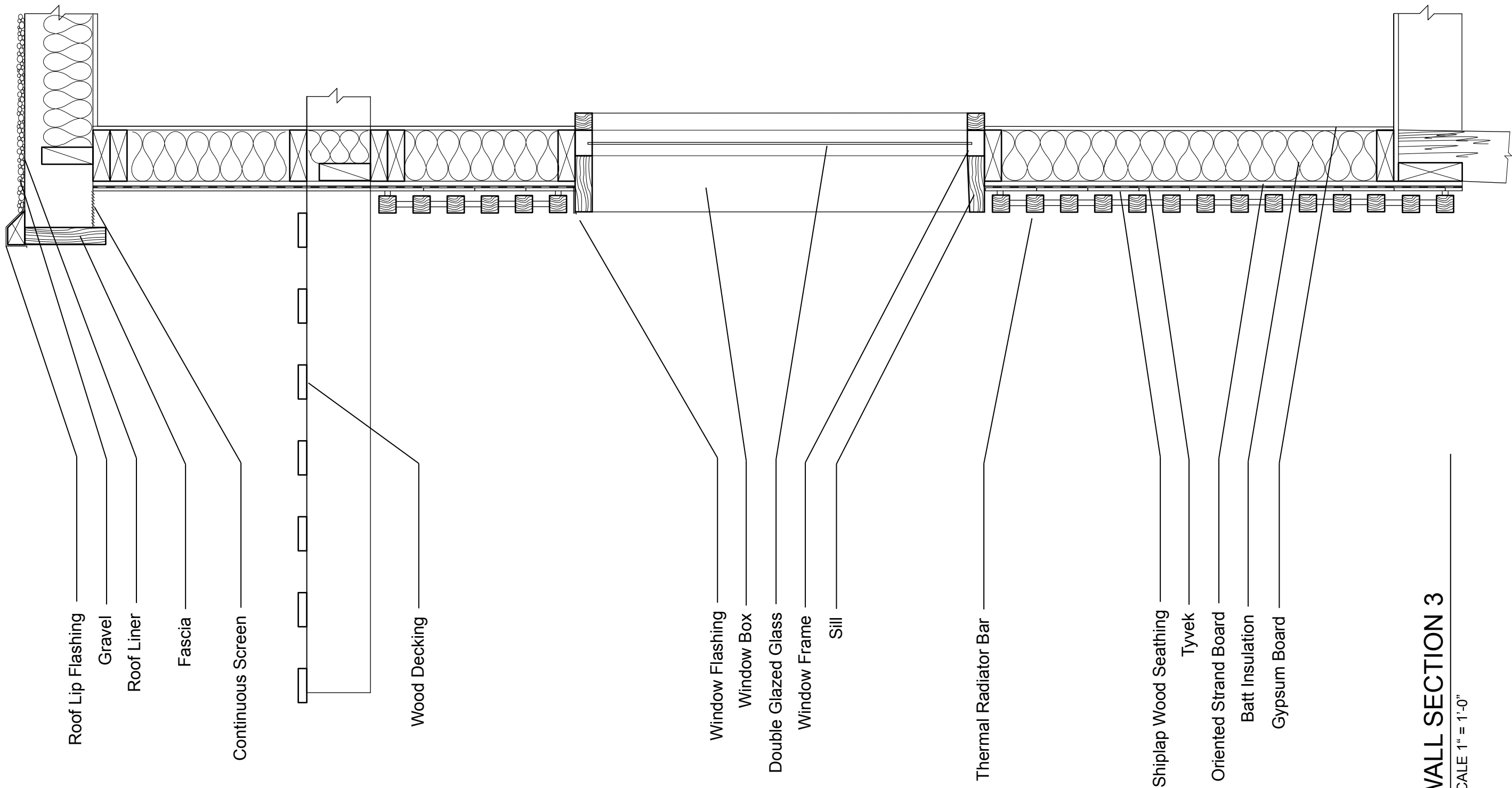
MATERIALS AND ASSEMBLY  
 HOT & HUMID  
 BRASILIA, BRAZIL

A 4.02  
 Wall Section

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 K Kevin Rodriguez  
 R Ryan Ralston

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Roof Lip Flashing

Gravel

Roof Liner

Fascia

Continuous Screen

Wood Decking

Window Flashing

Window Box

Double Glazed Glass

Window Frame

Sill

Thermal Radiator Bar

Shiplap Wood Seathing

Tyvek

Oriented Strand Board

Batt Insulation

Gypsum Board

1 WALL SECTION 3

SCALE 1" = 1'-0"

MATERIALS AND ASSEMBLY  
HOT & HUMID  
BRASILIA, BRAZIL

A4.03  
Wall Section

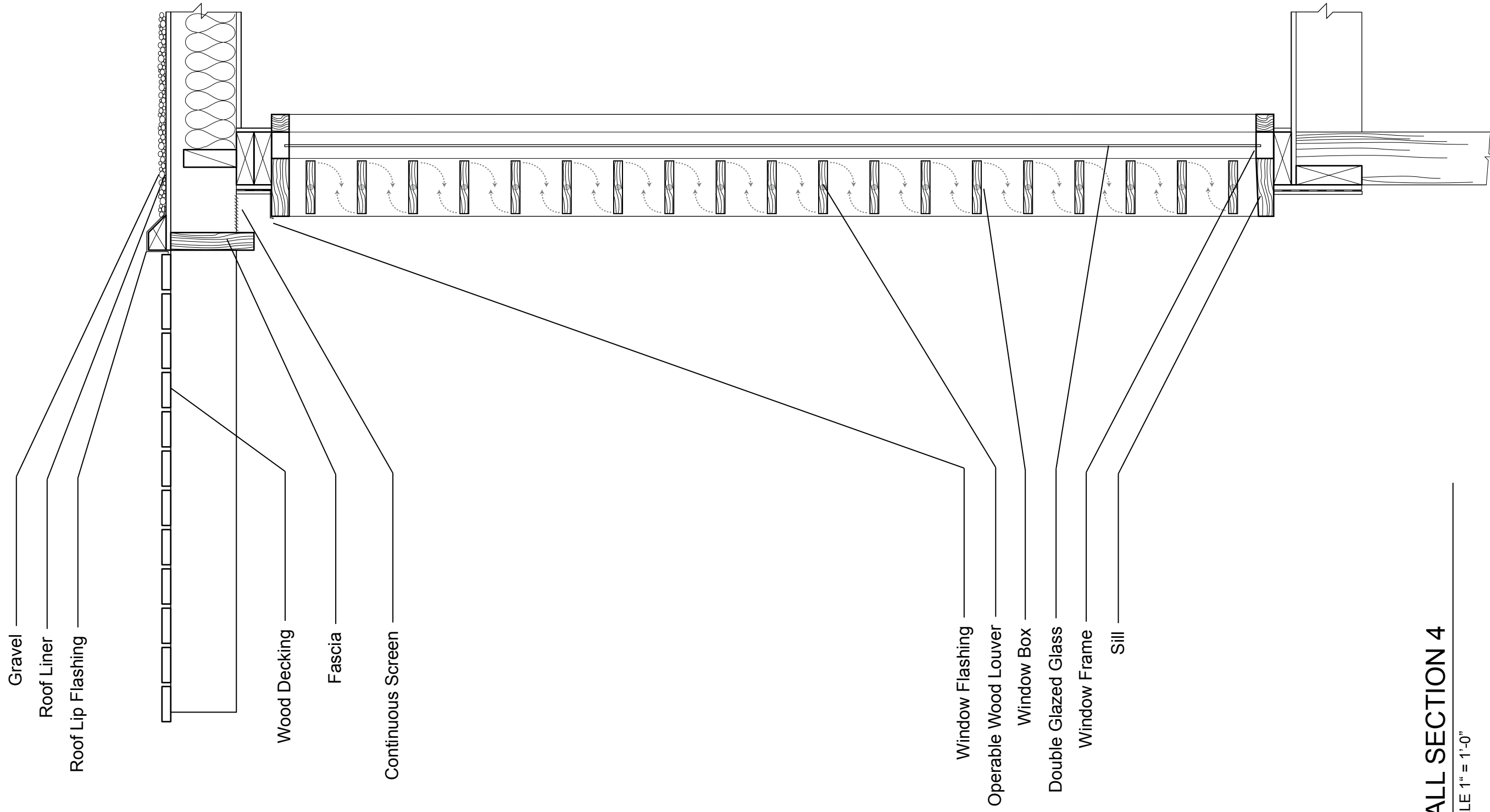
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1 WALL SECTION 4

