Peak® Stair Risers and Peak® Stair Riser Connectors

Report of:

- 2023 Alberta Building Code – Part 9
- 2024 British Columbia Building Code – Part 9
- 2020 National Building Code of Canada – Part 9
- 2024 Ontario Building Code – Part 9

⚠WARNING Comply with all applicable building codes. Before using any of these products, ensure foundation is suitable. Not suitable for all applications or any commercial use. Do not overload. Wear protective attire and eyewear.

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info@latera.ca
www.latera.ca

May 2, 2024
Project No: L24-106

Peak Products Manufacturing Inc.
www.peakproducts.com

PROJECT: Peak® Stair Riser Compliance.

SUBJECT: Structural Review of Peak® Stair Riser and Extension Bracket to Canadian Building Codes

This letter summarizes the findings of our review of the structural resistance of the Peak® Stair Riser.

Product Description

Peak® Stair Risers come in 1 to 7 step configurations and are constructed of hollow structural steel sections with steel straps welded to the hollow section forming the horizontal tread support. All configurations have a step rise of 192 mm, a run of 264 mm, and are designed to support 2-2x6 or 1-1x12 treads. The specified steel strength of the hollow section and steel strap is 235 MPa.

A Stair Extension Bracket with supporting post and bracing can be used to extend the risers for heights up to 307 cm. Drawings of the various configurations are included in Appendix A.

Structural Loads

The Peak® Stair Risers were reviewed for their resistance to residential live load of 1.9 kPa. The dead load was calculated to be the self-weight of the riser with 2x12 wood treads. Deflection of the riser and treads was limited to the span divided by 240 (L/240).

Standards

Peak® Stair Risers were evaluated in accordance with the following codes and standards:

- National Building Code of Canada (NBC) 2020
- British Columbia Building Code (BCBC) 2024
- National Building Code – 2023 Alberta Edition
- 2024 Ontario Building Code
- WOOD COMPONENTS: CSA O86-19 - Engineering Design in Wood
- STEEL COMPONENTS: CSA S16-19 – Limit States Design of Steel Structures
- WELDS: CSA W59-18 Welded Steel Construction (Metal Arc Welding)
  CSA W48-18 Filler Metals and Allied Materials for Metal Arc Welding

FINDINGS

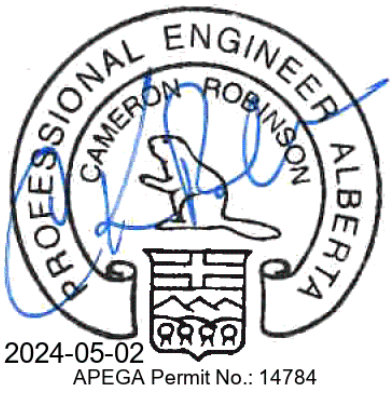
Peak® Stair Risers and Stair Extension Bracket provide adequate resistance to residential floor loads, with a maximum live load deflection of L/240, given the span limitations illustrated in Appendix A.

Notes:
1. L is the sloping span of the riser.
2. Some jurisdictions may require closed risers.

Closure

The Peak® Stair Risers were found to meet the requirements, for use in dwelling units, within Part 9 of the above noted Building Codes. Limitations of compliance are defined in the findings above, and in the assembly drawings presented in Appendix A.

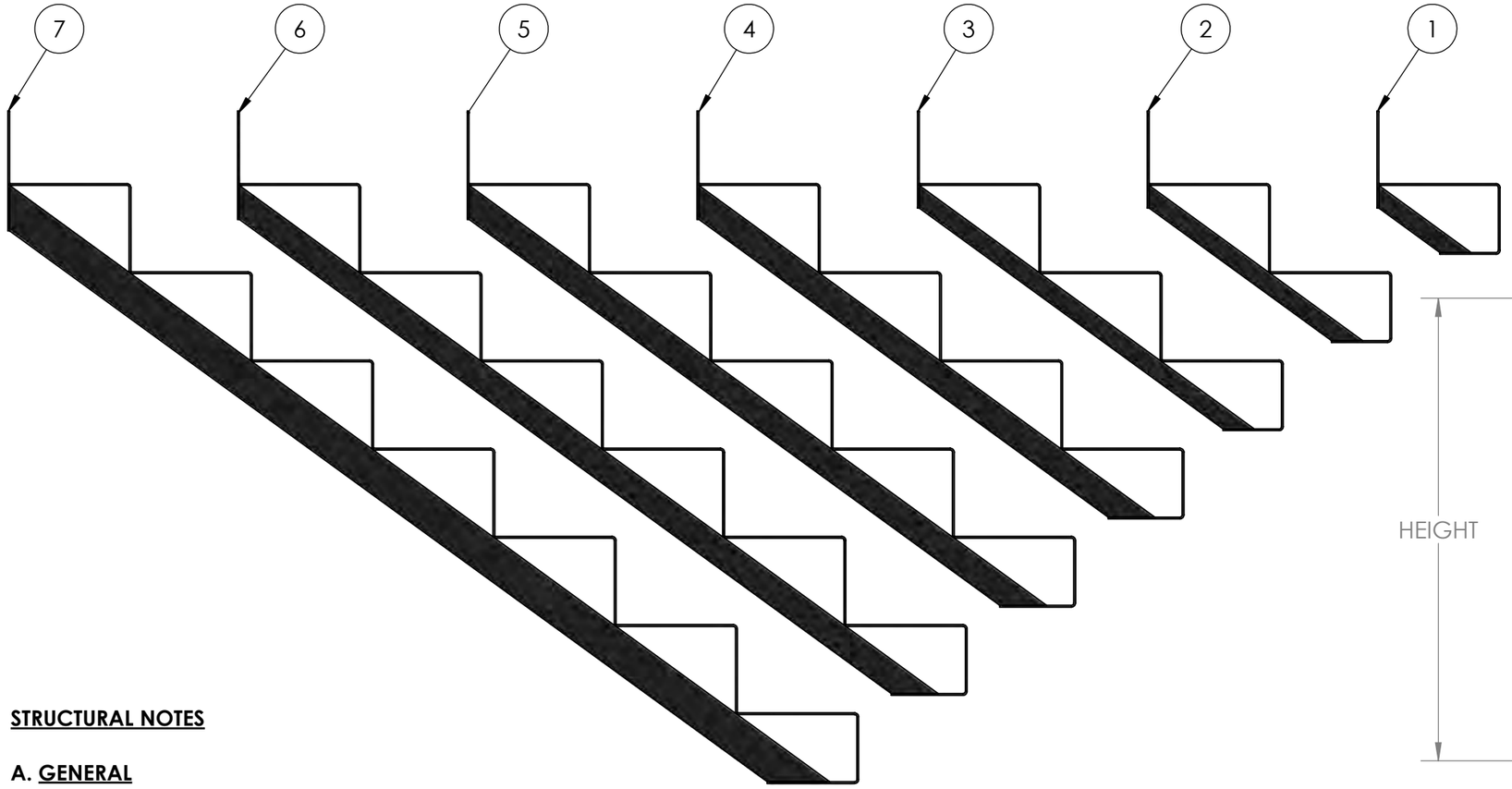
Yours truly,
Latera Engineering Inc.

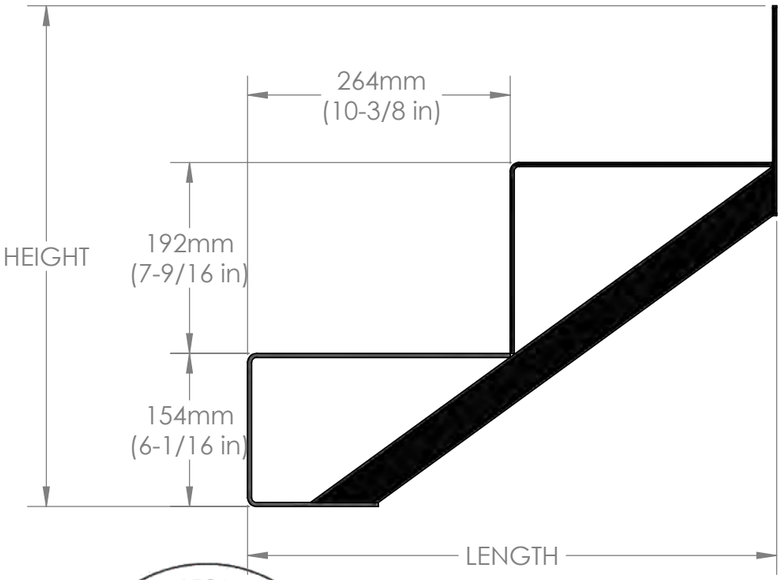


Per: Cameron Robinson, P.Eng.

Appendix A

Drawings





STRUCTURAL NOTES

A. GENERAL

1. MODIFICATION OF THE STRINGER IS NOT PERMITTED.
2. STAIR STRINGER IS INTENDED FOR RESIDENTIAL USE ONLY (PART 9).

B. BUILDING CODE AND MATERIAL DESIGN STANDARDS.

1. NATIONAL BUILDING CODE OF CANADA (NBC) 2020.
2. BRITISH COLUMBIA BUILDING CODE (BCBC) 2024.
3. NATIONAL BUILDING CODE - 2023 ALBERTA EDITION
4. 2024 ONTARIO BUILDING CODE
5. CSA O86-19 ENGINEERING DESIGN IN WOOD.
6. CSA S16-19 LIMIT STATES DESIGN OF STEEL STRUCTURES.
7. CSA W59-18 WELDED STEEL CONSTRUCTION (METAL ARC WELDING).
8. CSA W48-18 FILLER METALS AND ALLIED MATERIALS FOR METAL ARC WELDING.

C. DESIGN LOADS

1. GRAVITY LOADS:
SNOW OR LIVE LOAD (NOT CONCURRENTLY): 1.9 kPa (40 psf)

D. STRUCTURAL STEEL

1. STRUCTURAL STEEL: Q235, GALVANIZED 40-50 g/m2.

2024-05-02

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
C. K. ROBINSON
29241
Permit to Practice: 1000301

PROFESSIONAL ENGINEER ALBERTA
CAMERON ROBINSON
2024-05-02
APEGA Permit No.: 14784

LICENSED PROFESSIONAL ENGINEER
C. K. ROBINSON
100571628
PROVINCE OF ONTARIO
2024-05-02

ITEM NO.	SKU	DESCRIPTION	LENGTH mm (in)	HEIGHT mm (in)
1	2451	1 Step	268 (10-9/16)	311 (12-1/4)
2	2452	2 Step	532 (20-15/16)	503 (19-13/16)
3	2453	3 Step	796 (31-5/16)	695 (27-3/8)
4	2454	4 Step	1060 (41-3/4)	888 (34-15/16)
5	2455	5 Step	1324 (52-1/8)	1080 (42-1/2)
6	2456	6 Step	1588 (62-1/2)	1272 (50-1/16)
7	2457	7 Step	1852 (72-15/16)	1464 (57-5/8)

PEAK

TITLE
General Information

PART FILE
Report SKUs - CAN

DWG REV
D

DIMENSIONS ARE IN MM UNLESS NOTED
DO NOT SCALE DRAWING

SIZE B
DWG. NO.
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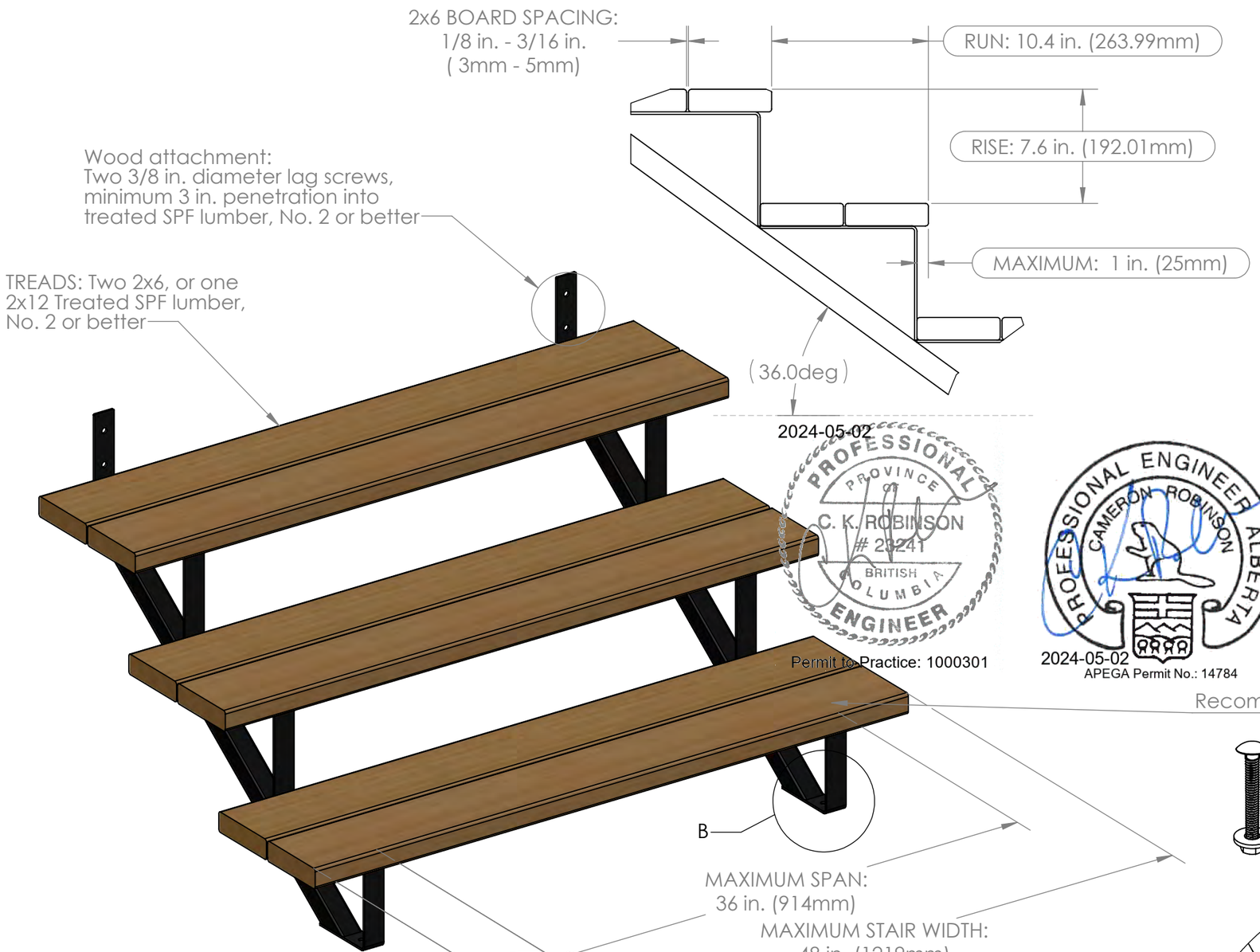
SHT REV
2016-06-01-A



