

10×10 Backyard Pergola

Automated woodworking cut list, grouped board cutting diagrams, and step-by-step 3D assembly guide.

Specifications

Overall Dimensions	124" W × 120" D × 103.5" H
Total Parts Count	58 pieces (9 unique sizes)
Dimensional Stock Lumber	38 boards (20 unique cutting patterns)
Wood Screws	136 screws

3D Project Overview

benchbuild.app

Cut List Summary

Identical pieces are grouped together. Check off each row as you cut your lumber and sheet goods.

Qty	Material	Cut Dimensions	Miter / Angle Cuts	Piece Names
4×	4x4	102"	Square (90°)	4× Posts
14×	2x4	3.5"	Square (90°)	12× Post Base Cleats · 2× Bench Post Cleats
17×	2x6	120"	Square (90°)	4× Beams · 4× Headers · 9× Rafters
4×	2x6	16"	Square (90°)	4× Support Bolsters
4×	2x4	87.5"	Square (90°)	4× Rails
2×	2x6	80.5"	Square (90°)	2× Bench Slats

Qty	Material	Cut Dimensions	Miter / Angle Cuts	Piece Names
3×	2x4	11"	Square (90°)	3× Bench Cleats
1×	4x4	18"	Square (90°)	Bench Post
9×	2x4	124"	Square (90°)	9× Shade Purlins

Board Cutting Diagrams

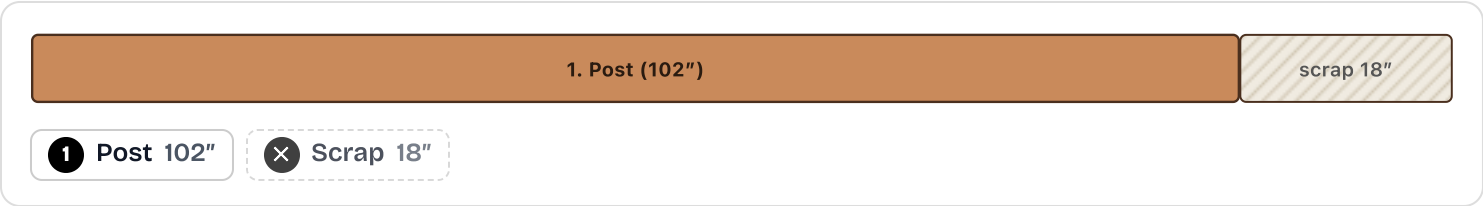
Boards with identical cuts are grouped with a multiplier badge (e.g., 5× **Boards**) so you only read each cutting layout once. Includes 1/8" blade kerf.

4× Boards

4x4 (10' / 120" stock)

1 cut/board • 102" used • 18" scrap

Cut this pattern 4 times (4 boards total). Makes: Front Left Post, Front Right Post, Back Left Post, Back Right Post

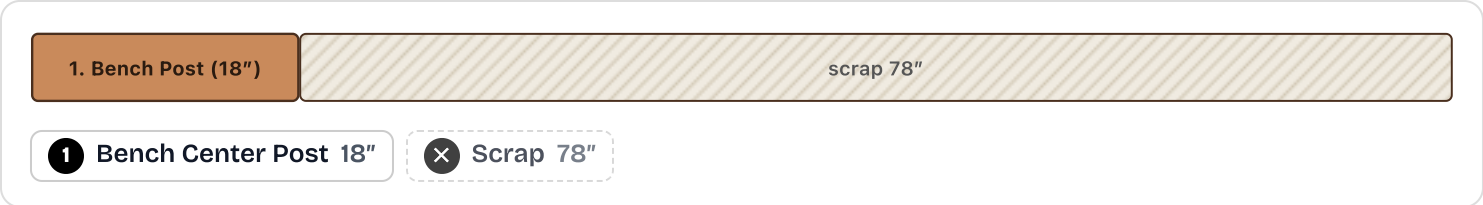


1× Board

4x4 (8' / 96" stock)

