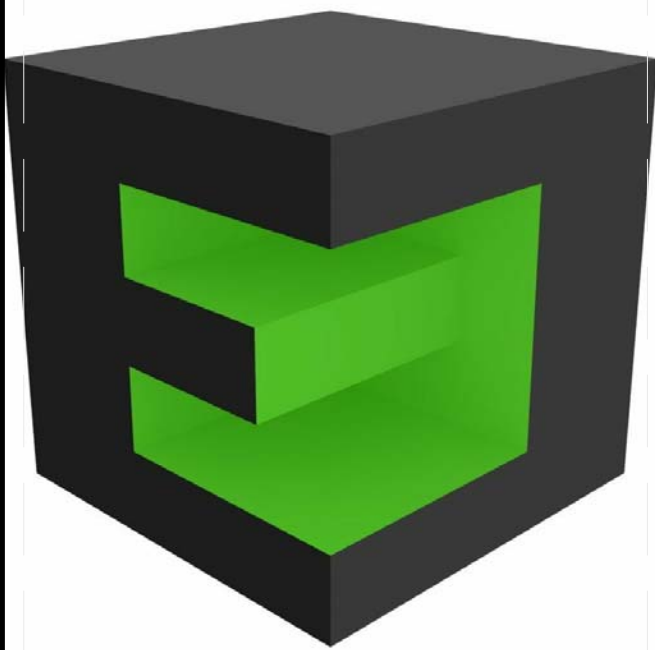


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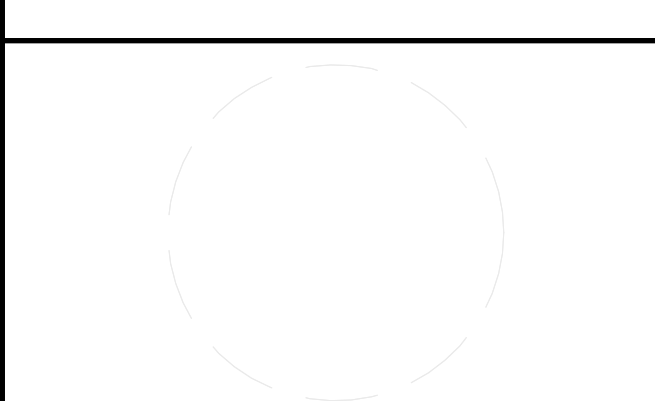


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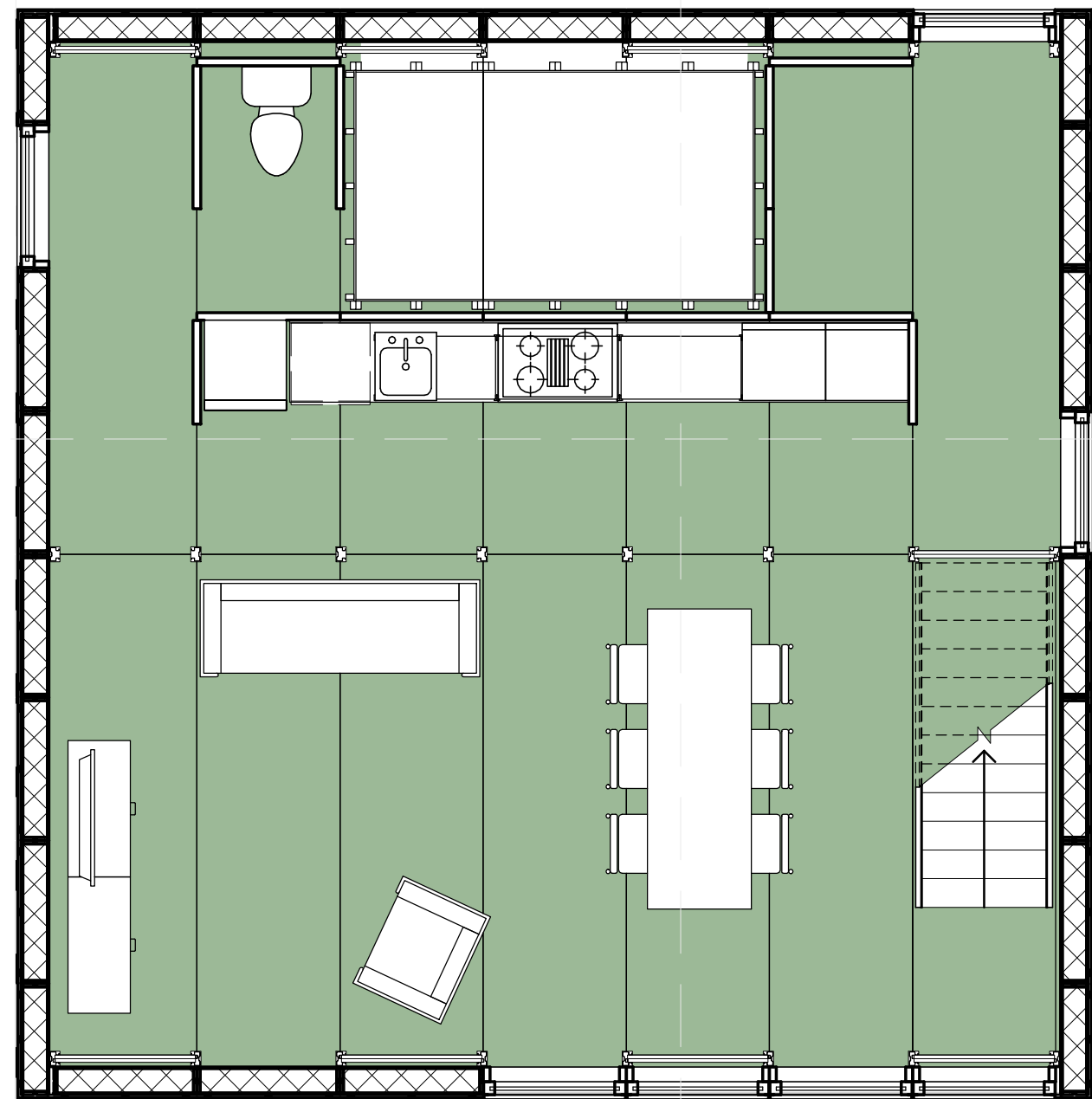
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SHEET TITLE

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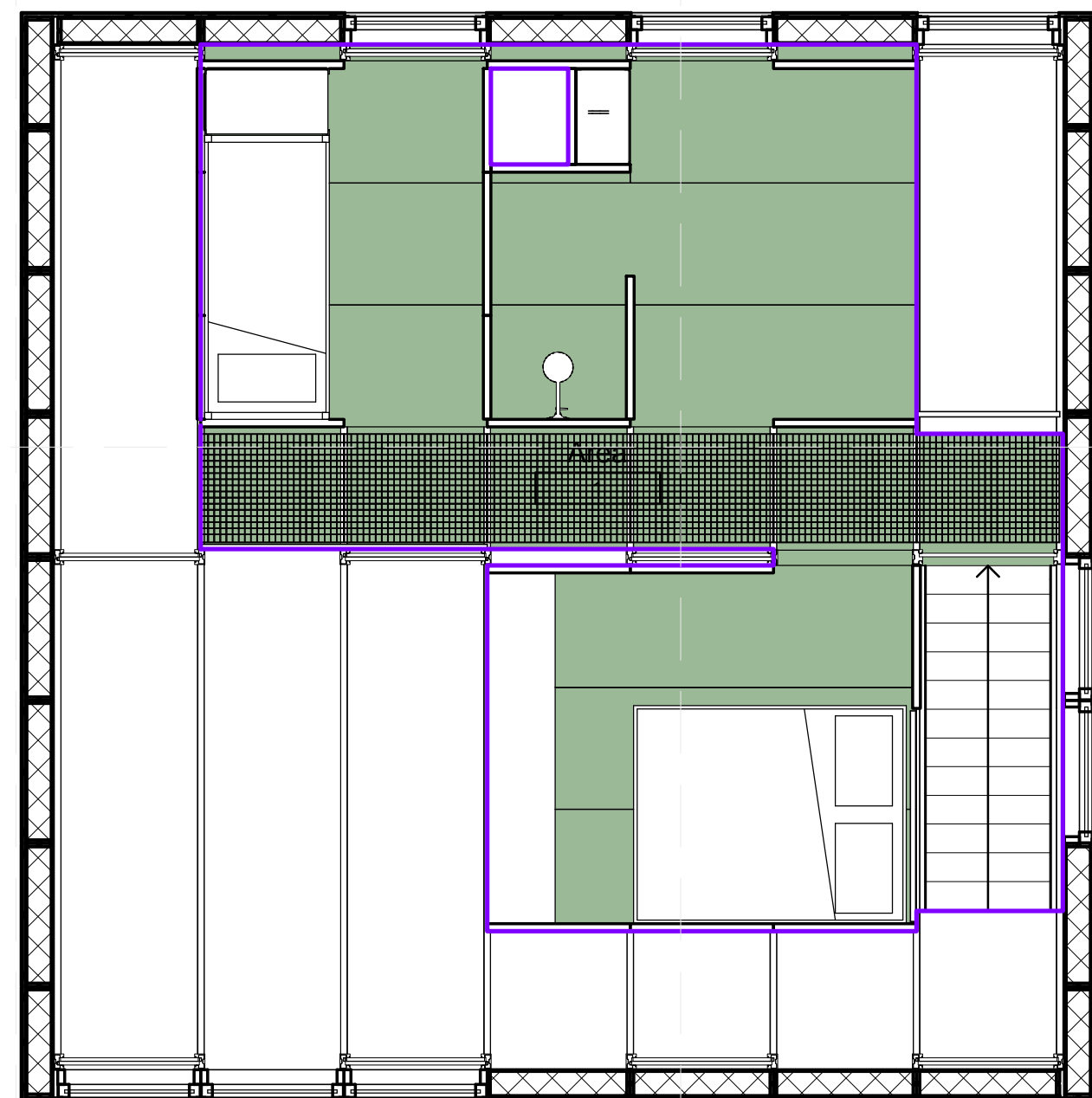
G-001



Building Area Legend

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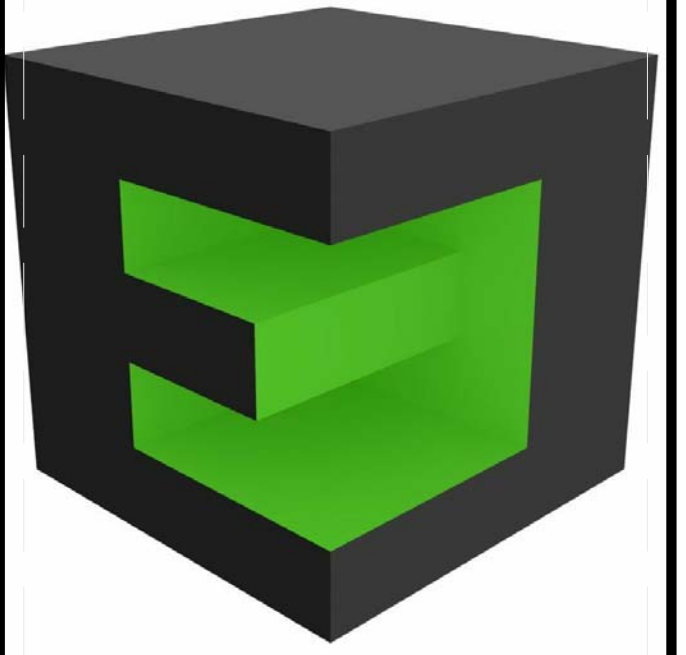
C2 FIRST FLOOR
1:48



Rentable Area Legend

338 SF

C5 SECOND FLOOR TOP
1:48



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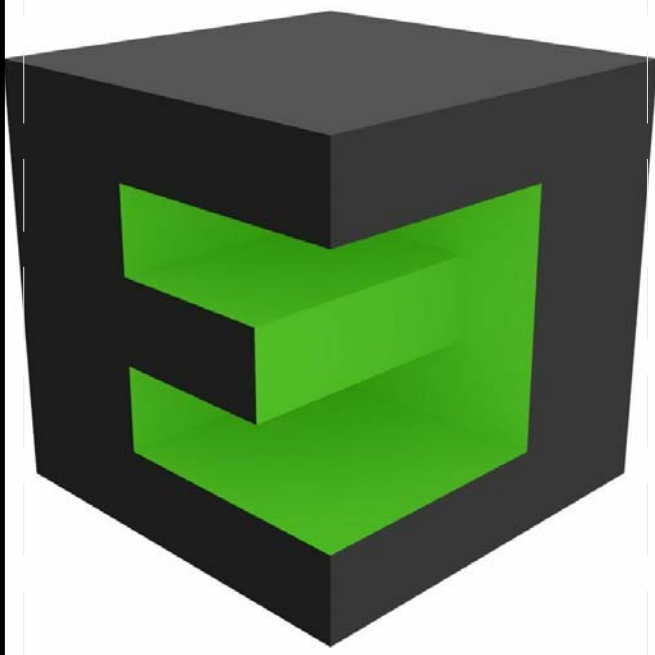
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SHEET TITLE
 FINISHED SQUARE FOOTAGE COMPLIANCE PLAN

G-101

SHEET KEYNOTES

18 WE ARE TRYING TO MAKE THIS AS READABLE AS POSSIBLE. WE ARE WORKING TO ADAPT THIS TO THE NATIONAL CAD STANDARD.



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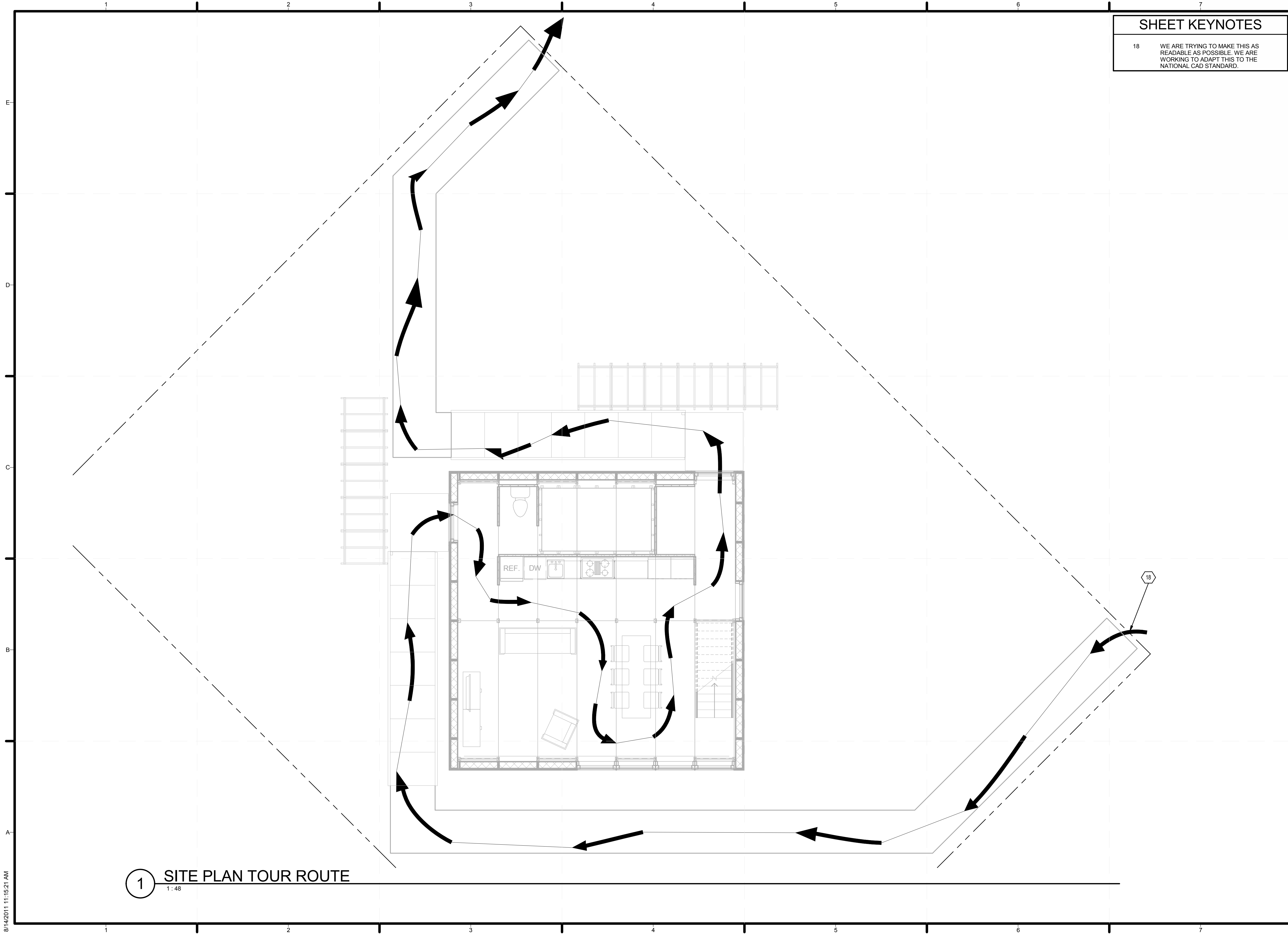


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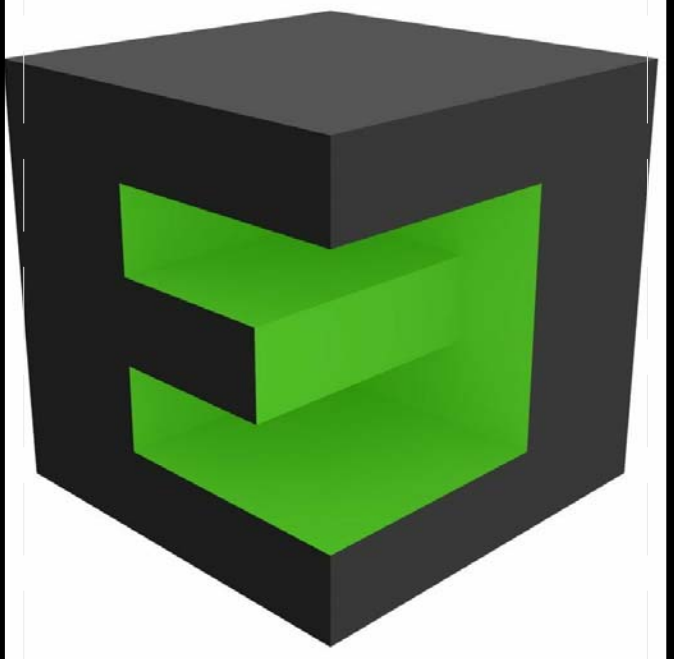
SHEET TITLE
TOUR ROUTE

G-102



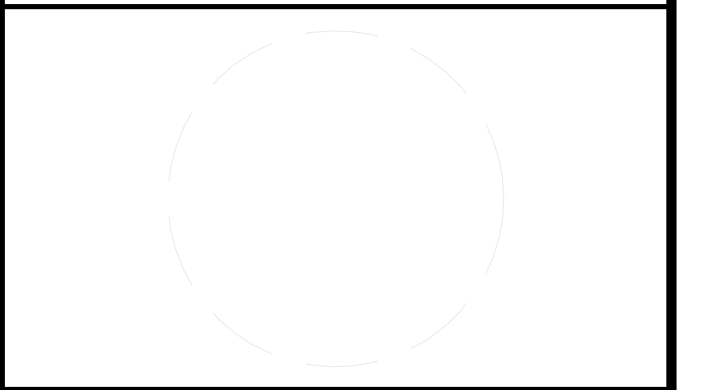
1 SITE PLAN TOUR ROUTE
 1:48

8/14/2011 11:15:21 AM



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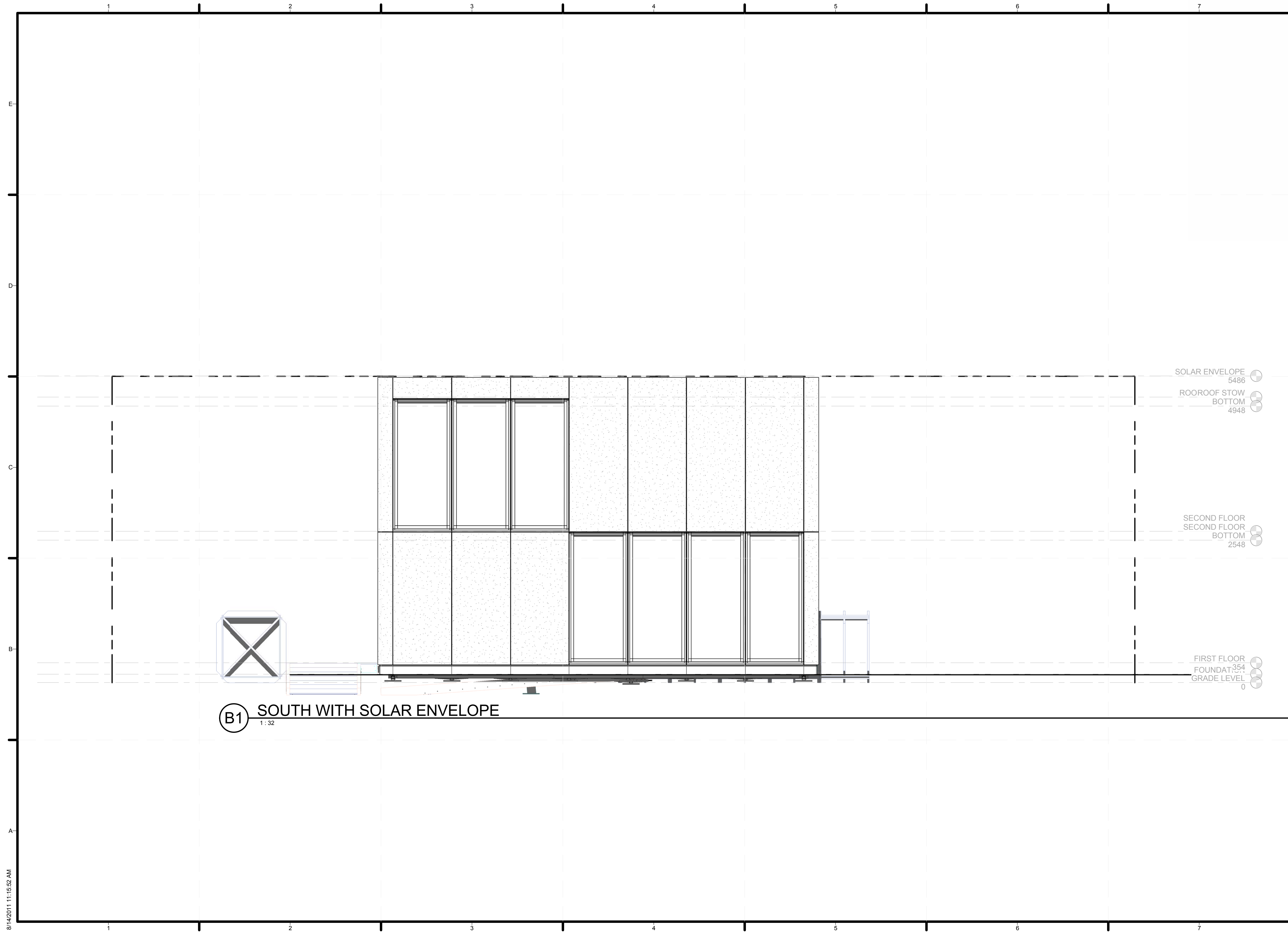


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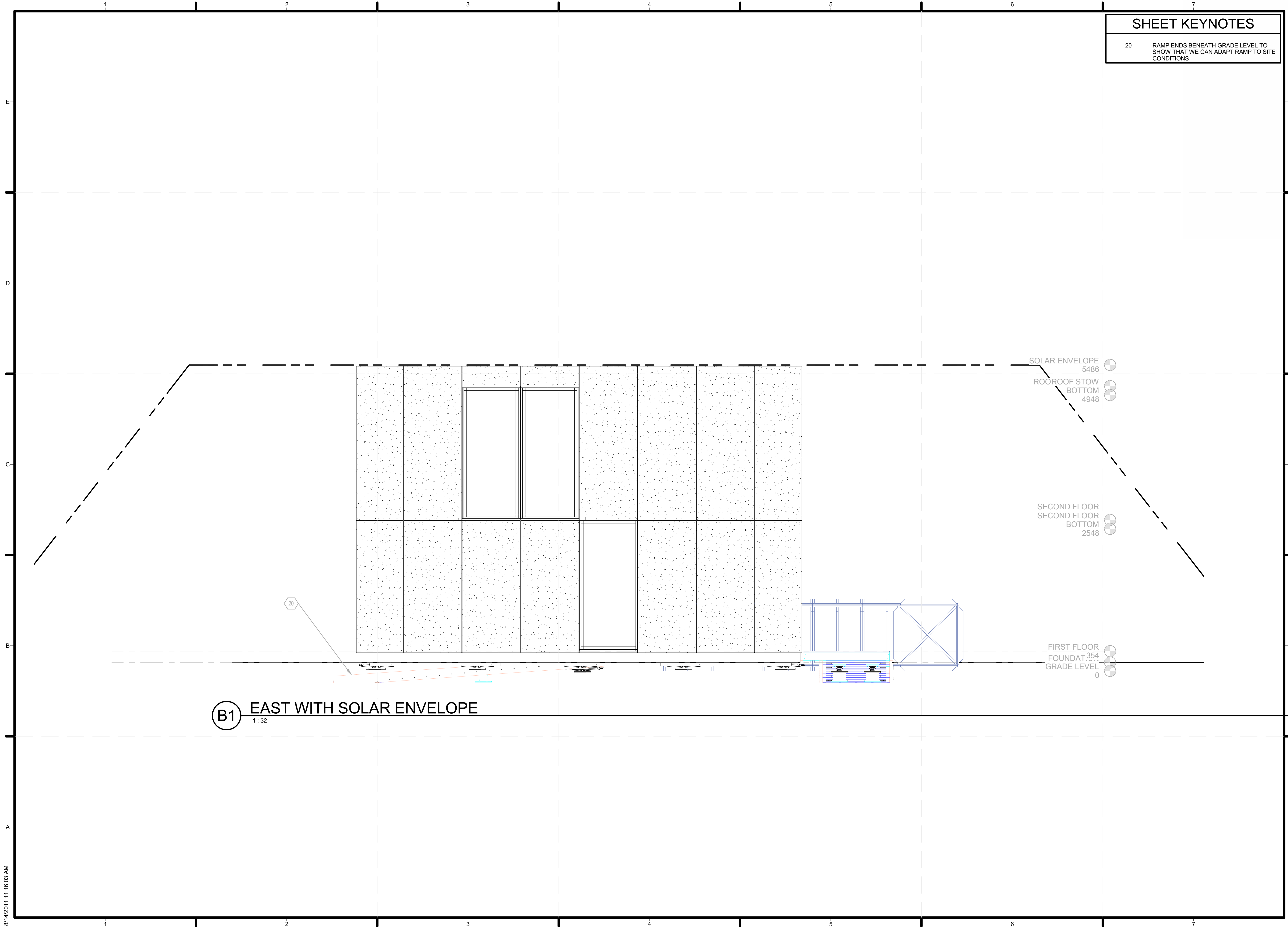
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SHEET TITLE
 SOLAR ENVELOPE COMPLIANCE ELEVATIONS

G-201

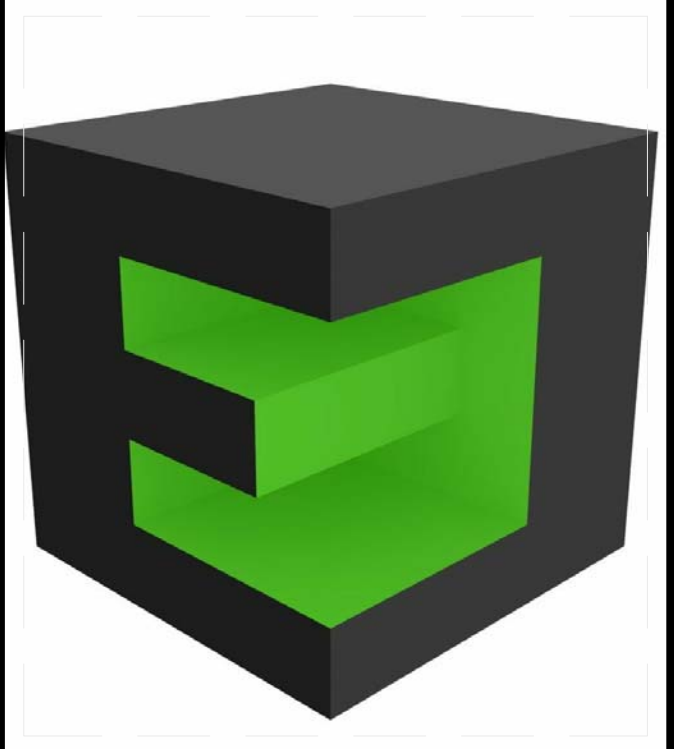


B1 SOUTH WITH SOLAR ENVELOPE
 1:32



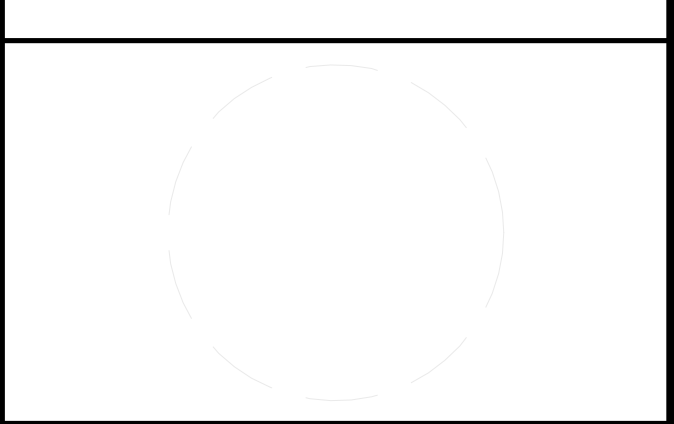
SHEET KEYNOTES

20 RAMP ENDS BENEATH GRADE LEVEL TO SHOW THAT WE CAN ADAPT RAMP TO SITE CONDITIONS



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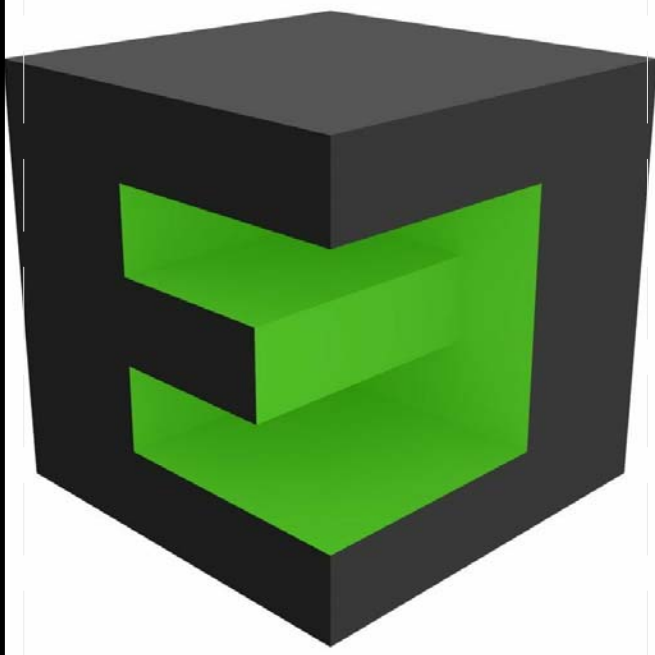
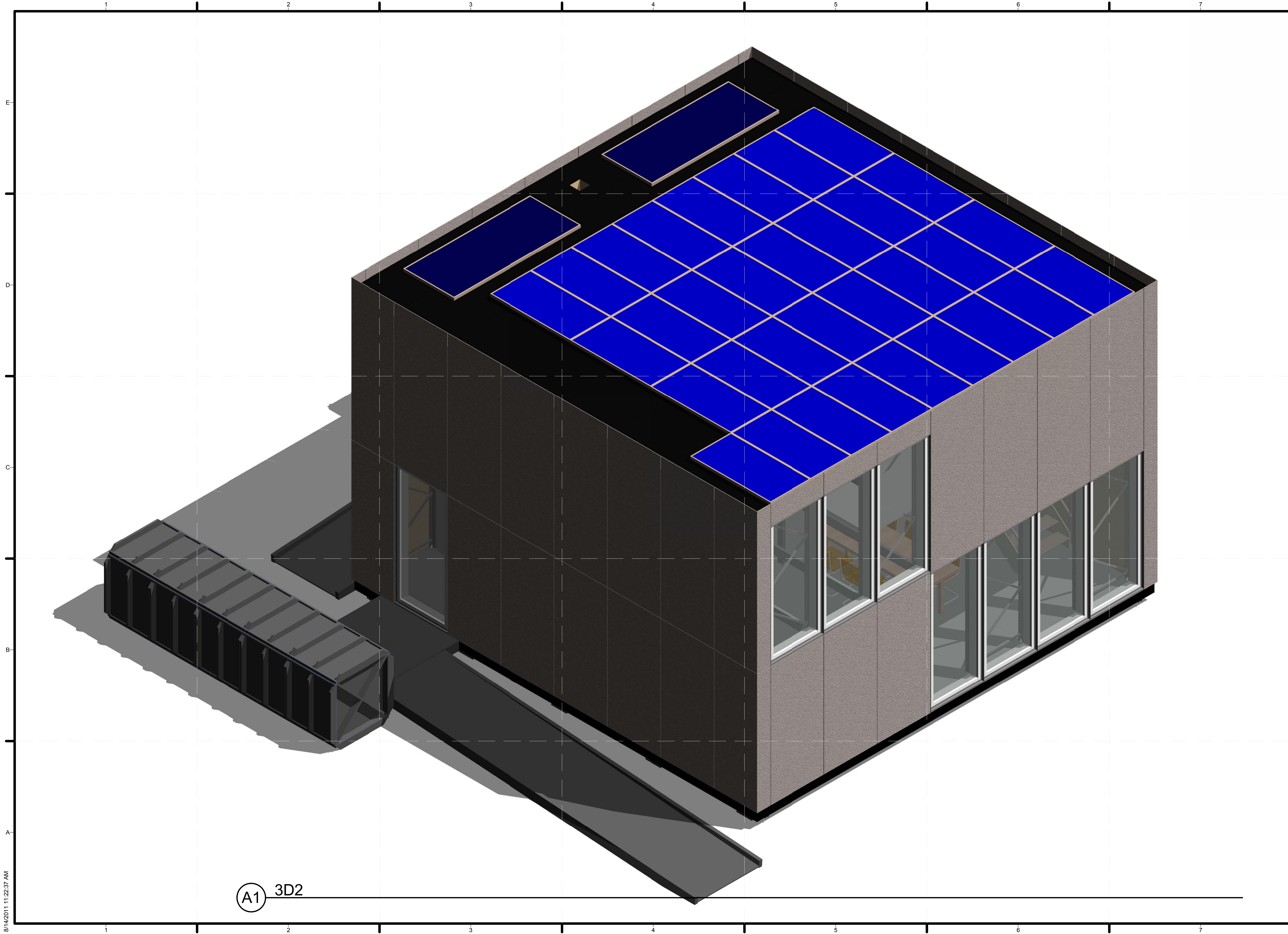
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SHEET TITLE: SOLAR ENVELOPE COMPLIANCE ELEVATIONS

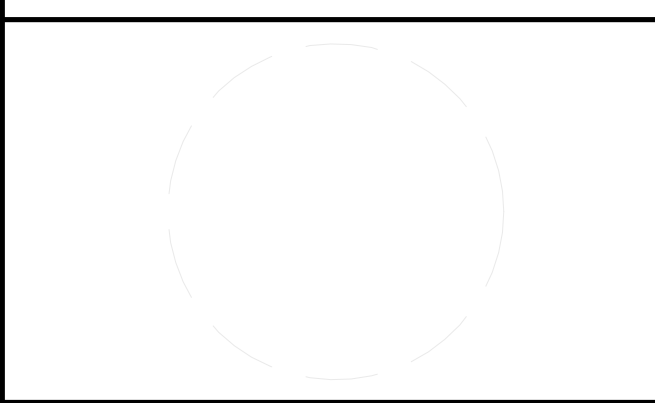
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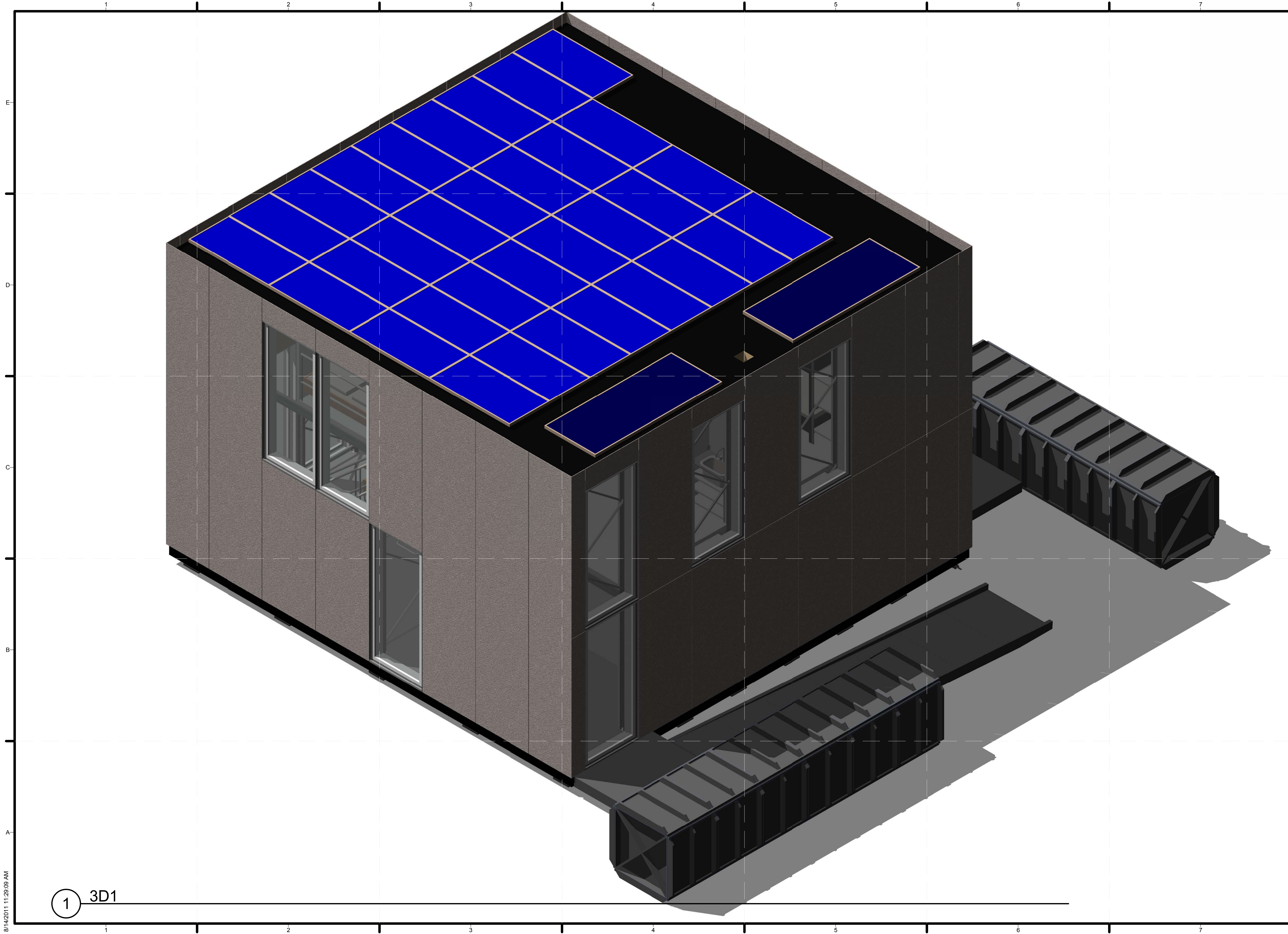
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SHEET TITLE
 GENERAL PROJECT RENDERINGS

G-901

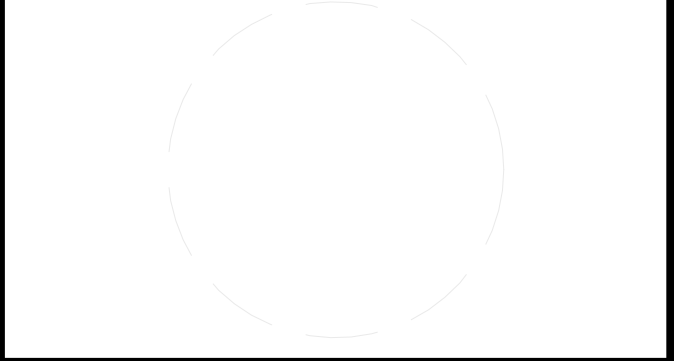
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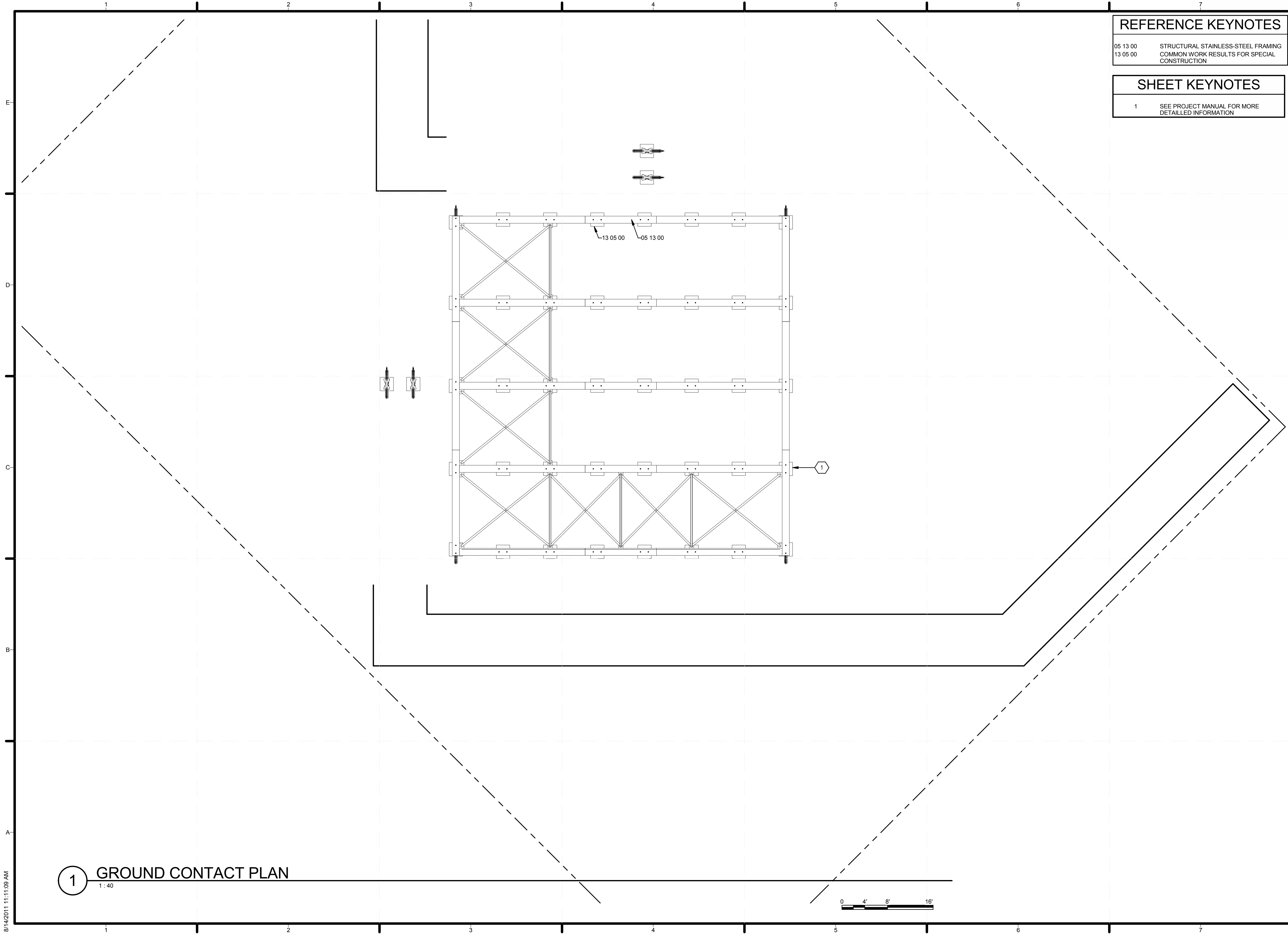
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SHEET TITLE
 GENERAL PROJECT RENDERINGS

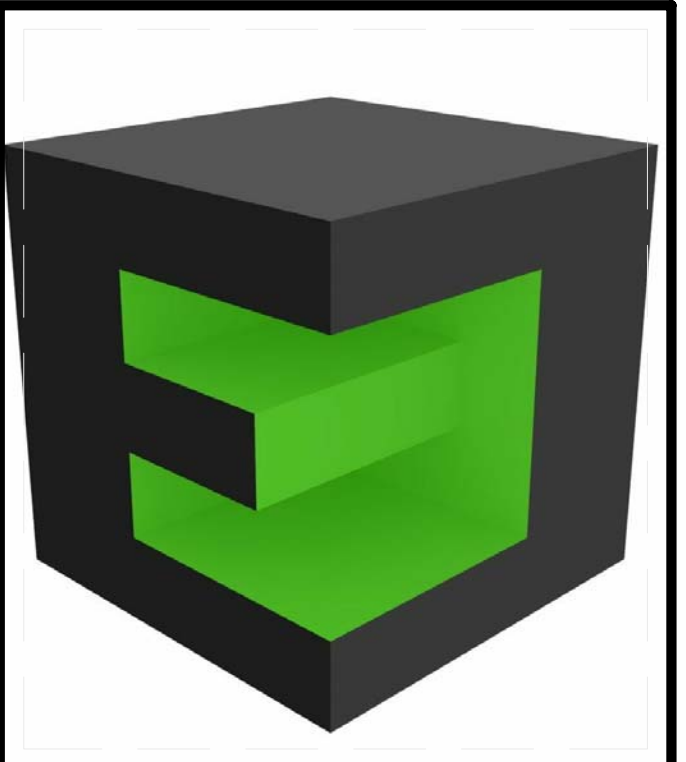
G-902

1 3D1



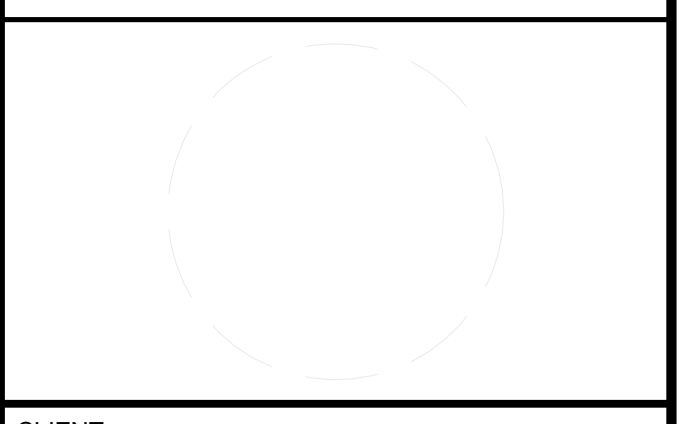
REFERENCE KEYNOTES
 05 13 00 STRUCTURAL STAINLESS-STEEL FRAMING
 13 05 00 COMMON WORK RESULTS FOR SPECIAL CONSTRUCTION

SHEET KEYNOTES
 1 SEE PROJECT MANUAL FOR MORE DETAILED INFORMATION



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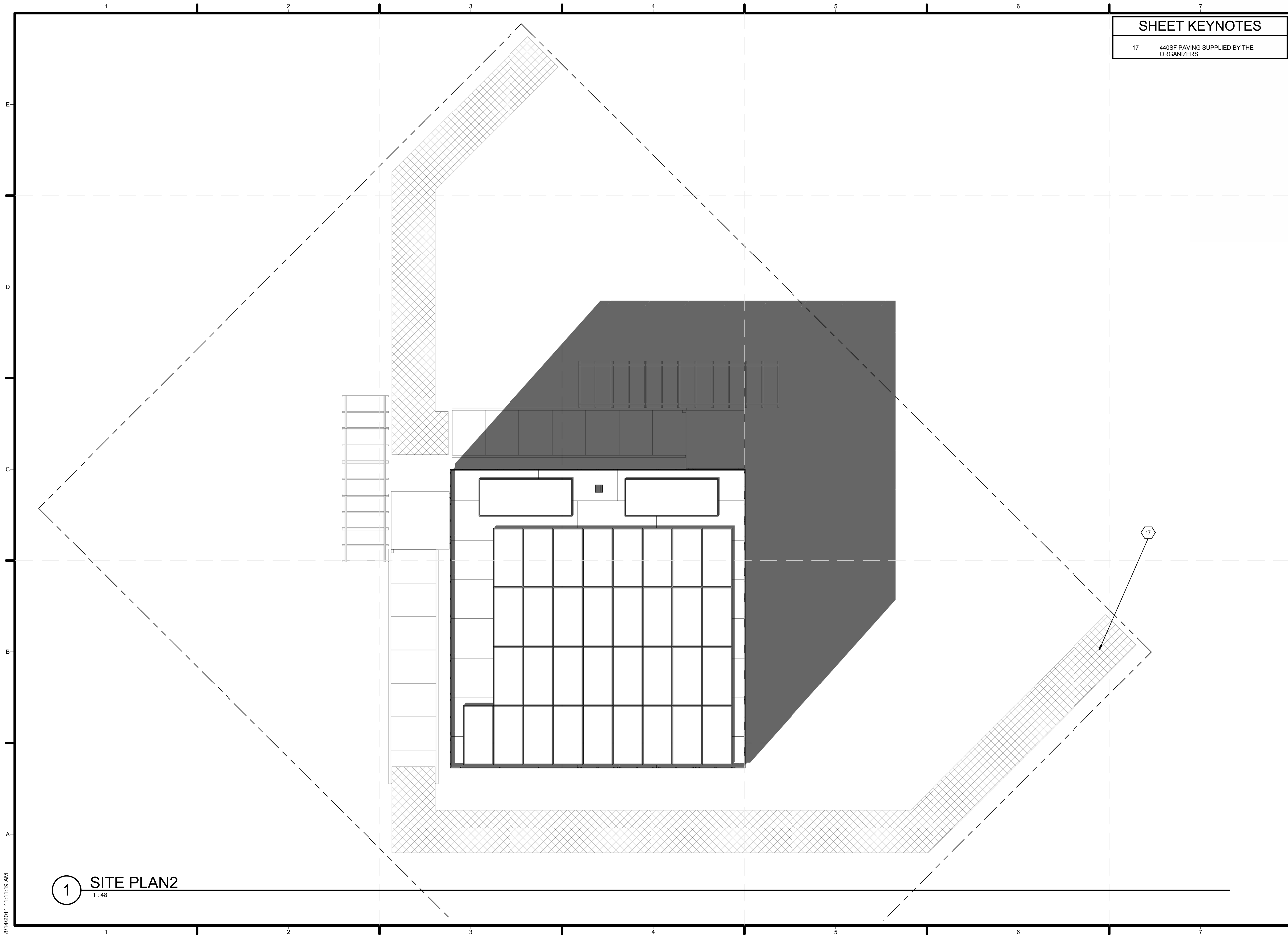


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SHEET TITLE
GROUND CONTACT PLAN

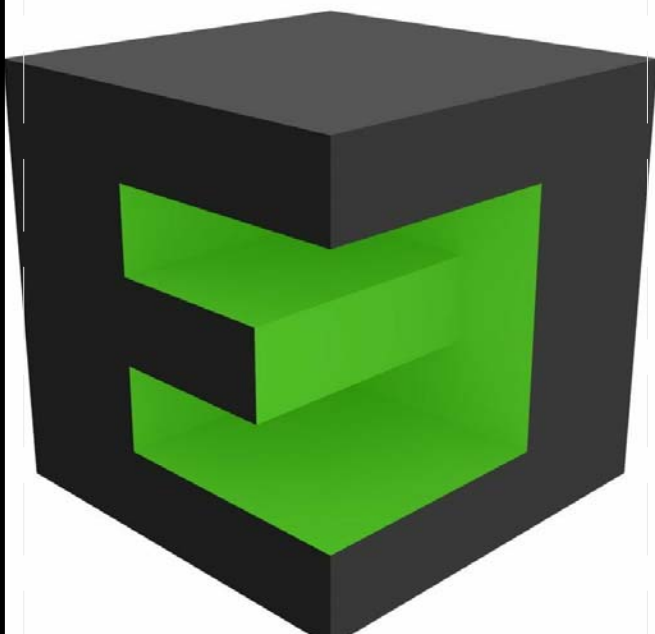
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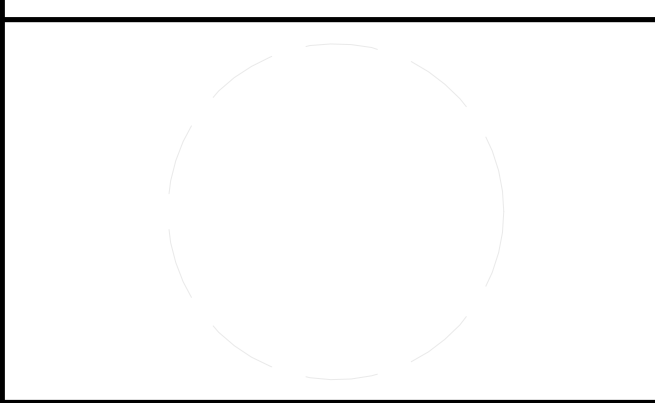
SHEET KEYNOTES

17 440SF PAVING SUPPLIED BY THE ORGANIZERS



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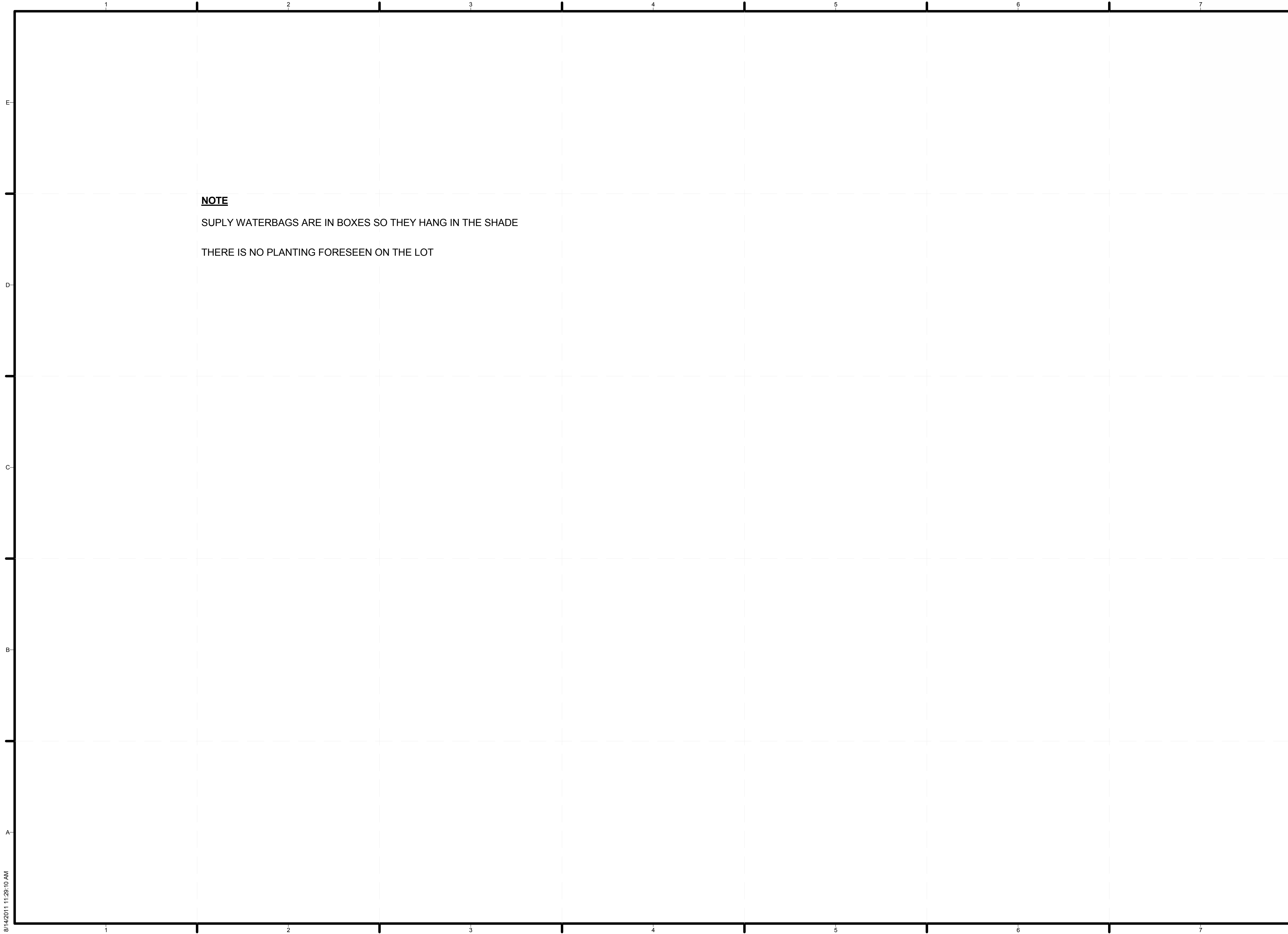
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SHEET TITLE
 ORGANIZER SUPPLIED PAVING PLAN

C-102

1 SITE PLAN2
 1:48

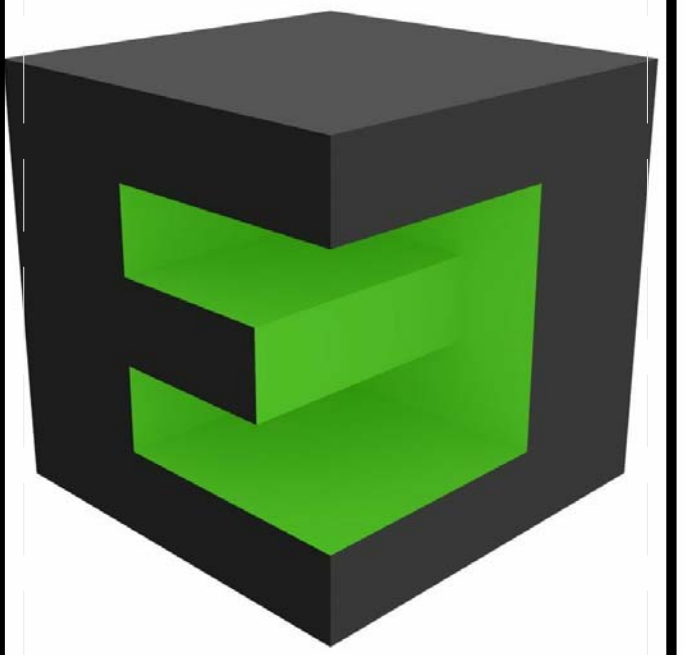
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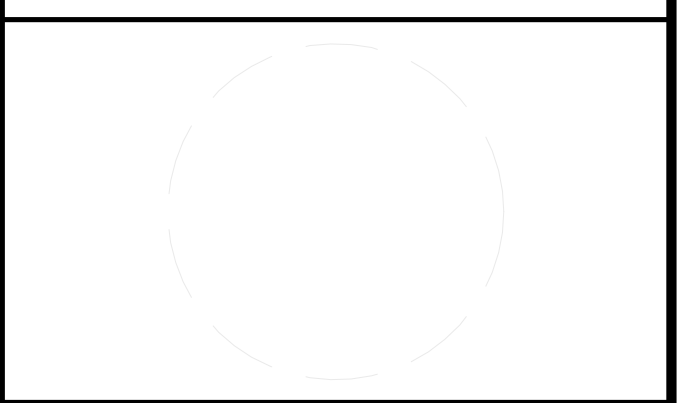
SUPPLY WATERBAGS ARE IN BOXES SO THEY HANG IN THE SHADE

THERE IS NO PLANTING FORESEEN ON THE LOT



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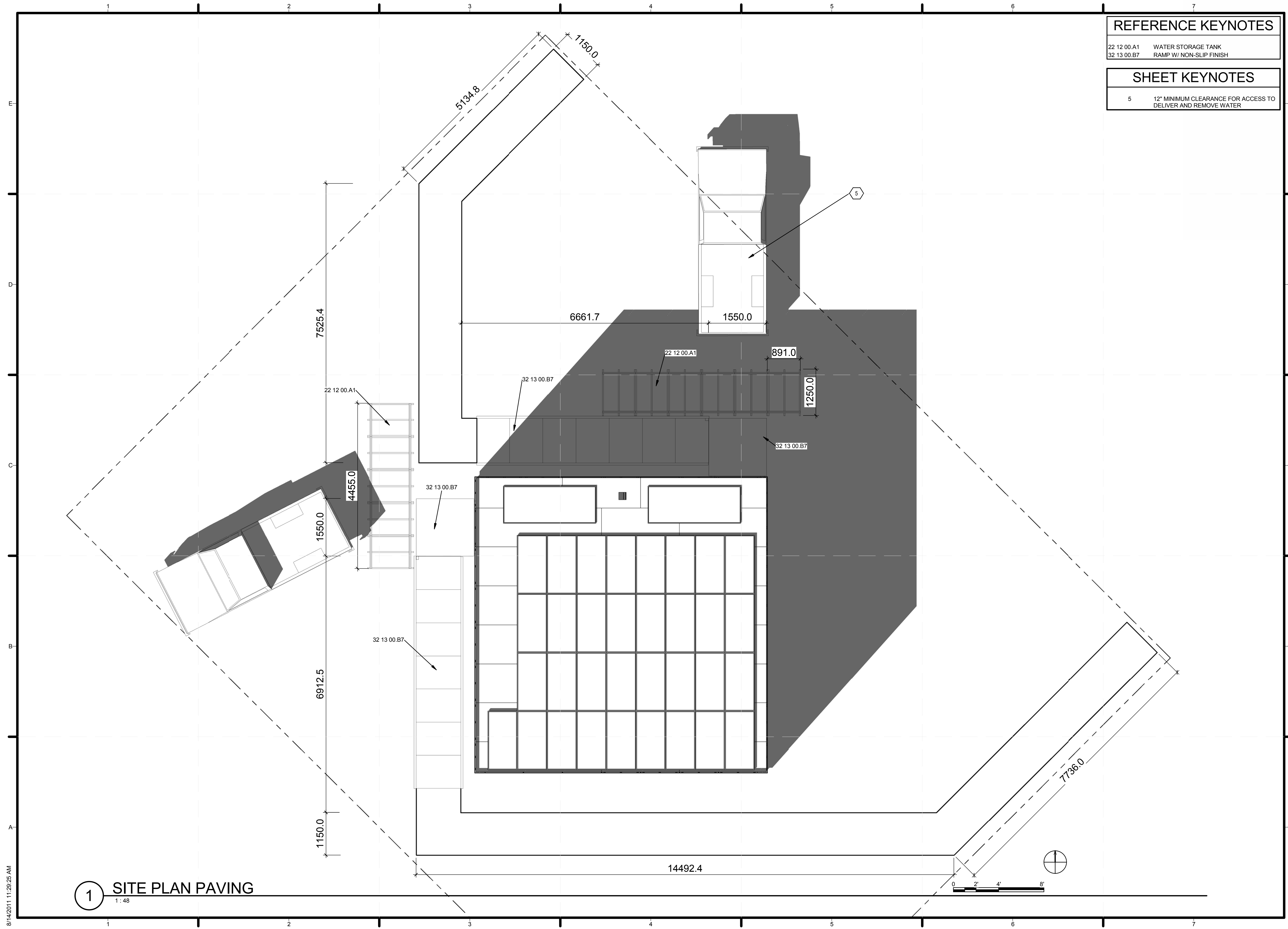


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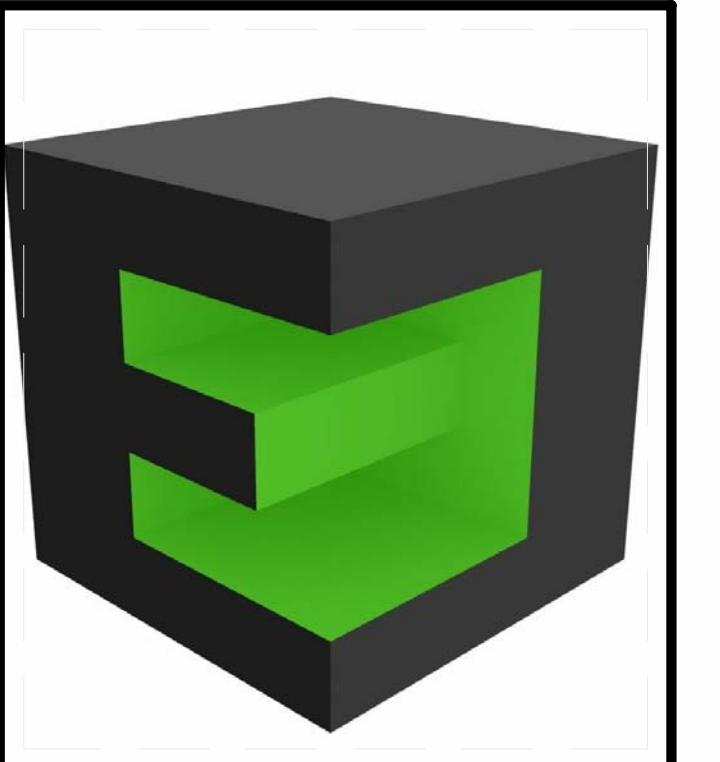
SHEET TITLE
 LANDSCAPE NOTES AND SYMBOLS

L-001



REFERENCE KEYNOTES	
22 12 00.A1	WATER STORAGE TANK
32 13 00.B7	RAMP W/ NON-SLIP FINISH

SHEET KEYNOTES	
5	12' MINIMUM CLEARANCE FOR ACCESS TO DELIVER AND REMOVE WATER

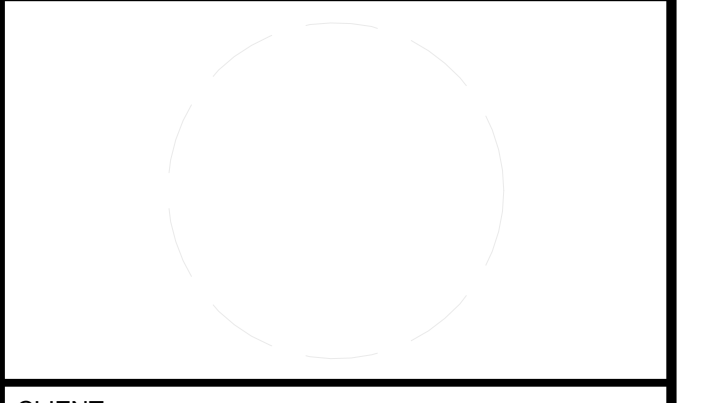


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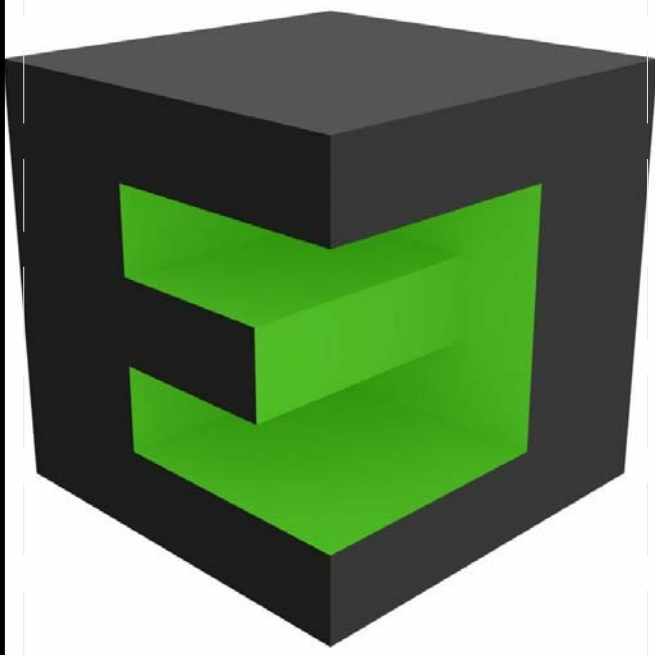
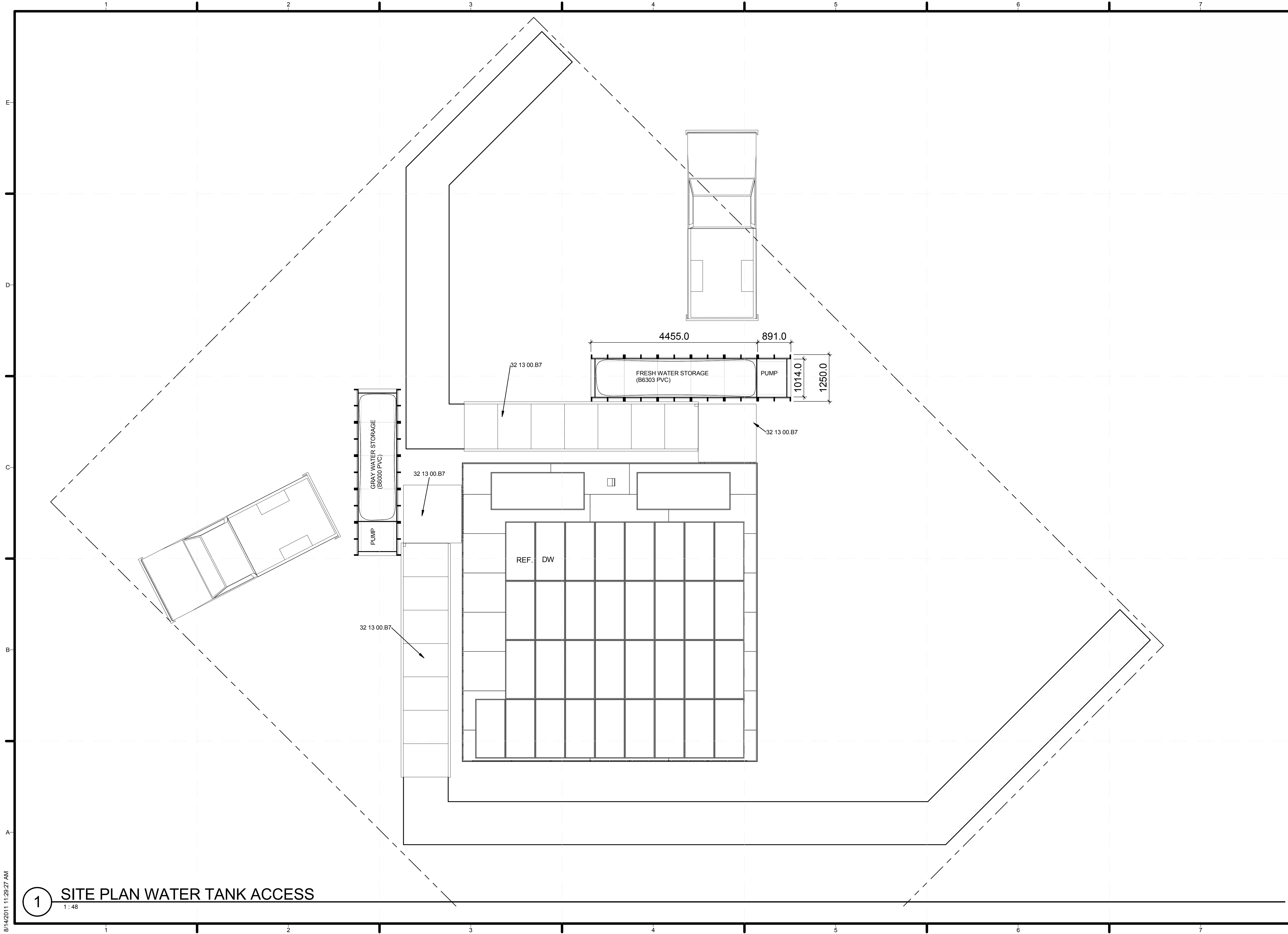
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SHEET TITLE
LANDSCAPE AND PLANTING SITE PLAN

L-101

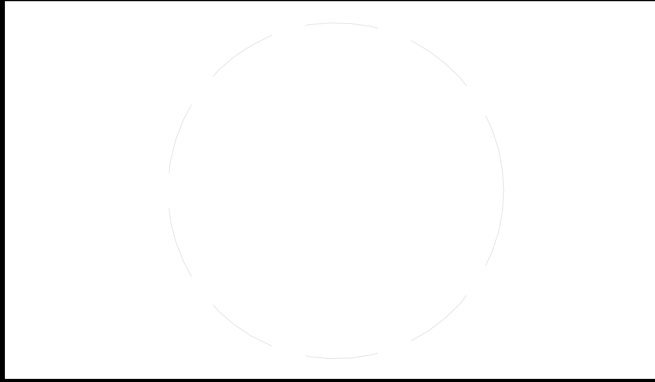
1 SITE PLAN PAVING
 1:48

8/14/2011 11:29:25 AM



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ARCHITECTURE: TOON VERMEIR, MARC DE KOONING, RUBEN ROTTIERS, PIETER JAN DE LOOF, DIETWIN VAN DE WALLE
 ENGINEERING: THOMAS DELAMEILLIEURE, TIM GAVEL, TOM DEFRIJYT, KEVIN D'HONDT, SAMUEL CUVELIERS, GLEN DE MEERSMAN
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SHEET TITLE
 ACCESS TO WATER TANKS

L-102

1 SITE PLAN WATER TANK ACCESS
 1:48

8/14/2011 11:29:27 AM



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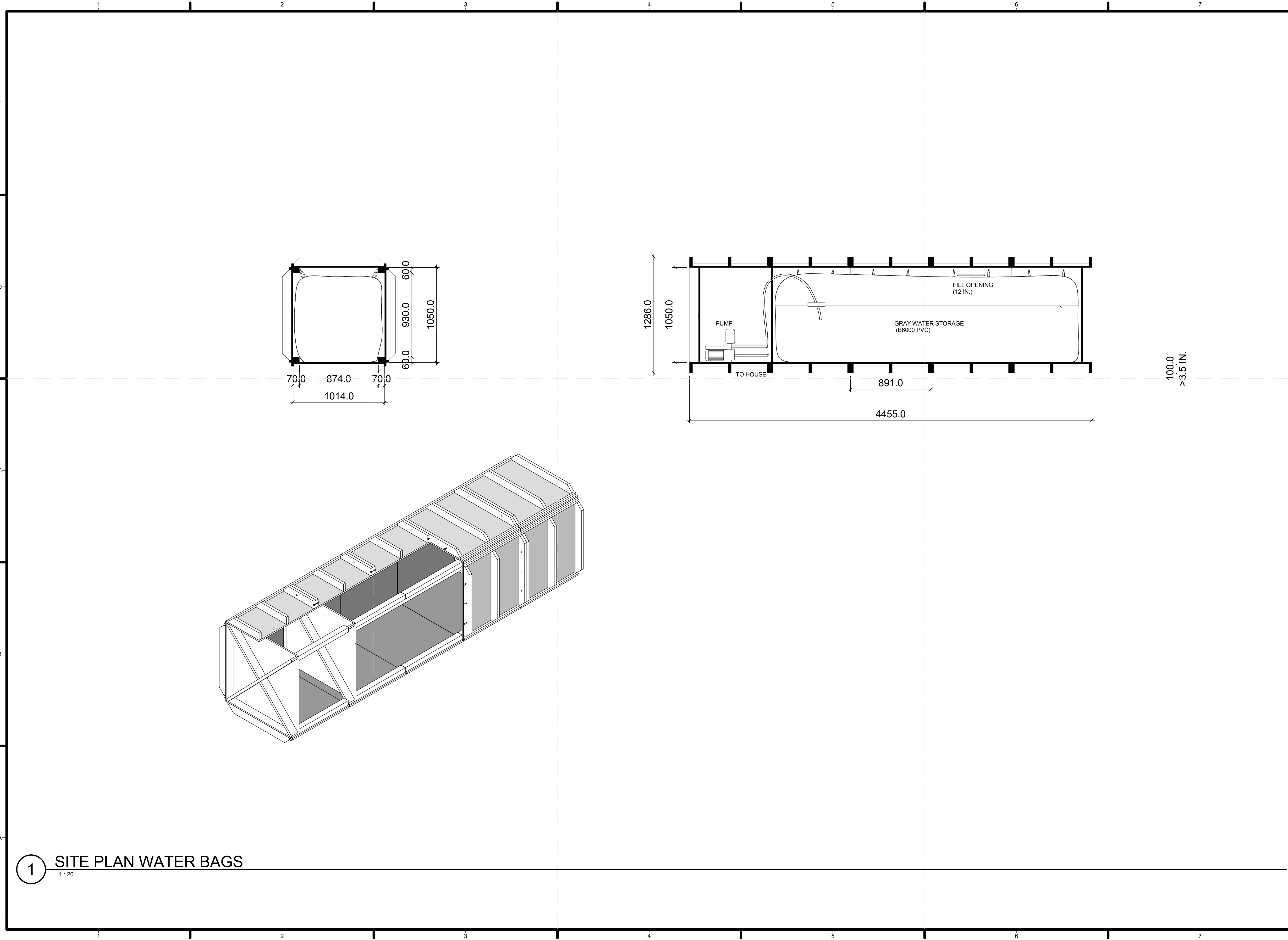
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SHEET TITLE

LANDSCAPE WATER TANKS

L-103

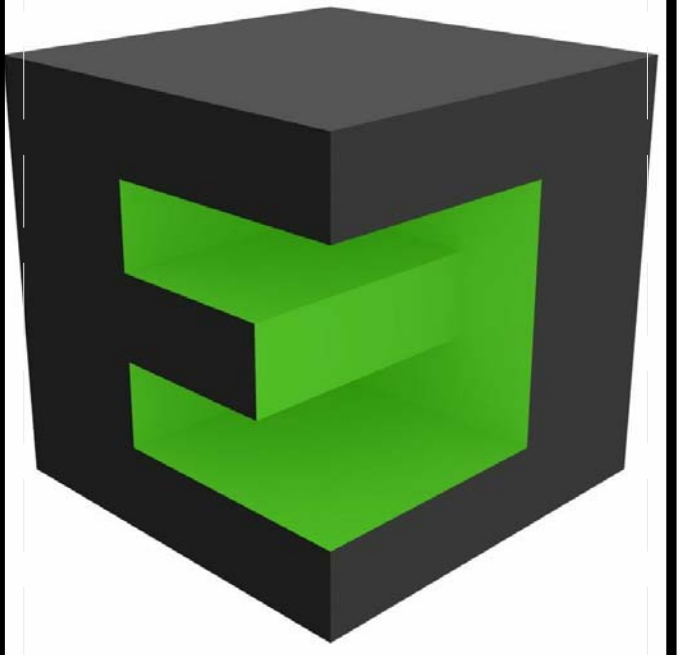


1 SITE PLAN WATER BAGS
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NOTE:

FOR MORE DETAILS ABOUT STRUCTURAL PLANS, DETAILS AND CALCULATIONS,
WE REFER TO THE PROJECT MANUAL

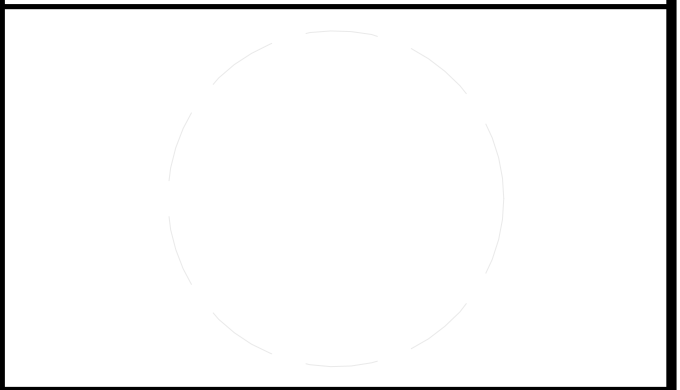


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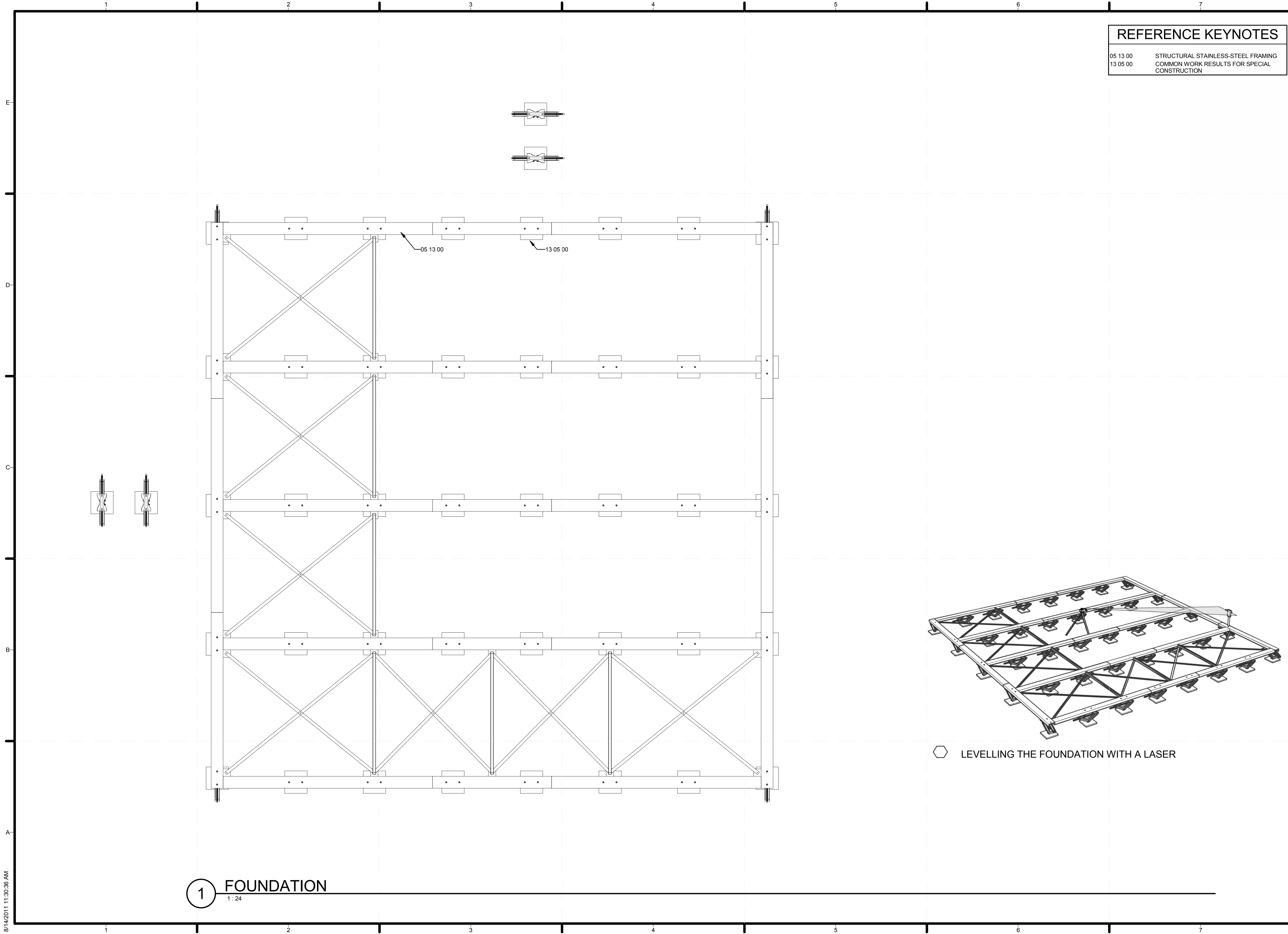