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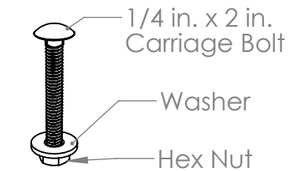
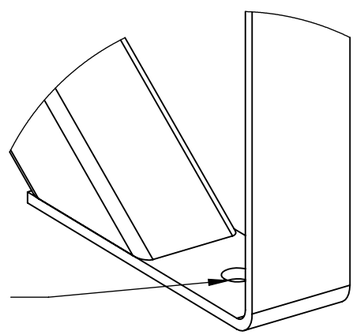
Concrete attachment:
One Hilti Kwik Bolt 3, diameter 3/8 in., with minimum concrete embedment 2 in.

Wood attachment:
One 3/8 in. diameter lag screw, minimum 3 in. penetration into treated SPF lumber, No. 2 or better

Recommended Fastener:





DETAIL B
SCALE 1 : 2

STRUCTURAL NOTES

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8. CSA W48-18 FILLER METALS AND ALLIED MATERIALS FOR METAL ARC WELDING.

C. DESIGN LOADS

1. GRAVITY LOADS:
SNOW OR LIVE LOAD (NOT CONCURRENTLY): 1.9 kPa (40 psf)

D. STRUCTURAL STEEL

1. STRUCTURAL STEEL: Q235, GALVANIZED 40-50 g/m2.

PEAK

TITLE
Two Stringer Configuration

PART FILE
Report Assembly CAN

DWG REV
E

DIMENSIONS ARE IN MM UNLESS NOTED
DO NOT SCALE DRAWING

SIZE B | DWG. NO. Report_CAN_2-stringer

SCALE: 1:8 | SHT REV 2016-06-01-A |

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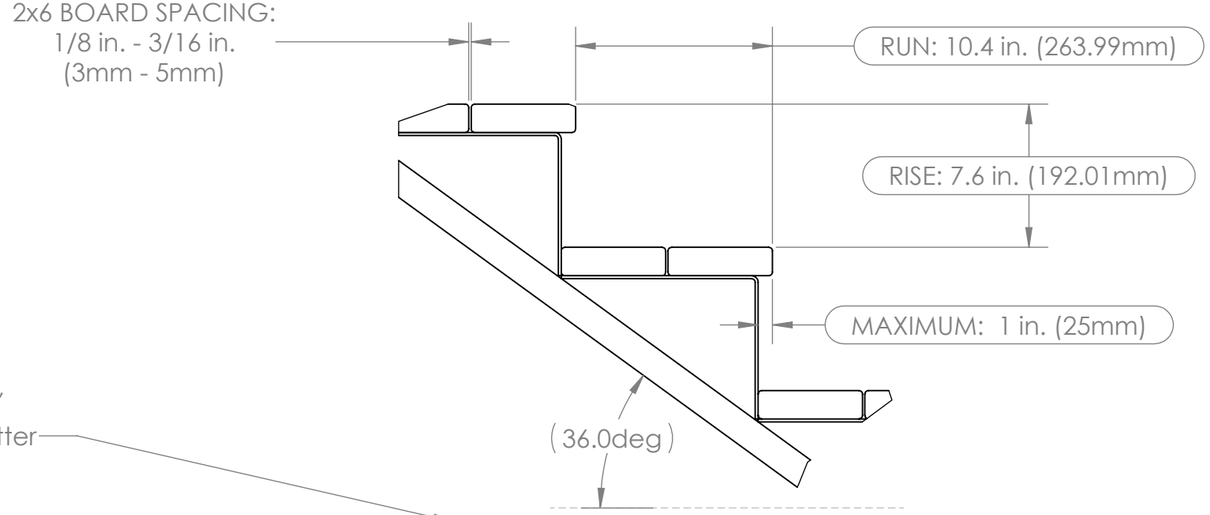
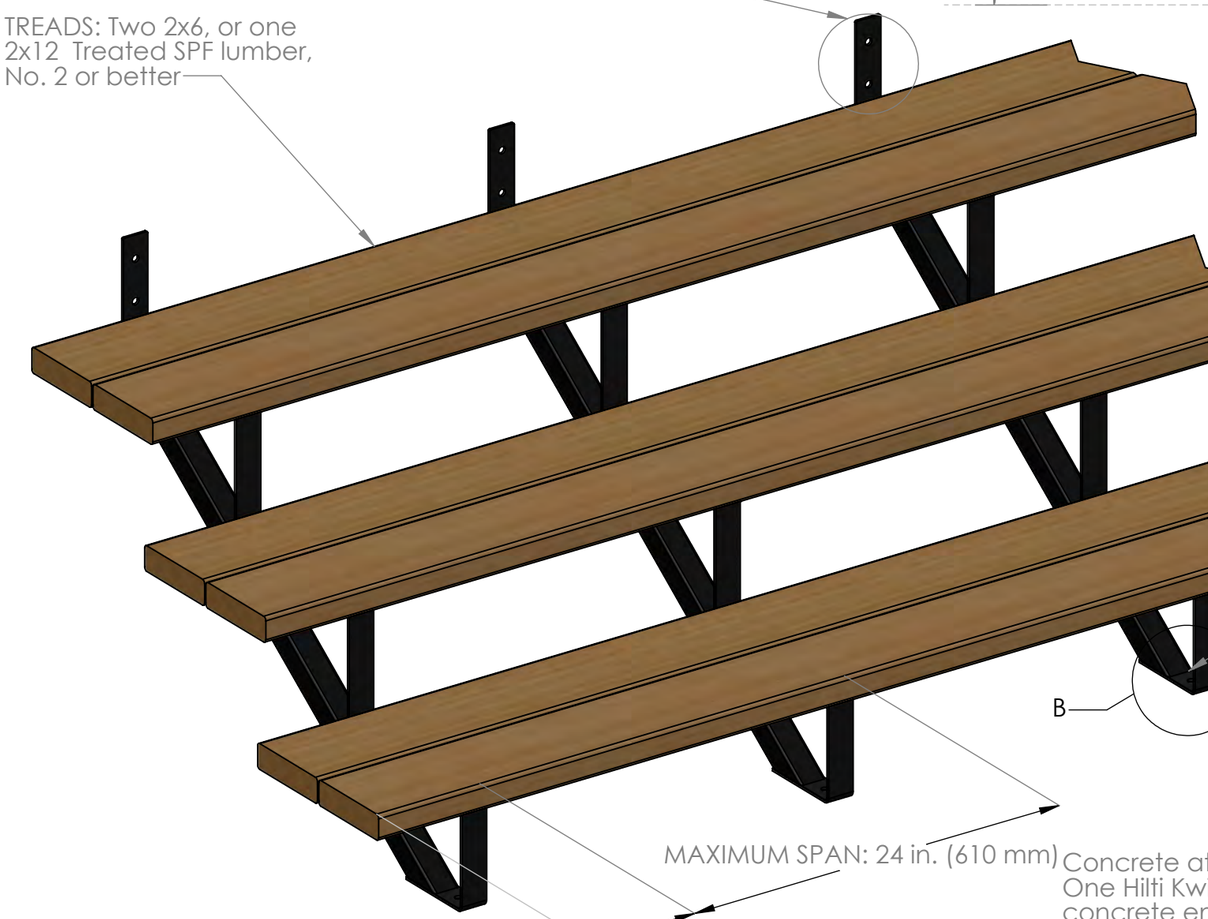


Wood attachment:
Two 3/8 in. diameter lag screws, minimum 3 in. penetration into treated SPF lumber, No. 2 or better

TREADS: Two 2x6, or one 2x12 Treated SPF lumber, No. 2 or better



MAXIMUM SPAN: 24 in. (610 mm)

MAXIMUM OVERHANG: 6 in. (152 mm)
MINIMUM OVERHANG: 2-5/8 in. (66mm)

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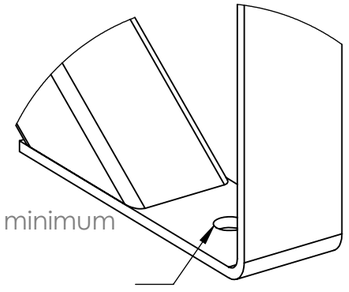
100571628
2024-05-02

Recommended Fastener:
1/4 in. x 2 in. Carriage Bolt
Washer
Hex Nut

Concrete attachment:
One Hilti Kwik Bolt 3, diameter 3/8 in., with minimum concrete embedment 2 in.

Wood attachment:
One 3/8 in. diameter lag screw, minimum 3 in. penetration into treated SPF lumber, No. 2 or better