1 cut/board • 18" used • 78" scrap

Produces: Bench Center Post



1× Board

2x4 (12' / 144" stock)

4 cuts/board • 142.4" used • 1.6" scrap

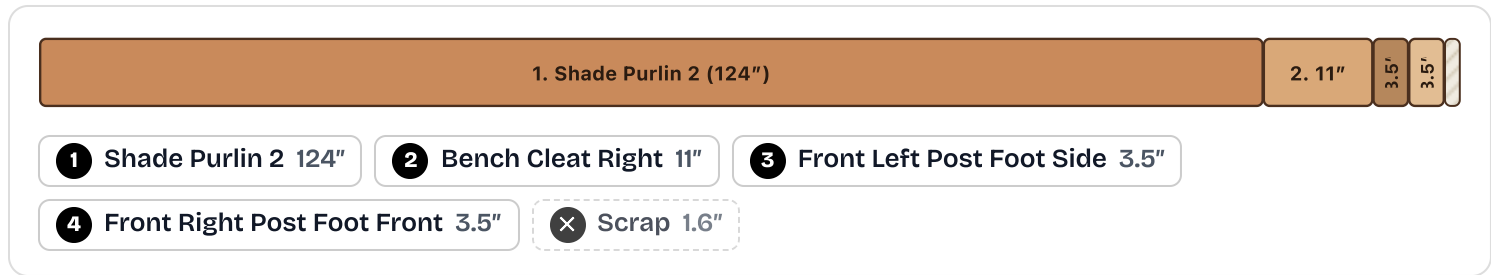
Produces: Shade Purlin 1 + Bench Cleat Left + Front Left Post Foot Front + Front Left Post Foot Back



1x Board**2x4 (12' / 144" stock)**

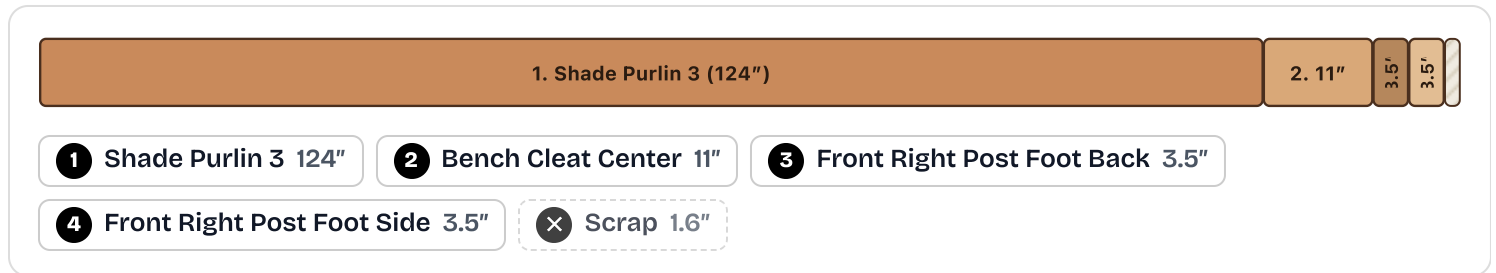
4 cuts/board • 142.4" used • 1.6" scrap

Produces: Shade Purlin 2 + Bench Cleat Right + Front Left Post Foot Side + Front Right Post Foot Front