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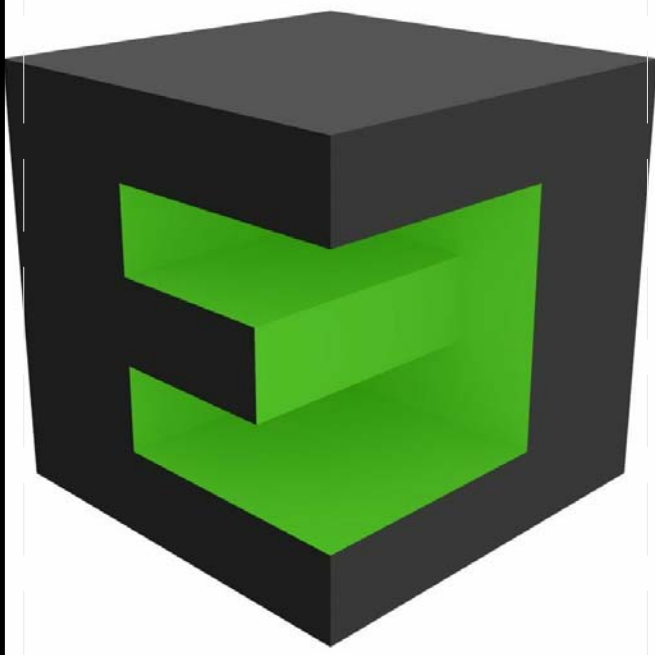
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SHEET TITLE
**STRUCTURAL NOTES
AND SYMBOLS**

S-001

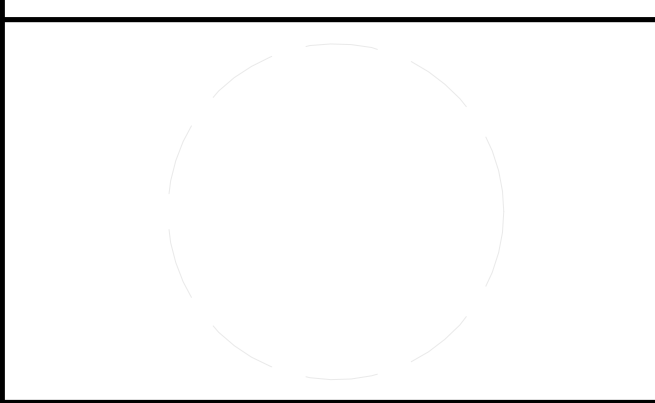


REFERENCE KEYNOTES	
05 13 00	STRUCTURAL STAINLESS-STEEL FRAMING
13 05 00	COMMON WORK RESULTS FOR SPECIAL CONSTRUCTION



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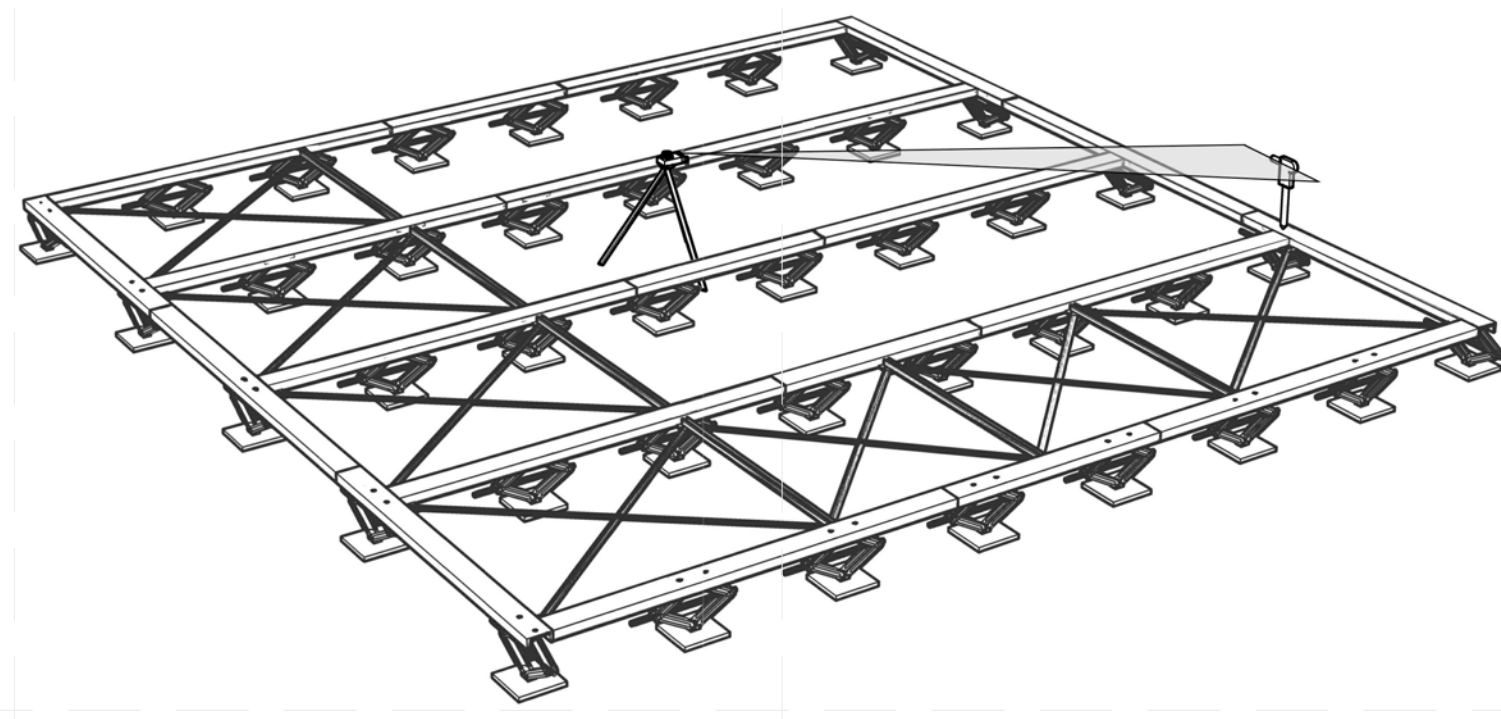
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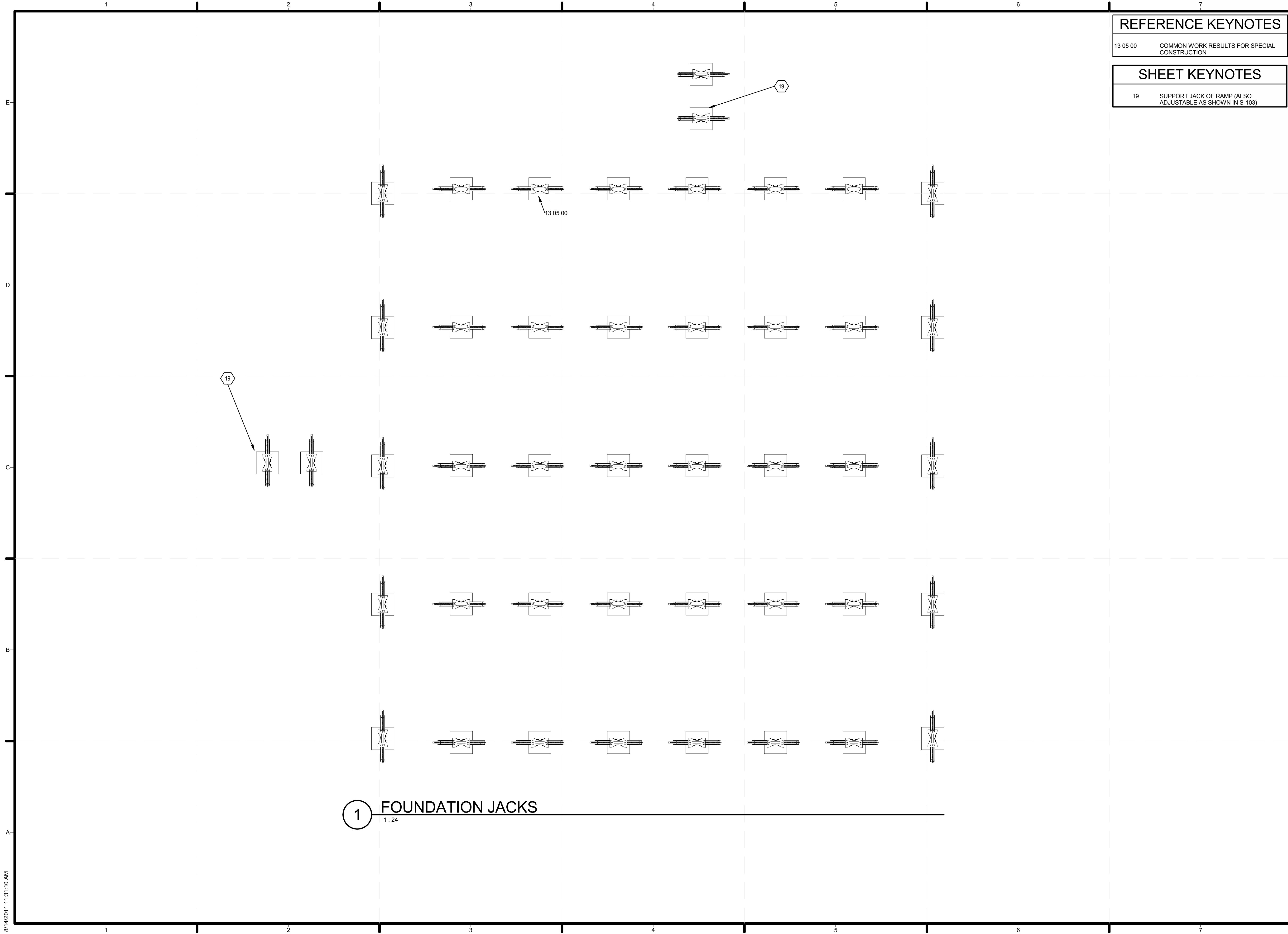
⬡ LEVELLING THE FOUNDATION WITH A LASER

① FOUNDATION
 1:24

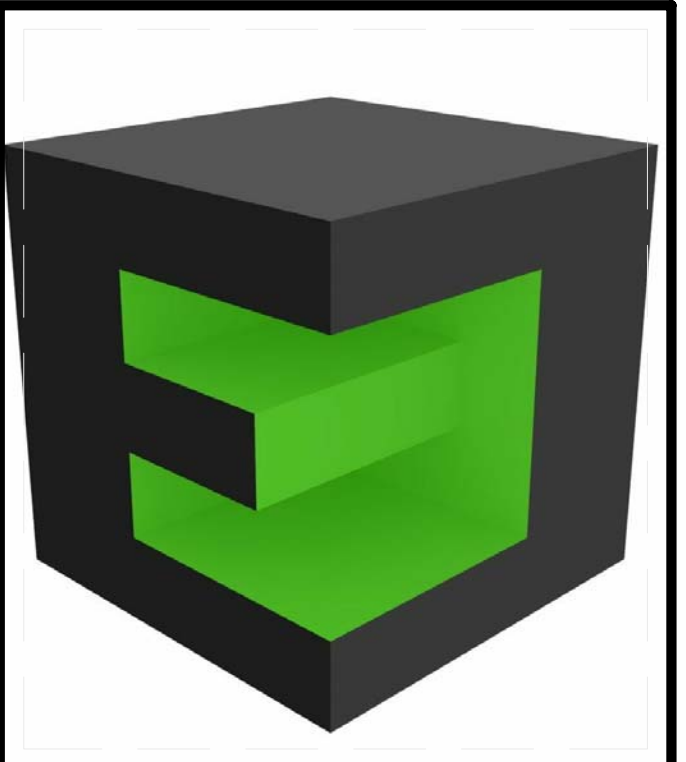
SHEET TITLE
 FOUNDATION PLAN

S-101

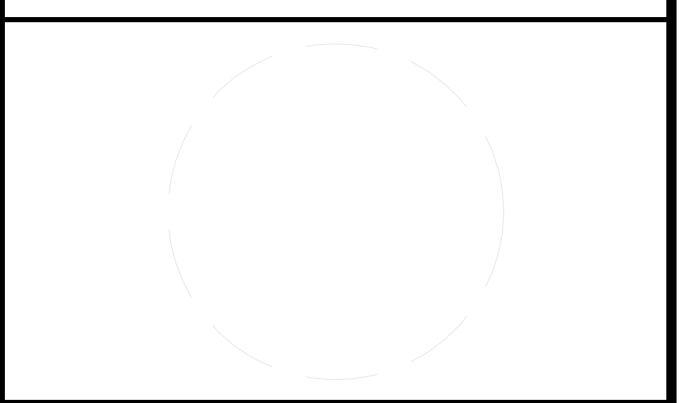
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REFERENCE KEYNOTES	
13 05 00	COMMON WORK RESULTS FOR SPECIAL CONSTRUCTION
SHEET KEYNOTES	
19	SUPPORT JACK OF RAMP (ALSO ADJUSTABLE AS SHOWN IN S-103)



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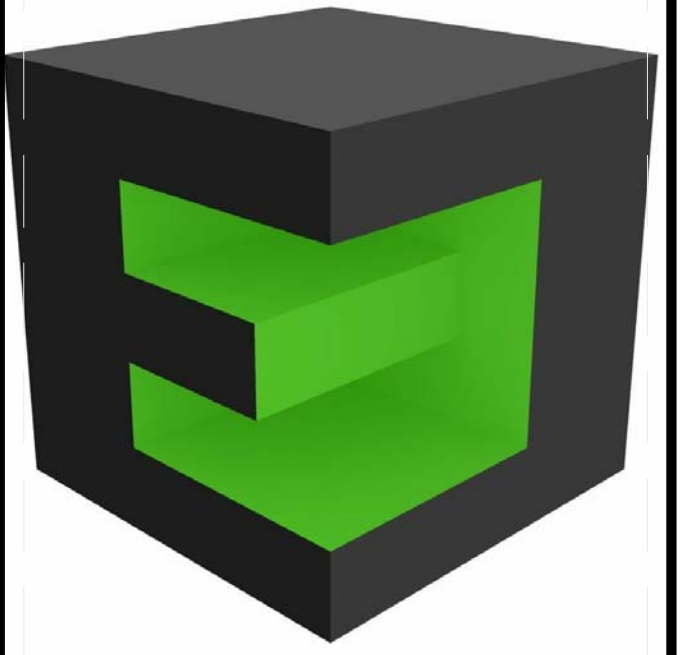
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SHEET TITLE	FOUNDATION PLAN
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S-102

SHEET KEYNOTES

15 WE CAN ADAPT THE FOUNDATION JACKS
49CM



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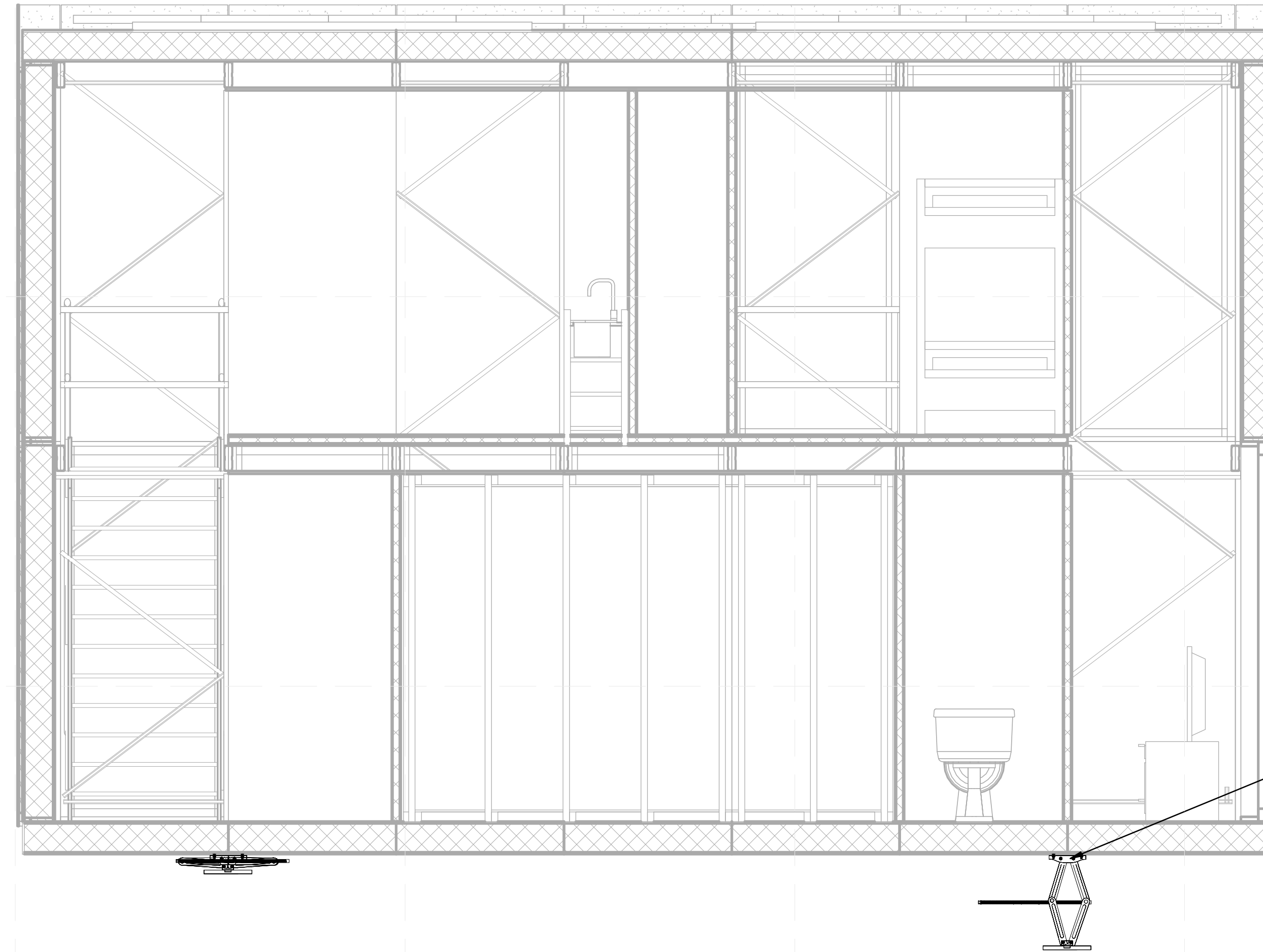
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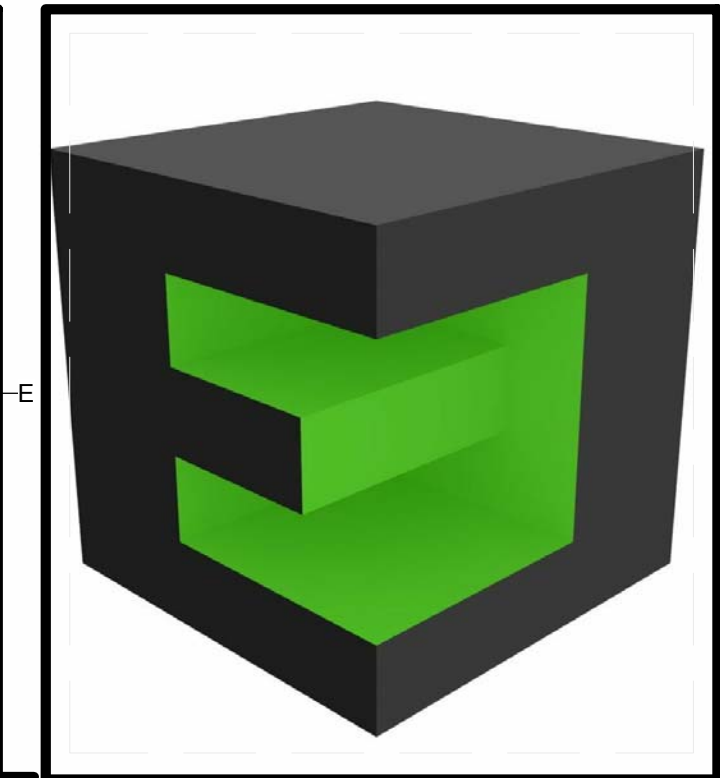
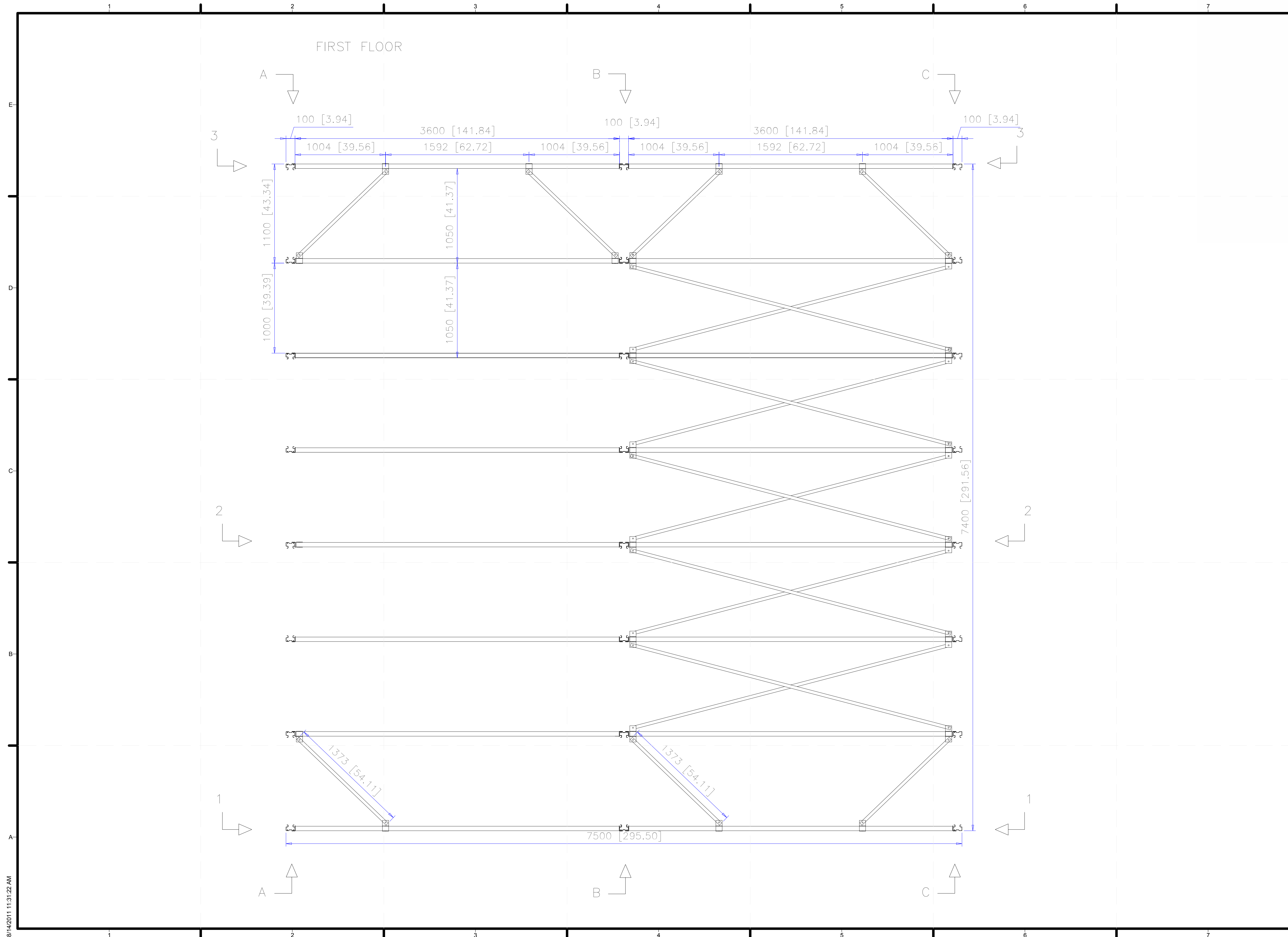
SHEET TITLE

LOT CONDITIONS

S-103

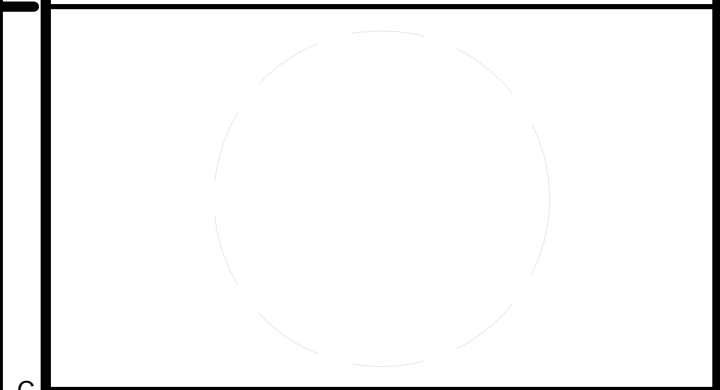


1 ADAPTION TO LOT CONDITIONS
1:24



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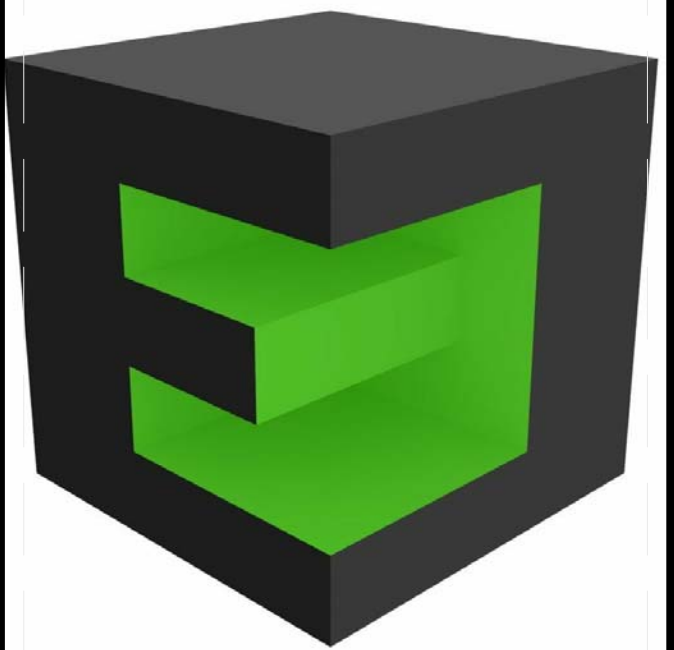
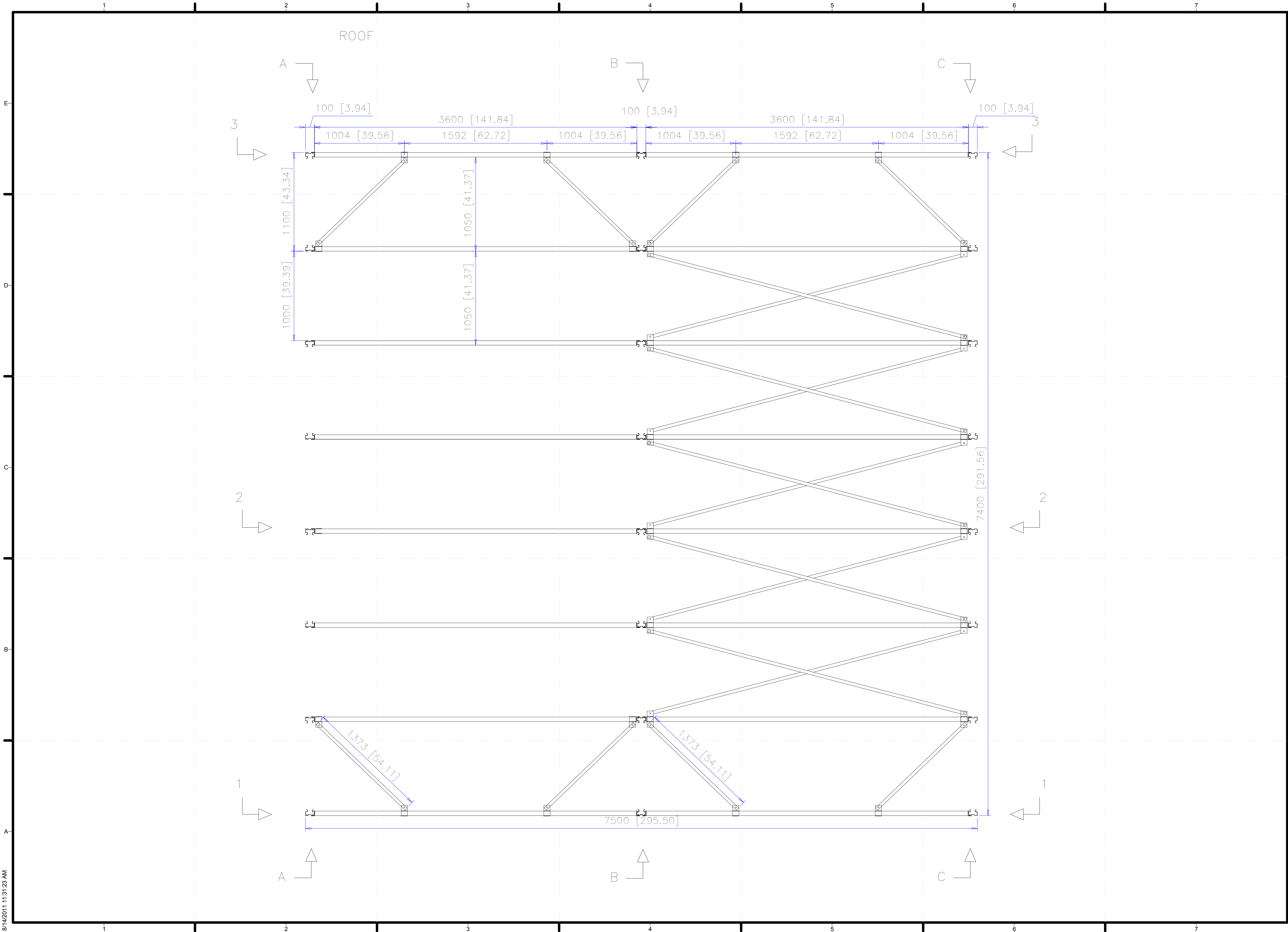


MARK	DATE	DESCRIPTION

SHEET TITLE: FIRST FLOOR FRAMING PLAN

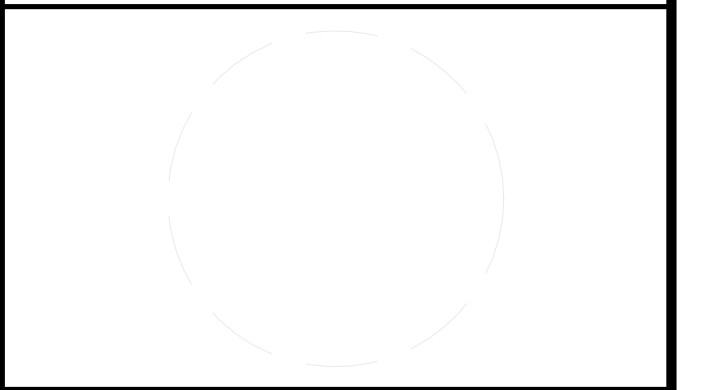
S-104

8/14/2011 11:31:22 AM



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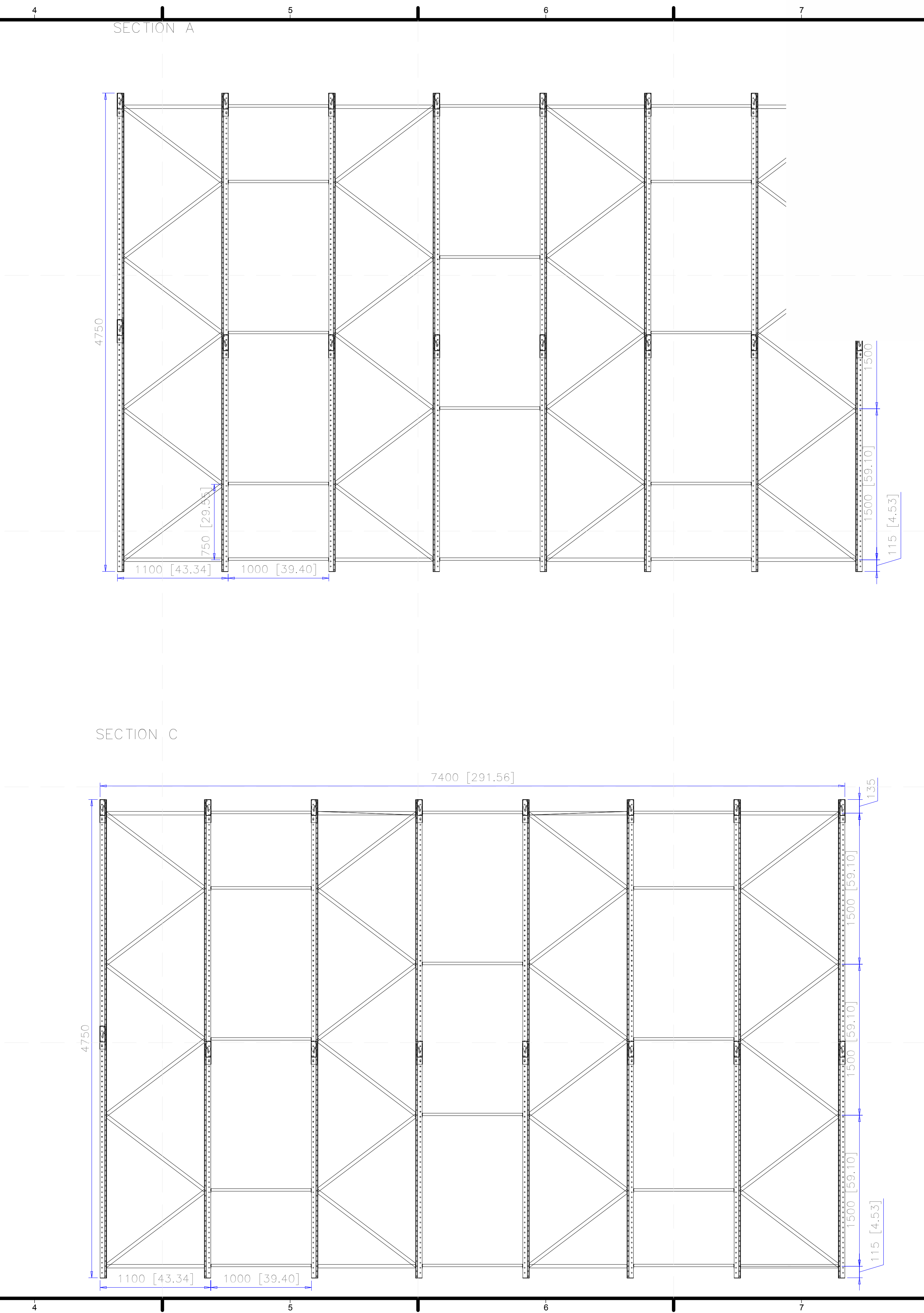
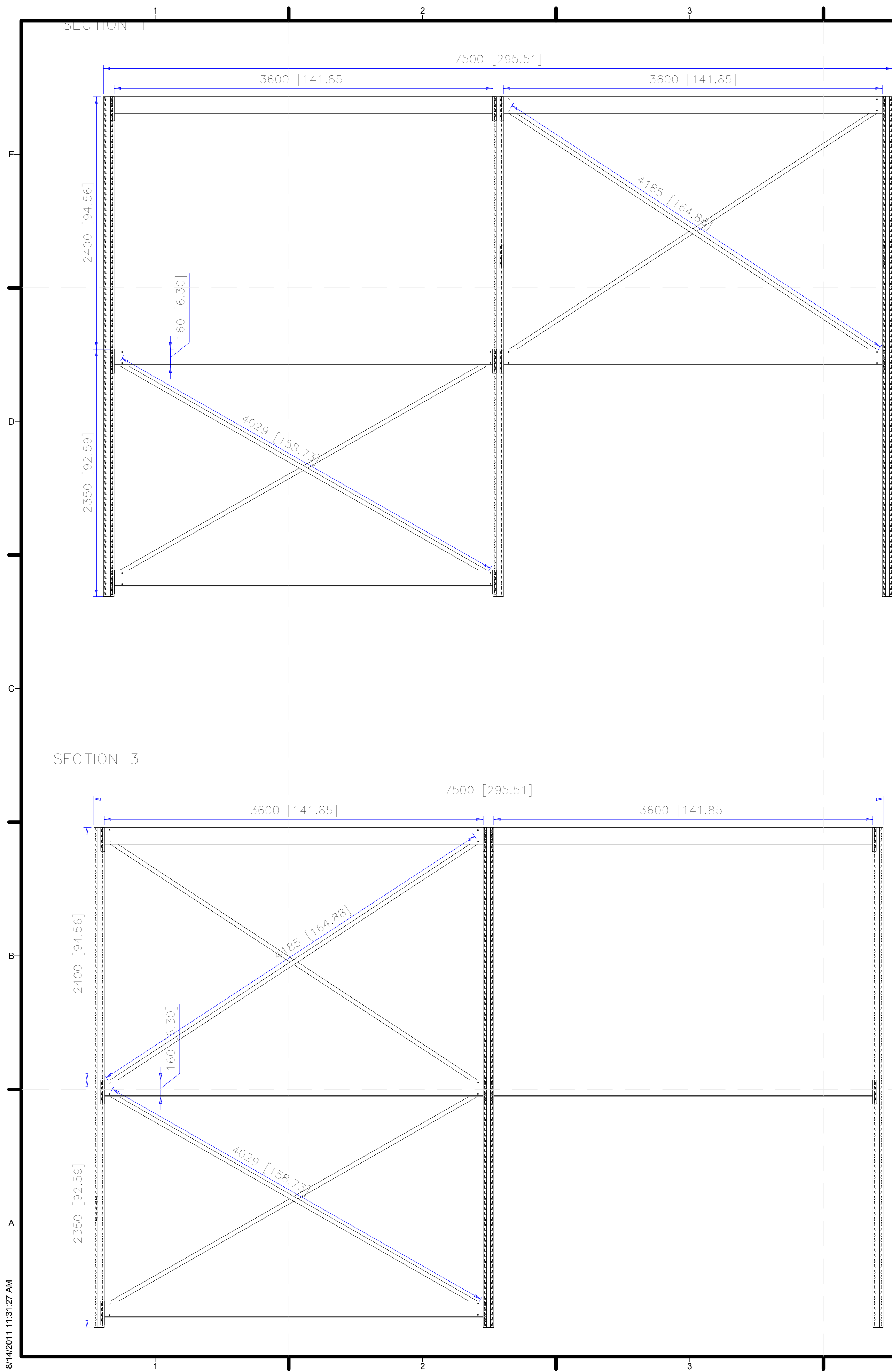
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SHEET TITLE
ROOF FRAMING PLAN

S-105

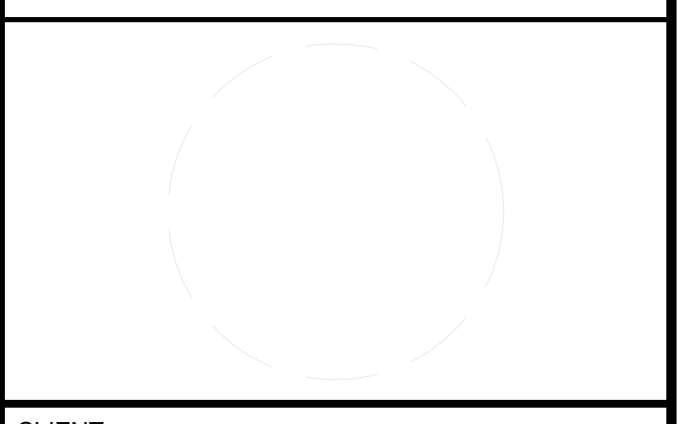


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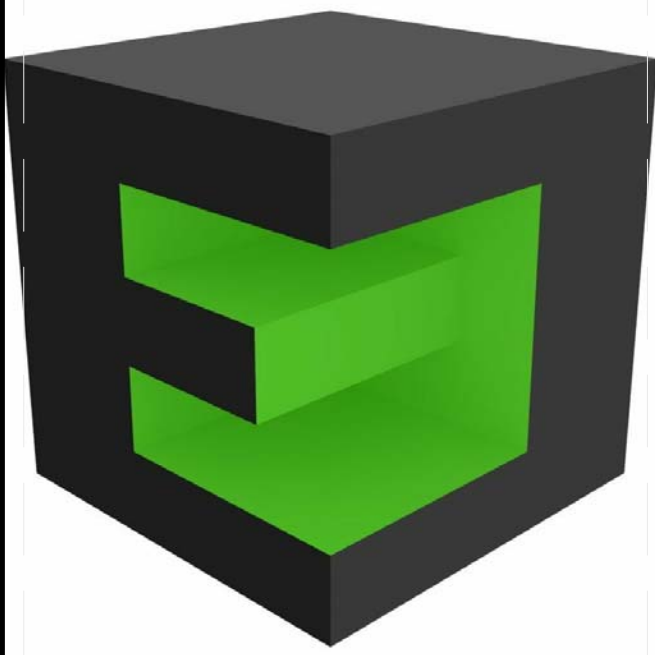
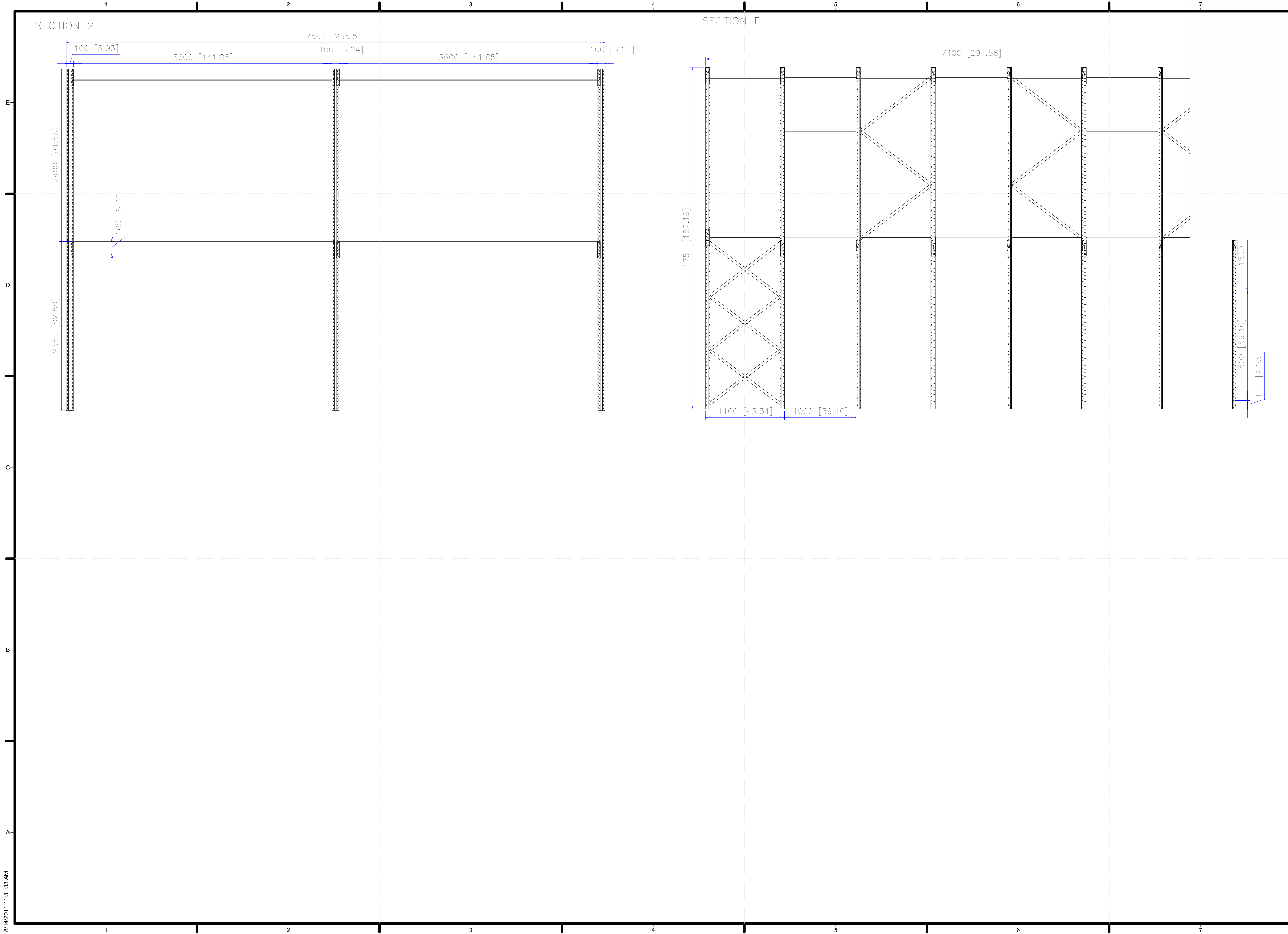


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SHEET TITLE
FRAMING ELEVATIONS

S-201

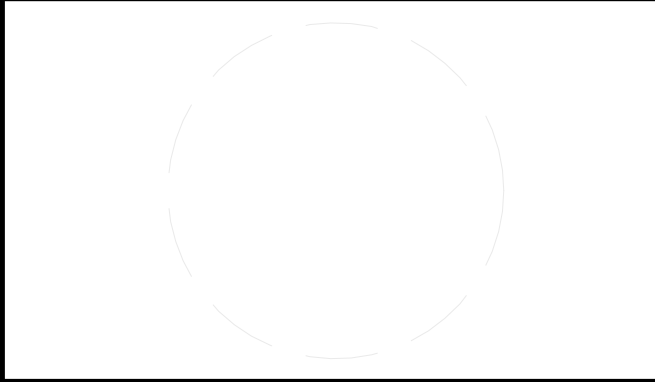


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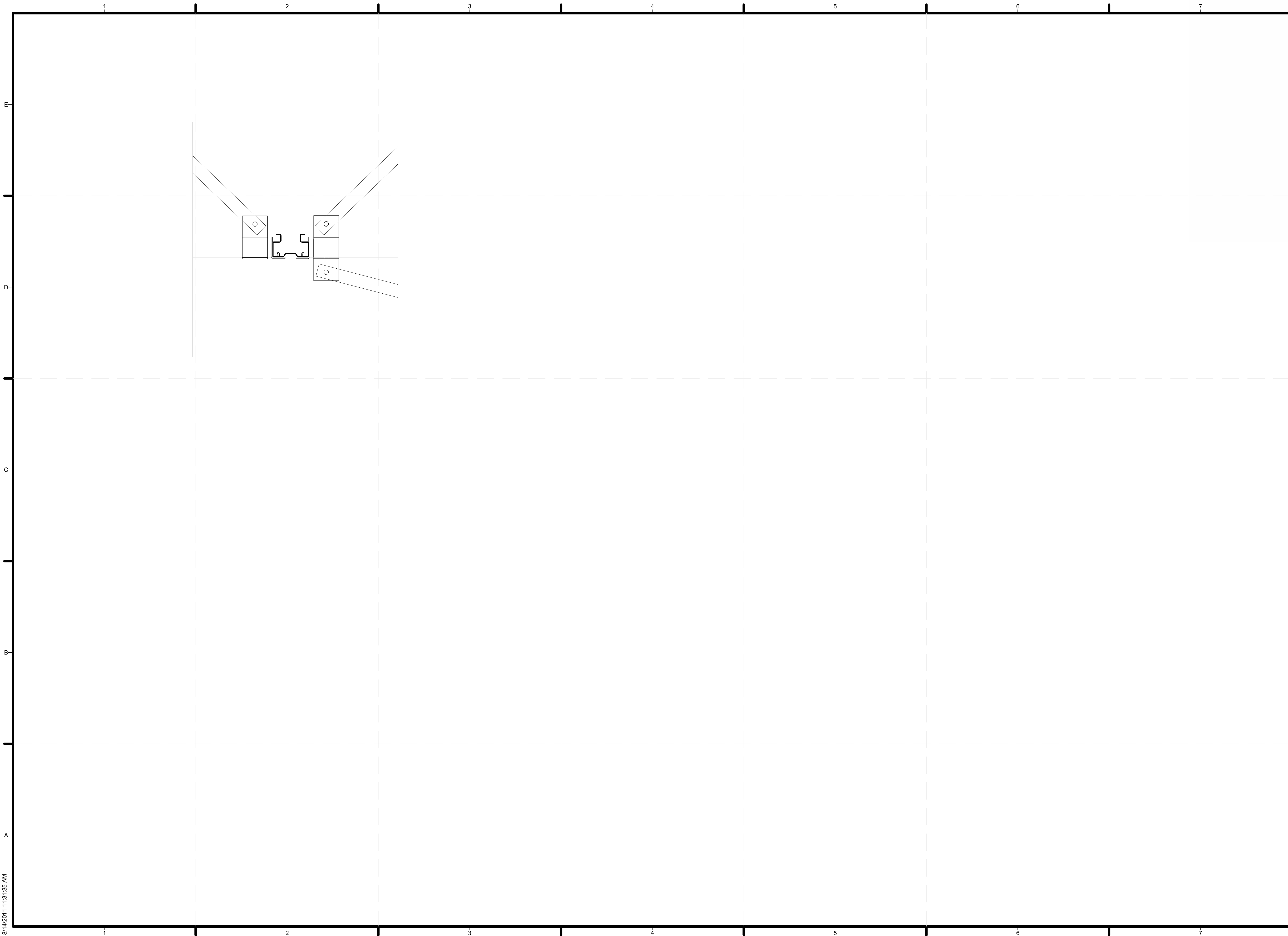


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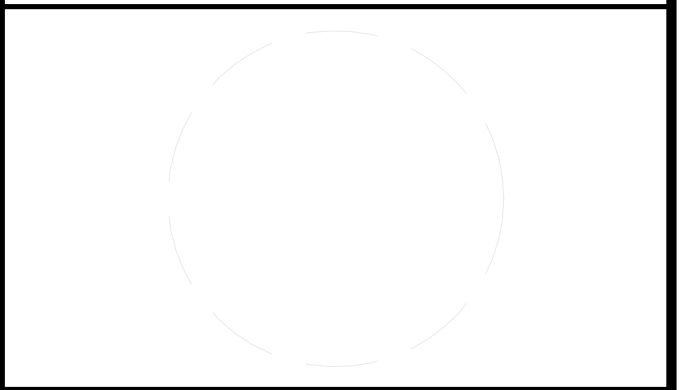
SHEET TITLE
FRAMING SECTIONS

S-301



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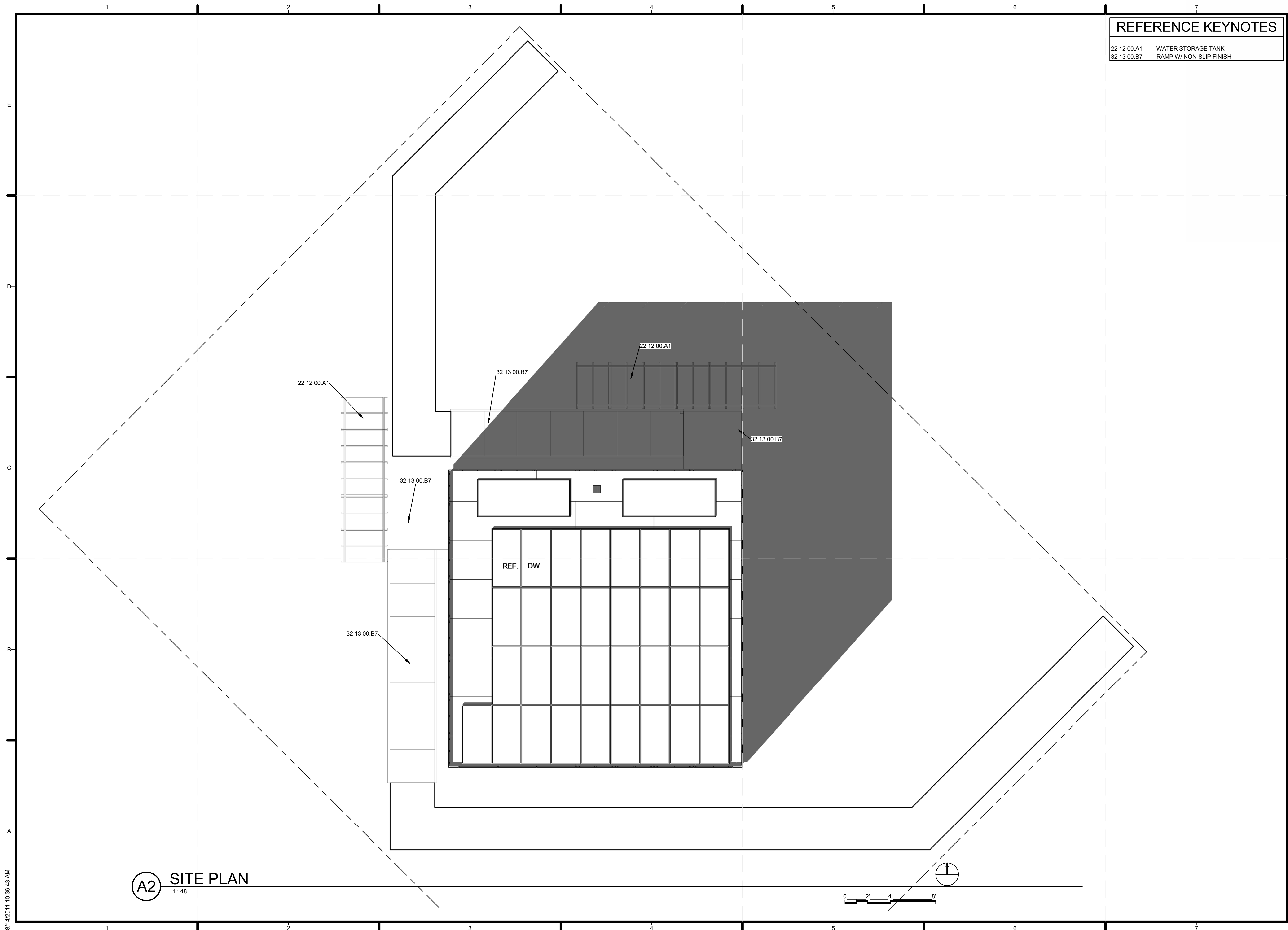


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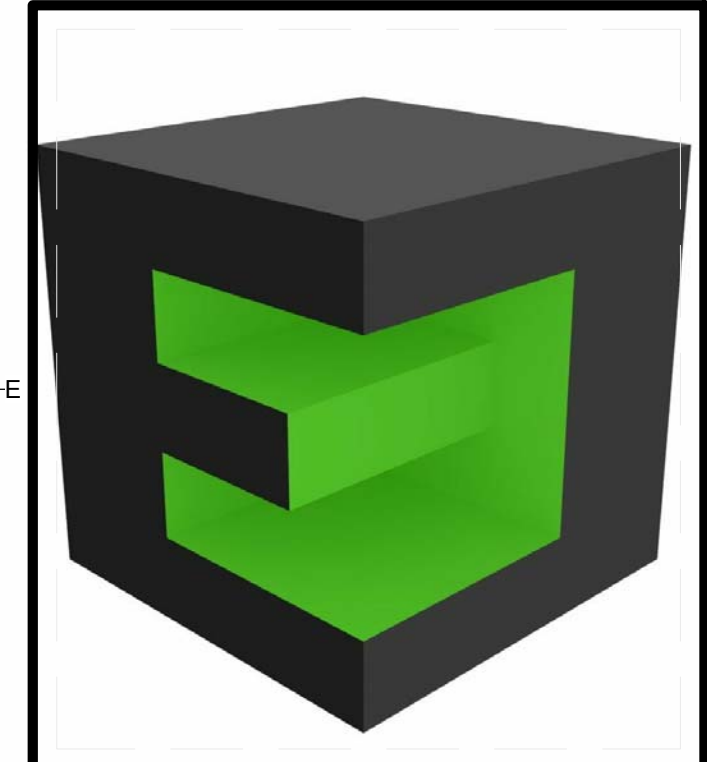
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 PLAN DETAILS

S-501



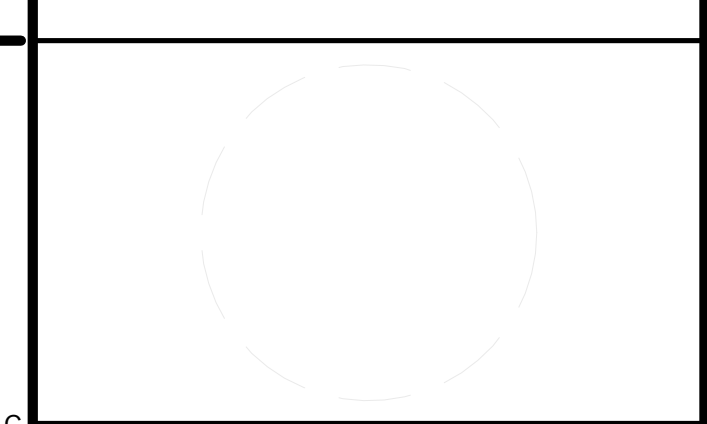
REFERENCE KEYNOTES

22 12 00.A1 WATER STORAGE TANK
32 13 00.B7 RAMP W/ NON-SLIP FINISH



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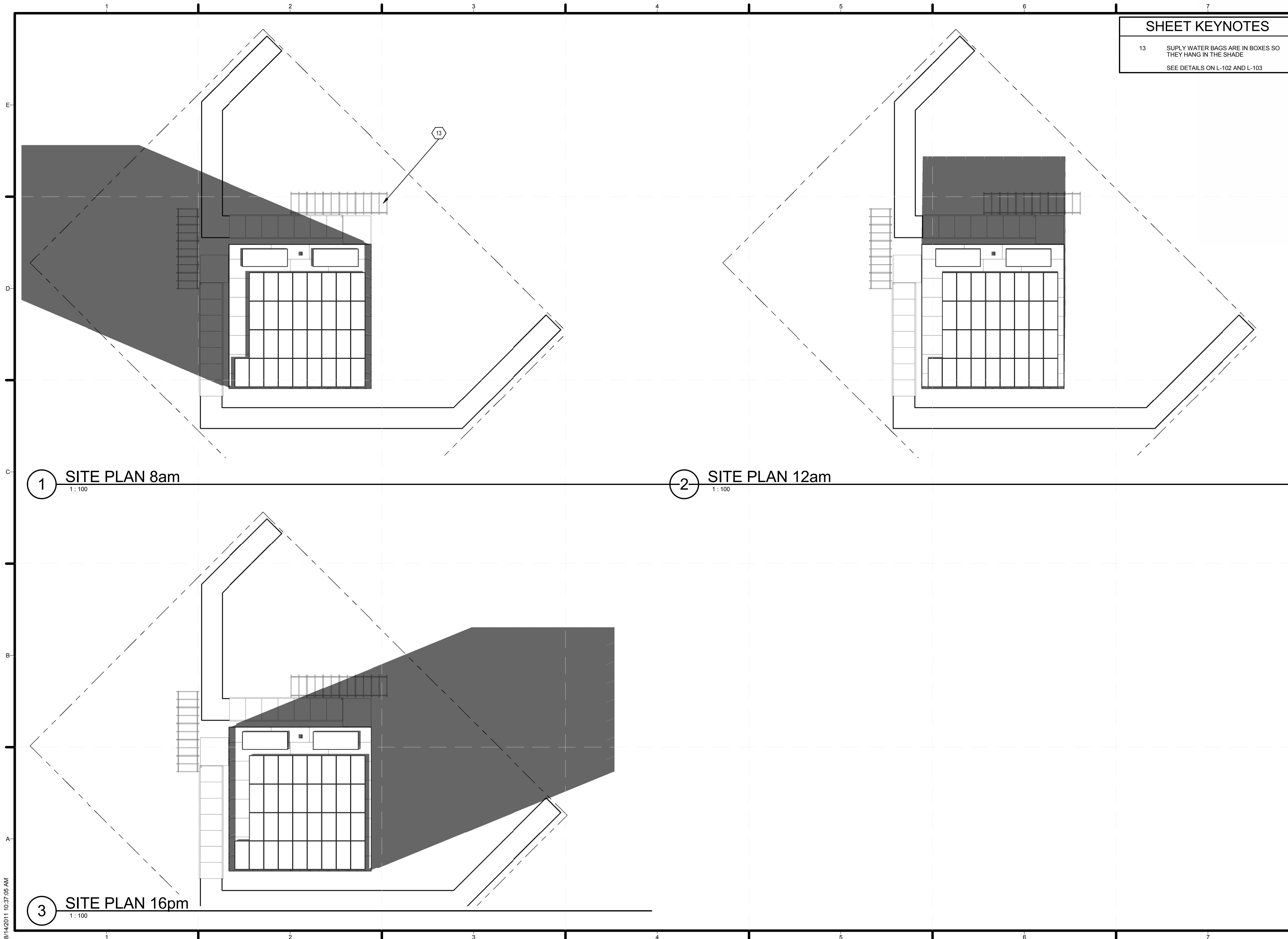
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SHEET TITLE
SITE PLAN

A-101

(A2) SITE PLAN
1:48



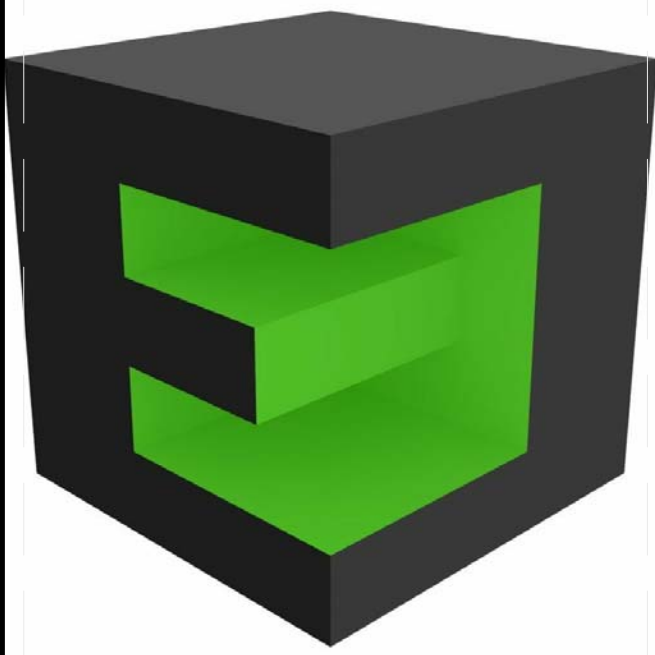
SHEET KEYNOTES

13 SUPPLY WATER BAGS ARE IN BOXES SO THEY HANG IN THE SHADE
SEE DETAILS ON L-102 AND L-103

1 SITE PLAN 8am
1 : 100

2 SITE PLAN 12am
1 : 100

3 SITE PLAN 16pm
1 : 100



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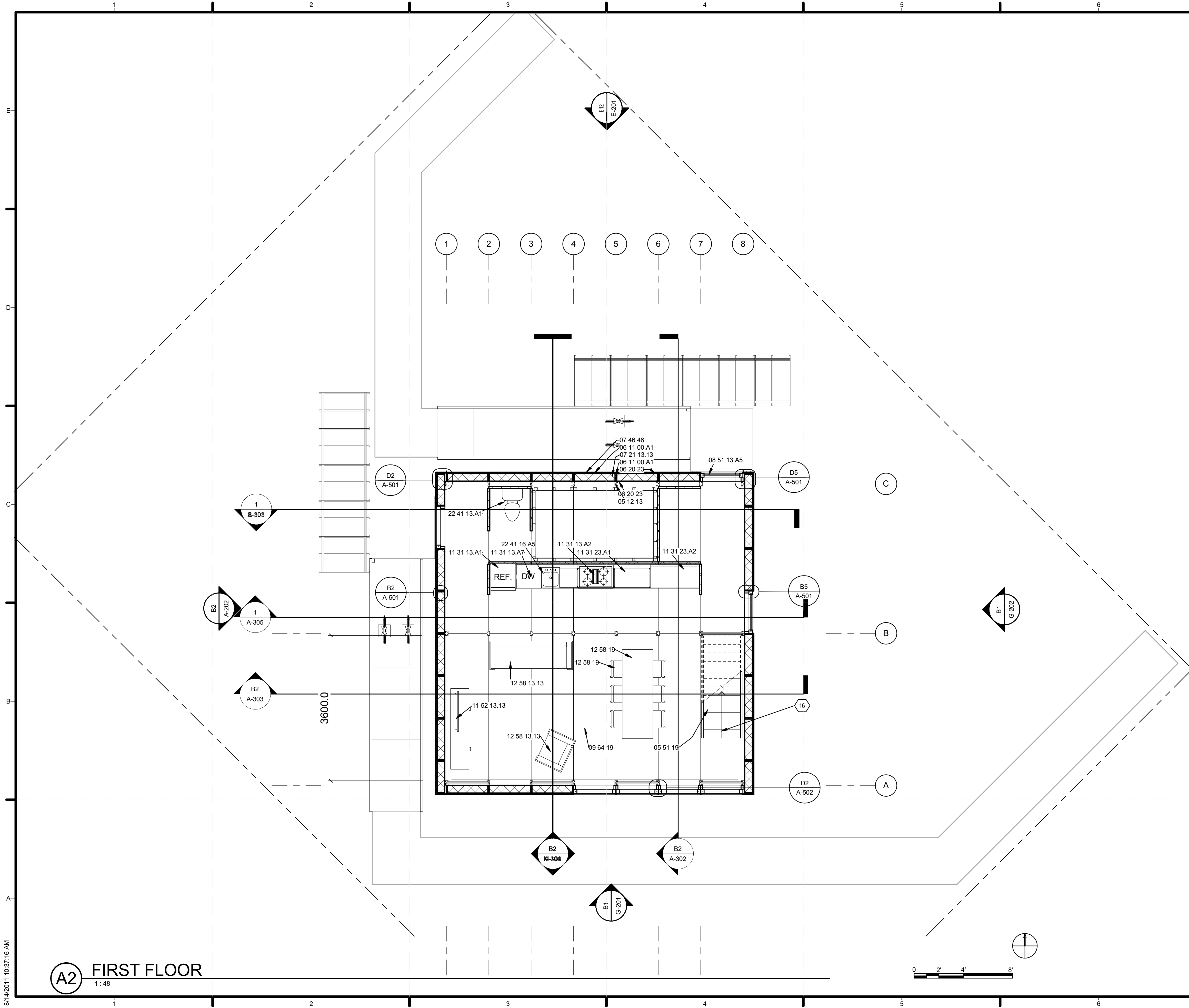
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SHEET TITLE
SITE PLAN SHADOWS

A-102

8/14/2011 10:37:05 AM



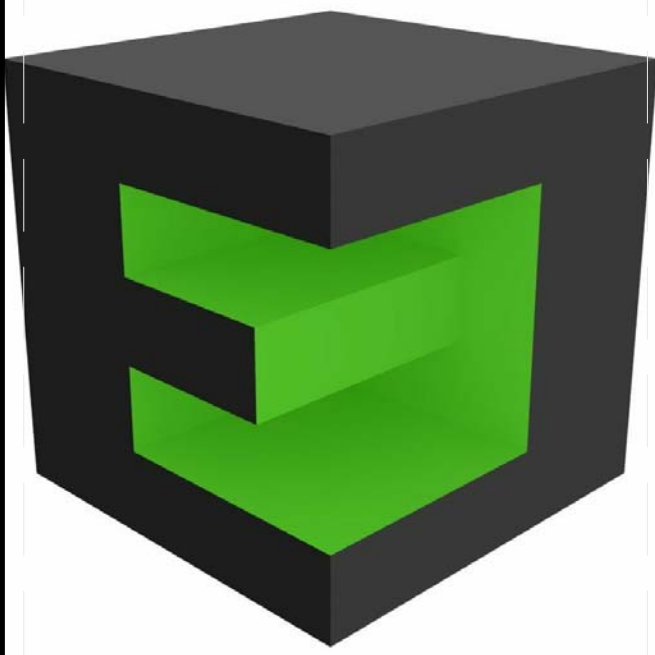
GENERAL SHEET NOTES

REFERENCE KEYNOTES

05 12 13	ARCHITECTURALLY-EXPOSED STRUCTURAL STEEL FRAMING
05 51 19	METAL GRATING STAIRS
06 11 00.A1	BLOCKING
06 20 23	INTERIOR FINISH CARPENTRY
07 21 13.13	FOAM BOARD INSULATION
07 46 46	MINERAL-FIBER CEMENT SIDING
08 51 13.A5	ALUMINUM FIXED WINDOW FIXED JAMB
09 64 19	WOOD COMPOSITION FLOORING
11 31 13.A1	REFRIGERATOR
11 31 13.A2	COOKTOP
11 31 13.A7	DISHWASHER
11 31 23.A1	CLOTHES WASHER
11 31 23.A2	CLOTHES DRYER
11 52 13.13	FIXED PROJECTION SCREEN
12 58 13.13	FUTONS
12 58 19	DINING TABLES AND CHAIRS
22 41 13.A1	WATER CLOSET
22 41 16.A5	UNDER COUNTER SINK

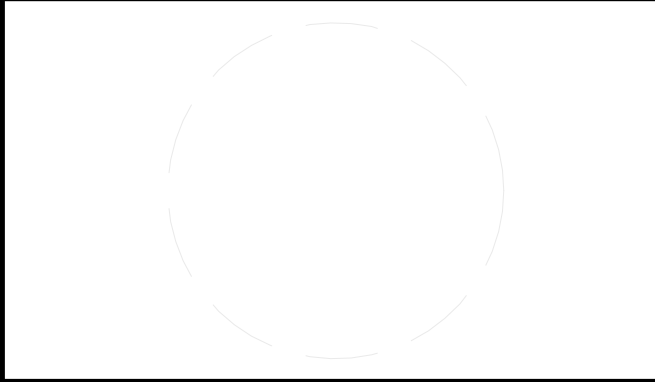
SHEET KEYNOTES

16	STAIRS ARE NOT PART OF THE TOUR
----	---------------------------------



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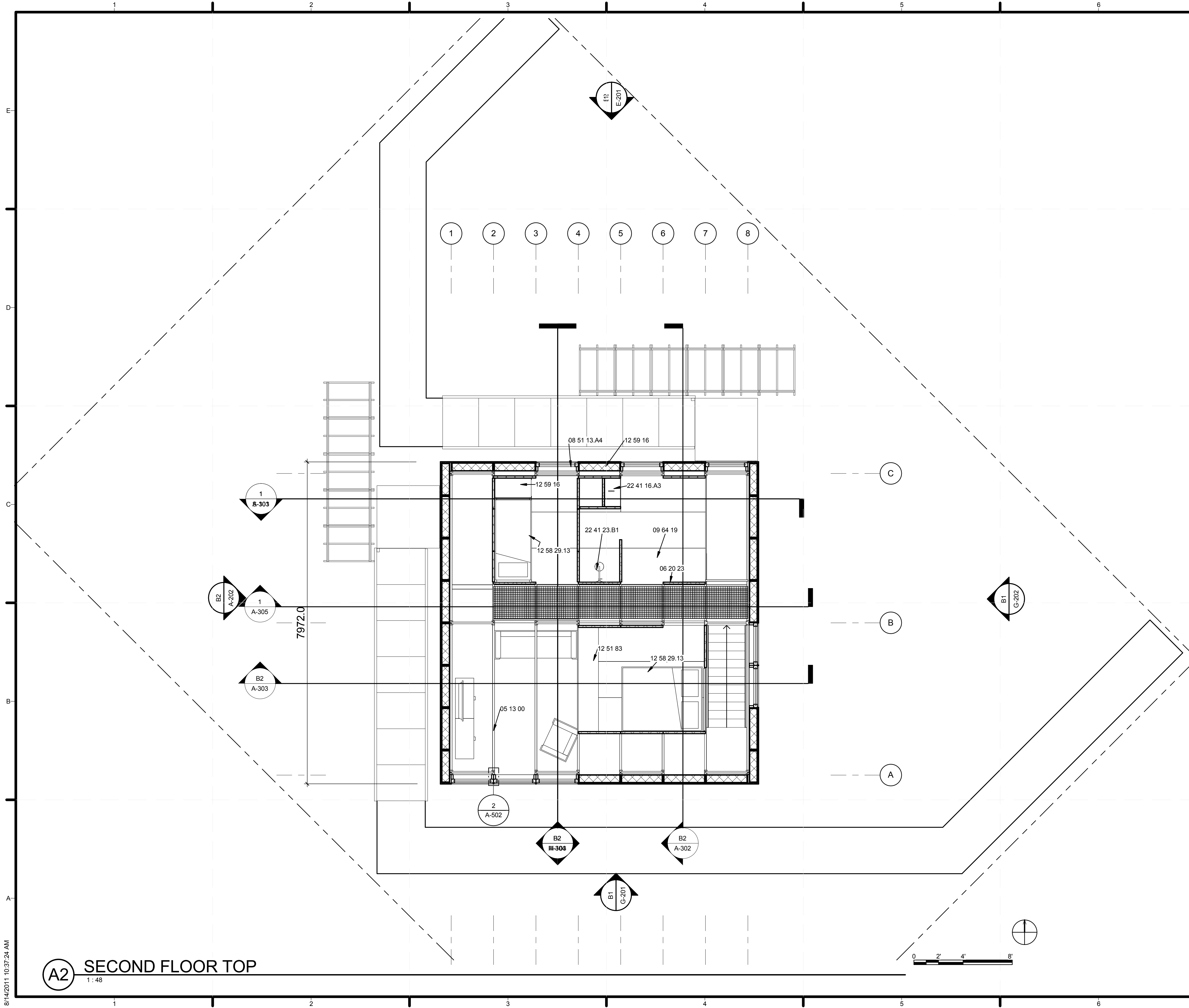


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SHEET TITLE
FIRST FLOOR PLAN

A-111

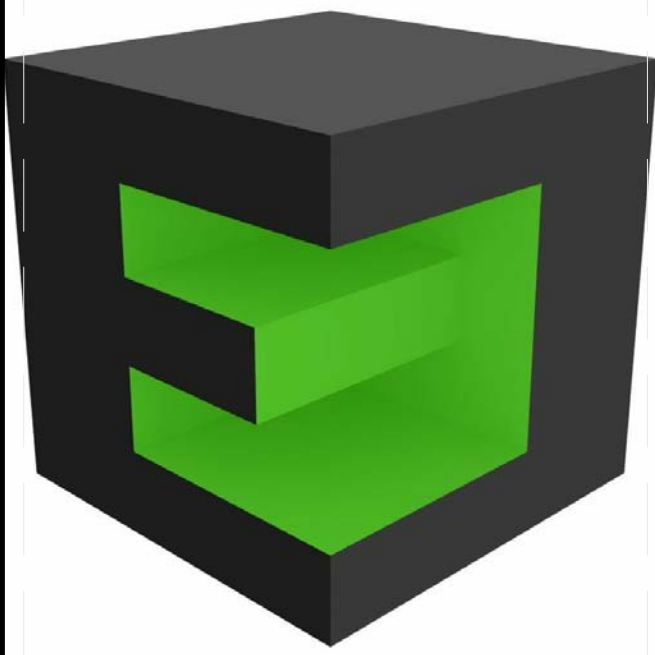


GENERAL SHEET NOTES

REFERENCE KEYNOTES

05 13 00	STRUCTURAL STAINLESS-STEEL FRAMING
06 20 23	INTERIOR FINISH CARPENTRY
08 51 13.A4	ALUMINUM FIXED WINDOW SILL
09 64 19	WOOD COMPOSITION FLOORING
12 51 83	CUSTOM OFFICE FURNITURE
12 58 29.13	DAYBEDS
12 59 16	FREE-STANDING COMPONENT SYSTEM FURNITURE
22 41 16.A3	LAVATORY
22 41 23.B1	SHOWER

SHEET KEYNOTES



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 ENGINEERING: THOMAS DELAMEILLIEURE, TIM GAVEL, TOM DEFRIJNT, KEVIN D'HONDT, SAMUEL CUVELIERS, GLEN DE MEERSMAN
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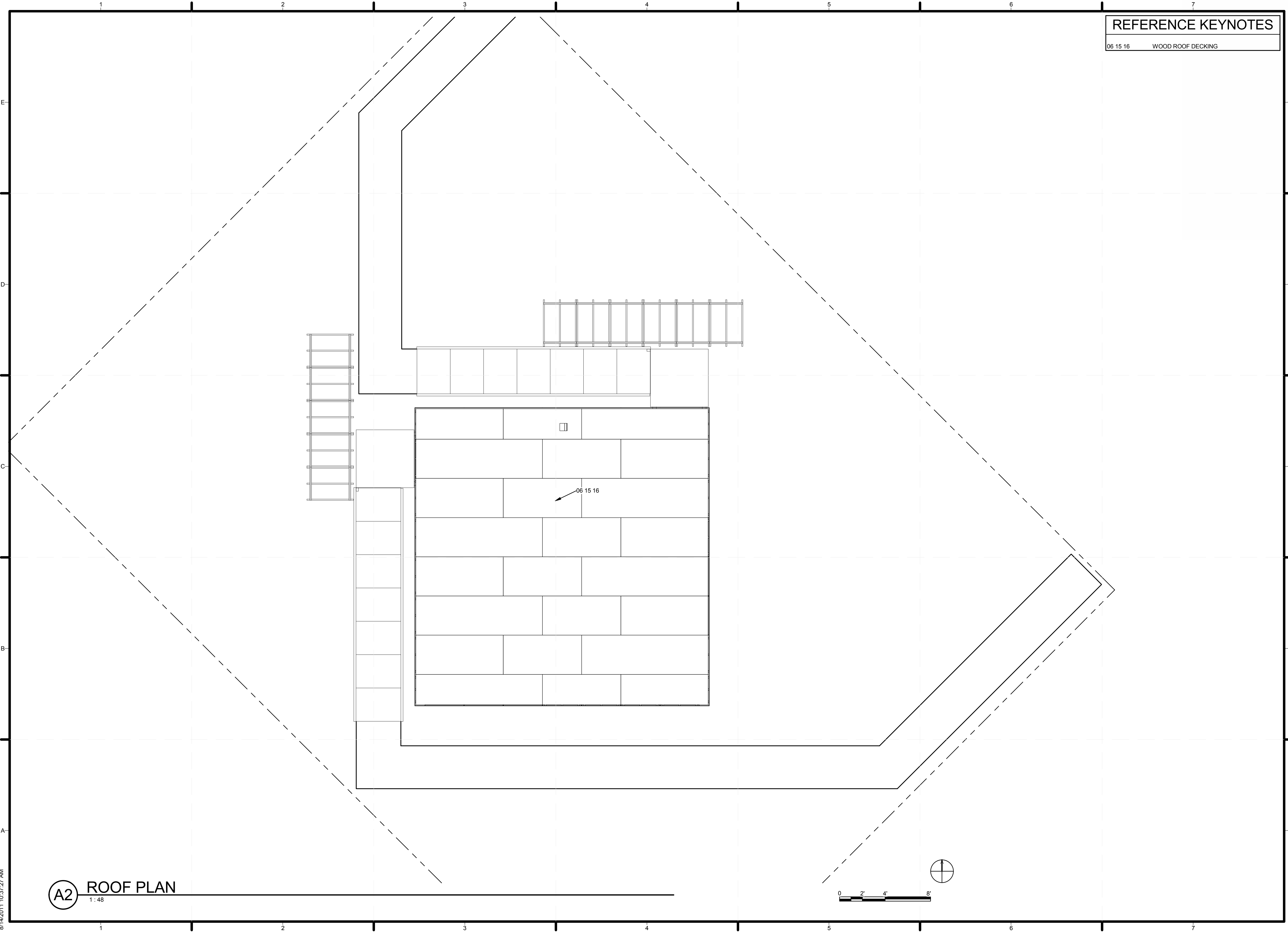
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SHEET TITLE: SECOND FLOOR PLAN

A-112

A2 SECOND FLOOR TOP
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8/14/2011 10:37:24 AM

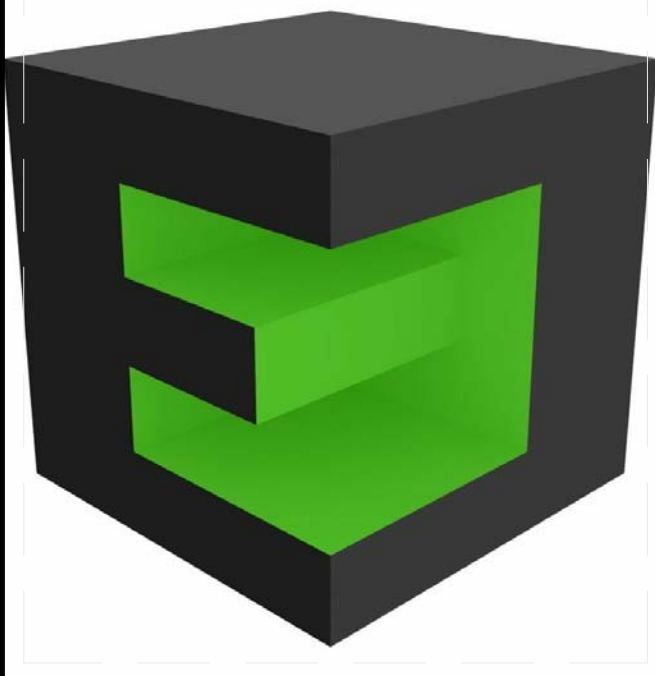


REFERENCE KEYNOTES

06 15 16 WOOD ROOF DECKING

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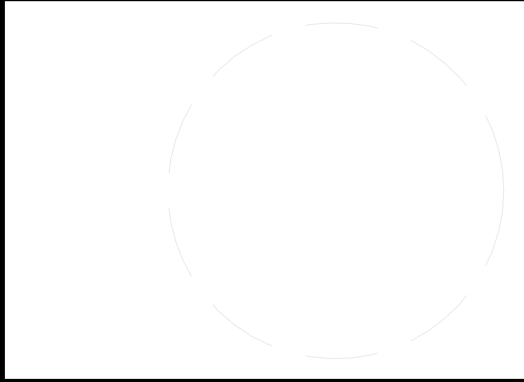