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D. STRUCTURAL STEEL

1. STRUCTURAL STEEL: Q235, GALVANIZED 40-50 g/m2.

PEAK

TITLE
Multi-Stringer Configuration

PART FILE
Report Assembly CAN

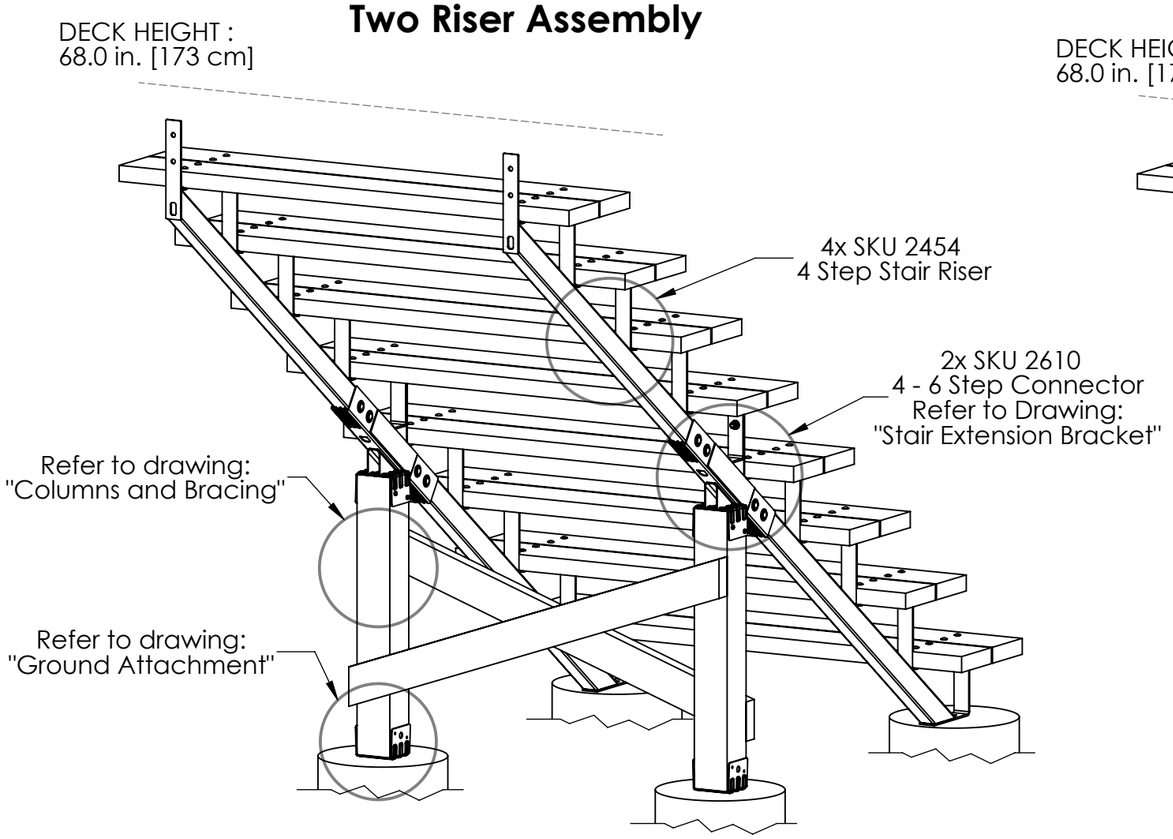
DWG REV
D

DIMENSIONS ARE IN MM UNLESS NOTED
DO NOT SCALE DRAWING

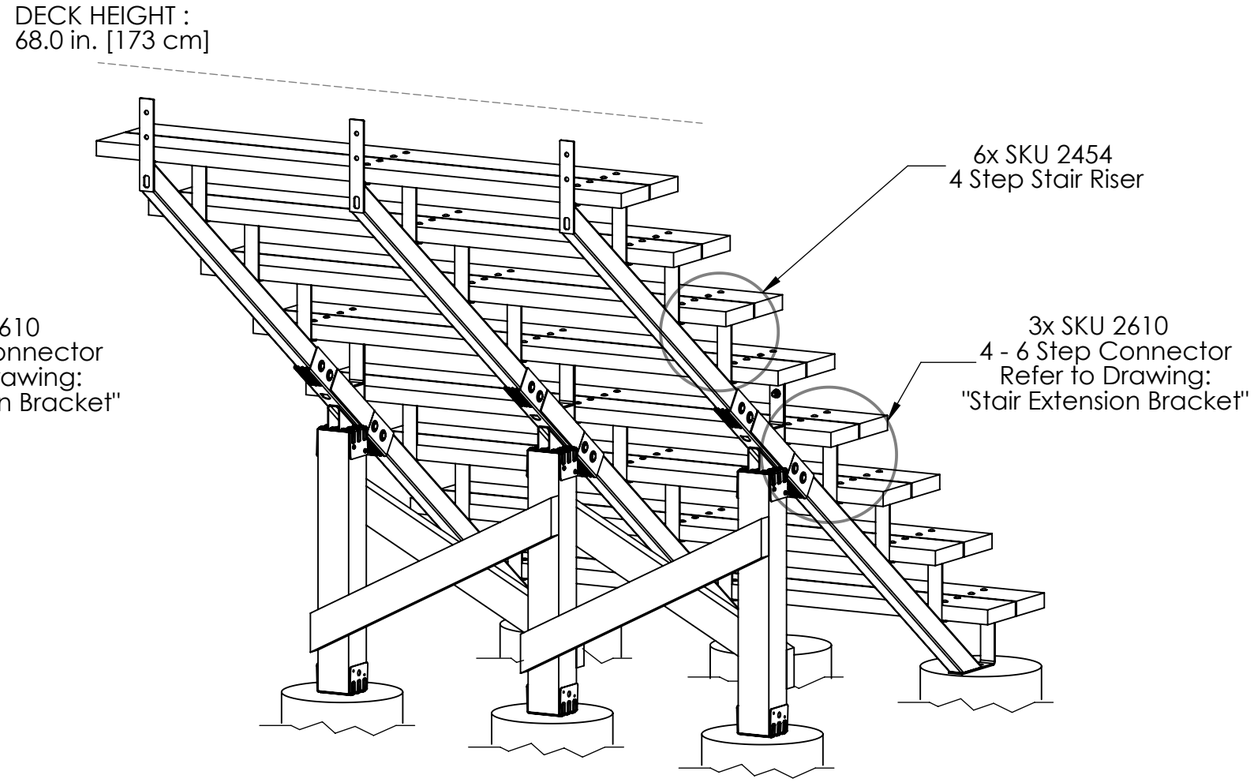
SIZE B
DWG. NO. Report_CAN_Multi-stringer

SCALE: 1:8
SHT REV 2016-06-01-A

Two Riser Assembly



Multi Riser Assembly



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PEAK

TITLE
8-Step Stair Assembly

PART FILE
Stair Assembly 8 Step (4+4)

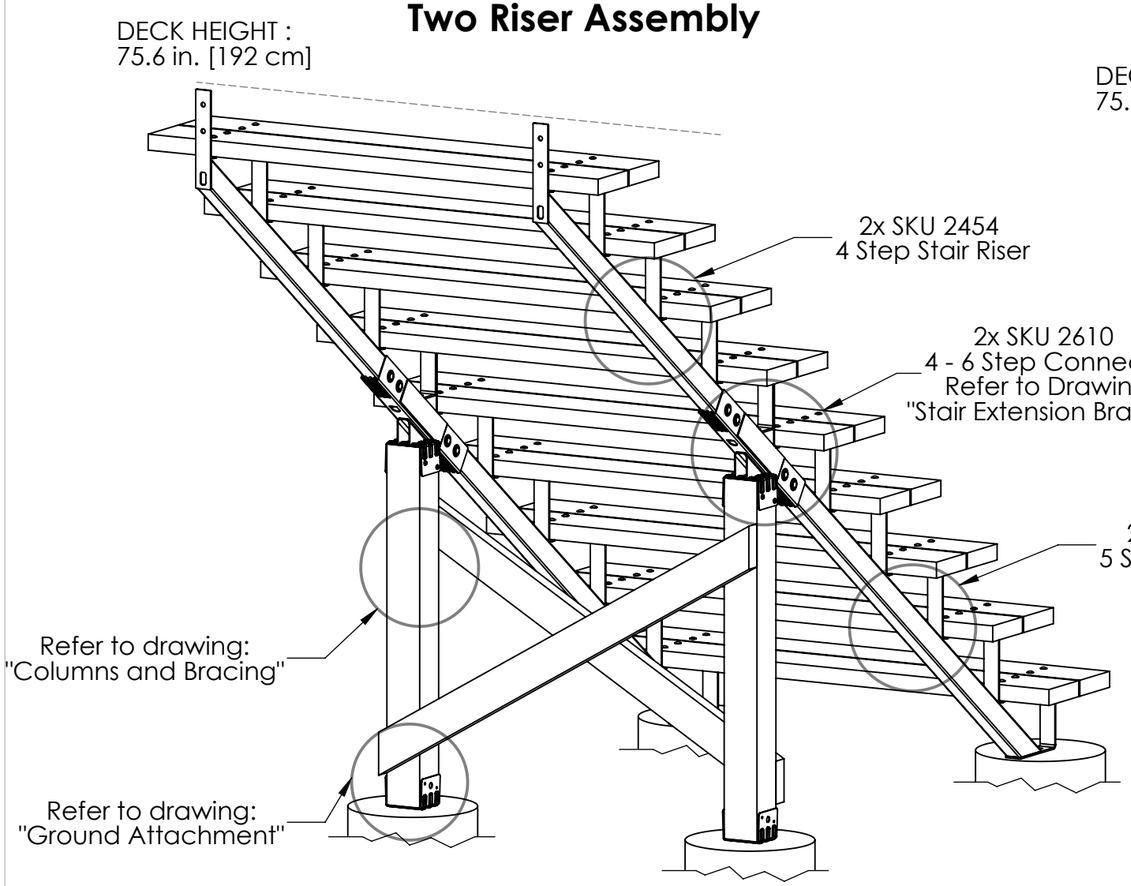
DWG REV C

DIMENSIONS ARE IN MM UNLESS NOTED
DO NOT SCALE DRAWING

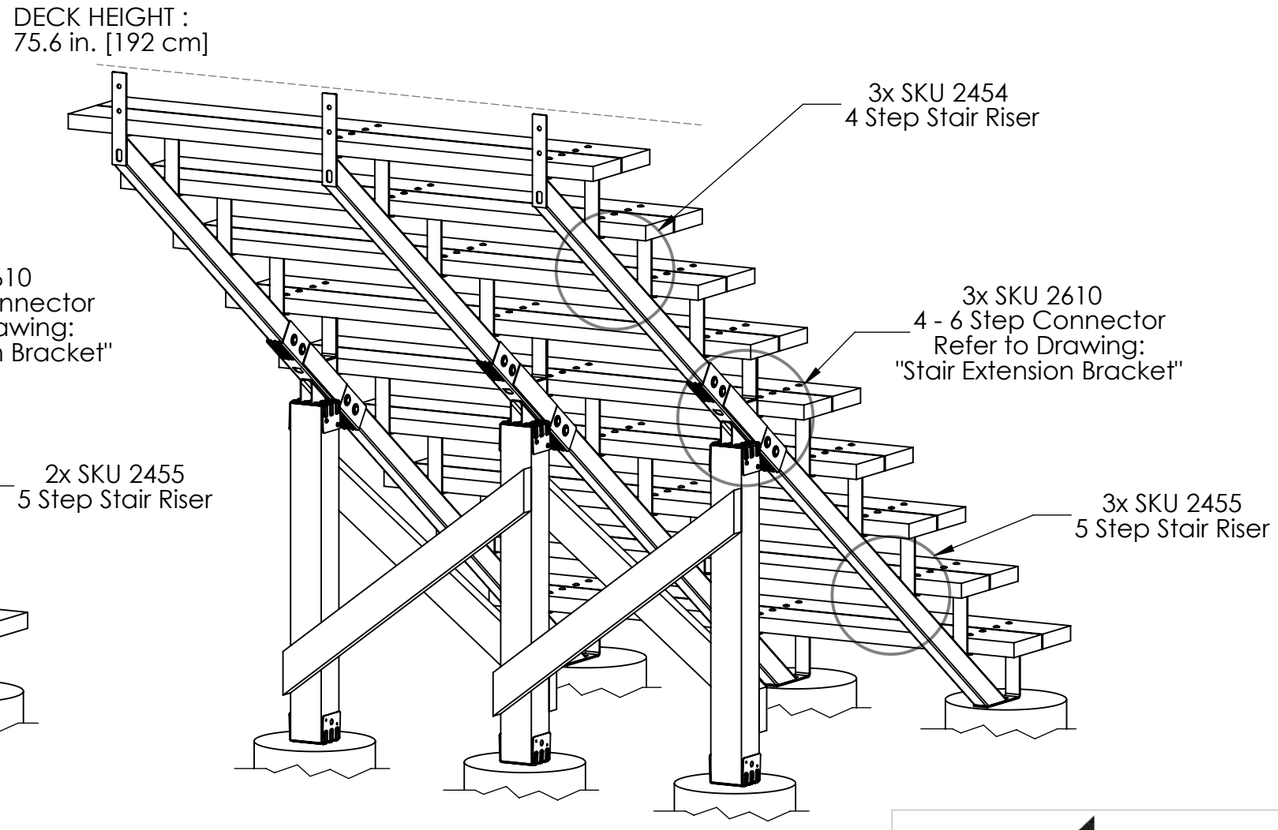
SIZE B
DWG. NO. Stair Assemblies - CAN

SCALE: 1:24
SHT REV 2017-05-16

Two Riser Assembly



Multi Riser Assembly



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PEAK

TITLE
9-Step Stair Assembly

PART FILE
Stair Assembly 8 Step (4+4)