SCALE 1" = 1'-0"

MATERIALS AND ASSEMBLY  
HOT & HUMID  
BRASILIA, BRAZIL

A4.04  
Wall Section

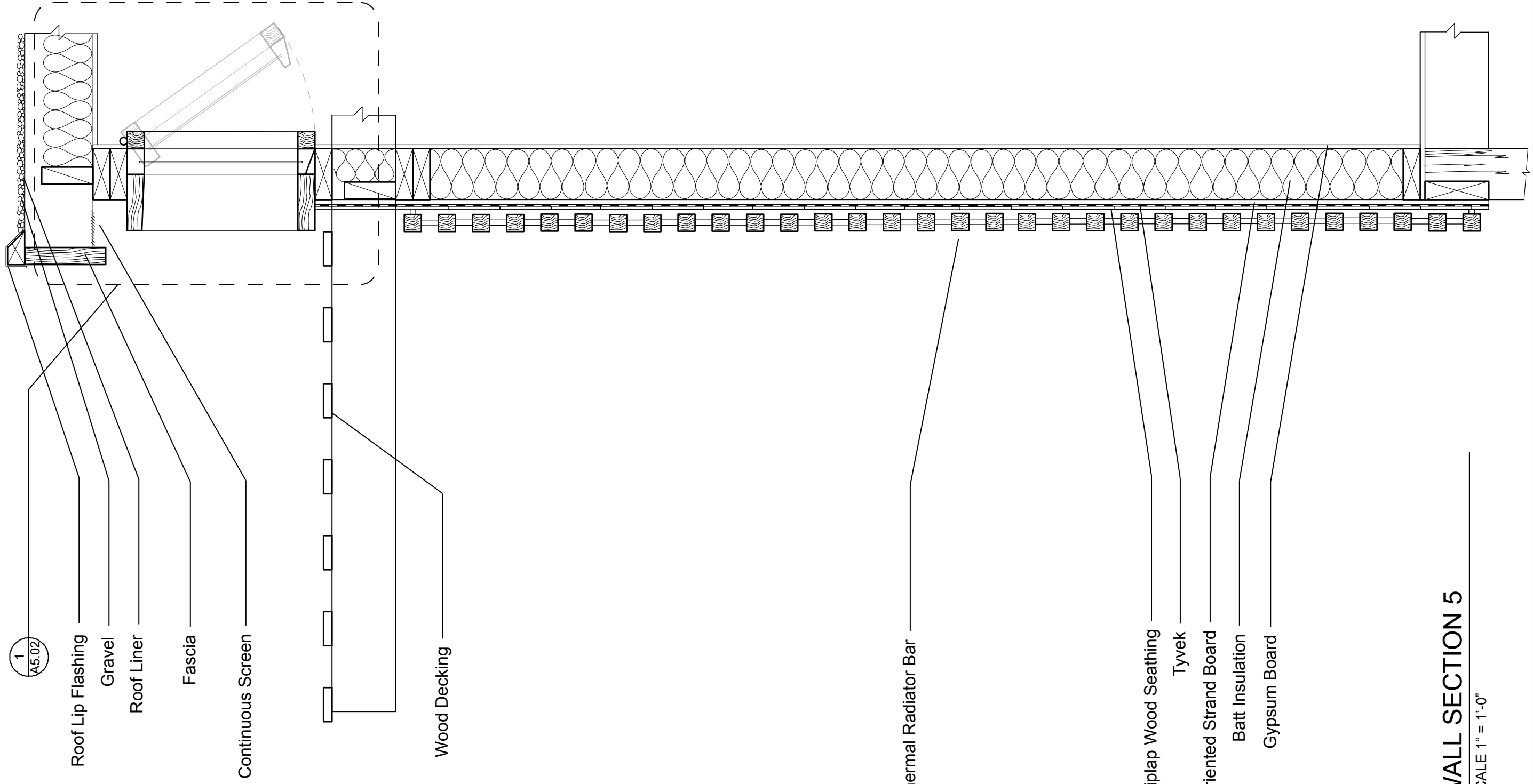
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1  
A5.02

Roof Lip Flashing  
Gravel  
Roof Liner  
Fascia  
Continuous Screen

Wood Decking

Thermal Radiator Bar

Shiplap Wood Seathing  
Tyvek  
Oriented Strand Board  
Batt Insulation  
Gypsum Board

1  
WALL SECTION 5

SCALE 1" = 1'-0"