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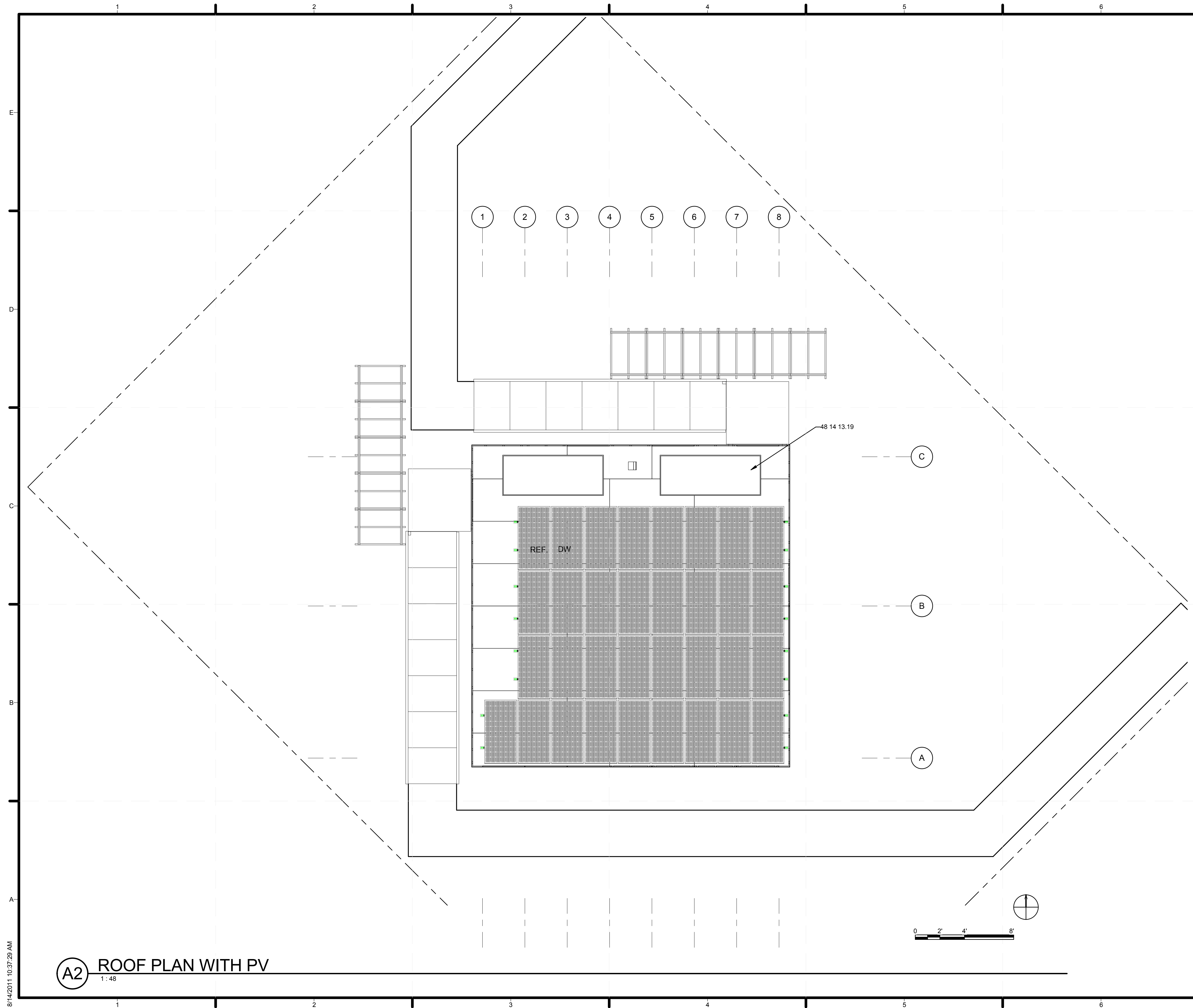


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SHEET TITLE:
 ROOF PLAN WITHOUT PV

A-113



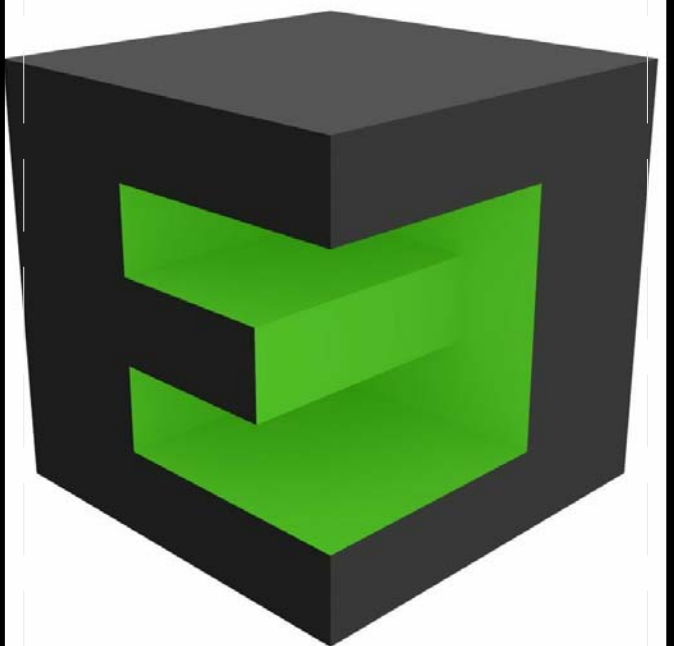
GENERAL SHEET NOTES

REFERENCE KEYNOTES

26 31 00 PHOTOVOLTAIC COLLECTORS
 48 14 13.19 VACUUM TUBE SOLAR ENERGY COLLECTORS

SHEET KEYNOTES

14 PHONOSOLAR 195Wp



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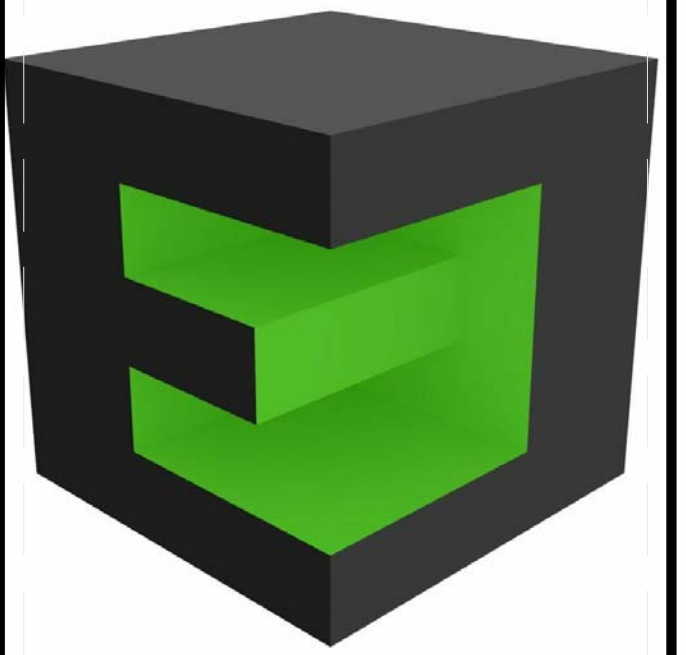
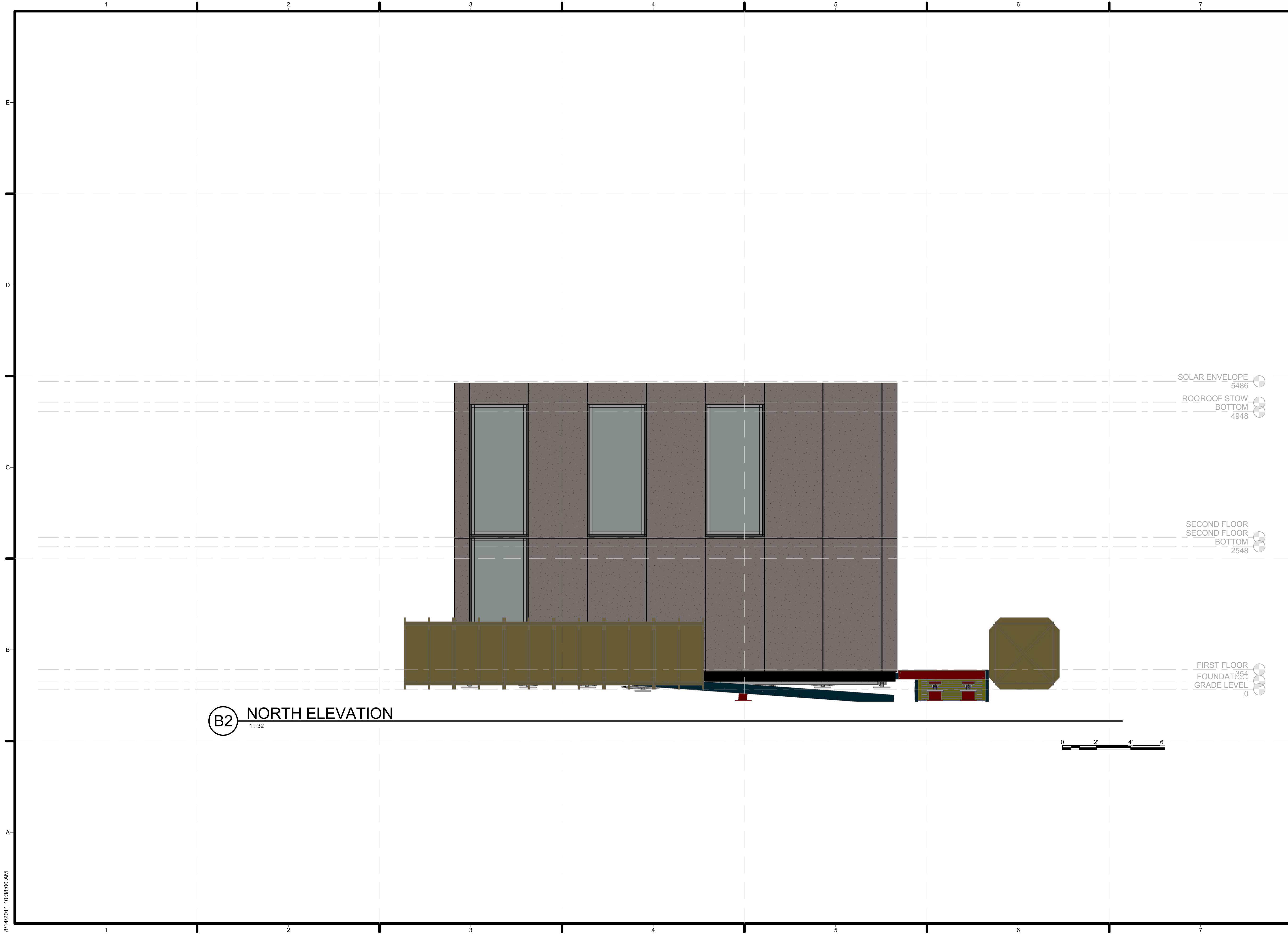
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SHEET TITLE: ROOF PLAN WITH PV

A-114

A2 ROOF PLAN WITH PV
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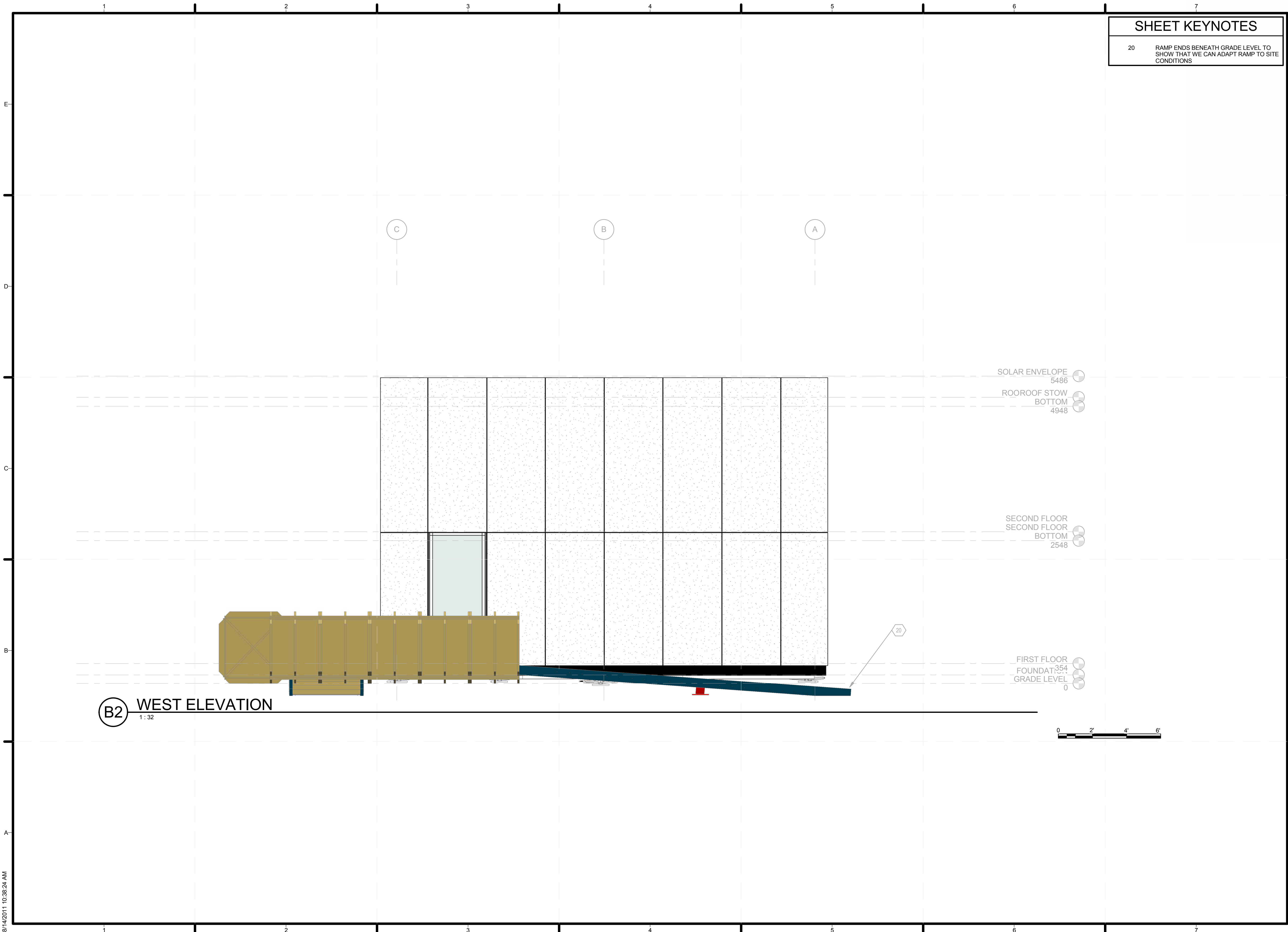


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SHEET TITLE
 SITE ELEVATIONS

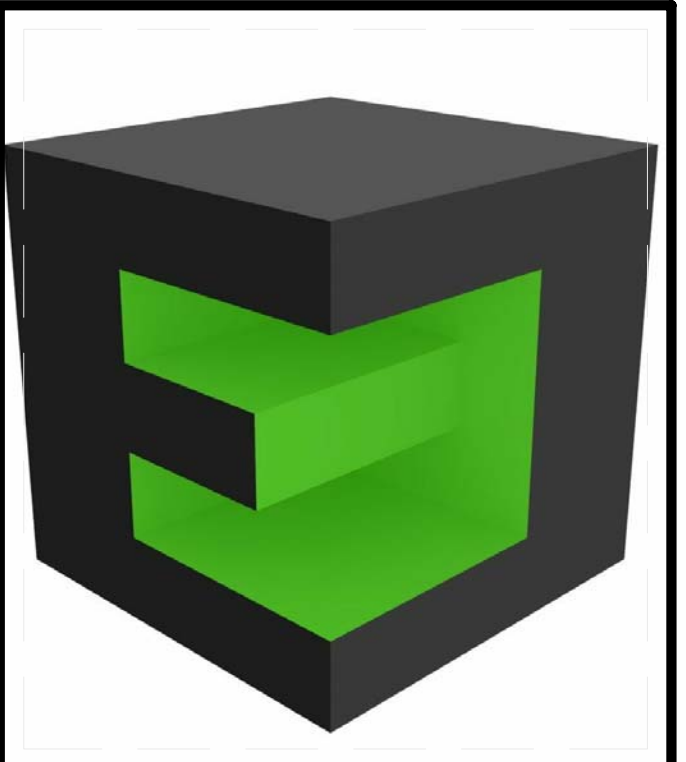
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B2 WEST ELEVATION
1:32

SHEET KEYNOTES

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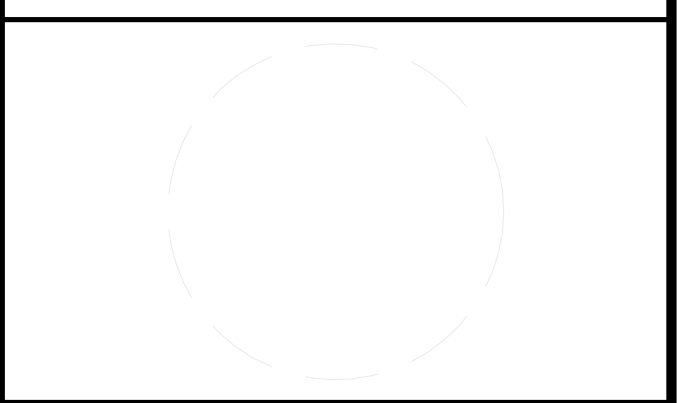


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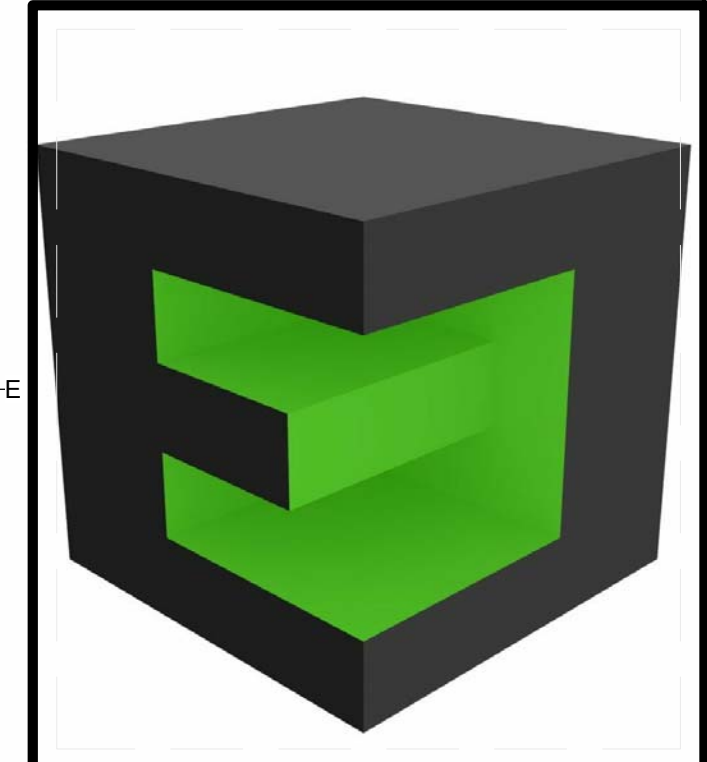
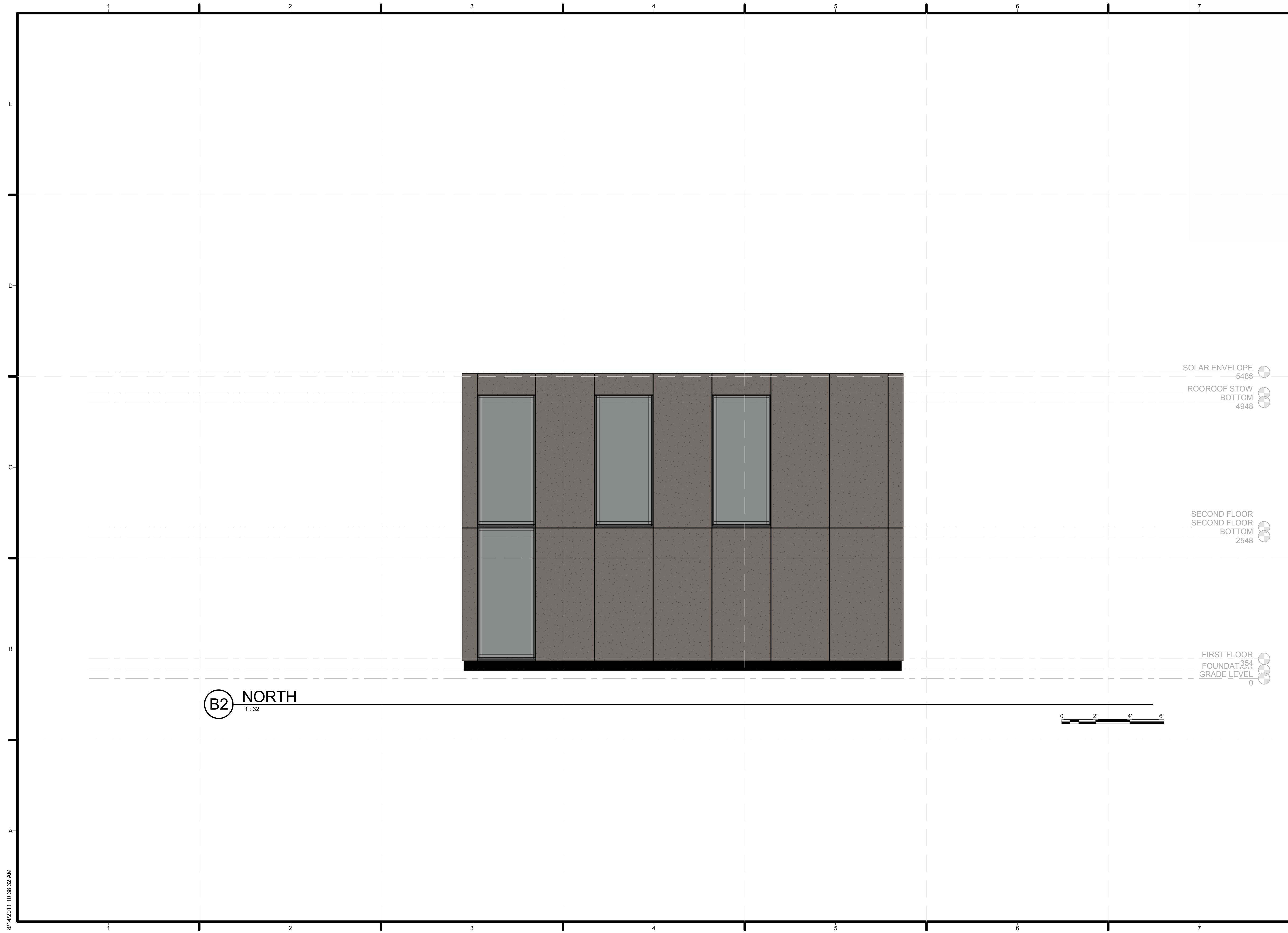
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SHEET TITLE

SITE ELEVATIONS

A-202

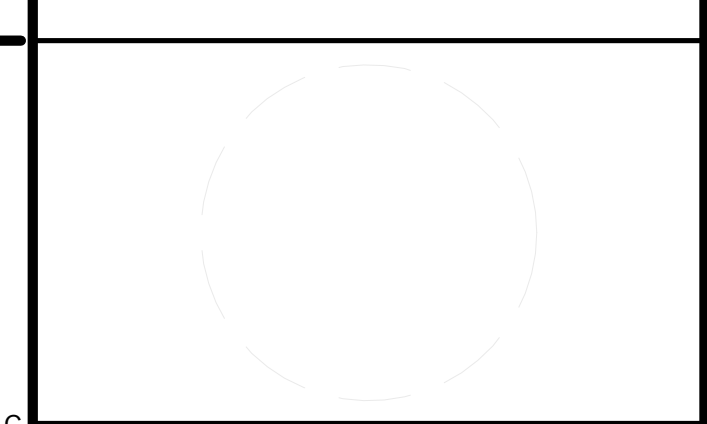


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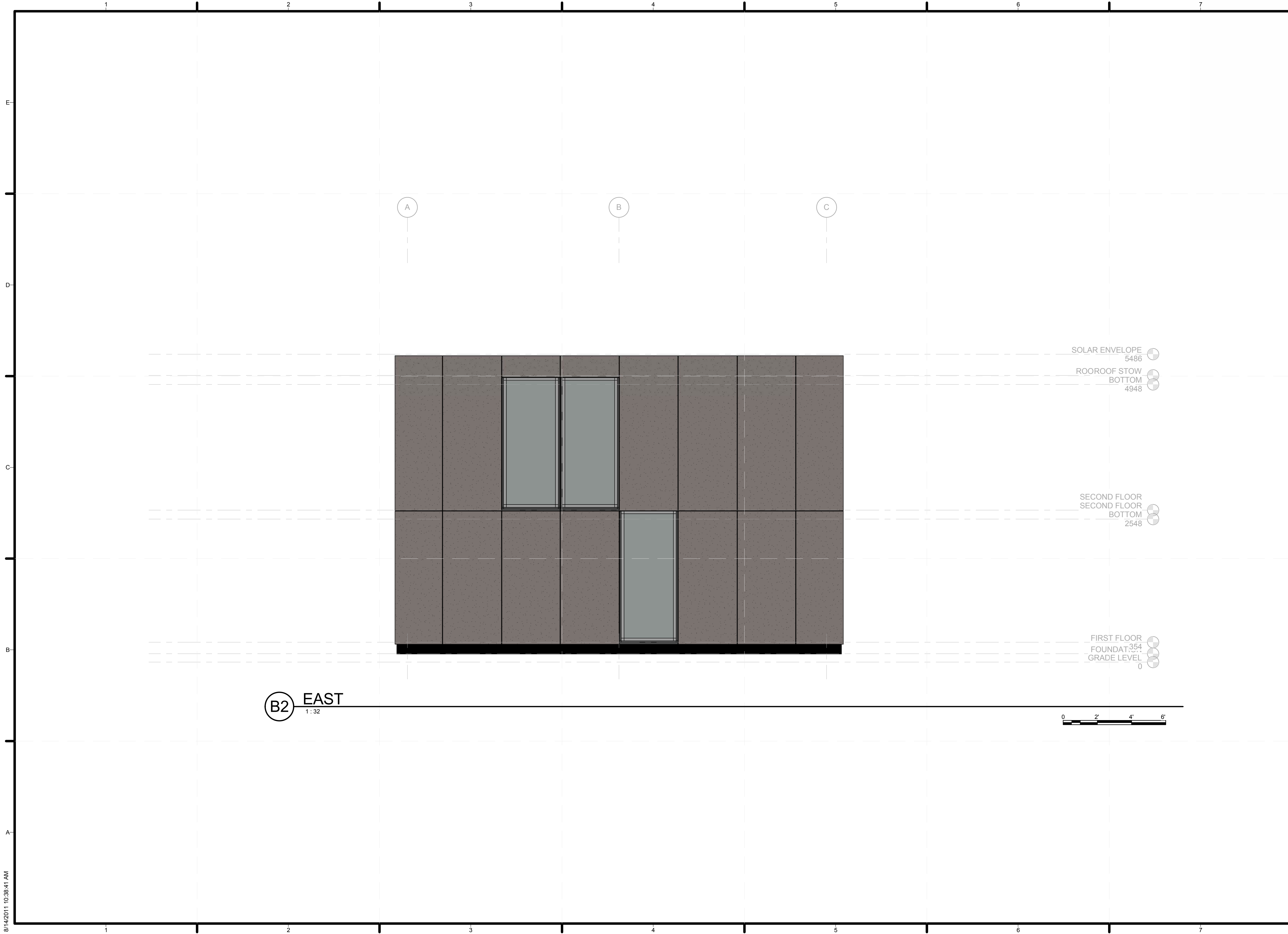


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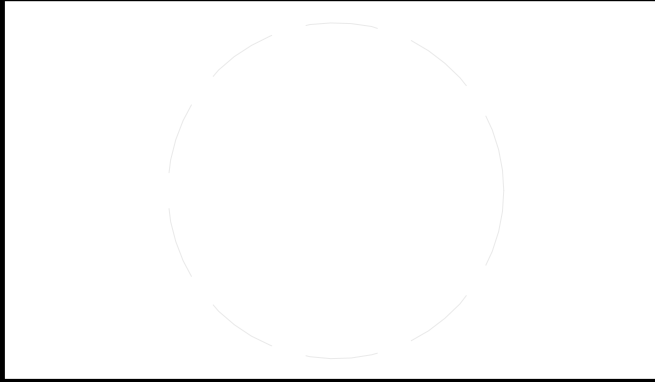
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A-211



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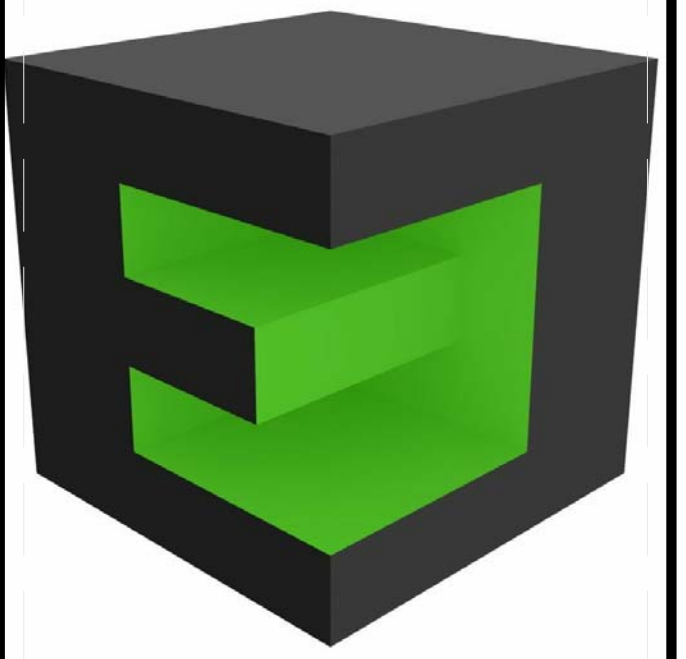
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SHEET TITLE
 ELEVATION EAST
 A-212

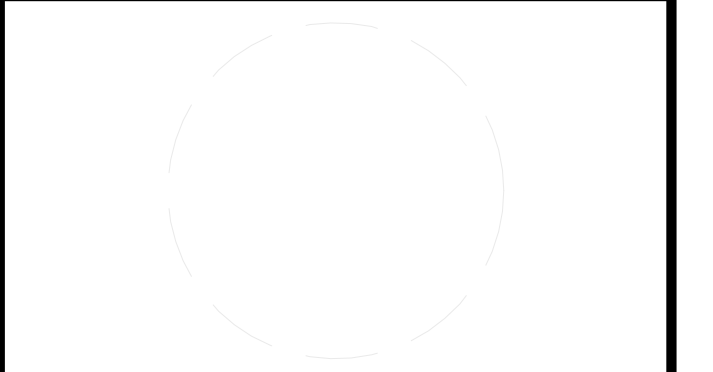


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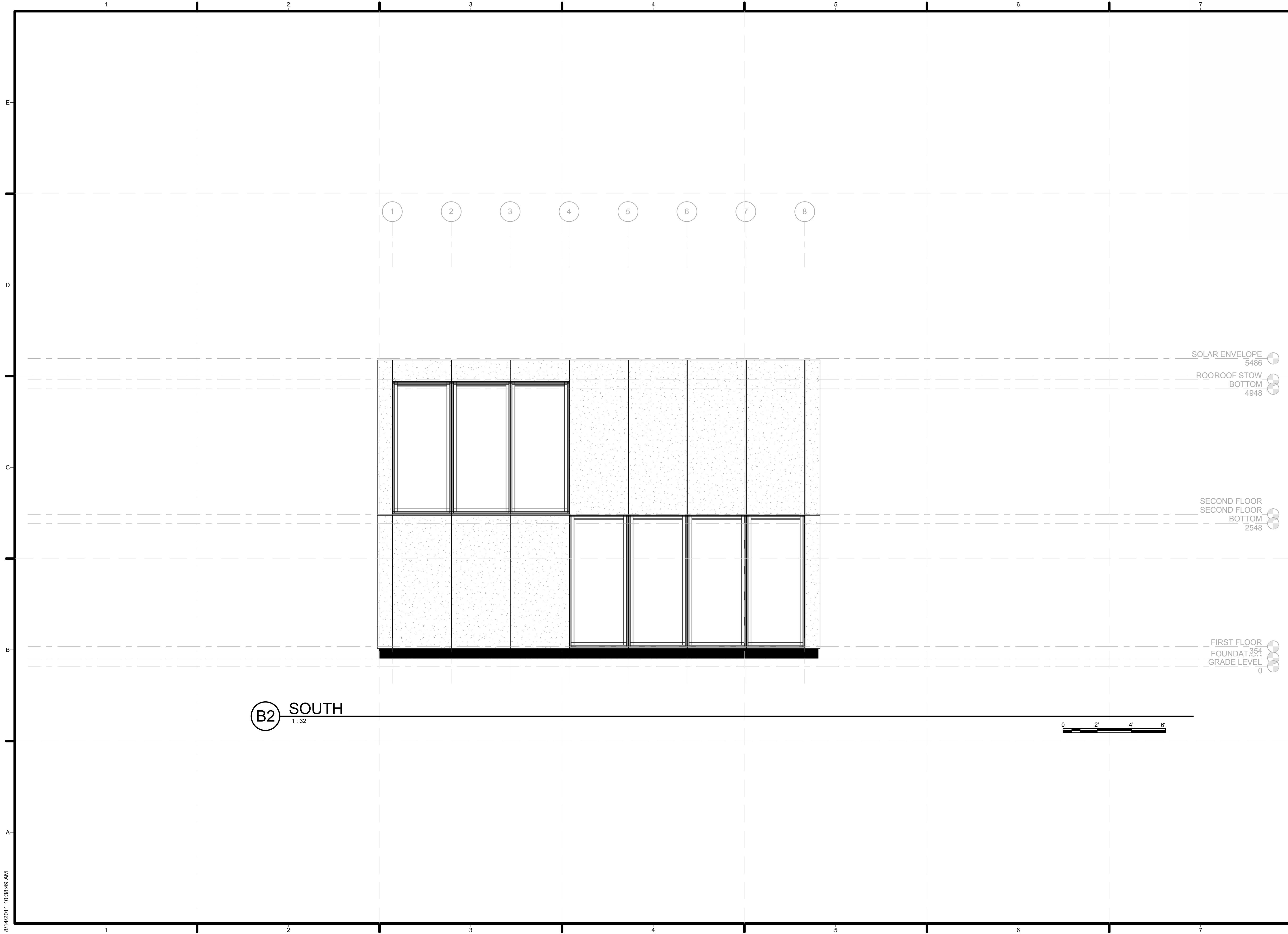


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SHEET TITLE
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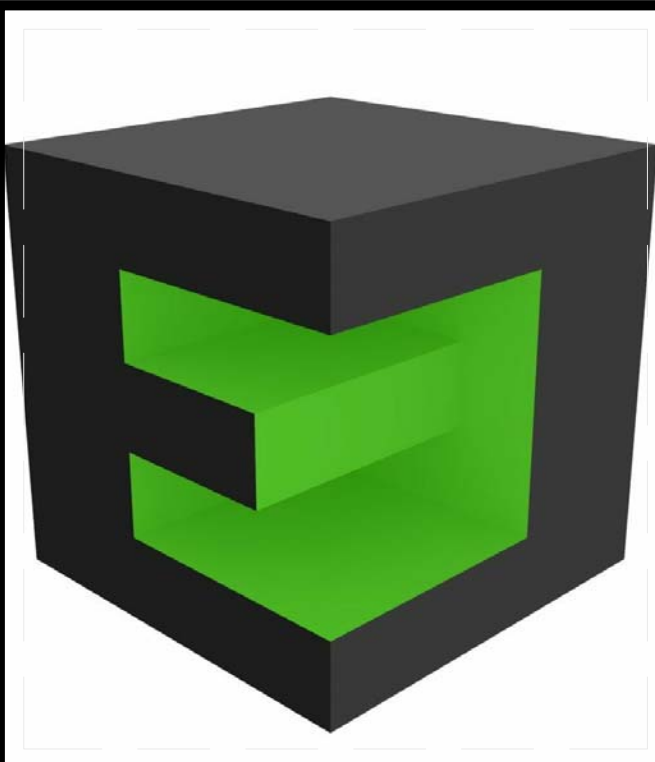
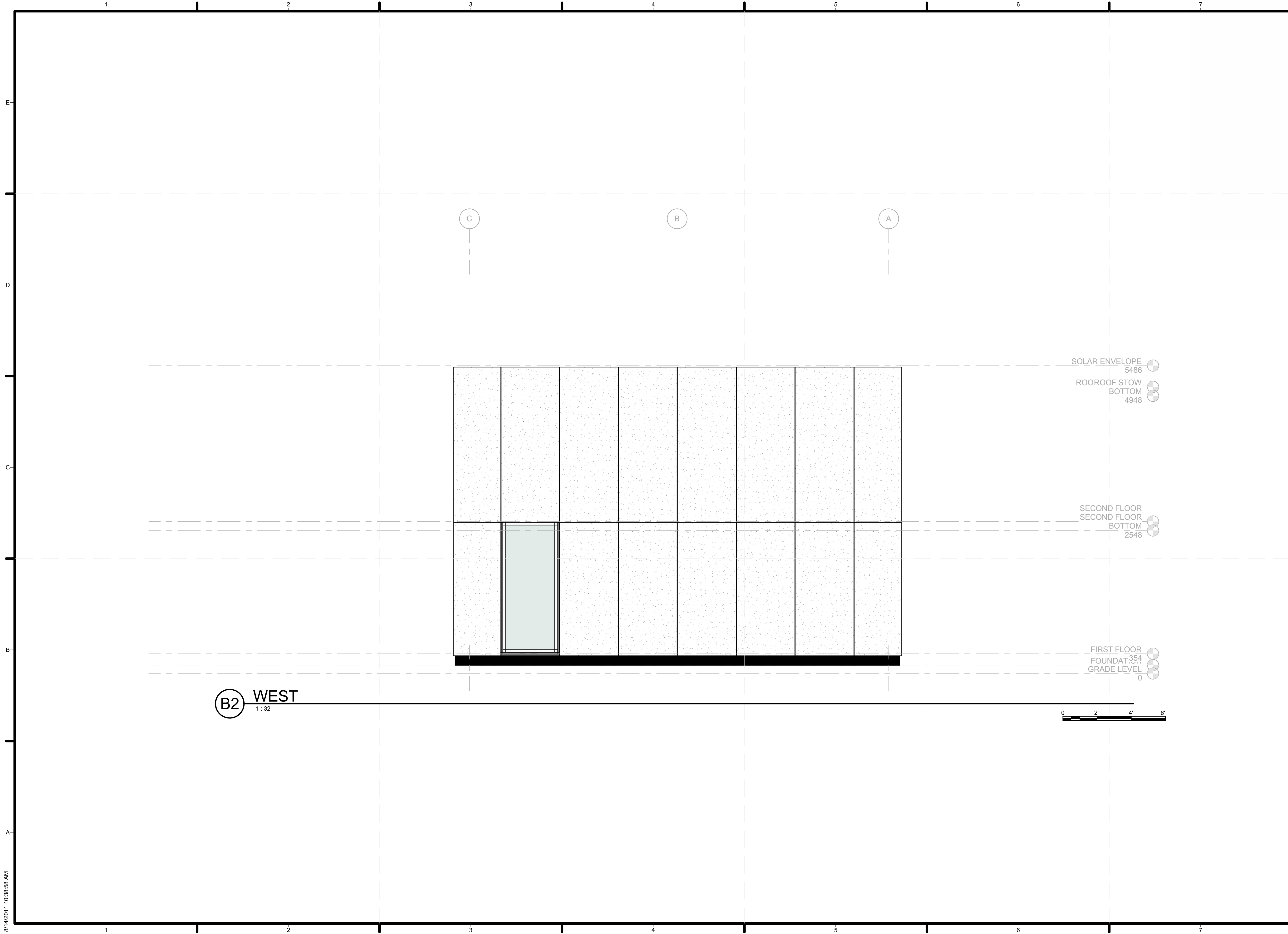
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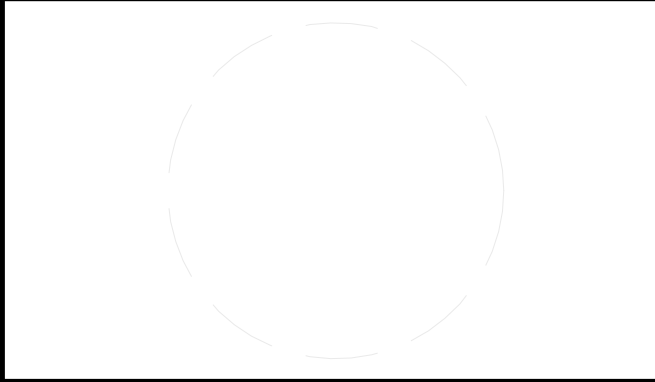


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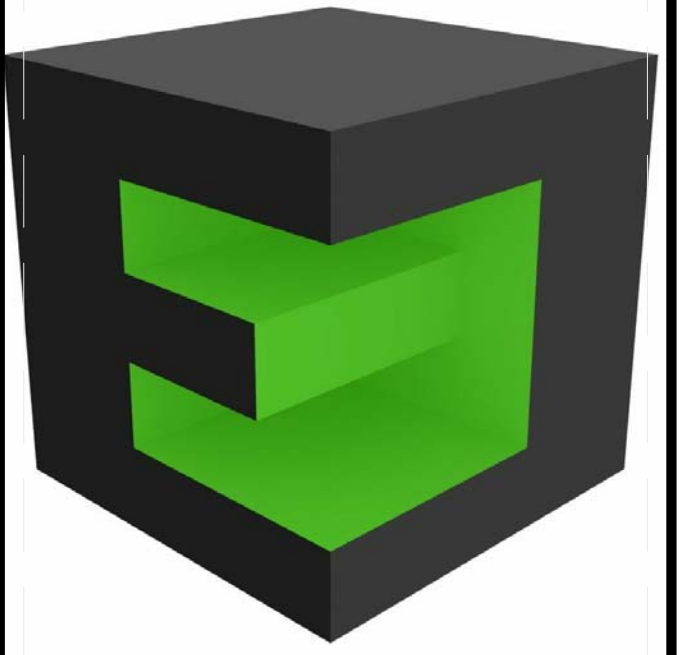
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SHEET TITLE
ELEVATION WEST

A-214

GENERAL SHEET NOTES



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PUBLIC RELATIONS: CHARLOTTE VYNCKE, MICHAEL ARENS

REFERENCE KEYNOTES

06 11 00.A1	BLOCKING
06 20 23	INTERIOR FINISH CARPENTRY
07 21 13.13	FOAM BOARD INSULATION
07 46 46	MINERAL-FIBER CEMENT SIDING
27 41 13	ARCHITECTURALLY INTEGRATED AUDIO-VIDEO EQUIPMENT

SHEET KEYNOTES

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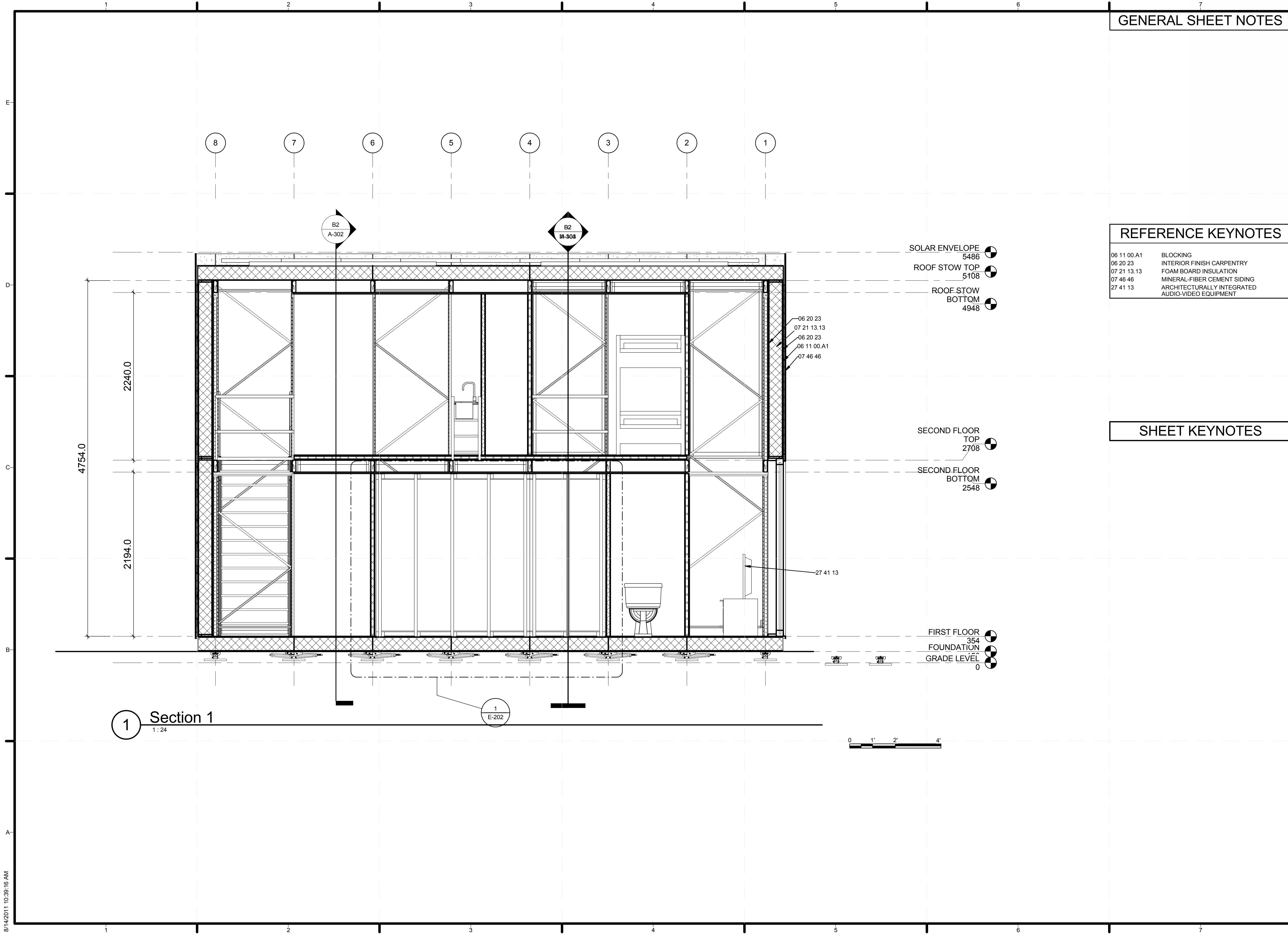


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SHEET TITLE
 BUILDING SECTION

A-301



8/14/2011 10:39:16 AM

GENERAL SHEET NOTES



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PUBLIC RELATIONS: CHARLOTTE VYNCKE, MICHAEL ARENS

REFERENCE KEYNOTES

05 12 13	ARCHITECTURALLY-EXPOSED STRUCTURAL STEEL FRAMING
05 13 00	STRUCTURAL STAINLESS-STEEL FRAMING
06 11 00.A1	BLOCKING
06 20 23	INTERIOR FINISH CARPENTRY
07 21 13.13	FOAM BOARD INSULATION
07 46 46	MINERAL-FIBER CEMENT SIDING

SHEET KEYNOTES

9	PLYWOOD ON SANDWICH PANELS IS OUR INTERIOR FINISH
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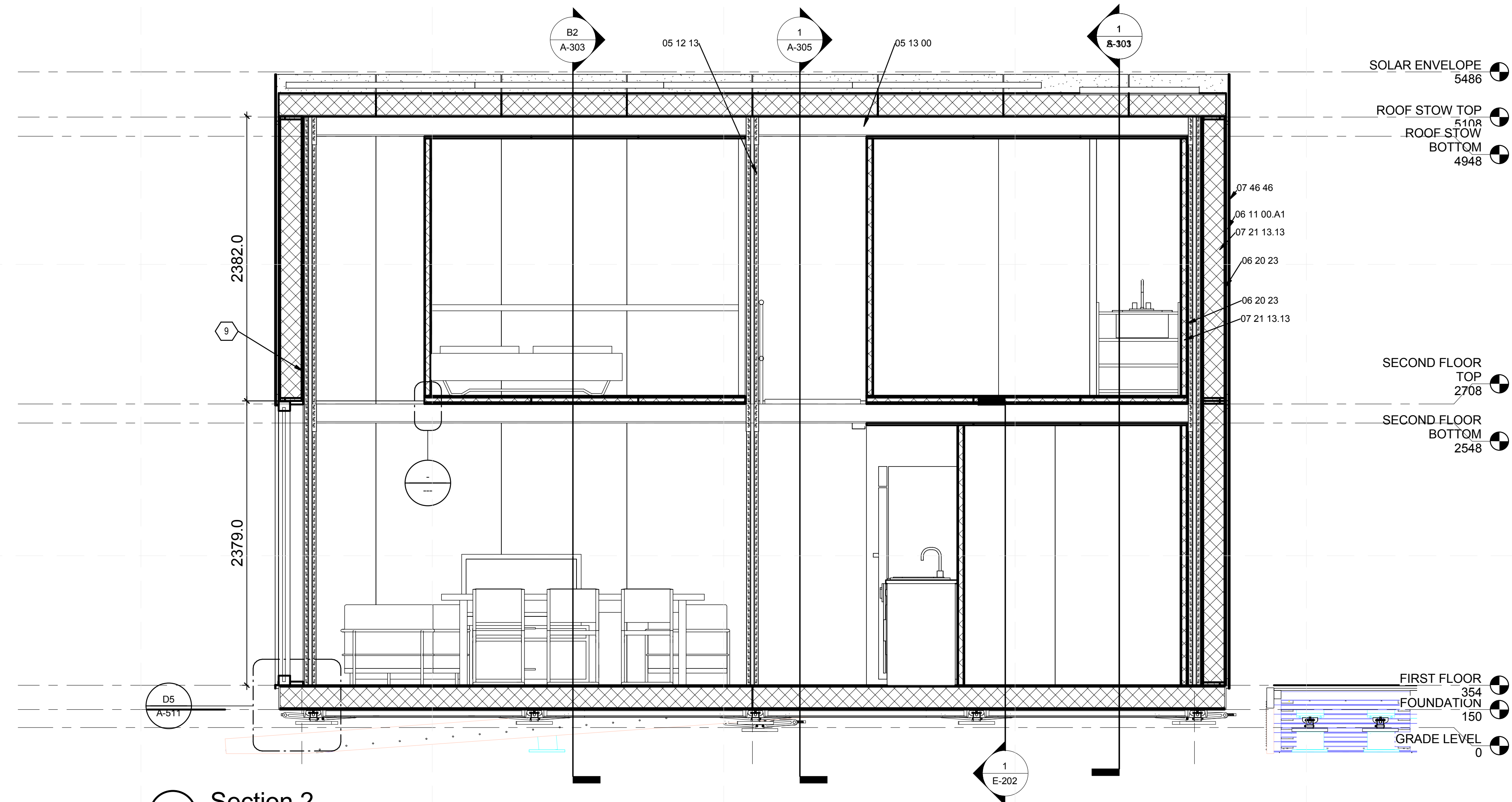
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SHEET TITLE

BUILDING SECTION

A-302



SOLAR ENVELOPE 5486

ROOF STOW TOP 5108

ROOF STOW BOTTOM 4948

SECOND FLOOR TOP 2708

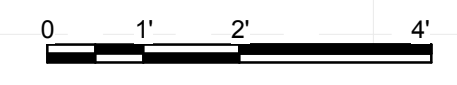
SECOND FLOOR BOTTOM 2548

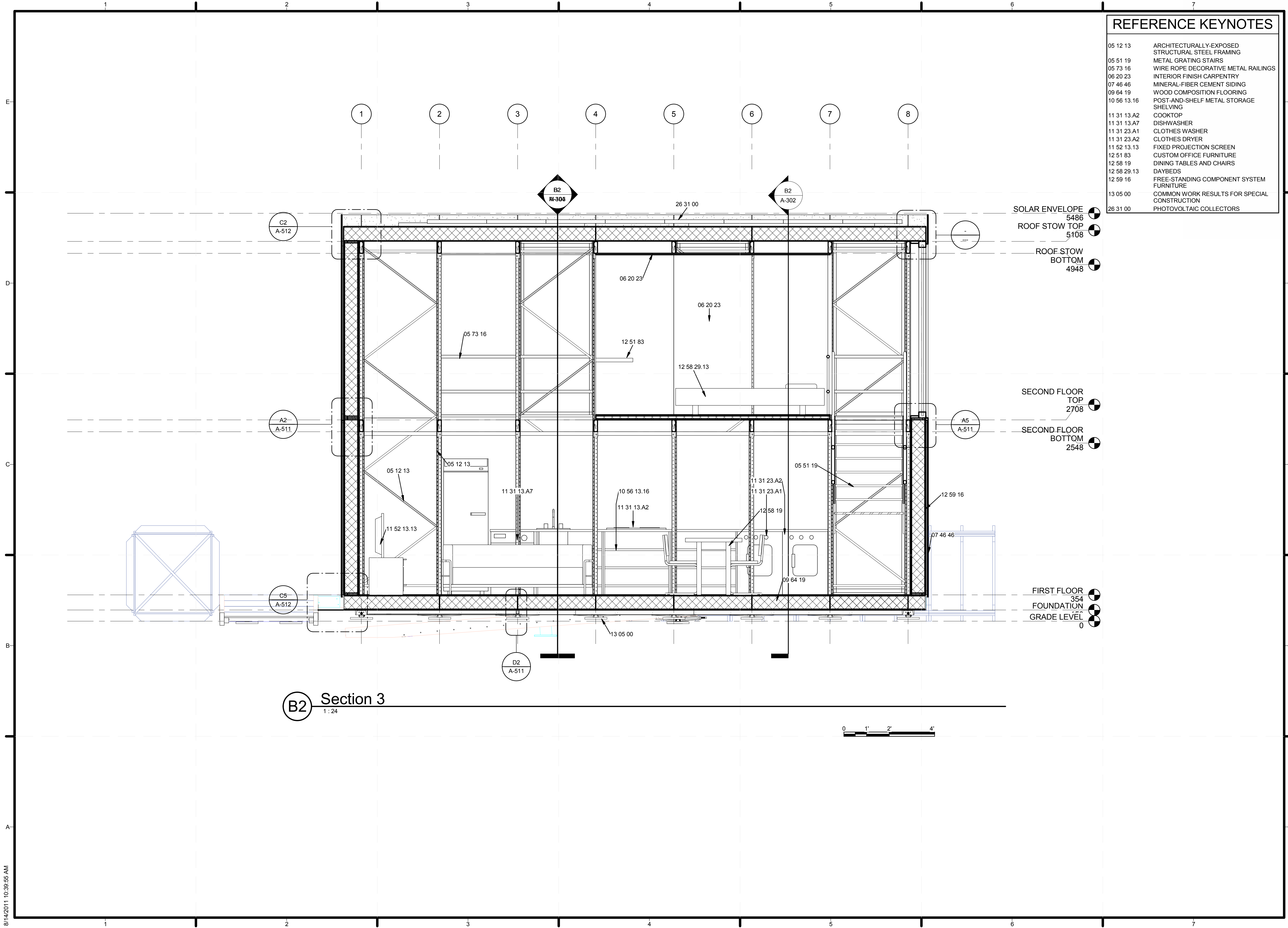
FIRST FLOOR 354

FOUNDATION 150

GRADE LEVEL 0

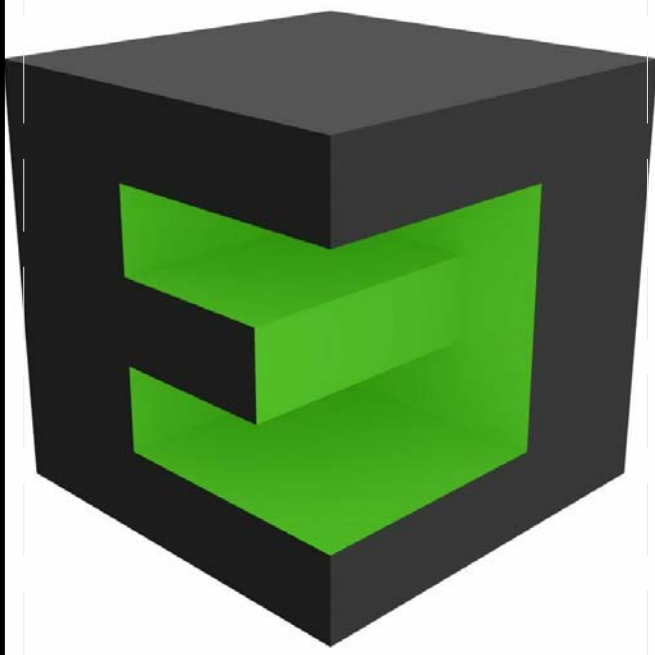
B2 Section 2
1:24





REFERENCE KEYNOTES

05 12 13	ARCHITECTURALLY EXPOSED STRUCTURAL STEEL FRAMING
05 51 19	METAL GRATING STAIRS
05 73 16	WIRE ROPE DECORATIVE METAL RAILINGS
06 20 23	INTERIOR FINISH CARPENTRY
07 46 46	MINERAL-FIBER CEMENT SIDING
09 64 19	WOOD COMPOSITION FLOORING
10 56 13.16	POST-AND-SHELF METAL STORAGE SHELVING
11 31 13.A2	COOKTOP
11 31 13.A7	DISHWASHER
11 31 23.A1	CLOTHES WASHER
11 31 23.A2	CLOTHES DRYER
11 52 13.13	FIXED PROJECTION SCREEN
12 51 83	CUSTOM OFFICE FURNITURE
12 58 19	DINING TABLES AND CHAIRS
12 58 29.13	DAYBEDS
12 59 16	FREE-STANDING COMPONENT SYSTEM FURNITURE
13 05 00	COMMON WORK RESULTS FOR SPECIAL CONSTRUCTION
26 31 00	PHOTOVOLTAIC COLLECTORS



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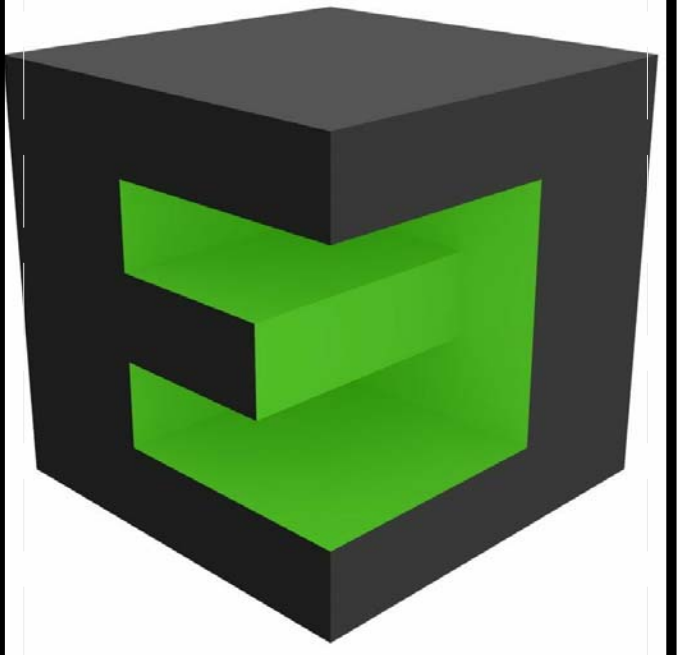
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SHEET TITLE
BUILDING SECTION

A-303

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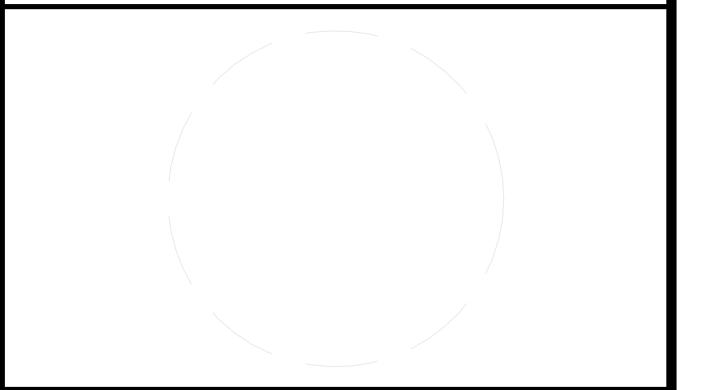


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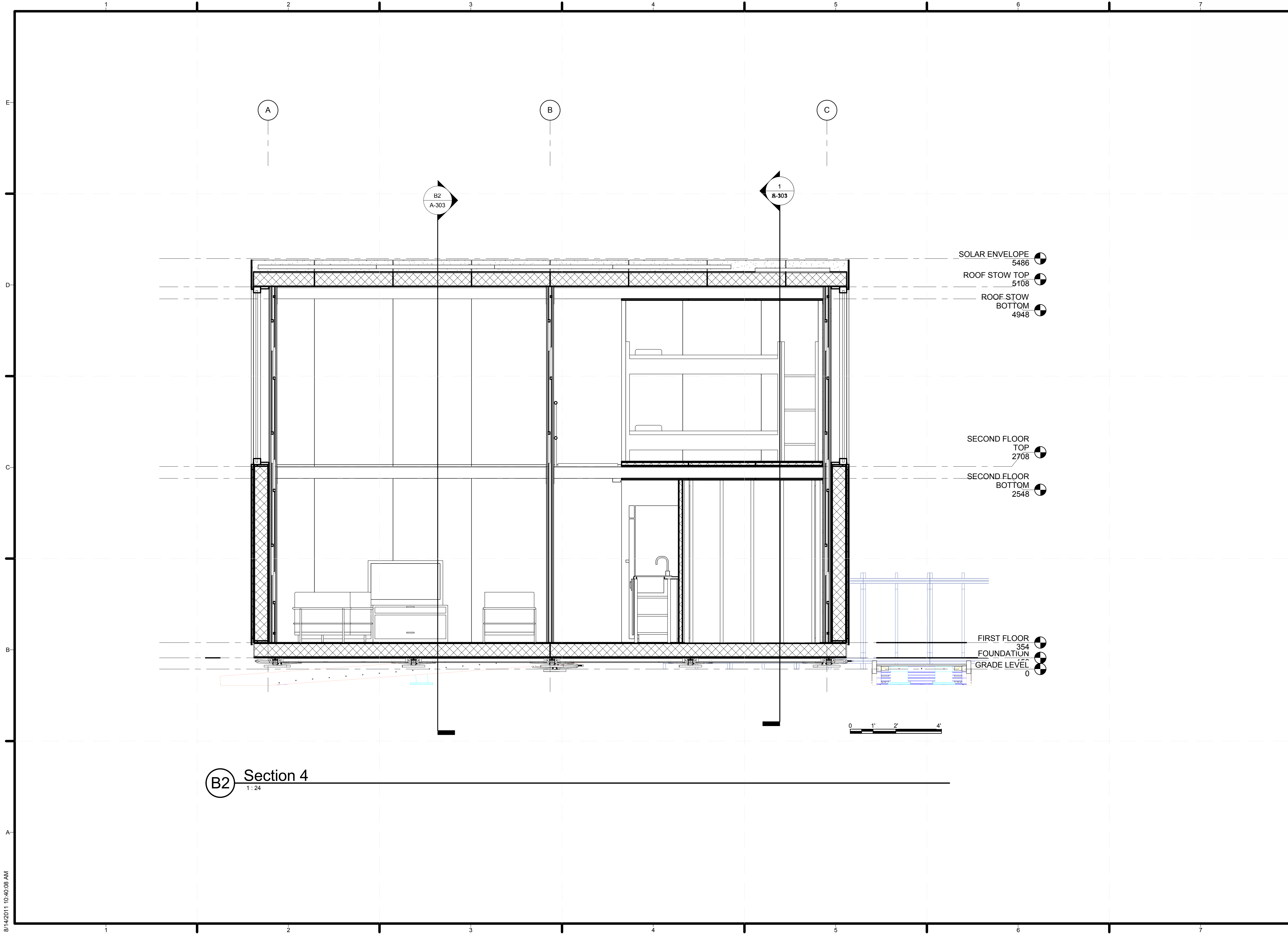
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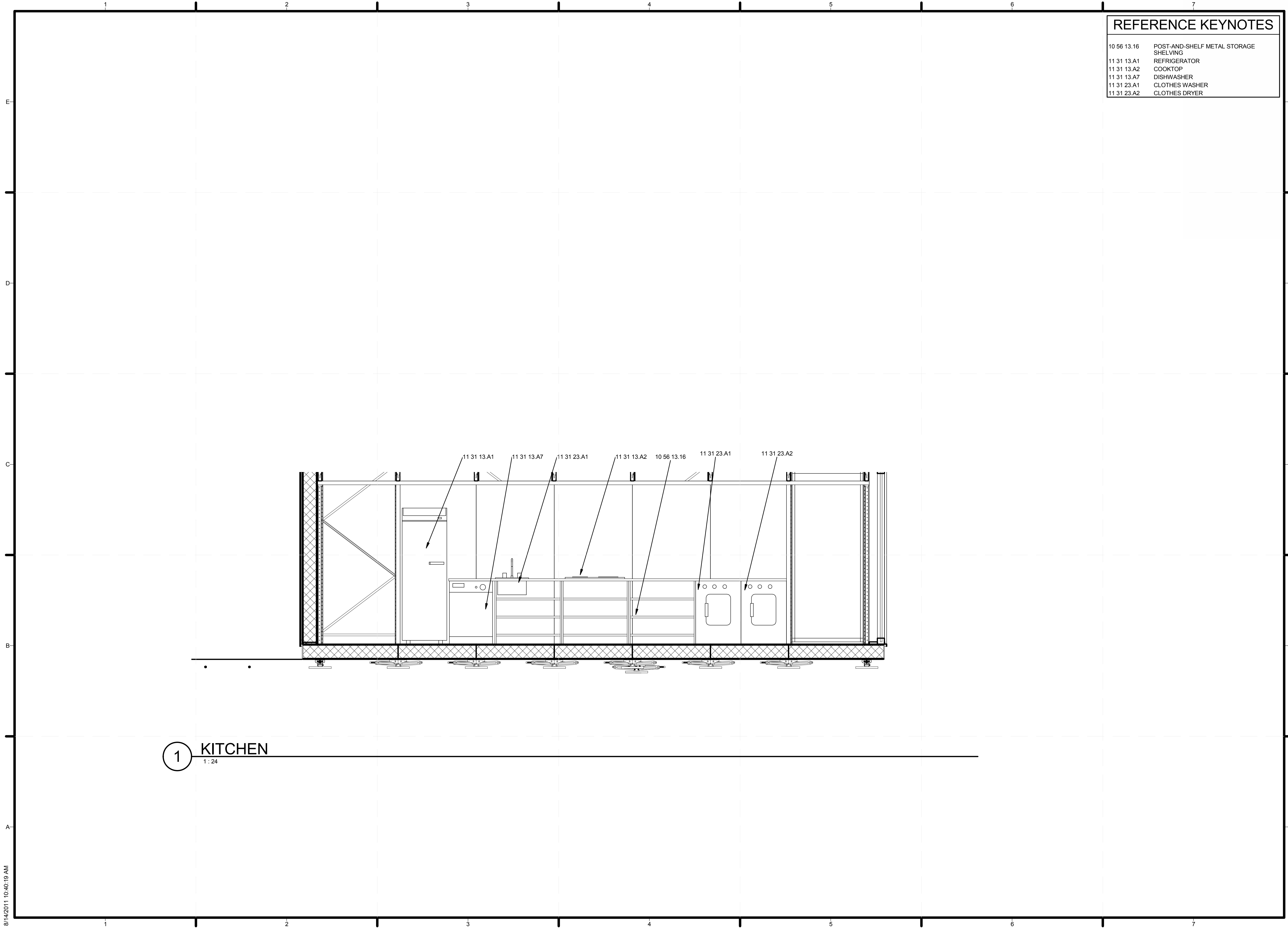
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BUILDING SECTION

A-304

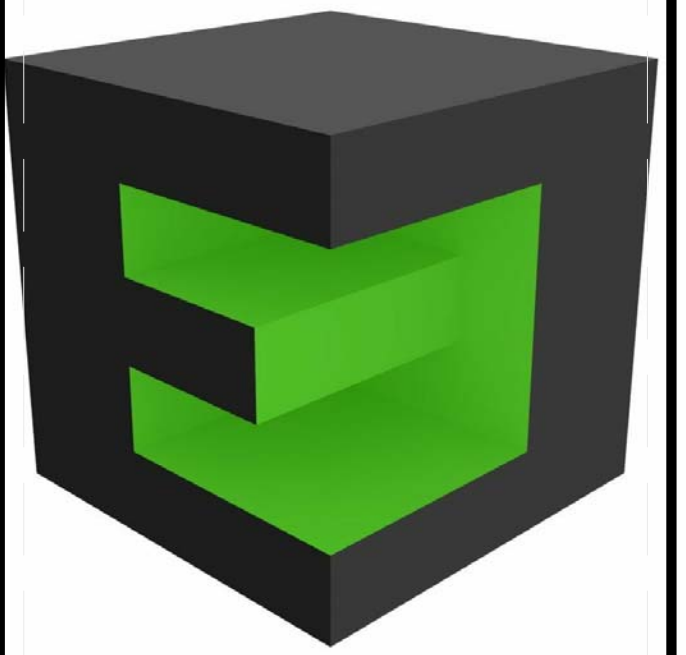


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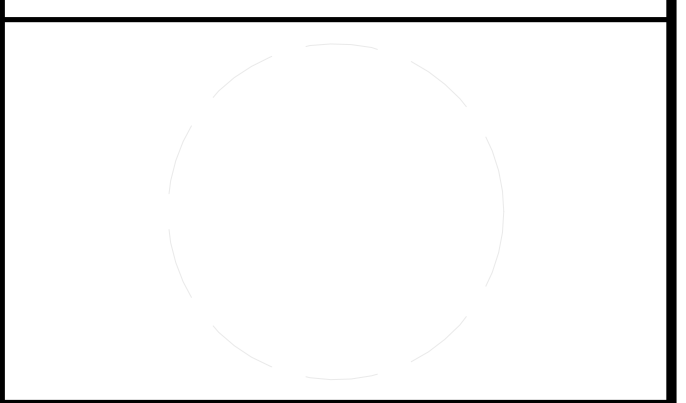
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10 56 13.16	POST-AND-SHELF METAL STORAGE SHELVING
11 31 13.A1	REFRIGERATOR
11 31 13.A2	COOKTOP
11 31 13.A7	DISHWASHER
11 31 23.A1	CLOTHES WASHER
11 31 23.A2	CLOTHES DRYER



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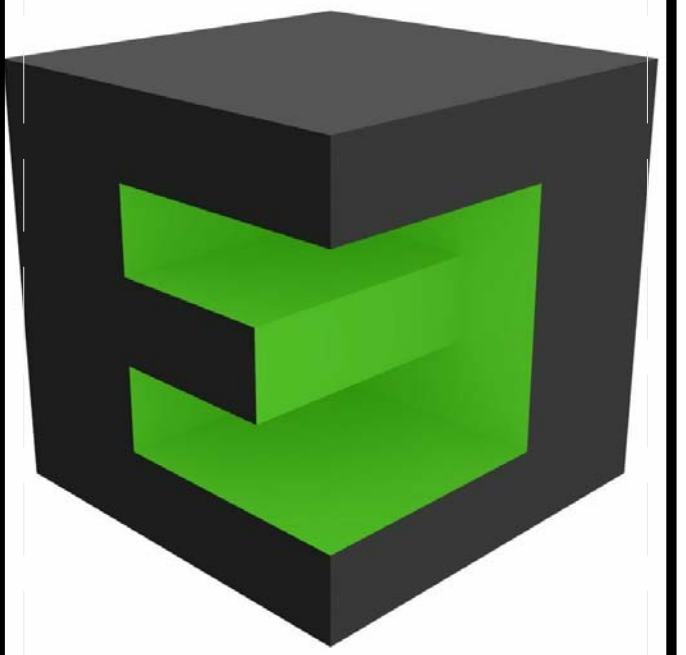
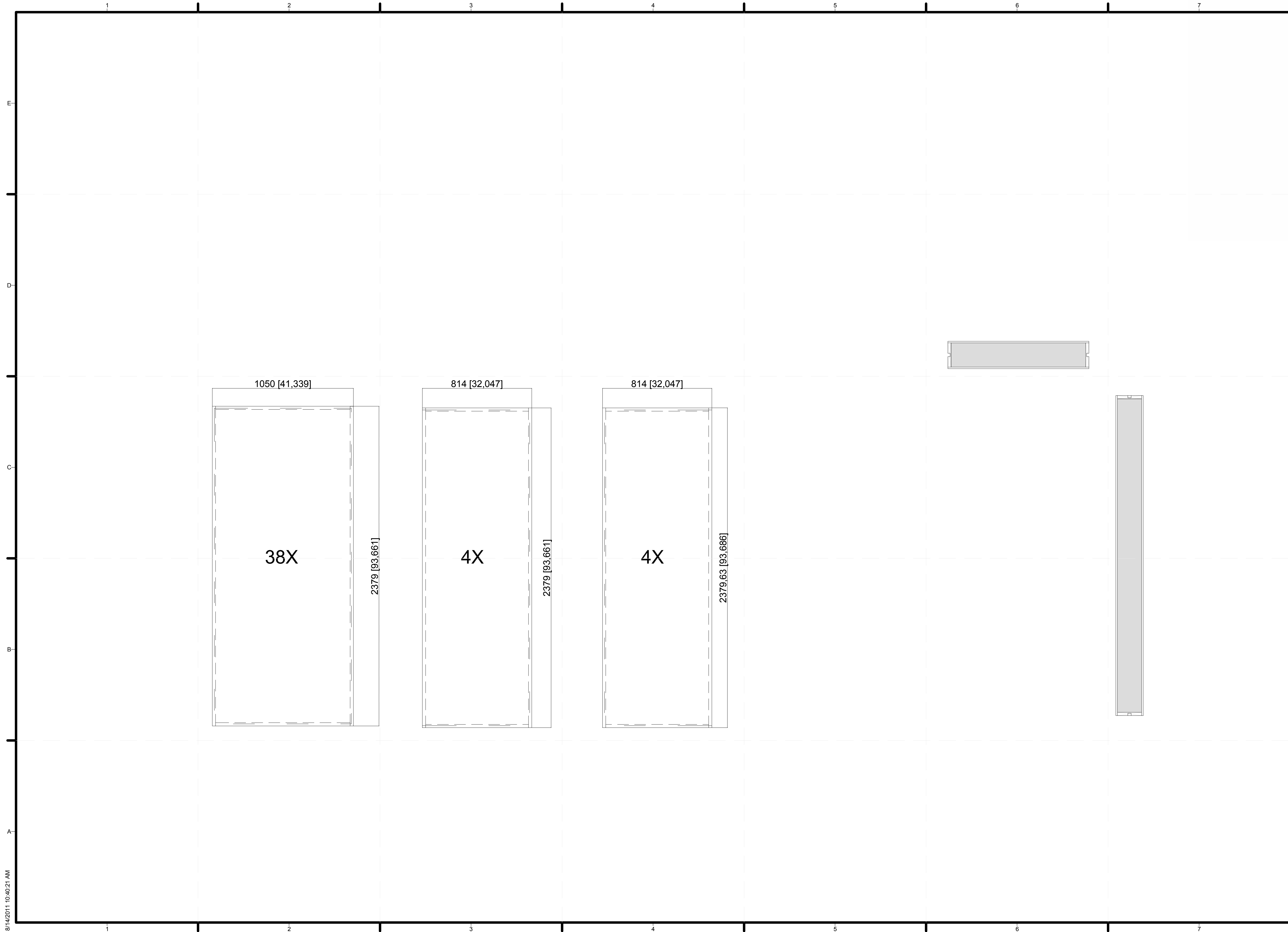


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SHEET TITLE
BUILDING SECTION

A-305

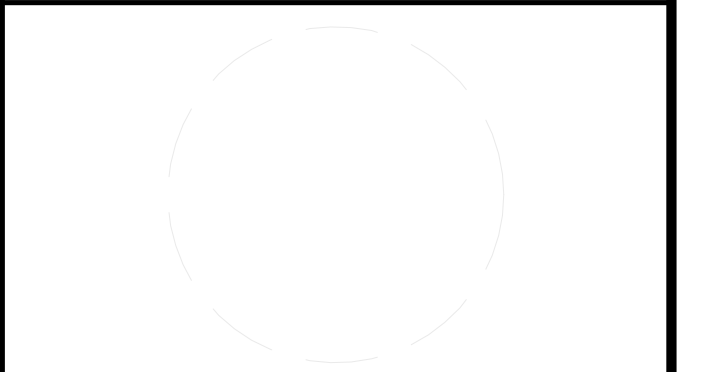


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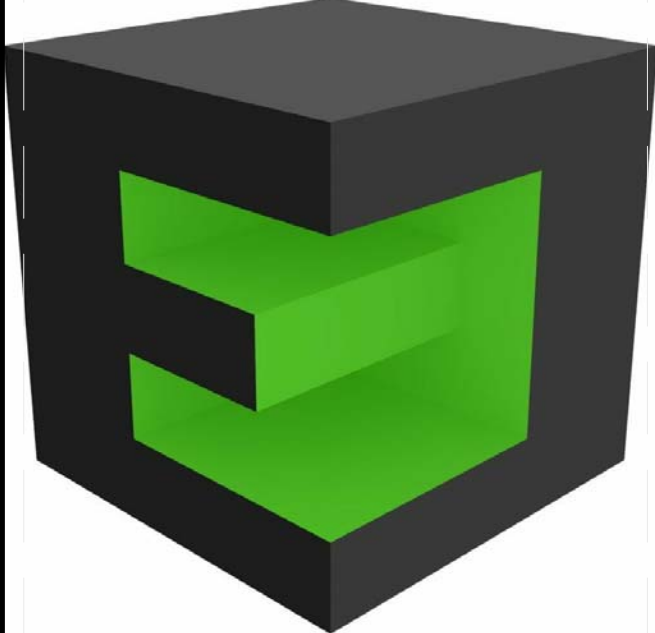
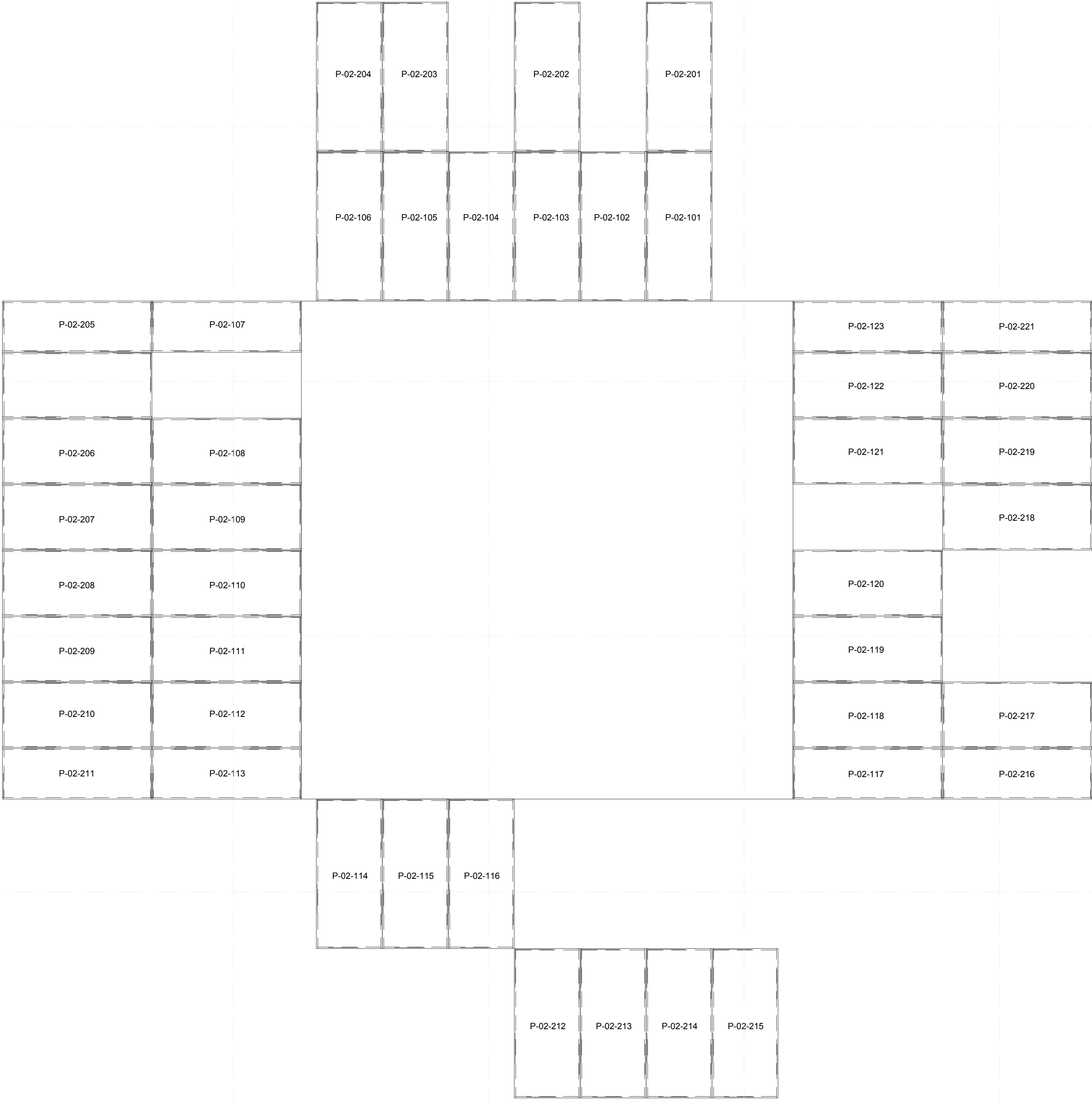
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SHEET TITLE
 SANDWICH WALL
 PANELS

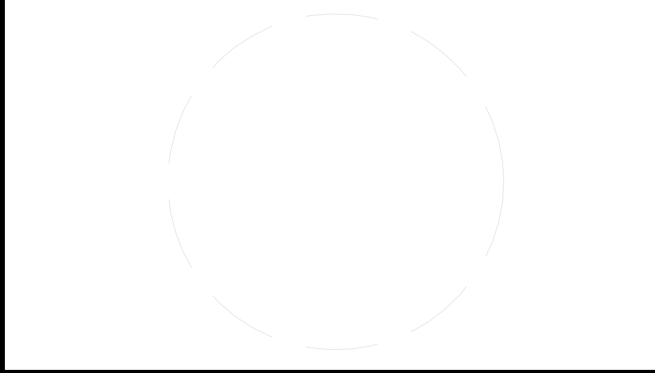
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wandpanelen