**1x Board****2x4 (12' / 144" stock)**

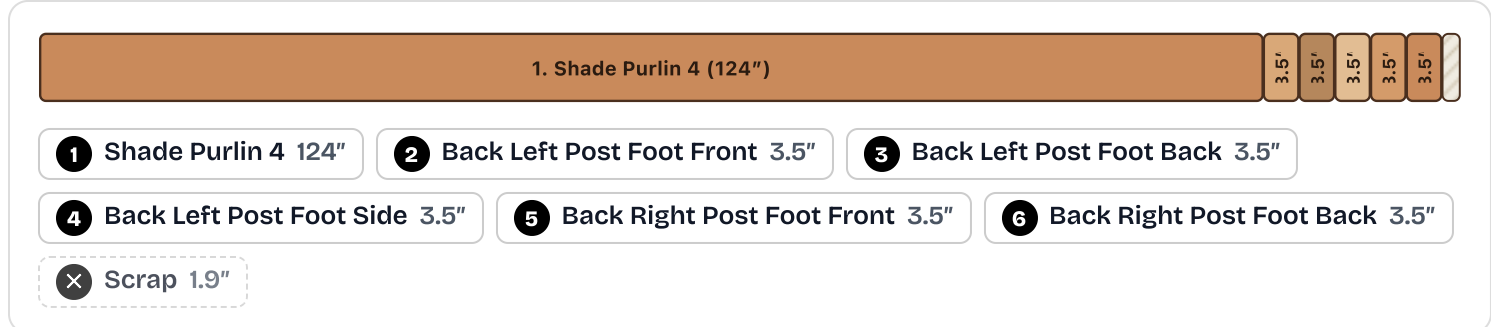
4 cuts/board • 142.4" used • 1.6" scrap

Produces: Shade Purlin 3 + Bench Cleat Center + Front Right Post Foot Back + Front Right Post Foot Side

**1x Board****2x4 (12' / 144" stock)**

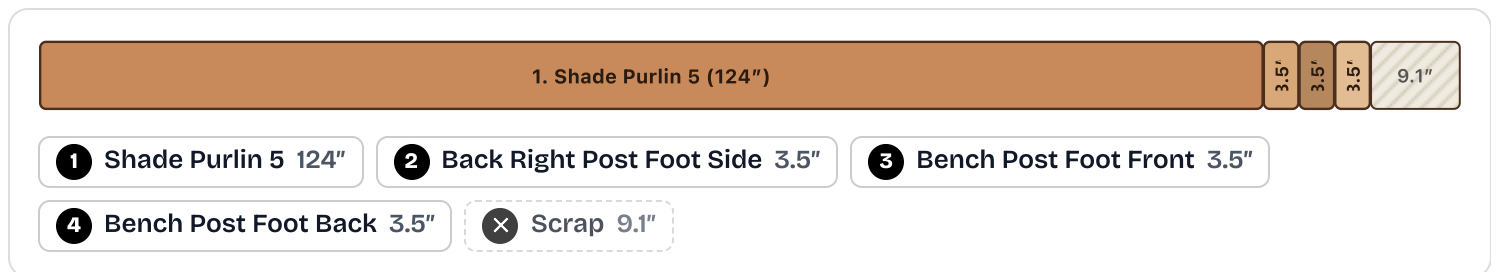
6 cuts/board • 142.1" used • 1.9" scrap

Produces: Shade Purlin 4 + Back Left Post Foot Front + Back Left Post Foot Back + Back Left Post Foot Side + Back Right Post Foot Front + Back Right Post Foot Back

**1x Board****2x4 (12' / 144" stock)**

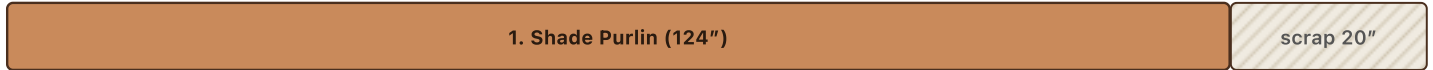
4 cuts/board • 134.9" used • 9.1" scrap

Produces: Shade Purlin 5 + Back Right Post Foot Side + Bench Post Foot Front + Bench Post Foot Back

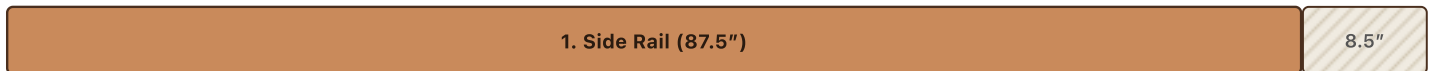


4× Boards 2x4 (12' / 144" stock)