MATERIALS AND ASSEMBLY  
HOT & HUMID  
BRASILIA, BRAZIL

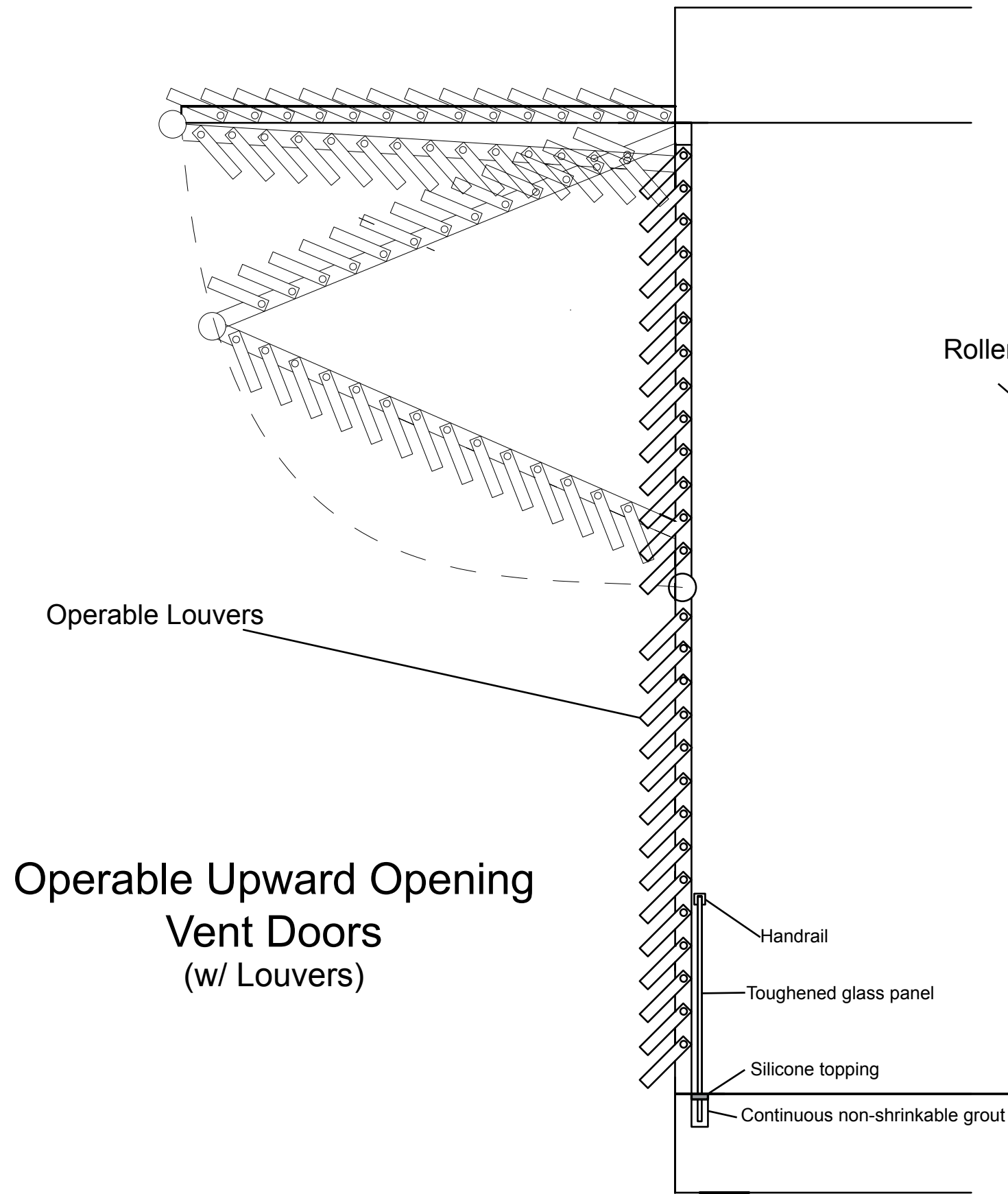
A4.05  
Wall Section

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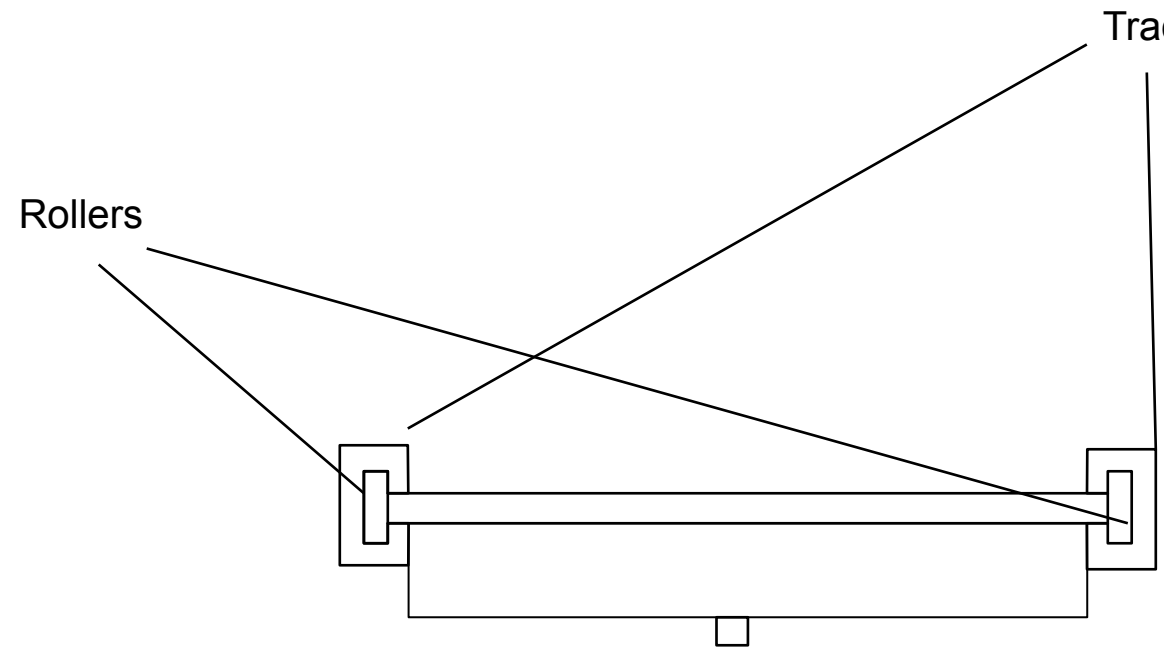
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1 SECTION DETAIL  
SCALE 1/4" = 1'



2 PLAN DETAIL  
SCALE 1/4" = 1'

Operable Upward Opening  
Vent Doors  
(w/ Louvers)

MATERIALS AND ASSEMBLY  
HOT & HUMID  
BRASILIA, BRAZIL

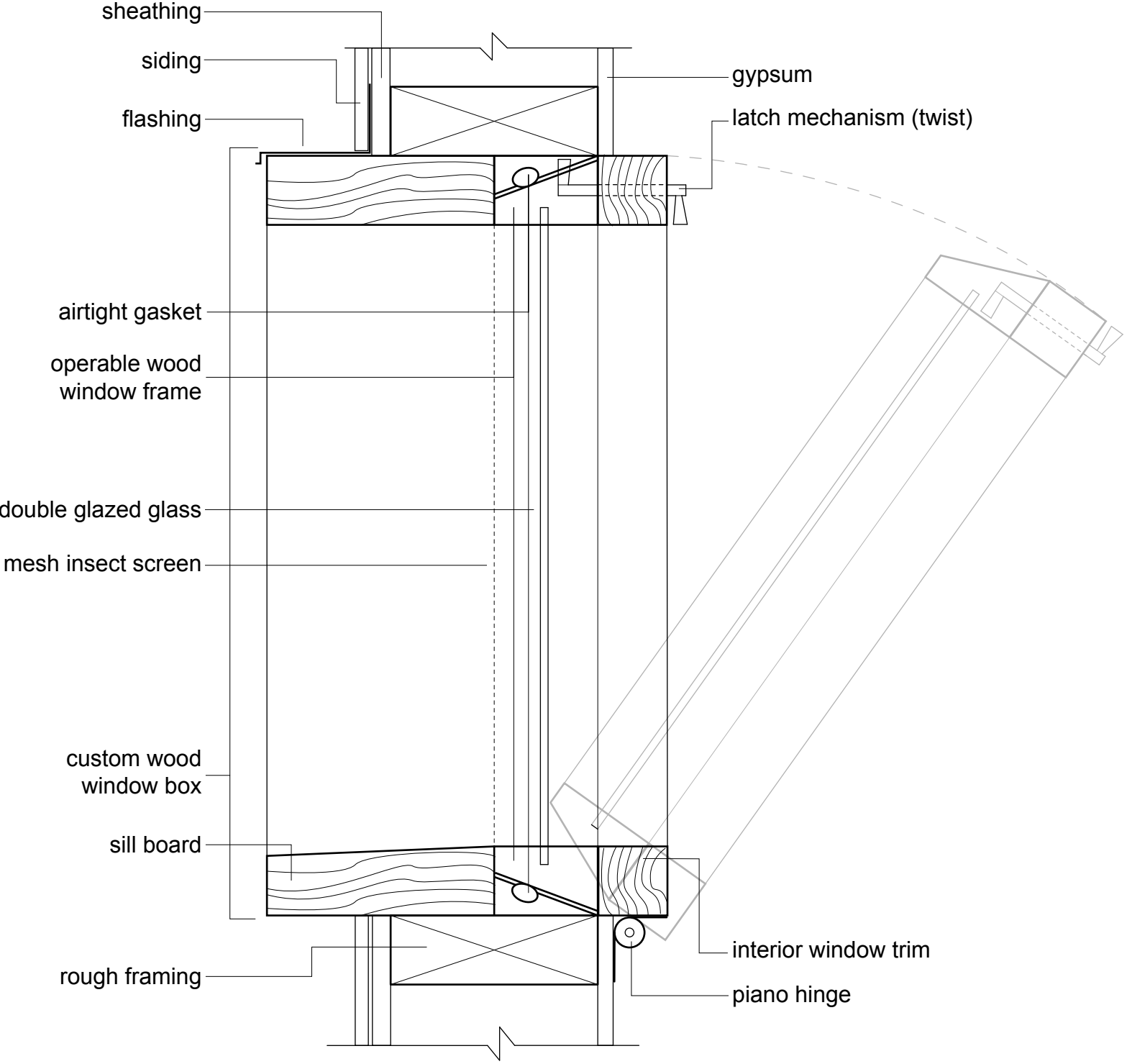
A5.01  
Critical Detail

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# Operable Vent Window (w/ Swinging Hinge)