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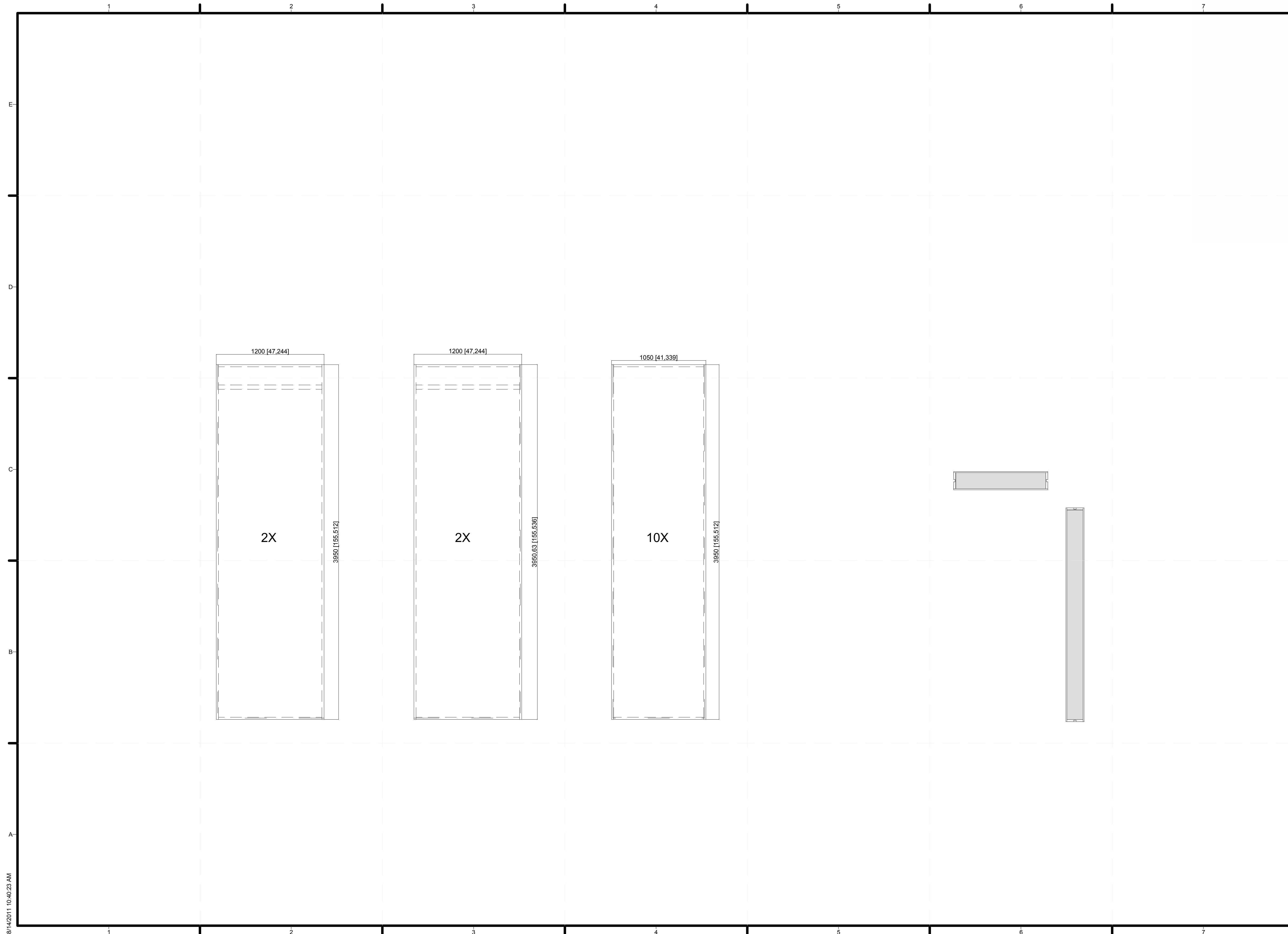


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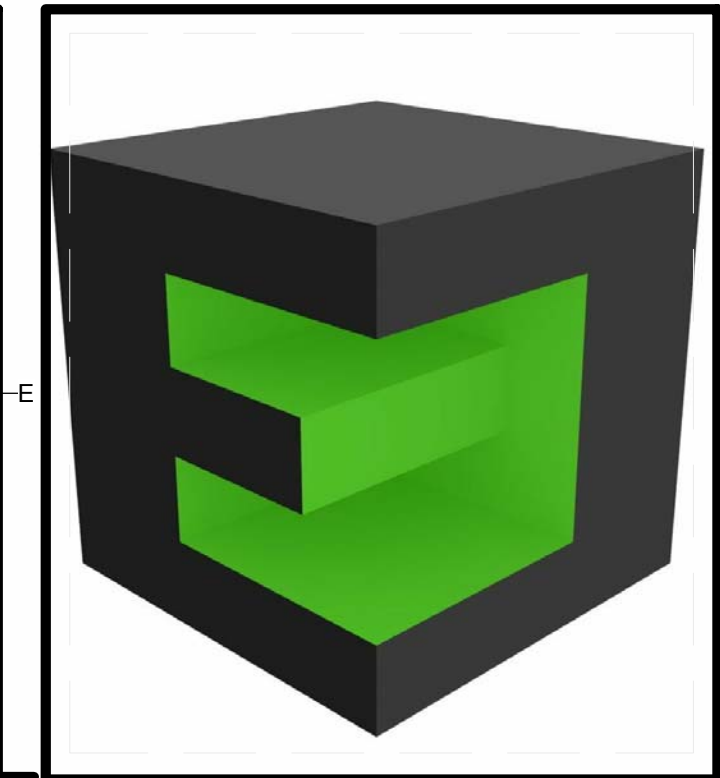
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SHEET TITLE
SANDWICH WALL PANELS

A-312



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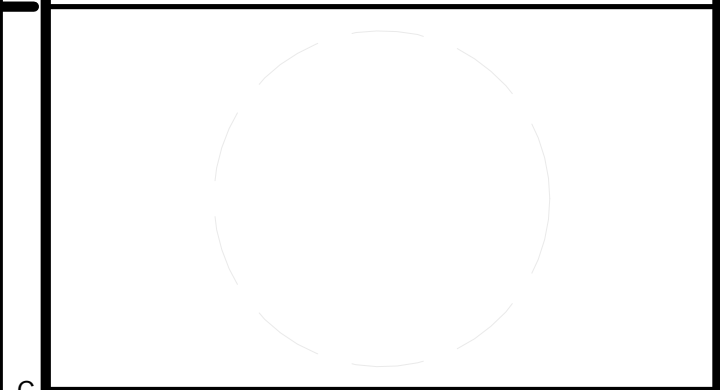


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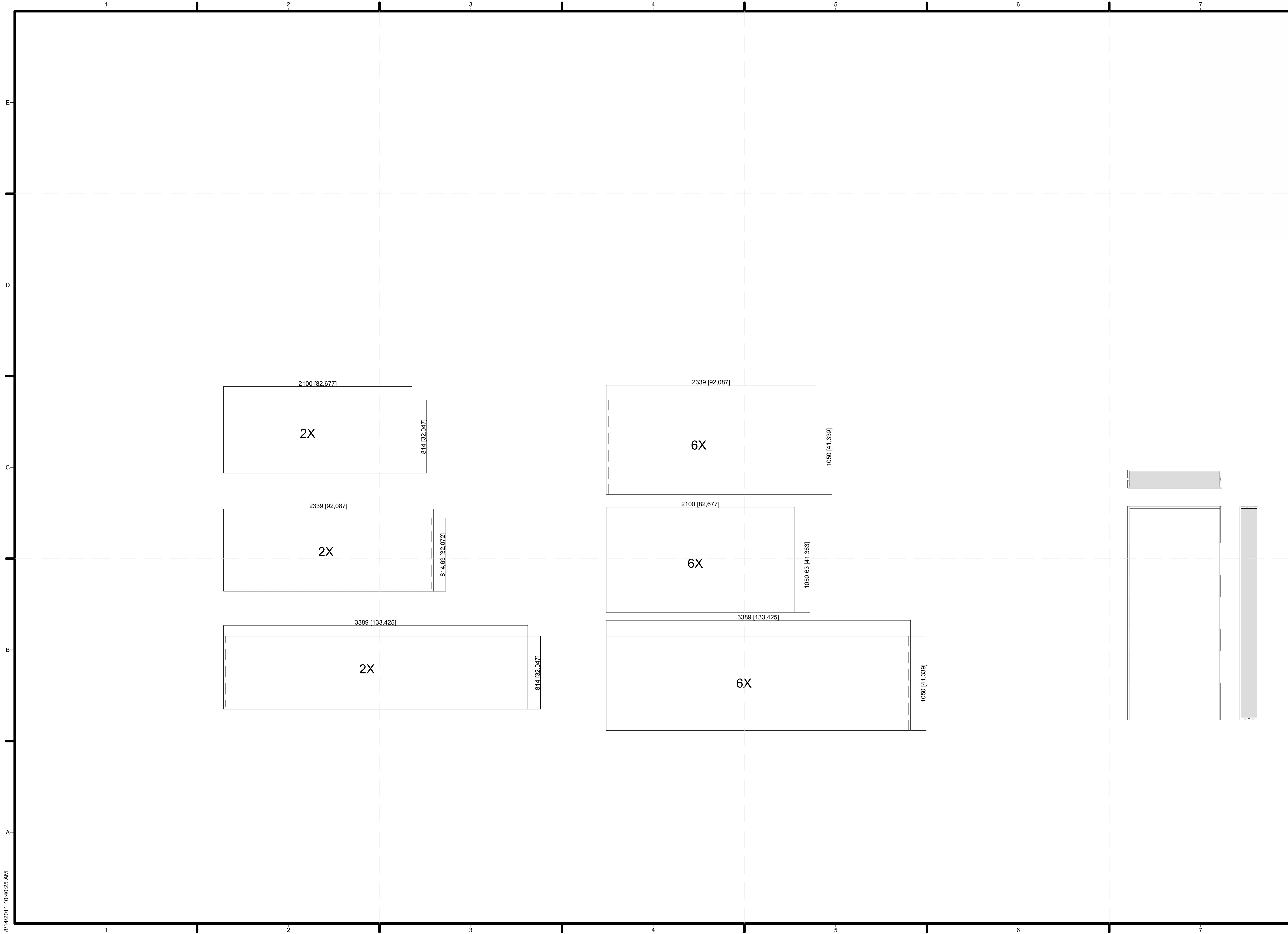


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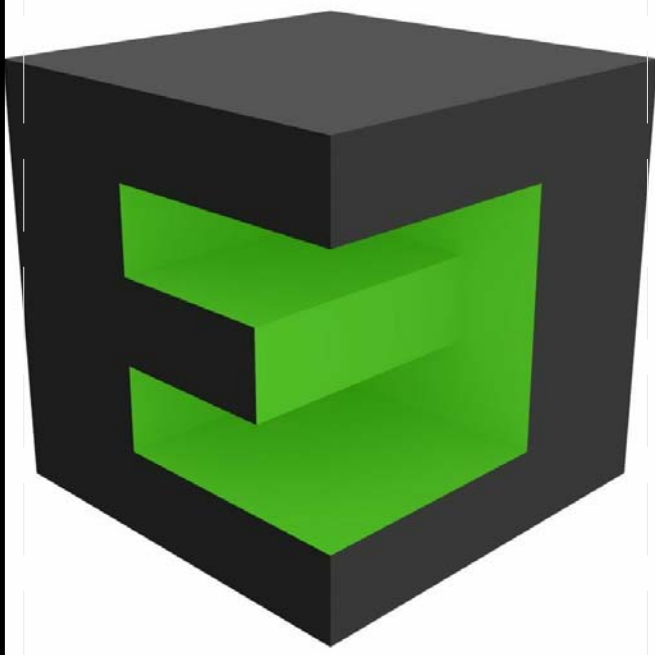
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SHEET TITLE
FLOOR PANELS

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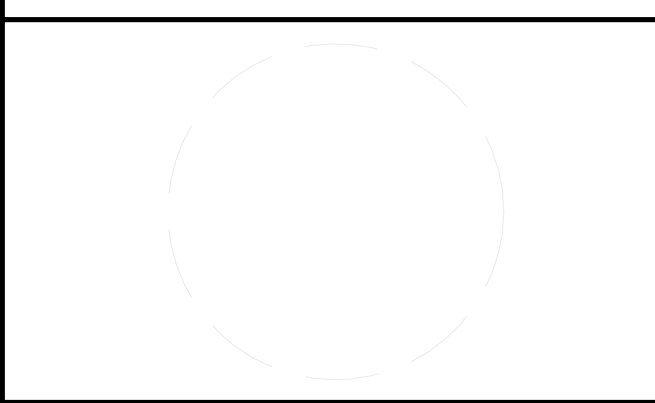


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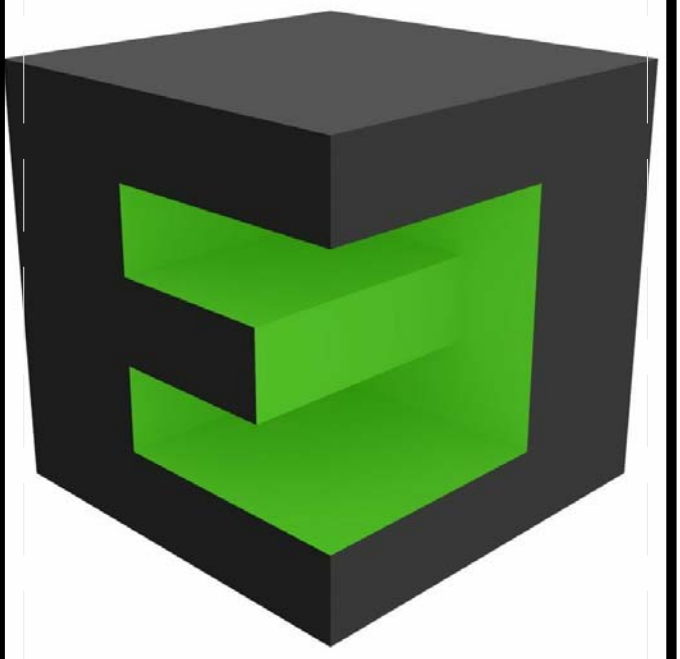
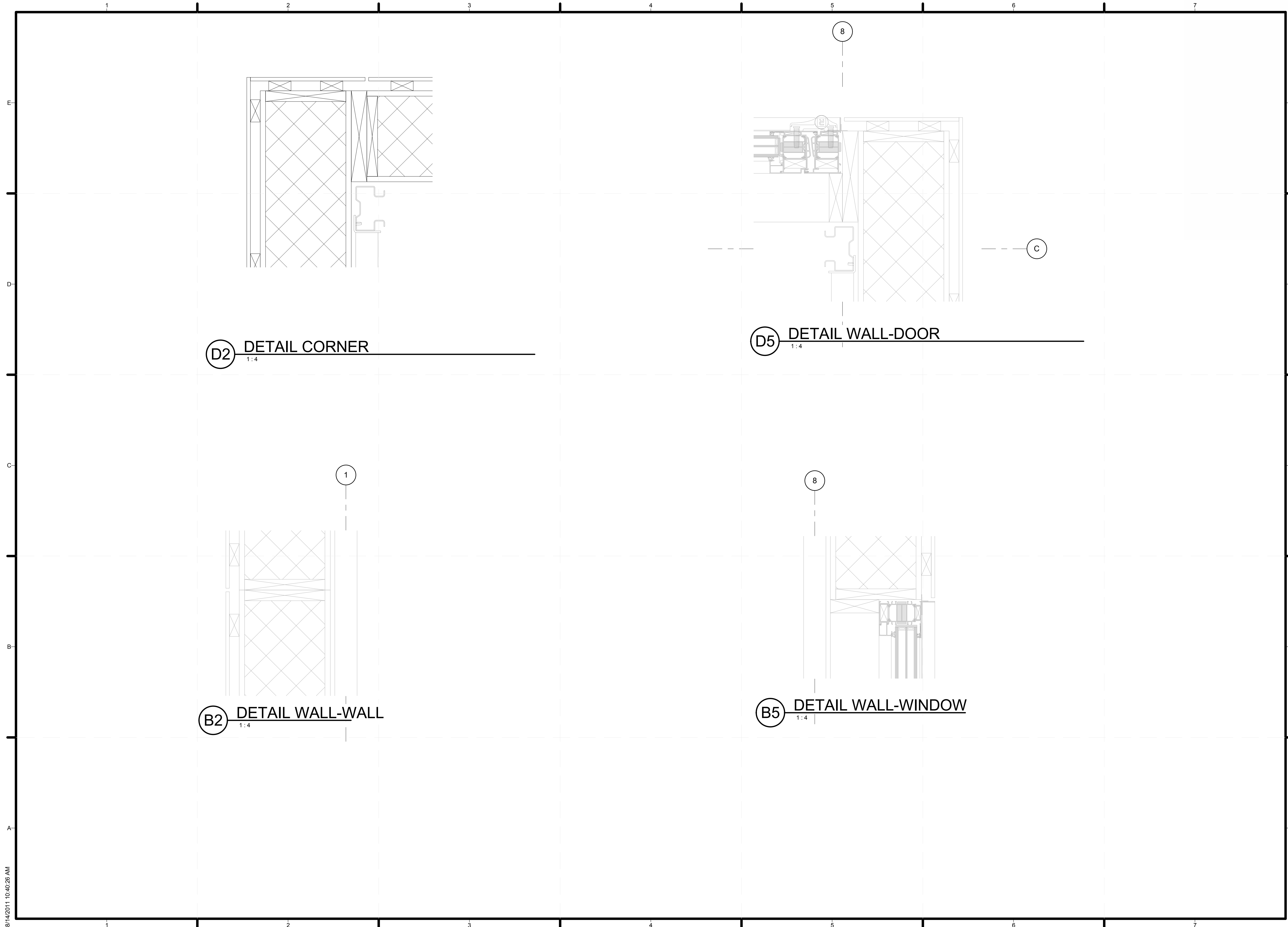


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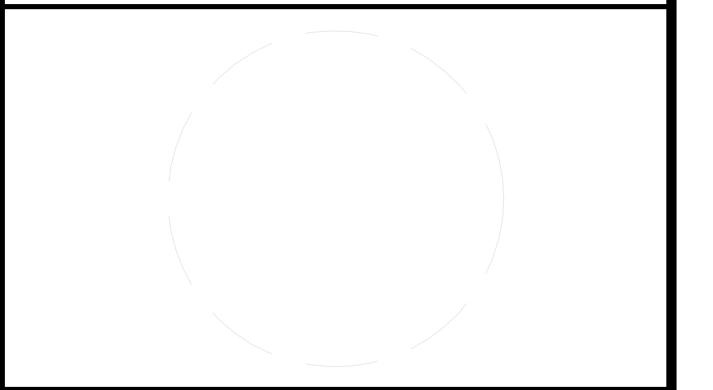
SHEET TITLE
ROOF PANELS

A-322



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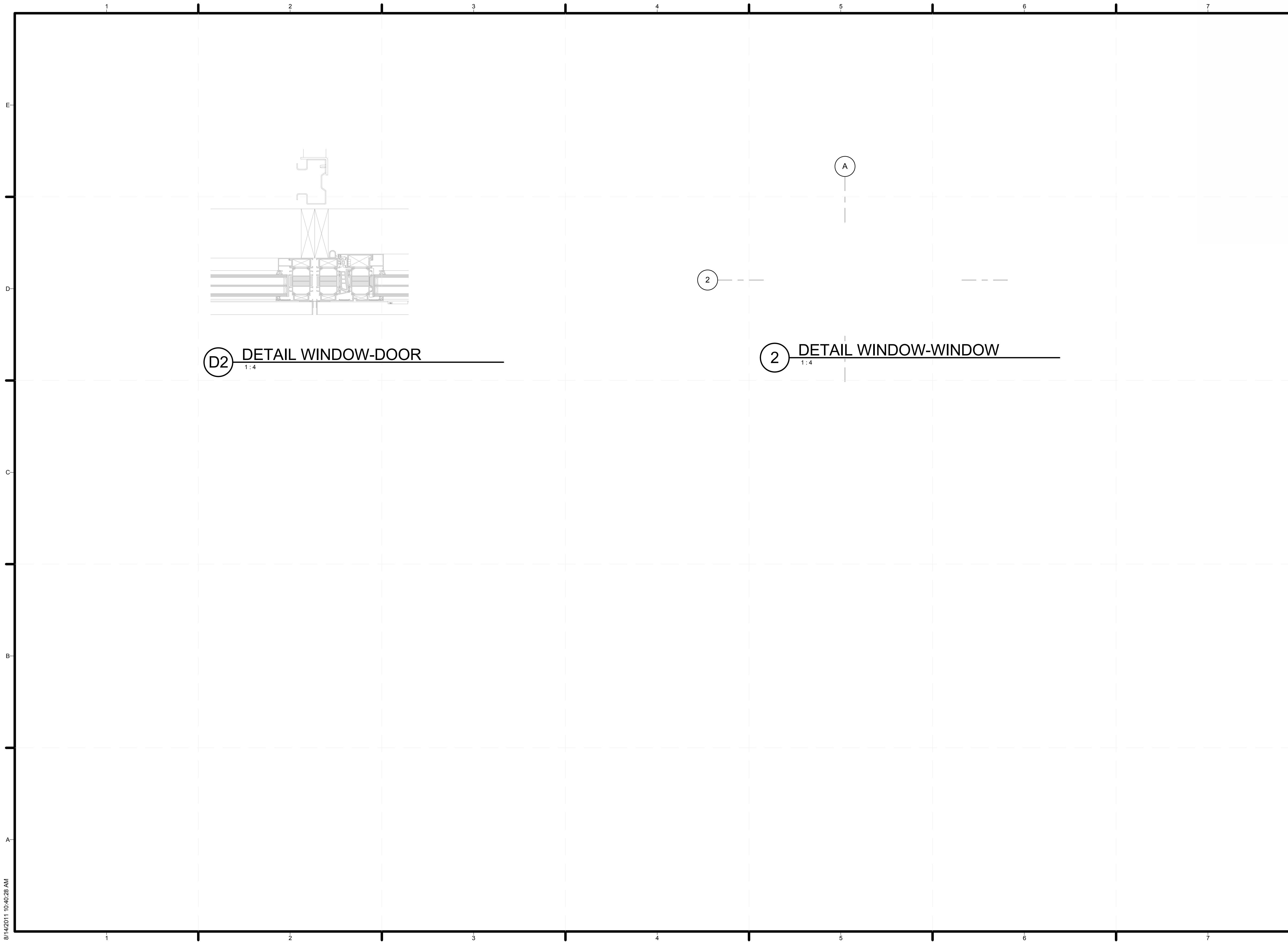
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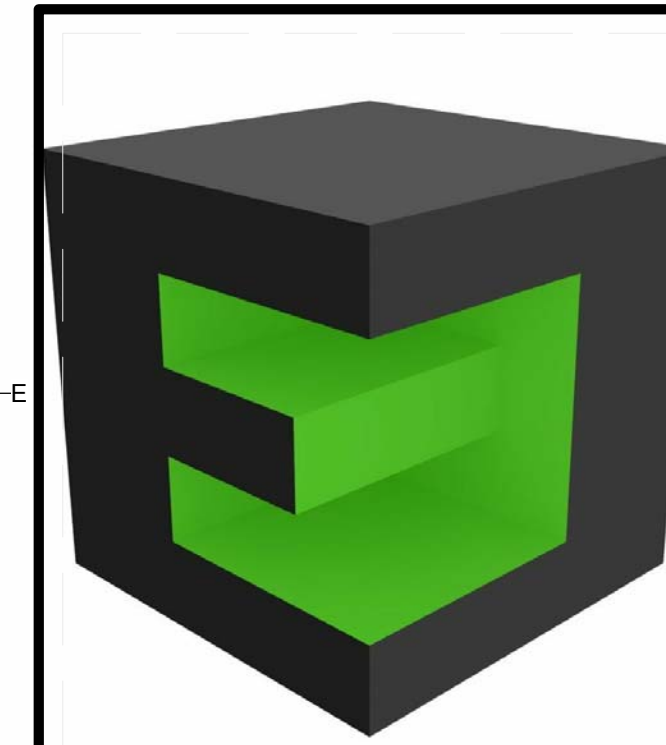
PLAN DETAILS

A-501



(D2) **DETAIL WINDOW-DOOR**
1:4

(2) **DETAIL WINDOW-WINDOW**
1:4



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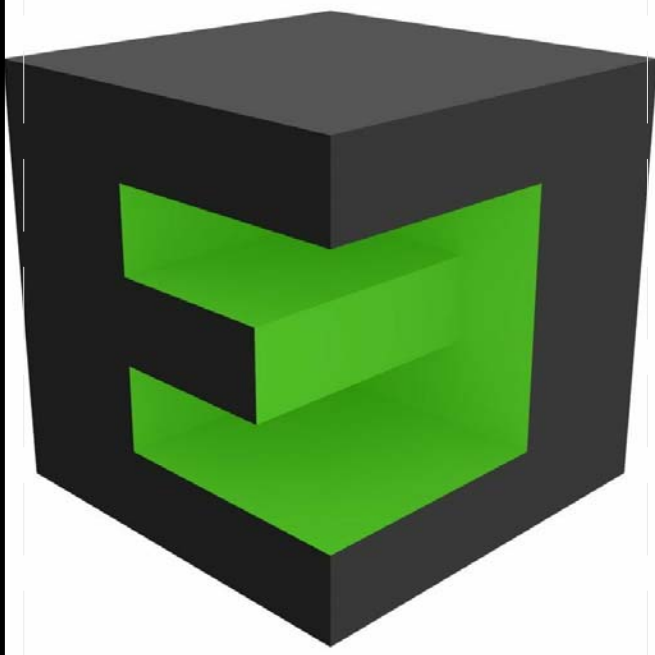
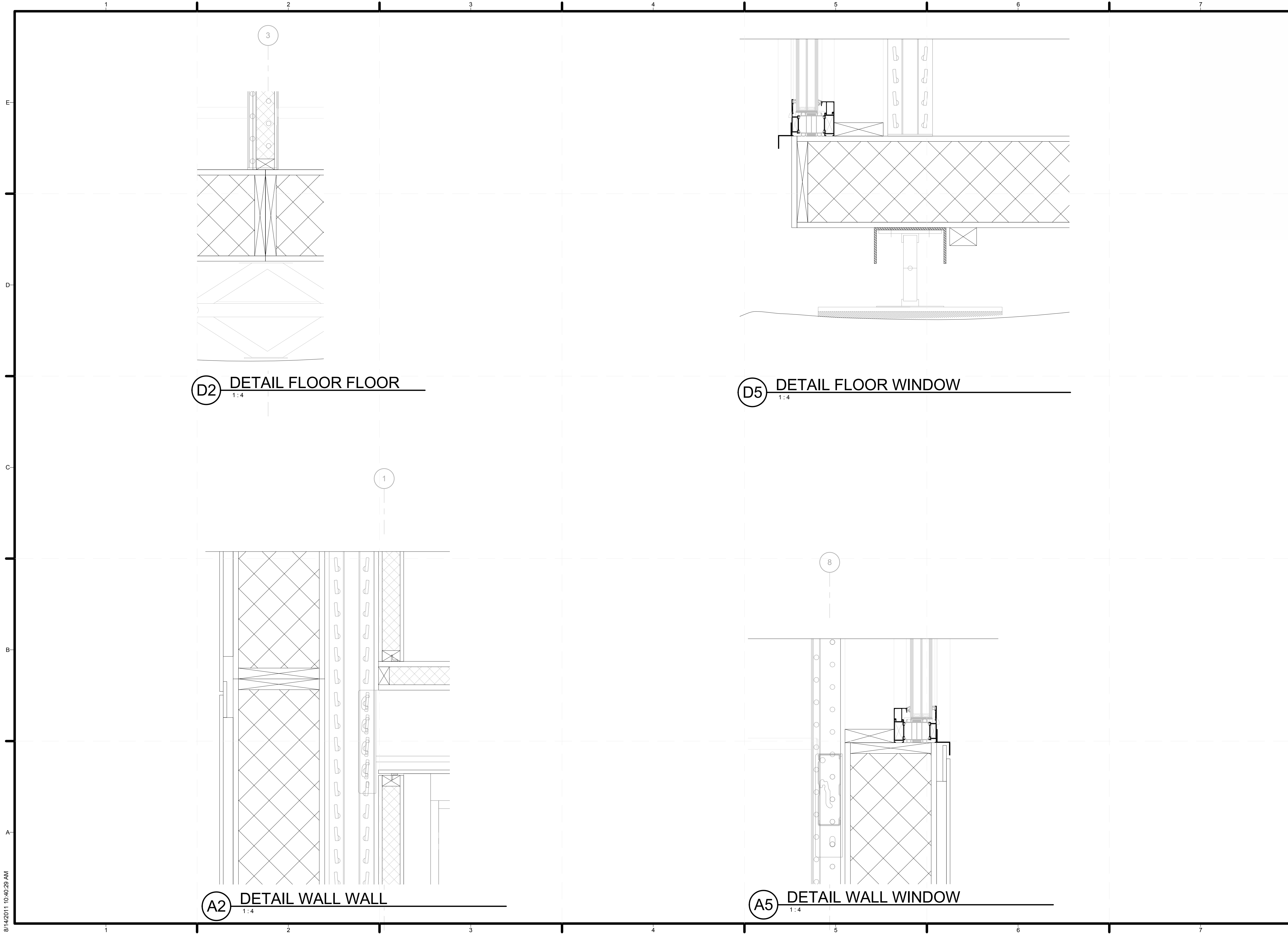
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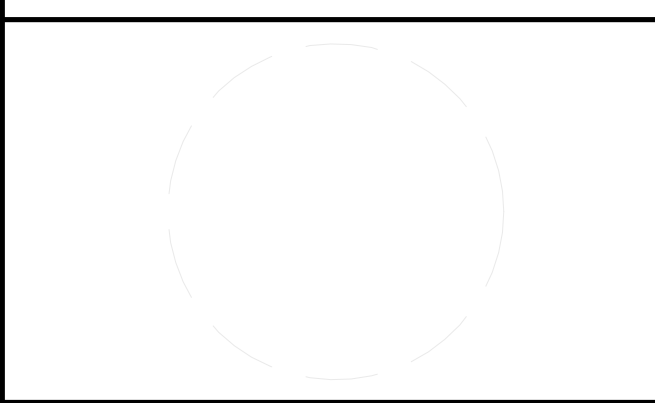
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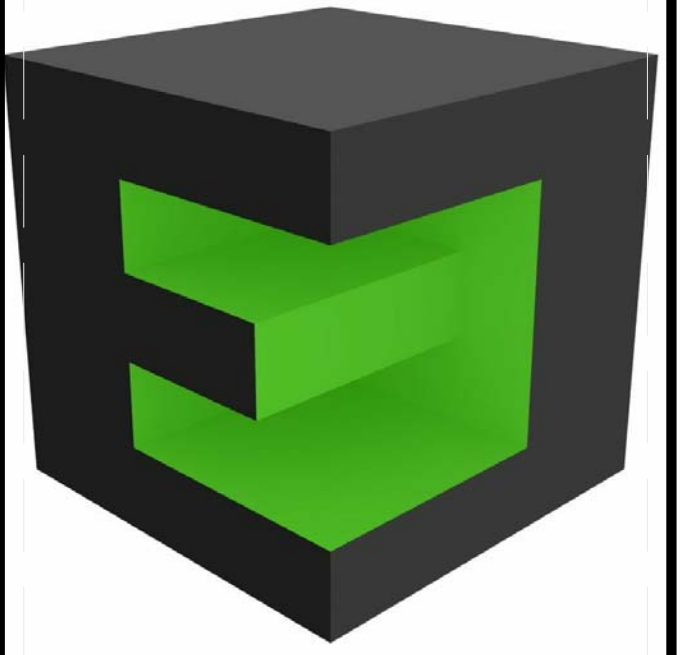
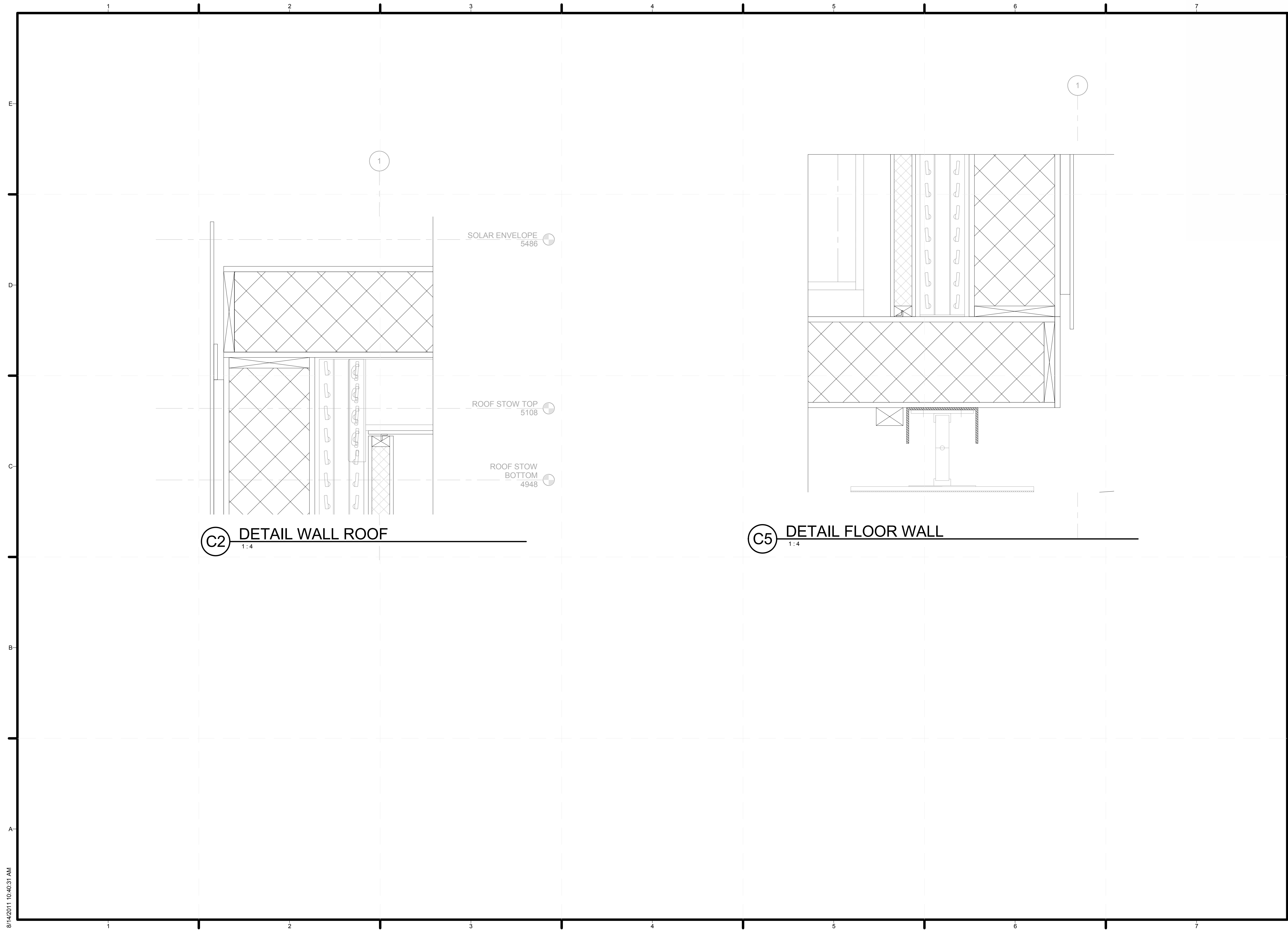


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SHEET TITLE
SECTION DETAILS

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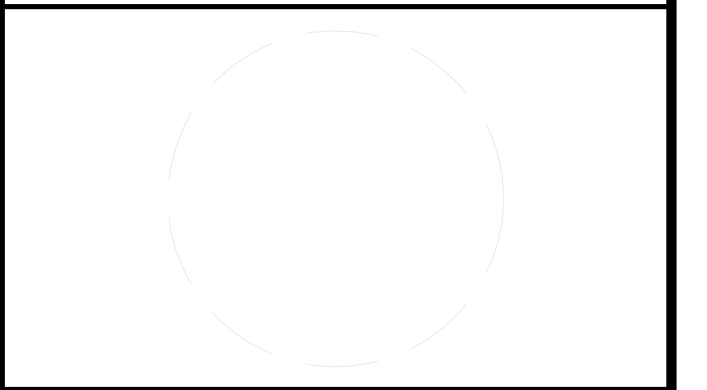


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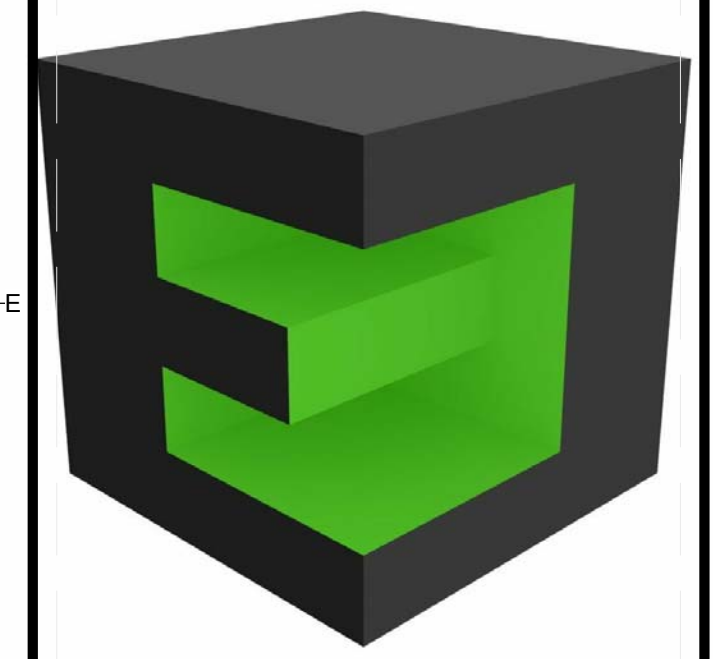
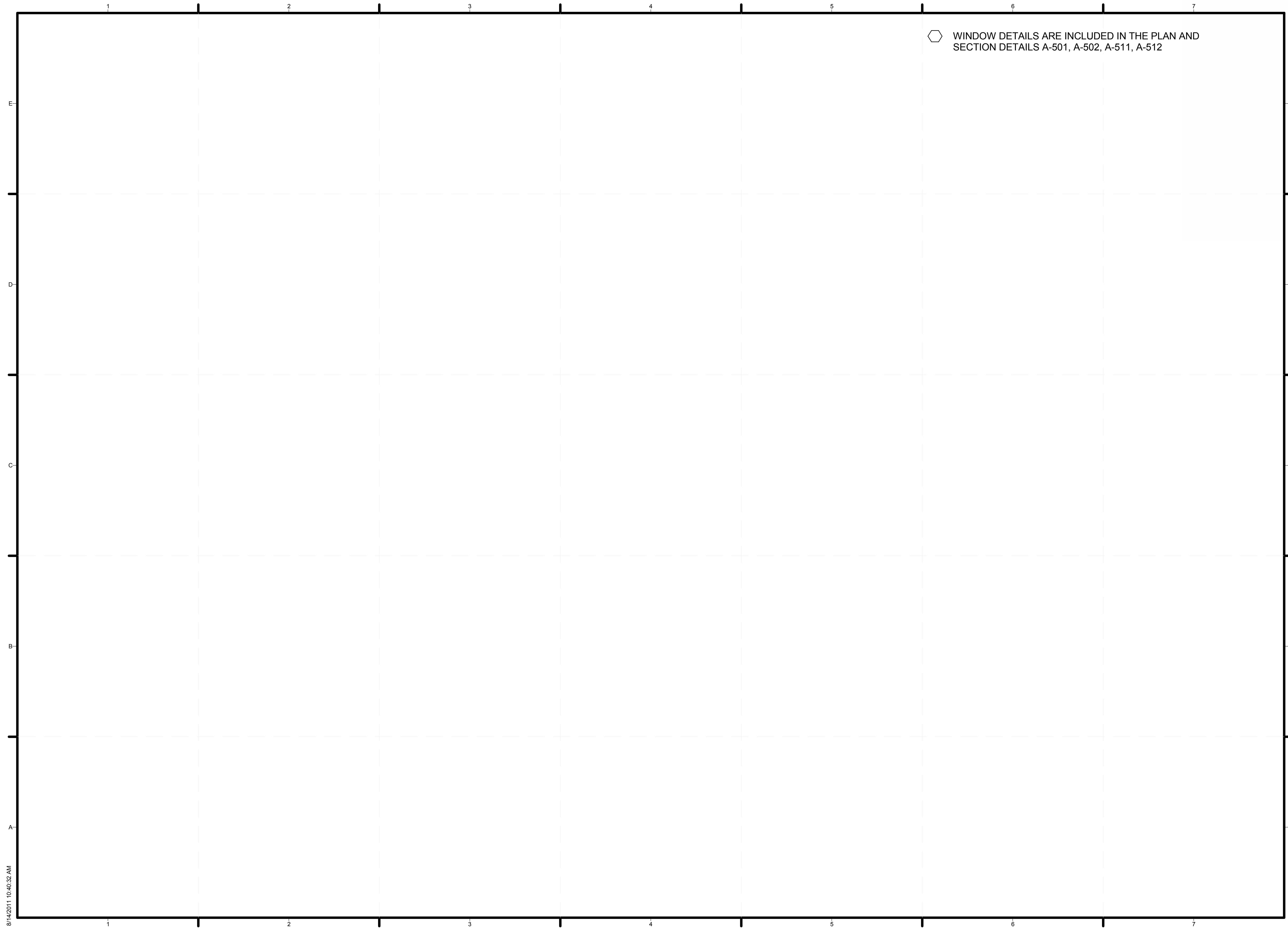
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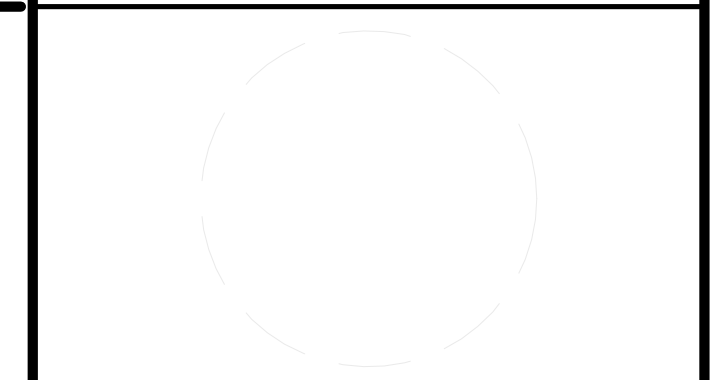
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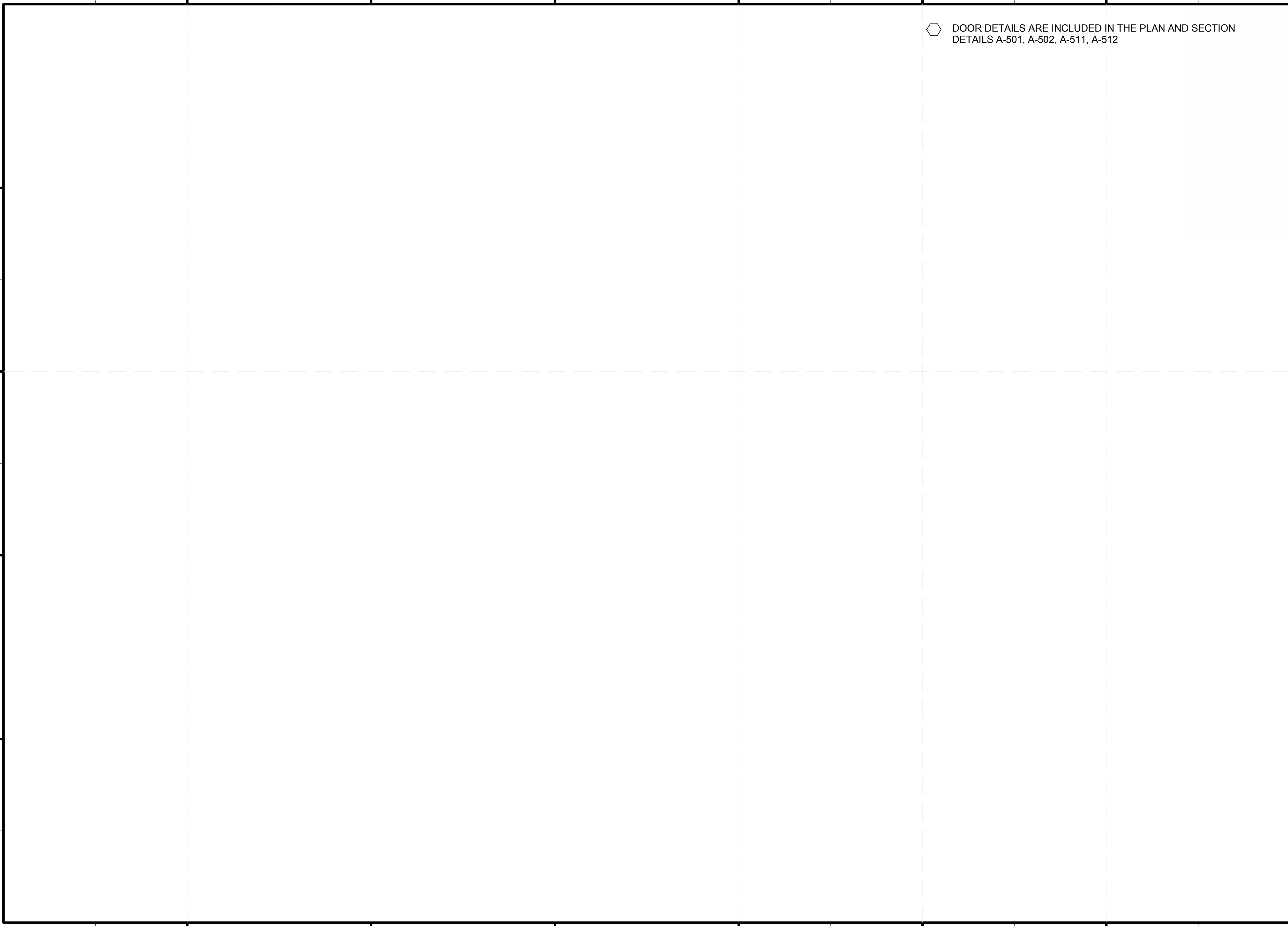
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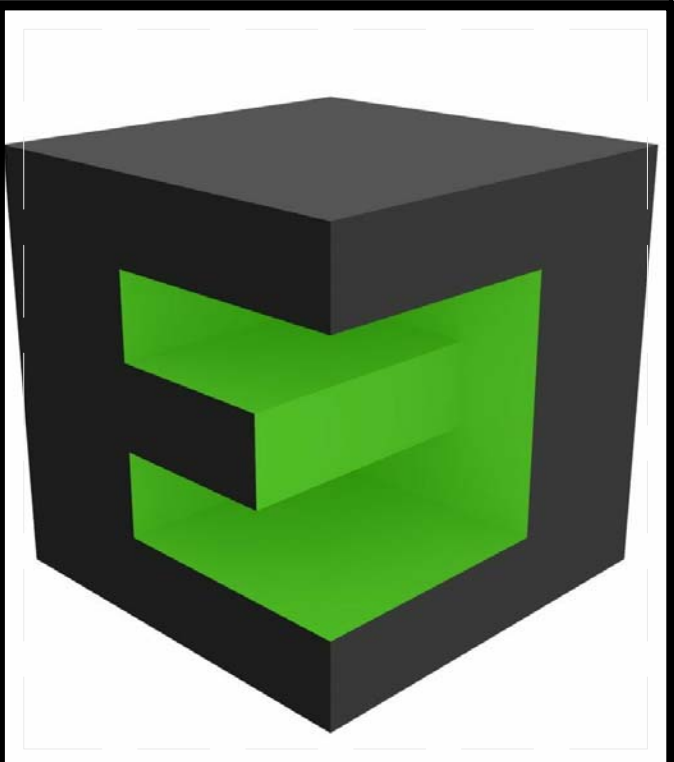
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WINDOW DETAILS

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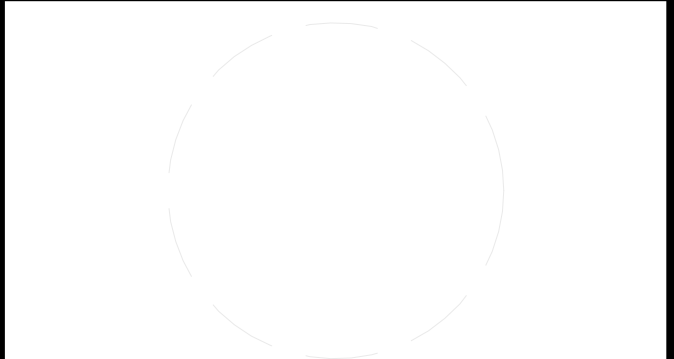


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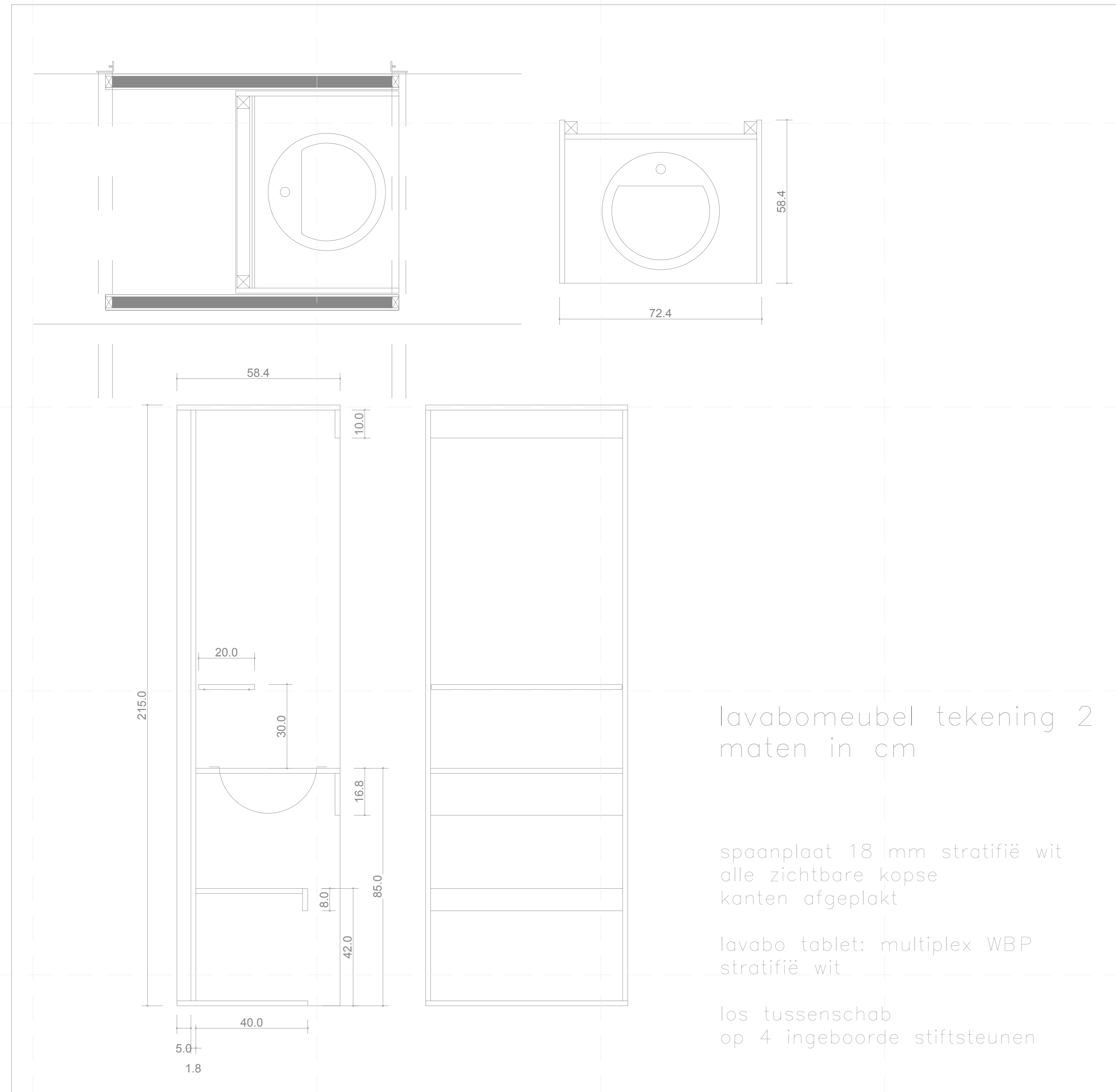
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SHEET TITLE
**CASEWORK DETAILS
 BATHROOM**

A-582

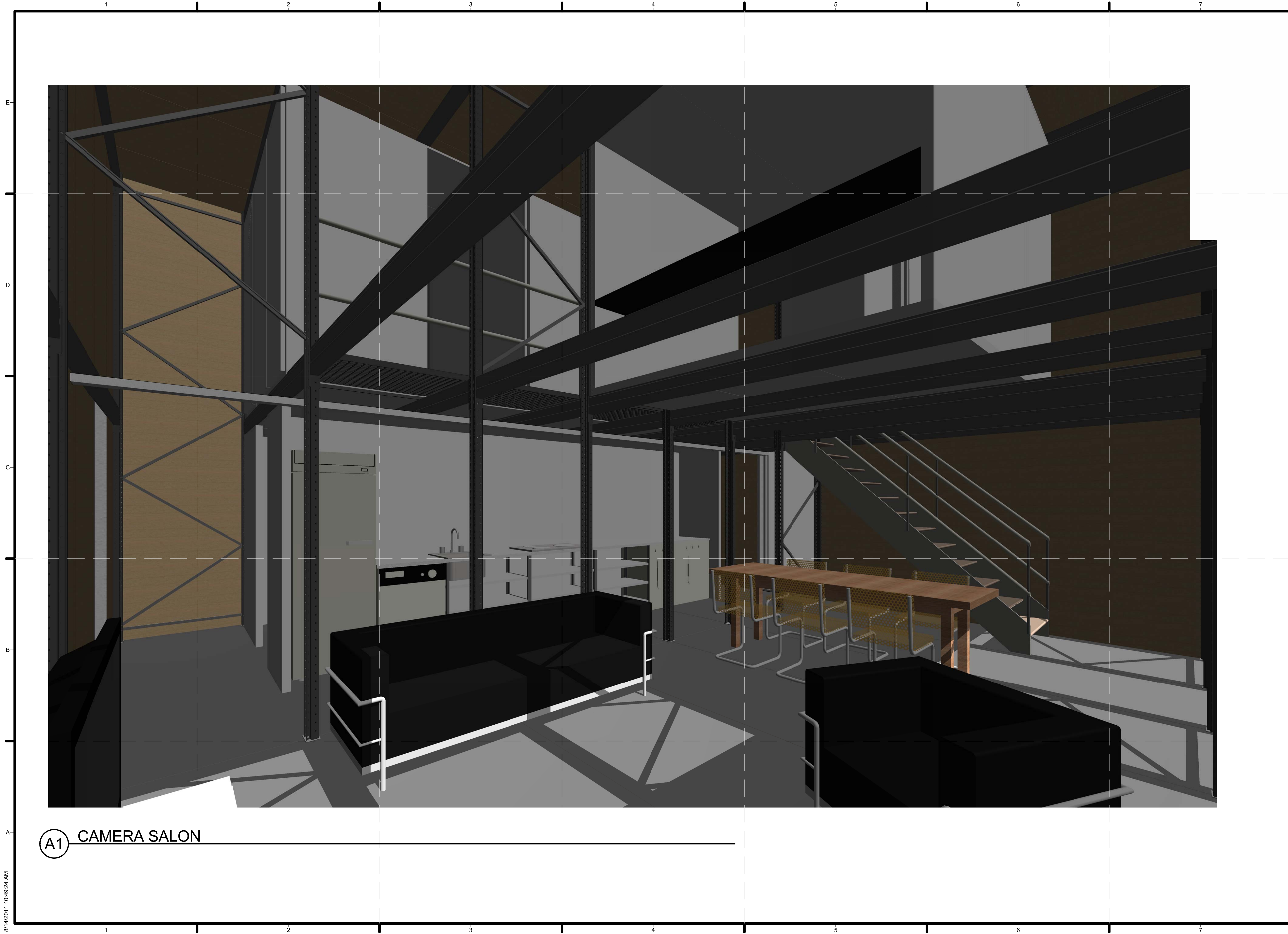


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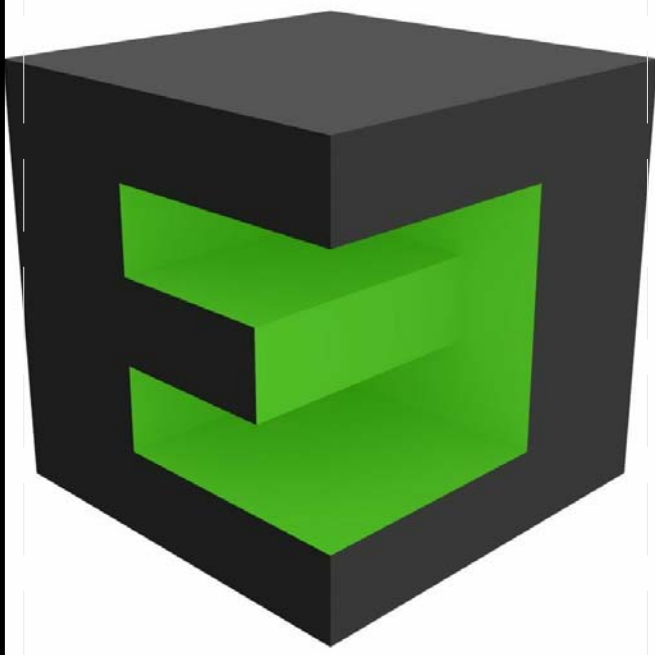
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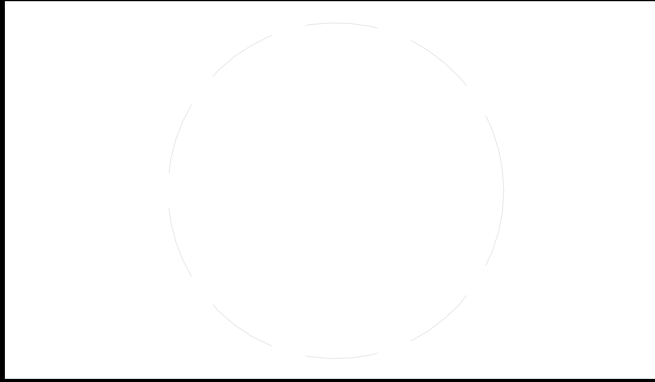


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SHEET TITLE
 ARCHITECTURAL RENDERINGS

A-901



A1 CAMERA STAIR

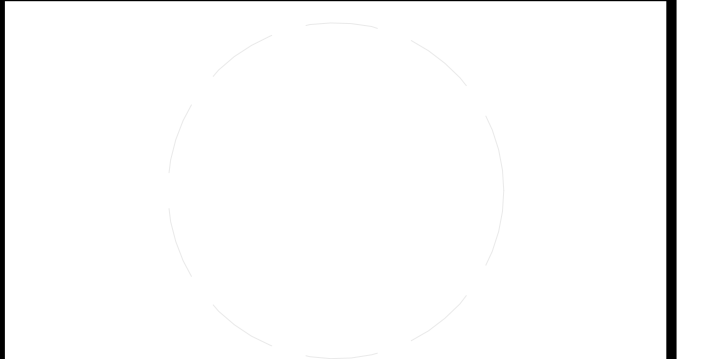


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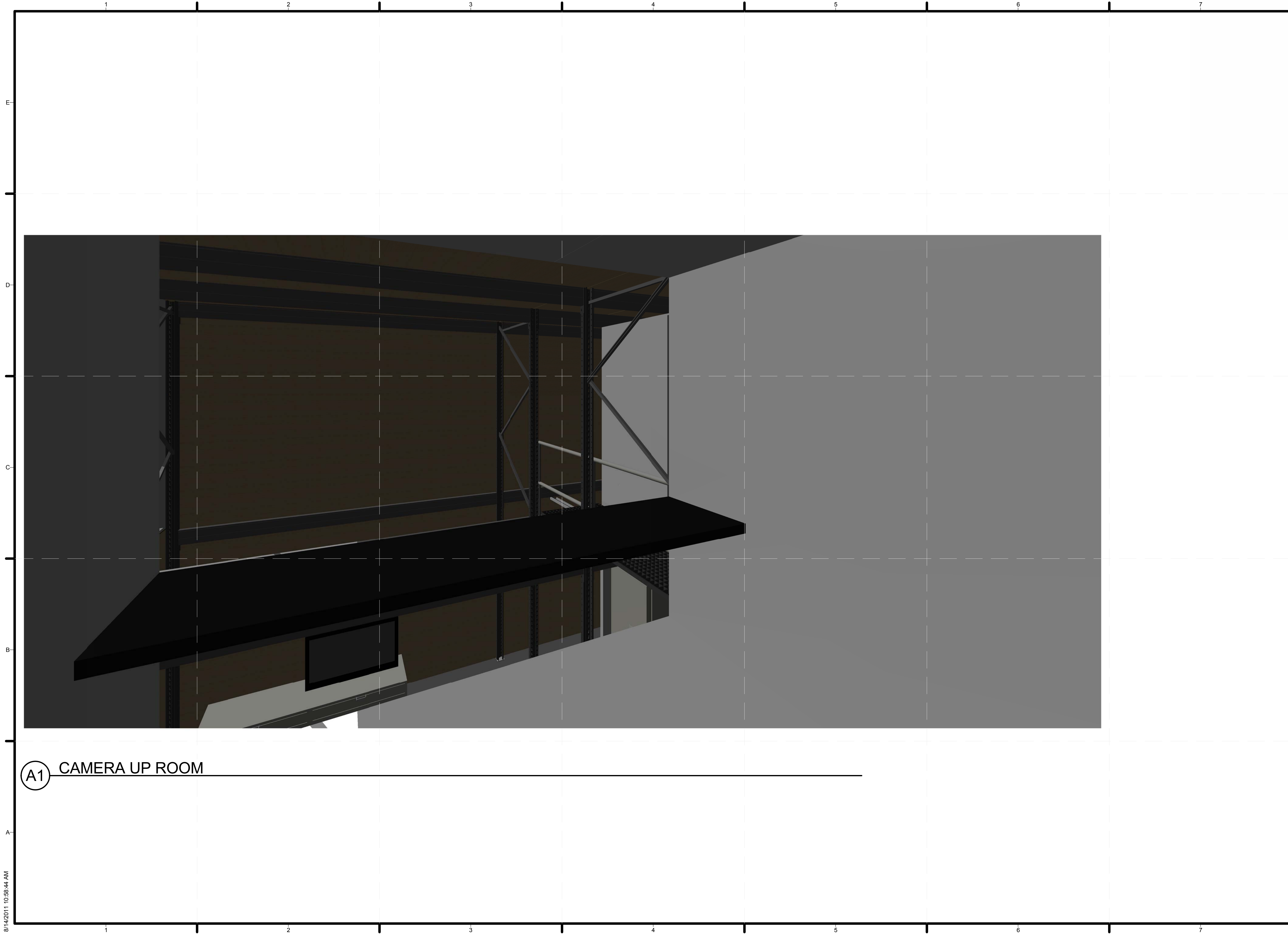
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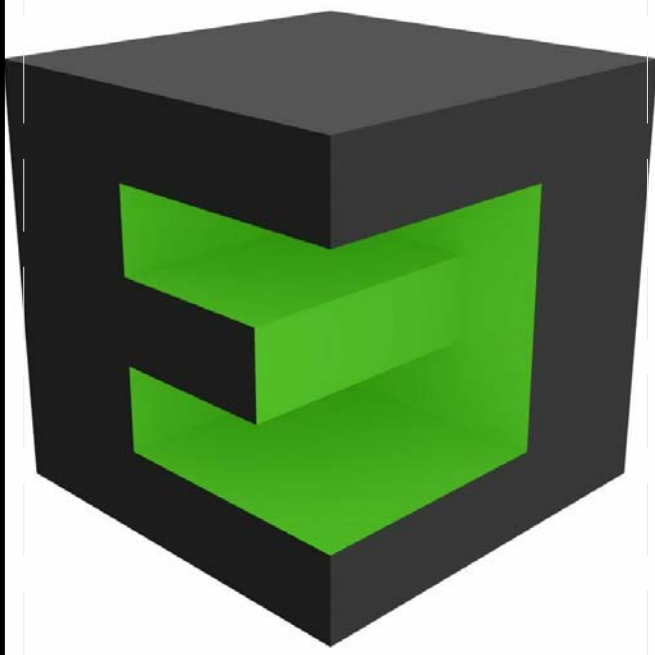
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ARCHITECTURAL RENDERINGS

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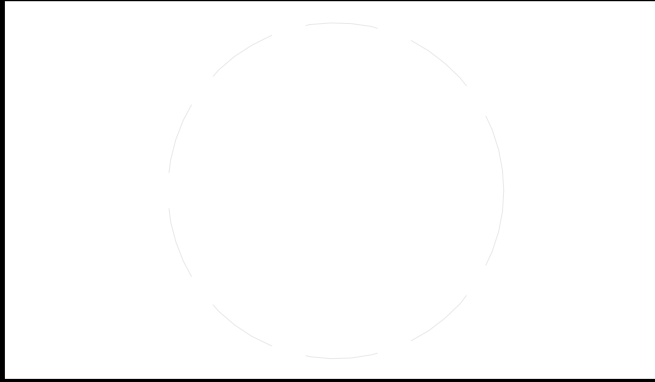


(A1) CAMERA UP ROOM



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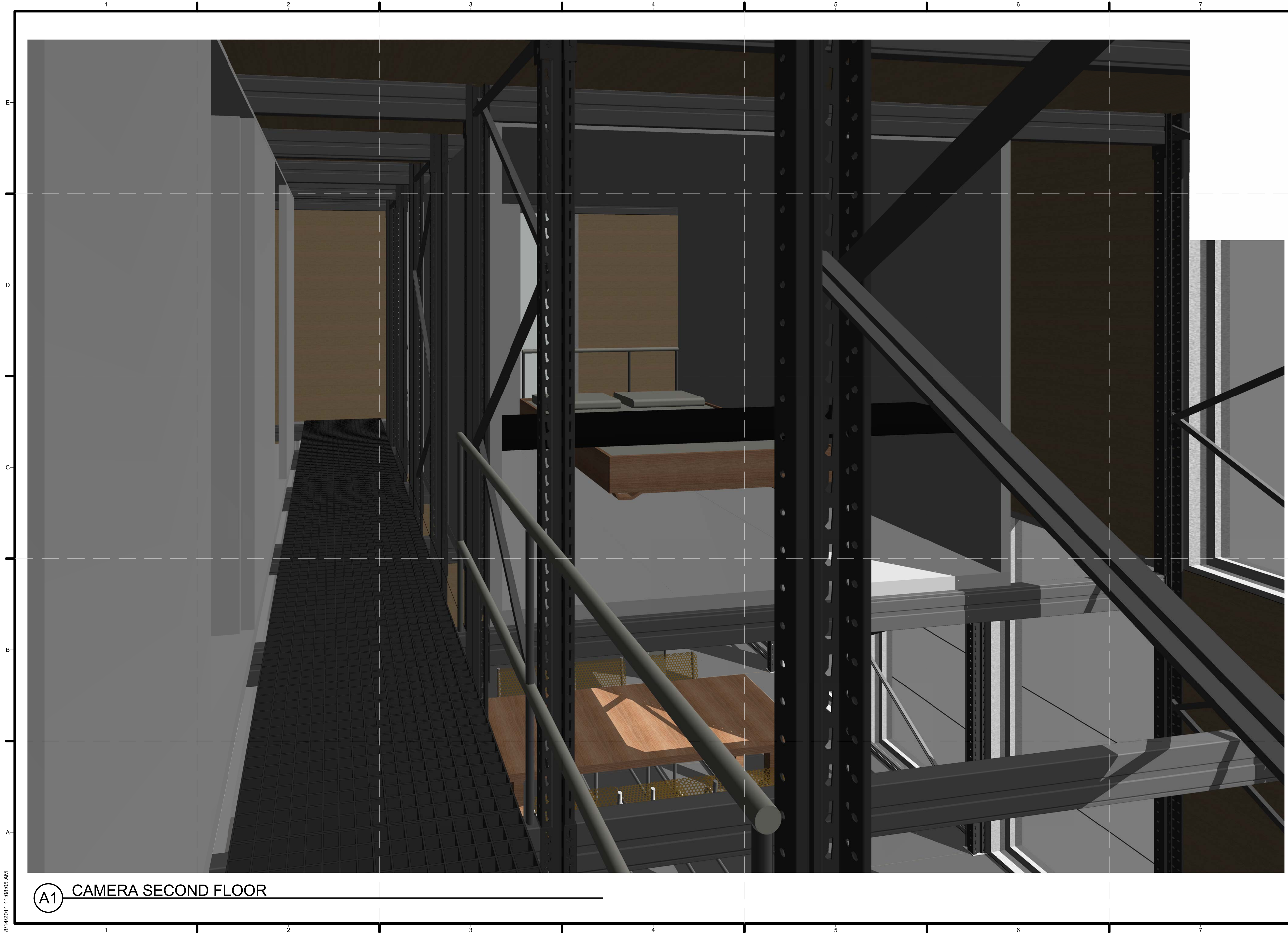


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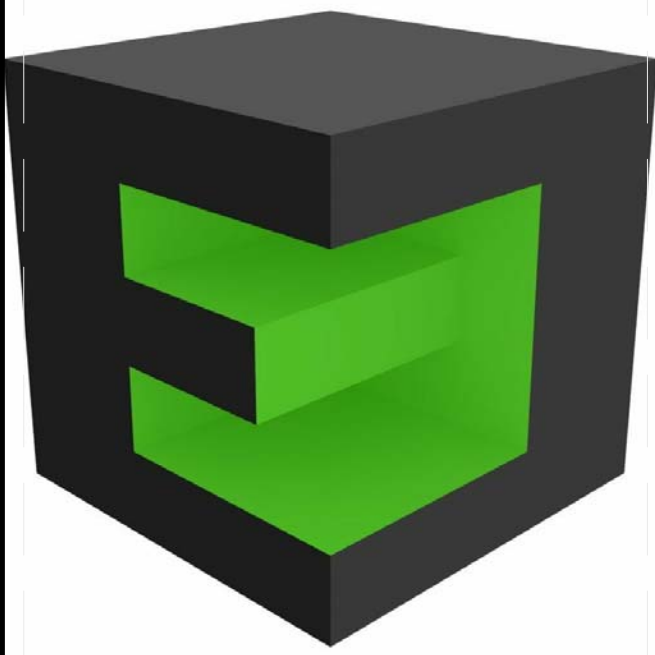
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ARCHITECTURAL RENDERINGS

A-903



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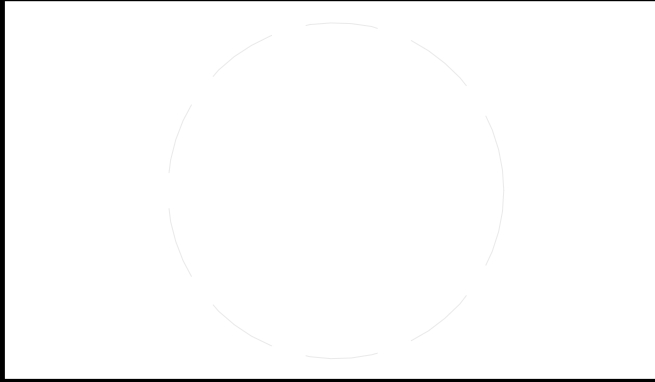


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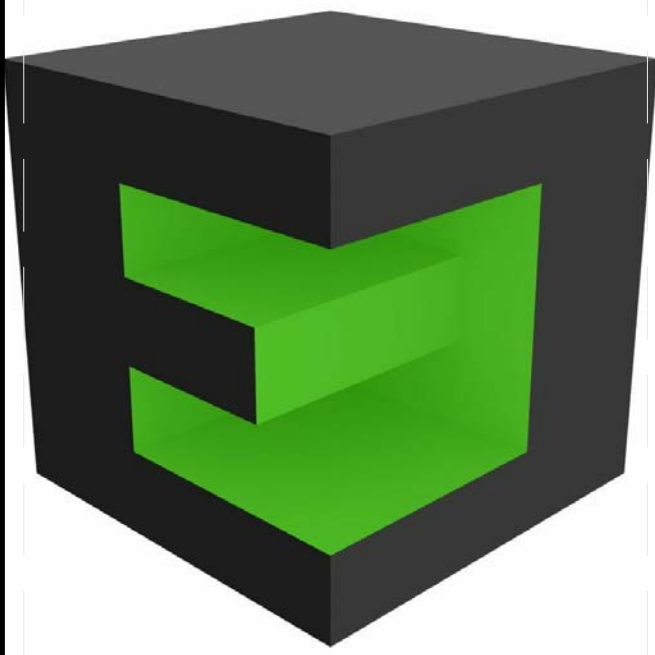
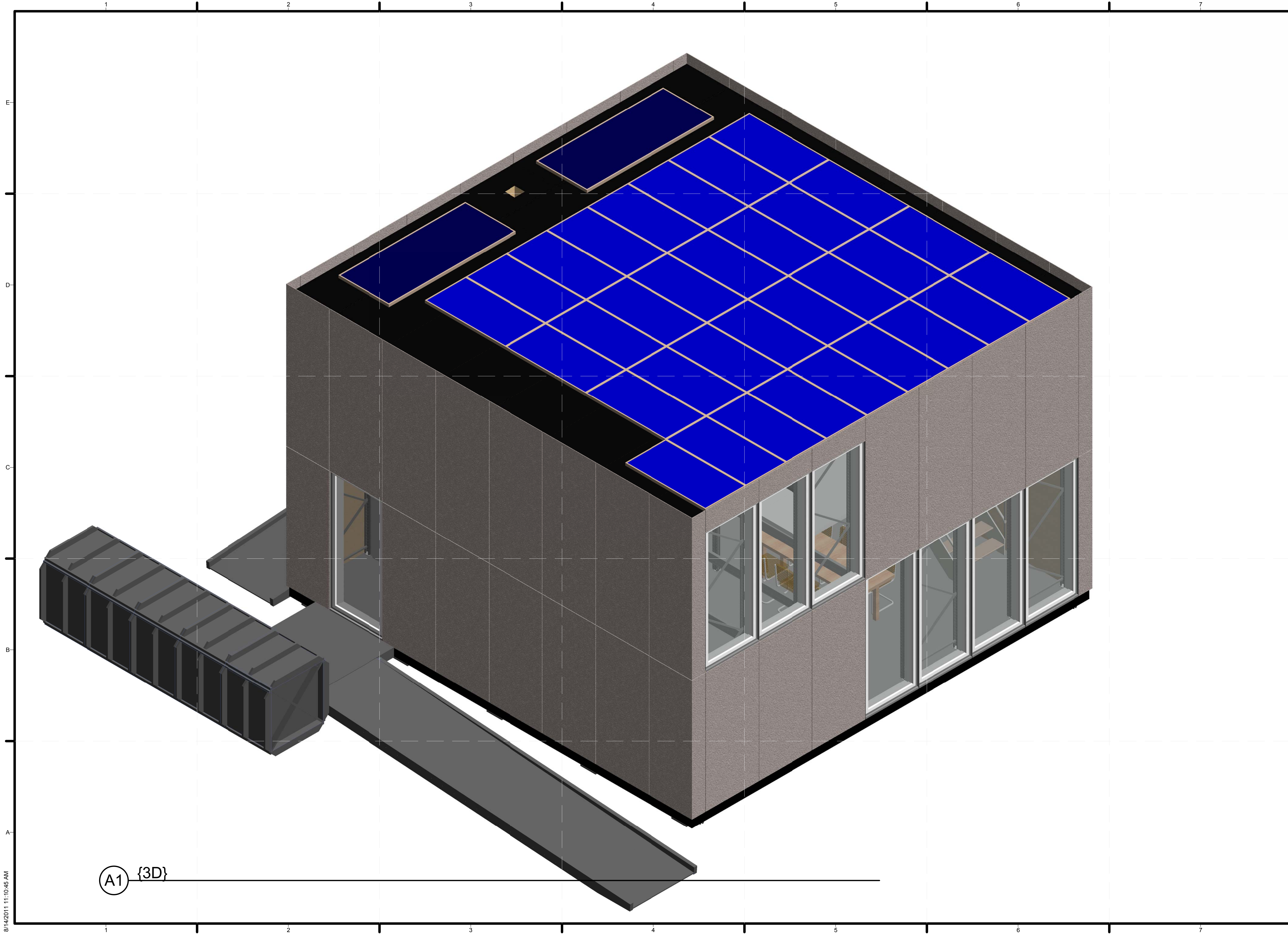


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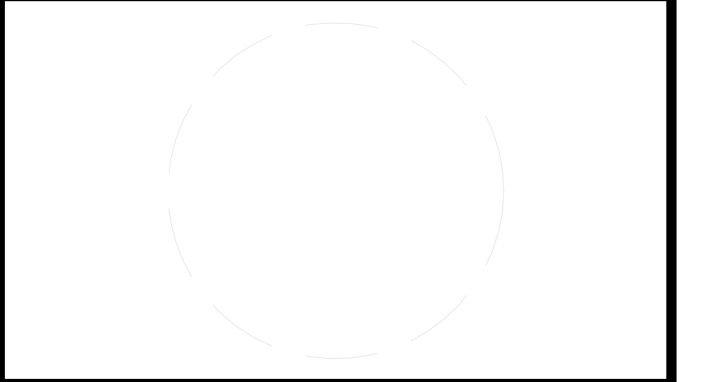
SHEET TITLE
ARCHITECTURAL RENDERINGS

A-904



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A-905

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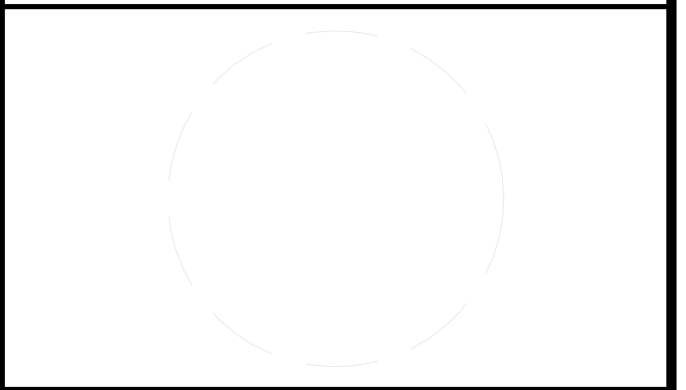
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A



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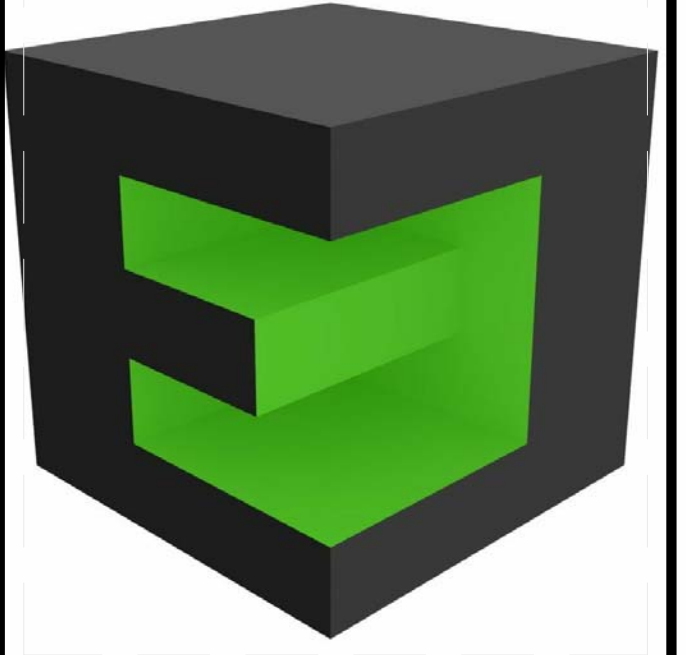
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A-906

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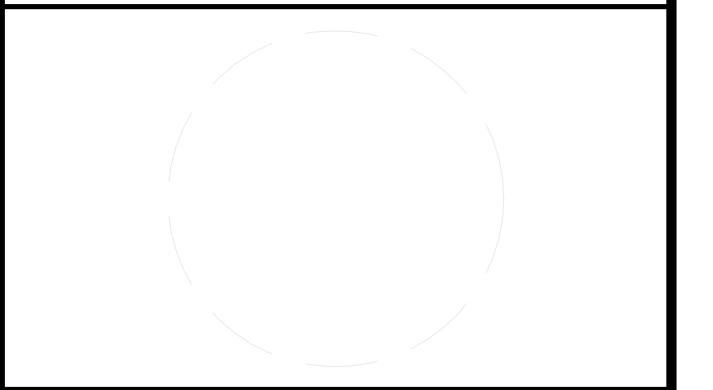
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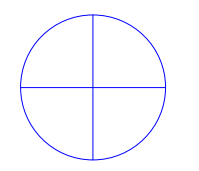
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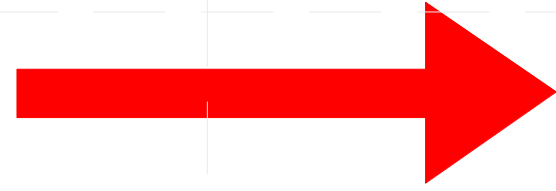
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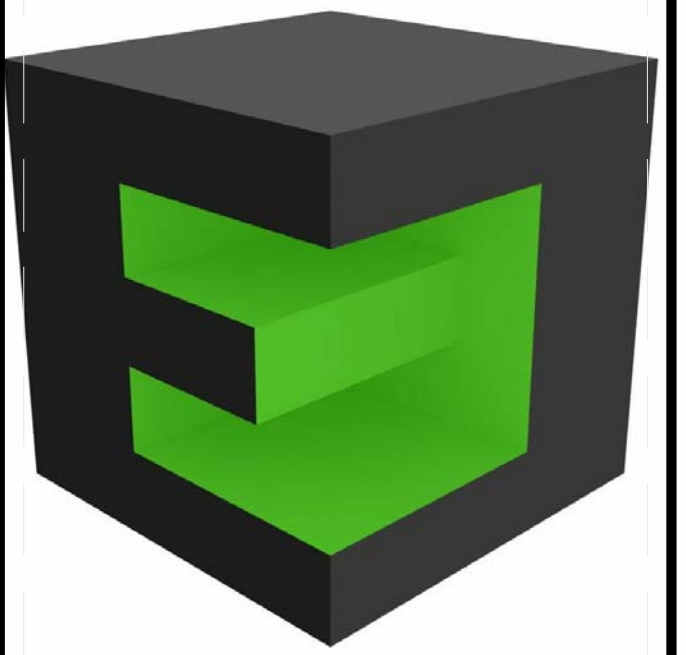
SYMBOLS



SMOKE DETECTION



DIRECTION



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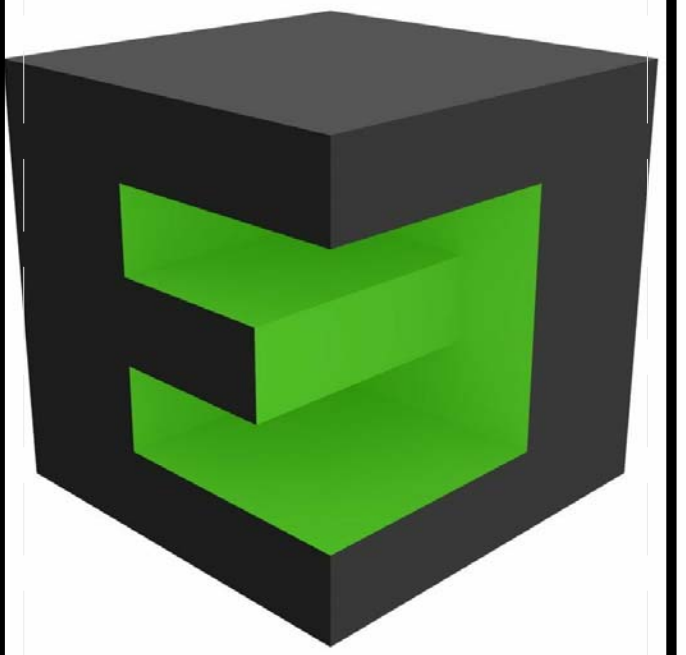
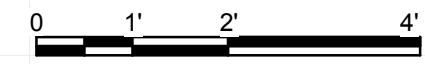
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SHEET TITLE
FIRE PROTECTION NOTES AND SYMBOLS