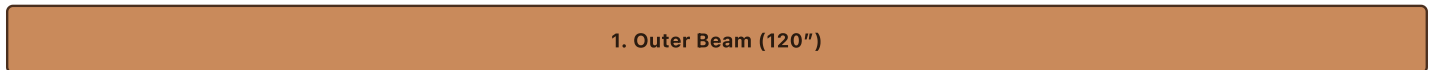
1 cut/board • 124" used • 20" scrap

Cut this pattern **4 times** (4 boards total). Makes: Shade Purlin 6, Shade Purlin 7, Shade Purlin 8, Shade Purlin 9**1** Shade Purlin 124"**×** Scrap 20"**4× Boards 2x4 (8' / 96" stock)**

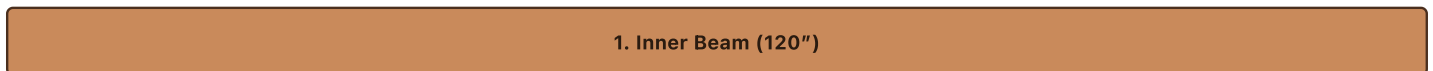
1 cut/board • 87.5" used • 8.5" scrap

Cut this pattern **4 times** (4 boards total). Makes: Left Side Upper Rail, Right Side Upper Rail, Left Side Lower Rail, Right Side Lower Rail**1** Side Rail 87.5"**×** Scrap 8.5"**2× Boards 2x6 (10' / 120" stock)**

1 cut/board • 120" used • 0" scrap

Cut this pattern **2 times** (2 boards total). Makes: Front Outer Beam, Back Outer Beam**1** Outer Beam 120"**2× Boards 2x6 (10' / 120" stock)**

1 cut/board • 120" used • 0" scrap

Cut this pattern **2 times** (2 boards total). Makes: Front Inner Beam, Back Inner Beam**1** Inner Beam 120"**2× Boards 2x6 (10' / 120" stock)**

1 cut/board • 120" used • 0" scrap

Cut this pattern **2 times** (2 boards total). Makes: Left Side Outer Header, Right Side Outer Header**1** Side Outer Header 120"

2× Boards **2x6 (10' / 120" stock)**

1 cut/board • 120" used • 0" scrap

Cut this pattern **2 times** (2 boards total). Makes: Left Side Inner Header, Right Side Inner Header

1. Side Inner Header (120")

1 Side Inner Header 120"

2× Boards **2x6 (10' / 120" stock)**

1 cut/board • 120" used • 0" scrap

Cut this pattern **2 times** (2 boards total). Makes: Left Post Rafter, Right Post Rafter

1. Post Rafter (120")

1 Post Rafter 120"

2× Boards **2x6 (10' / 120" stock)**

1 cut/board • 120" used • 0" scrap

Cut this pattern **2 times** (2 boards total). Makes: Far Left Overhang Rafter, Far Right Overhang Rafter

1. Far Overhang Rafter (120")

1 Far Overhang Rafter 120"

3× Boards **2x6 (10' / 120" stock)**

1 cut/board • 120" used • 0" scrap

Cut this pattern **3 times** (3 boards total). Makes: Mid-Left Rafter, Center Rafter, Mid-Right Rafter

1. Rafter (120")

1 Rafter 120"

2× Boards **2x6 (10' / 120" stock)**

1 cut/board • 120" used • 0" scrap

Cut this pattern **2 times** (2 boards total). Makes: Inner-Left Rafter, Inner-Right Rafter

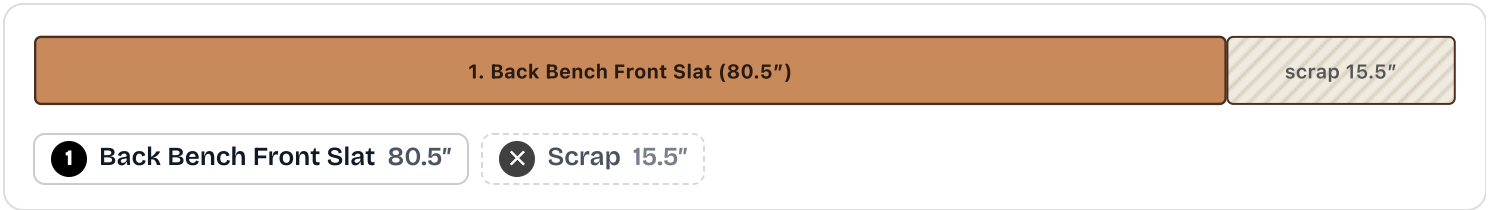
1. Inner- Rafter (120")