1 SECTION DETAIL  
SCALE 3" = 1'

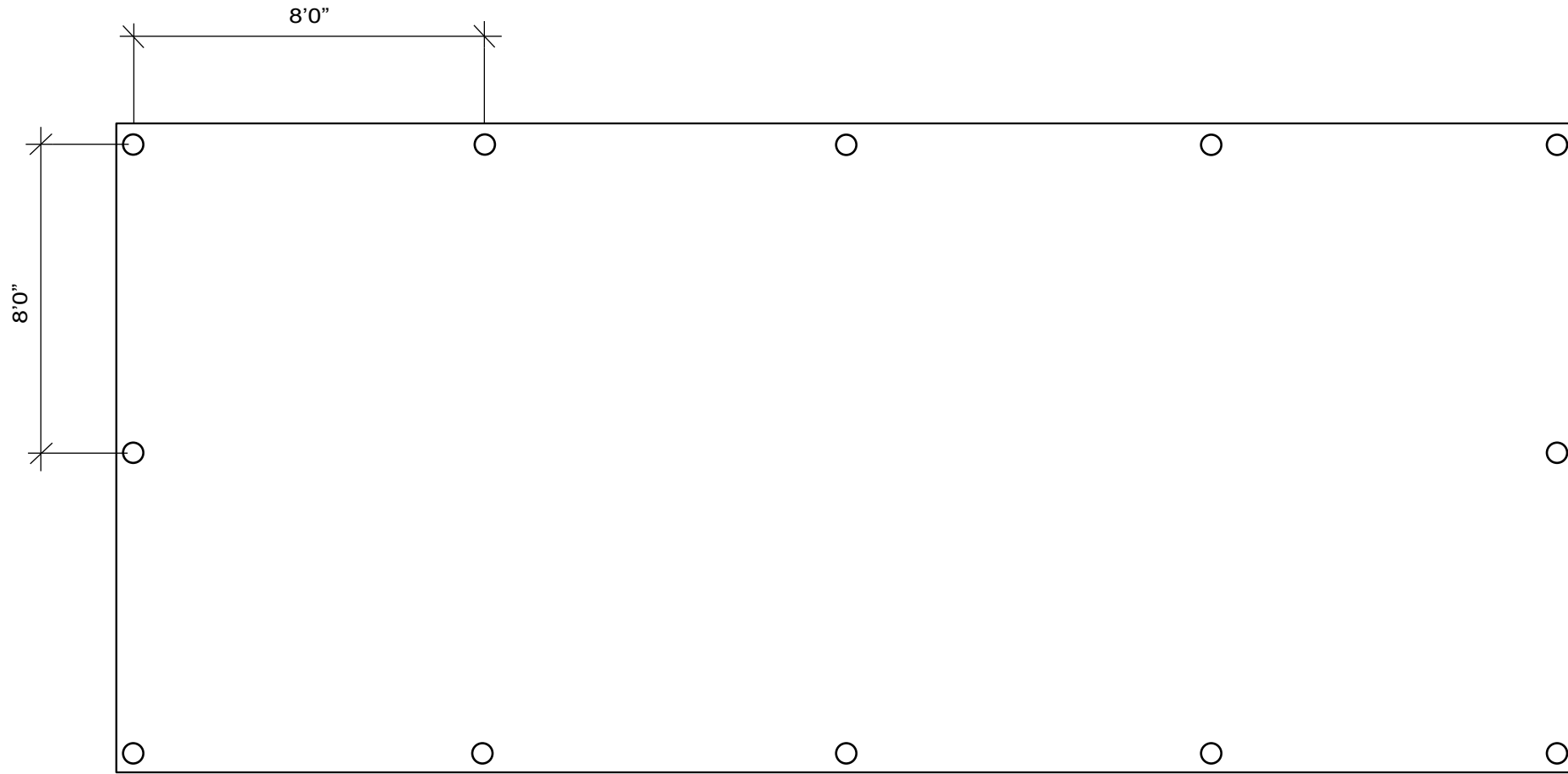
MATERIALS AND ASSEMBLY  
HOT & HUMID  
BRASILIA, BRAZIL

A 5.02  
Critical Detail

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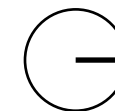
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FOOTING PLAN

SCALE 1/4" = 1'