F-001



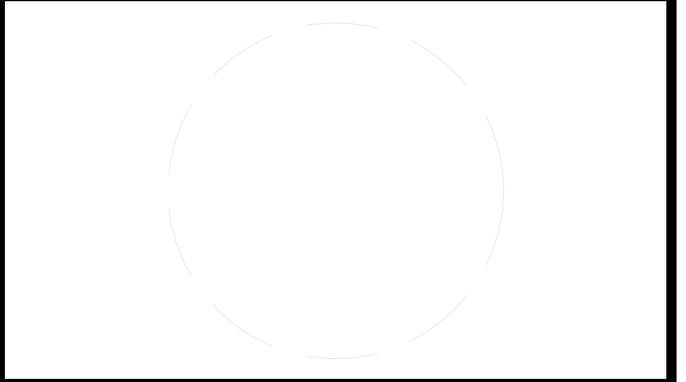
(B2) FIRST FLOOR FIRE DETECTION
 1:24



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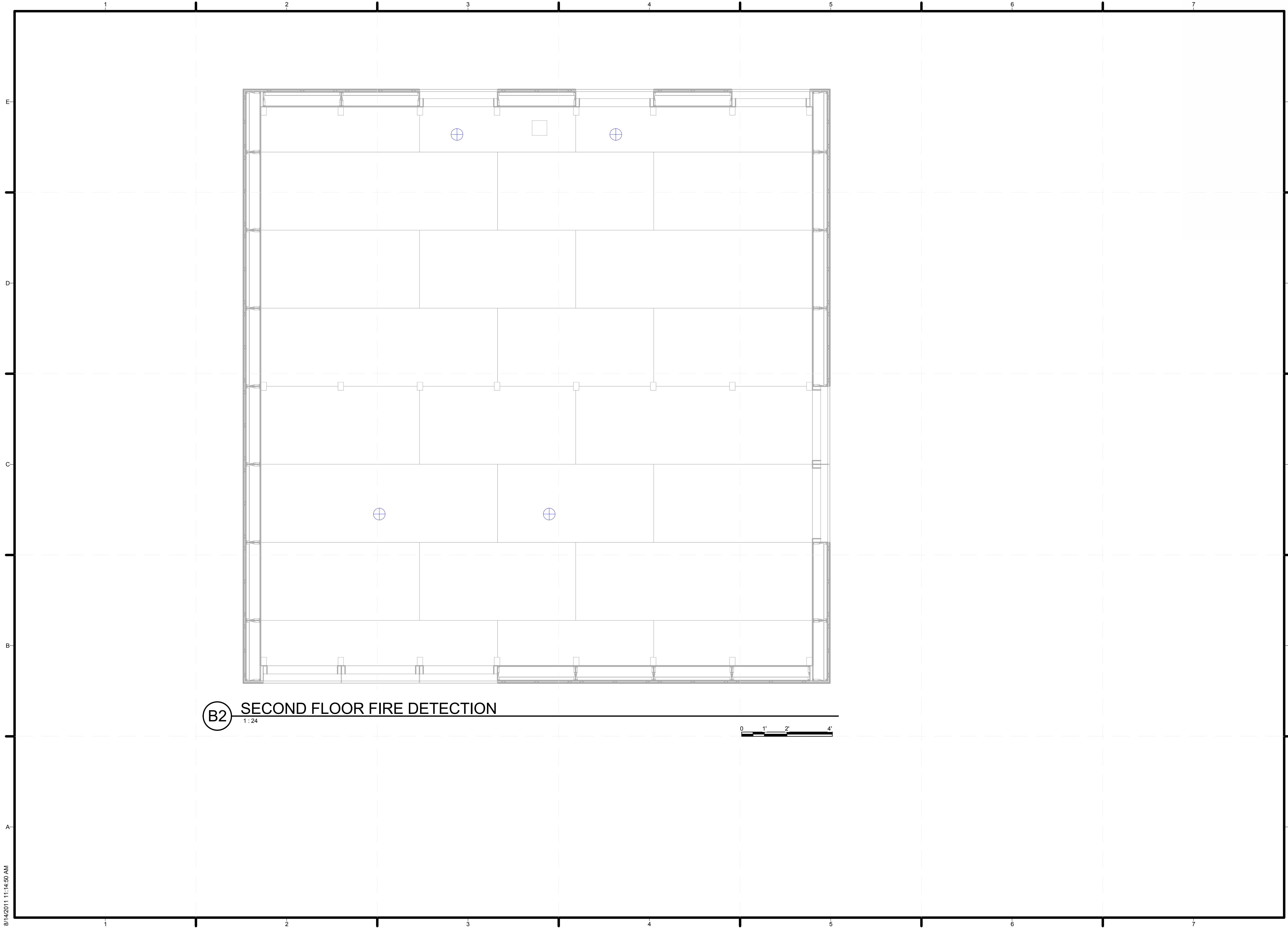


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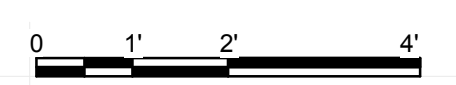
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**SHEET TITLE
 FIRE DETECTION AND
 ALARM**

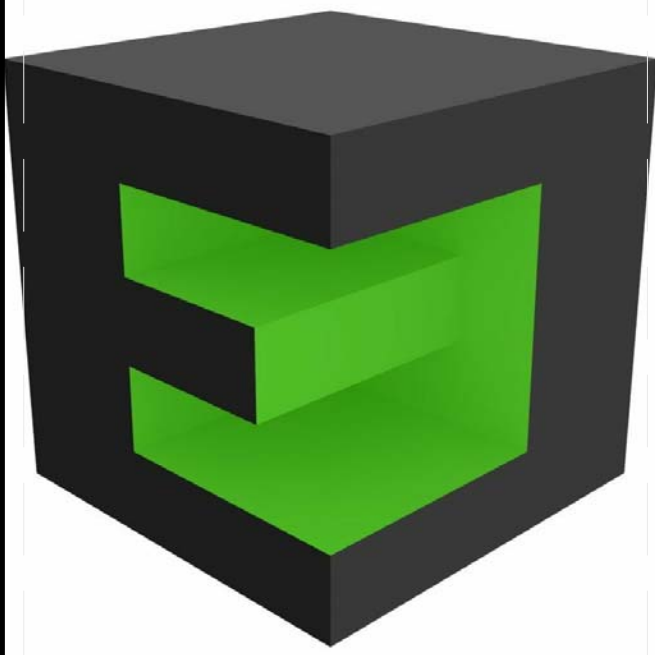
F-101



(B2) SECOND FLOOR FIRE DETECTION
1:24



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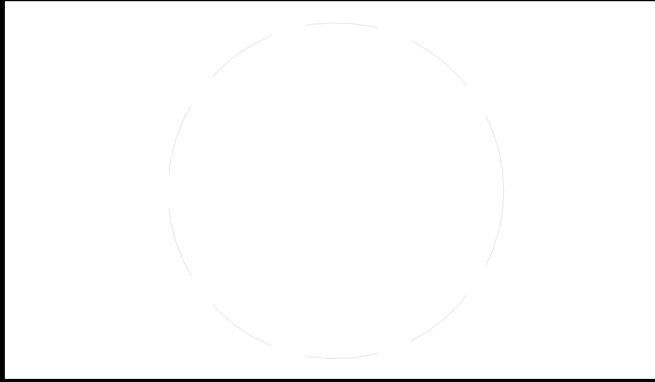


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SHEET TITLE
FIRE DETECTION AND ALARM

F-102



B2 FIRST FLOOR FIRE SUPPRESSION
1:24

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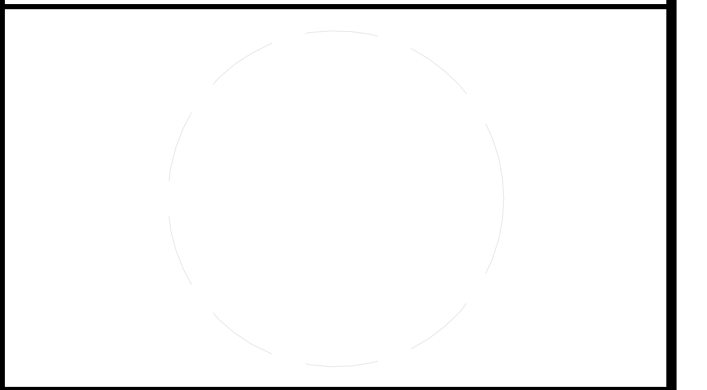


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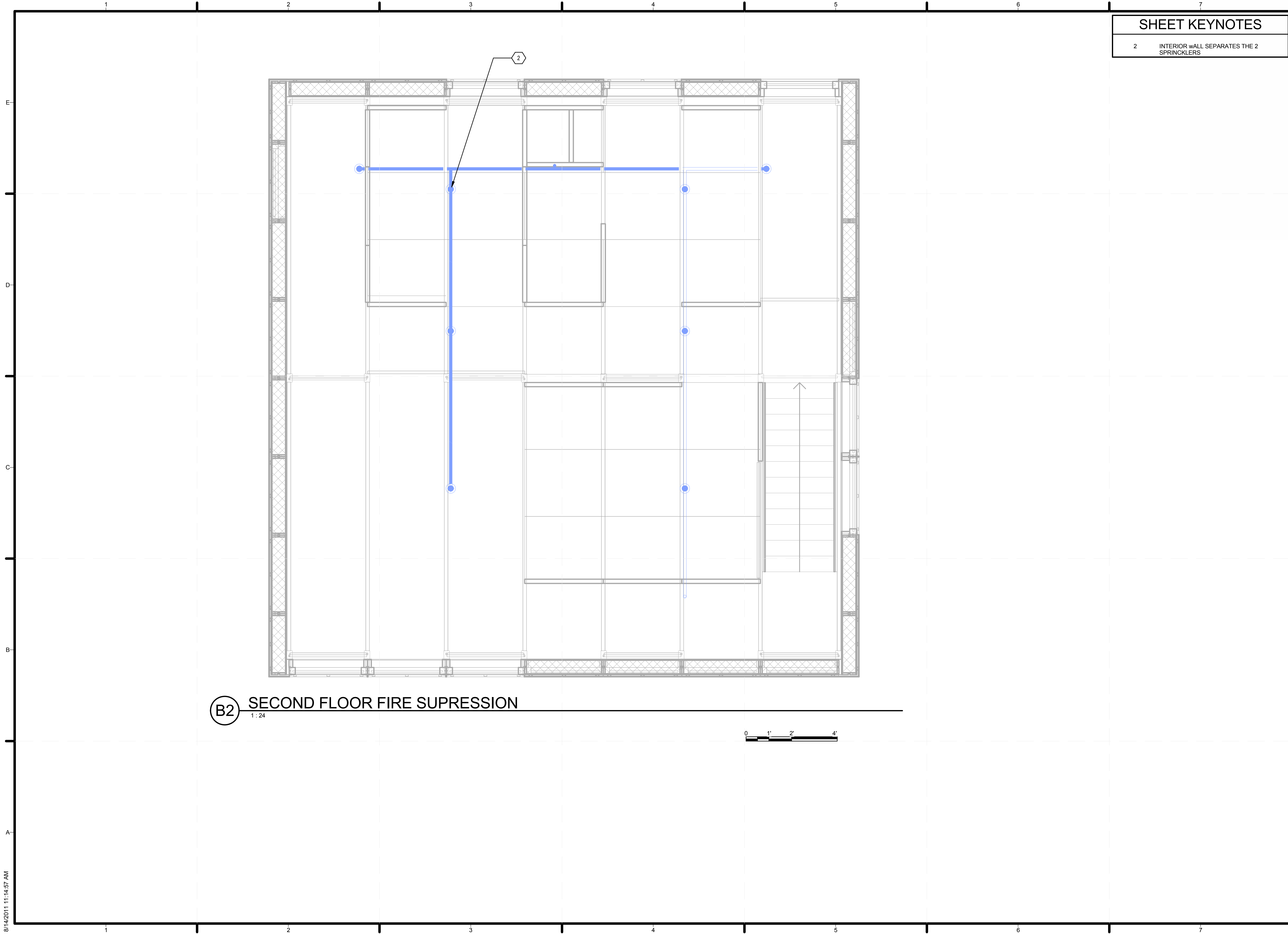
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SHEET TITLE

FIRE SUPPRESSION

F-103



SHEET KEYNOTES

2 INTERIOR WALL SEPARATES THE 2 SPRINKLERS



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SHEET TITLE
FIRE SUPPRESSION

F-104

SHEET KEYNOTES

18 WE ARE TRYING TO MAKE THIS AS READABLE AS POSSIBLE. WE ARE WORKING TO ADAPT THIS TO THE NATIONAL CAD STANDARD.

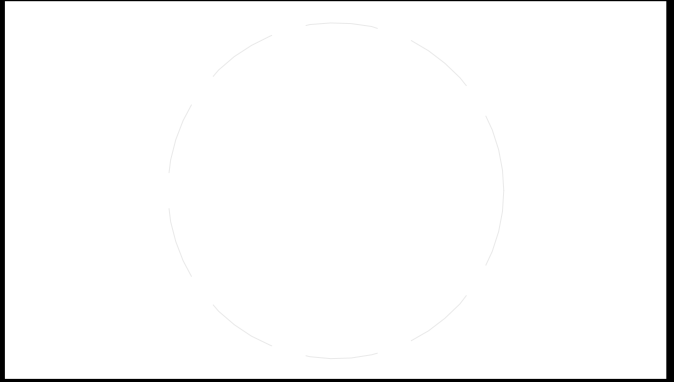


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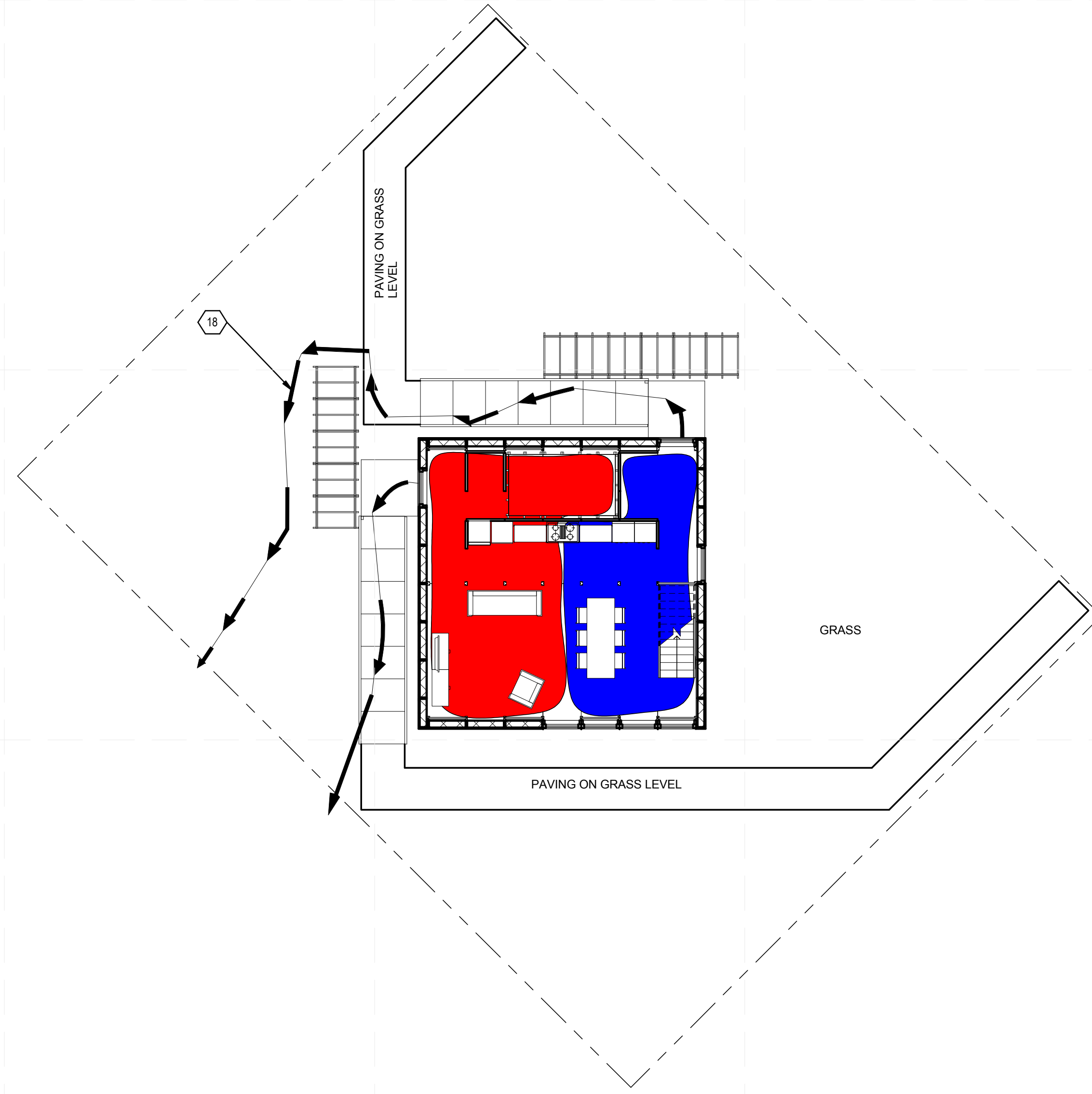
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FIRE PROTECTION
DIAGRAMS

F-602



B2 SITE PLAN EVACUATION
1:100

1 2 3 4 5 6 7

E
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1) Water budget

The fresh water budget takes in account:

- amounts of water required for the contests: hot water, cooking, dishwasher, clothes washer
- water for irrigation purposes
- a water supply for the sprinklers according to NFPA 13D, 2010 edition
- water required for the installations: boiler, hvac, solar thermal collectors and for an initial system fill of the pipes
- a safety factor of 10% of all water required is added

The waste water budget consists of:

- waste water produced by the contests: hot water, dishwasher, clothes washer
- water to be removed from the installations at disassembly
- a safety factor of 10% is added, which takes in account other waste waters.

2) Storage

The water (fresh and waste water) will be stored in synthetic bags produced by the Belgian company Sioen. Bags are used instead of containers because they are more space efficient. This will make the transport smaller and therefore more environmentally conscious.

3) Plumbing: fresh water

Fresh water is delivered to the house with a variable frequency pump CMBE pump delivered by Grundfos connected to the fresh water supply. Because of the variability energy will be saved. This pump also delivers the water supply for the sprinkler system and is therefore a carbon steel pipe (the same one as for the sprinkler system). This pipe is connected to a shutoff valve, which either directs the water to the sprinklers or to the fresh water pipes. This valve has a non return mechanism, making contamination between the water in the sprinkler pipes and the fresh water pipes impossible. The plumbing is designed according to the plug-and-play principle. To provide hot and cold water a completely mountable and demountable system is used. This is provided by the company Henco. This means that all waterworks can be easily build during the construction at Washington.

Cold water is delivered directly from the shut off valve, hot water is produced by means of a circulation in a separate coil through a water tank heated by the solar thermal collectors and a heat pump. All necessary valves will be provided by the company VSH.

4) Plumbing: waste water

Waste water is collected by means of waste water pipes. These will be delivered by the company Facq. The pipes empty in a small tank delivered by Grundfos. Once a critical level is reached water is pumped by a Grundfos Unilift KP pump from this tank to the larger waste water bags of Sioen.

5) Rain water

Rain water is not collected.

6) Sprinklers

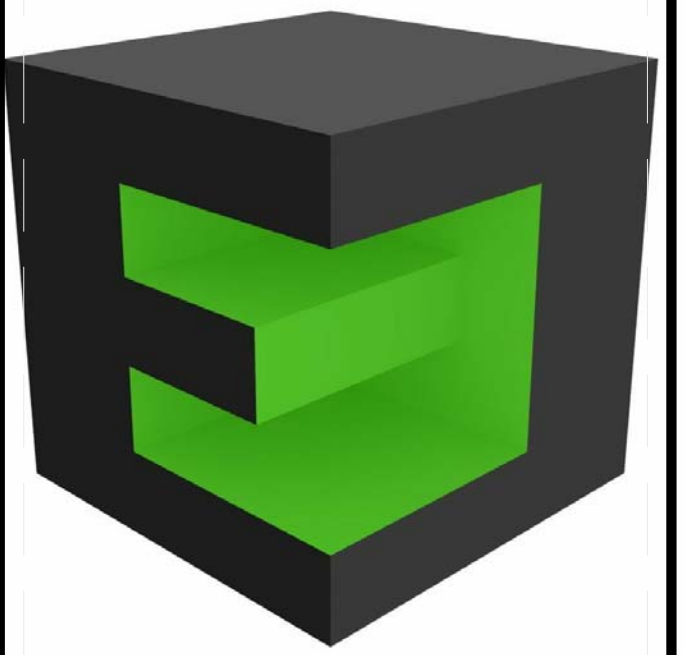
The sprinklers system is a wet system provided by Tyco. The pipes are made of carbon steel and are pressed.

To achieve modularity different parts of the sprinkler system are connected with grooved couplings. The sprinklers are either pendant, concealed or side wall sprinklers depending on the location. All sprinkler heads have a covering of at least 5mx5m, ensuring total covering of the house.

The sprinkler system has been designed in accordance to NFPA 13D, 2010 edition.

7) Manufacturers and materials

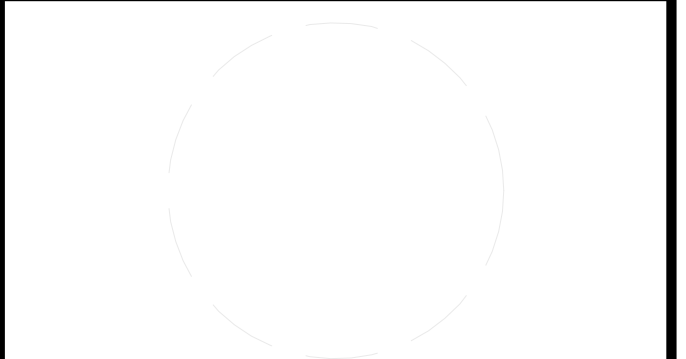
- Henco:
 - o Fresh water piping.
- Tyco
 - o Sprinkler system.
- VSH
 - o Valves.
- Sioen
 - o Water bags.
- Facq
 - o Waste water pipes.
- Grundfos
 - o Fresh water pump and waste water pump.



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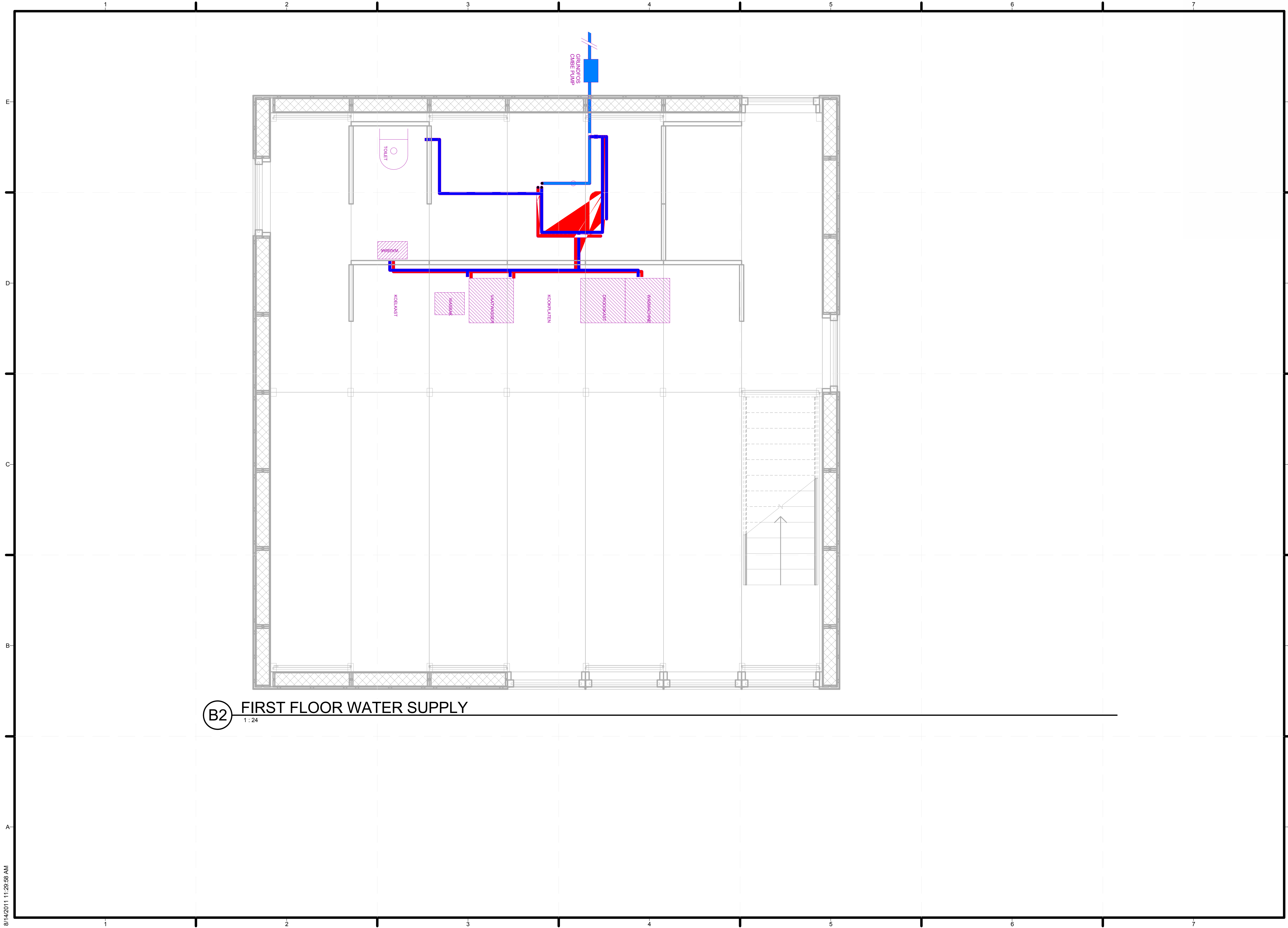
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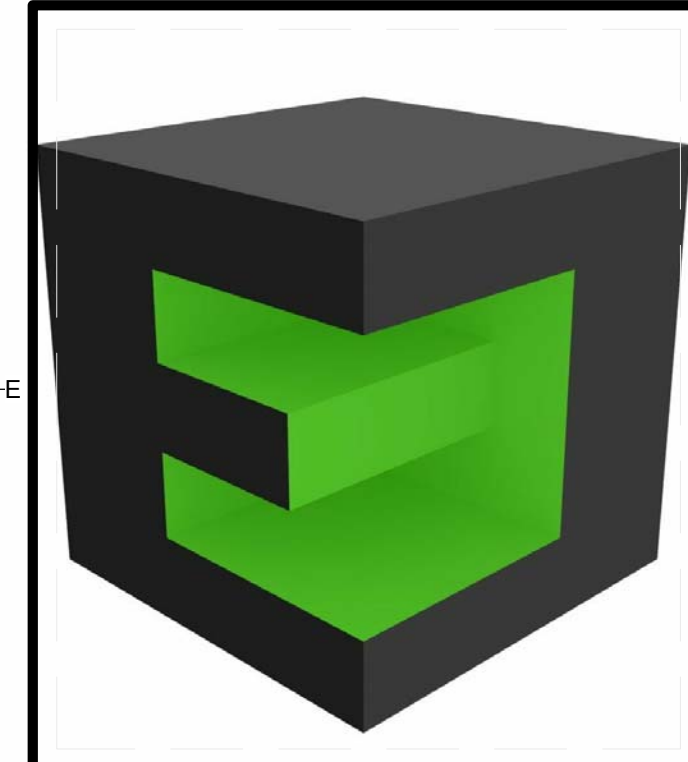
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PLUMBING SYMBOLS AND NOTES

P-001

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(B2) FIRST FLOOR WATER SUPPLY
1 : 24

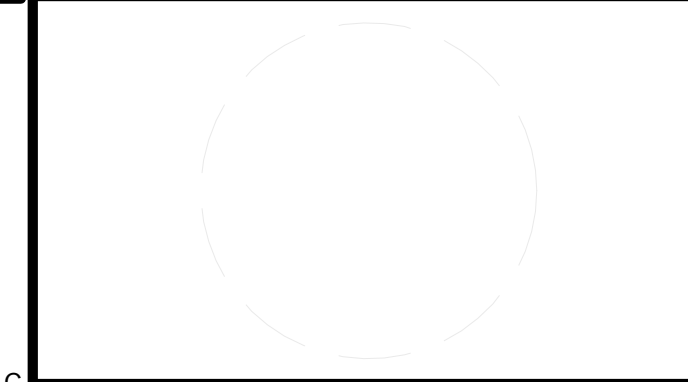


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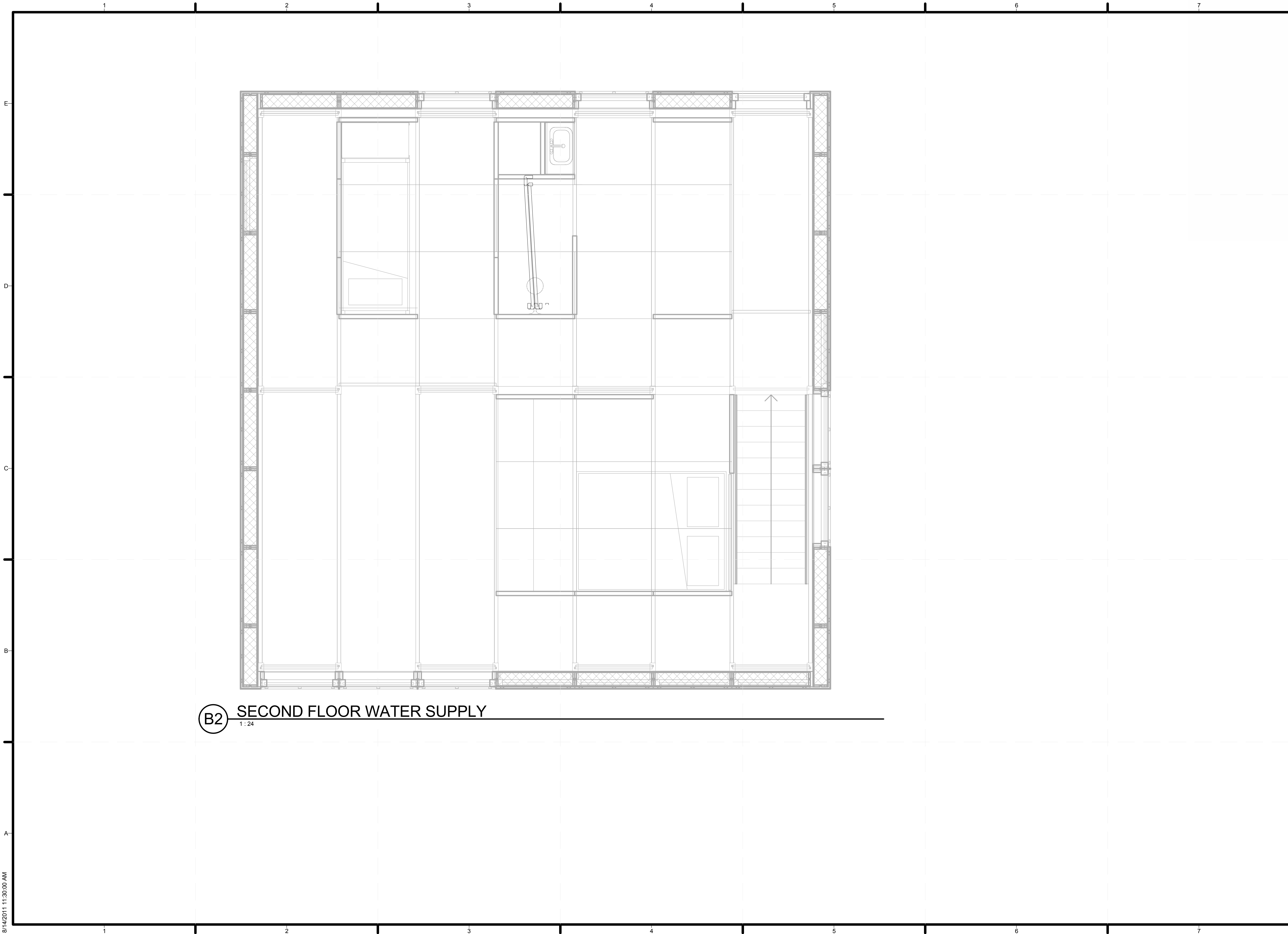


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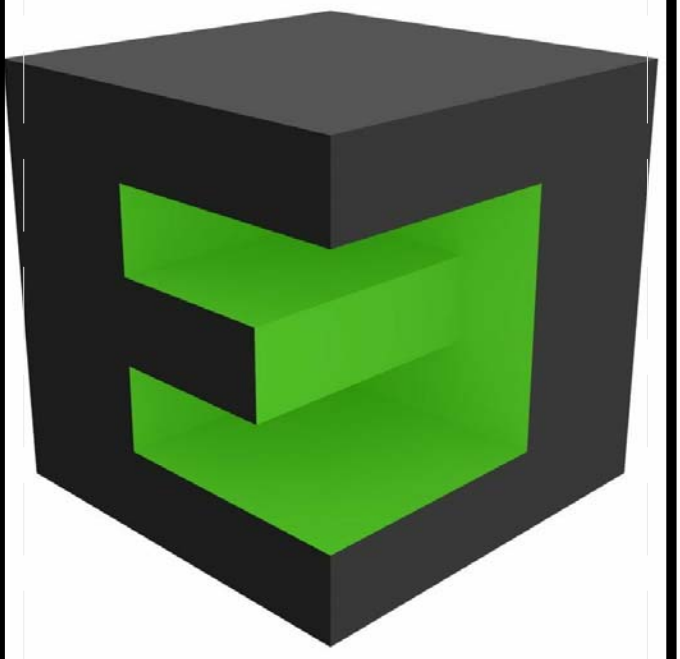
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SHEET TITLE
DOMESTIC SUPPLY

P-102



(B2) SECOND FLOOR WATER SUPPLY
1:24

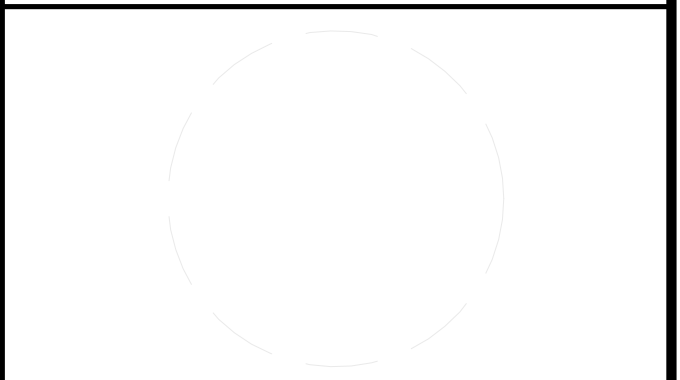


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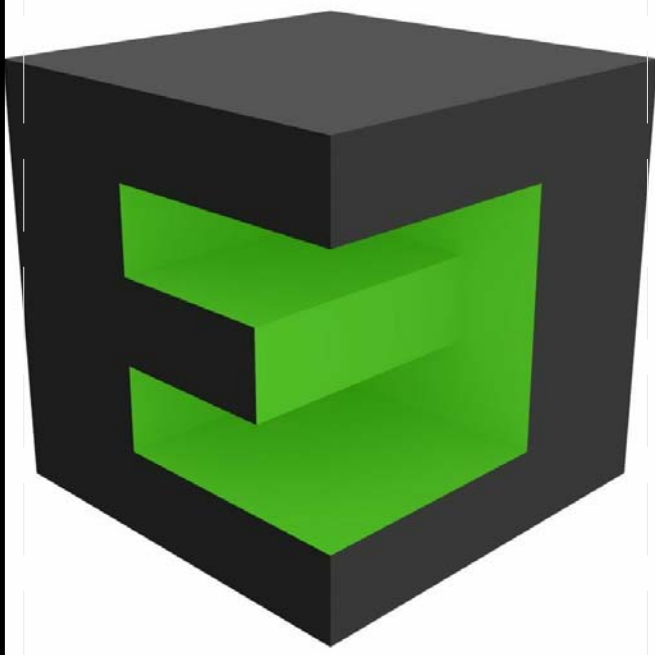
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DOMESTIC SUPPLY

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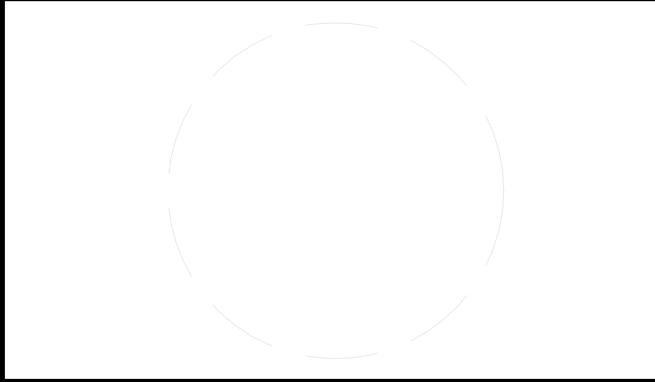


B2 FIRST FLOOR WATER RETURN
1:24



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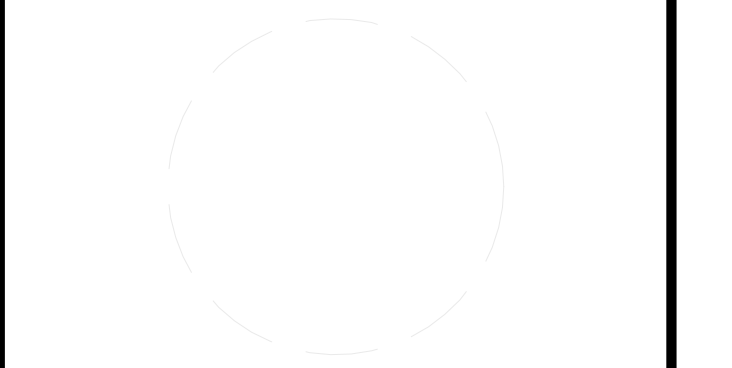
SHEET TITLE
 DOMESTIC RETURN

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 ENGINEERING: THOMAS DELAMEILLIEURE, TIM GAVEL, TOM DEFRIJNT, KEVIN D'HONDT, SAMUEL CUVELIERS, GLEN DE MEERSMAN
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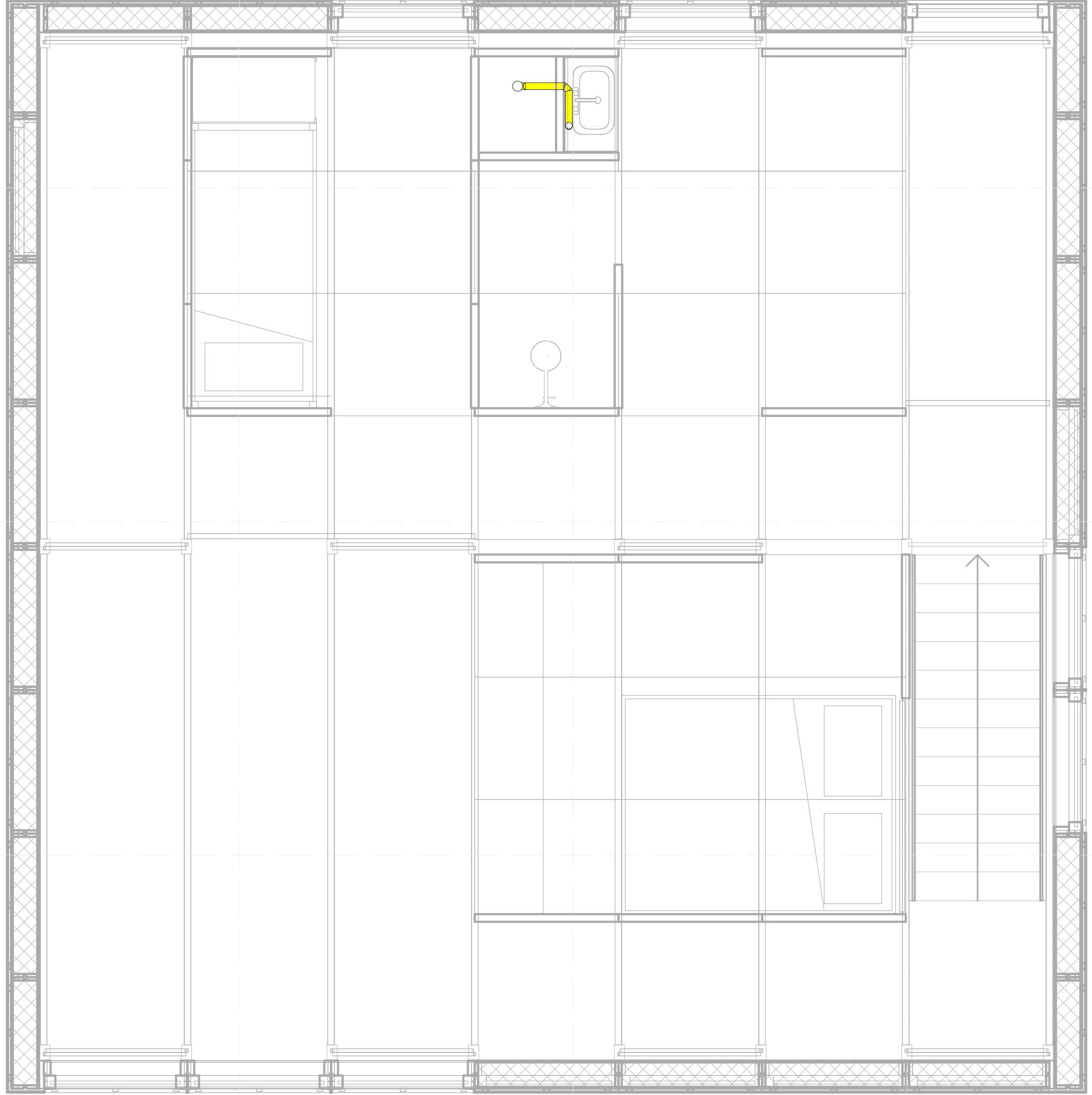
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SHEET TITLE

DOMESTIC RETURN

A

P-105



(B2) SECOND FLOOR WATER RETURN
1:24

LIST OF ALL PARTS

- 1 HENCO sanitair water
- 2 TYCO sprinklers
- 3 VAN MARCKE afvoer water
- 4 SIOEN waterzakken

- 1 HENCO sanitair water

- a TUBES STANDARD (PE-Xc/AL/PE-Xc)

ISO9 (10mm)

Type	total lenght	Code	#	
20x2 red	20 meter	50-ISO9-20-RO	1 rol	= 50 meter
20x2 blue	22 meter	50-ISO9-20-BL	1 rol	= 50 meter

+ bevestigingsstukken voor aan de wand vast te maken

- b CONNECTIONS

Henco Vision (push fittings)

Type	Code	#	
rechter nippel binnendraad	18SK-2004	13	
bocht 90°	1SK-2020	12	
T	9SK-202020	7	
T-binnendraad	13SK-200420BP	6	
sanitaire muurplaat binnendraad	2SK-2004BP	4	
vision set	VISION SET 20	90	(= 1box)
vision key	VISION KEY 20	1	

en andere tools

- c TABS

Type	Code	#	
bolkraan met handvat	BAP-H2020	10	(press)
rechte nippel binnendraad	18P-2004	20	(brass-press-fitting)
rechte nippel buitendraad	17SK-2004	20	(push-fitting)

- d METERS/VALVES

- 2 TYCO sprinklers

- a buizen CPVC pipes and fittings

Type	totale lengte	Code	aantal	
CPVC 1"	40 meter	80301T	15 buizen	(1 buis = 3,05m)

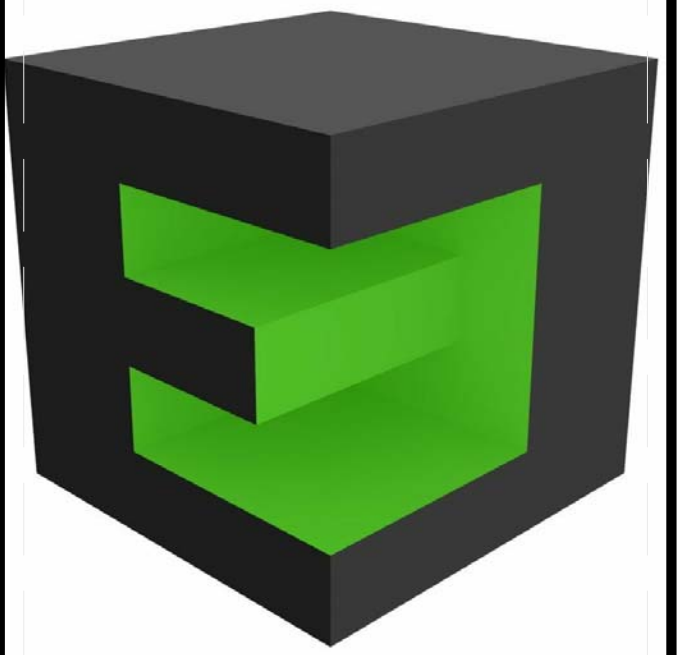
+ bevestigingsstukken voor aan de wand vast te maken

- b koppelstukken

Type	Code	aantal
Tee Equal	80001	12
Elbows 90°	80026	10
Sprinkler Head Adaptor	80176W	10

- b sprinklerkoppen

Type	Code	aantal
LFII 4.9 (k70.9)	?	10

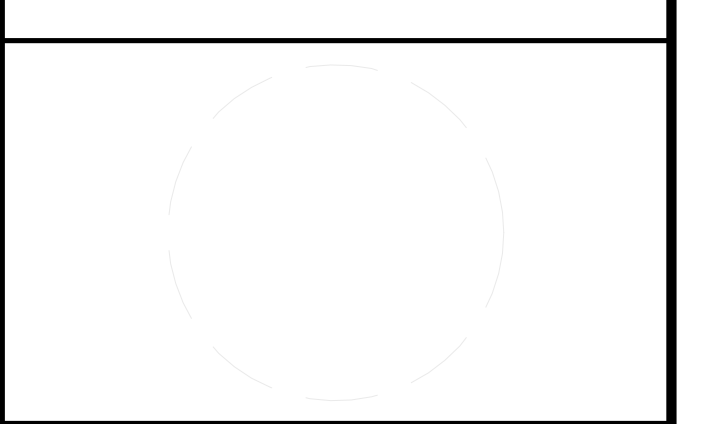


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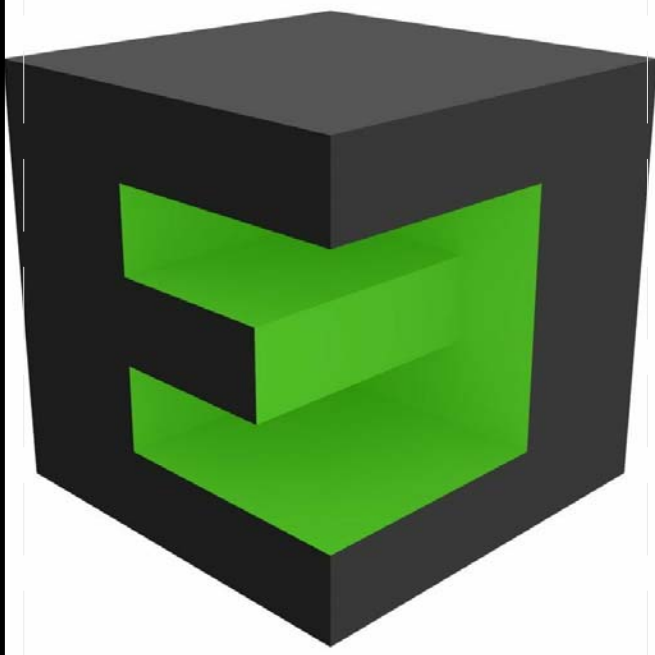
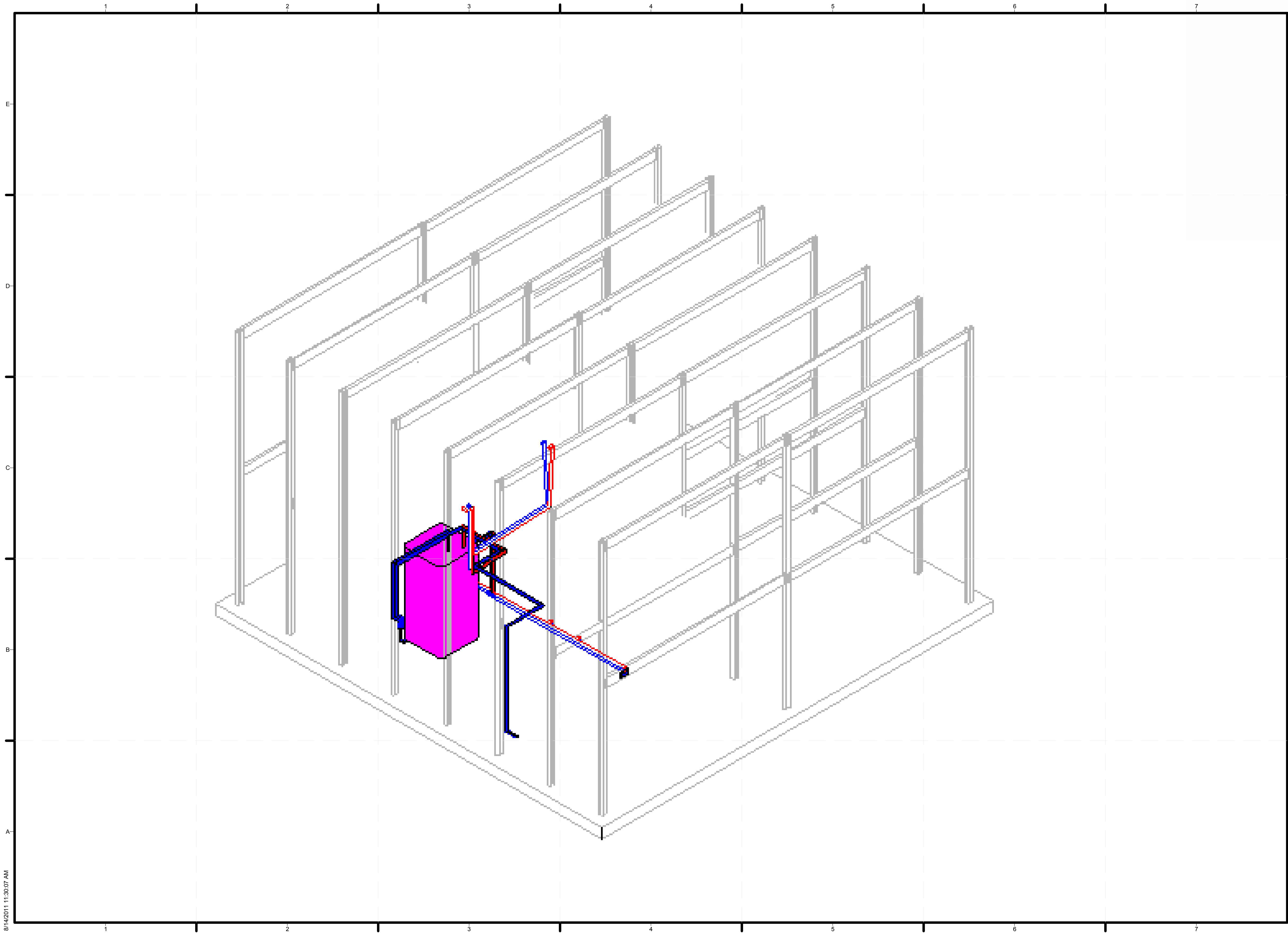
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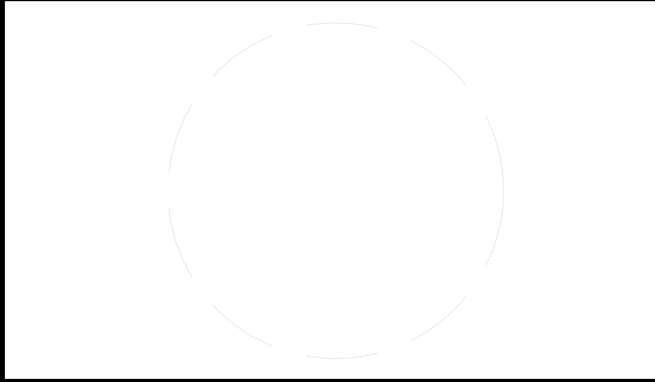
SCHEDULES

P-601



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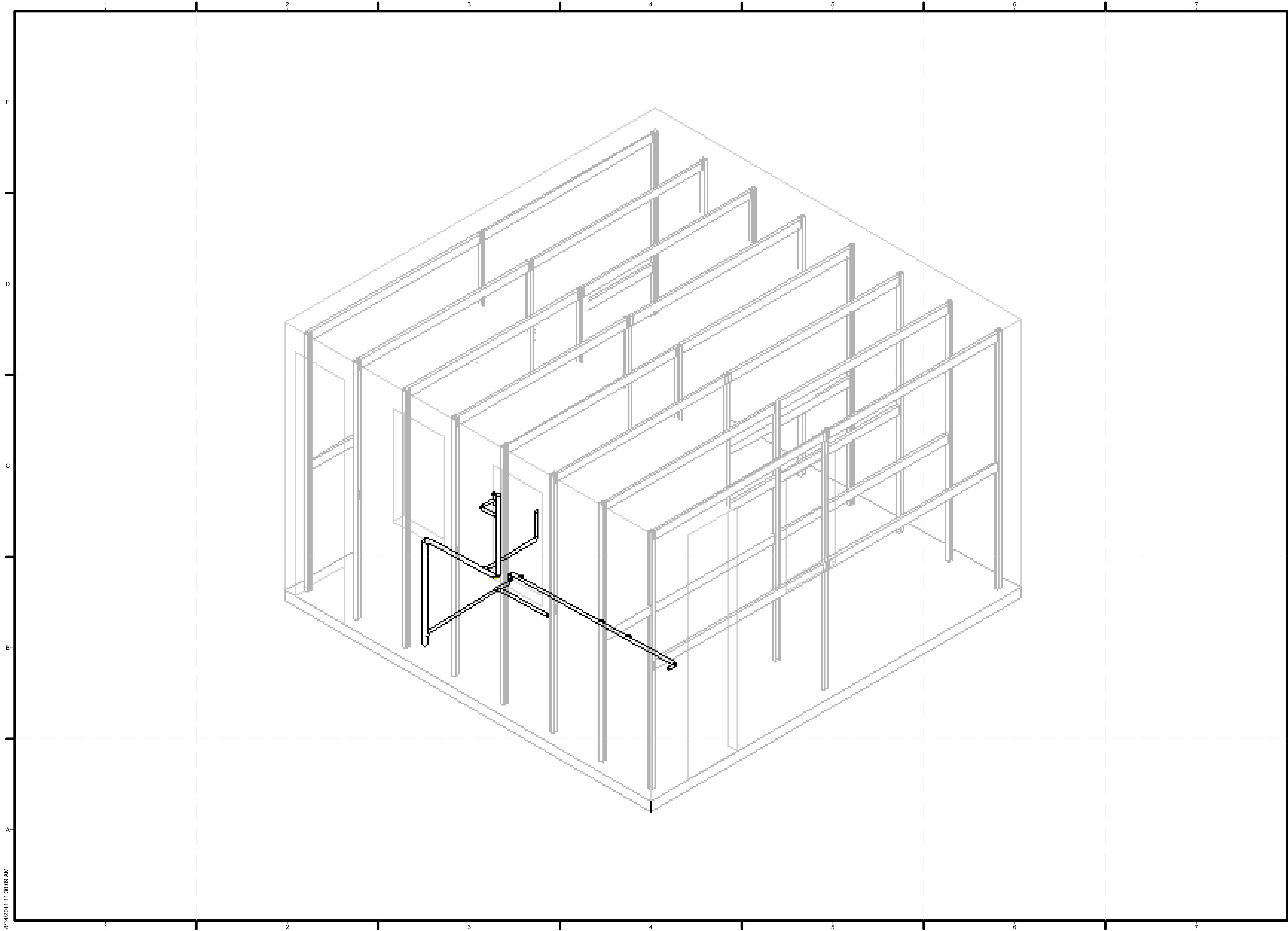


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SHEET TITLE
 SUPPLY ISOMETRICS

P-901

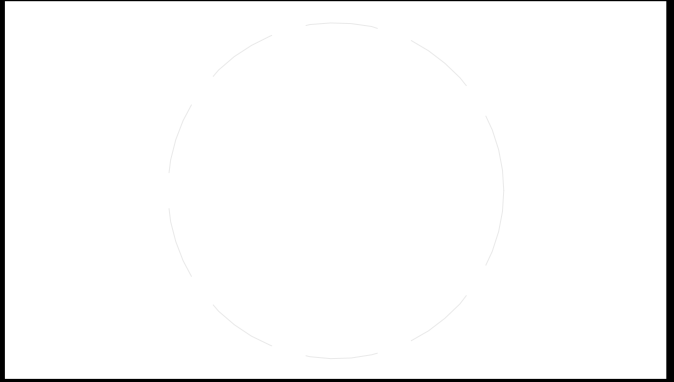



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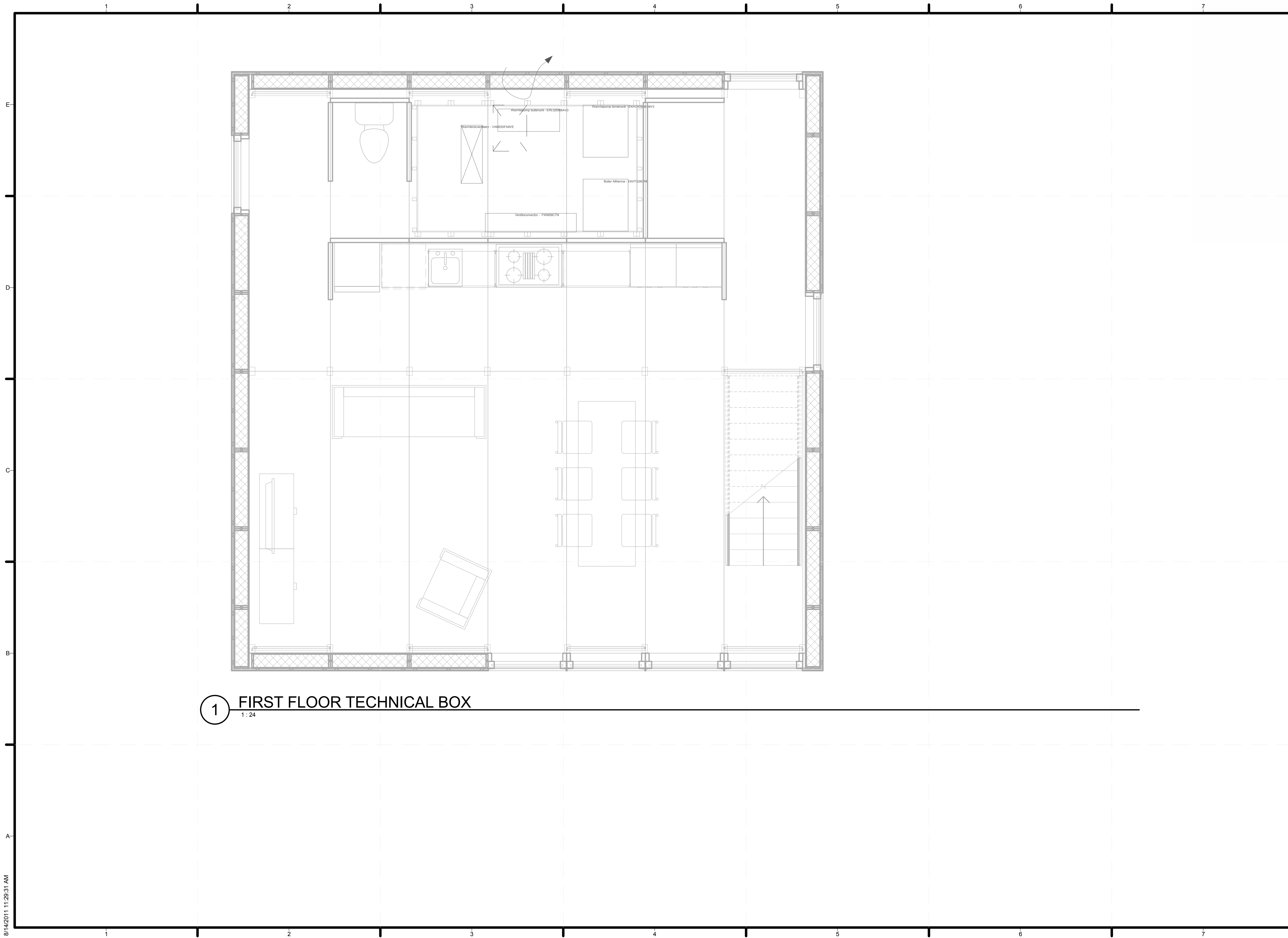
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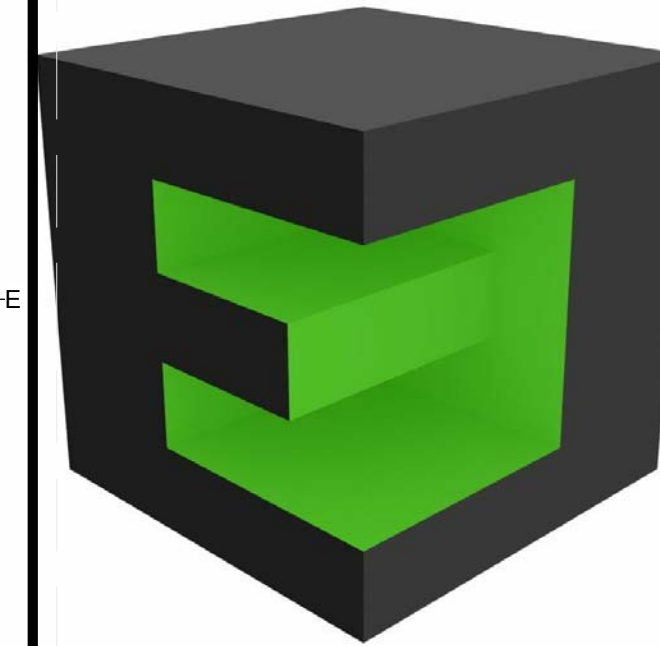
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 RETURN ISOMETRICS

P-902



1 FIRST FLOOR TECHNICAL BOX
1:24



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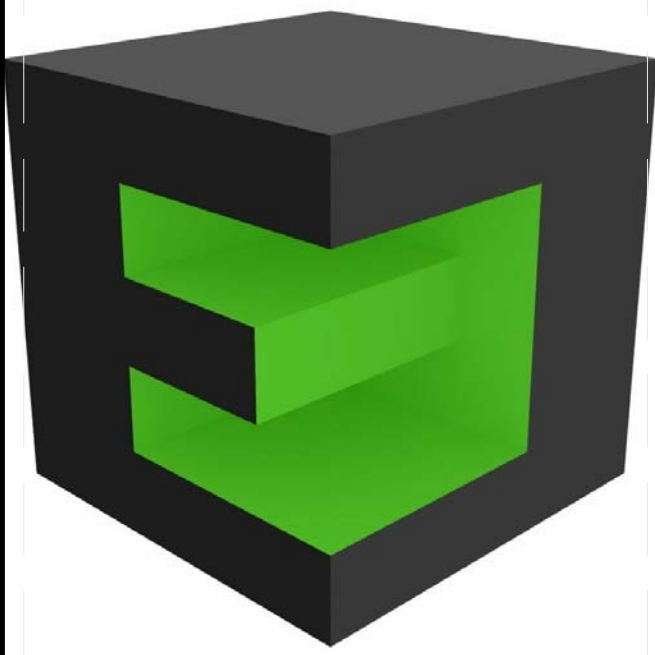
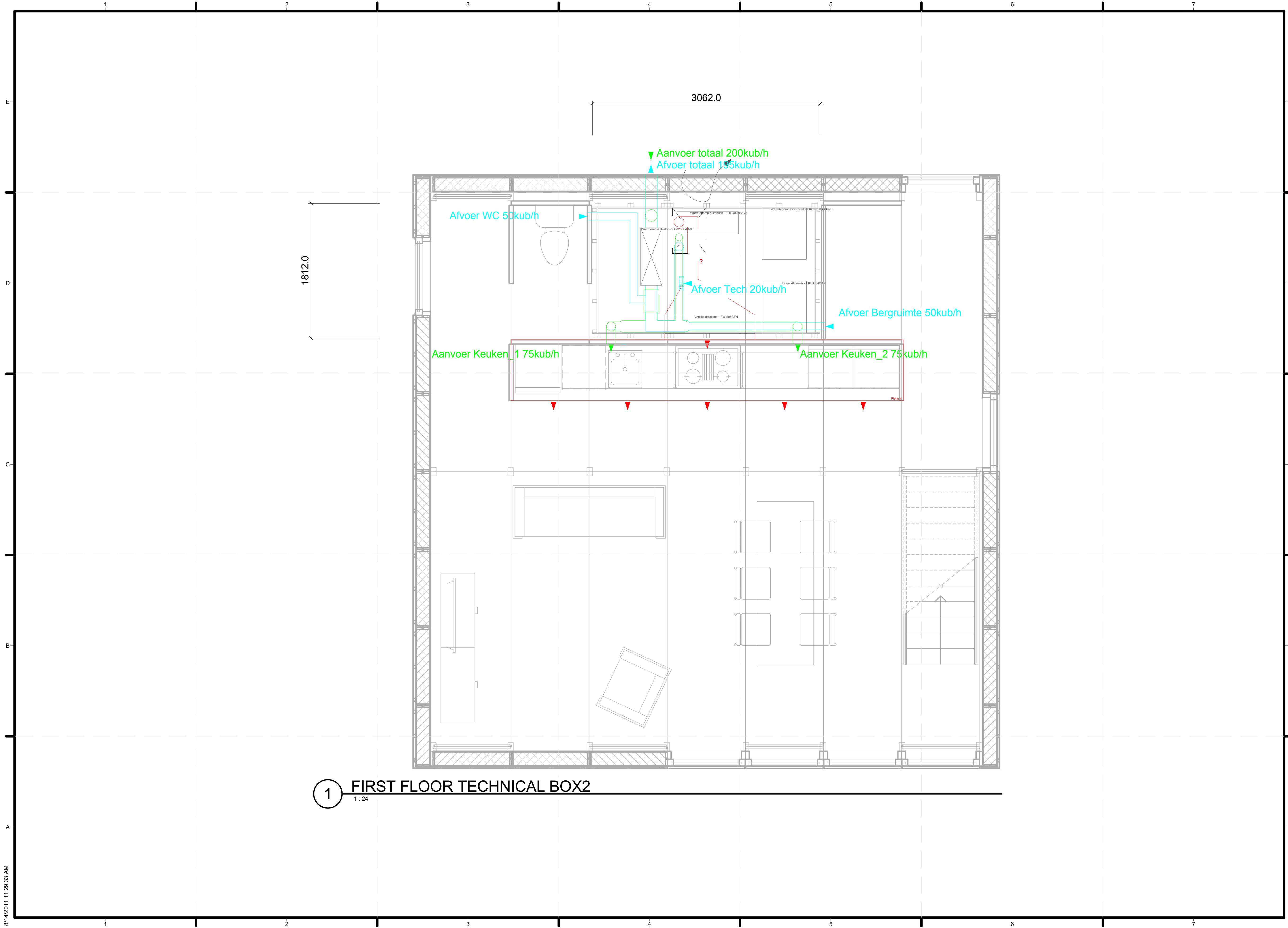


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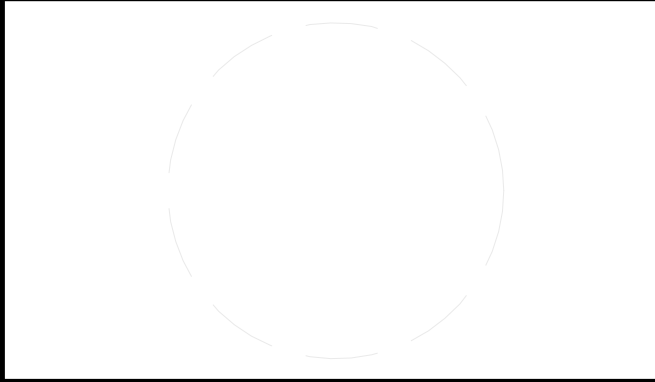
SHEET TITLE: HVAC EQUIPMENT AND DISTRIBUTION PLAN

M-101



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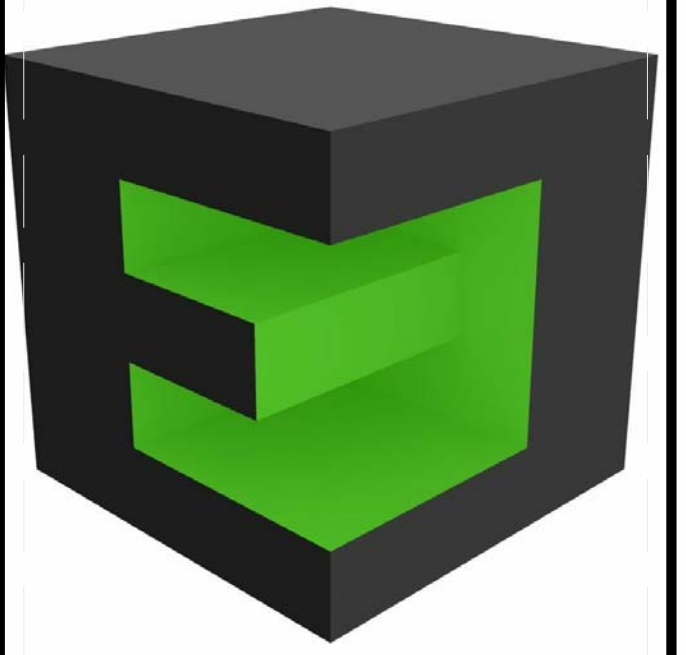


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SHEET TITLE
 HVAC EQUIPMENT AND DISTRIBUTION PLAN

M-102

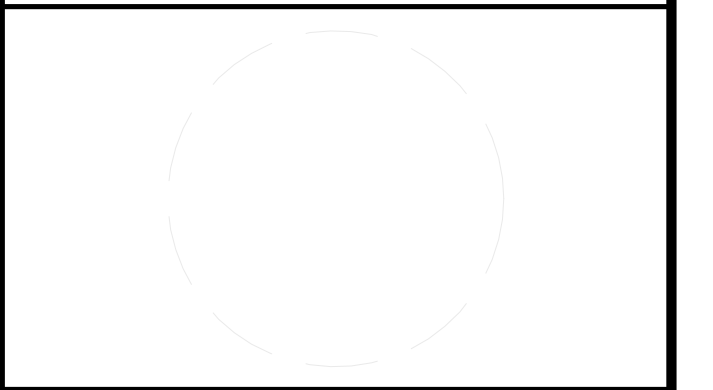


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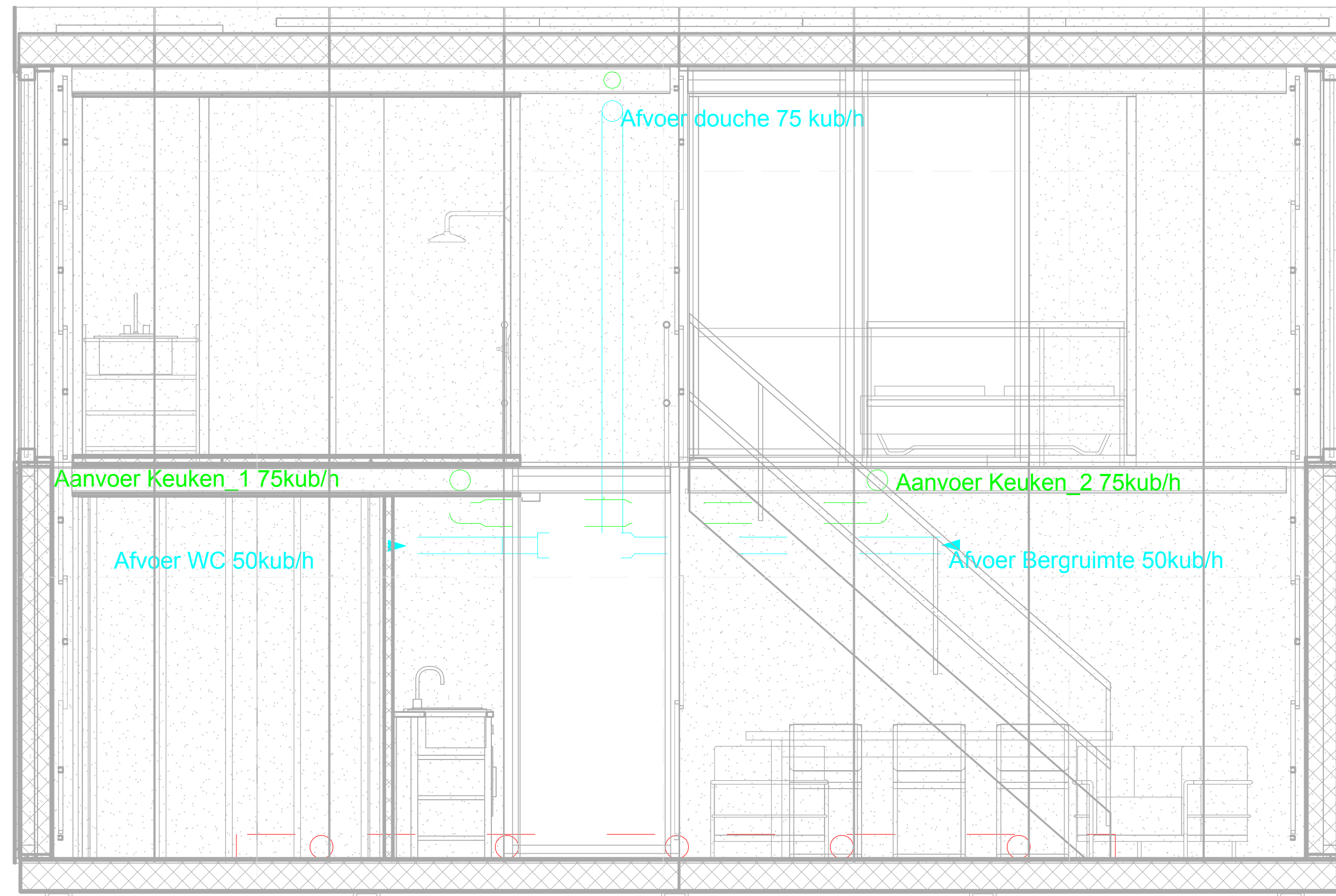


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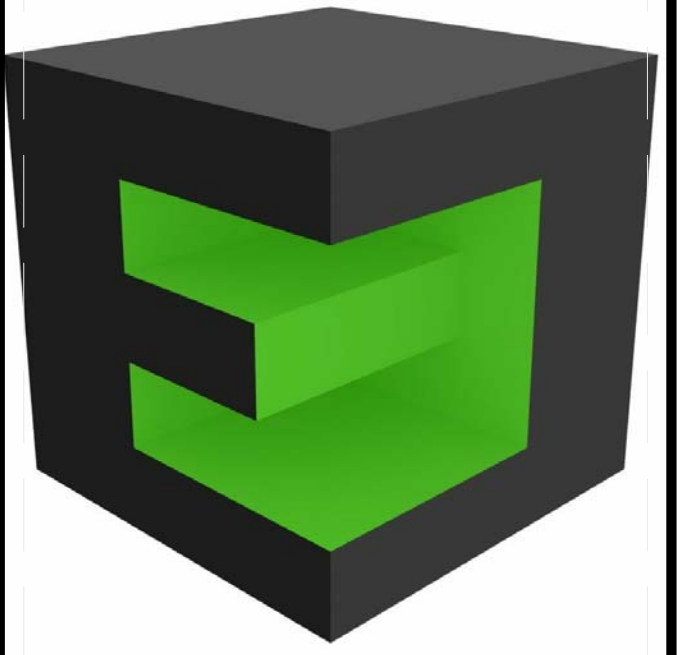
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SHEET TITLE
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M-103



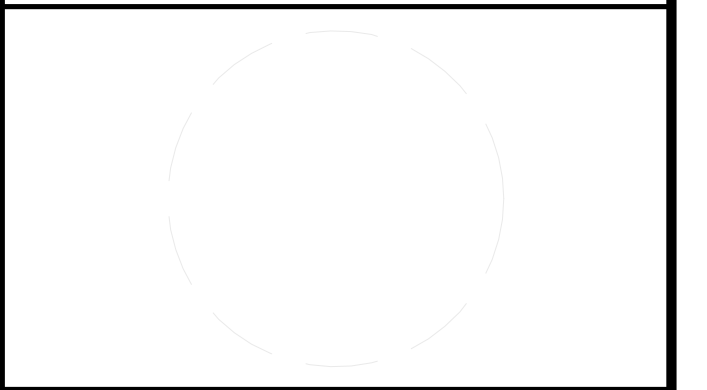
B2 SECTION HVAC
 1:24



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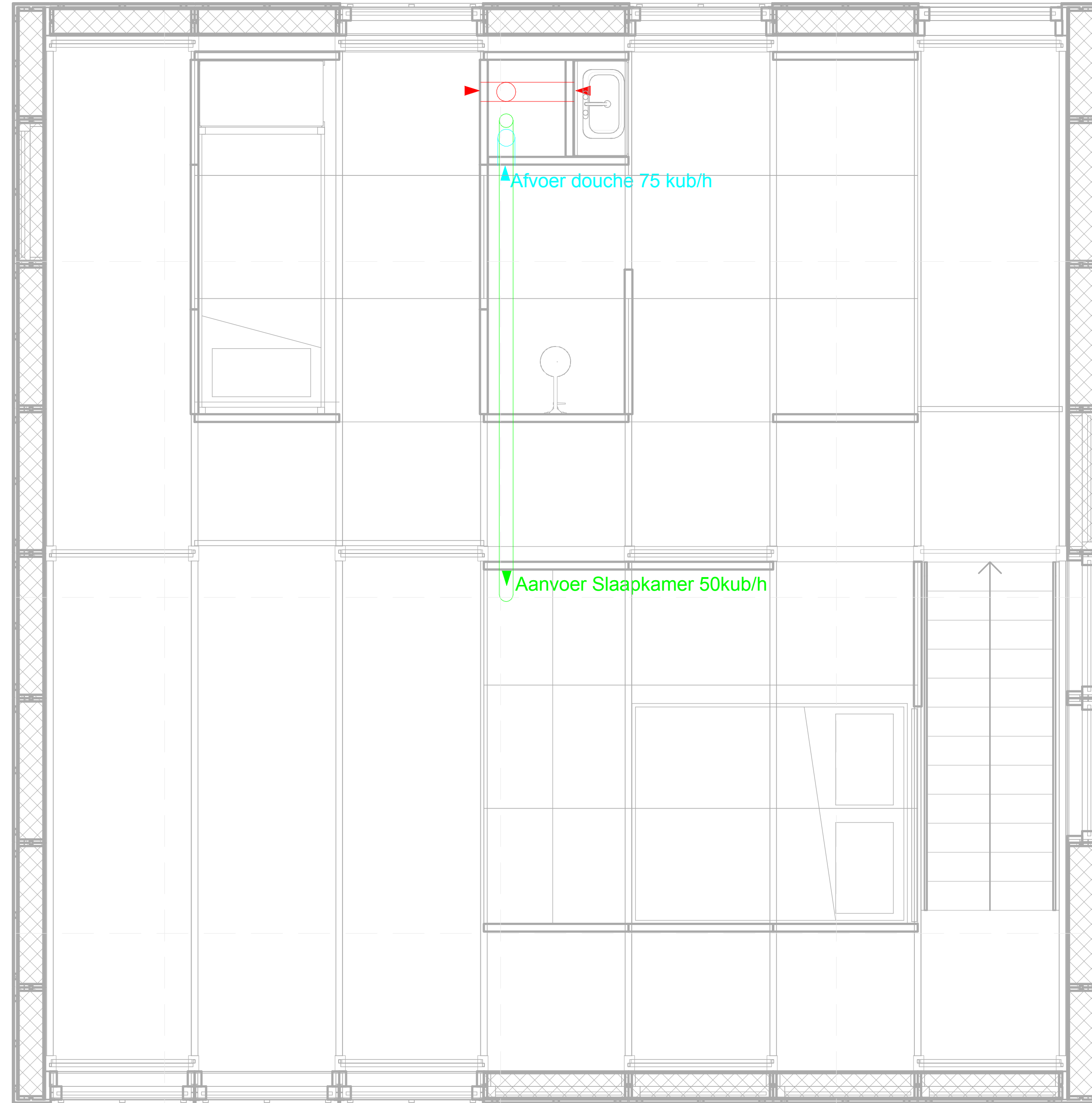


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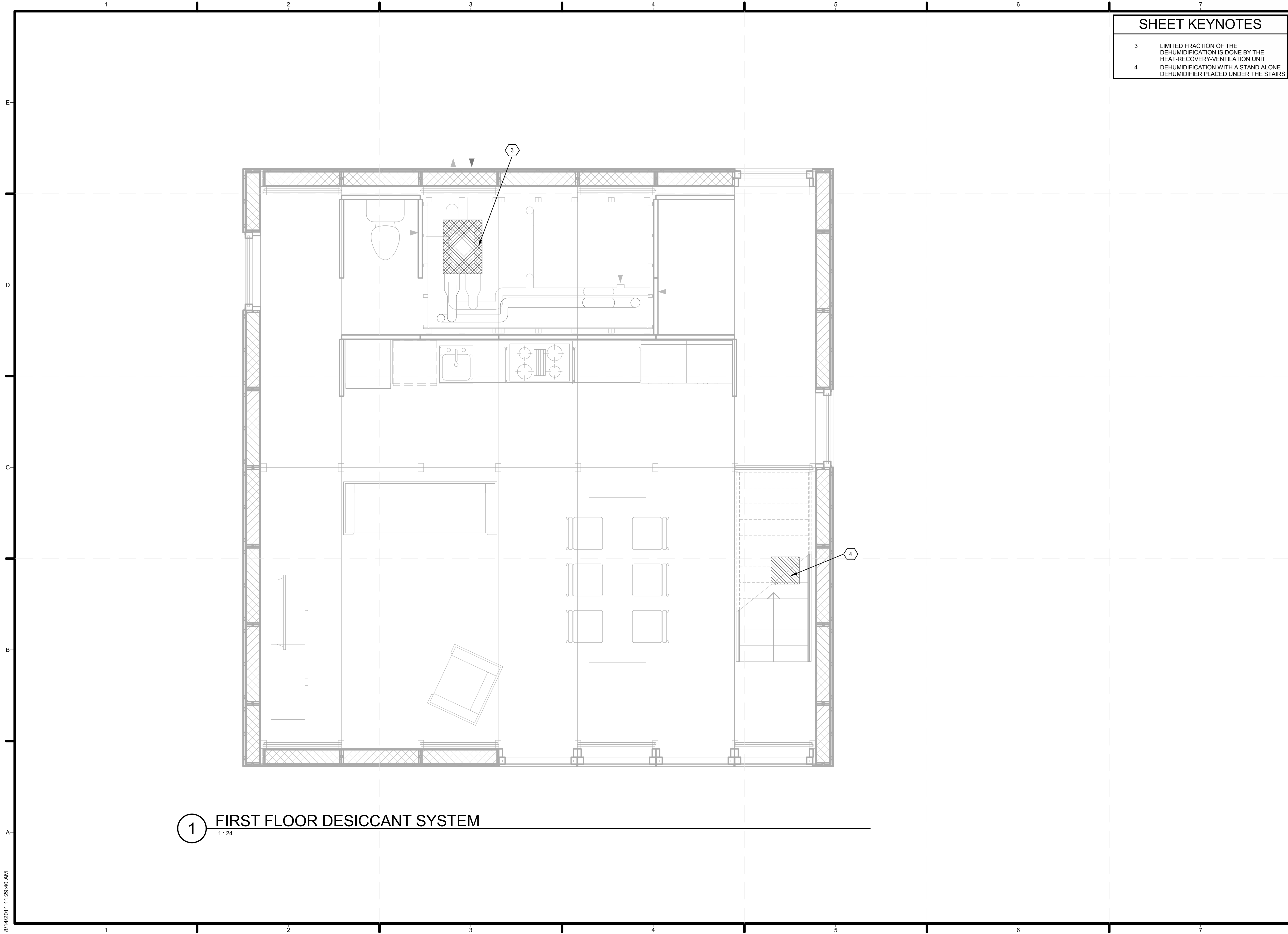
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HVAC EQUIPMENT AND DISTRIBUTION PLAN