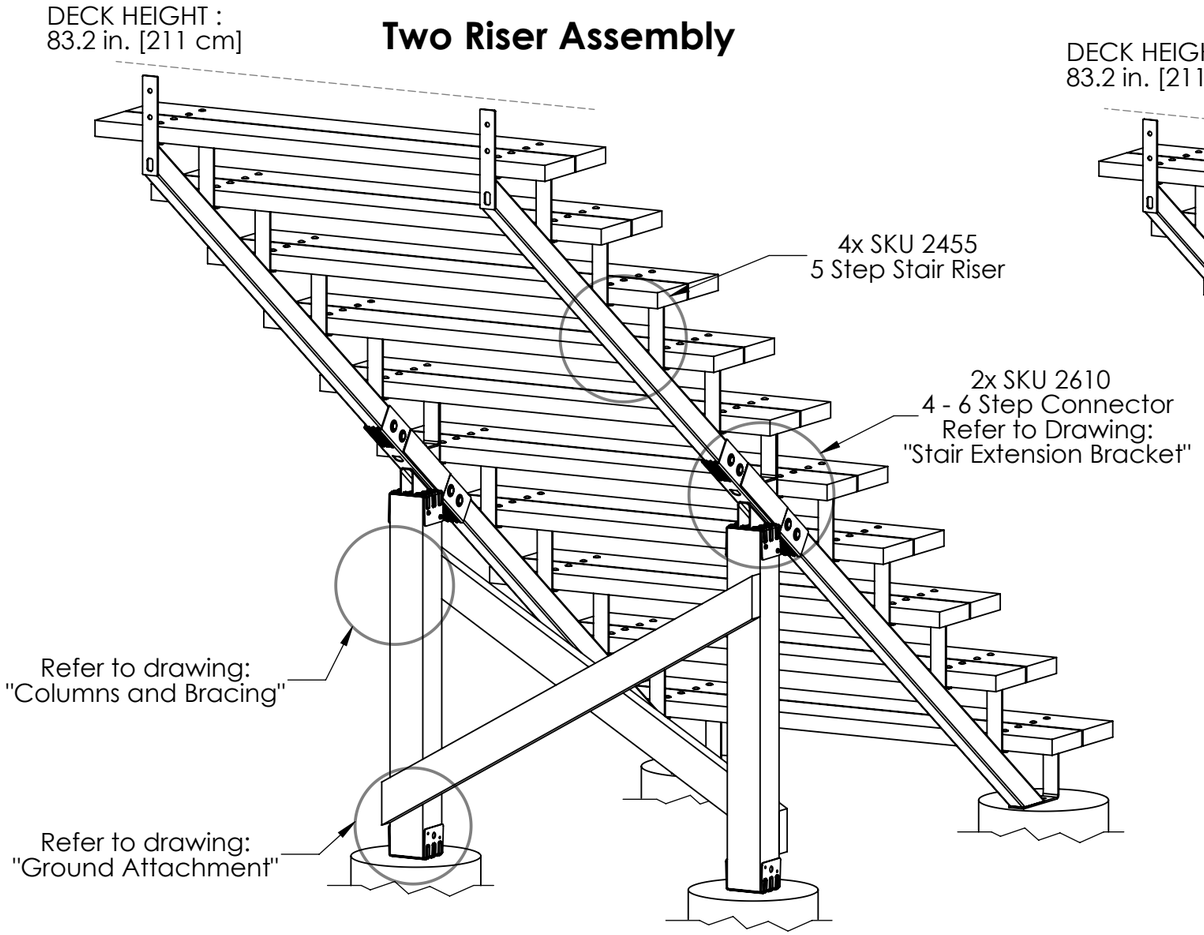
DWG REV C

DIMENSIONS ARE IN MM UNLESS NOTED
DO NOT SCALE DRAWING

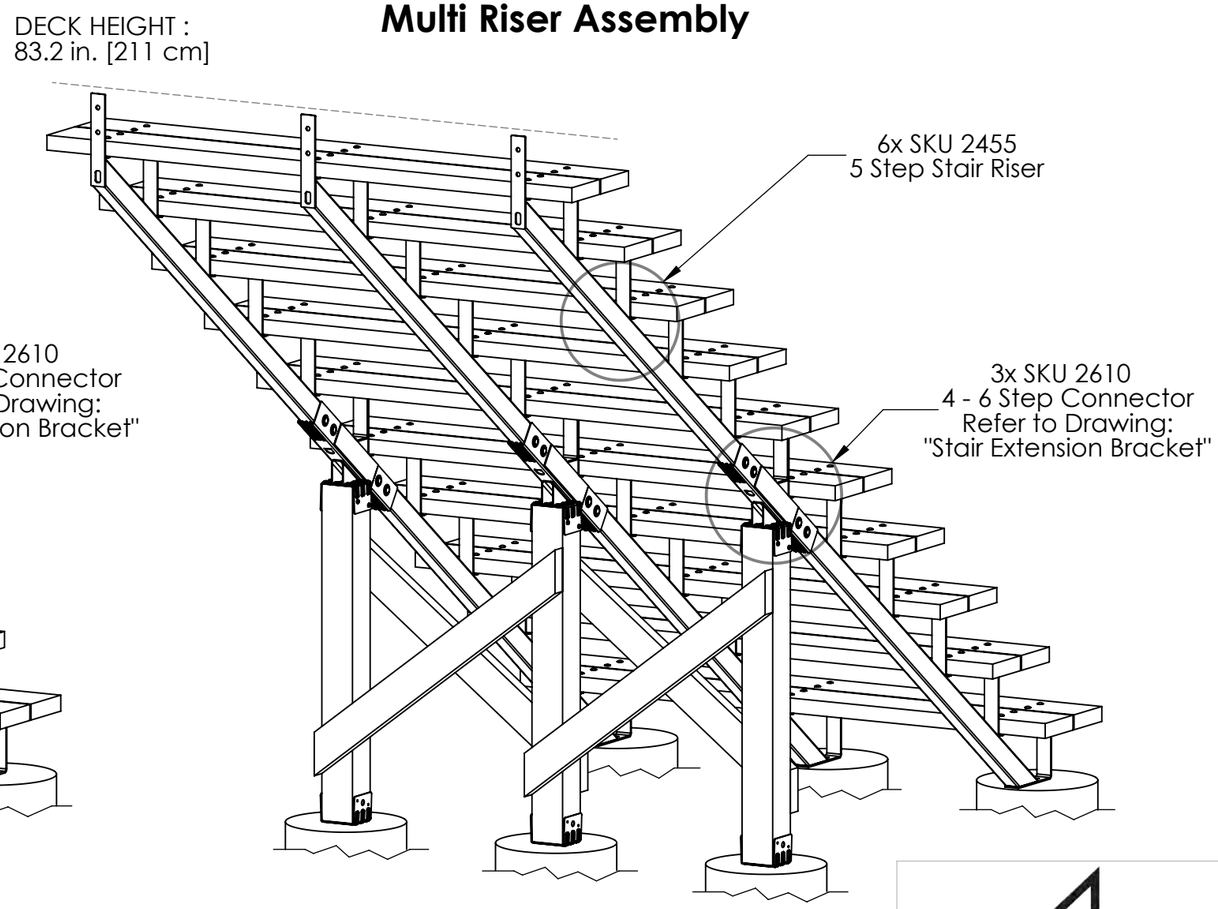
SIZE B | DWG. NO. Stair Assemblies - CAN

SCALE: 1:24 | SHT REV 2017-05-16 |

Two Riser Assembly



Multi Riser Assembly



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PEAK

TITLE
10-Step Stair Assembly

PART FILE
Stair Assembly 8 Step (4+4)

DWG REV C

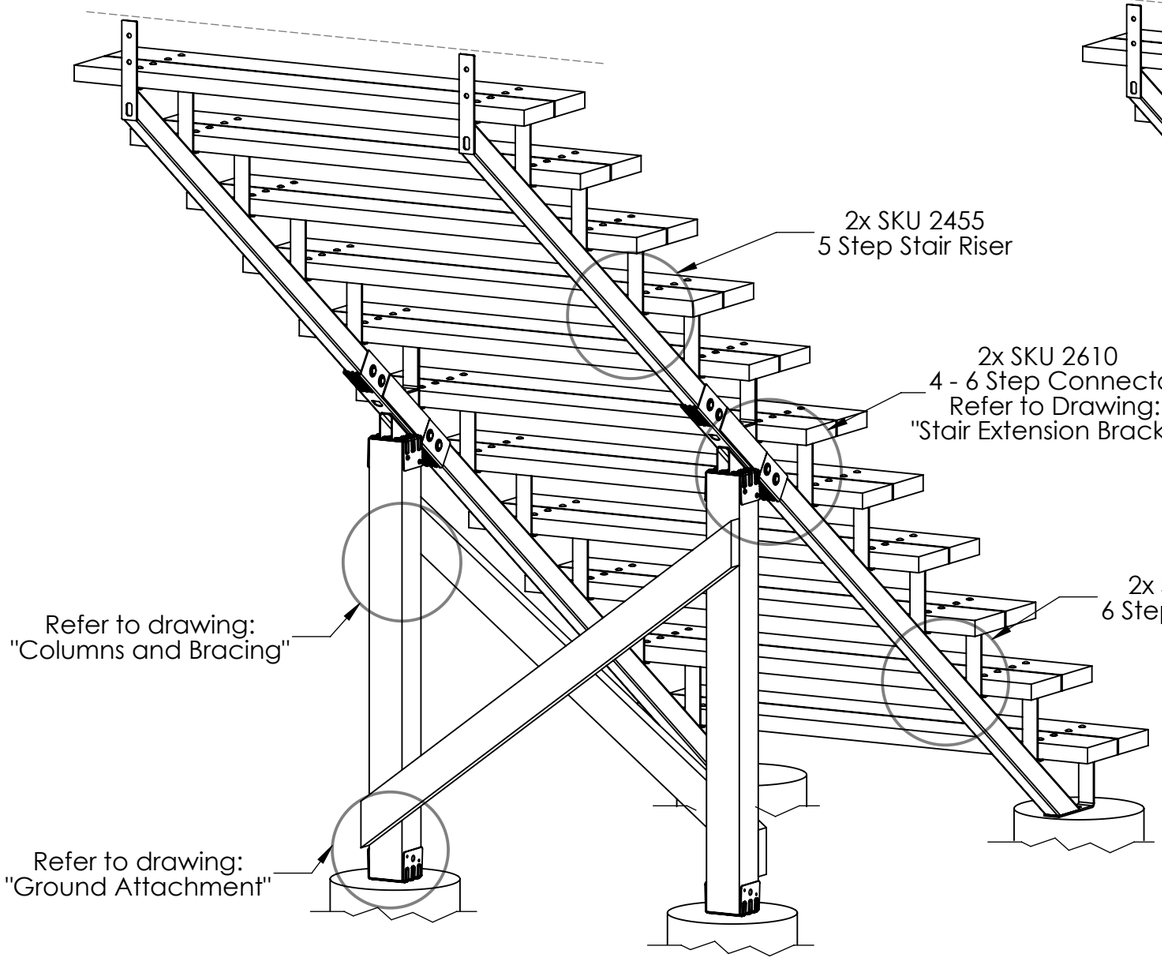
DIMENSIONS ARE IN MM UNLESS NOTED
DO NOT SCALE DRAWING

SIZE B | DWG. NO. Stair Assemblies - CAN

SCALE: 1:24 | SHT REV 2017-05-16 |

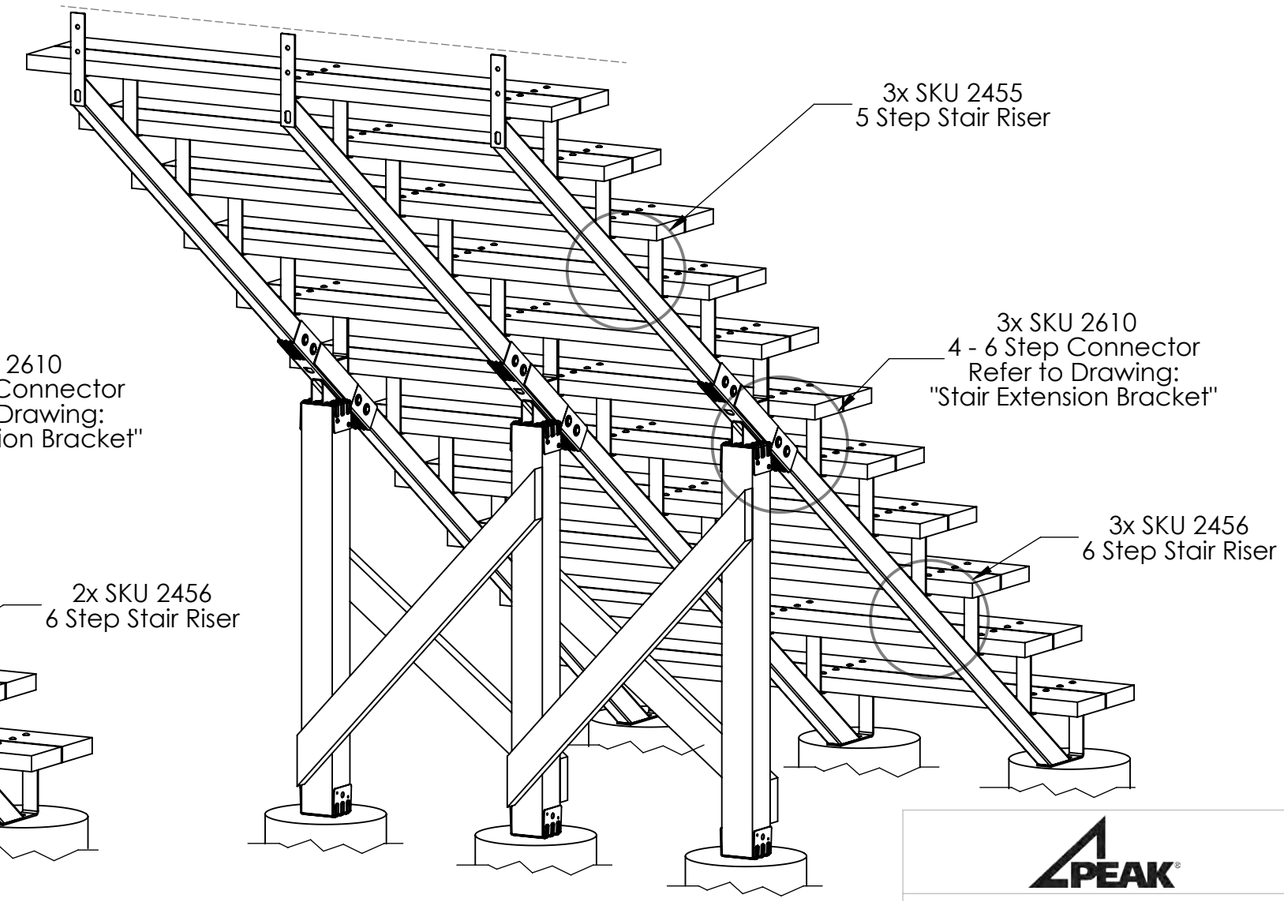
DECK HEIGHT :
90.7 in. [230 cm]

Two Riser Assembly



DECK HEIGHT :
90.7 in. [230 cm]

Multi Riser Assembly



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2024-05-02

PEAK

TITLE
11-Step Stair Assembly

PART FILE
Stair Assembly 8 Step (4+4)