MATERIALS AND ASSEMBLY  
HOT & HUMID  
BRASILIA, BRAZIL

S1.1  
Footing Plan

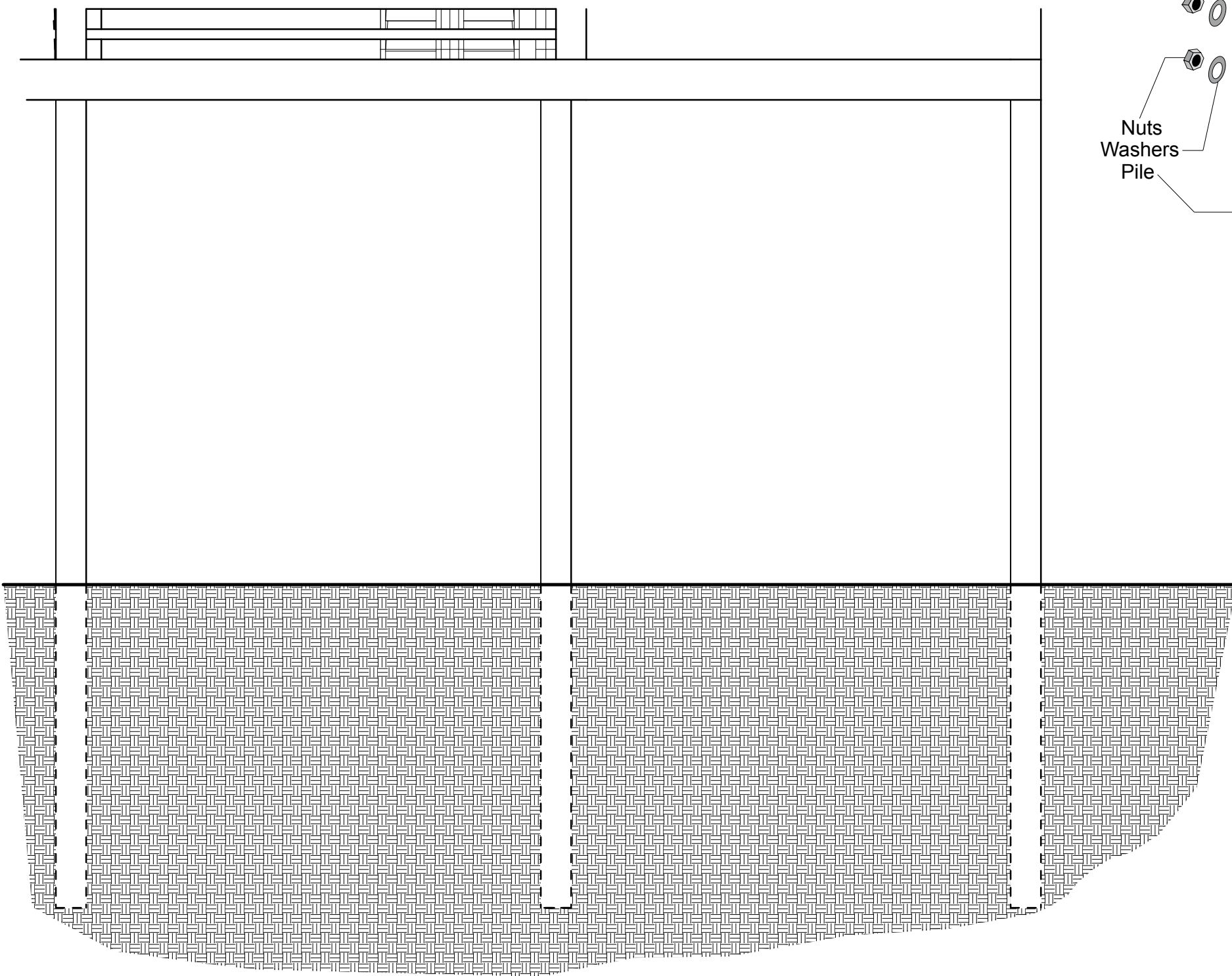
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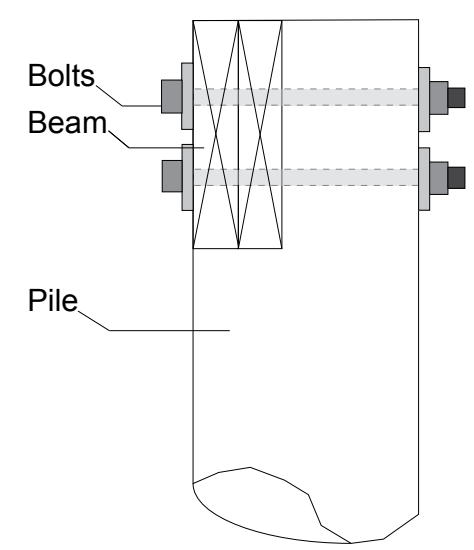
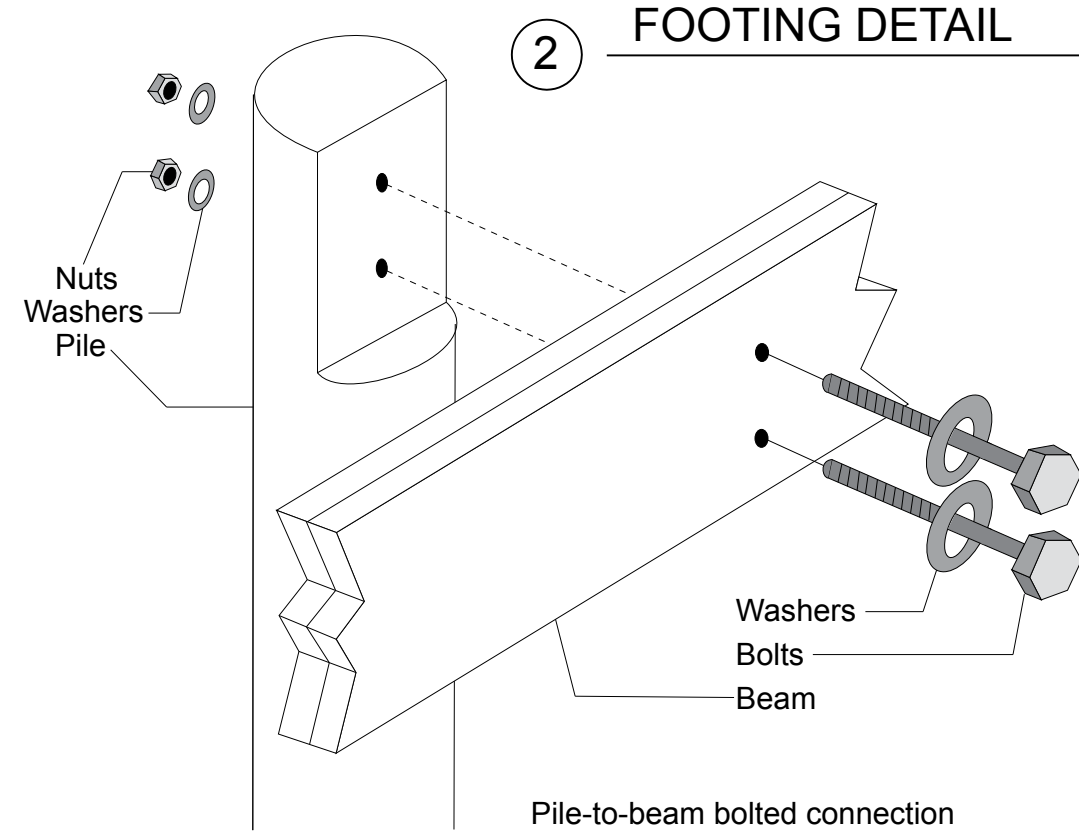
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1 FOOTING SECTION  
SCALE 1/4" = 1'



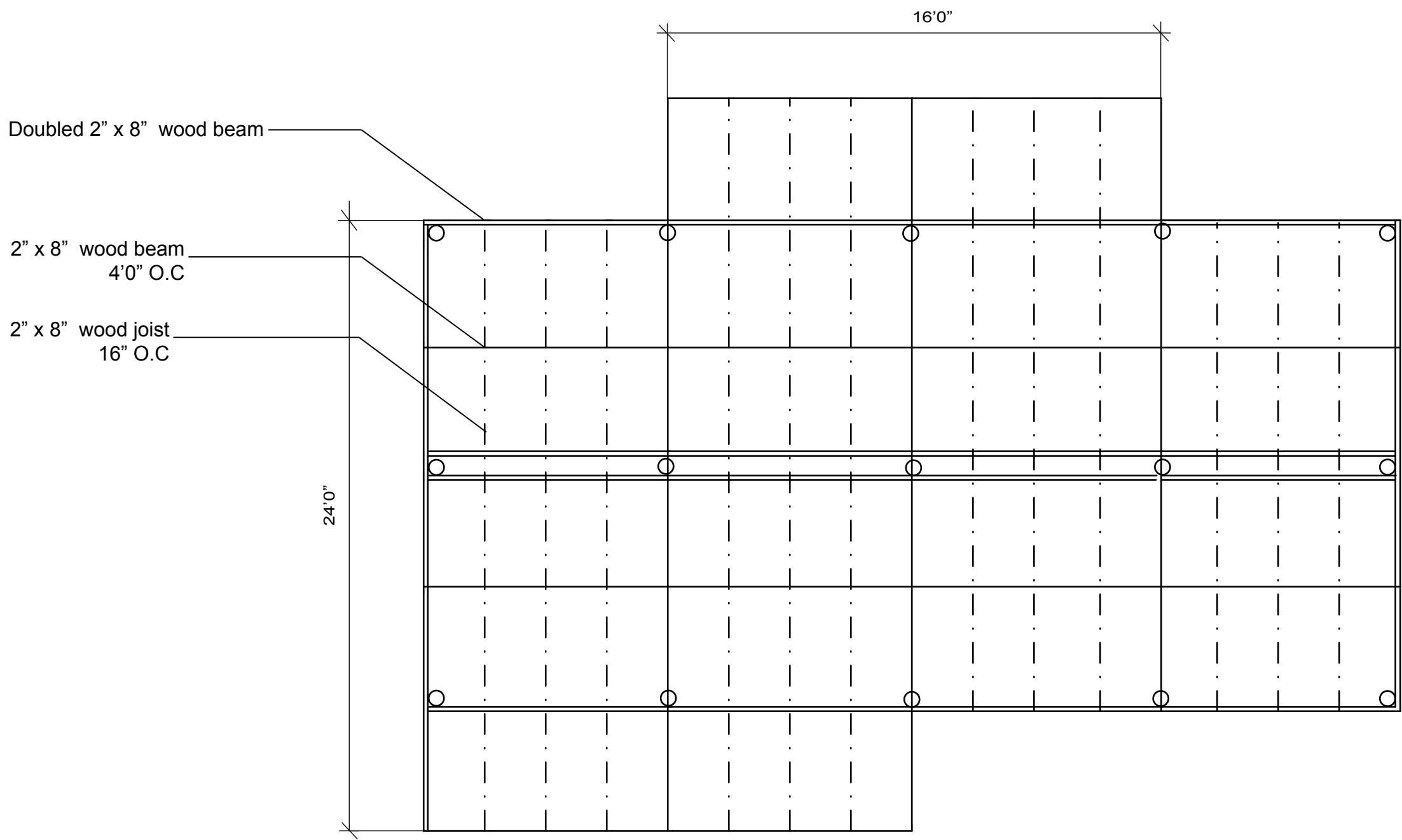
MATERIALS AND ASSEMBLY  
HOT & HUMID  
BRASILIA, BRAZIL