1 Inner- Rafter 120"

1x Board **2x6 (8' / 96" stock)**

1 cut/board • 80.5" used • 15.5" scrap

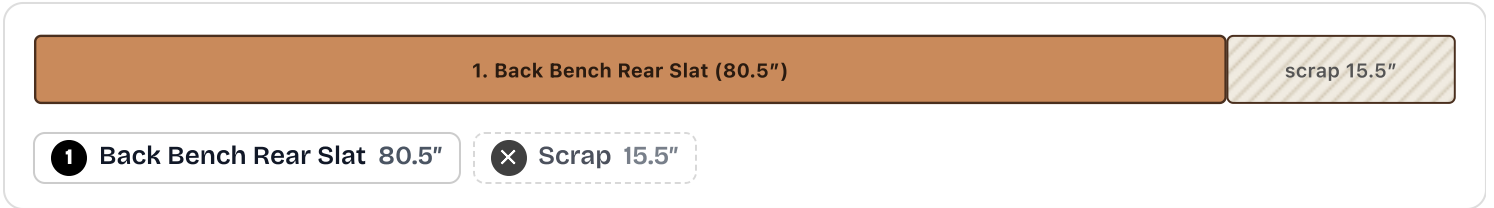
Produces: Back Bench Front Slat



1x Board **2x6 (8' / 96" stock)**

1 cut/board • 80.5" used • 15.5" scrap

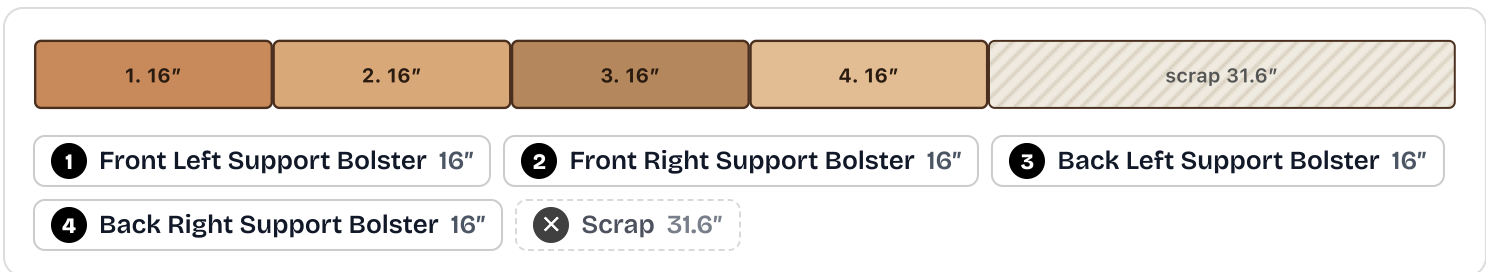
Produces: Back Bench Rear Slat



1x Board **2x6 (8' / 96" stock)**

4 cuts/board • 64.4" used • 31.6" scrap

Produces: Front Left Support Bolster + Front Right Support Bolster + Back Left Support Bolster + Back Right Support Bolster



Step-by-Step Assembly Guide

Pieces highlighted in warm amber are added in the current step. Muted beige pieces are already assembled from previous steps.