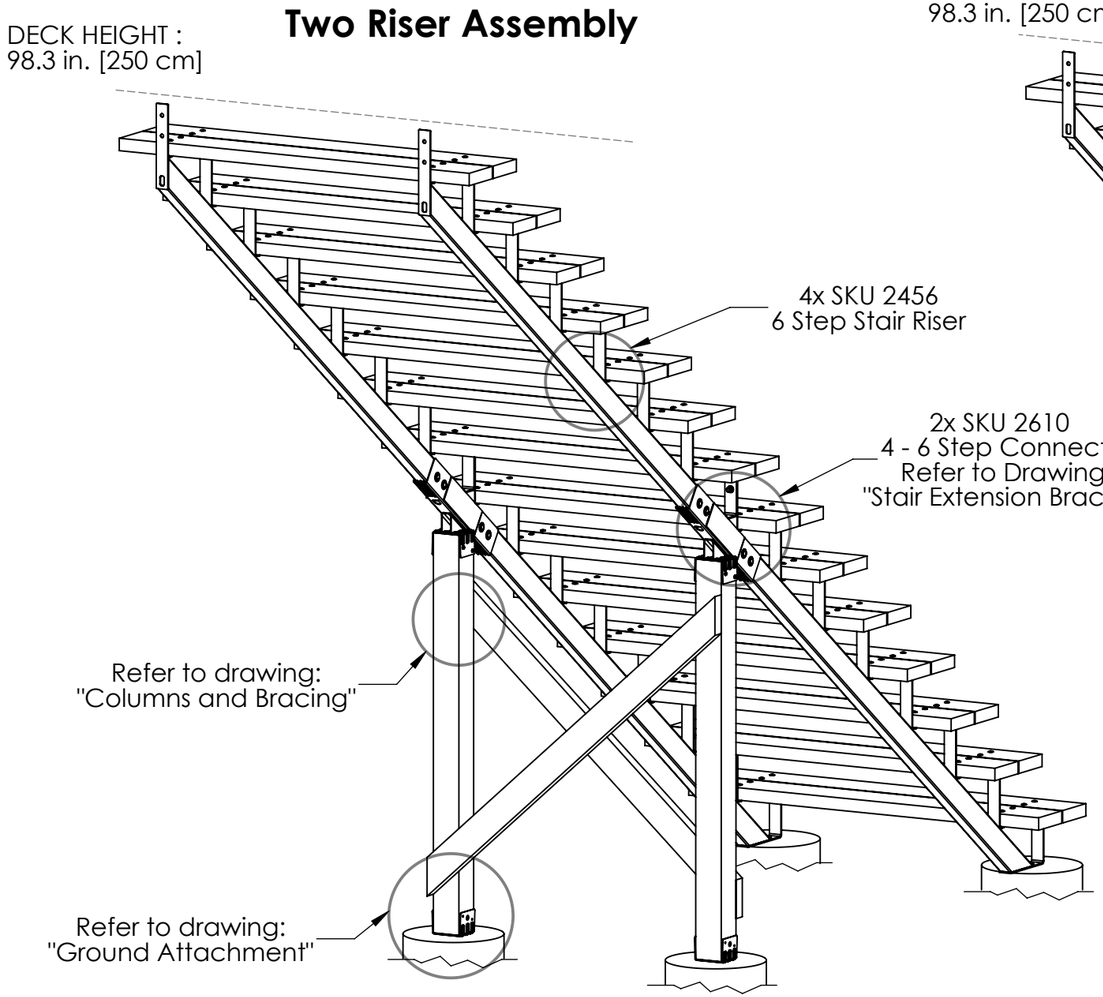
DWG REV C

DIMENSIONS ARE IN MM UNLESS NOTED
DO NOT SCALE DRAWING

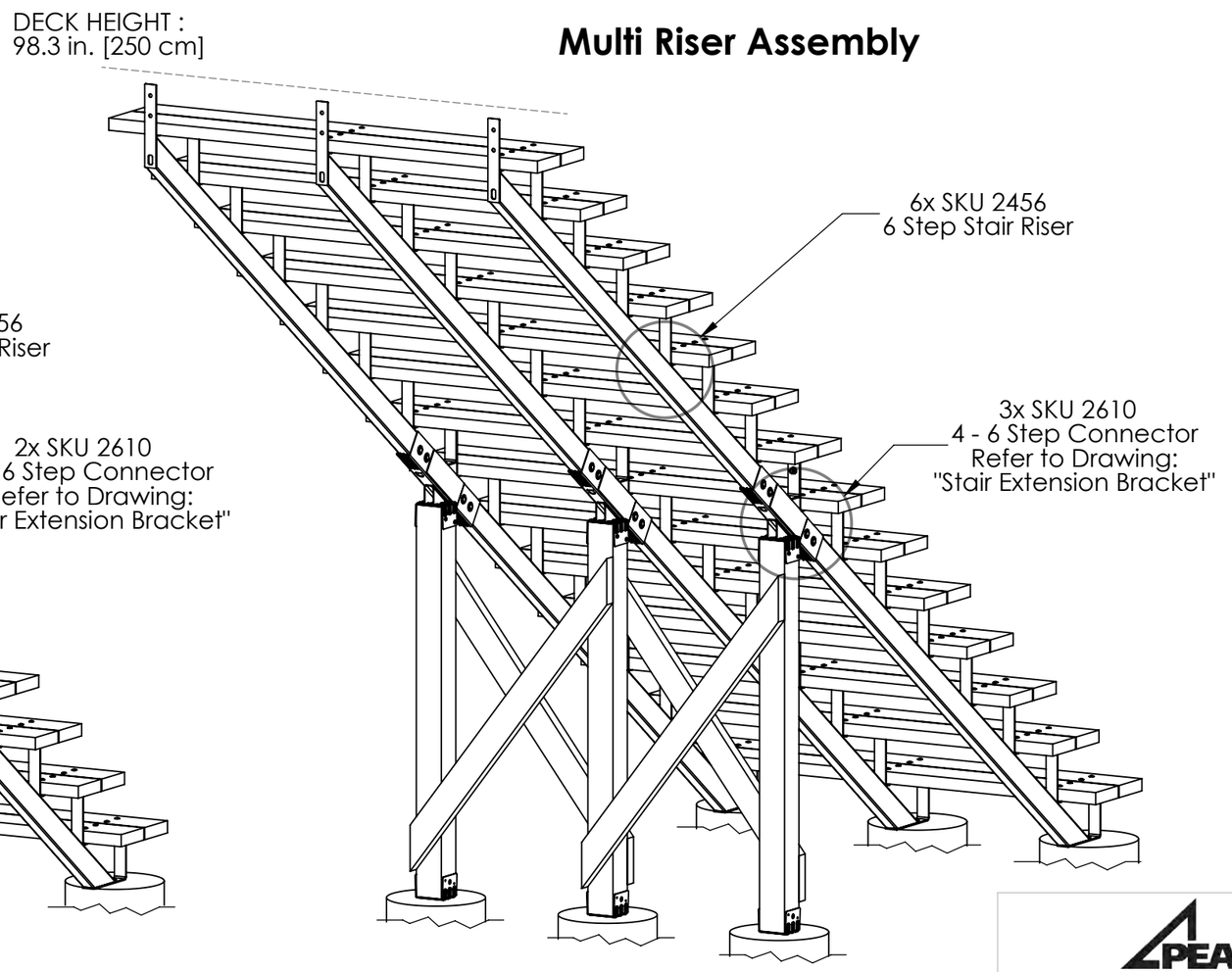
SIZE B | DWG. NO. Stair Assemblies - CAN

SCALE: 1:24 | SHT REV 2017-05-16 |

Two Riser Assembly



Multi Riser Assembly



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2024-05-02

PEAK

TITLE
12-Step Stair Assembly

PART FILE
Stair Assembly 8 Step (4+4)

DWG REV
C

DIMENSIONS ARE IN MM UNLESS NOTED
DO NOT SCALE DRAWING

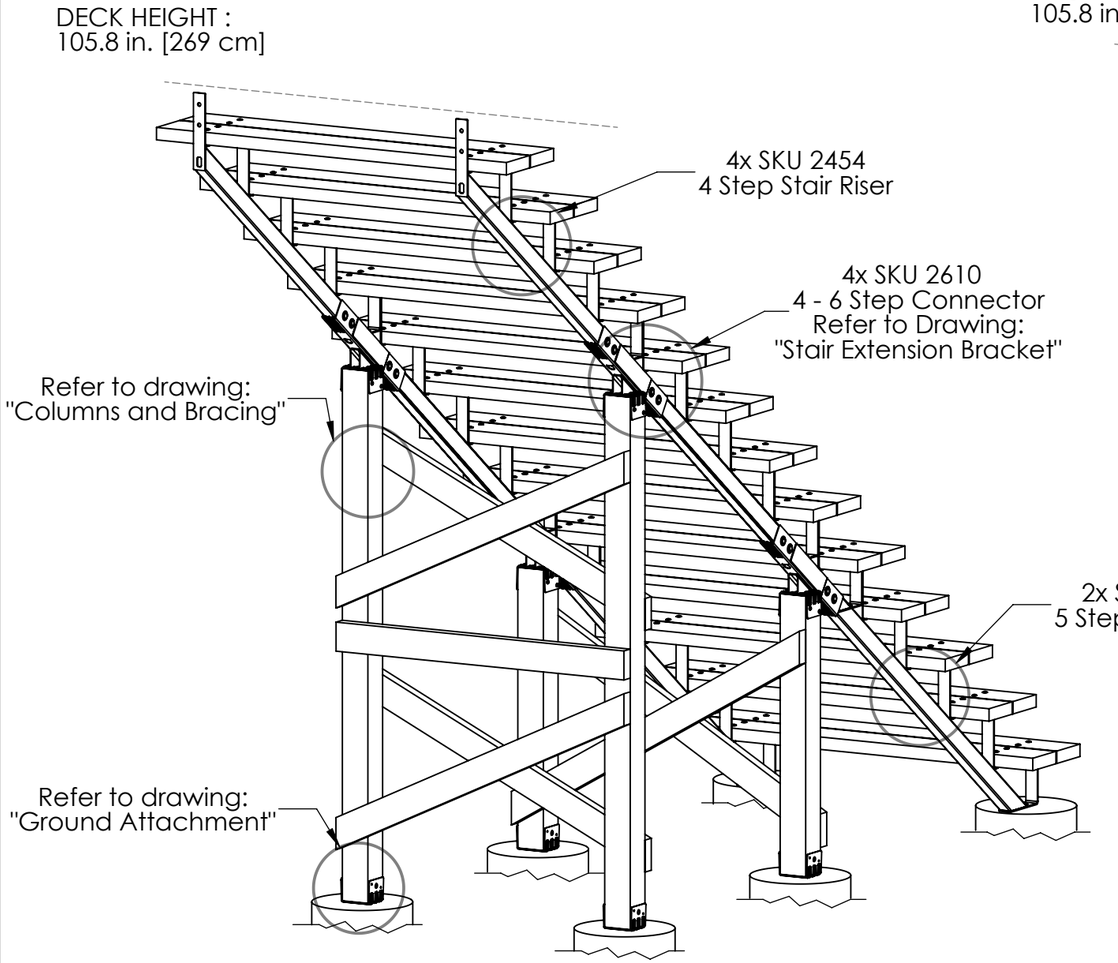
SIZE **B**

DWG. NO.
Stair Assemblies - CAN

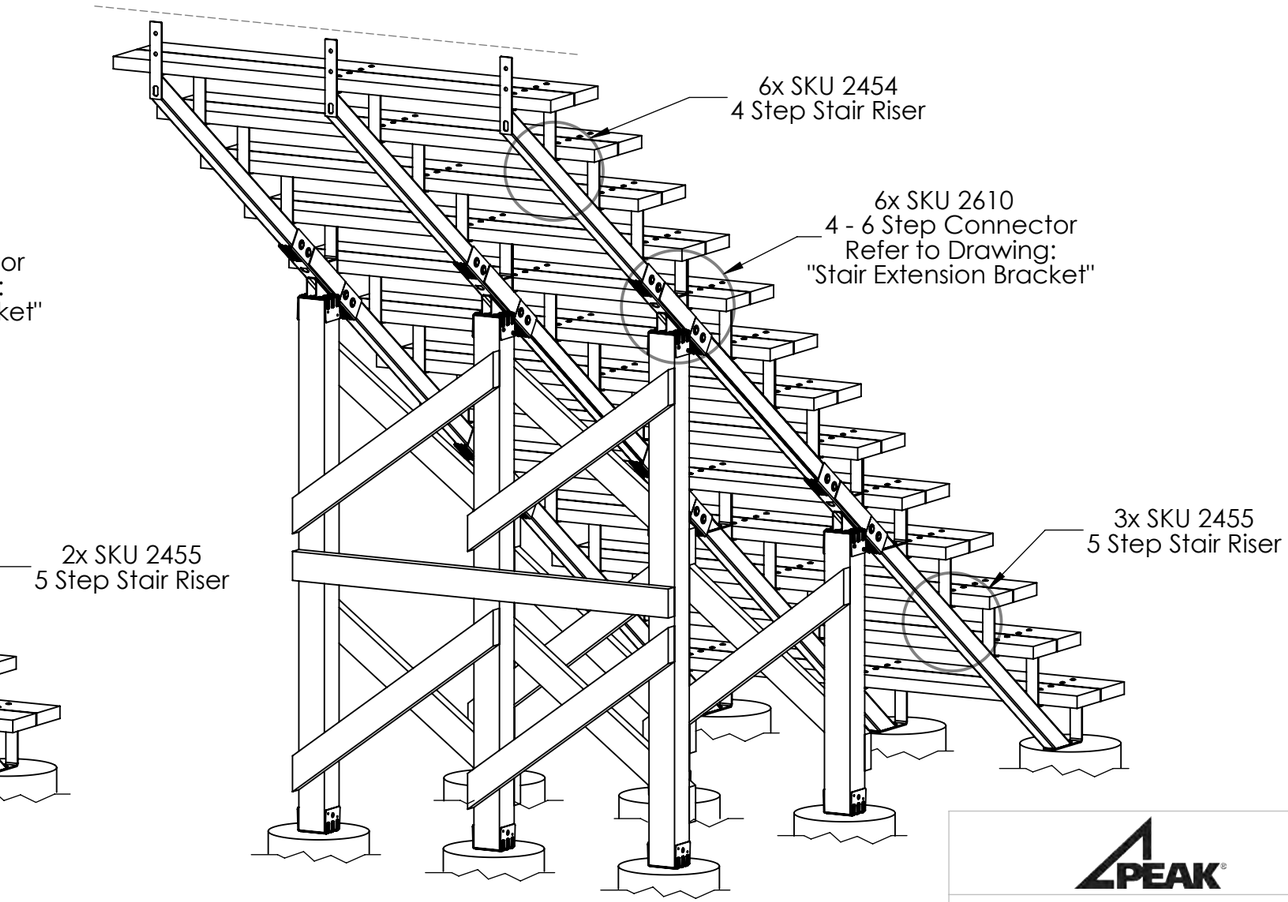
SCALE: 1:24

SHT REV
2017-05-16

Two Riser Assembly



Multi Riser Assembly



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C. K. ROBINSON
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LICENSED PROFESSIONAL ENGINEER
C. K. ROBINSON
1005711628
PROVINCE OF ONTARIO