S1.2  
Footings Section  
& Detail

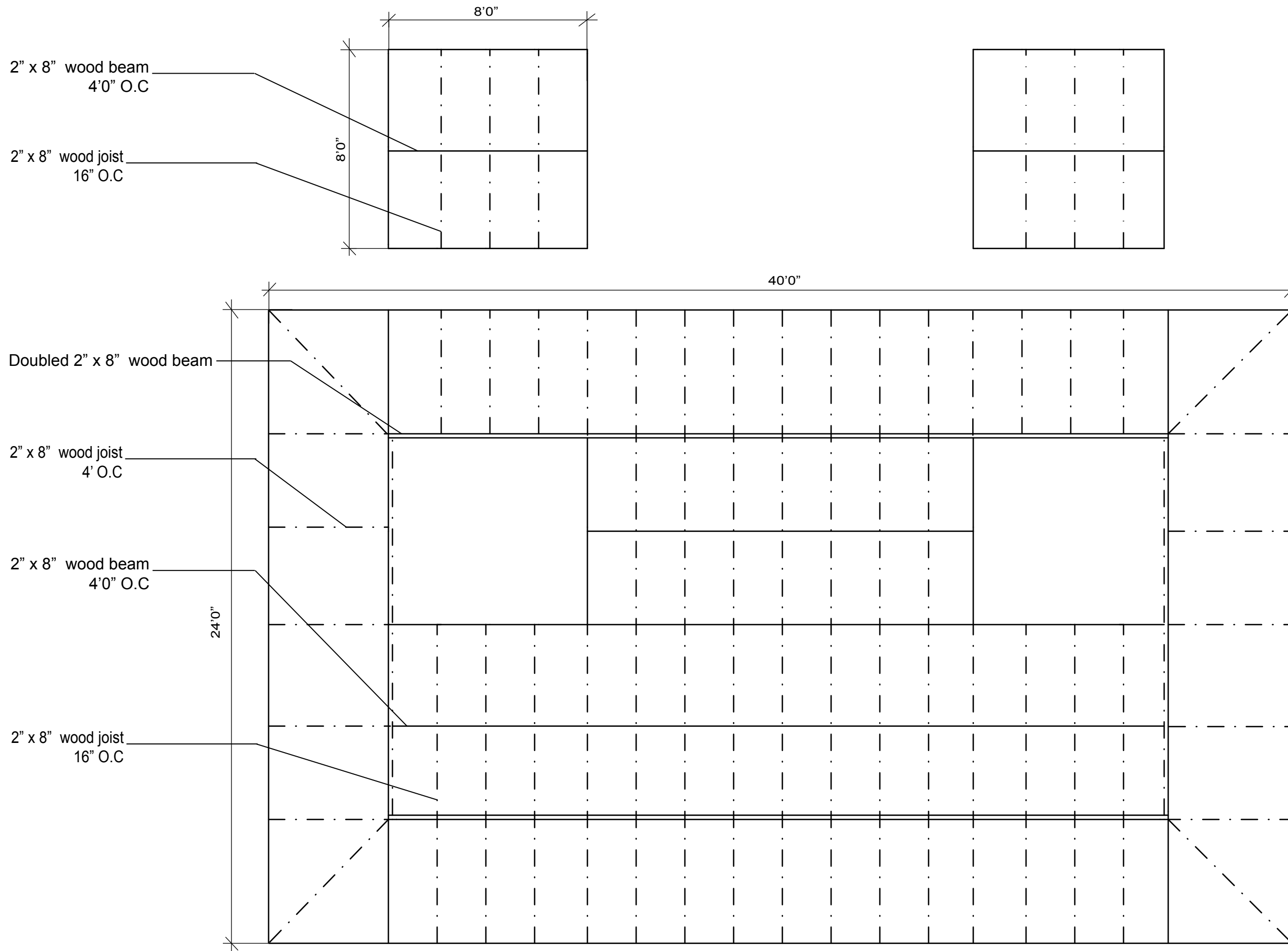
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1 FLOOR STRUCTURE  
SCALE 1/4" = 1'