1

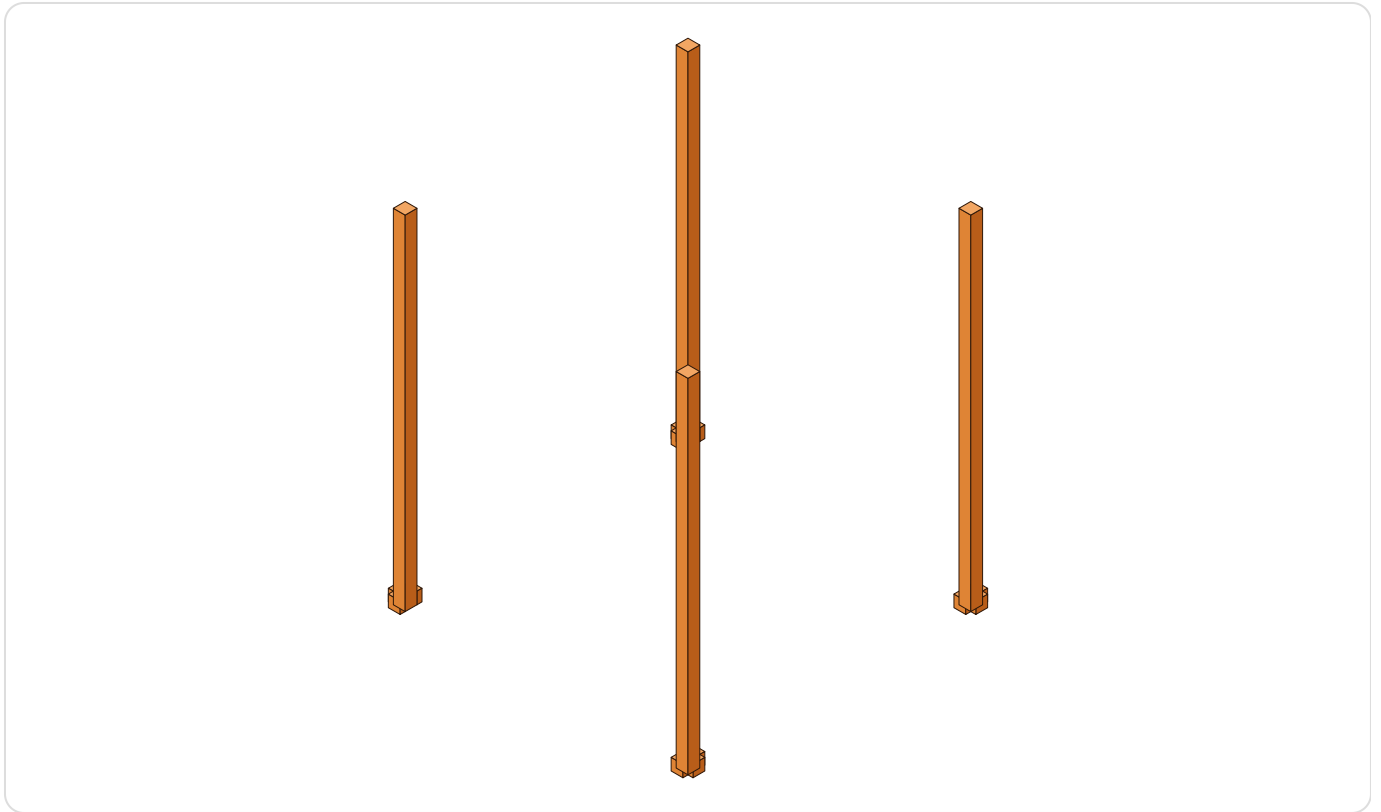
Corner Posts & Base Plinths

4× Post (4x4, 102")

8× Post Foot (2x4, 3.5")

4× Post Foot Side (2x4, 3.5")

- Drive 8× 2.5" screws through **Post Foot** into **Post**
- Drive 4× 2.5" screws through **Post Foot Side** into **Post**