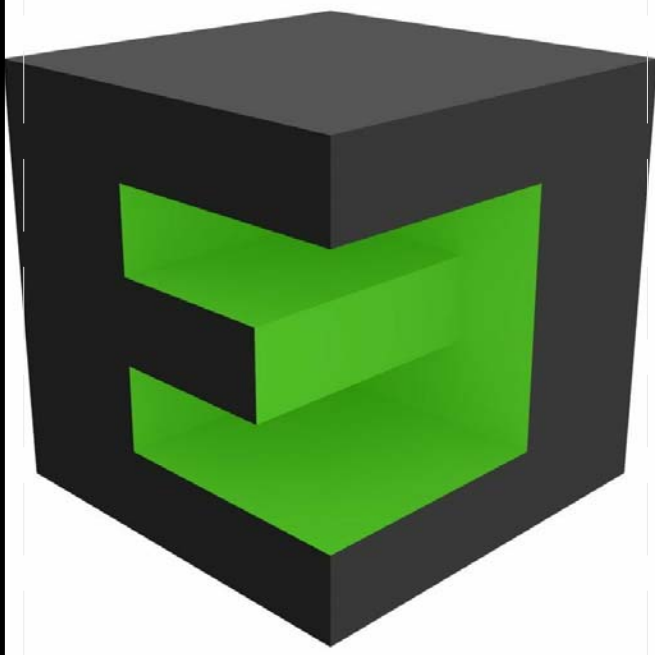
M-104



1 SECOND FLOOR HEAT RECUPERATION
 1:24

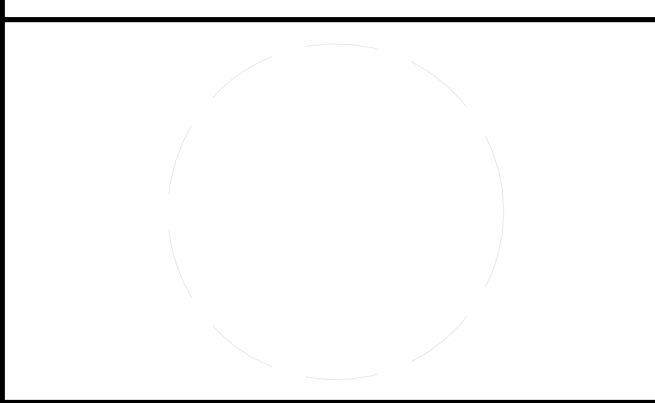


SHEET KEYNOTES	
3	LIMITED FRACTION OF THE DEHUMIDIFICATION IS DONE BY THE HEAT-RECOVERY-VENTILATION UNIT
4	DEHUMIDIFICATION WITH A STAND ALONE DEHUMIDIFIER PLACED UNDER THE STAIRS



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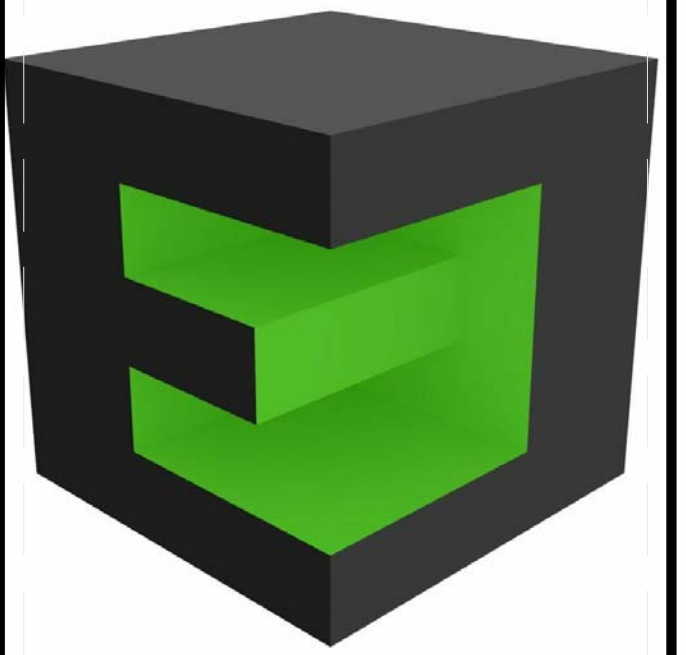
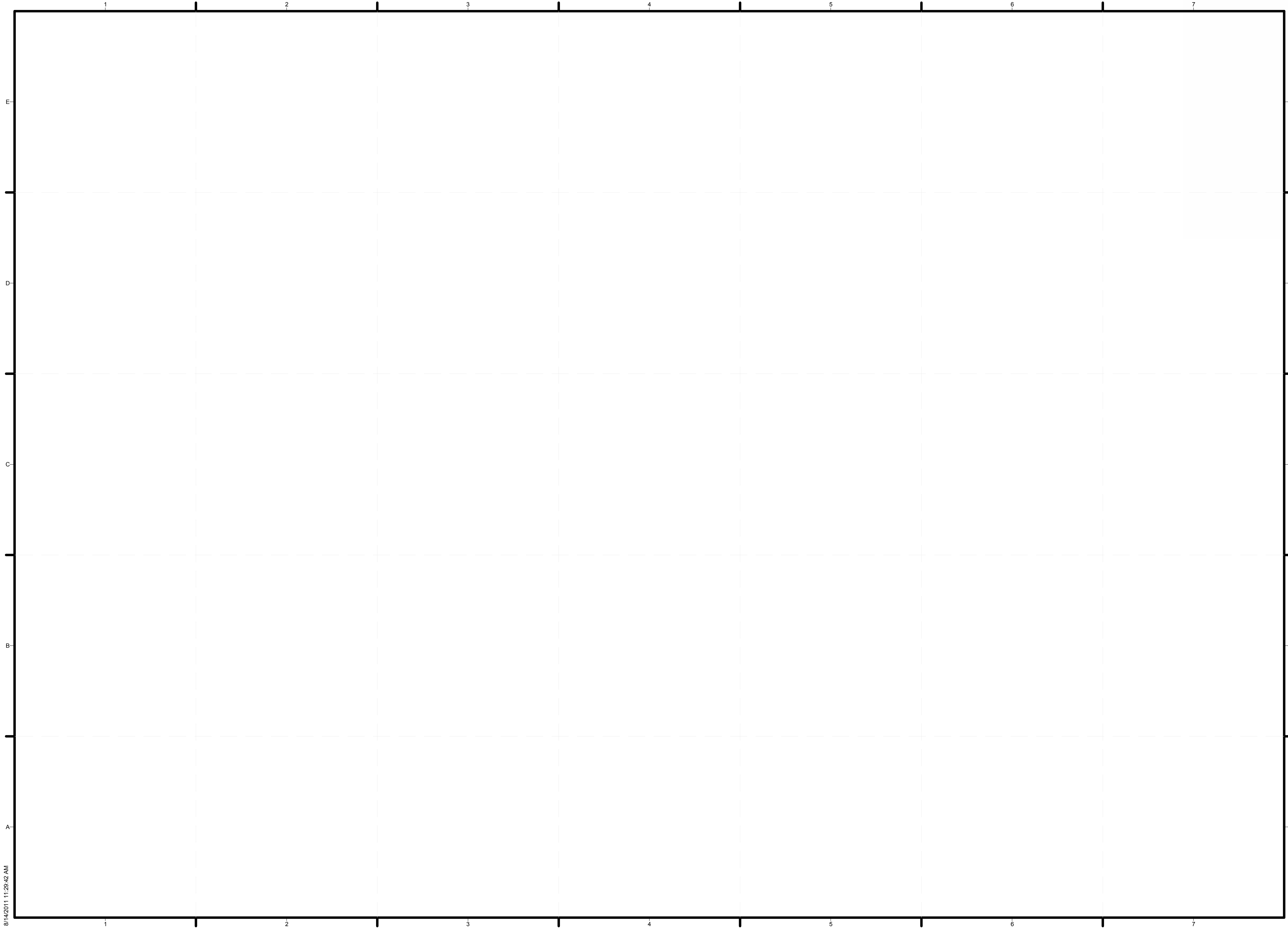
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SHEET TITLE
**FIRST FLOOR
 DESICCANT SYSTEM**

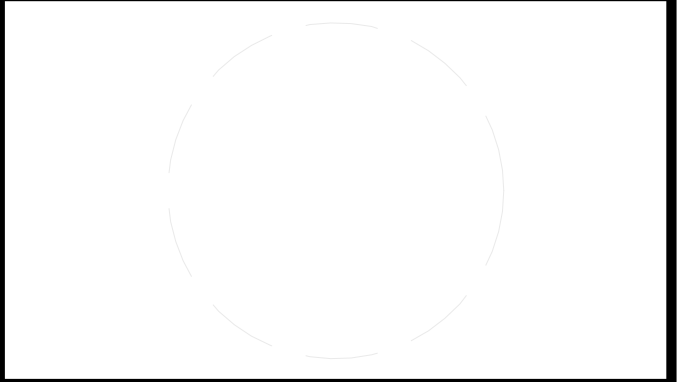
M-105

1 FIRST FLOOR DESICCANT SYSTEM
 1:24



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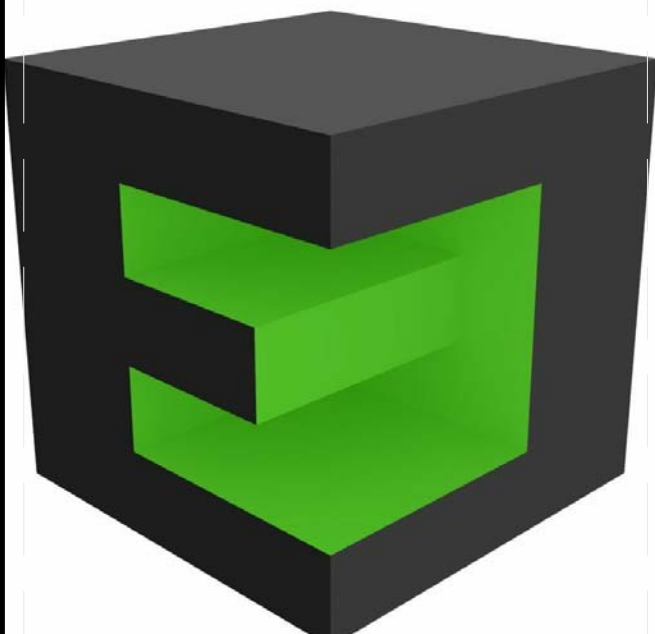
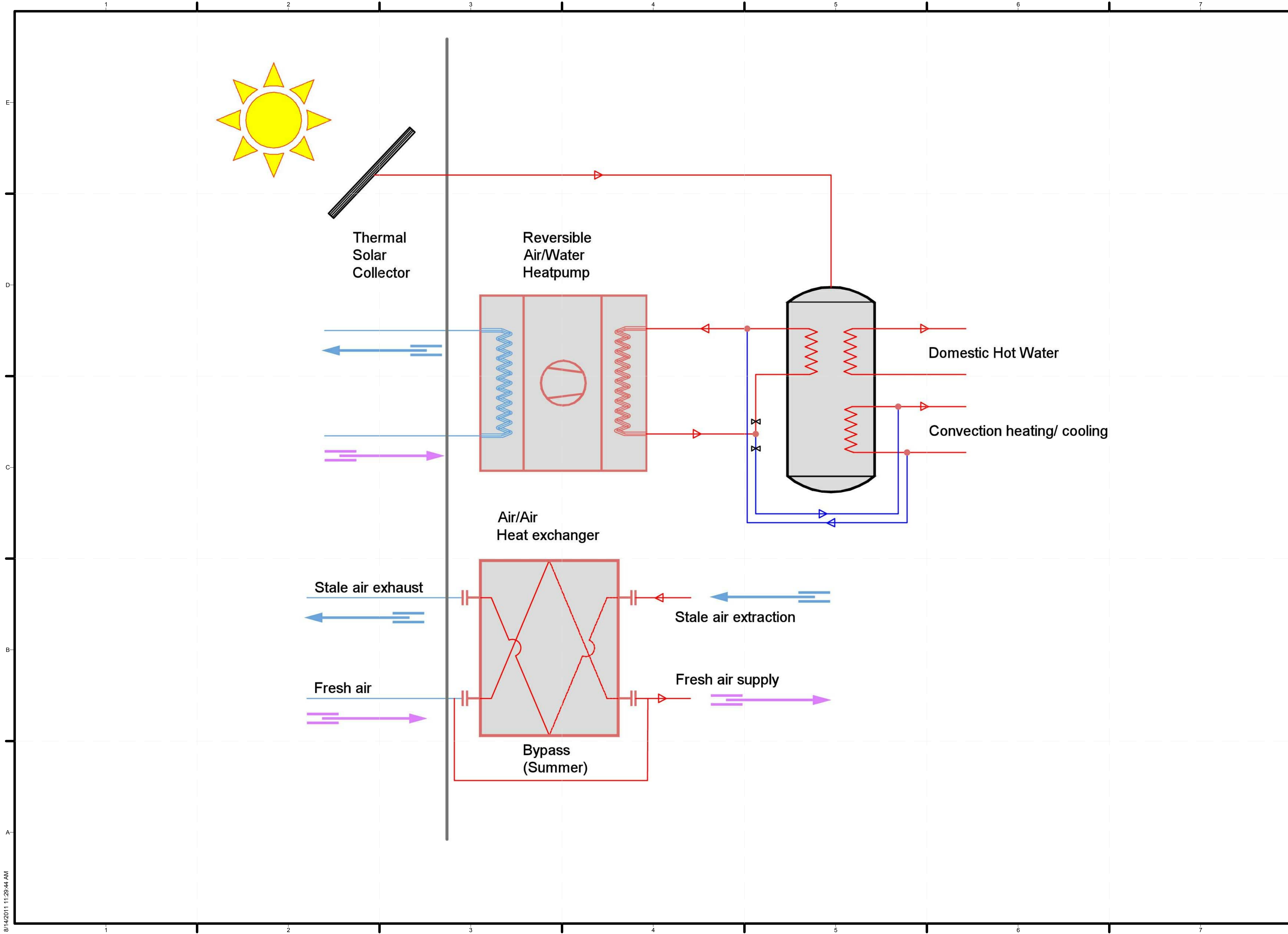


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SHEET TITLE
SCHEDULES

M-601

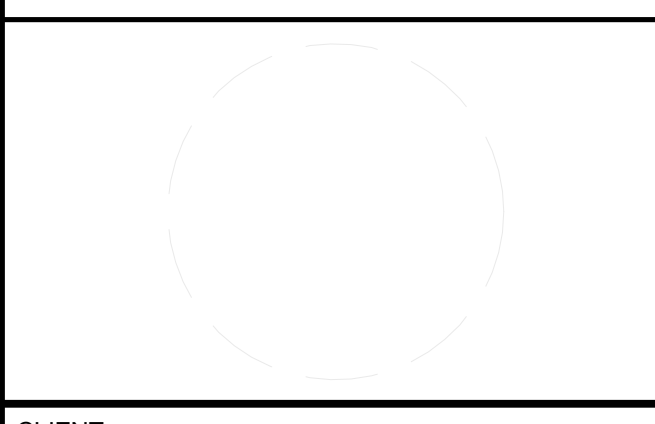


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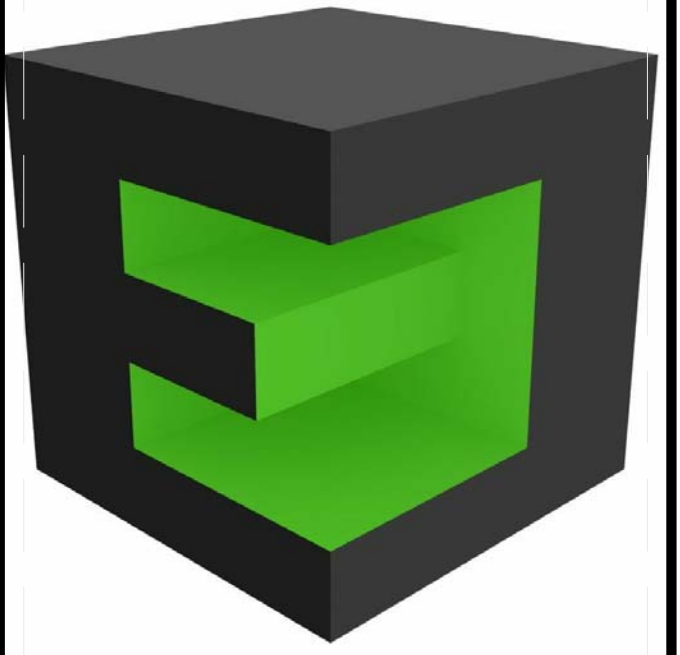


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SHEET TITLE
 HVAC DIAGRAMS

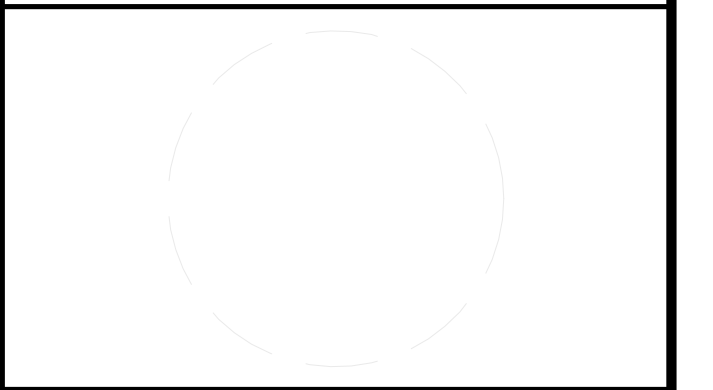
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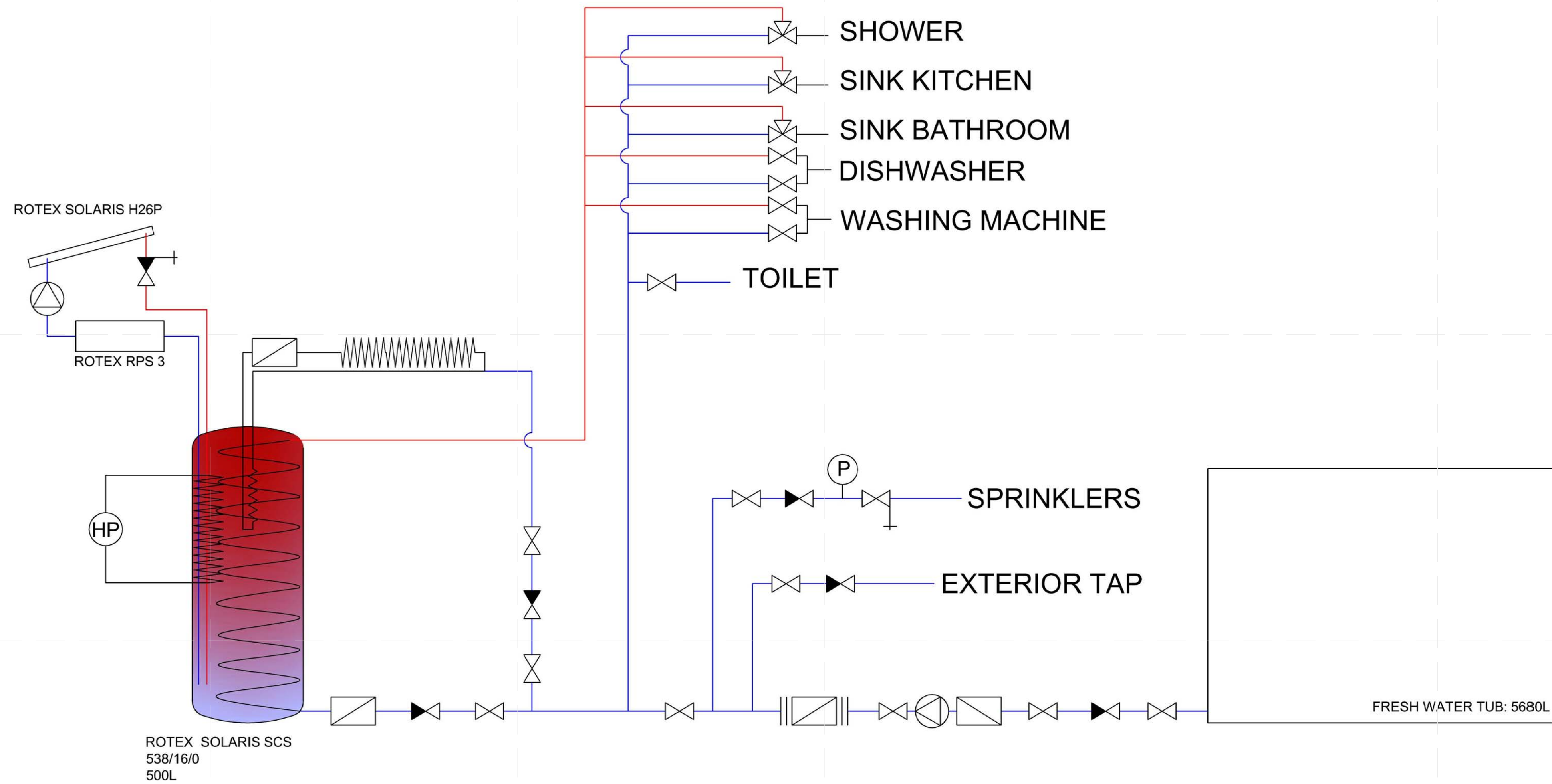
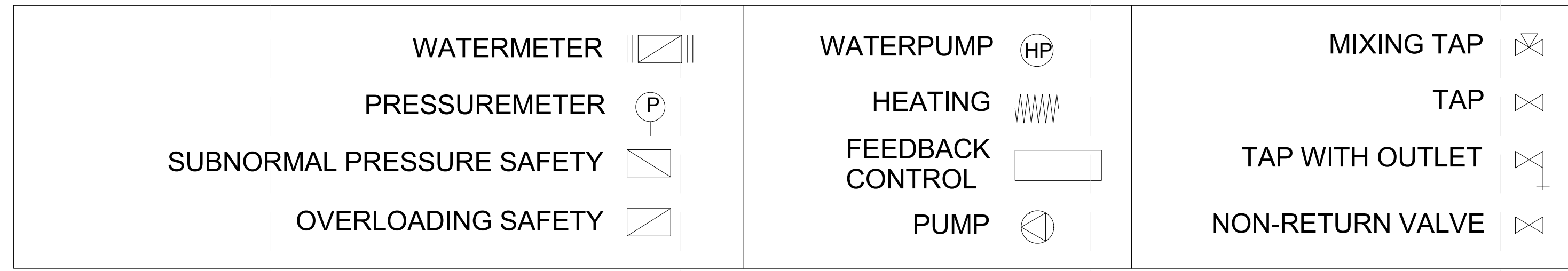


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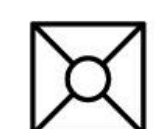






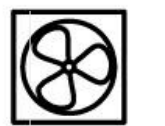

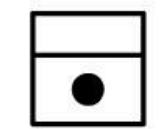
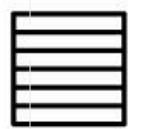

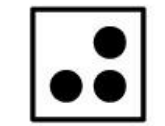
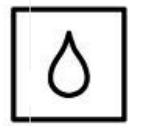


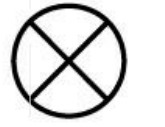


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SHEET TITLE
SOLAR WATER DIAGRAMS

M-603



List of symbols

- | | | |
|---|---|--|
|  Dishwasher |  Fan coil unit |  Receptacle 1 output |
|  Refrigerator |  Heat pump |  Receptacle 2 outputs |
|  Hood |  Fan |  Receptacle 3 outputs |
|  Microwave |  Sunblind |  AFI (different types) |
|  Stove |  Water pump |  GFCI (different types) |
|  Washing Machine |  Lighting |  Wireless switch |
|  Dryer | | |

- 6 measurements with NIKO HOME CONTROL SYSTEM:
1. Total energu consumption
 2. Circuit K to M (KITCHEN)
 3. Circuit N to O (DRYER + WASHING MACHINE)
 4. Circuit P (TECHNICAL BOX)
 5. Circuit A+B (LIGHTING)
 6. Circuit E to G (LIGHTING)

Calculations:

1. wire size

Assumptions:

- outdoor temperature correction factor is 0.58, because we assume that the temperature of the solar modules will never exceed 70°C
- mechanical room correction factor is 0.82, because we assume that the temperature of the mechanical room will stay below 50°C

a. solar array to combiner box

Necessary ampacity: $2 \times 1.25 \times 1.25 \times I_{sc} = 17.53 \text{ A}$
 We opt for AWG #10 USE-2 (in open air), these have a temperature corrected maximum ampacity of $0.58 \times 40 \text{ A} = 23.2 \text{ A}$.

b. combiner box to inverter

Necessary ampacity: $2 \times 1.25 \times 1.25 \times I_{sc} = 17.53 \text{ A}$
 We opt for AWG #10 THWN-2 (in one conduit), these have a corrected maximum ampacity of $0.8 \times 0.58 \times 40 \text{ A} = 18.56 \text{ A}$, taking temperature and the effect of the conduit into account.

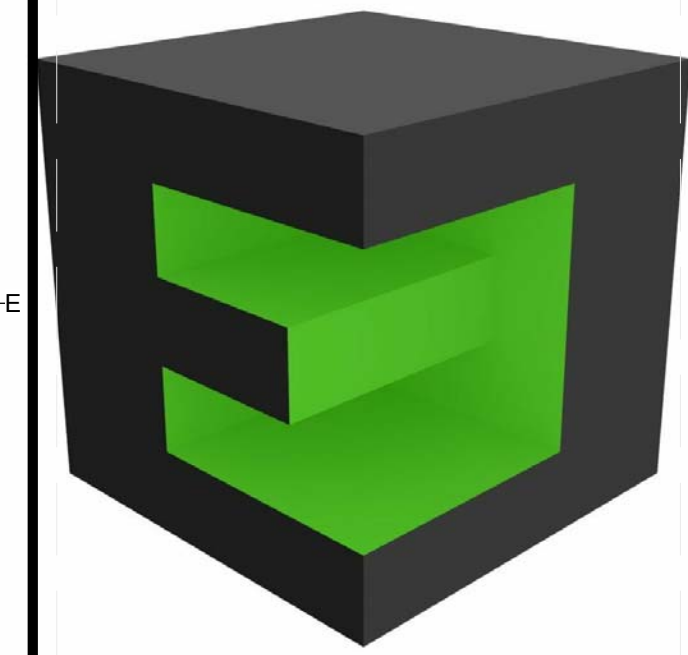
c. inverter to load centre

The maximum output current of the inverter is rated at 22A. Multiplying by a safety factor yields $1.25 \times 22 \text{ A} = 27.5 \text{ A}$. We choose AWG #10 THHN wires. These have a corrected ampacity of $0.82 \times 40 \text{ A} = 32.8 \text{ A}$.

2. inverter
 According to the manufacturer's data, the open -circuit voltage of one solar module is $51.6 - 0.143 \times (T-46)$. If we assume that the lowest possible temperature for Washington DC is -10°C, the open-circuit voltage equals 59.9V. One array of 9 modules in series will produce a maximum of $9 \times 59.9 \text{ V} = 536.5 \text{ V}$. This is well below the maximum allowed input voltage of one inverter (600 V). Also, the short-circuit current of one solar module is $5.61 + 0.00196 \times (T - 46)$. This means 2 arrays in parallel will produce a maximum of $2 \times 5.68 \text{ A} = 11.35 \text{ A}$ at 70°C. Again, this is smaller than the maximum allowed input dc current of one inverter.

Note:

Values like I_{sc} (short-circuit current), V_{oc} (open-source voltage) and all temperature coefficients are listed in the technical datasheets of the solar modules. Values like the maximum input dc current and voltage are listed in the technical datasheet of the inverter.

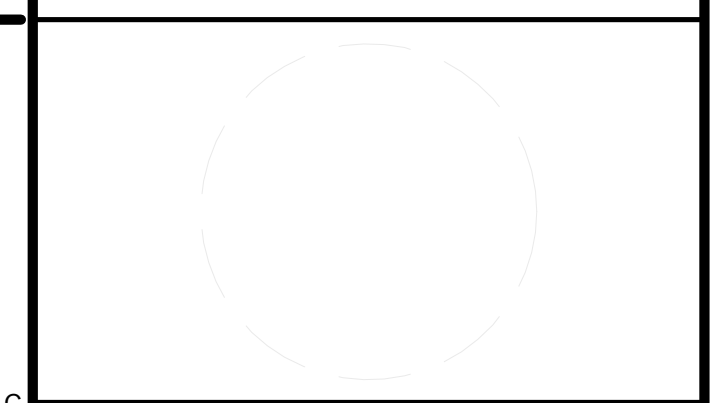


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SHEET TITLE
ELECTRICAL SYMBOLS AND NOTES

E-001

1 2 3 4 5 6 7

E
D
C
B
A

SHEET KEYNOTES

12 EACH SPAN WILL BE CONNECTED AND GROUNDED AT TWO GROUNDED POINTS.

EACH DWELLING SHALL BE PROVIDED WITH TWO MODIFIED GROUNDING ELECTRODES PLACED A MINIMUM OF 10 FT (3050mm) APART. EACH GROUNDING ELECTRODE SHALL CONSIST OF A 12 IN. BY 12 IN. (30.5CM BY 30.5CM) COPPER OR COPPER-PLATED PLATE, 0.25 IN. (0.64cm) IN THICKNESS. THE ELECTRODE PLATE SHALL BE PROVIDED WITH A 0.625 IN (1.59cm) DIAMETER GROUND ROD THAT EXTENDS 18 IN. (46CM) BELOW THE PLATE AND 2 IN. (5.1CM) ABOVE THE PLATE. THE GROUND ROD SHALL BE PERMANENTLY ATTACHED TO THE PLATE ELECTRODE BY EXOTHERMIC MEANS.

THE ELECTRODE PLATES SHALL BE BONDED TO EACH OTHER WITH AN UNINSULATED 4 AWG MINIMUM SOLID COPPER CONDUCTOR ATTACHED TO THE GROUNDING PLATE ROD WITH A LISTED CONNECTION DEVICE (CLAMP) OR VIA EXOTHERMIC WELD. SUCH BONDING CONDUCTORS SHOULD BE IN CONTACT WITH THE GROUND AND PLACED IN A LOCATION WHERE THEY WILL NOT BE A TRIPPING HAZARD FOR PERSONNEL.



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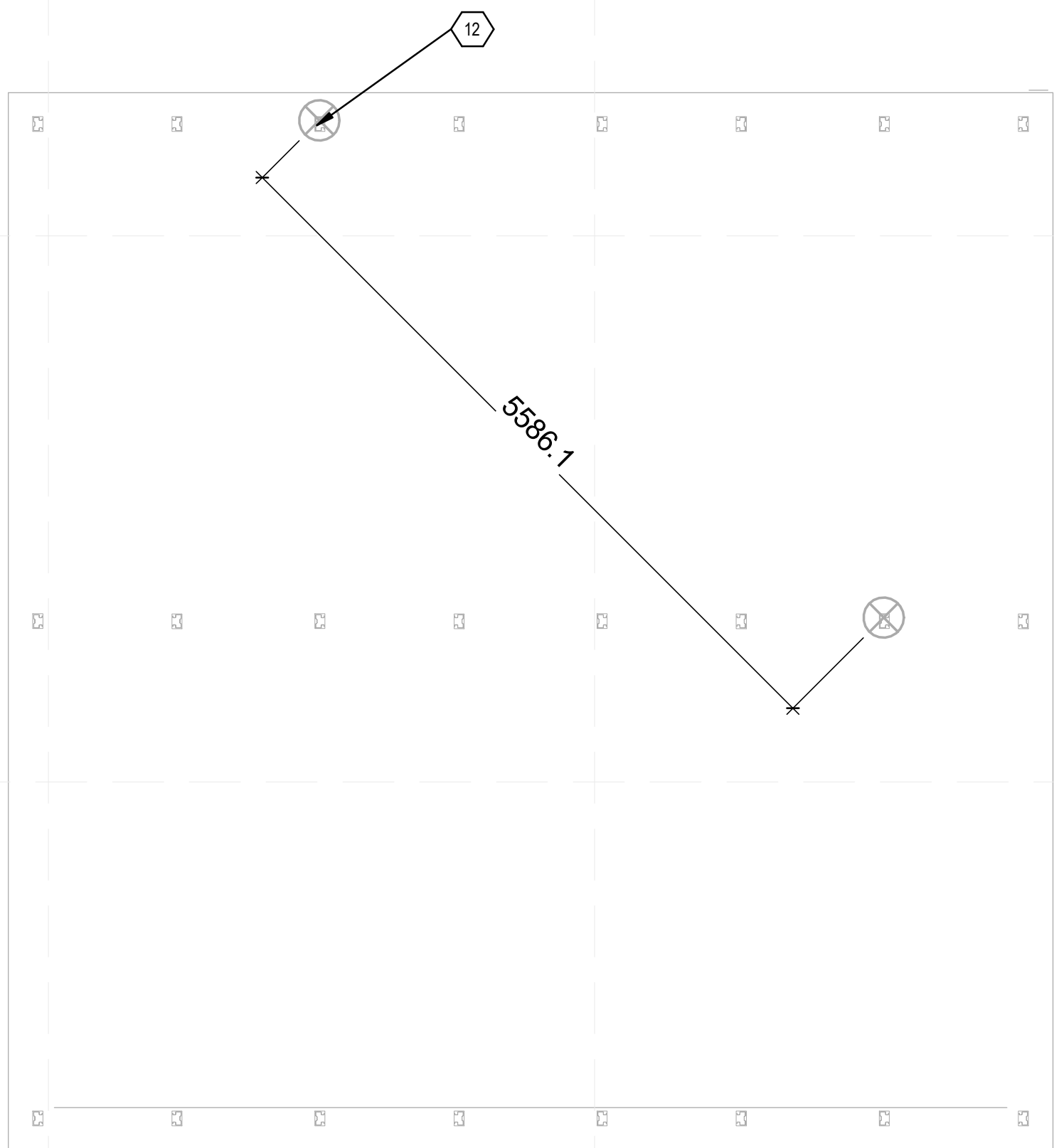
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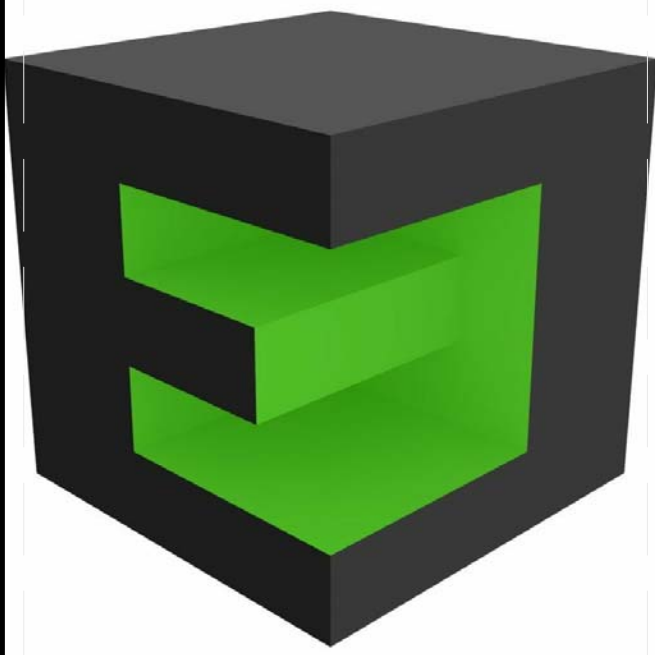
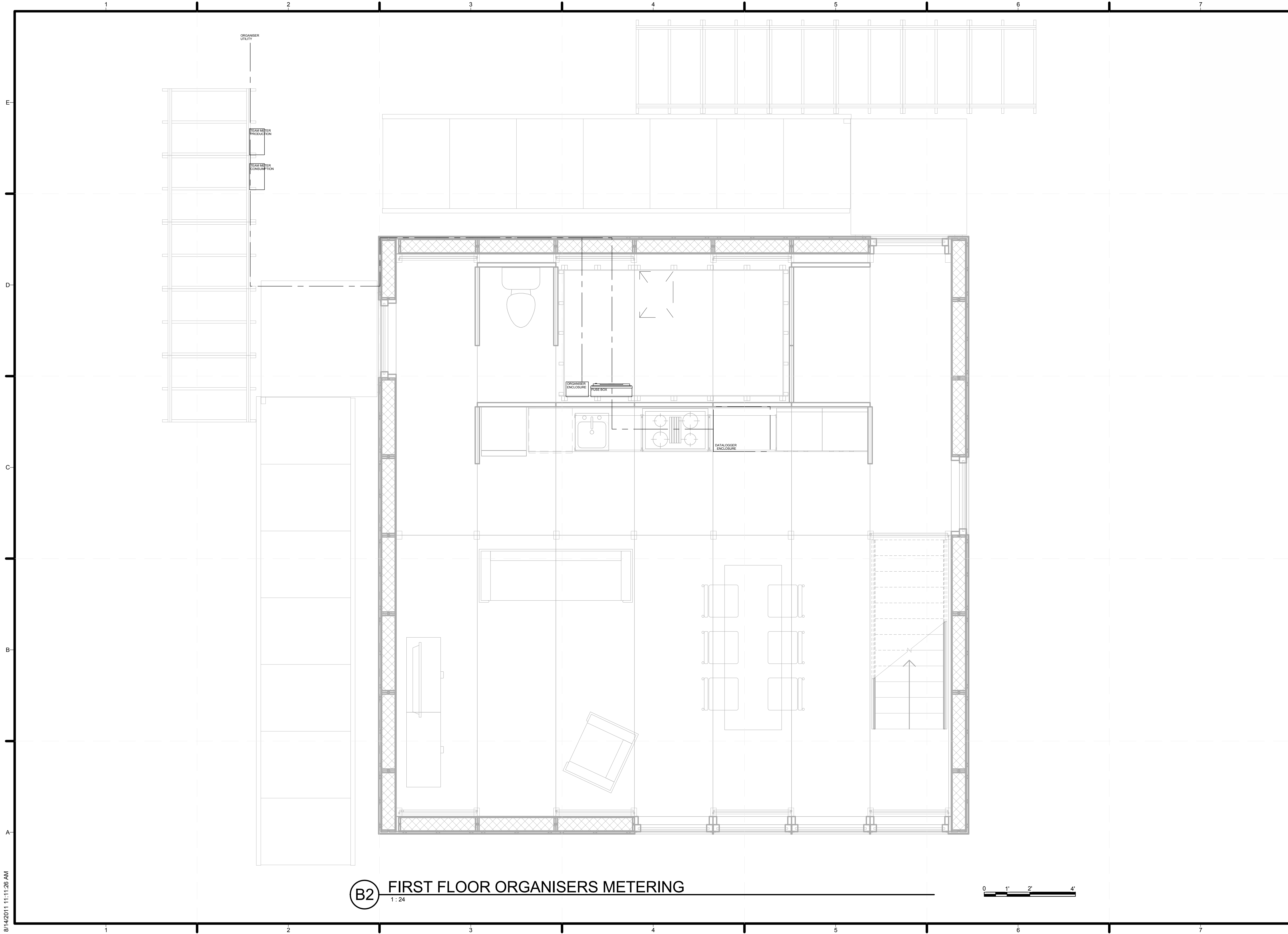
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SHEET TITLE
ELECTRICAL PENETRATIONS

E-101

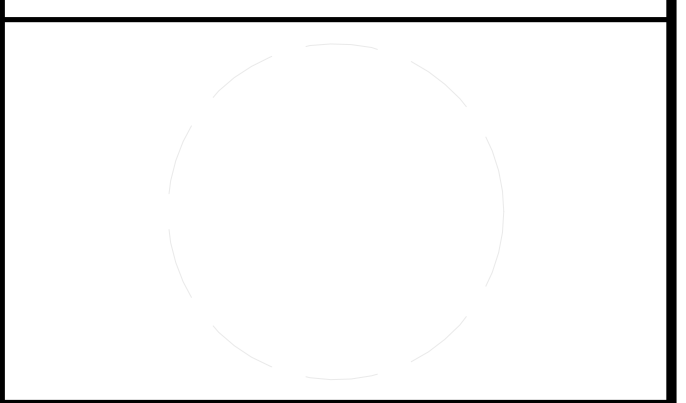
(B2) FIRST FLOOR ELECTRICAL GROUND PENETRATIONS





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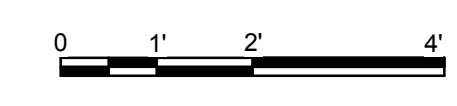
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SHEET TITLE

ELECTRICAL DISTRIBUTION PLAN

E-102

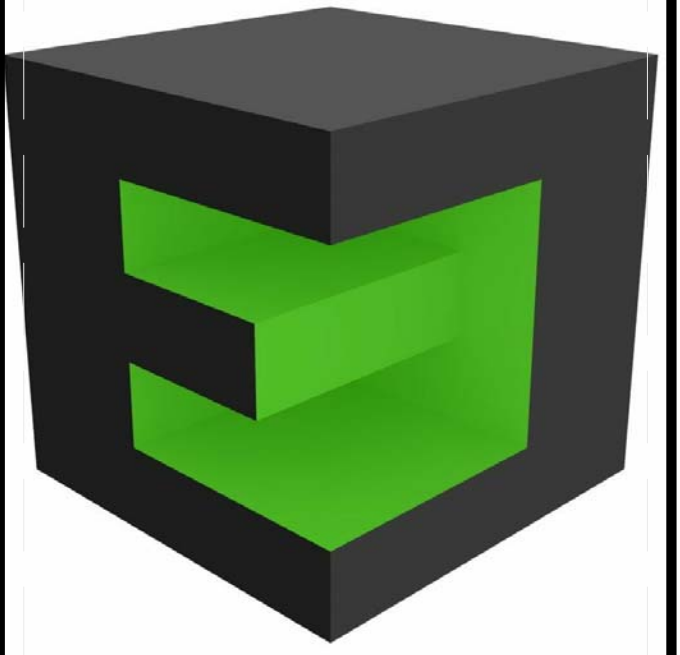
B2 FIRST FLOOR ORGANISERS METERING
1:24



8/14/2011 11:11:26 AM

SHEET KEYNOTES

- 6 ALL TAMPER RESISTANT
- 7 H-005 AND H-006 WATER RESISTANT
- 10 OPEN PLAN STAIRCASE, THERE IS NO WALL HERE. SEE A-902

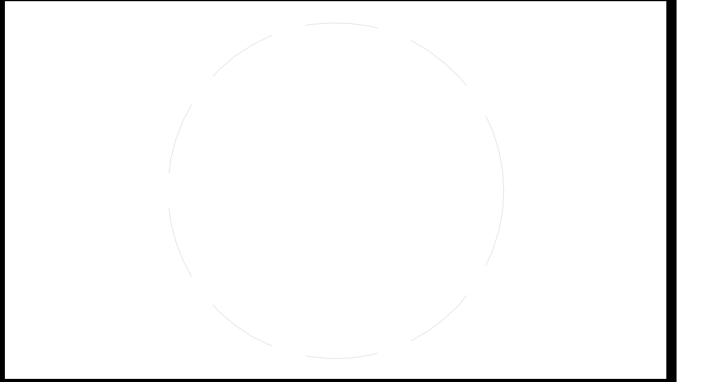


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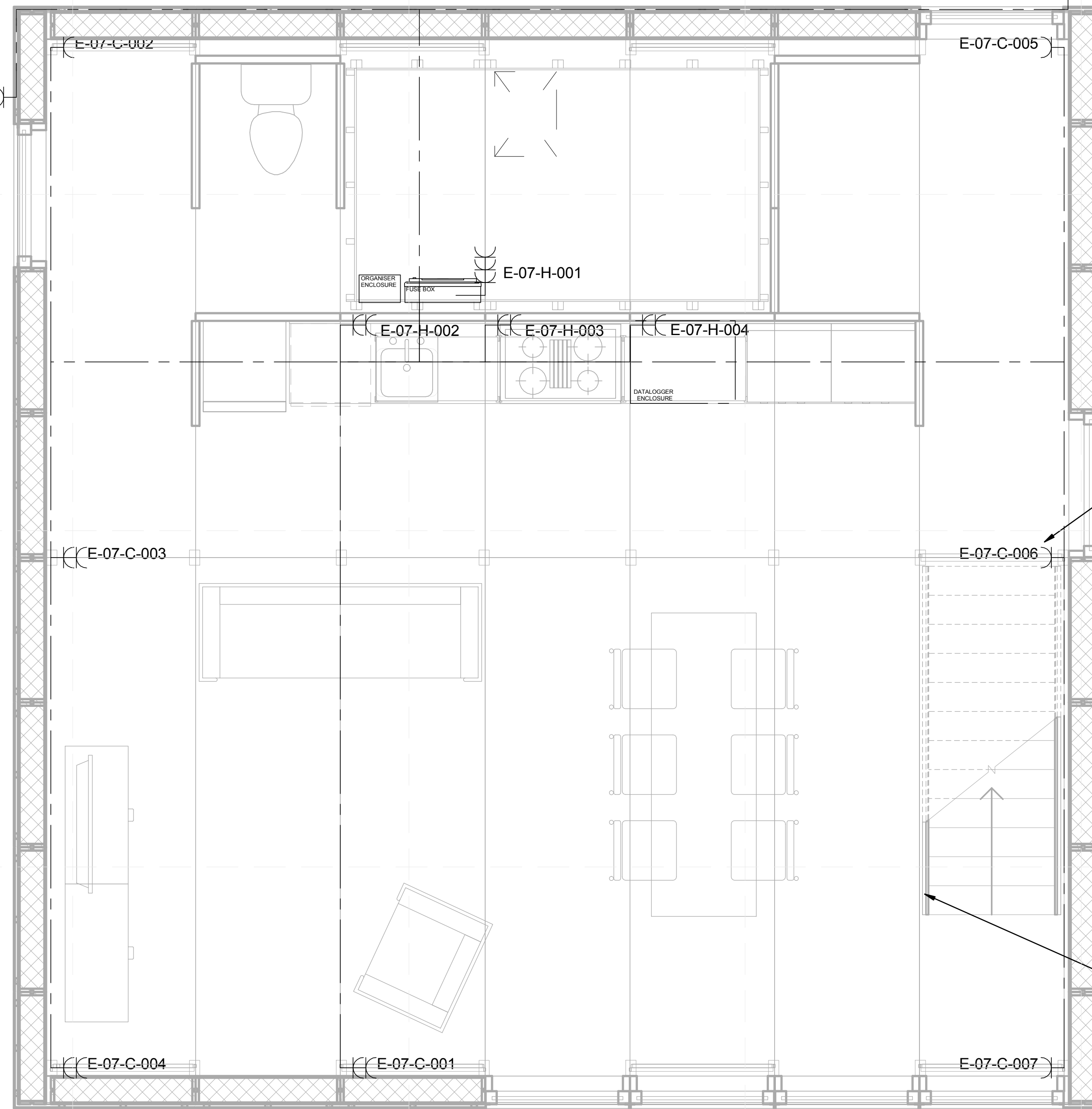


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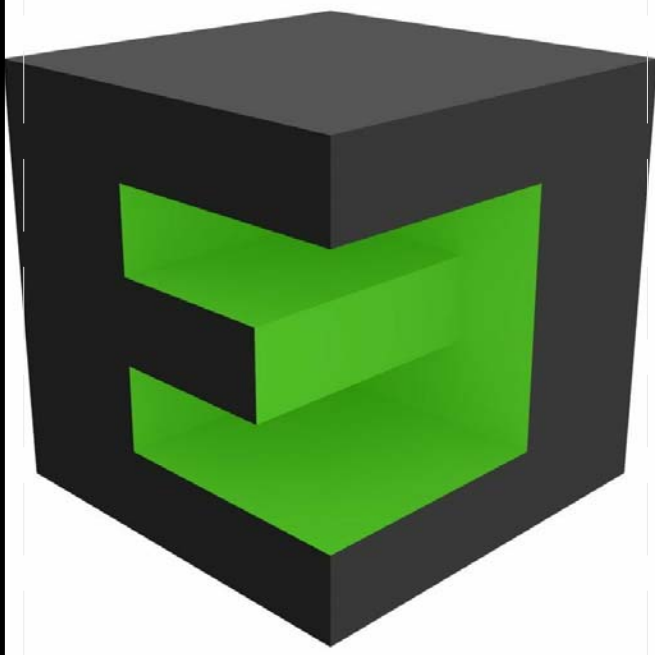
E-103



1 FIRST FLOOR ELECTRICAL
 1:24

SHEET KEYNOTES

11 NO SHOWER DOOR, NO LIGHTING NEEDED

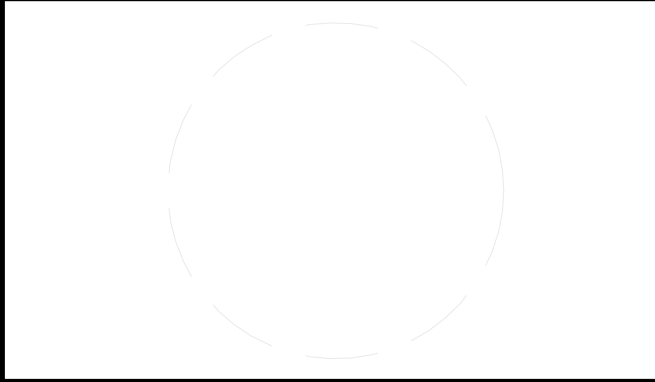


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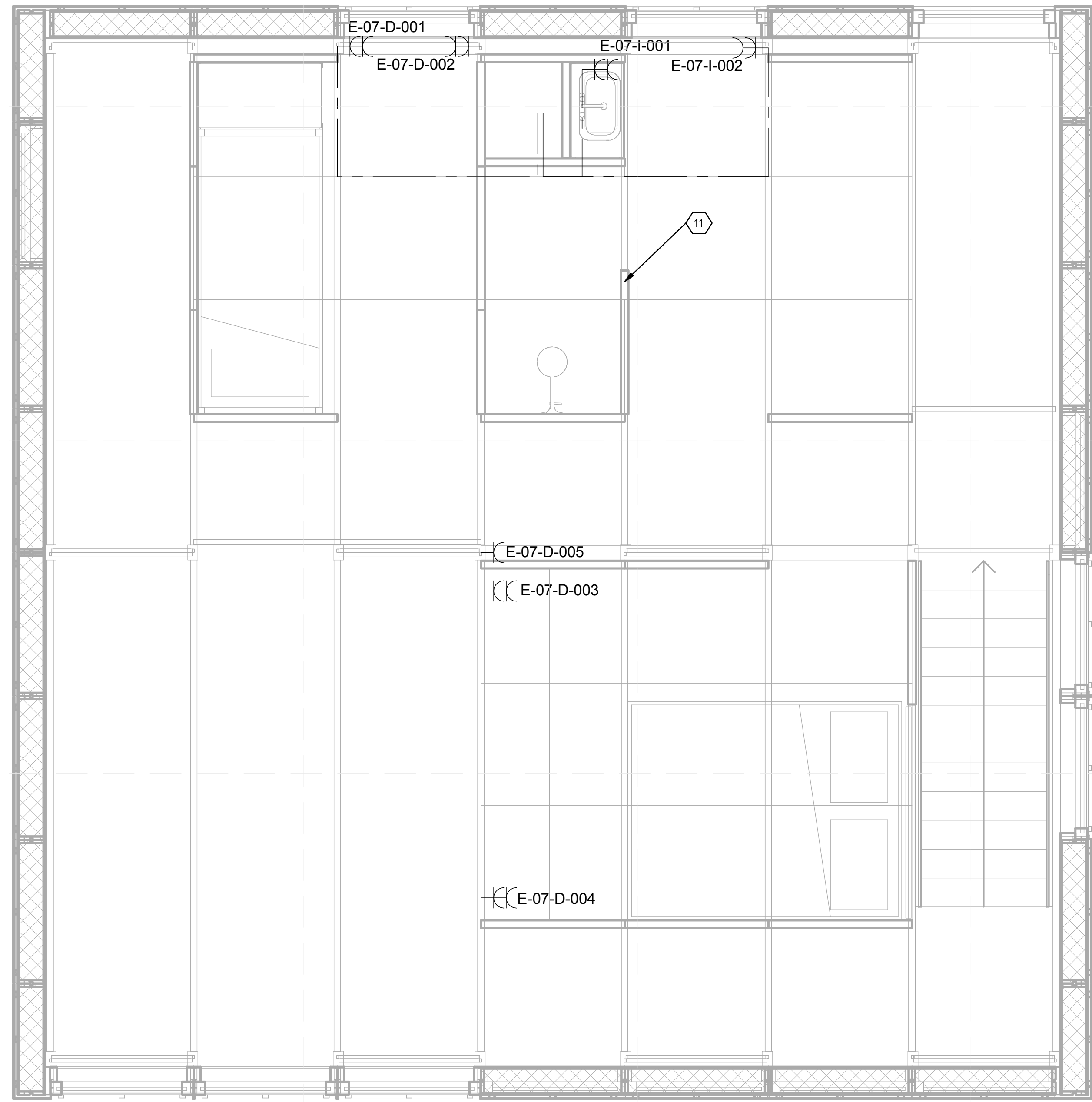


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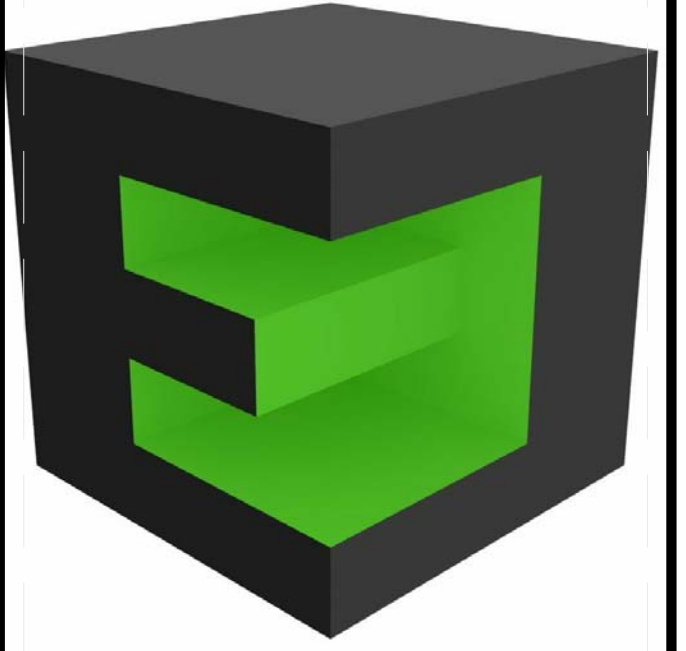
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1 SECOND FLOOR ELECTRICAL
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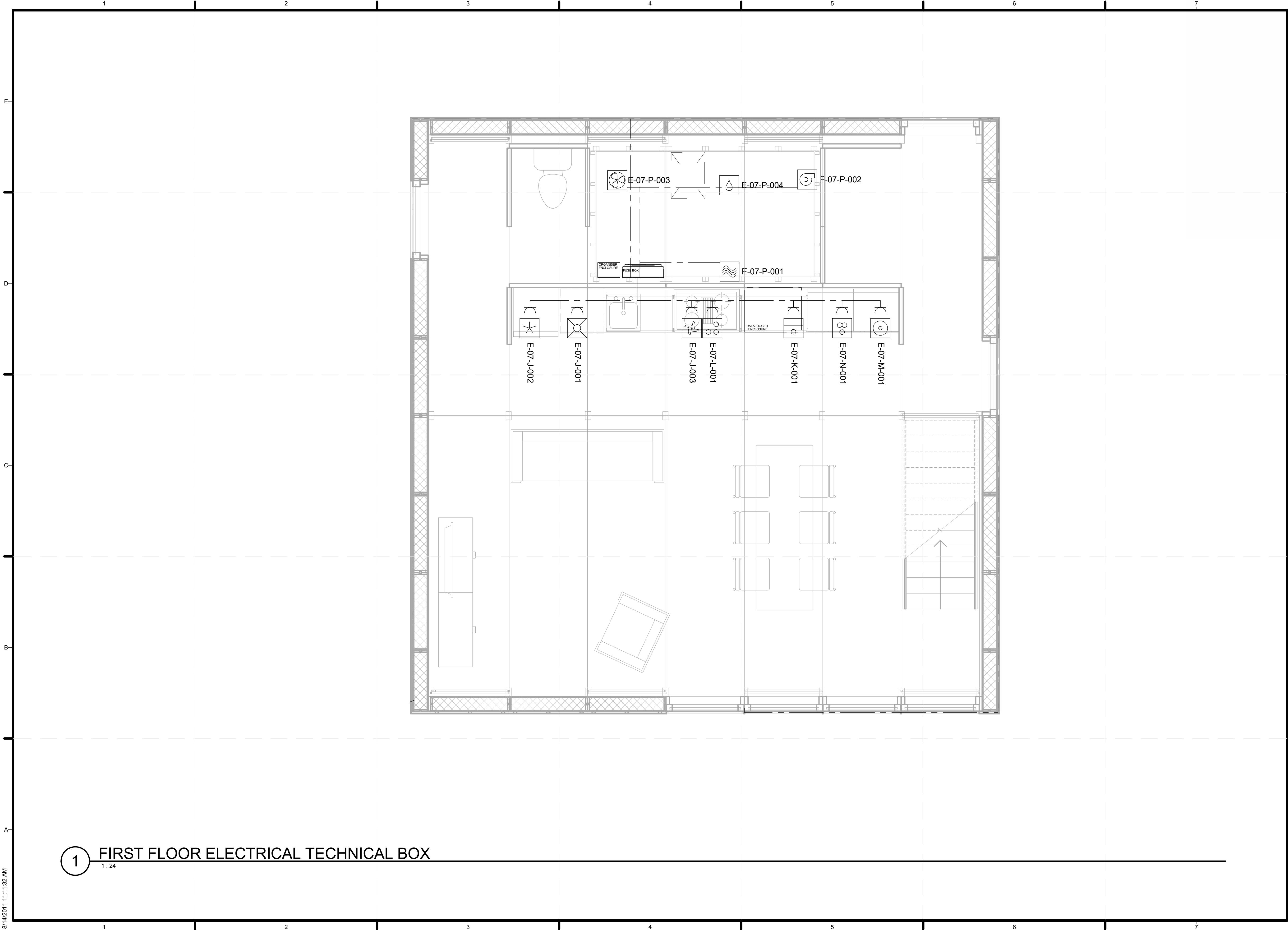
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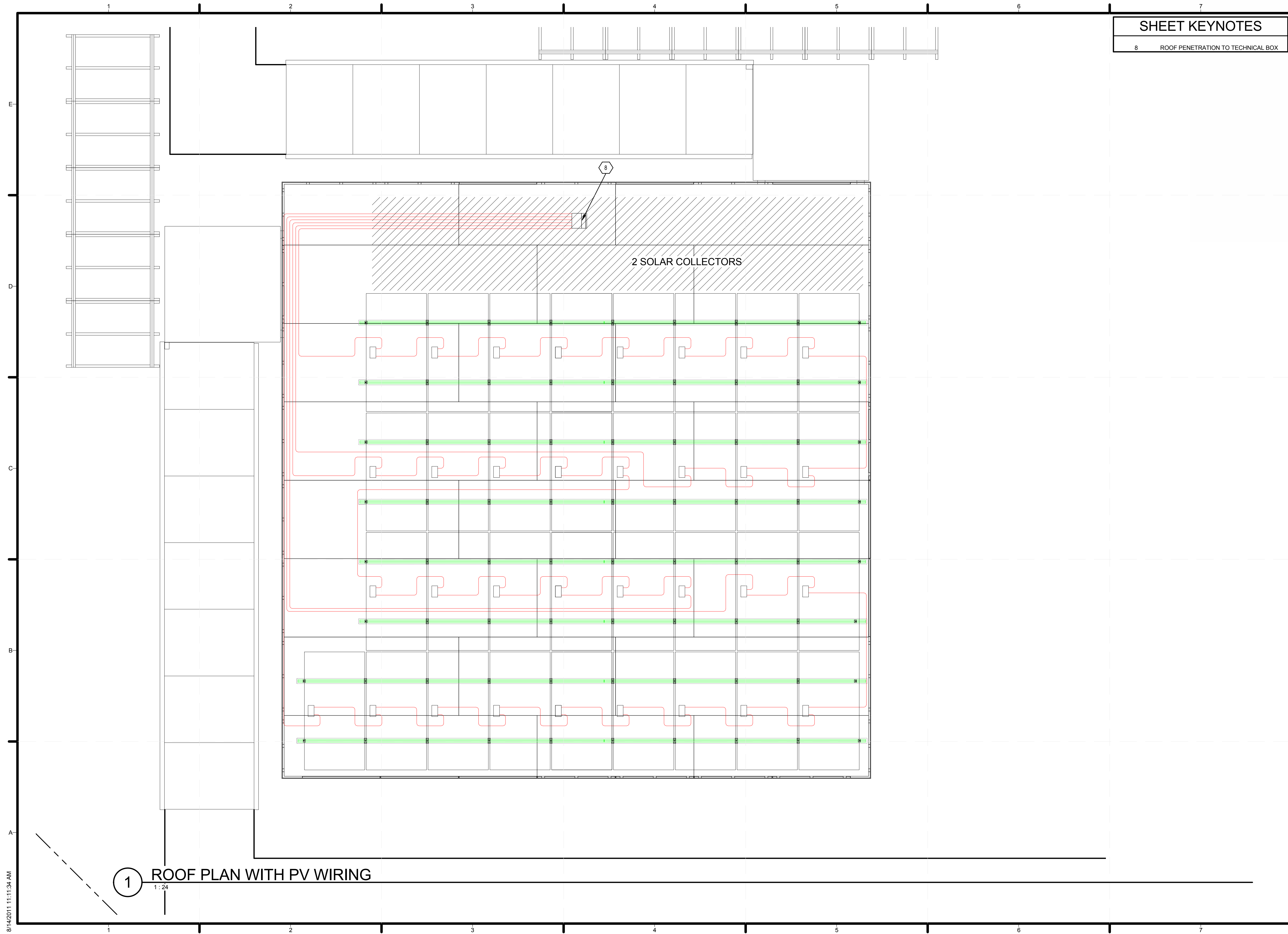
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1 FIRST FLOOR ELECTRICAL TECHNICAL BOX

1:24



SHEET KEYNOTES	
8	ROOF PENETRATION TO TECHNICAL BOX

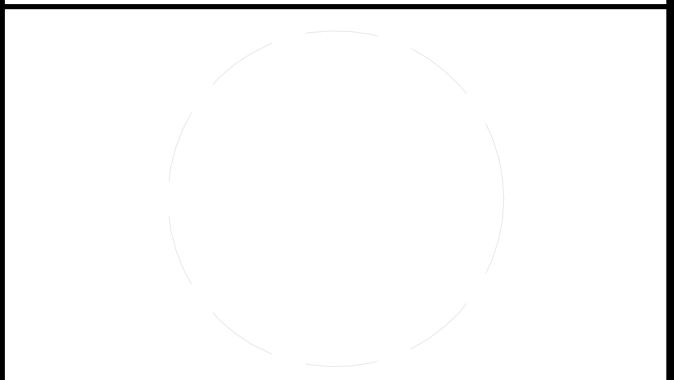


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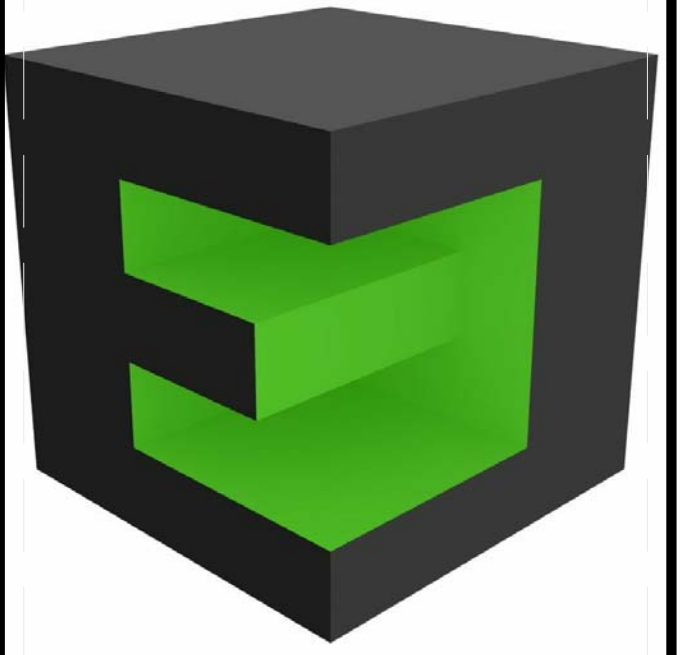
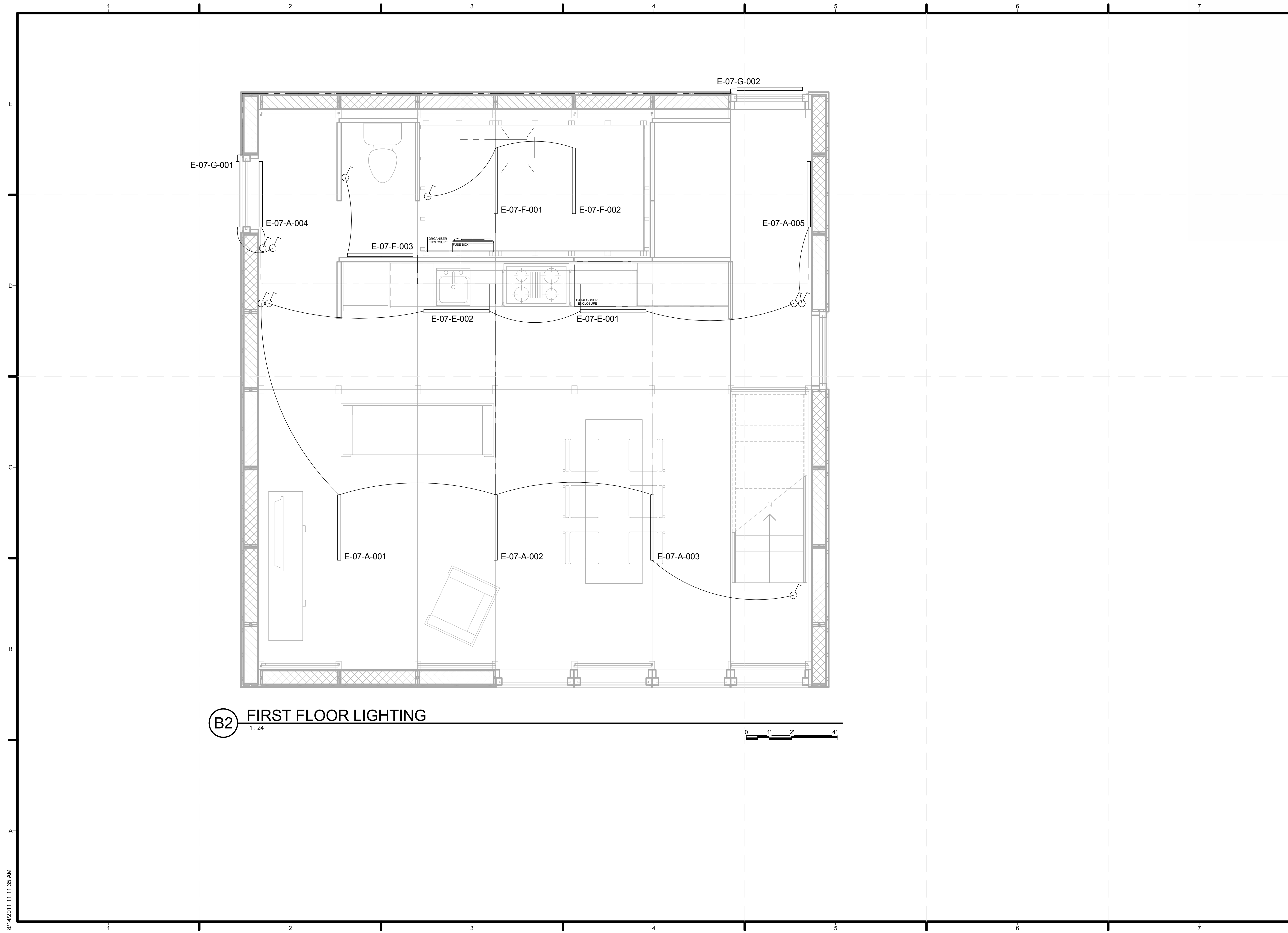
SHEET TITLE

PV WIRING PLAN

E-111

① ROOF PLAN WITH PV WIRING

8/14/2011 11:11:34 AM



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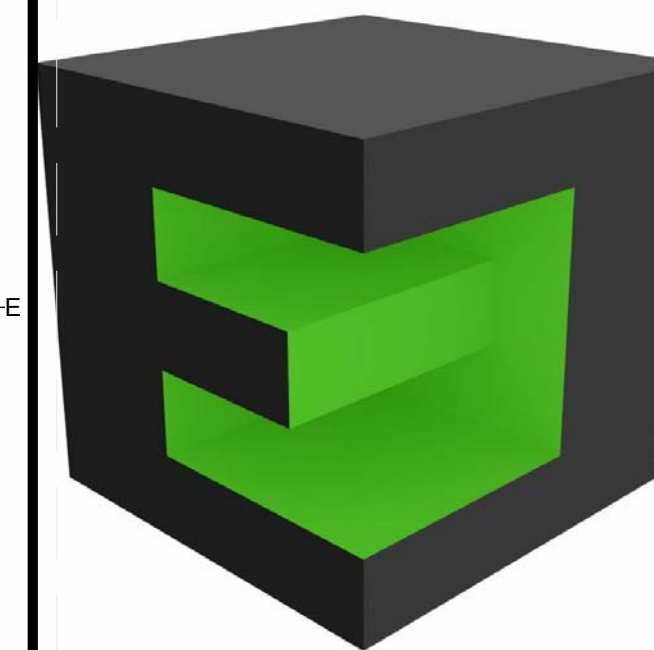


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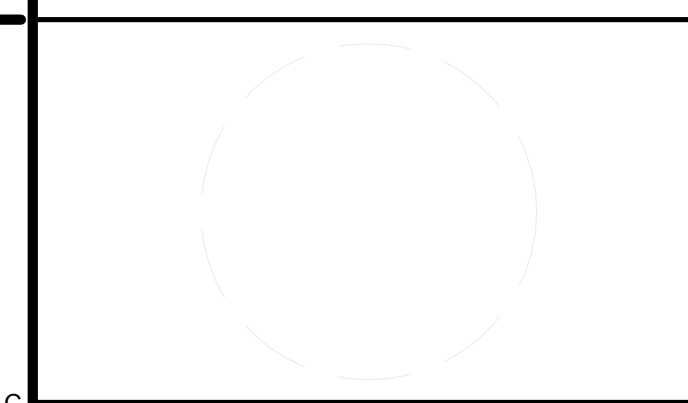
SHEET TITLE
 LIGHTING PLAN

E-121



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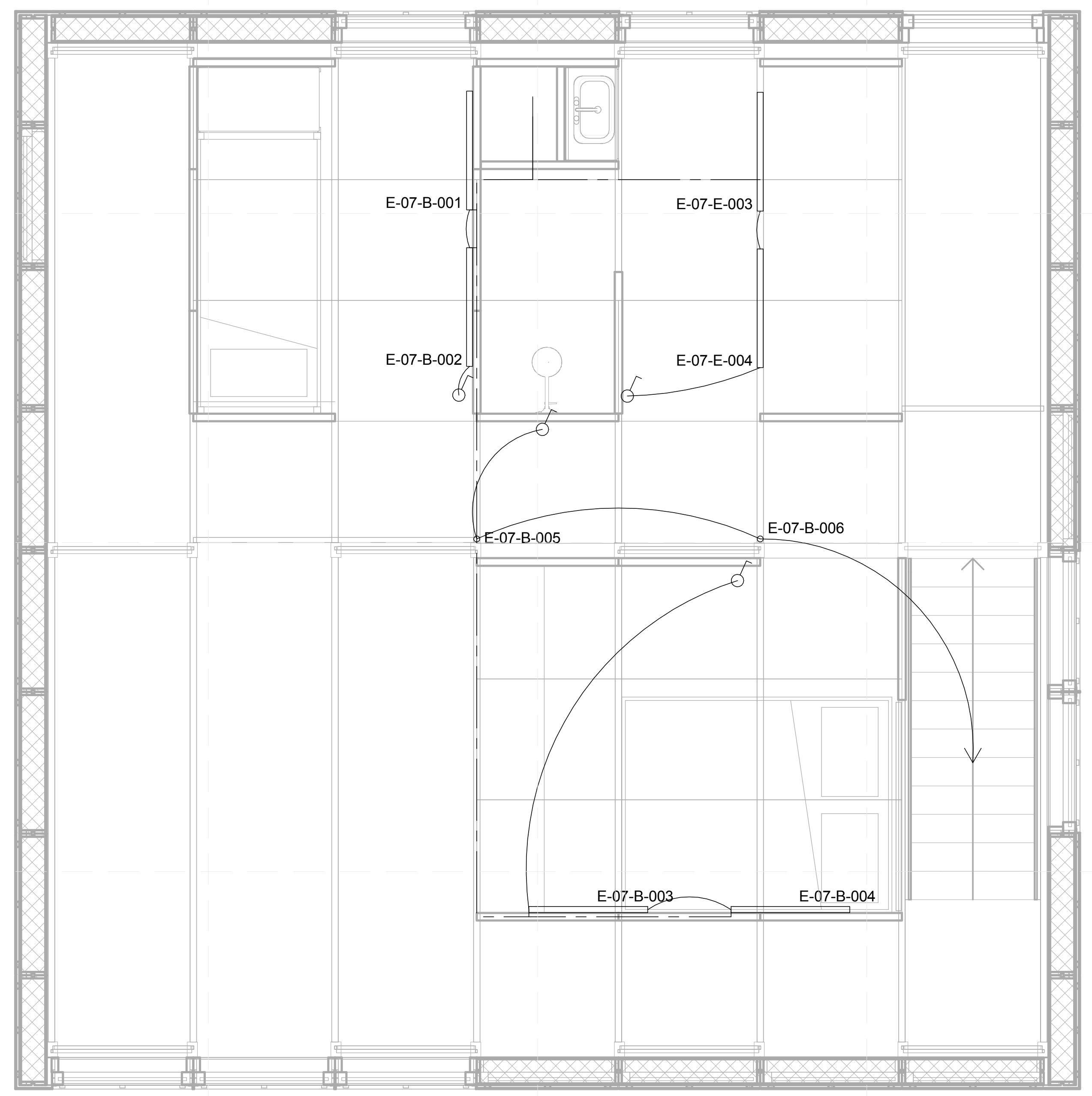
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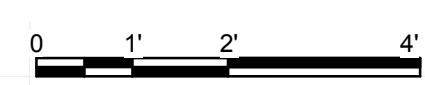
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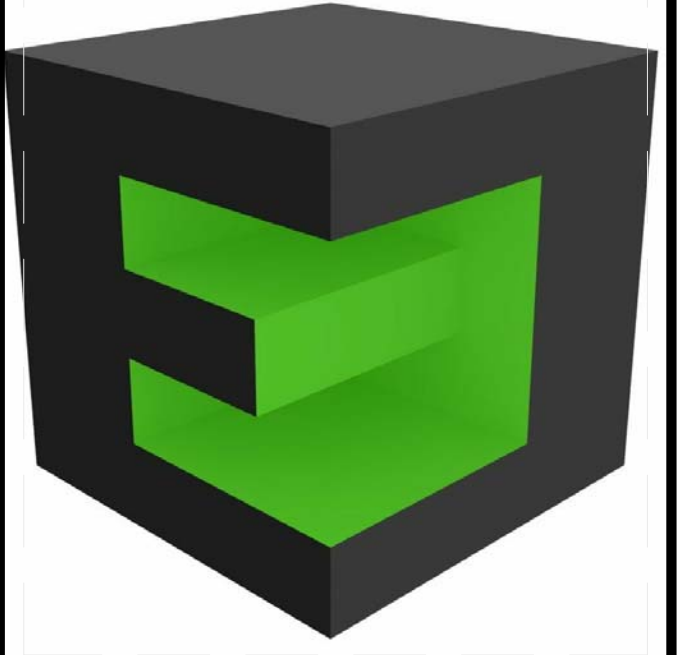
LIGHTING PLAN

E-122



B2 SECOND FLOOR LIGHTING
1:24



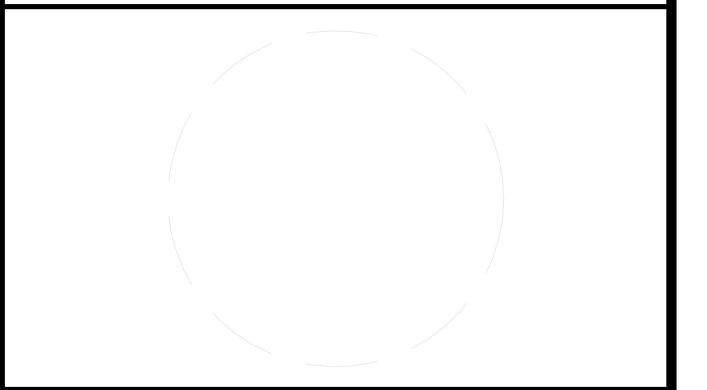


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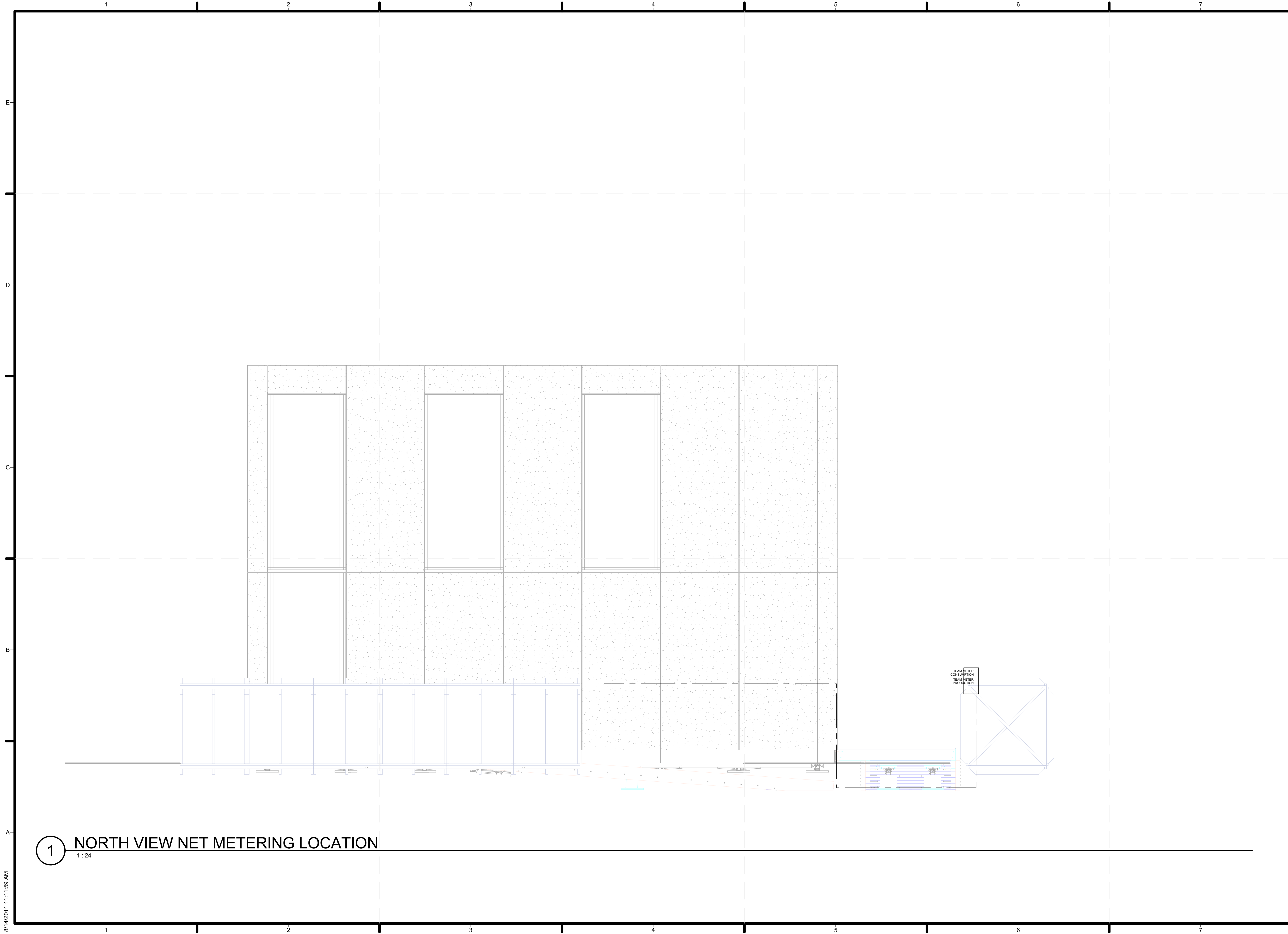


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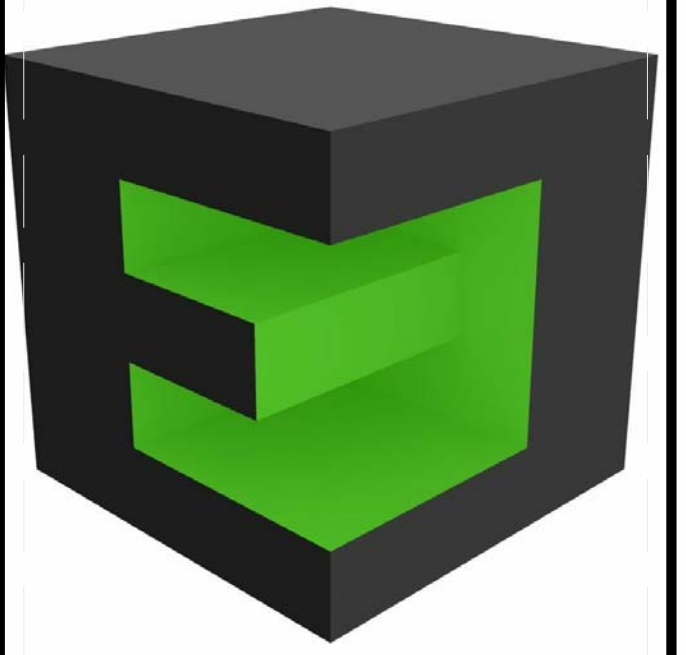
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SHEET TITLE
ELECTRICAL ELEVATIONS