MATERIALS AND ASSEMBLY  
HOT & HUMID  
BRASILIA, BRAZIL

S 1.4  
Roof Structure

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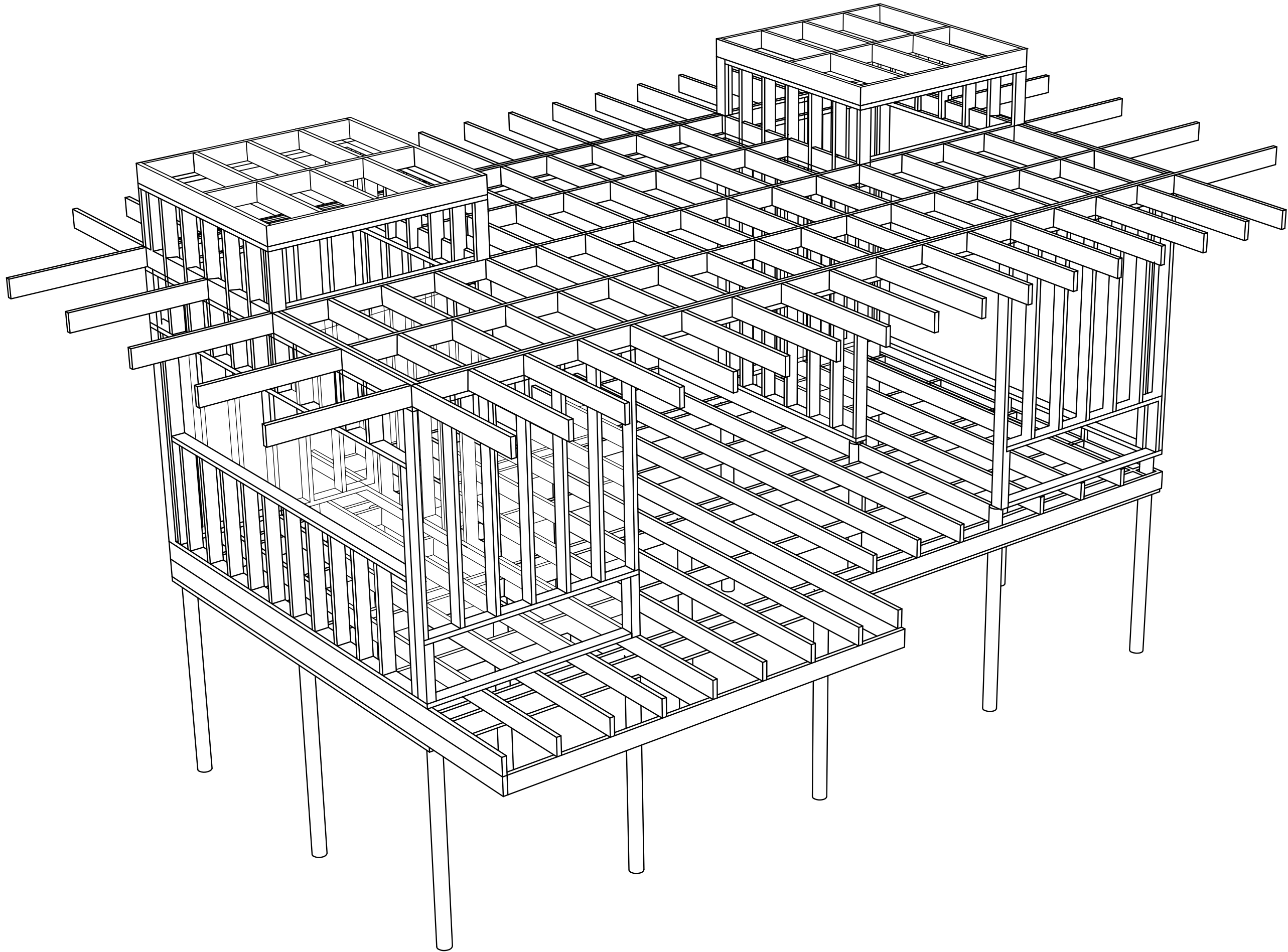
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1

ROOF STRUCTURE

SCALE 1/4" = 1'



MATERIALS AND ASSEMBLY  
HOT & HUMID  
BRASILIA, BRAZIL

S1.5

Structure Overview

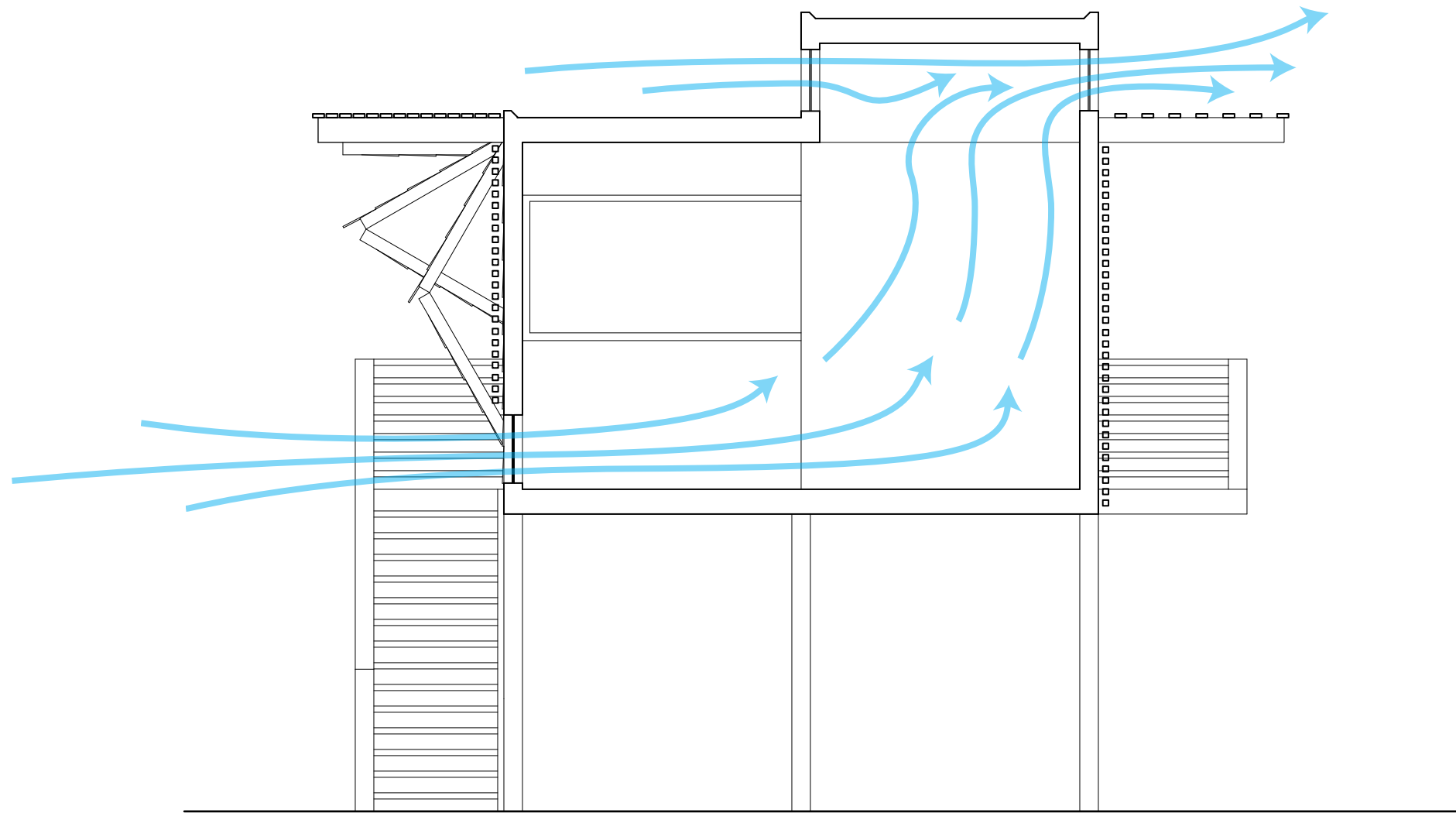
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1 THERMAL FLOW DIAGRAM  
SCALE 1/4" = 1'