2024-05-02

PEAK

TITLE
13-Step Stair Assembly

PART FILE
Stair Assembly 8 Step (4+4)

DWG REV C

DIMENSIONS ARE IN MM UNLESS NOTED
DO NOT SCALE DRAWING

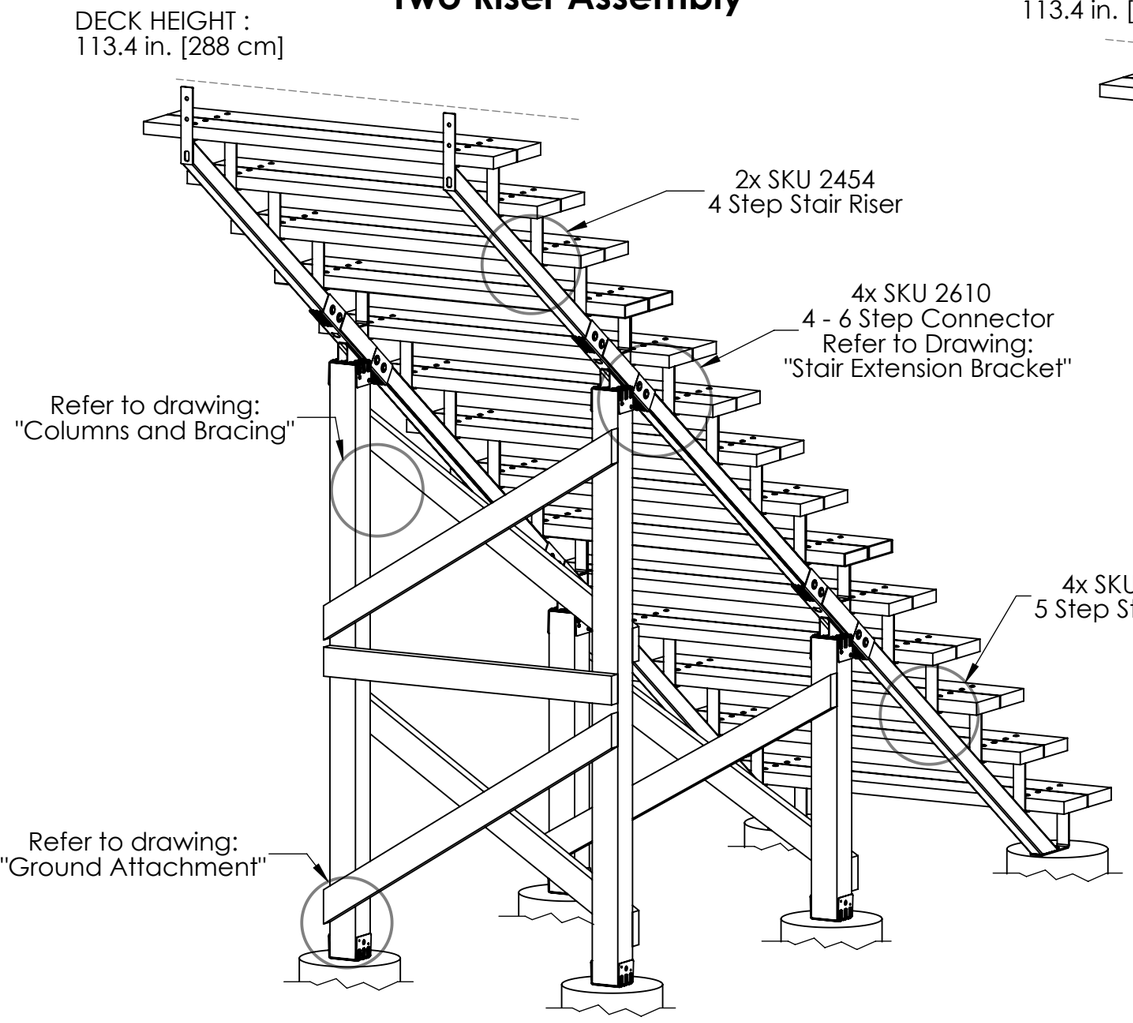
SIZE B

DWG. NO.
Stair Assemblies - CAN

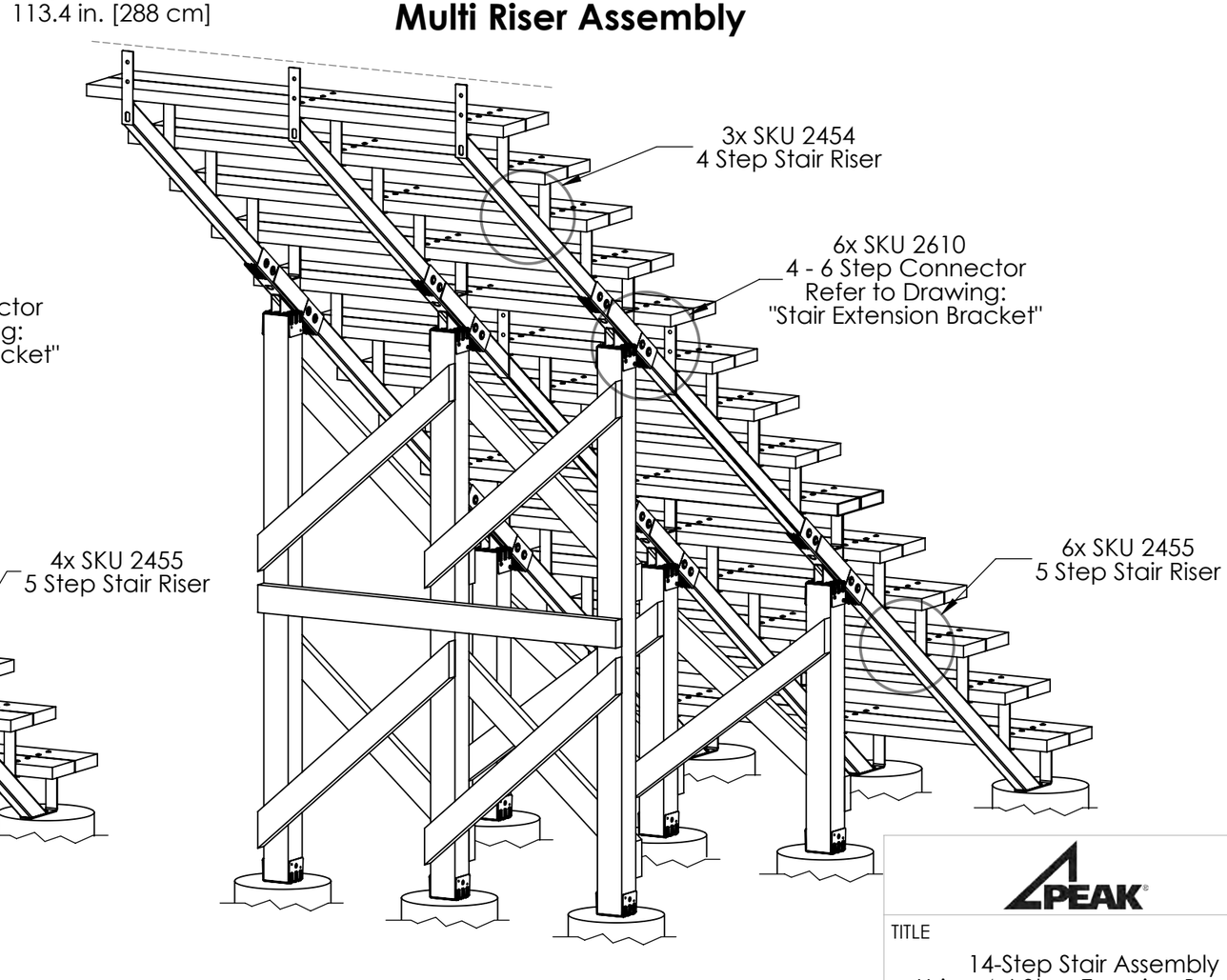
SCALE: 1:24

SHT REV 2017-05-16

Two Riser Assembly



Multi Riser Assembly



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PROVINCE OF ONTARIO

2024-05-02

PEAK

TITLE

14-Step Stair Assembly
Using 4-6 Step Exension Bracket

PART FILE

Stair Assembly 8 Step (4+4)