E-201



1 NORTH VIEW NET METERING LOCATION
1:24



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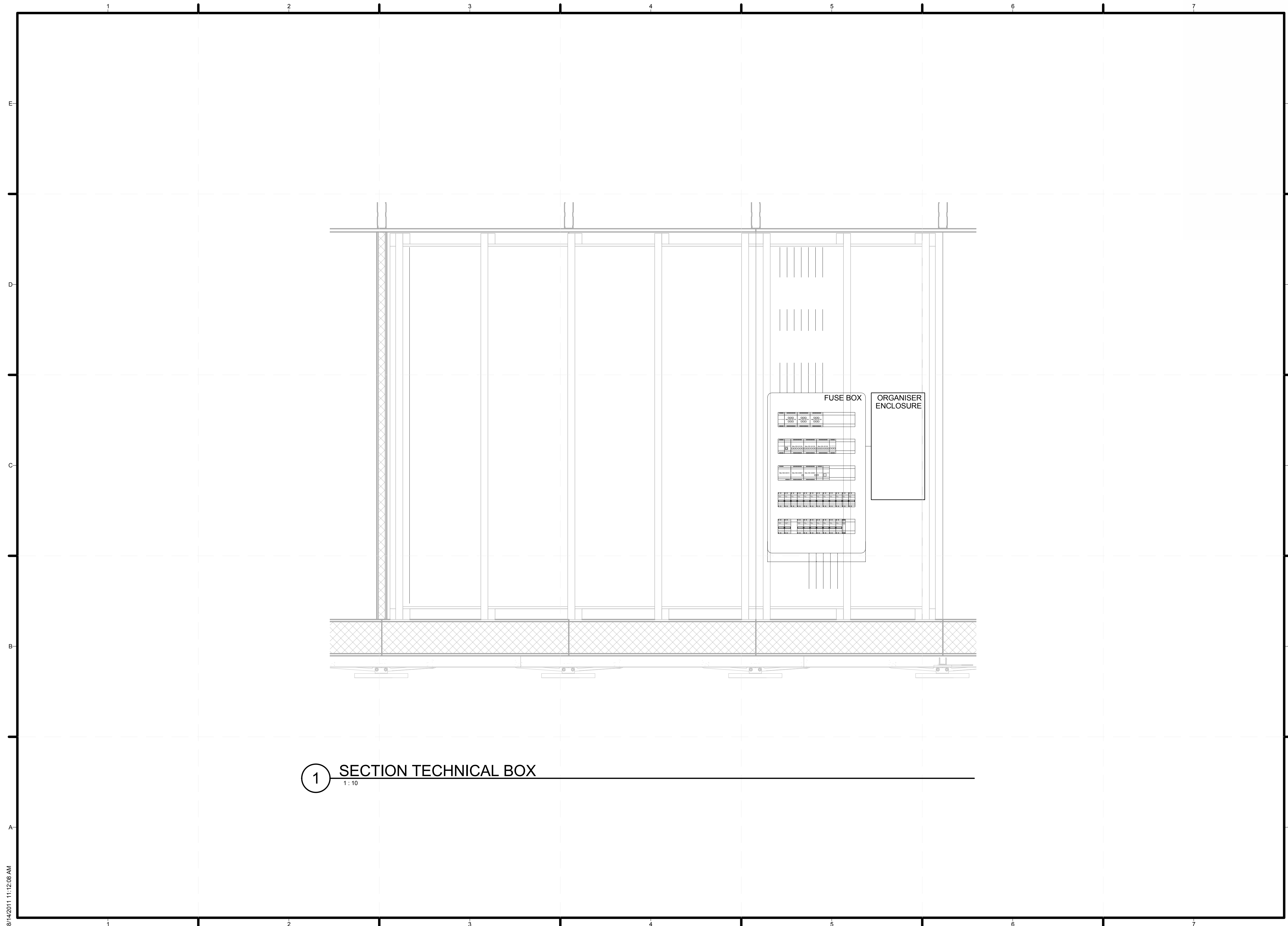
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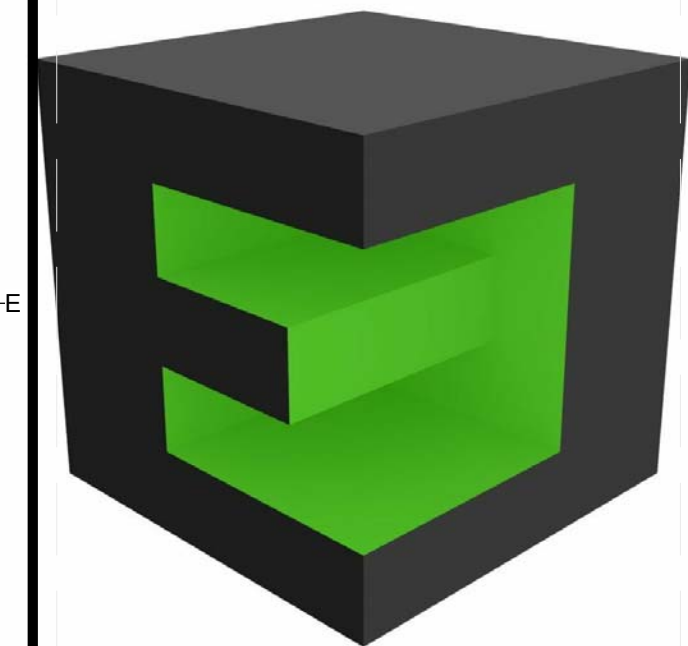
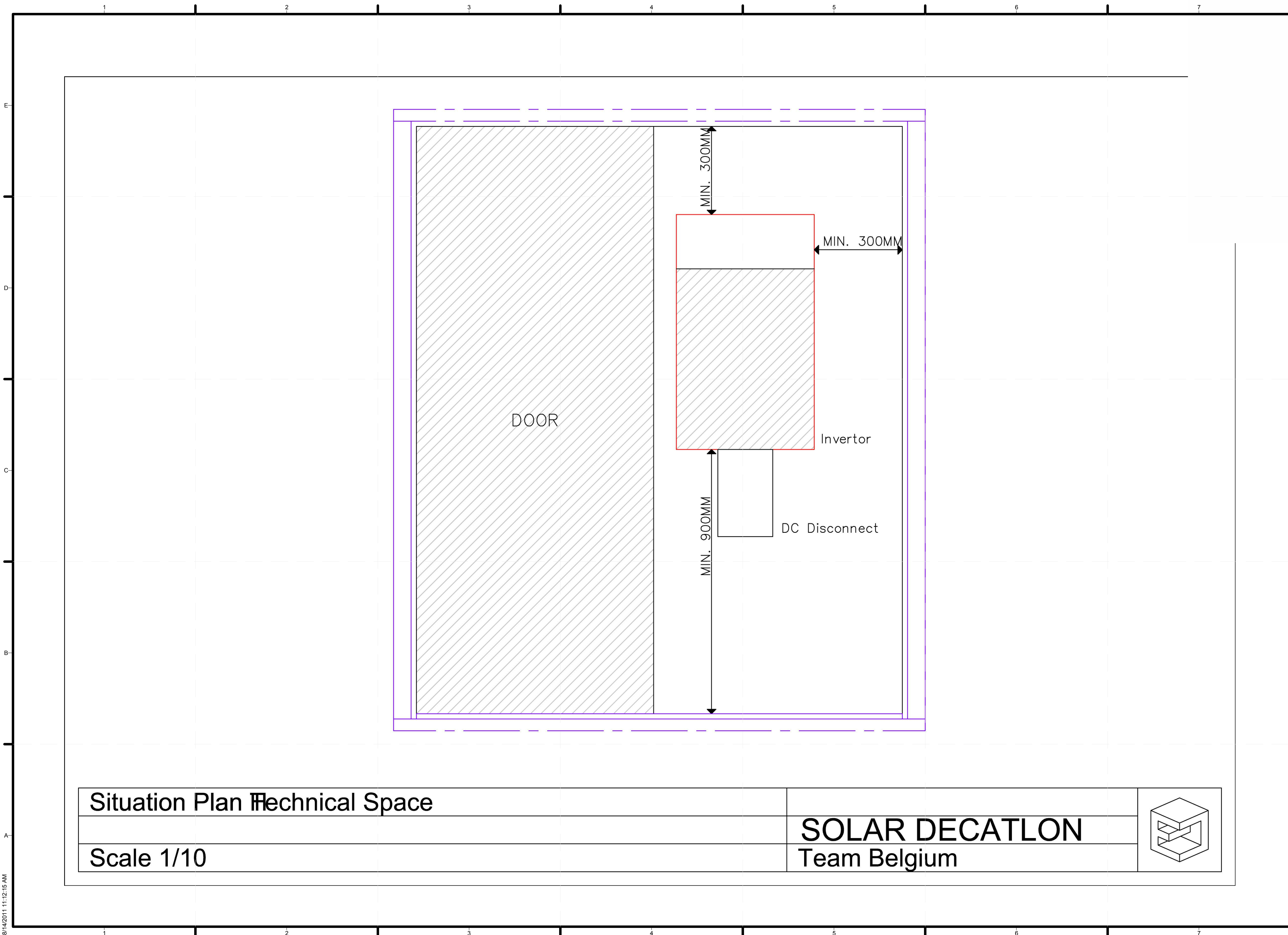
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SHEET TITLE

ELECTRICAL
ELEVATIONS

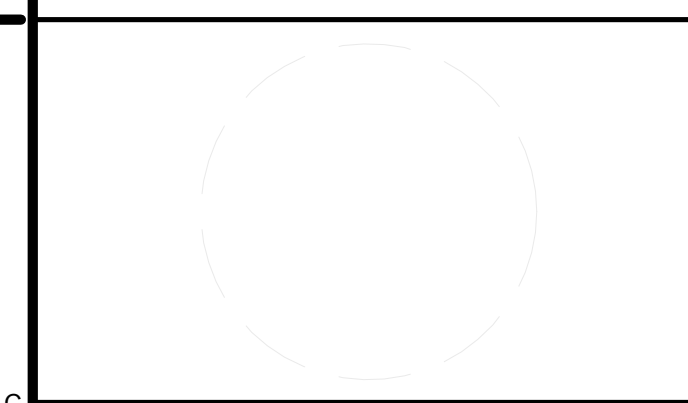
E-202





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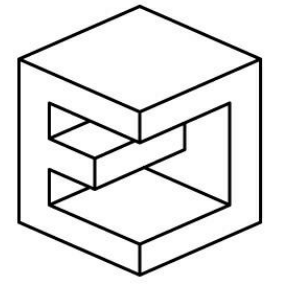
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**ELECTRICAL
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E-203

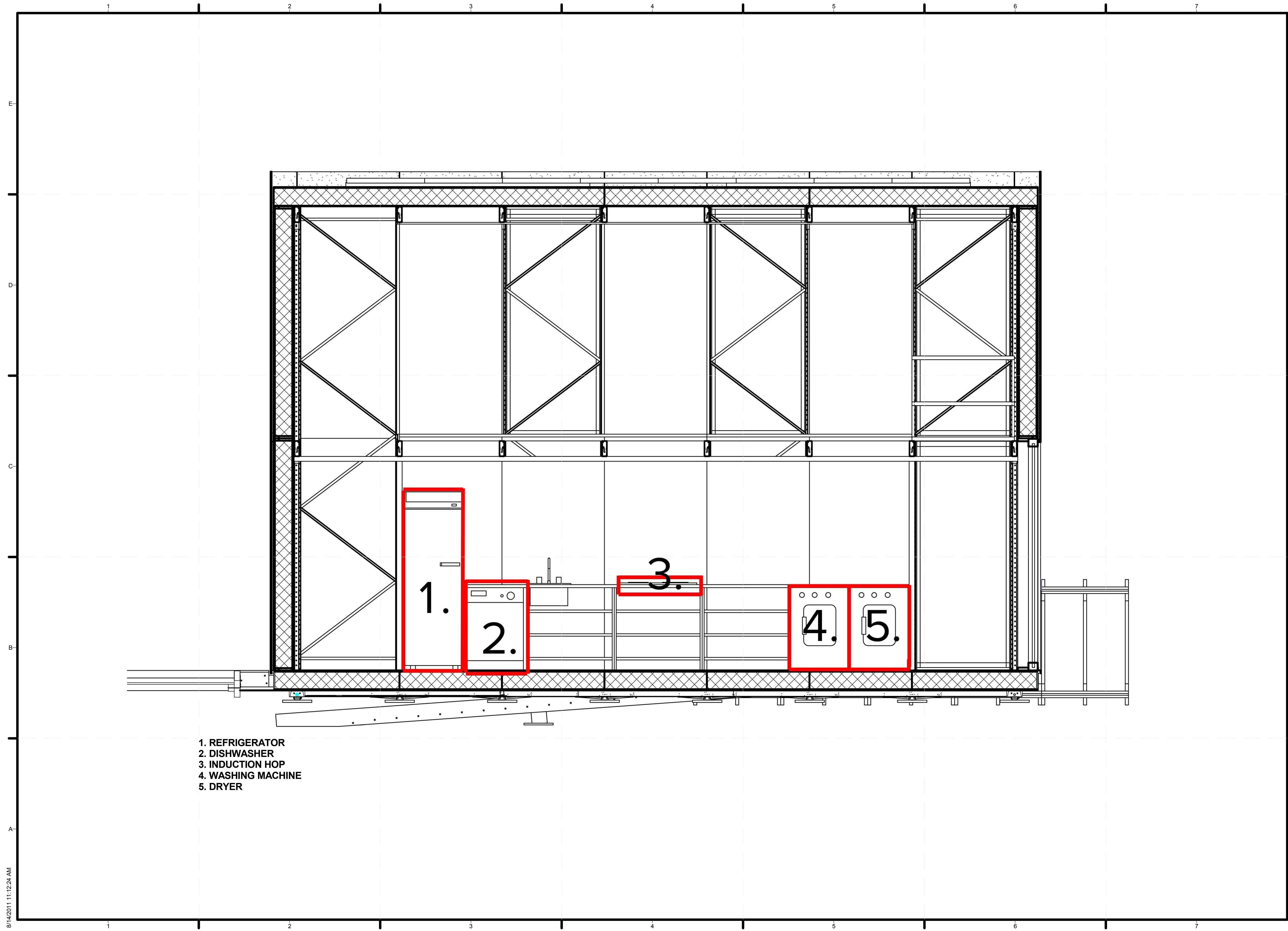
Situation Plan Technical Space

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 Team Belgium

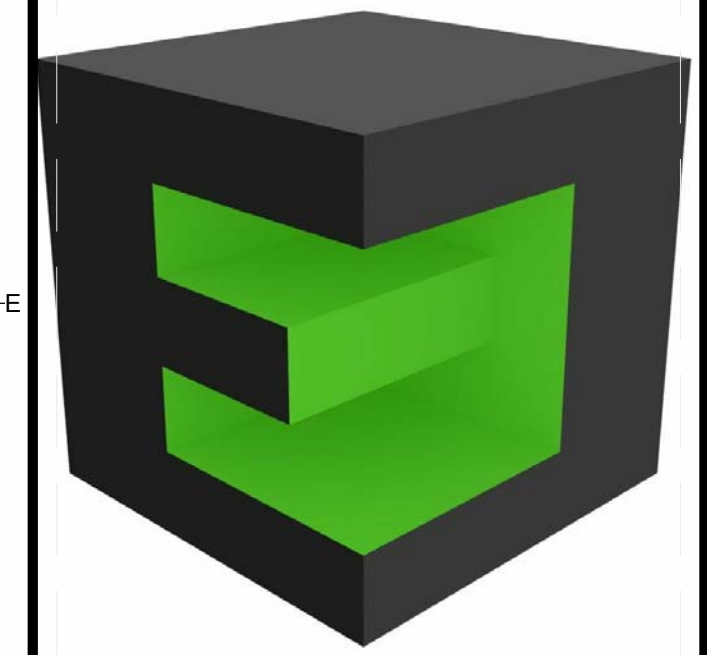


Scale 1/10

8/14/2011 11:12:15 AM



1. REFRIGERATOR
2. DISHWASHER
3. INDUCTION HOP
4. WASHING MACHINE
5. DRYER

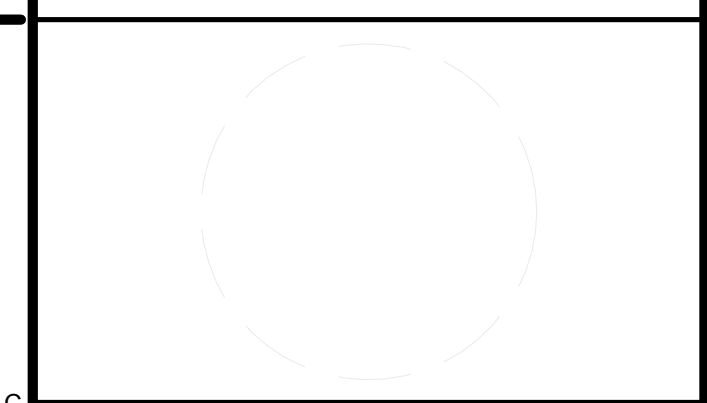


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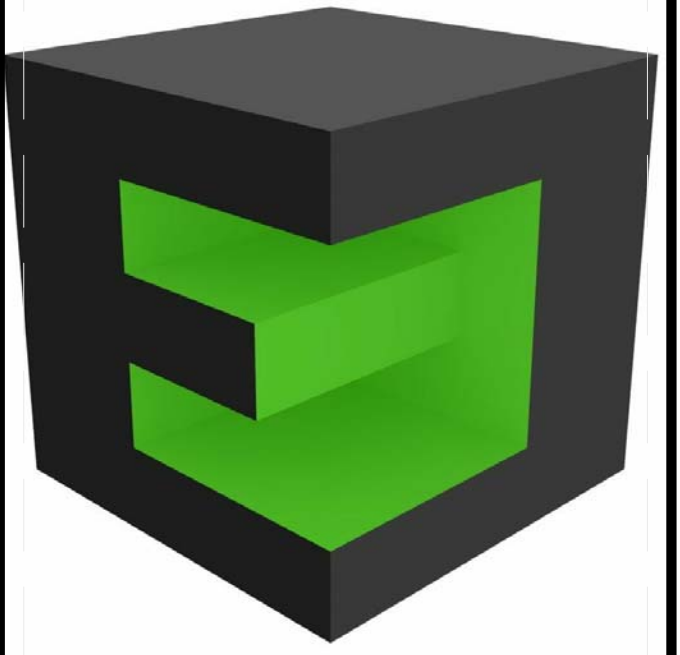
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SHEET TITLE
ELECTRICAL SECTION

E-204

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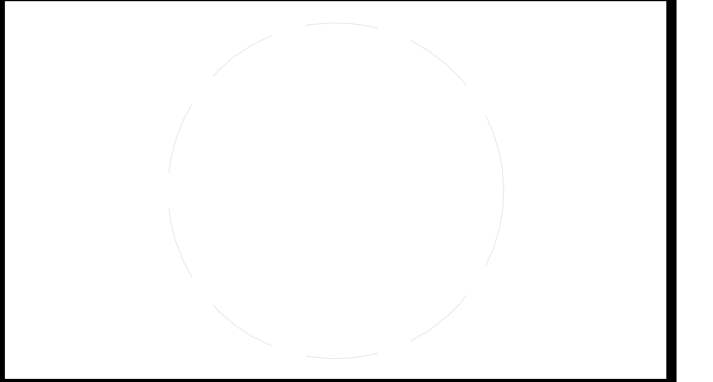


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ENGINEERING: THOMAS DELAMEILLIEURE, TIM GAVEL, TOM DEFRIJY, KEVIN D'HONDT, SAMUEL CUVELIERS, GLEN DE MEERSMAN

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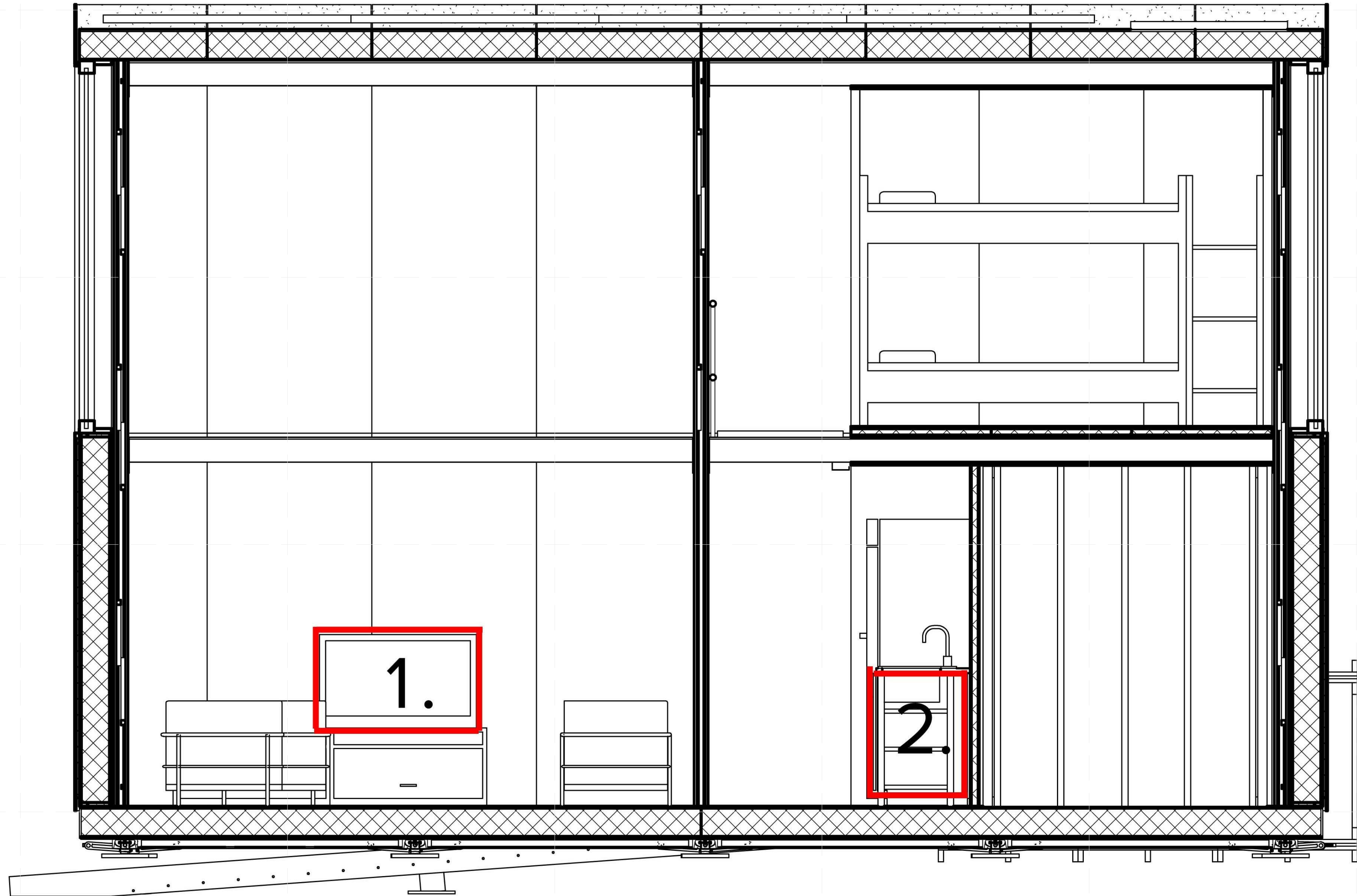


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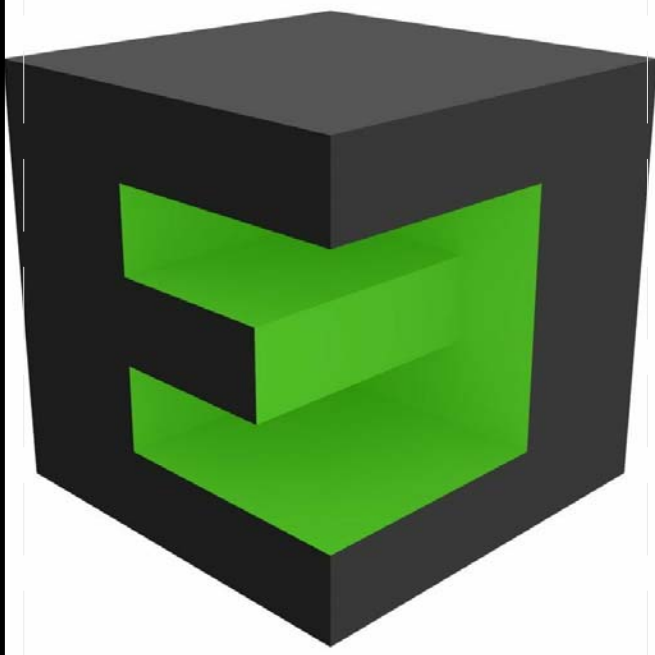
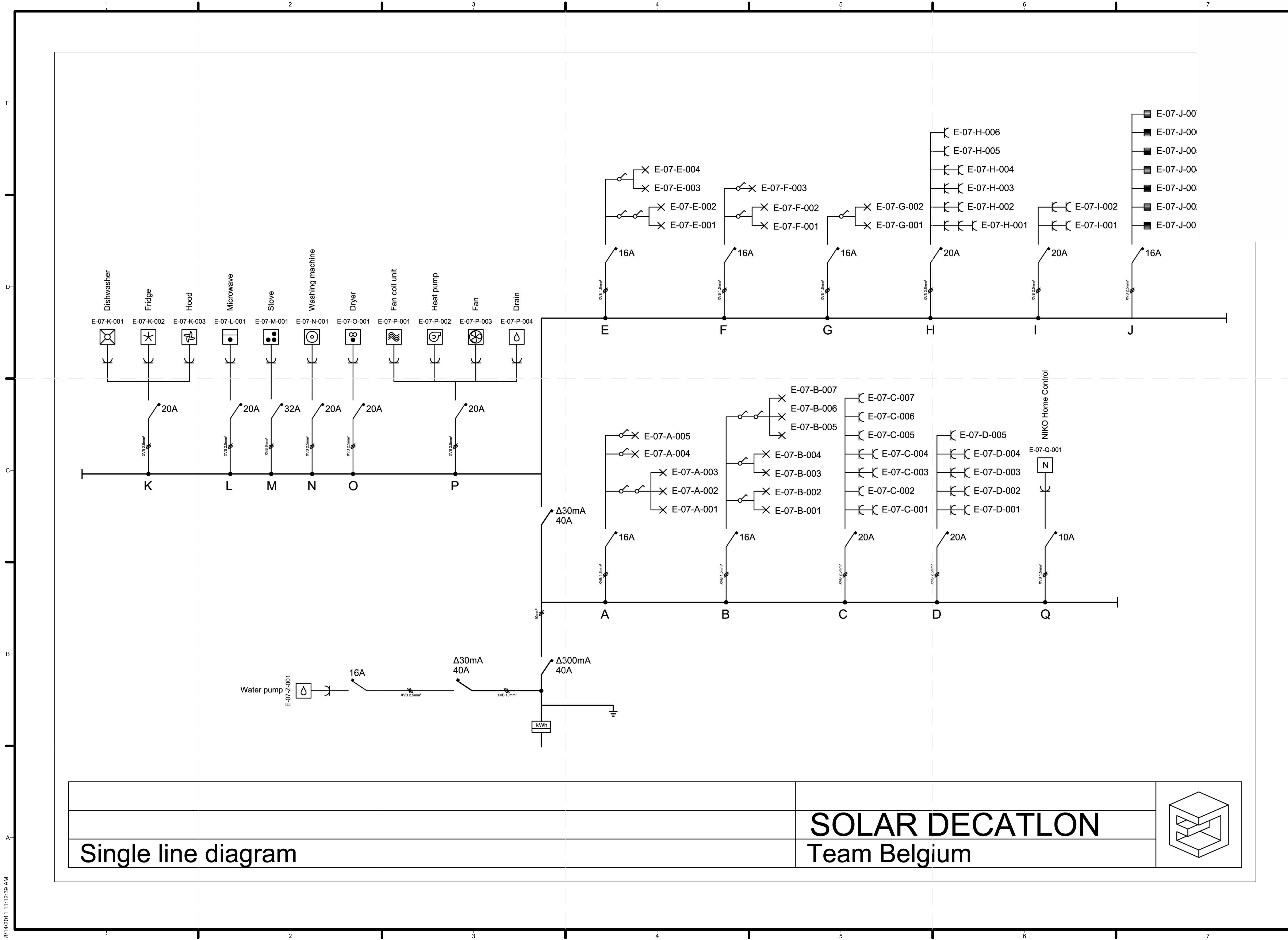
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SHEET TITLE
ELECTRICAL SECTION

E-205



1. HOME CINEMA SYSTEM
2. DISHWASHER

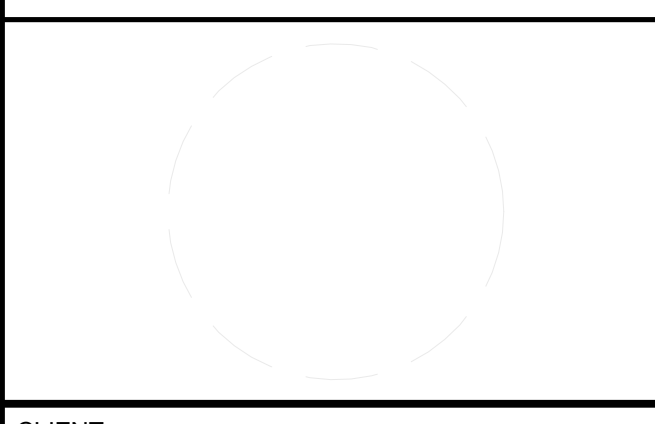


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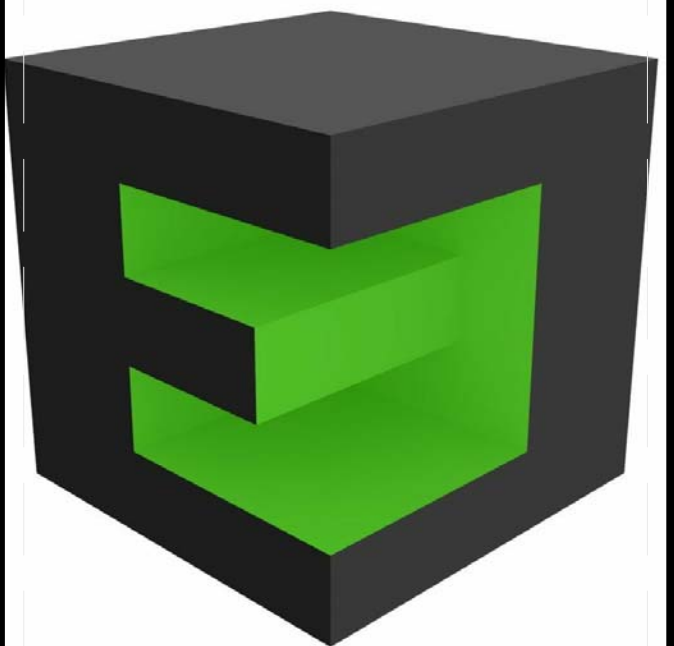
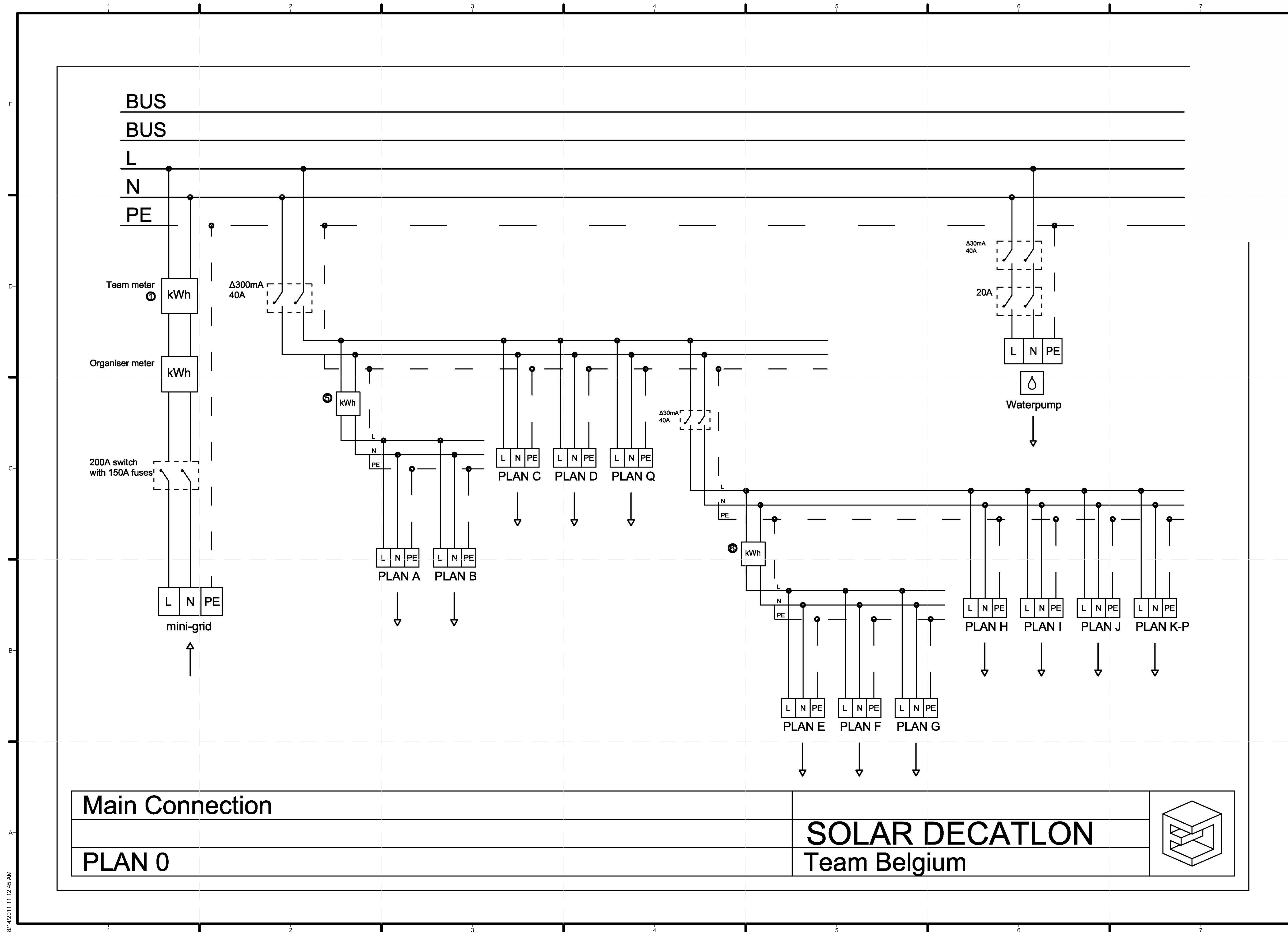
ONE-LINE DIAGRAM

E-601

Single line diagram

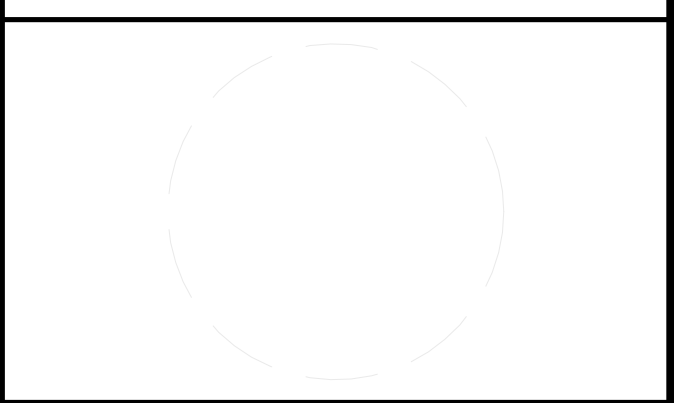
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Team Belgium



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SHEET TITLE
THREE-LINE DIAGRAM

E-602

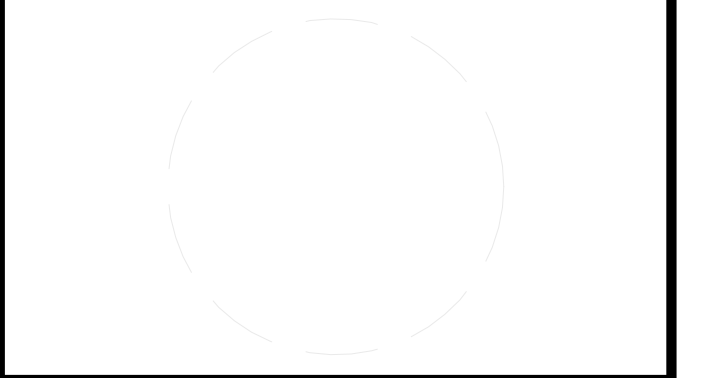


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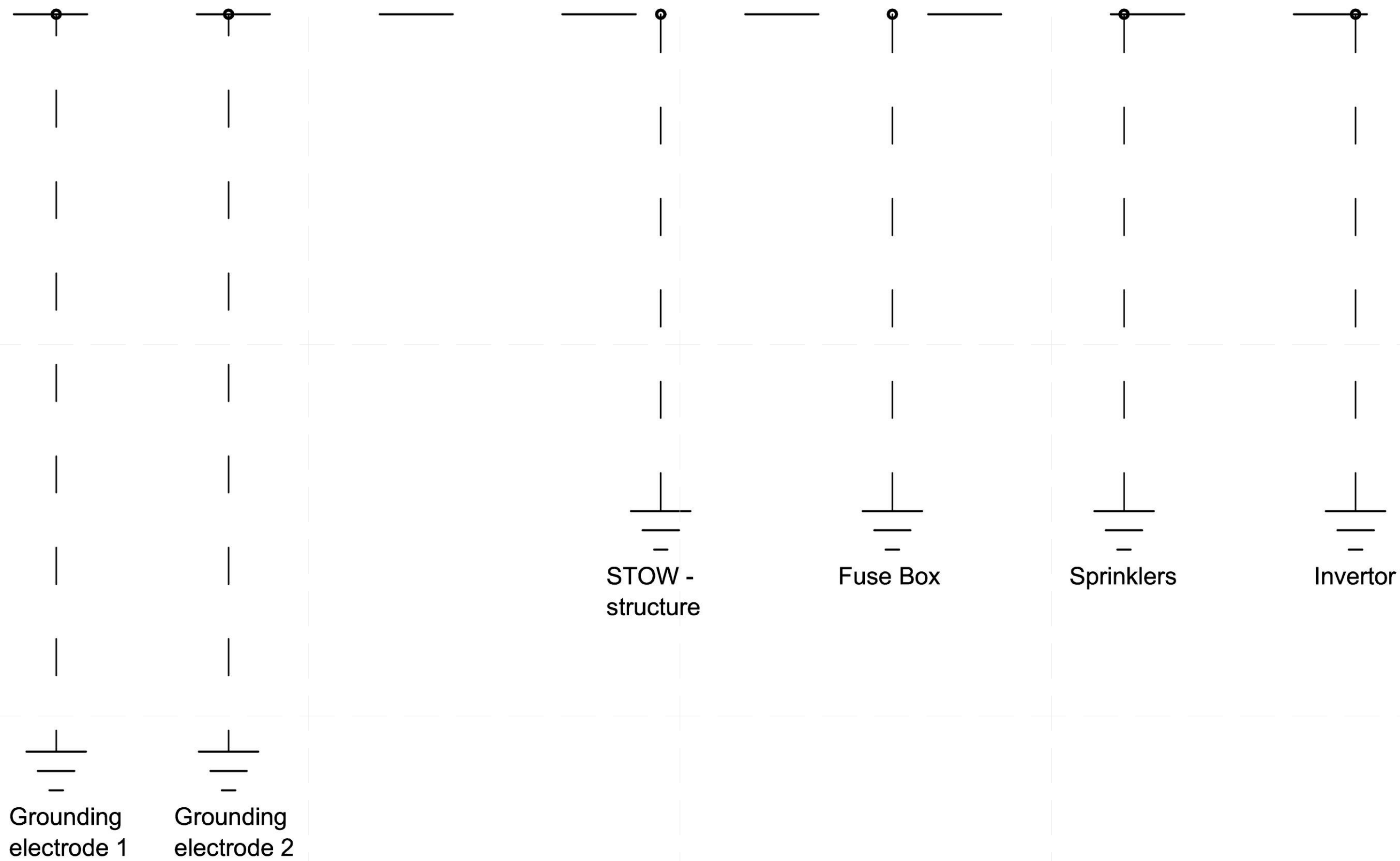
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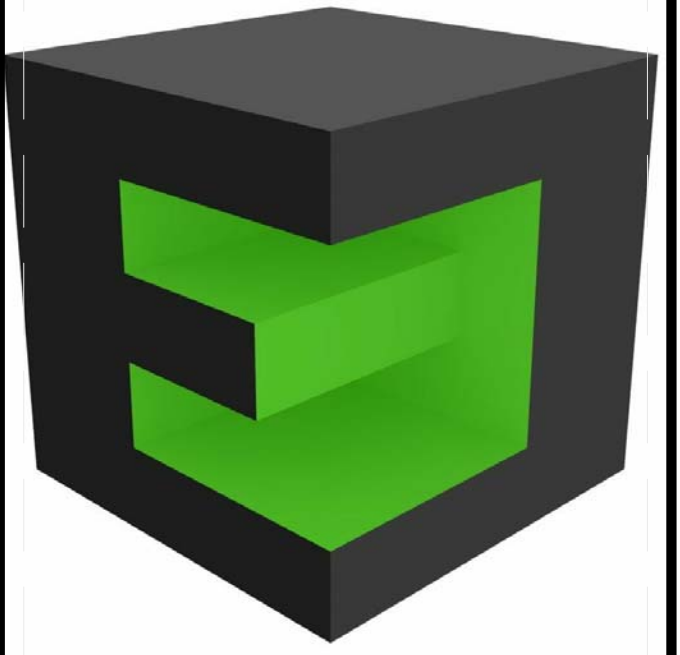
SHEET TITLE
THREE-LINE DIAGRAM

E-603

BUS
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GROUNDING	SOLAR DECATHLON	
PLAN 0		

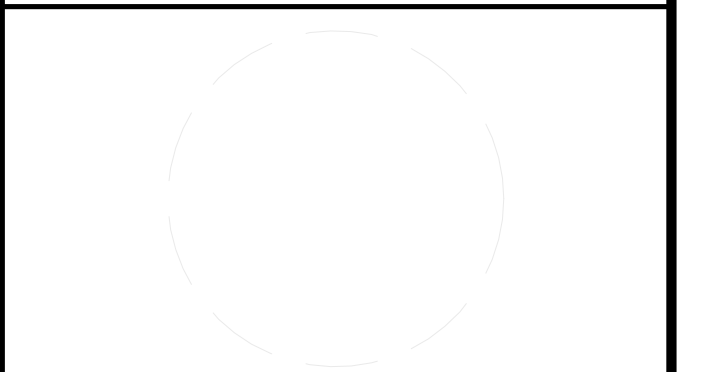


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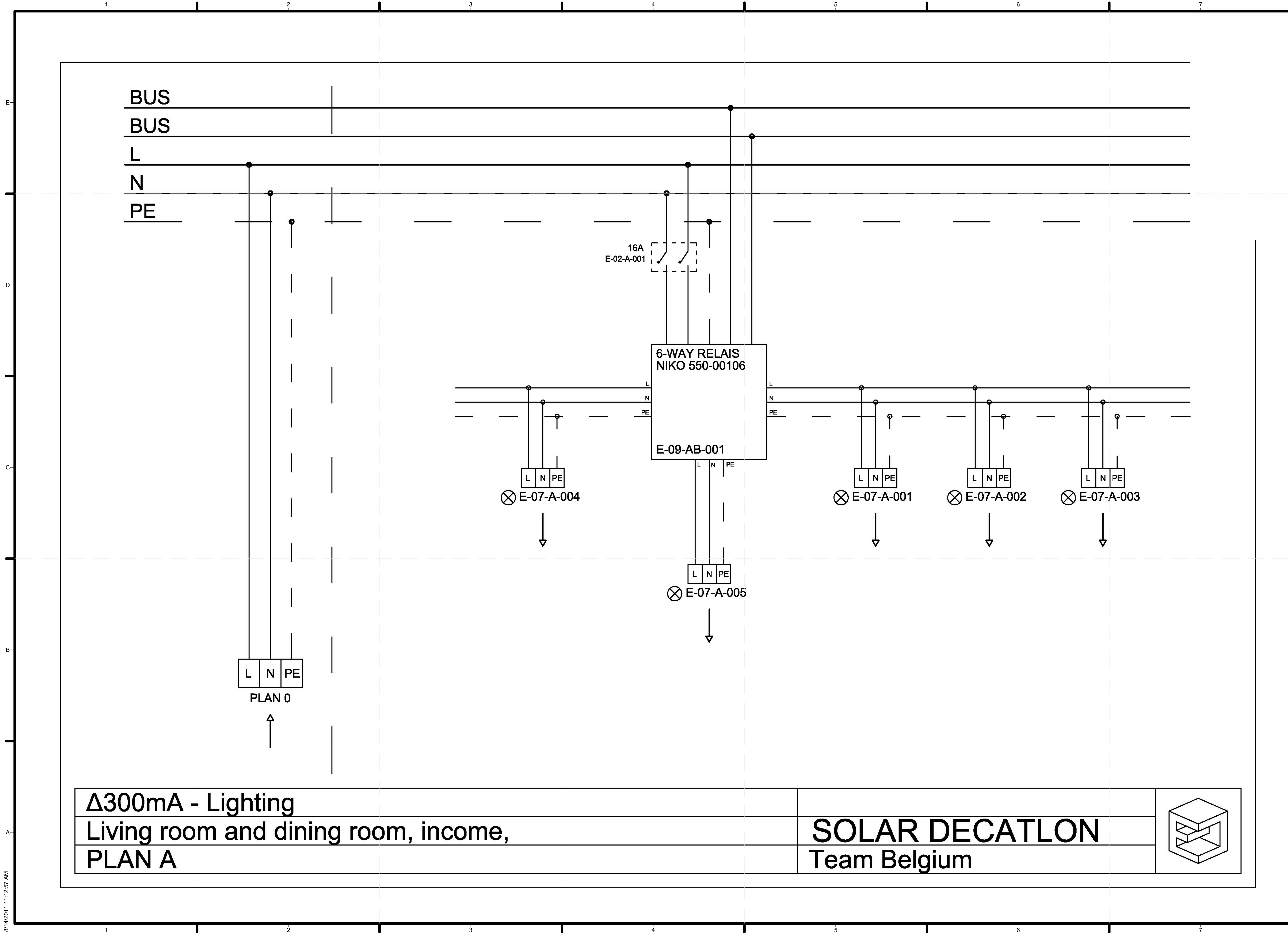


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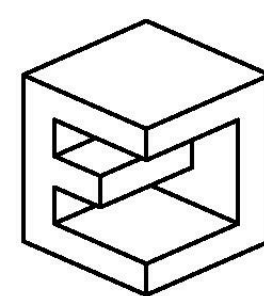
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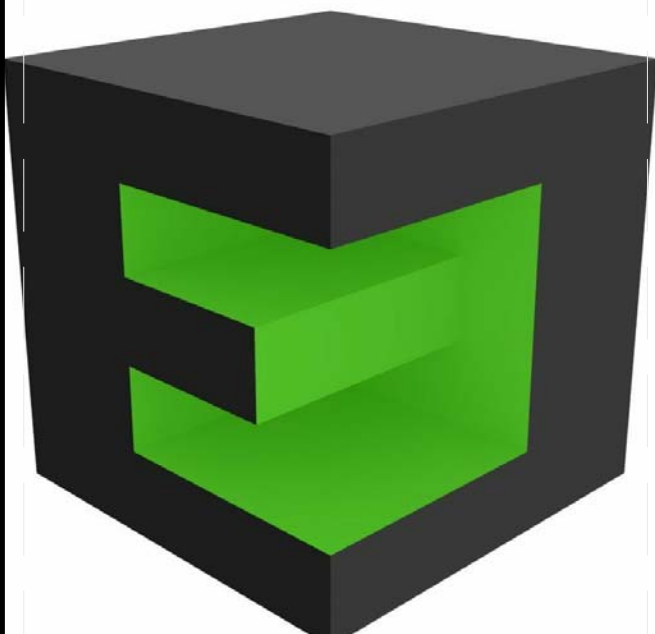
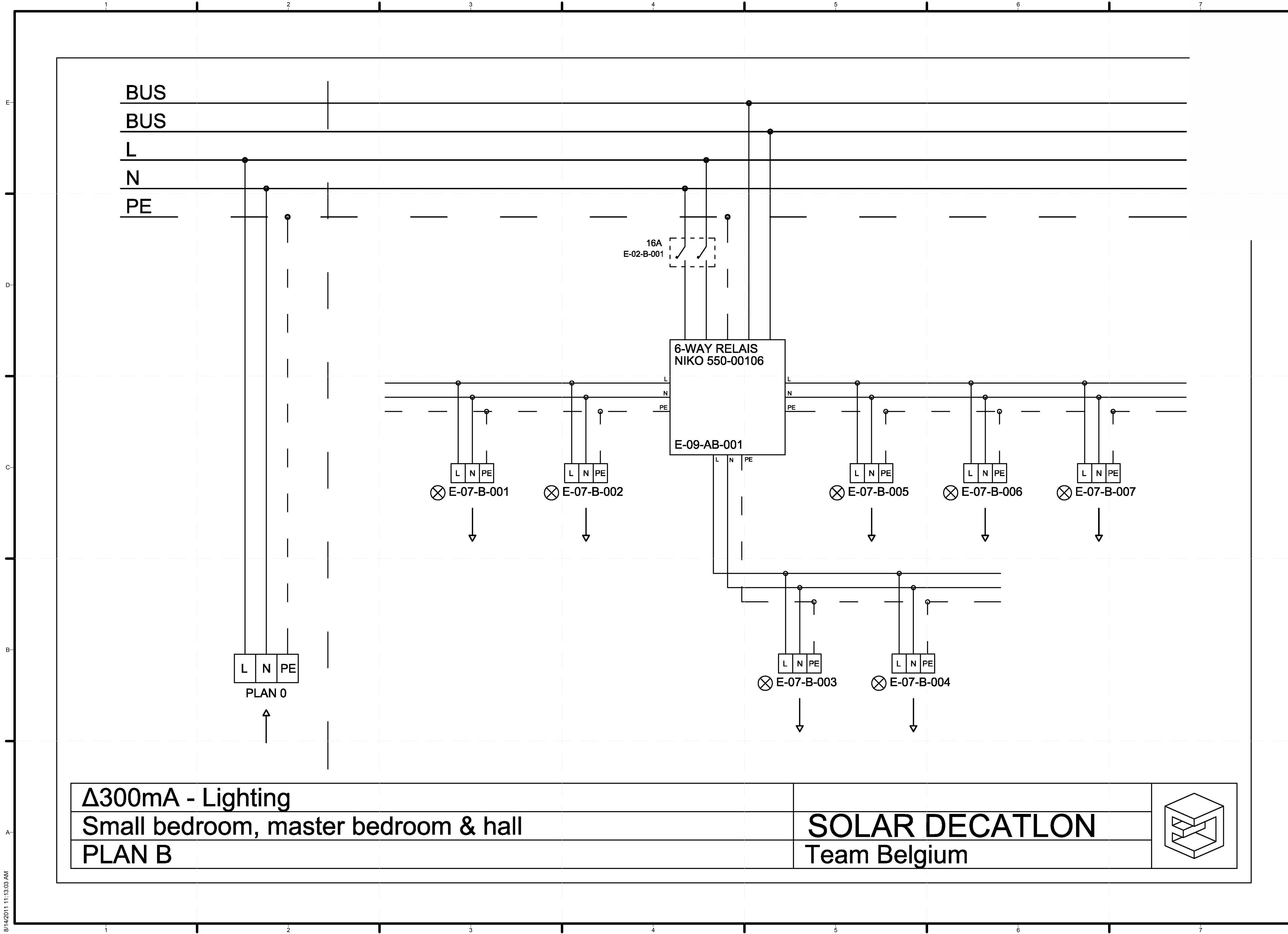
E-604



$\Delta 300\text{mA}$ - Lighting
 Living room and dining room, income,
 PLAN A

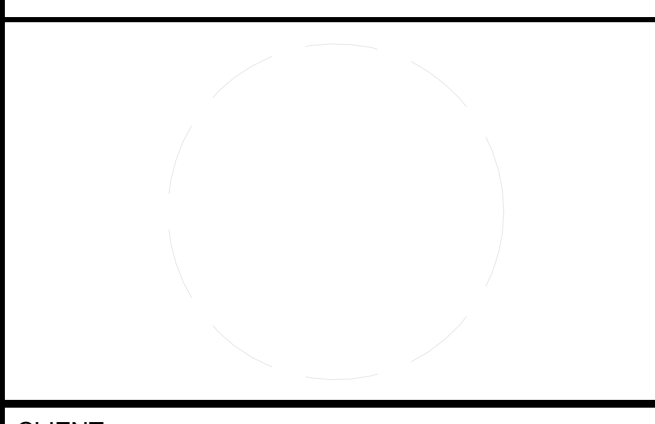
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 Team Belgium





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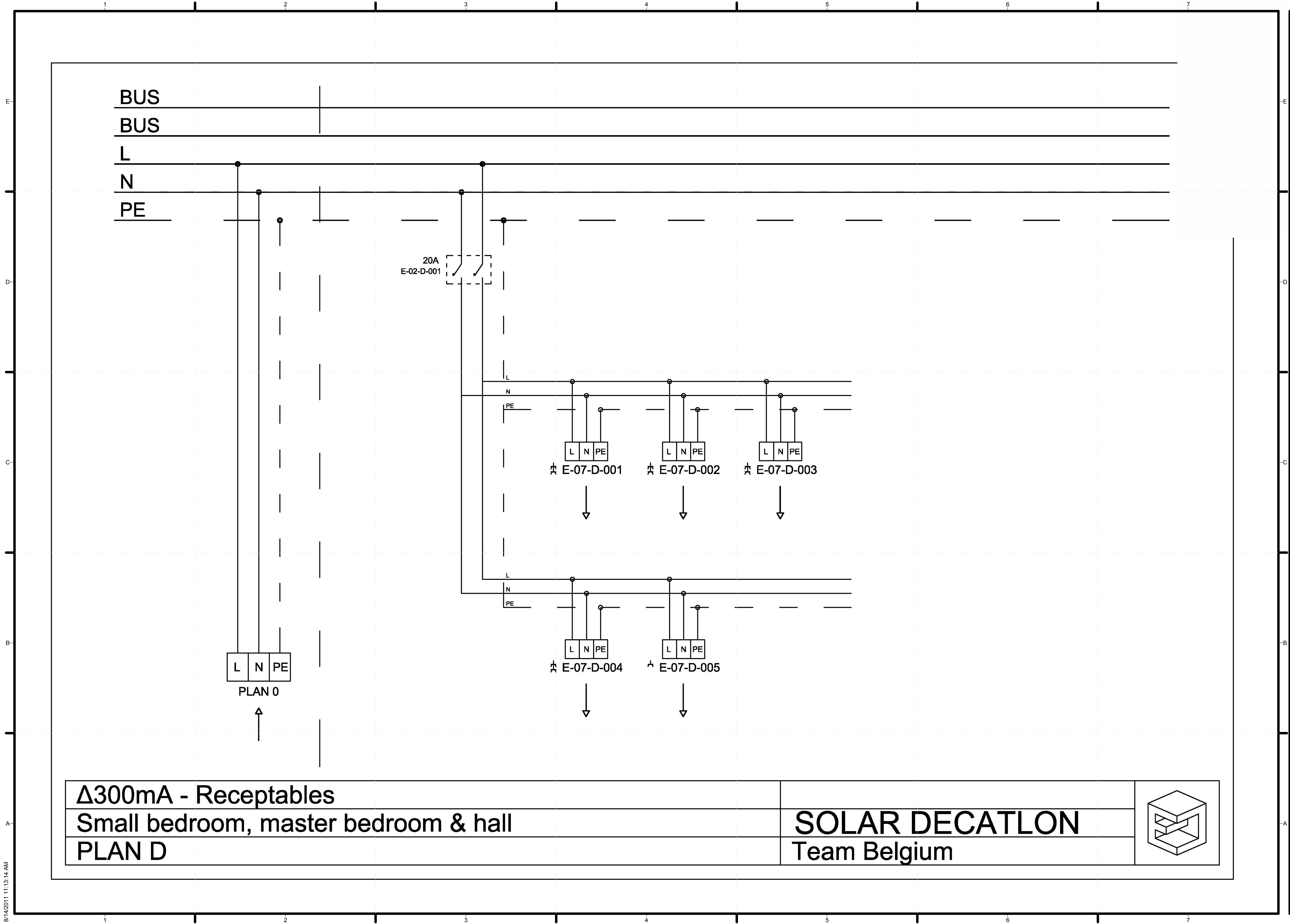
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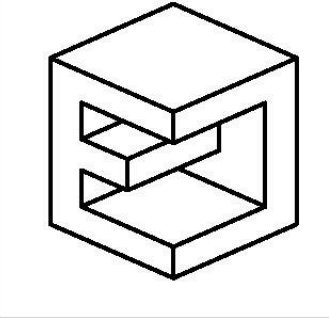
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SHEET TITLE
THREE-LINE DIAGRAM

E-605

Δ300mA - Lighting	SOLAR DECATHLON Team Belgium	
Small bedroom, master bedroom & hall		
PLAN B		

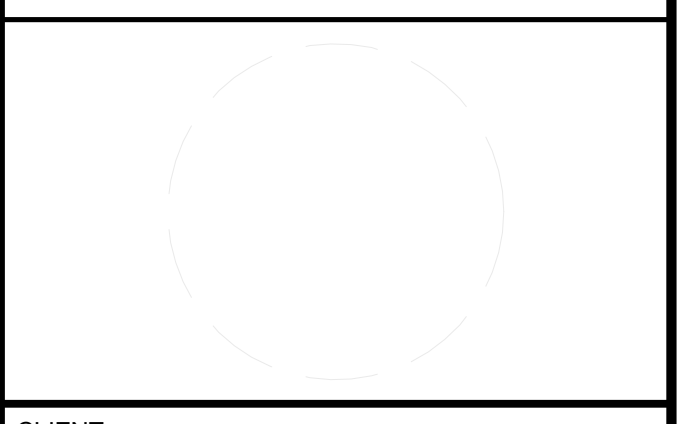


Δ300mA - Receptables Small bedroom, master bedroom & hall PLAN D		SOLAR DECATHLON Team Belgium 
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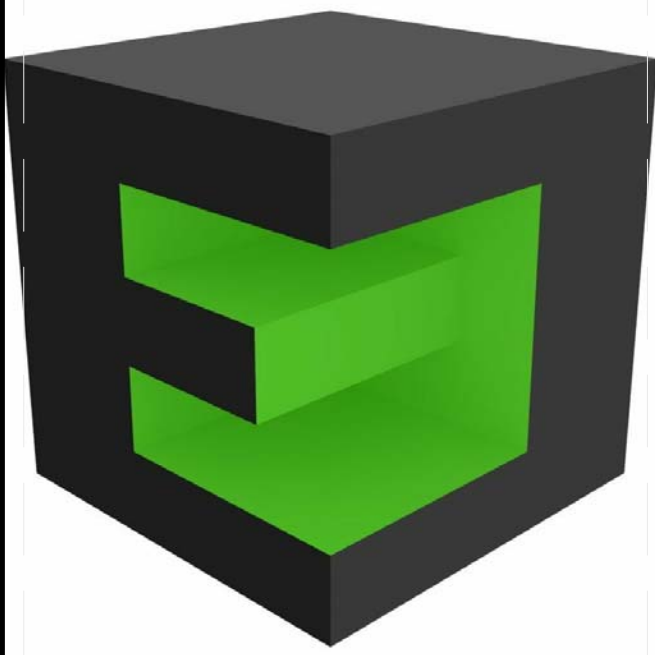
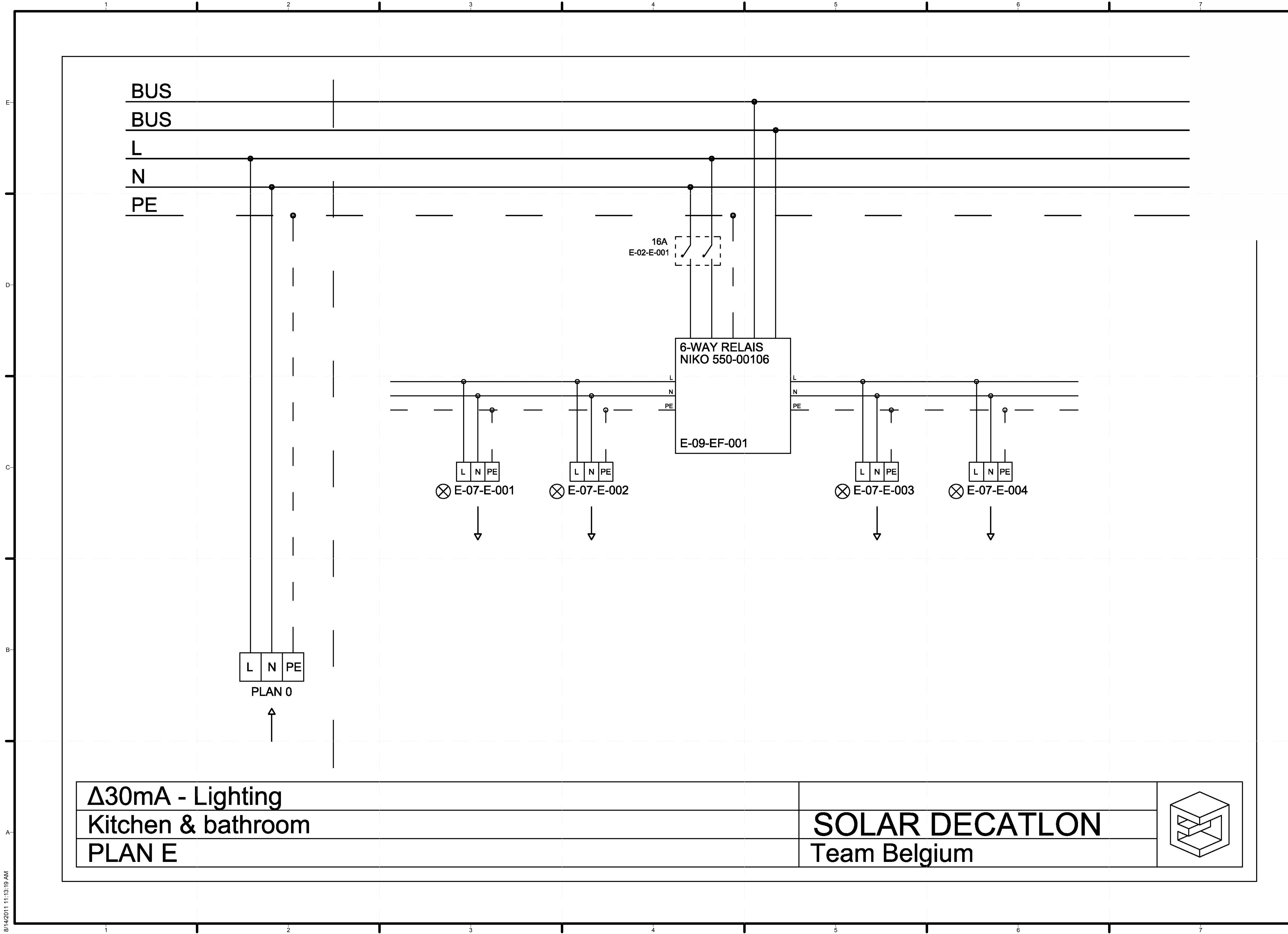


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SHEET TITLE
THREE-LINE DIAGRAM

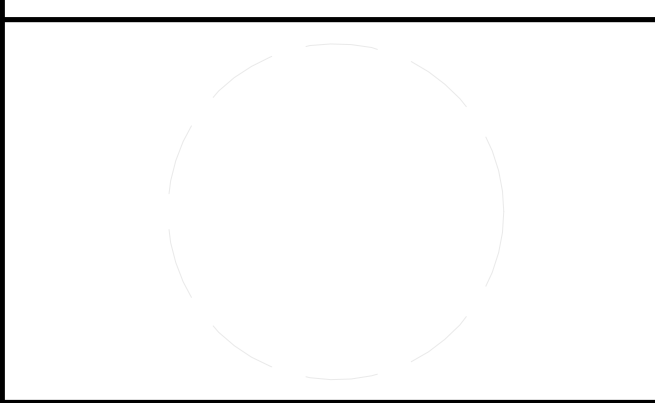
E-607

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SHEET TITLE
 THREE-LINE DIAGRAM

E-608

<p>$\Delta 30\text{mA}$ - Lighting Kitchen & bathroom PLAN E</p>	<p>SOLAR DECATHLON Team Belgium</p>	
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BUS
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6-WAY RELAIS
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E-09-EF-001

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⊗ E-07-F-001
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⊗ E-07-F-003
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L N PE
PLAN 0
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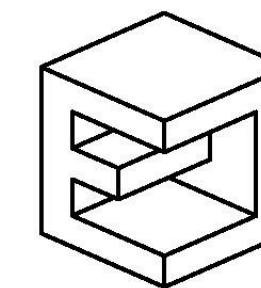
Δ30mA - Lighting

Downstairs - Toilet & Technical space

PLAN F

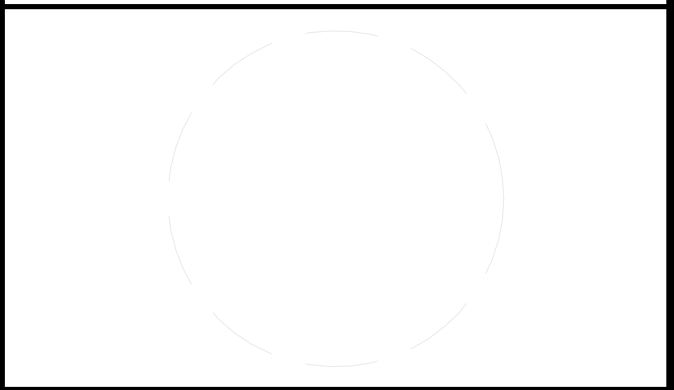
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Team Belgium



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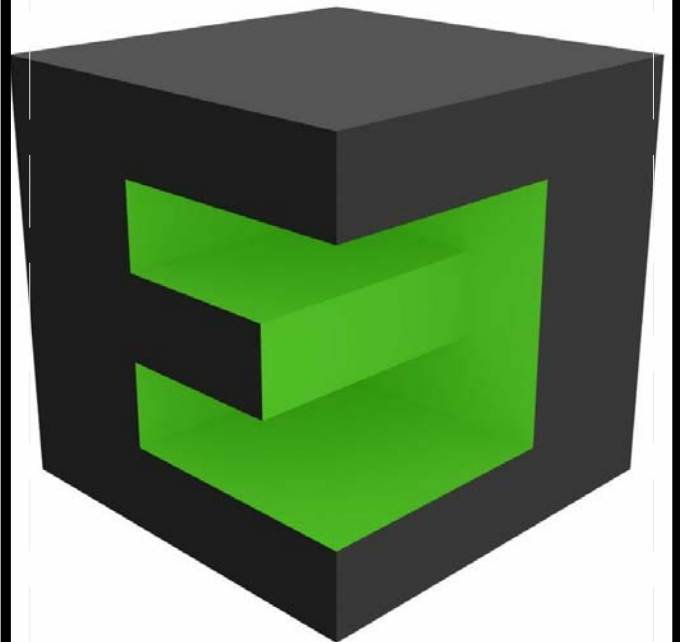
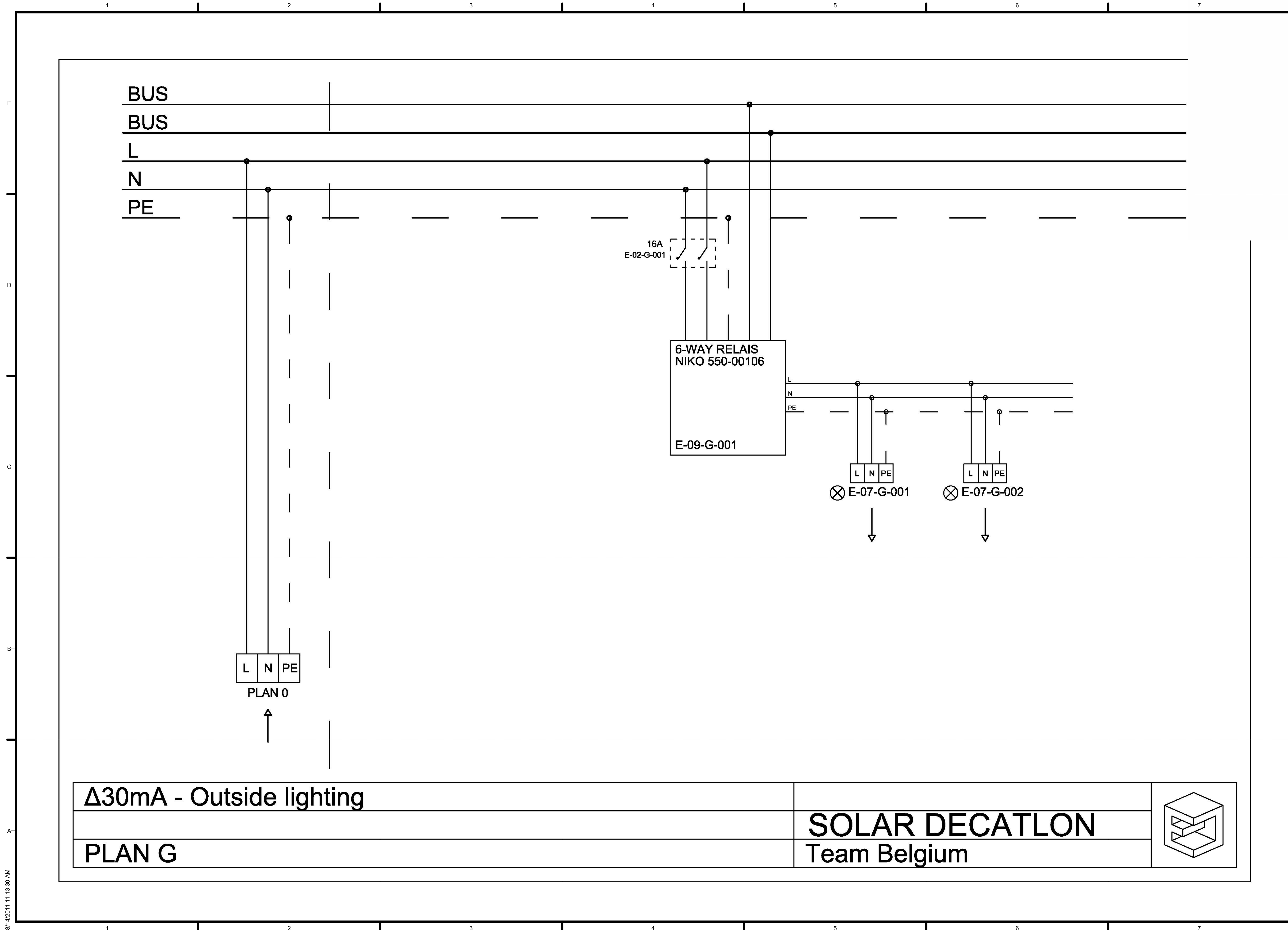


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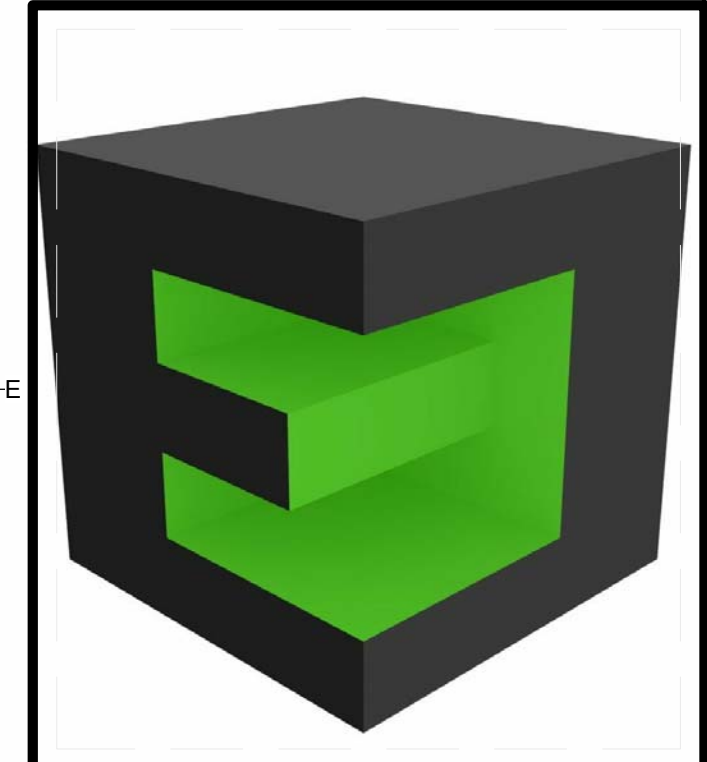
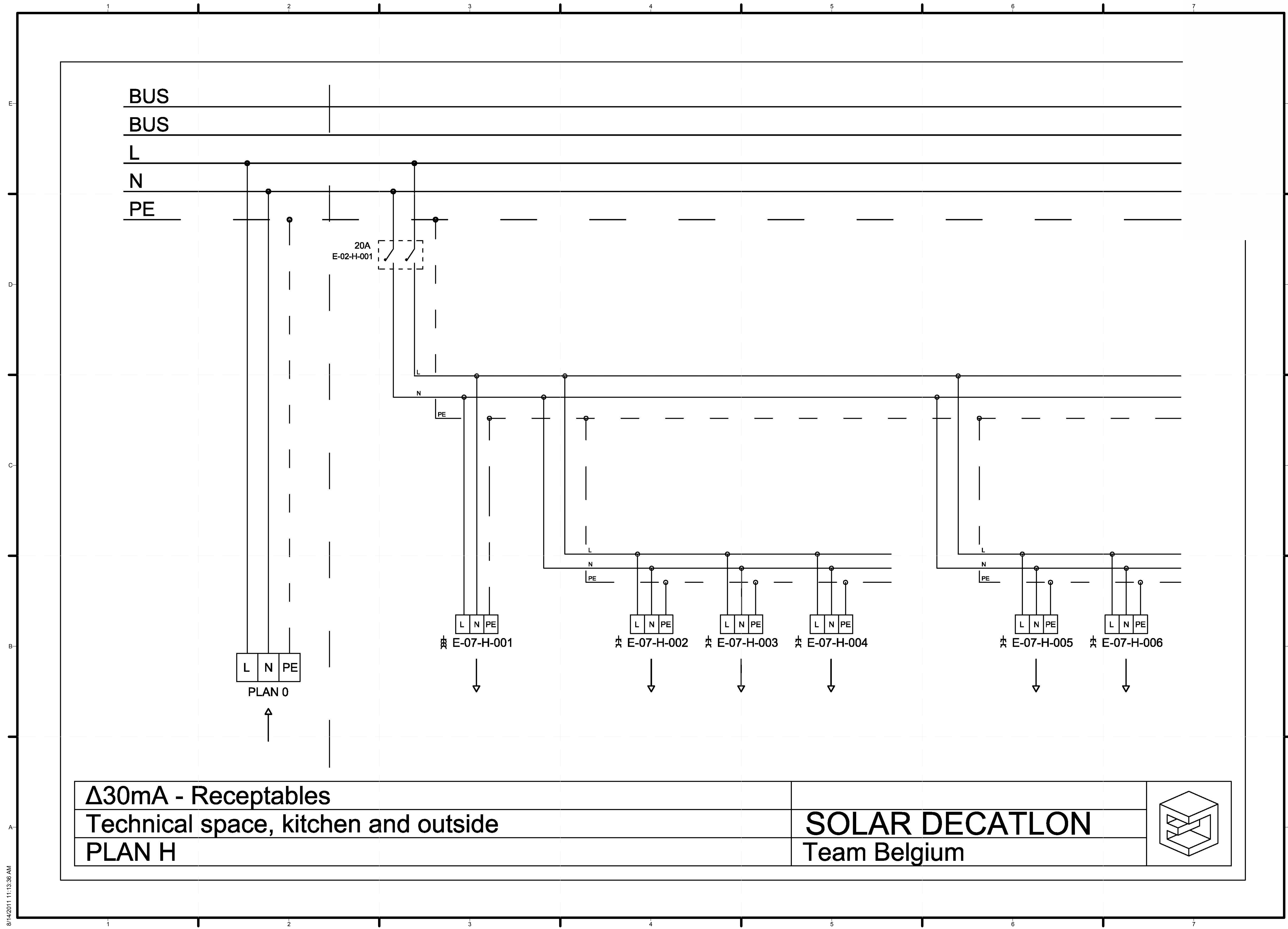
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SHEET TITLE
THREE-LINE DIAGRAM

Δ30mA - Outside lighting	SOLAR DECATHLON	
	Team Belgium	
PLAN G		

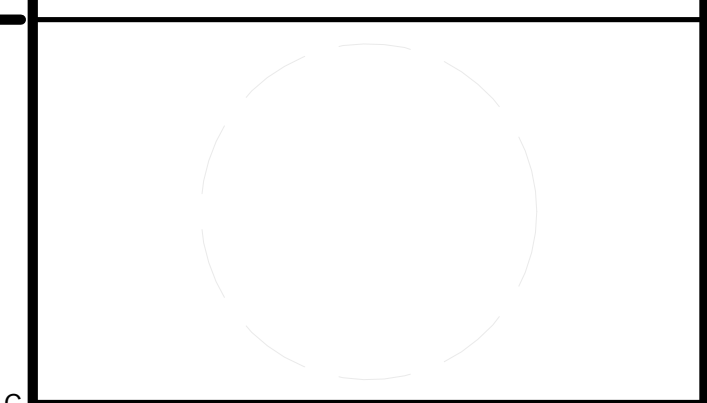
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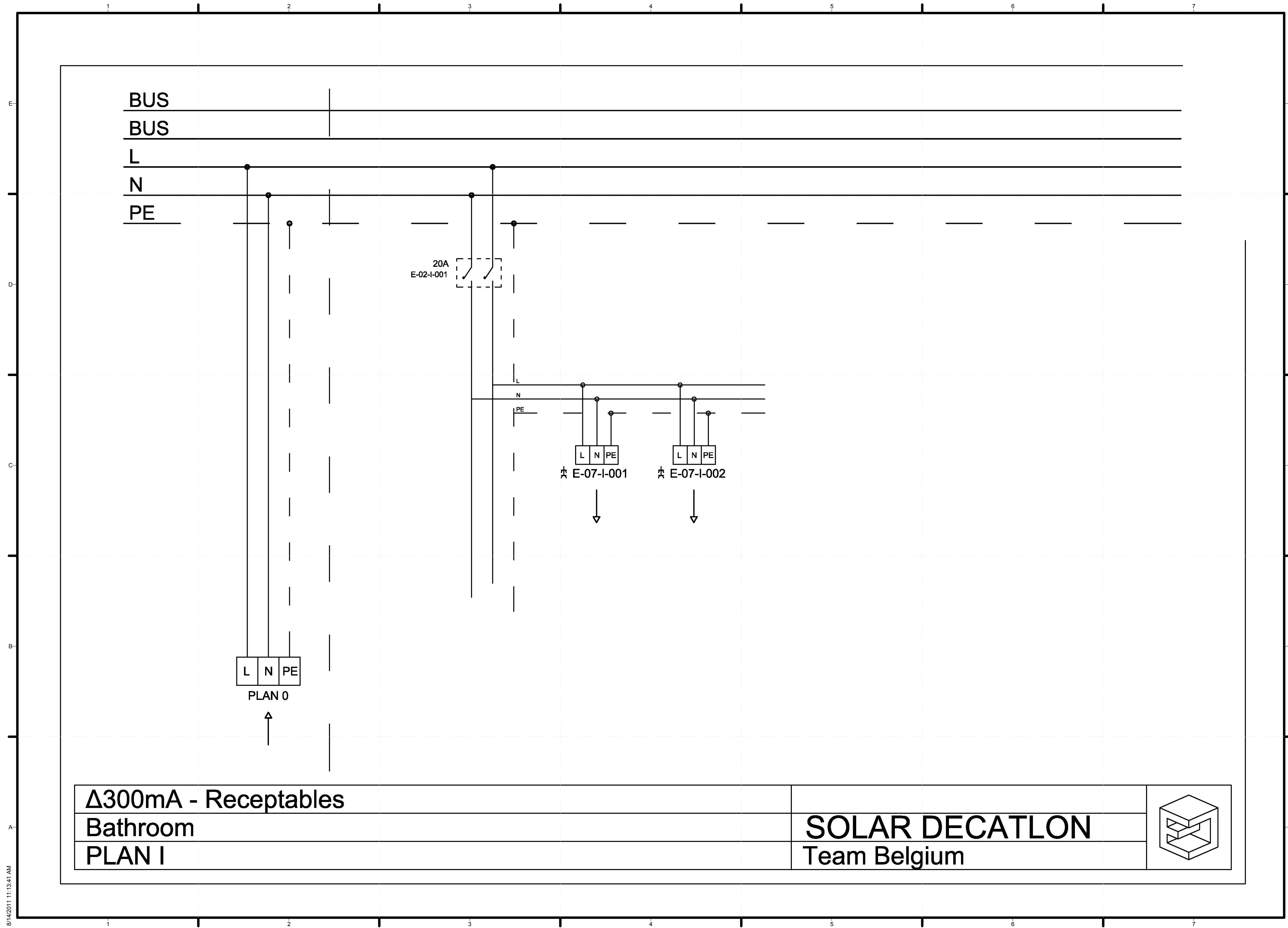
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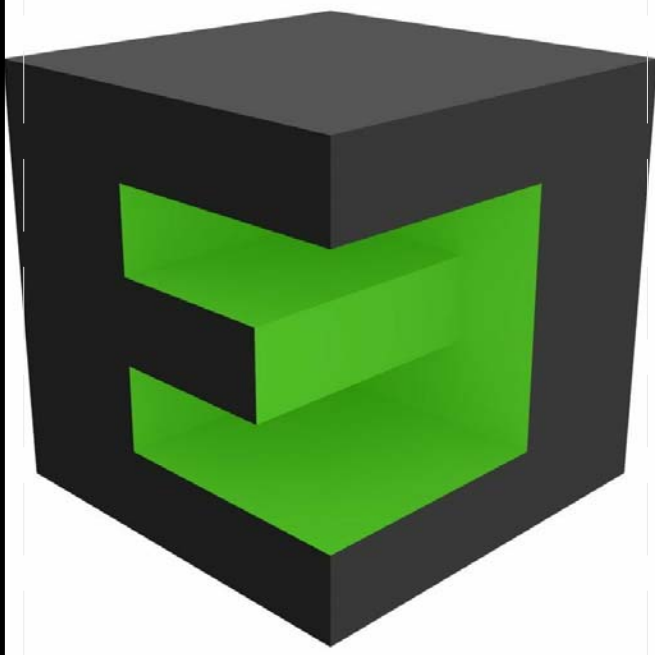
SHEET TITLE
 THREE-LINE DIAGRAM