MATERIALS AND ASSEMBLY  
HOT & HUMID  
BRASILIA, BRAZIL

M1.1  
Thermal Diagram

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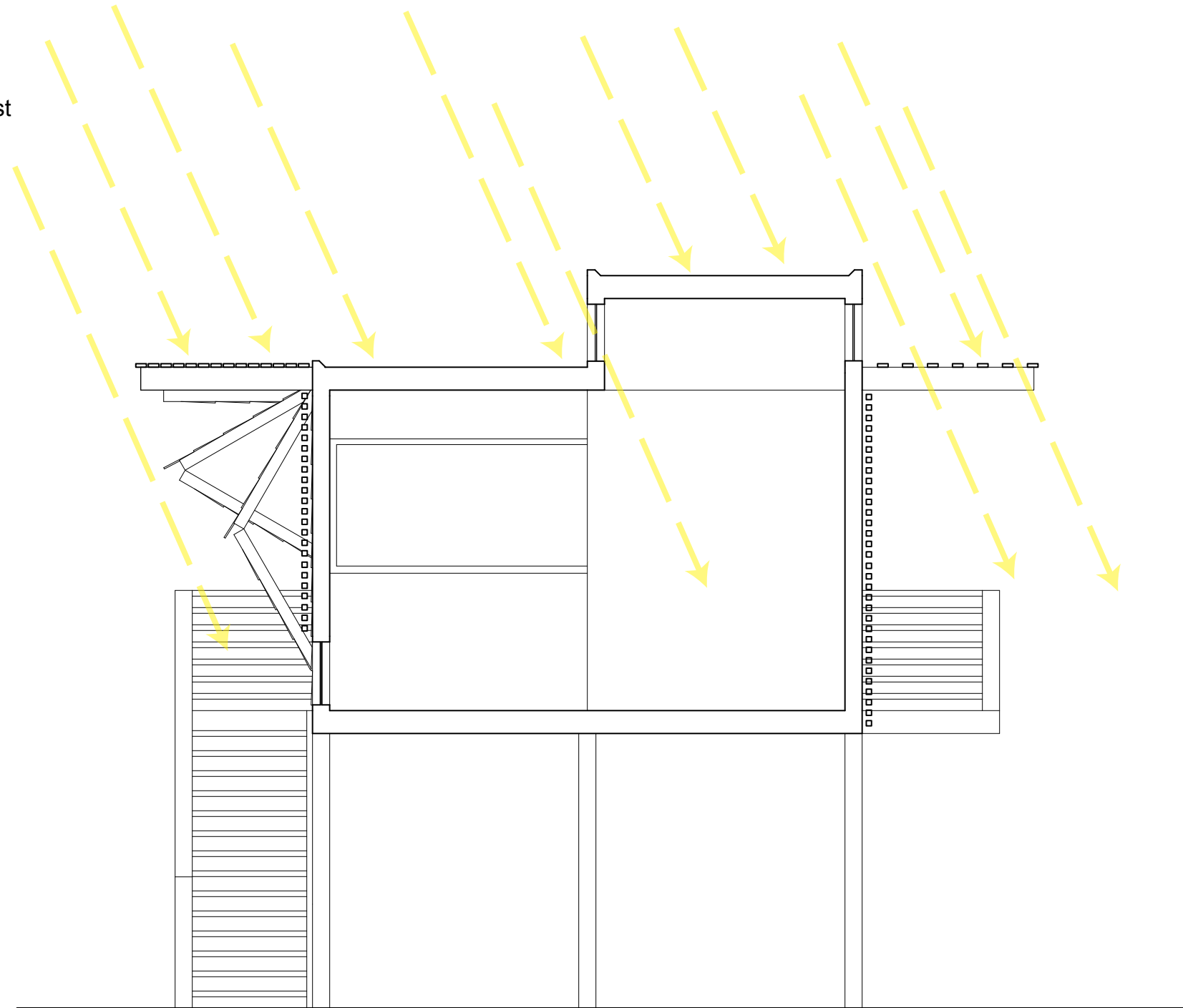
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SUMMER  
JANUARY 1st



1

**PASSIVE LIGHTING DIAGRAM 1**

SCALE 1/4" = 1'

**MATERIALS AND ASSEMBLY**  
**HOT & HUMID**  
**BRASILIA, BRAZIL**

**M1.2**  
Lighting Diagram

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APRIL 23,  
2009

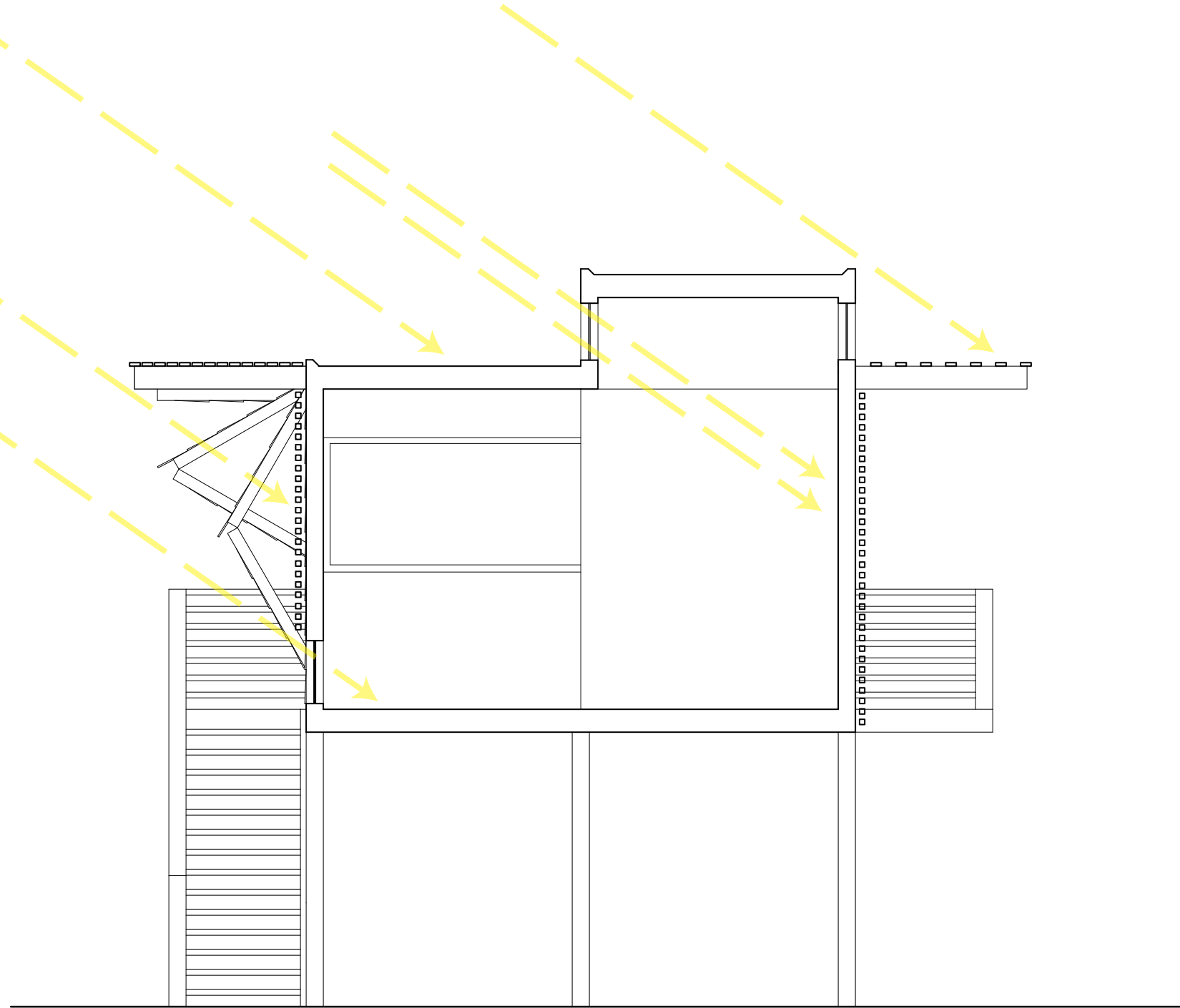
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WINTER  
JULY 1st



1

PASSIVE LIGHTING DIAGRAM 2

SCALE 1/4 " = 1'

MATERIALS AND ASSEMBLY  
HOT & HUMID  
BRASILIA, BRAZIL

M 1.3  
Lighting Diagram

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