DWG REV C

DIMENSIONS ARE IN MM UNLESS NOTED
DO NOT SCALE DRAWING

SIZE B

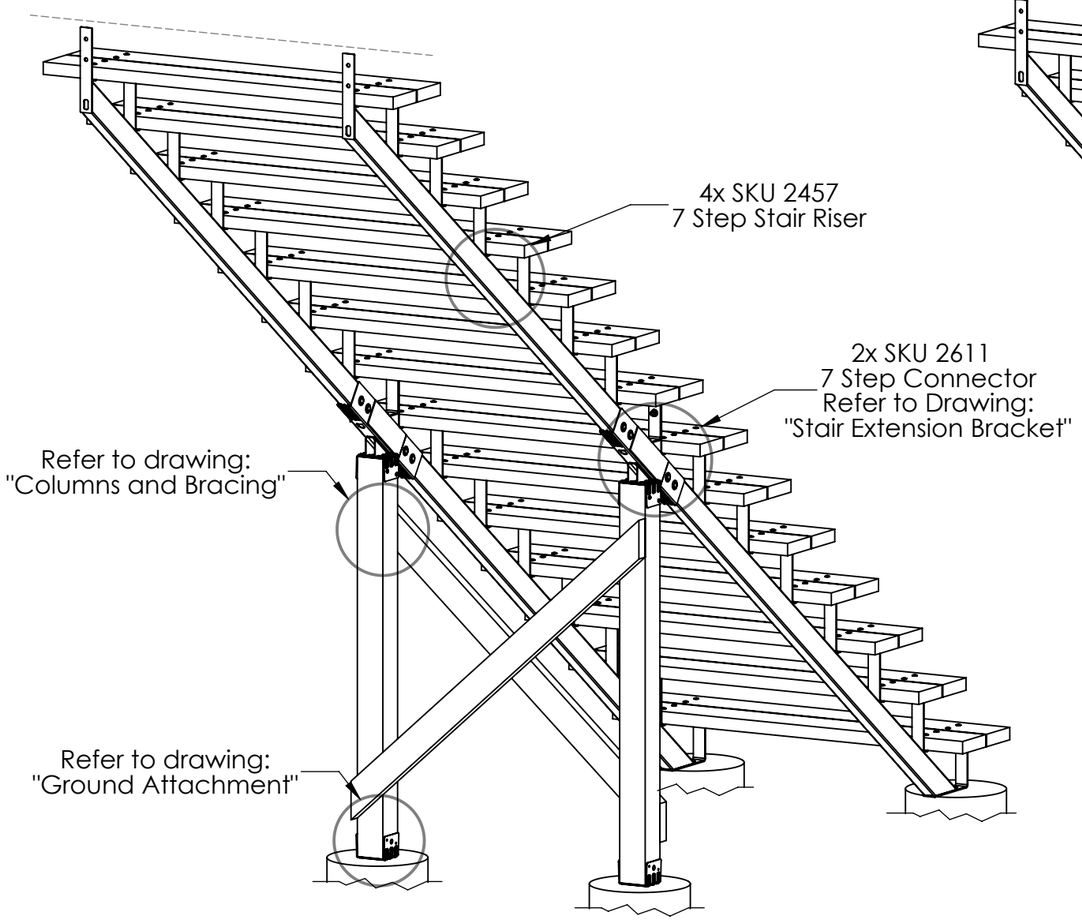
DWG. NO.
Stair Assemblies - CAN

SCALE: 1:24

SHT REV 2017-05-16

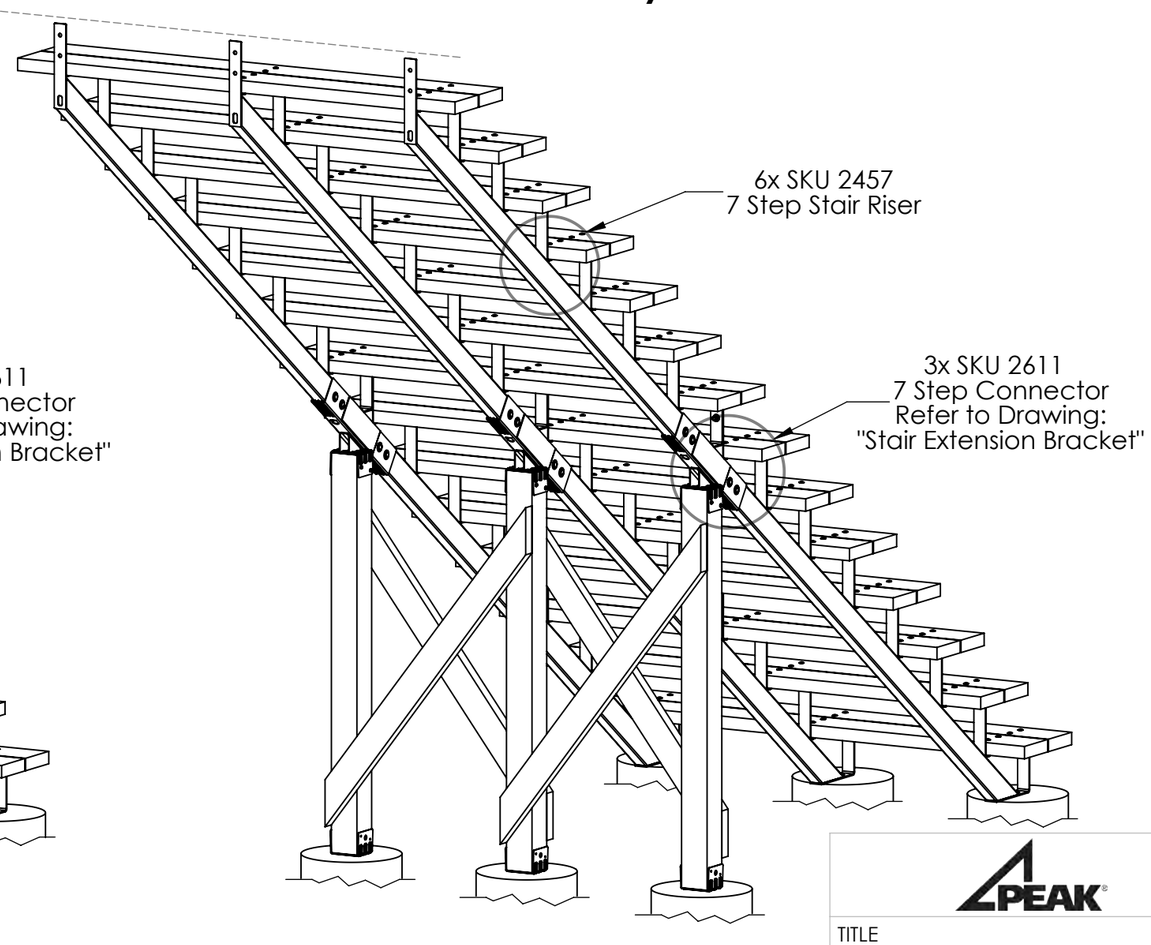
Two Riser Assembly

DECK HEIGHT :
113.4 in. [288 cm]



Multi Riser Assembly

DECK HEIGHT :
113.4 in. [288 cm]



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LICENSED PROFESSIONAL ENGINEER
C. K. ROBINSON
1005716281
PROVINCE OF ONTARIO
2024-05-02

PEAK

TITLE
14-Step Stair Assembly
Using 7 Step Exension Bracket

PART FILE
Stair Assembly 8 Step (4+4)

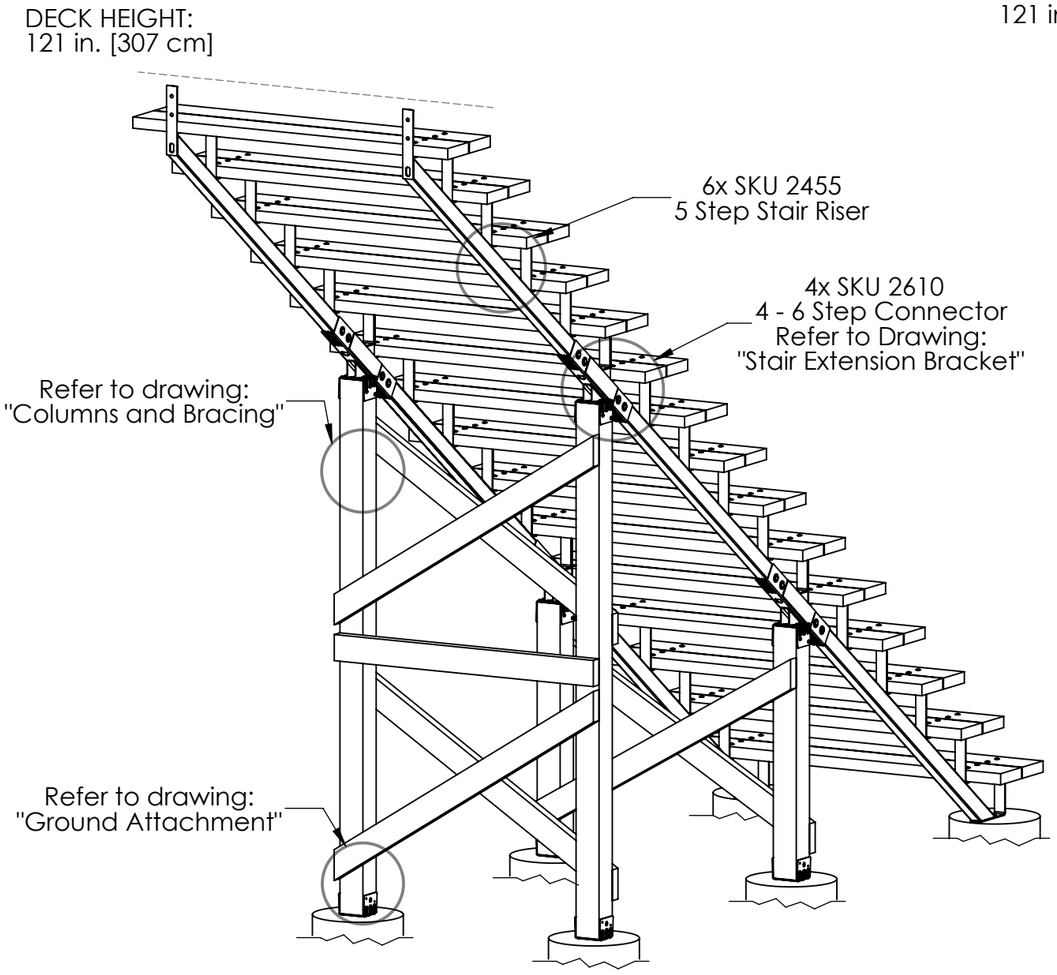
DWG REV C

DIMENSIONS ARE IN MM UNLESS NOTED
DO NOT SCALE DRAWING

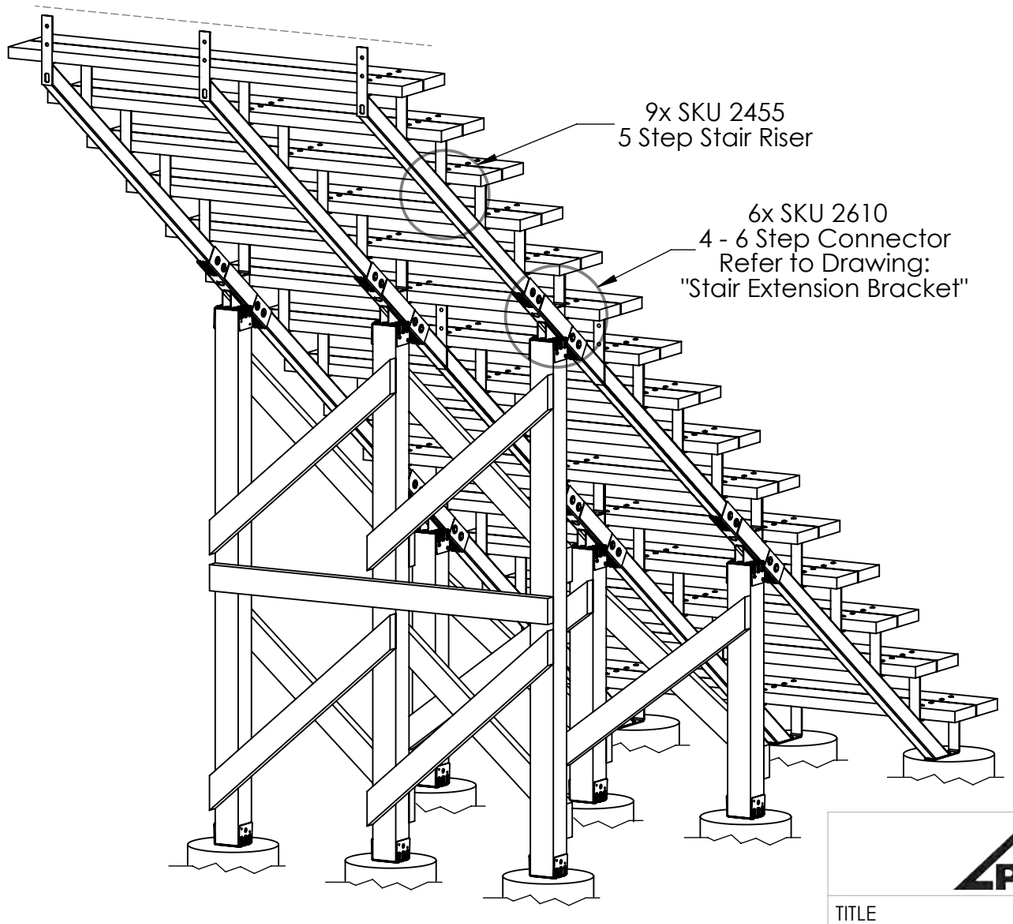
SIZE B | DWG. NO. Stair Assemblies - CAN

SCALE: 1:24 | SHT REV 2017-05-16 | Sheet 11 of 15

Two Riser Assembly



Multi Riser Assembly



2024-05-02
PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
C. K. ROBINSON
29241
Permit to Practice: 1000301

PROFESSIONAL ENGINEER ALBERTA
CAMERON ROBINSON
2024-05-02
APEGA Permit No.: 14784

LICENSED PROFESSIONAL ENGINEER
C. K. ROBINSON
100571628
PROVINCE OF ONTARIO
2024-05-02

PEAK

TITLE
15-Step Stair Assembly

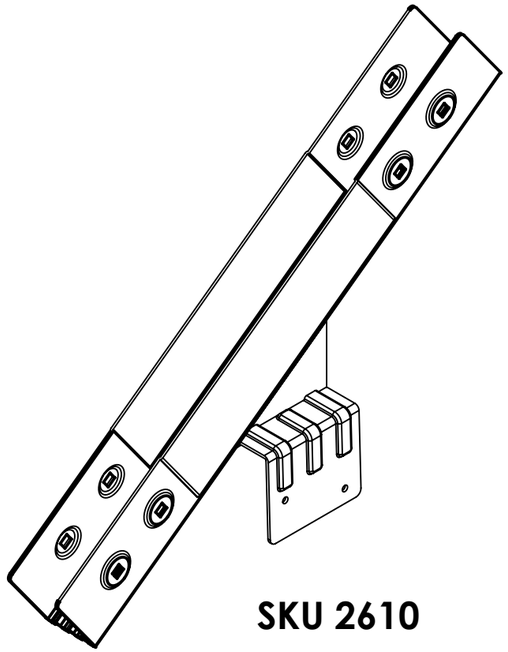
PART FILE
Stair Assembly 8 Step (4+4)