E-611

<p>Δ30mA - Receptables Technical space, kitchen and outside PLAN H</p>	<p>SOLAR DECATHLON Team Belgium</p>	
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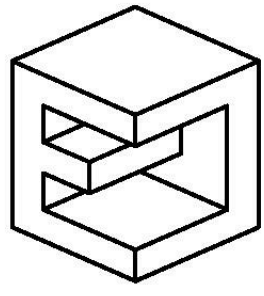
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THREE-LINE DIAGRAM	

E-612

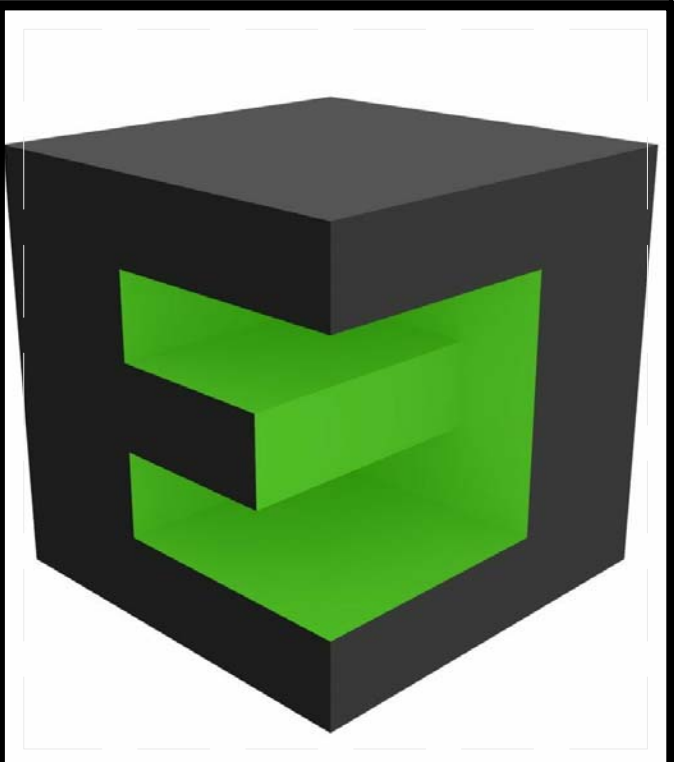
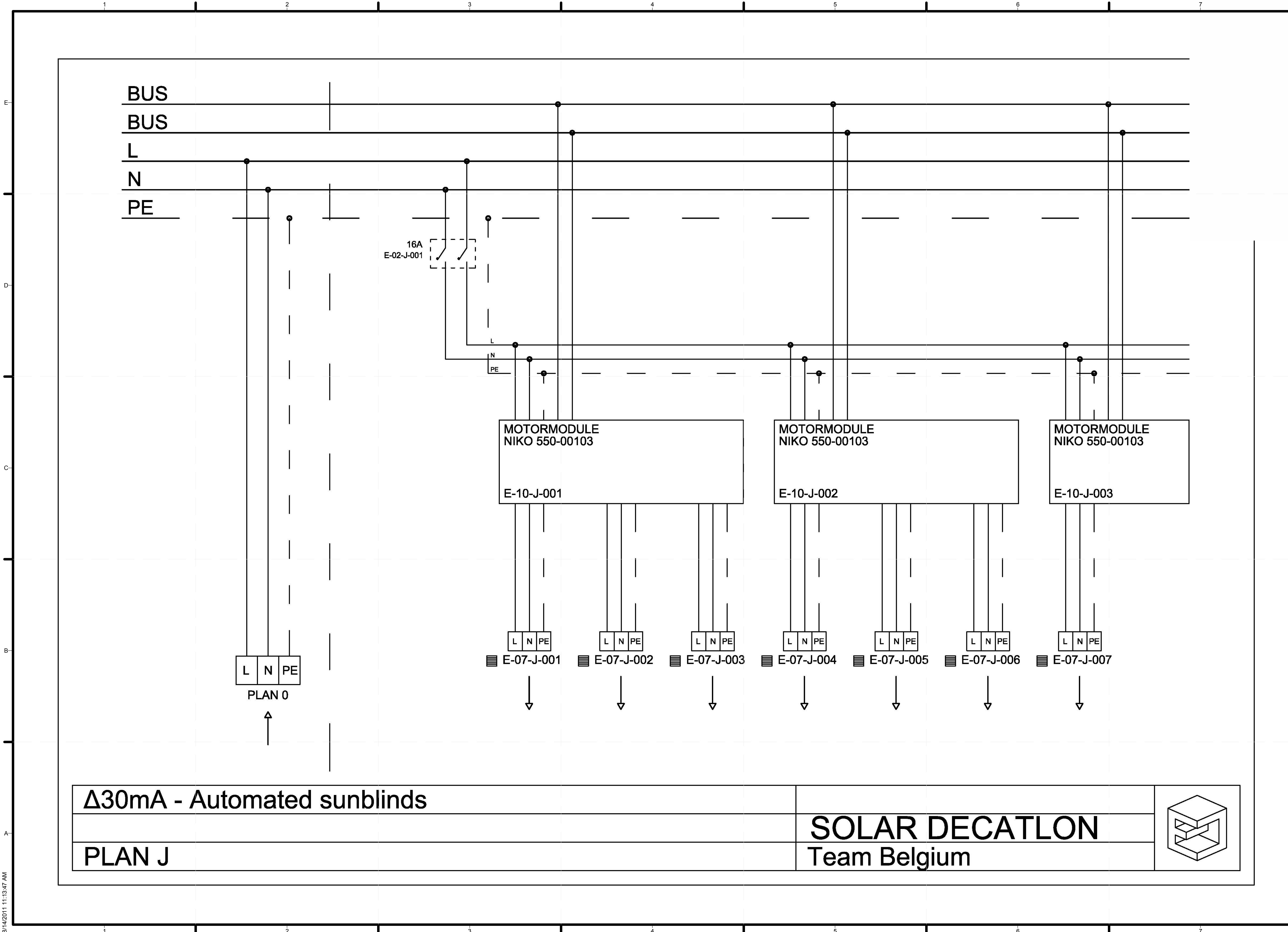
$\Delta 300mA$ - Receptables
 Bathroom
 PLAN I

SOLAR DECATHLON

Team Belgium



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THREE-LINE DIAGRAM

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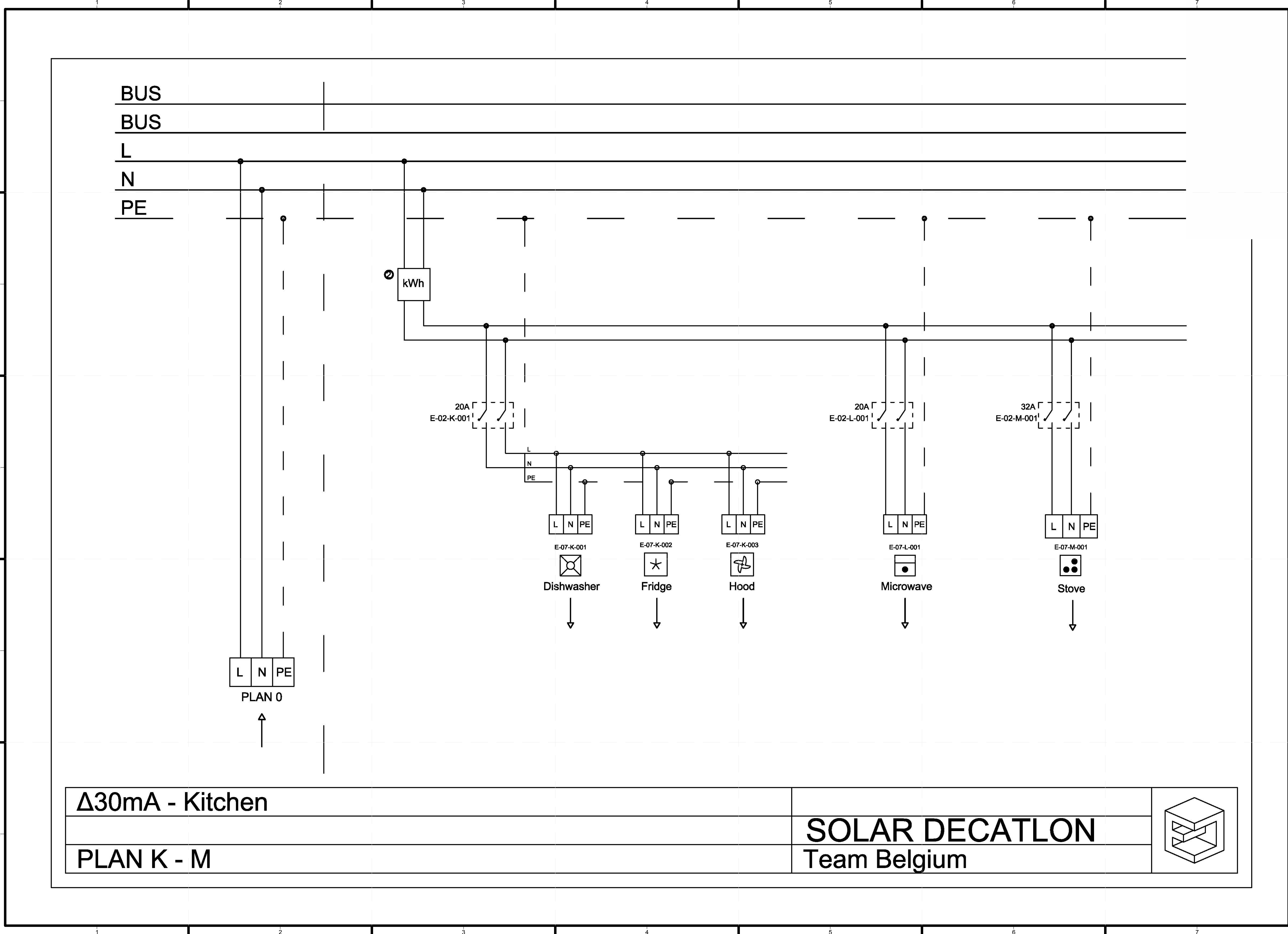
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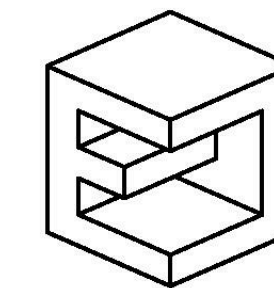
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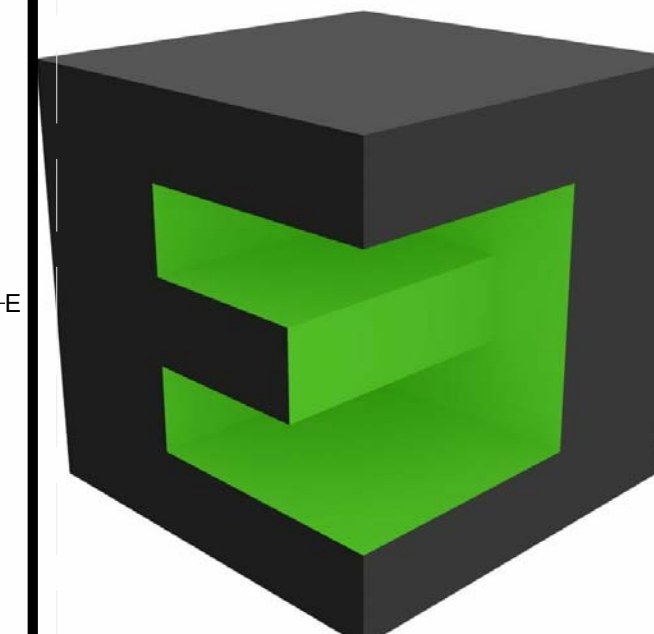


$\Delta 30\text{mA}$ - Kitchen

PLAN K - M

SOLAR DECATHLON
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PUBLIC RELATIONS: CHARLOTTE VYNCKE, MICHAEL ARENS

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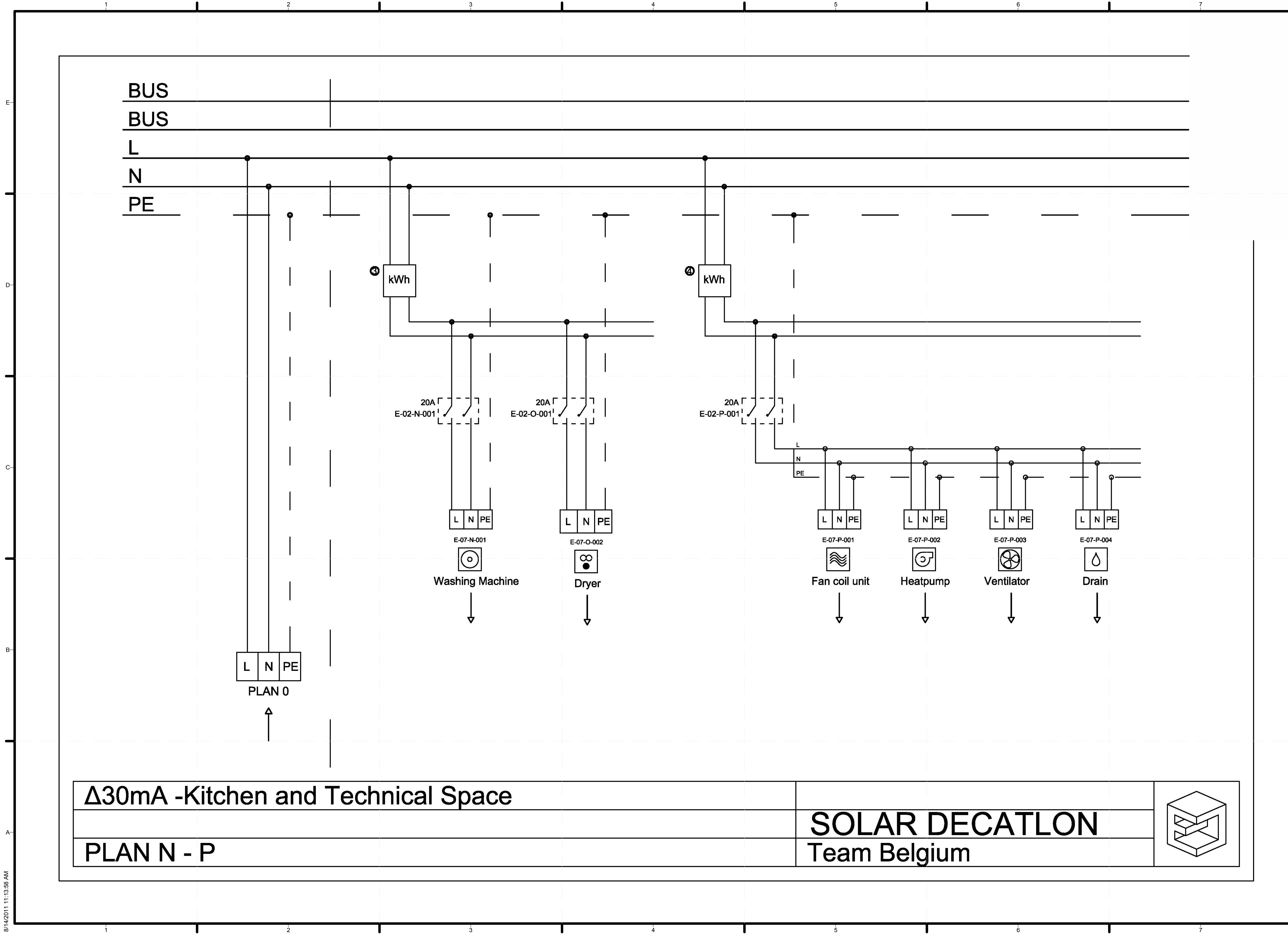


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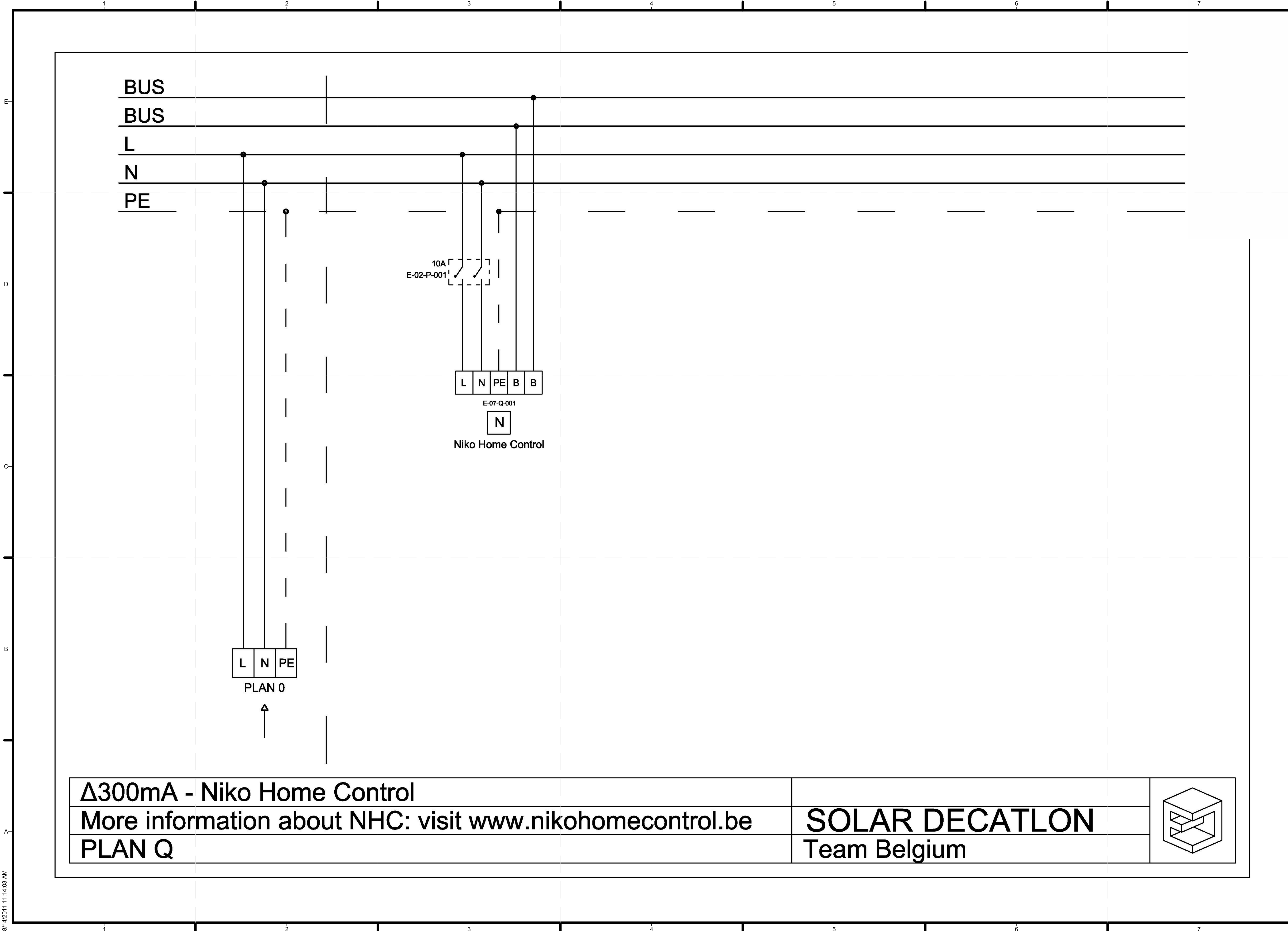
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SHEET TITLE
 THREE-LINE DIAGRAM

E-615



$\Delta 30\text{mA}$ -Kitchen and Technical Space	SOLAR DECATHLON	
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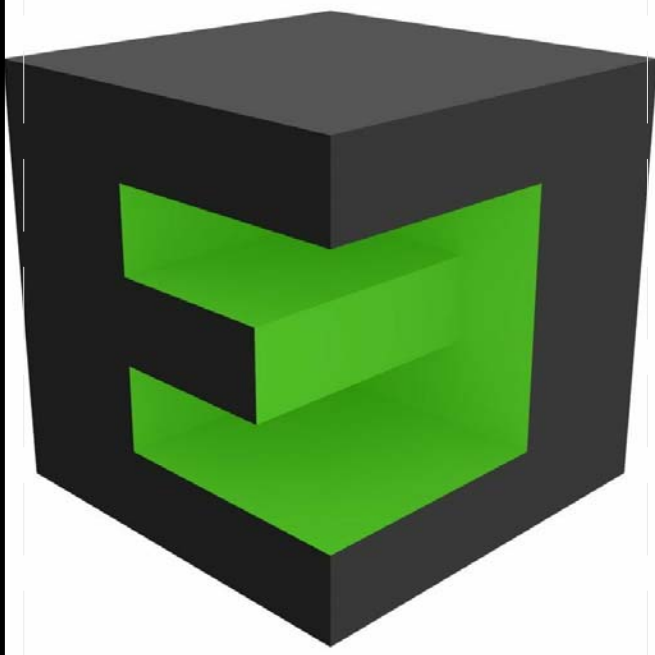
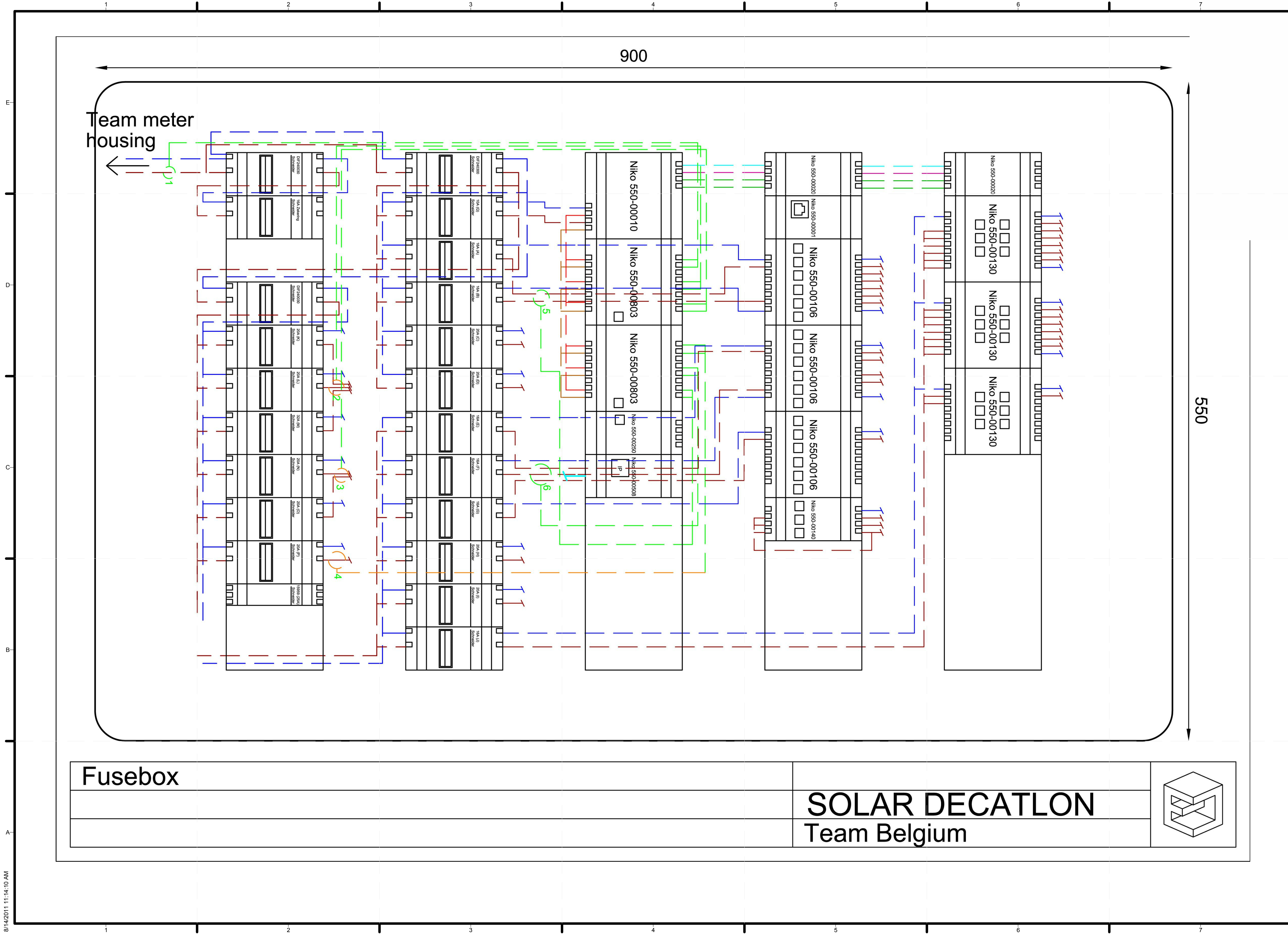


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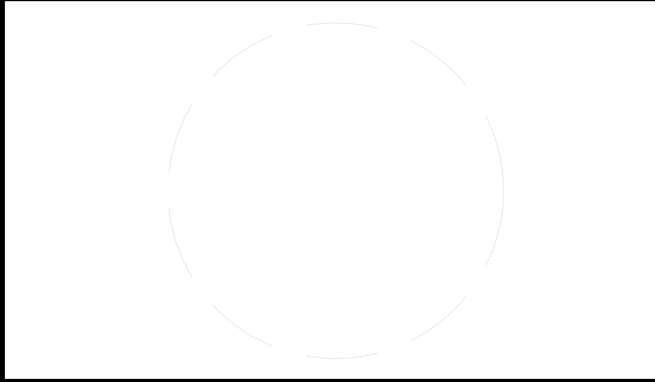
SHEET TITLE
 THREE-LINE DIAGRAM

E-616



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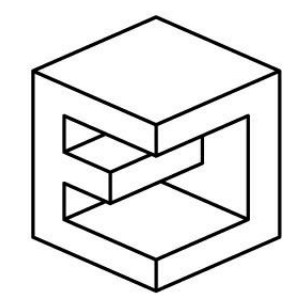
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SHEET TITLE
FUSEBOX

E-617

Fusebox

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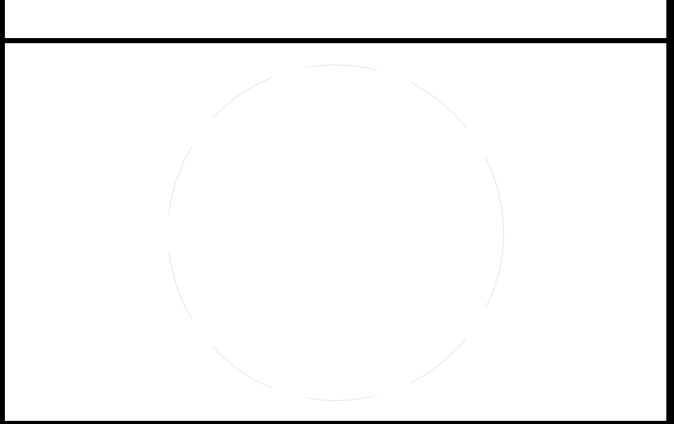


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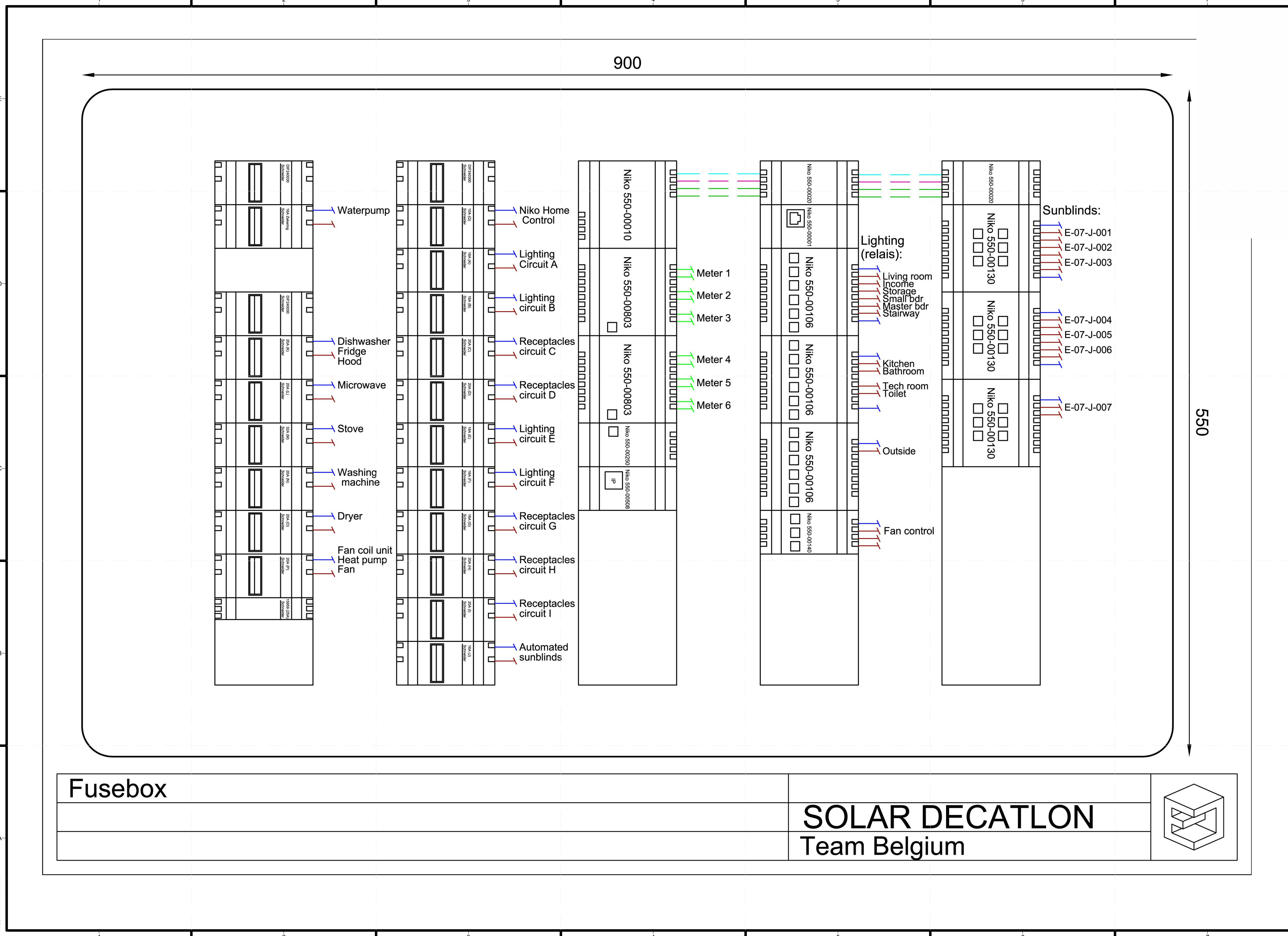
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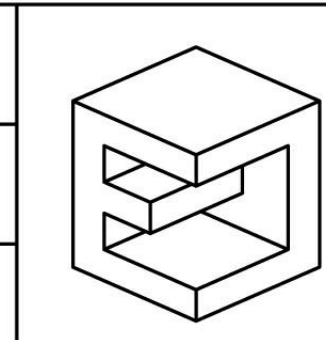
FUSEBOX

E-618



Fusebox

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Sunny Design; V1.57
Bestand Databank Taal Help

PV-installatie **Omvormer** Resultaat

1 2 3

Omvormertype

Sunny Boy 7000US - 240VAC



Sunny Boy 7000US - 240VAC
Max. DC-vermogen: 7,42 kW
Max. AC-vermogen: 7,10 kW

Selectie van de categorie

Systeemconfiguratie


Piekvermogen PV-generator	7,59 kW
PV-generatoroppervlak	46,6 m²
Aantal omvormers	1
Max. DC-vermogen	7,42 kW
Max. AC-Effectief vermogen	7,10 kW
Netspanning (d.w.z. spanning op het voedingspunt)	240 V

Checklist PV/omvormer

PV/omvormer compatibel

Totaal aantal modules	33
Nom. vermogensverhouding	98 %
Stringvermogen (ingang)	7,59 kW
Vermogensaandeel (ingang)	100 %
String-MPP-spanning bij 20°C	383 V
String-MPP-spanning bij 50°C	348 V
String-MPP-spanning bij 70°C	325 V
Min. MPP-spanning, ingestelde netspanning: 240 V	250 V
Nullastspanning string bij -5°C	501 V
Max. toegestane DC-spanning (omvormer)	600 V
Max. PV-generatorstroom	20,1 A
Max. toegestane DC-stroom	30,0 A
Aantal strings (3 ingangen)	3
Aantal panelen per string min=9; max=13	11

Systemeoverzicht Help



PV/omvormer compatibel
PV-generatorconfiguratie en omvormertype zijn compatibel
Verhouding nominaal vermogen (max. DC-vermogen omvormer/PV-piek vermogen) bevindt zich in het standaardbereik (90% - 110%).

Sunny Design; V1.57
Bestand Databank Taal Help

PV-installatie **Omvormer** Resultaat

1 2 3

DC-zijde (per omvormer)

Bij eindresultaat rekening houden met kabelverlies

String A

Materiaal leiding	Cu
spec. weerstand	0,0172 Ω/mm² m
Enkelvoudige kabellengte (LDC)	19,0 m
Leidingdoorsnede per string	1,5 mm²
Som van de leidingdoorsneden	4,50 mm²
Kabelweerstand	0,15 Ω
Totaal verliesvermogen	58,86 W
Rel. verliesvermogen m.b.t. max. DC-vermogen	0,79 %

AC-zijde (per omvormer)

Bij eindresultaat rekening houden met kabelverlies

Materiaal leiding	Cu
spec. weerstand	0,0172 Ω/mm² m
Enkelvoudige kabellengte (LAC)	10,0 m
Leidingdiameter per omvormer	6 mm²
Spanningsval	1,70 V
Kabelweerstand	0,06 Ω
Verliesvermogen	50,18 W
Rel. verliesvermogen m.b.t. nominaal AC-vermogen	0,71 %

Systemeoverzicht Help

Locatie
United States; New York

Zonnepaneel

Sanyo; HIP-230HDE1
MPP-spanning: 34,30 V
MPP-stroom: 6,7 A
MPP-vermogen: 230 W
Hellingshoek: 0°
Azimut: 0°
modules x string: 11 x 3

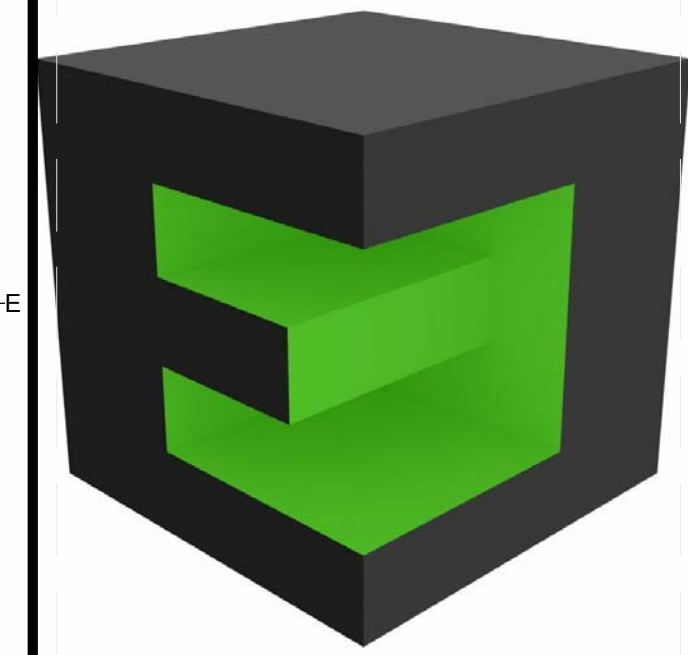
Omvormer

1 x Sunny Boy 7000US - 240VAC
Max. DC-vermogen: 7,42 kW
Max. AC-vermogen: 7,10 kW
Europees rendement: 96,0 %
Max. rendement: 97,1 %

Diagram showing DC side (L_{DC} = 348 V) and AC side (L_{AC} = 1 ~ 240 V) with a Sunny Boy inverter in between.

Voorstelwaarden

Bij de selectie van de kabeldiameters a.u.b. de nationale en internationale richtlijnen (bijv. VDE, NEC enz.) in acht nemen.



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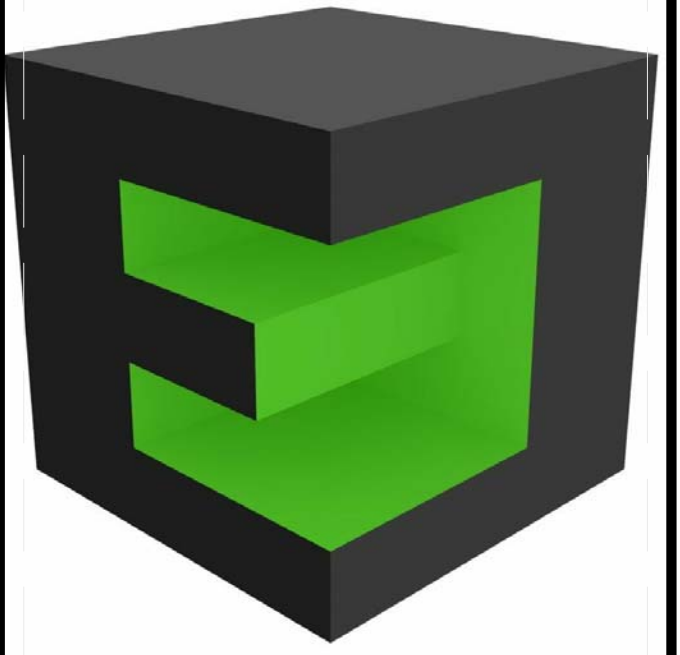
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CALCULATIONS

E-619



Electro Jansen - Janstraat 1 - 1234 AB Jansdorp

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Internet: www.el-jansen.nl

Systeemoverzicht (United States / New York)



String A
Sanyo
HIP-230HDE1
modules x string:
11 x 3
Helling / azimut:
0° / 0°
Kabel DC (Ø / totale lengte, per string):
1,5mm² ; 19,0m

Omvormer
1 x Sunny Boy 7000US - 240VAC
Max. rendement: 97,1 %
Europees rendement: 96,0 %
Max. AC-vermogen: 7,10 kW
Max. DC-vermogen : 7,42 kW
Kabel AC (per omvormer): 6,0mm² ; 10,0m

Configuratiedata

Piekvermogen PV-generator: 7,59 kW
Totaal aantal modules: 33
PV-generatoroppervlak: 46,6 m²
Aantal omvormers: 1
Max. DC-vermogen : 7,42 kW
Max. AC-Effectief vermogen : 7,10 kW
Rendement omvormer: 96,1 %

Nom. vermogensverhouding: 98 %
Jaarl. energieopbrengst (+/-) *: 8986 kWh
Energie-rendementsfactor: 100,0 %
Performanceverhouding (ca.) *: 84 %
Spec. energieopbrengst (+/-) *: 1181 kWh/kWp
Kabelverliezen (% in PV-energie): 0,8 %

Notities: Ruimte voor uw opmerkingen

Handtekening *

* Belangrijke opmerking: Bij de berekening van de opbrengst betreft het geschatte waarden op basis van wiskundige berekeningsmodellen. SMA kan niet aansprakelijk worden gesteld voor de werkelijke energieopbrengst, die door verschillende externe omstandigheden, b.v. door vervuiling van de modules of door fluctuaties van het rendement van modules, kan afwijken.

V1.57

Checklist:

Projectbestand: Met deze configuratie is nog geen bestand opgeslagen.

Systeemoverzicht

Omvormer: 1 x Sunny Boy 7000US - 240VAC
Locatie: United States / New York

Temperaturen PV-module

Minimale PV-temperatuur: -5°C
Configuratie-temperatuur: 50°C
Maximale PV-temperatuur: 70°C

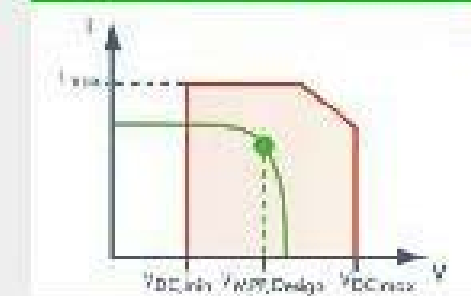
Zonnepaneel

Sanyo
HIP-230HDE1
Helling: 0°
Azimut: 0°

Configuratiedata

Piekvermogen PV-generator	7,59 kW
PV-generatoroppervlak	46,6 m ²
Aantal omvormers	1
Max. DC-vermogen	7,42 kW
Max. AC-Effectief vermogen	7,10 kW
Netspanning (d.w.z. spanning op het voedingspunt)	240 V
Totaal aantal modules	33
Nom. vermogensverhouding	98 % (ok)
String A:	
Stringvermogen (ingang)	7,59 kW
Vermogensaandeel (ingang)	100 %
String-MPP-spanning bij 20°C	383 V (ok)
String-MPP-spanning bij 50°C	348 V (ok)
String-MPP-spanning bij 70°C	325 V (ok)
Min. MPP-spanning, ingestelde netspanning: 240 V	250 V
Nullastspanning string bij -5°C	501 V (ok)
Max. toegestane DC-spanning (omvormer)	600 V
Max. PV-generatorstroom	20,1 A (ok)
Max. toegestane DC-stroom	30,0 A
Aantal strings (3 ingangen)	3
Aantal panelen per string (min=5, max=13)	11

PV/Omvormer compatibiliteit



PV-generatorconfiguratie en omvormertype zijn compatibel. Verhouding nominaal vermogen (max. DC-vermogen omvormer/PV-peakvermogen) bevindt zich in het standaardbereik (90% - 110%).

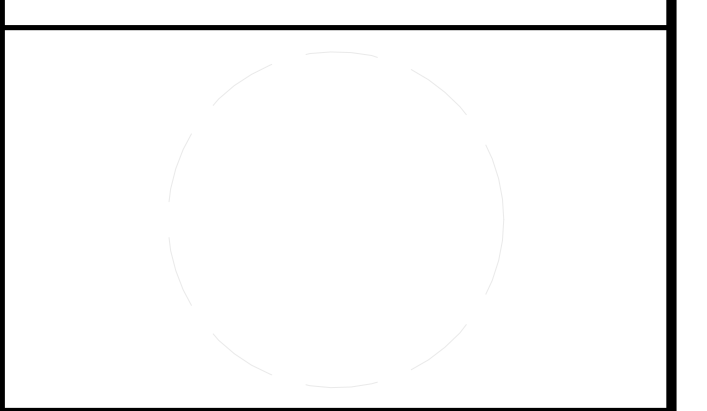
V1.57

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SHEET TITLE

CALCULATIONS

E-620

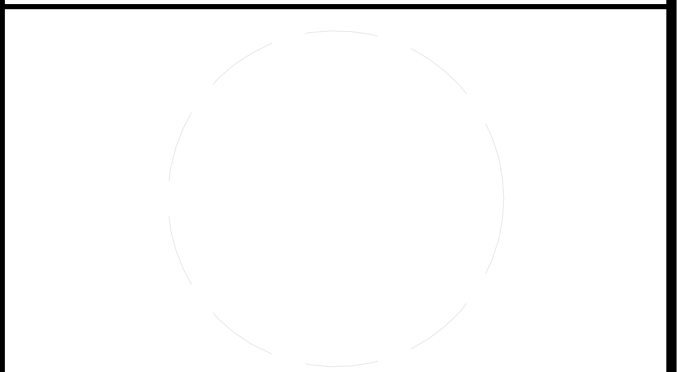


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CALCULATIONS

E-621

Hoofdstuk 1

Branch Circuit Load Calculations

This chapter calculates the branch circuit loads per Article 220 of the NEC.

1.1 Circuit A: Lighting living room, dining room and income

Remark: NEC 220.12: A minimum of $33VA/m^2$ lighting load for dwelling units.

$$\begin{aligned} \text{Surface} &= 50m^2 \\ S &= 33 \frac{VA}{m^2} \cdot 50m^2 = 1650VA \\ I &= \frac{1650VA}{230V} = 7.2A \end{aligned}$$

NEC Table 310.16: allowable ampacity for AWG 16 = 18A \Rightarrow AWG 16 (=1.3 mm²) is sufficient \Rightarrow Choose XVB 1.5 mm²

1.2 Circuit B: Lighting small bedroom, master bedroom and hall

Remark: NEC 220.12: A minimum of $33VA/m^2$ lighting load for dwelling units.

$$\begin{aligned} \text{Surface} &= 25m^2 \\ S &= 33 \frac{VA}{m^2} \cdot 25m^2 = 825VA \\ I &= \frac{825VA}{230V} = 3.59A \end{aligned}$$

NEC Table 310.16: allowable ampacity for AWG 16 = 18A \Rightarrow AWG 16 (=1.3 mm²) is sufficient \Rightarrow Choose XVB 1.5 mm²

1.3 Circuit C: Receptacles downstairs

- **Remark 1:** NEC 220.52 (A): the load shall be calculated at 1500 VA for each 2-wire small-appliance branch circuit
- **Remark 2:** NEC 220.14(I): receptacle outlets shall be calculated at not less than 180 VA for each single or for each multiple receptacle on one yoke

One home cinema (Remark 1: 1500 VA) and 6 other receptacles (Remark 2: 6 times 180 VA)

$$S = 1500 + 6 \cdot 180 = 2500VA$$

$$I = \frac{2500VA}{230V} = 11.3A$$

NEC Table 310.16: allowable ampacity for AWG 14 = 20A ⇒ AWG 14 (=2 mm²) is sufficient
 ⇒ Choose XVB 2.5 mm²

1.4 Circuit D: Receptacles small bedroom, master bedroom and hall

Remark: NEC 220.14(I): receptacle outlets shall be calculated at not less than 180 VA for each single or for each multiple receptacle on one yoke

5 receptacles (Remark: 5 times 180 VA)

$$S = 5 \cdot 180 = 900VA$$

$$I = \frac{900VA}{230V} = 3.92A$$

NEC Table 310.16: allowable ampacity for AWG 14 = 20A ⇒ AWG 14 (=2 mm²) is sufficient
 ⇒ Choose XVB 2.5 mm²

1.5 Circuit E: Lighting kitchen and bedroom

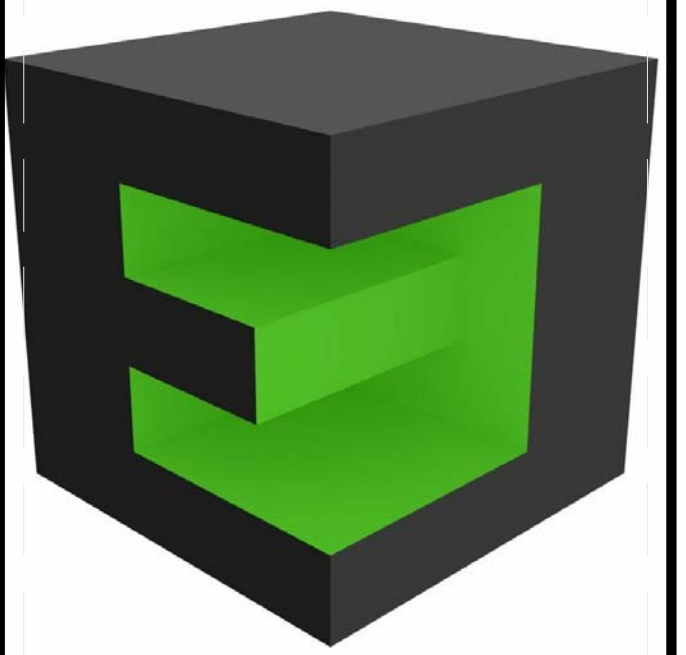
Remark: NEC 220.12: A minimum of 33VA/m² lighting load for dwelling units.

Surface = 10 m² (kitchen) + 9 m² (bathroom) = 19 m²

$$Surface = 20m^2$$

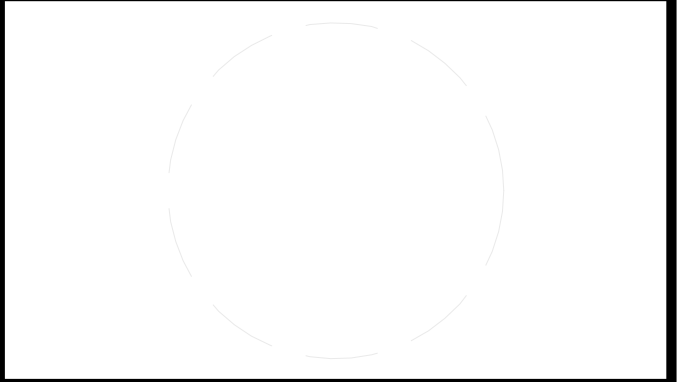
$$S = 33 \frac{VA}{m^2} \cdot 20m^2 = 660VA$$

$$I = \frac{660VA}{230V} = 2.9A$$



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SHEET TITLE
CALCULATIONS

E-622

Hoofdstuk 1. Branch Circuit Load Calculations

3

NEC Table 310.16: allowable ampacity for AWG 16 = 18A ⇒ AWG 16 (=1.3 mm²) is sufficient ⇒ Choose XVB 1.5 mm²

1.6 Circuit F: Lighting downstairs - toilet and technical space

Remark: NEC 220.12: A minimum of 33VA/m² lighting load for dwelling units.

Surface = 2 m² (toilet) + 6 m² (technical space) = 8 m²

$$\begin{aligned} \text{Surface} &= 10m^2 \\ S &= 33 \frac{VA}{m^2} \cdot 10m^2 = 330VA \\ I &= \frac{330VA}{230V} = 1.5A \end{aligned}$$

NEC Table 310.16: allowable ampacity for AWG 16 = 18A ⇒ AWG 16 (=1.3 mm²) is sufficient ⇒ Choose XVB 1.5 mm²

1.7 Circuit G: Outside lighting

Remark: NEC 220.12: A minimum of 33VA/m² lighting load for dwelling units.

Outside, there will only be a light at the door entrances (2 lights). Take as surface 2 times 6 m².

$$\begin{aligned} \text{Surface} &= 12m^2 \\ S &= 33 \frac{VA}{m^2} \cdot 12m^2 = 400VA \\ I &= \frac{400VA}{230V} = 1.8A \end{aligned}$$

NEC Table 310.16: allowable ampacity for AWG 16 = 18A ⇒ AWG 16 (=1.3 mm²) is sufficient ⇒ Choose XVB 1.5 mm²

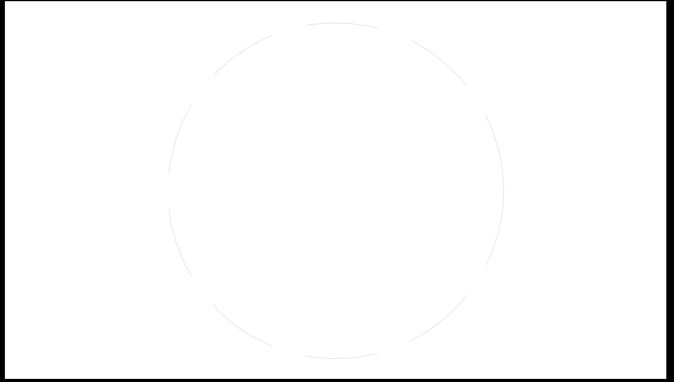
1.8 Circuit H: Receptacles kitchen, bathroom and technical space

Remark: NEC 220.14(I): receptacle outlets shall be calculated at not less than 180 VA for each single or for each multiple receptacle on one yoke



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SHEET TITLE
CALCULATIONS

E-623

Hoofdstuk 1. Branch Circuit Load Calculations

4

5 receptacles (Remark: 5 times 180 VA)

$$S = 5 \cdot 180 = 900VA$$

$$I = \frac{900VA}{230V} = 3.92A$$

NEC Table 310.16: allowable ampacity for AWG 14 = 20A ⇒ AWG 14 (=2 mm²) is sufficient ⇒ Choose XVB 2.5 mm²

1.9 Circuit I: Sun blinds

Appliance: 7 times Helioscreen EVE 047 080 APA

The product datasheet says an arc-fault circuit interrupter of 16A should be used.

NEC Table 310.16: allowable ampacity for AWG 14 = 20A ⇒ AWG 14 (=2 mm²) is sufficient ⇒ Choose XVB 2.5 mm²

1.10 Circuit J: Dishwasher - fridge - hood

Appliances:

- Dishwasher:** ADG 9641 Whirlpool Full door vaatwasser 6 progr. - 6th Sense Green Generation - 3de lade SpacePlus - Latere start 1-24u - 11L - A+/A/A. **Remark:** Power unknown, but NEC 220.52 (A): the load shall be calculated at 1500 VA for each 2-wire small-appliance branch circuit ⇒ 1500 W
- Fridge:** WBE 34132 A++S Whirlpool, Power rating: 150 W
- Hood:** Whirlpool AKR 799 IX - Decoratieve dampkap "6th Sense"90 cm - 1 motor - 630 m³/h - "Box" design - Inox, Power rating: 215 W

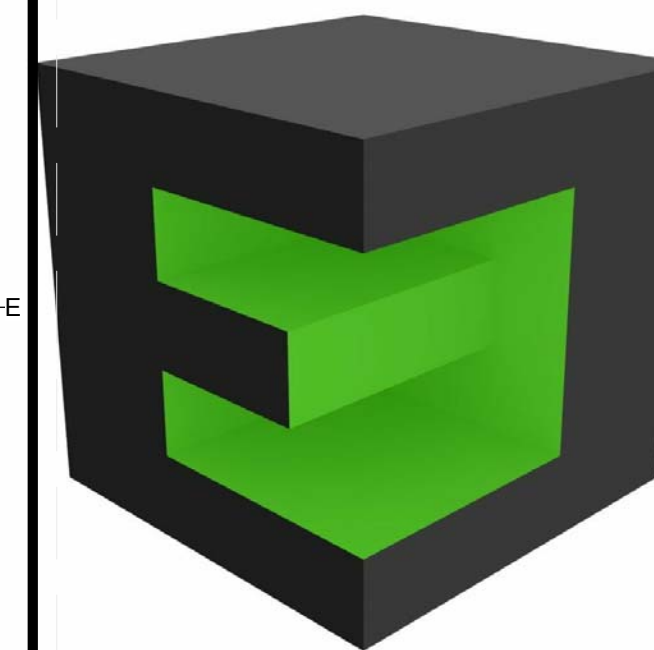
$$S = 1500VA + 150VA + 215VA = 1865VA$$

$$I = \frac{1865}{230} = 8.5A$$

NEC Table 310.16: allowable ampacity for AWG 14 = 20A ⇒ AWG 14 (=2 mm²) is sufficient ⇒ Choose XVB 2.5 mm²

1.11 Circuit K: Microwave

Appliance: Whirlpool AMW 593 IX : 40L compact multifunctionele Turbo Hete lucht oven + microgolfovenfunctie - Timer met text display - Genesis line - Inox



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SHEET TITLE
CALCULATIONS

E-624

8/14/2011 11:14:30 AM

Hoofdstuk 1. Branch Circuit Load Calculations

5

$$S = 1600VA$$
$$I = \frac{1600VA}{230V} = 7A$$

NEC Table 310.16: allowable ampacity for AWG 14 = 20A \Rightarrow AWG 14 (=2 mm²) is sufficient
 \Rightarrow Choose XVB 2.5 mm²

1.12 Circuit L: Stove

Appliance: ACM 754 LX 6th Sense® Green Generation inductiekookplaat 77 cm - 4 zones (2 koppelzones) - Tiptoetsbediening met slider - Laterale kader in inox

$$S = 7400VA$$
$$I = \frac{7400VA}{230V} = 33A$$

NEC Table 310.16: allowable ampacity for AWG 10 = 35A \Rightarrow AWG 10 (=5.3 mm²) is sufficient \Rightarrow Choose XVB 6 mm² (required by AREI: Belgian norms and regulations)

1.13 Circuit M: Washing machine

Remark 1: NEC 220.52 (B): a load of not less than 1500 VA shall be included for each 2-wire laundry branch circuit installed as required by 210.11(C)(2)

Appliance: Whirlpool Astro 1400 8KG

$$S = 1500VA$$
$$I = \frac{1500VA}{230V} = 7A$$

NEC Table 310.16: allowable ampacity for AWG 14 = 20A \Rightarrow AWG 14 (=2 mm²) is sufficient
 \Rightarrow Choose XVB 2.5 mm²

1.14 Circuit N: Dryer

Remark: NEC 220.54: the load for household electric clothes dryers in a dwelling unit shall be either 5000 watts or the name-plate rating, whichever is larger, for each dryer served.

Appliance: WHIRLPOOL AZA9780 Zephyr Condensdroger A klasse, 9kg, Green Generation, Startuistel, Resttijdindicatie, FLD display, Zwarte deur

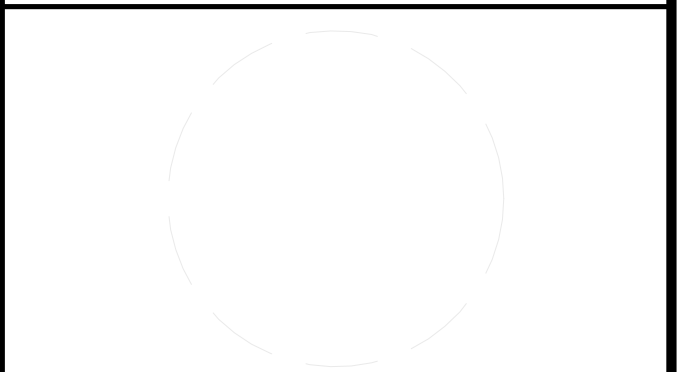


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CALCULATIONS

E-625

Hoofdstuk 1. Branch Circuit Load Calculations

6

$$S = 5000VA$$
$$I = \frac{5000VA}{230V} = 22A$$

NEC Table 310.16: allowable ampacity for AWG 14 with conductor temperature rating 90°C = 25A ⇒ AWG 14 (=2 mm²) is sufficient ⇒ Choose XVB 2.5 mm²

1.15 Circuit O: Fan coil unit, heat pump and fan

- Fan coil unit: 106 W electrical power
- Heat pump: 2.27 kW electrical power
- Fan: 141 W electrical power

$$S = 106 + 2270 + 141 = 2600VA$$
$$I = \frac{2600VA}{230V} = 12A$$

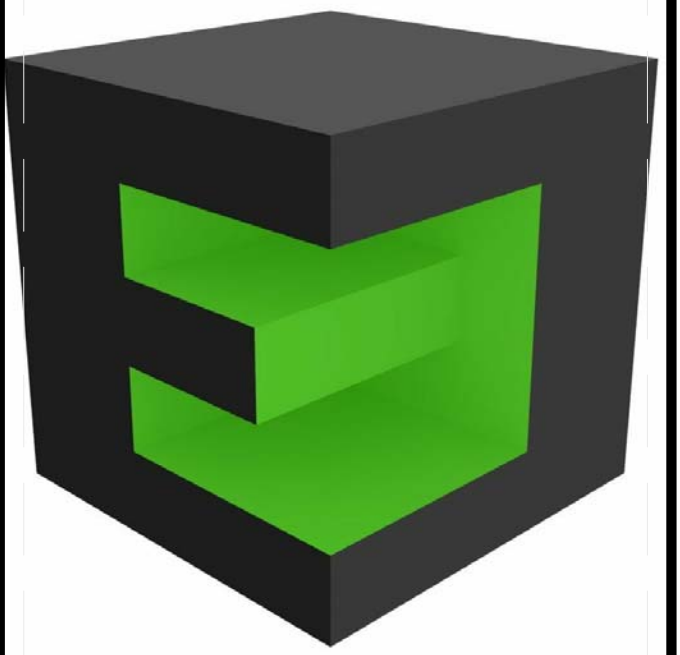
NEC Table 310.16: allowable ampacity for AWG 14 = 20A ⇒ AWG 14 (=2 mm²) is sufficient ⇒ Choose XVB 2.5 mm²

1.16 Circuit P: NIKO Home Control

Remark: NEC 220.52 (A): the load shall be calculated at 1500 VA for each 2-wire small-appliance branch circuit

$$S = 1500VA$$
$$I = \frac{1500VA}{230V} = 7A$$

NEC Table 310.16: allowable ampacity for AWG 16 = 18A ⇒ AWG 16 (=1.3 mm²) is sufficient ⇒ Choose XVB 1.5 mm²

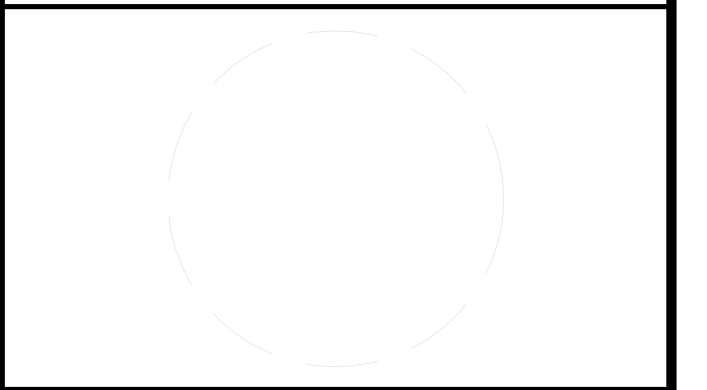


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CALCULATIONS

E-626

Hoofdstuk 2

Feeder and Service Load Calculations

Method followed: NEC annex D

General load

- $112\ m^2$ at $33\ VA = 3696\ VA$
- One small appliance circuits at $1500\ VA$ each = $1500\ VA$
- Laundry circuit: $1500\ VA$
- Dishwasher, fridge and hood: $1865\ VA$
- Microwave: $1600\ VA$
- Stove: $7400\ VA$
- Washing machine: $1500\ VA$
- Dryer: $5000\ VA$

Subtotal general load: $24061\ VA$

First 10 kVA at 100 % : $10000\ VA$

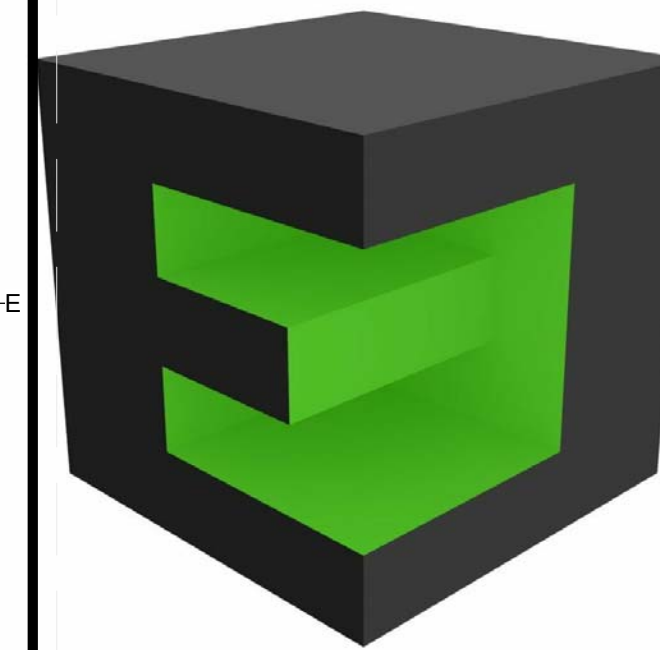
Remainder of general load at 40 % ($14061\ VA \times 0.4$) = $5624.4\ VA$

Total net general load: $15624.4\ VA$

Heat pump: $2600\ VA$

Totals: $2600\ VA$ (heat pump) + $152624.4\ VA$ (total net general load) = $18224.4\ VA$

Calculated load for service: $18224.4\ VA / 230\ V = 80\ A$



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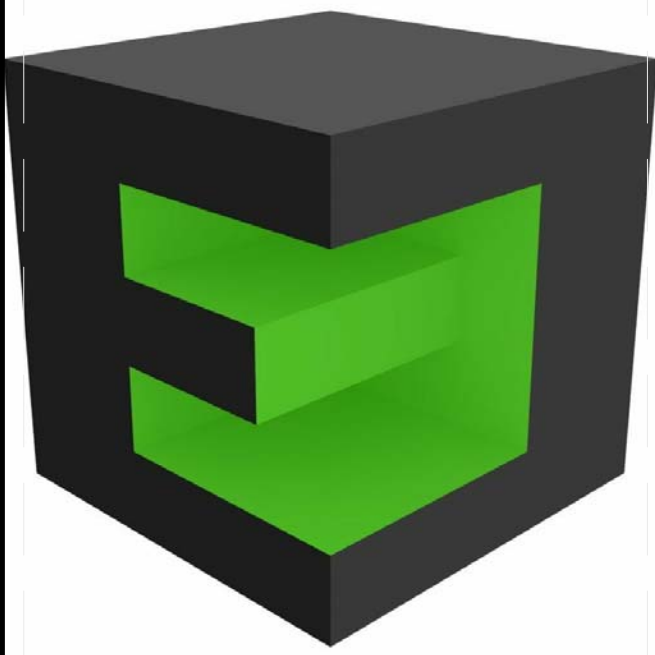


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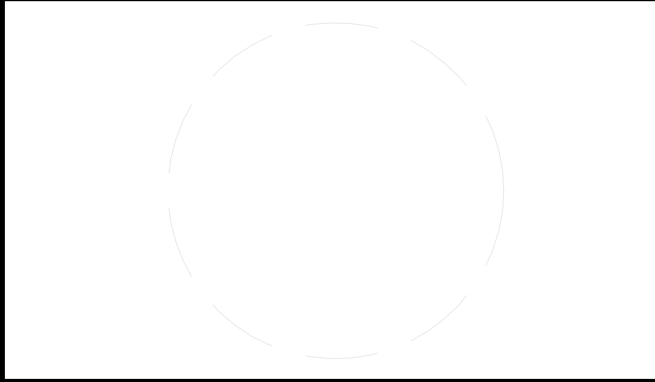
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CALCULATIONS

E-627



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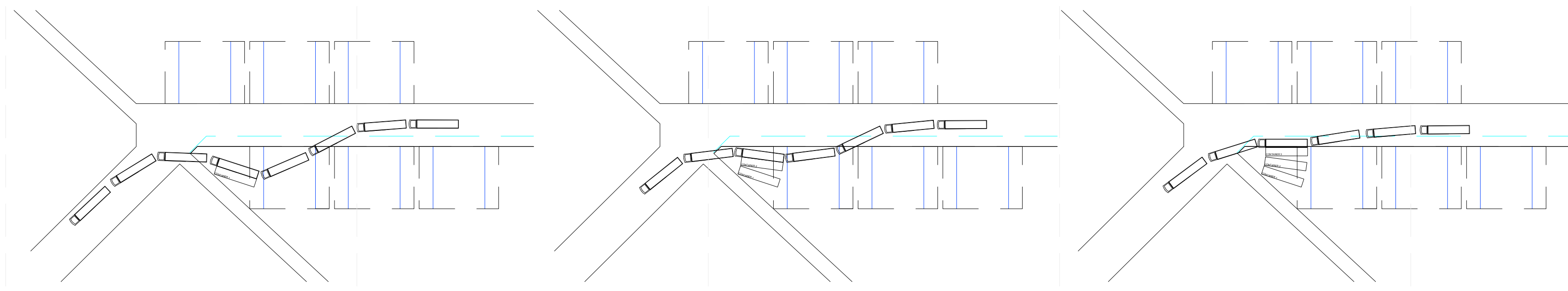


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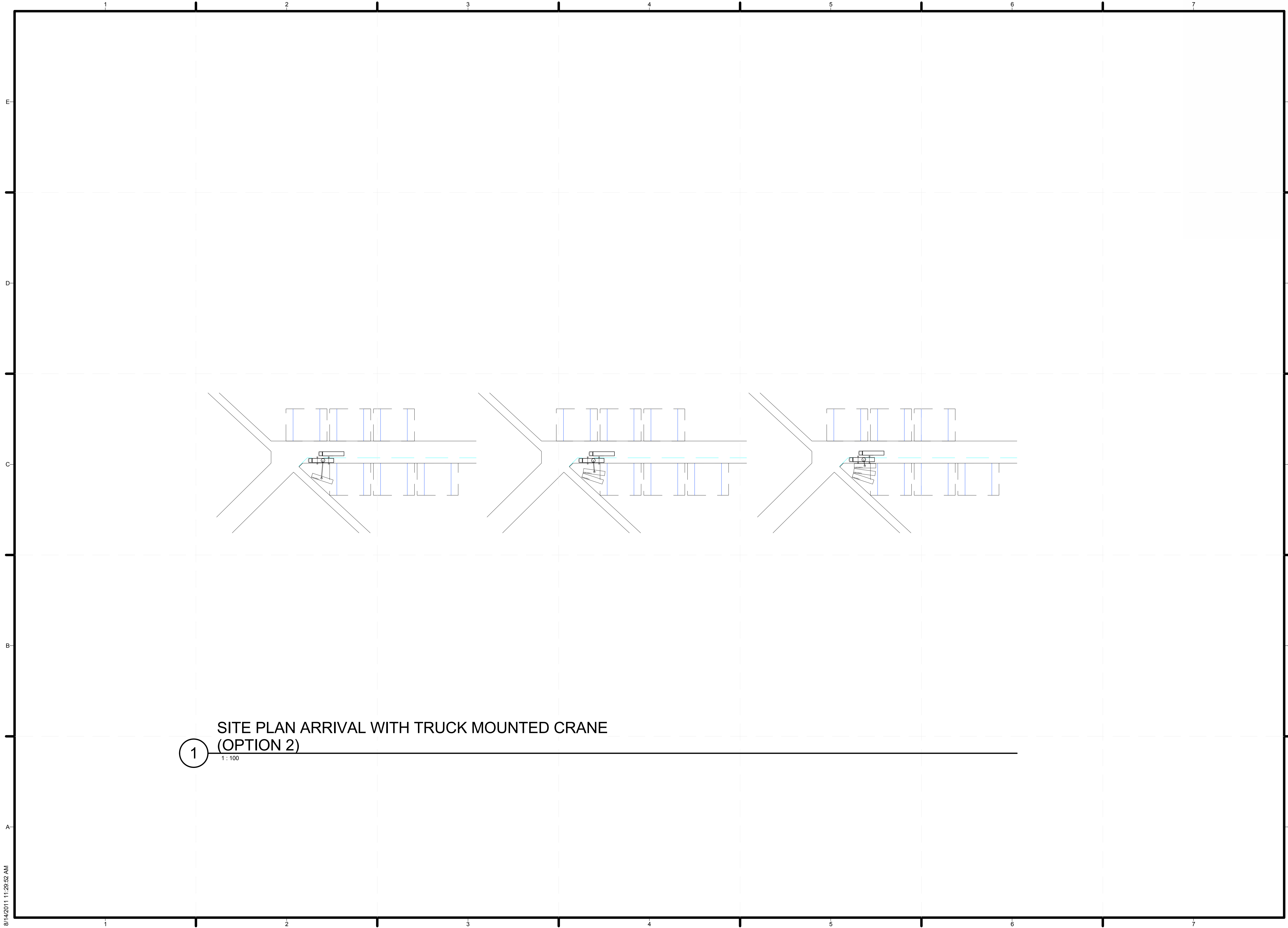
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 ARRIVAL SEQUENCE PLANS

O-101



C3 SITE PLAN ARRIVAL WITH SIDE LOADER (OPTION 1)

1:100

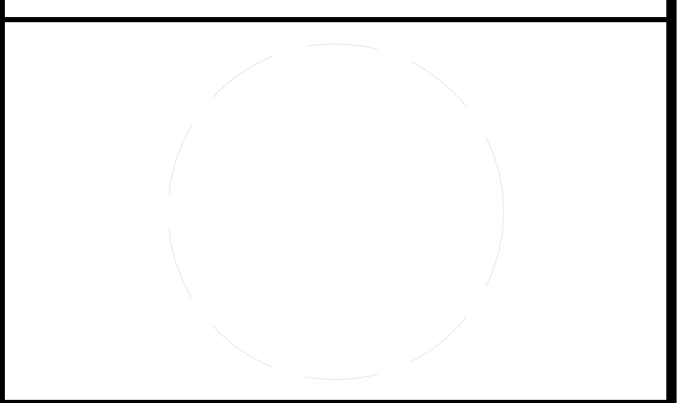


1 SITE PLAN ARRIVAL WITH TRUCK MOUNTED CRANE
(OPTION 2)
1:100



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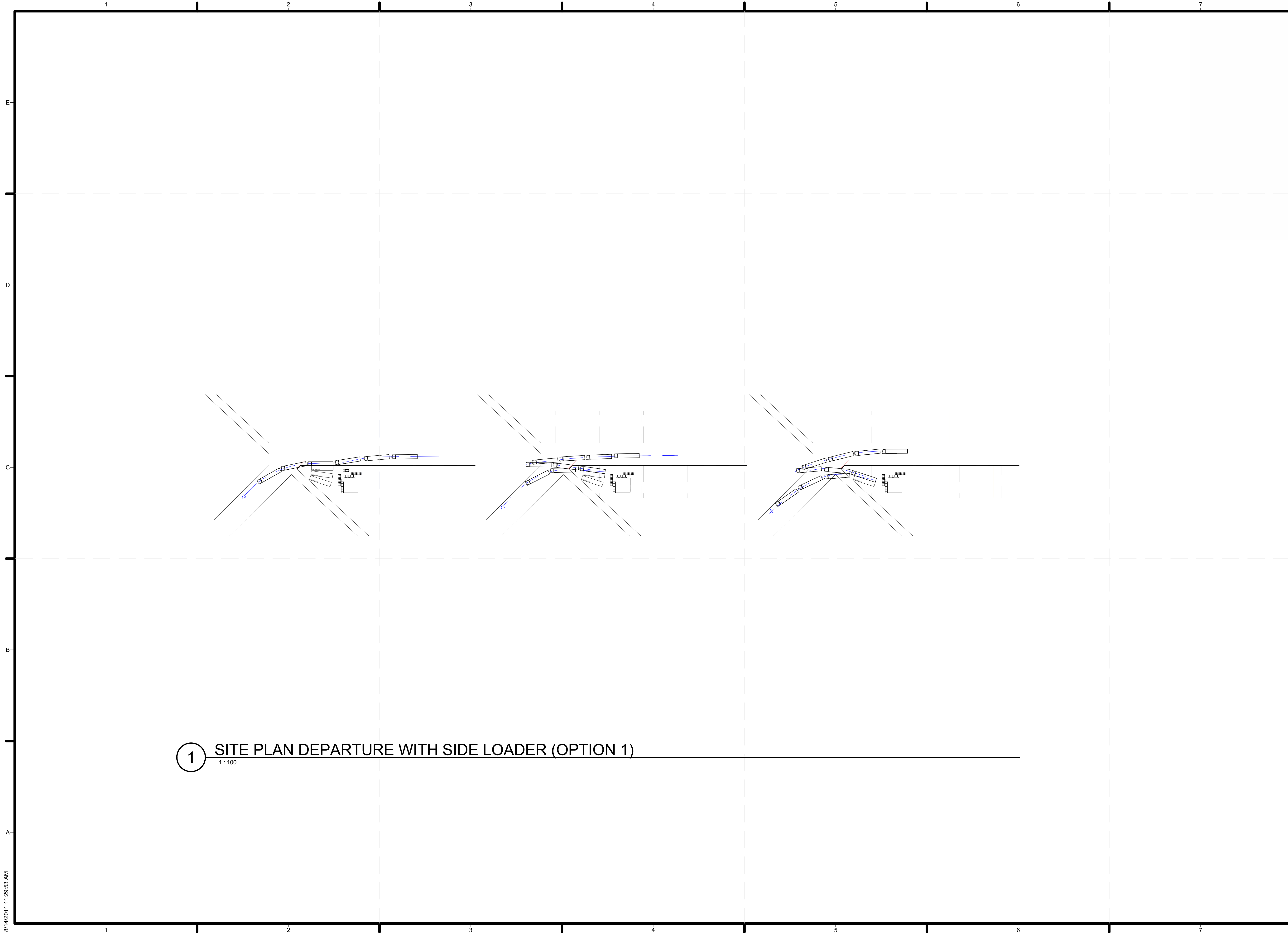
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 ARRIVAL SEQUENCE
 PLANS

O-102

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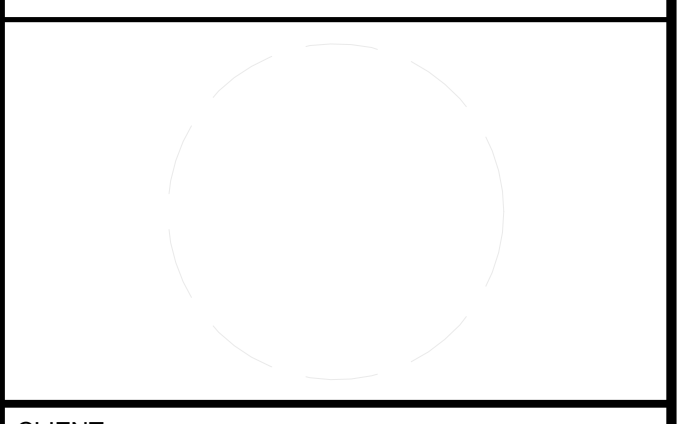


1 SITE PLAN DEPARTURE WITH SIDE LOADER (OPTION 1)
1 : 100



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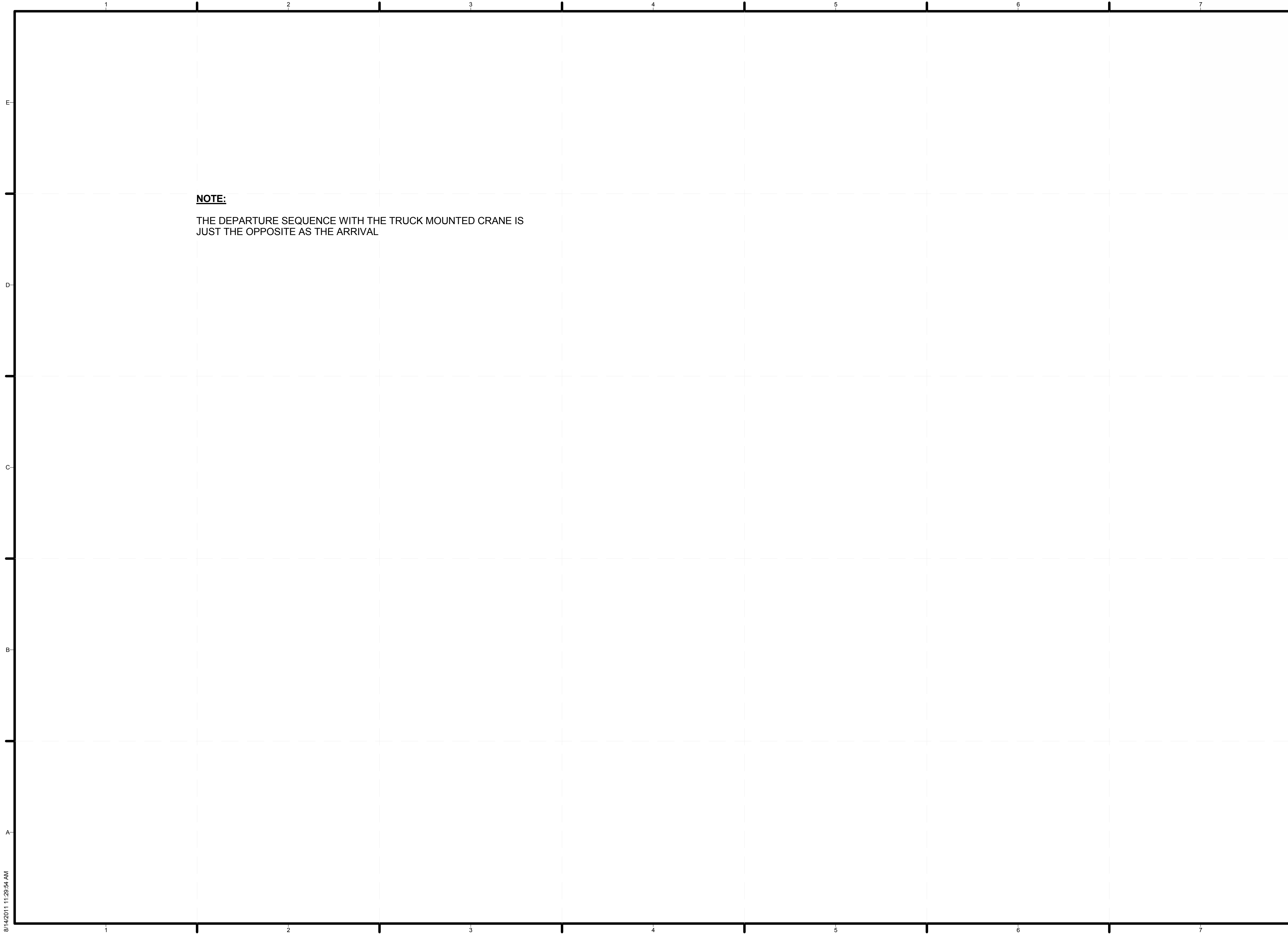


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 DEPARTURE SEQUENCE PLAN

O-103



NOTE:

THE DEPARTURE SEQUENCE WITH THE TRUCK MOUNTED CRANE IS
JUST THE OPPOSITE AS THE ARRIVAL



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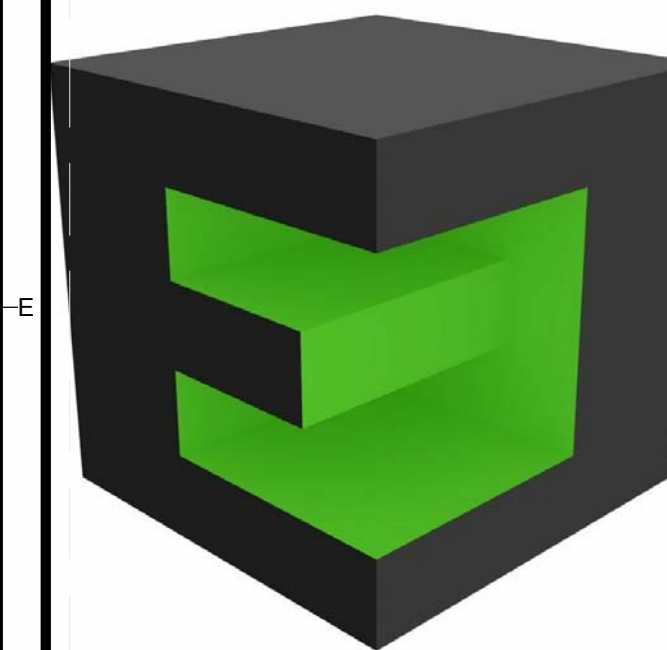
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DEPARTURE SEQUENCE PLAN

O-104

E	Tuesday	13/09/2011	Container delivery see O-101	Truck (http://www.edink.info/side_loader.htm)
D	Wednesday	14/09/2011	Terrain height measurement Foundation Installation Installing Technical Box Fixating structure Facade elements	Laser Cordless Powertools Forklift Cordless Powertools Cordless Powertools / Custom made hoist
C	Thursday	15/09/2011	Facade elements Roof elements	Cordless Powertools / Custom made hoist Forklift / Cordless Powertools
B	Friday	16/09/2011	Roof Edges Facade Finishing	Cordless Powertools Cordless Powertools
A	Saturday	17/09/2011	Interior walls and floors Connection technical components	Cordless Powertools Cordless Powertools
	Sunday	18/09/2011	Exterior ramps Exterior storage (water,..) Solar roof systems	Cordless Powertools Cordless Powertools Forklift / Cordless Powertools
	Monday	19/09/2011	Interior Finishings	Cordless Powertools
	Tuesday	20/09/2011	Buffer	

Tasks that don't require any electrical equipment are not included in this list
All building components will be prepared and ready to be installed on site.
We foresee other tools as a miter saw, discs,... to be used when unexpected problems occur.



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CONSTRUCTION EQUIPMENT SCHEDULE

O-601