DWG REV C

DIMENSIONS ARE IN MM UNLESS NOTED
DO NOT SCALE DRAWING

SIZE B | DWG. NO. Stair Assemblies - CAN

SCALE: 1:24 | SHT REV 2017-05-16 | Sheet 12 of 15



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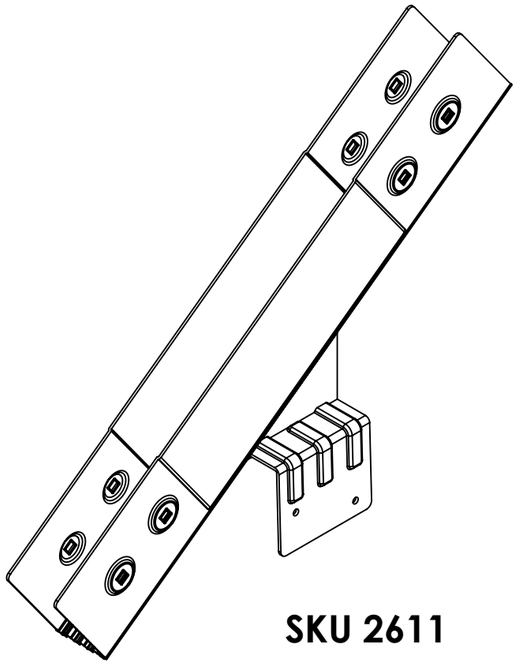
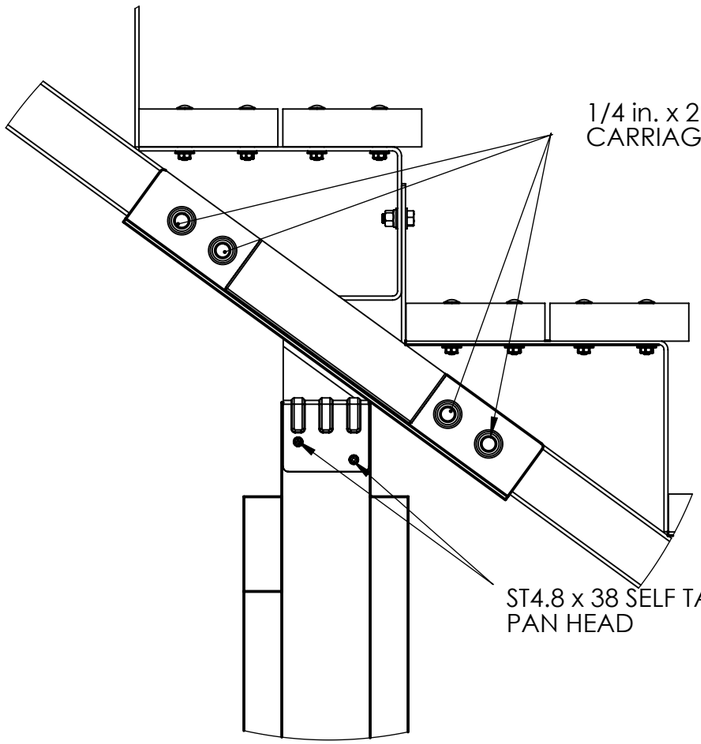
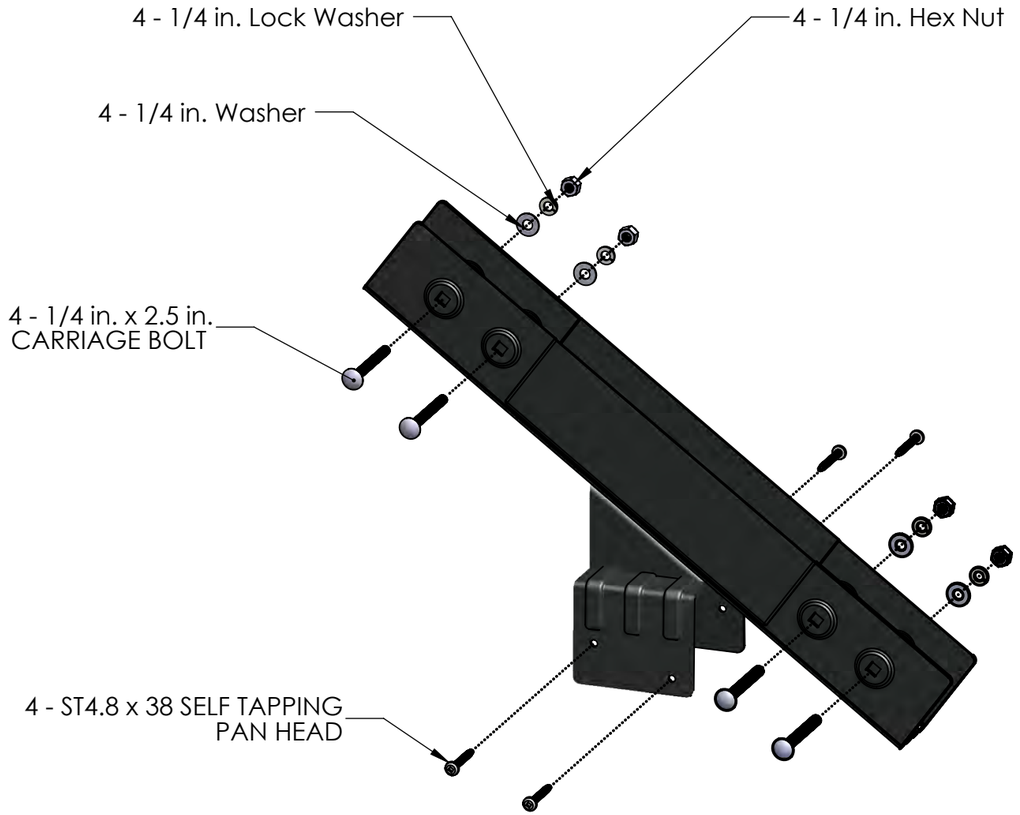


SKU 2611



Stair Extension Bracket Installed



Stair Extension Bracket Fasteners

2024-05-02
PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
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LICENSED PROFESSIONAL ENGINEER
C. K. ROBINSON
1005571628
PROVINCE OF ONTARIO
2024-05-02

PEAK

TITLE
Stair Extension Bracket

PART FILE
8 Step

DWG REV
B

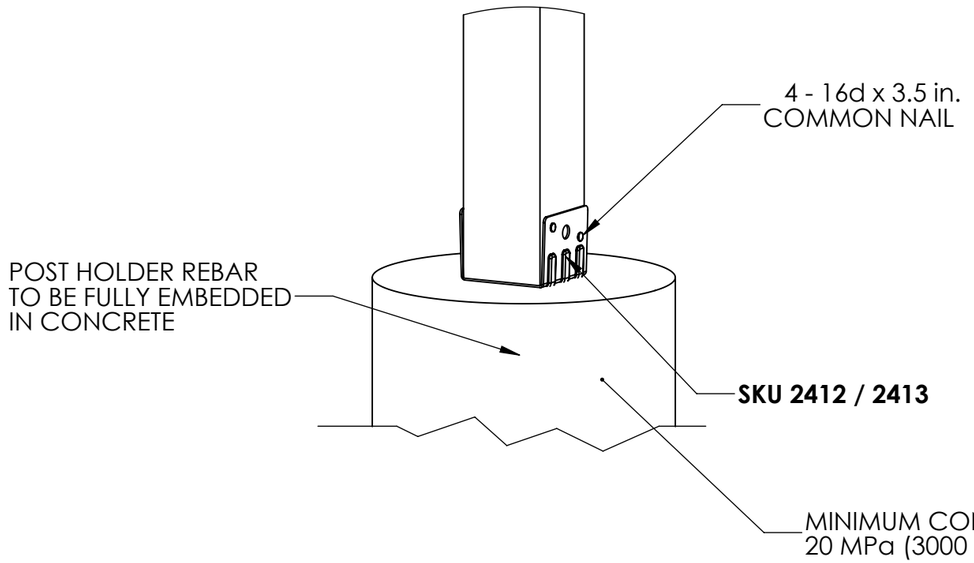
DIMENSIONS ARE IN MM UNLESS NOTED
DO NOT SCALE DRAWING

SIZE **B**
DWG. NO.
Stair Extension Bracket - NA Compliance

SCALE: 1:24
SHT REV 2017-05-16

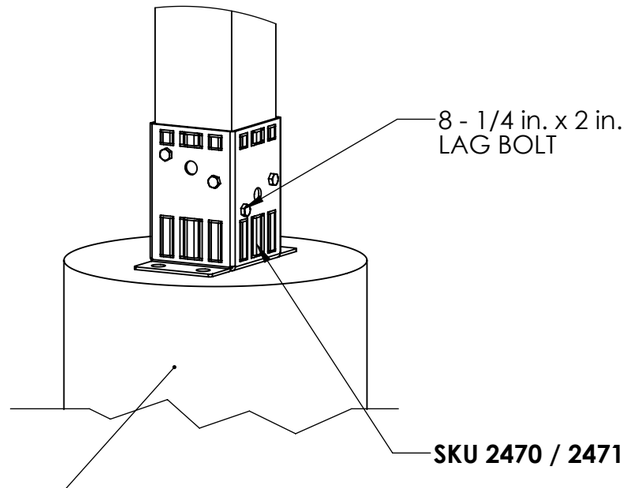
POST ANCHORS

4X4 Post Holder



OR

4X4 Bolt Down



Concrete footings per
9.15-Footings and Foundations of the
Building Code

2024-05-02

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
C. K. ROBINSON
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PROFESSIONAL ENGINEER ALBERTA
CAMERON ROBINSON

2024-05-02
APEGA Permit No.: 14784

LICENSED PROFESSIONAL ENGINEER
C. K. ROBINSON
100571628
PROVINCE OF ONTARIO

2024-05-02

PEAK

TITLE
Ground Attachment

PART FILE
8 Step

DWG REV
B

DIMENSIONS ARE IN MM UNLESS NOTED
DO NOT SCALE DRAWING

SIZE **B**

DWG. NO.
Stair Extension Bracket - NA Compliance

SCALE: 1:24

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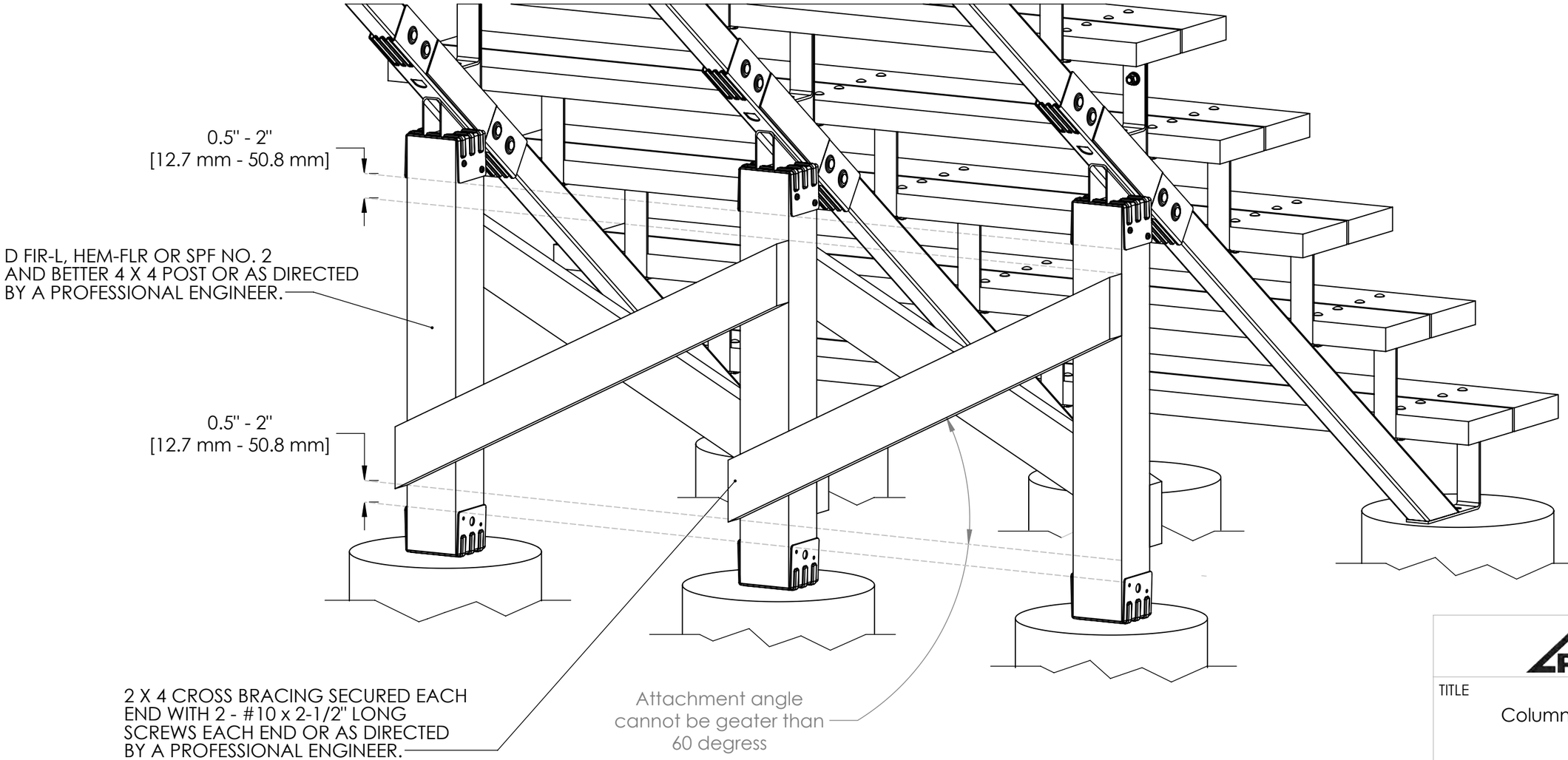
2017-05-16



2024-05-02

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
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ENGINEER

Permit to Practice: 1000301

PROFESSIONAL ENGINEER ALBERTA
CAMERON ROBINSON

2024-05-02
APEGA Permit No.: 14784

LICENSED PROFESSIONAL ENGINEER
C. K. ROBINSON
1005711628
PROVINCE OF ONTARIO

2024-05-02

PEAK

TITLE
Columns and Bracing

PART FILE
8 Step

DWG REV
B

DIMENSIONS ARE IN MM UNLESS NOTED
DO NOT SCALE DRAWING

SIZE **B**

DWG. NO.
Stair Extension Bracket - NA Compliance

SCALE: 1:24

SHT REV
2017-05-16