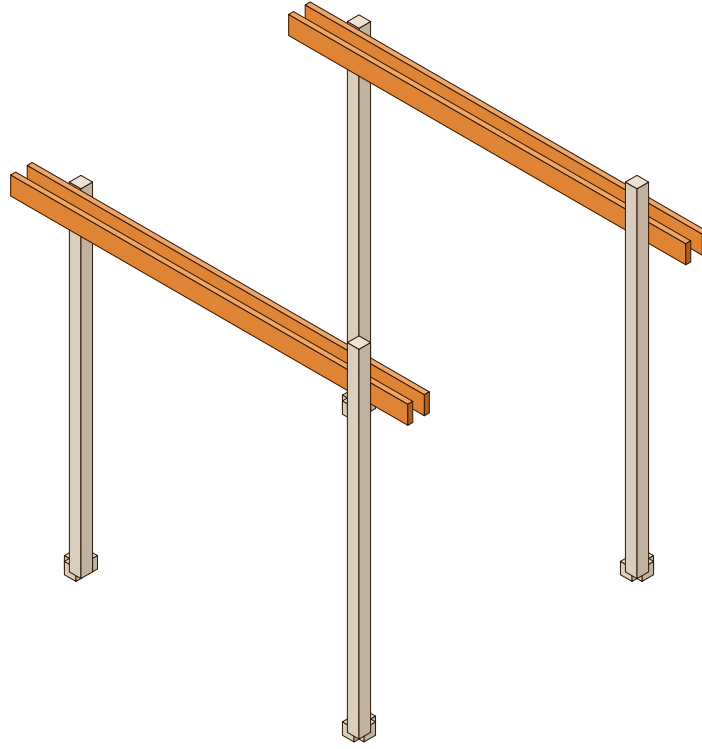
2

Main Support Beams

2× Outer Beam (2x6, 120")

2× Inner Beam (2x6, 120")

- Drive 4× 2.5" screws through **Outer Beam** into **Post**
- Drive 4× 2.5" screws through **Inner Beam** into **Post**



Side Headers & Built-in Bench

2× Side Outer Header (2x6, 120")

2× Side Inner Header (2x6, 120")

4× Support Bolster (2x6, 16")

4× Side Rail (2x4, 87.5")

1× Back Bench Front Slat (2x6, 80.5")

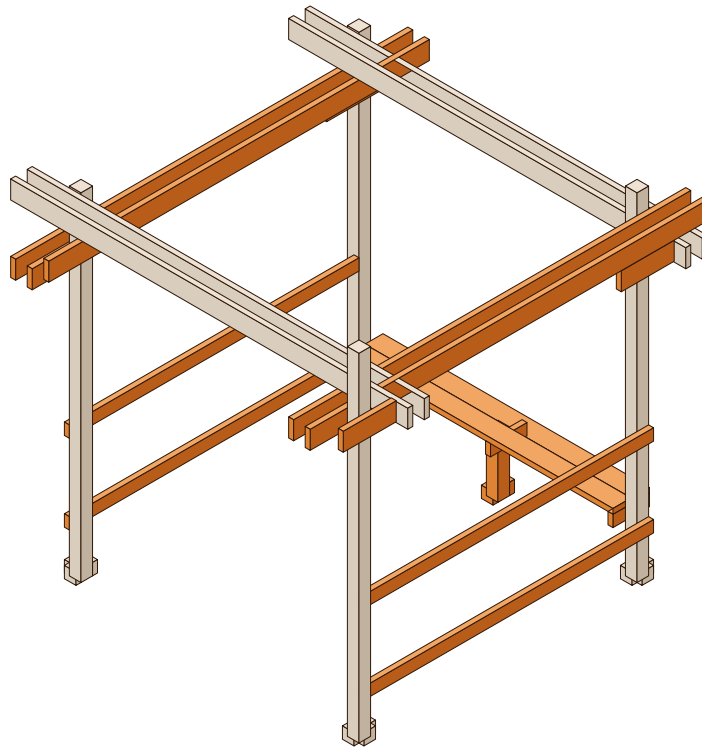
1× Back Bench Rear Slat (2x6, 80.5")

3× Bench Cleat (2x4, 11")

1× Bench Center Post (4x4, 18")

2× Bench Post Foot (2x4, 3.5")

- Drive 4× 2.5" screws through **Side Outer Header** into **Post**
- Drive 4× 2.5" screws through **Side Inner Header** into **Post**
- Drive 4× 2.5" screws through **Support Bolster** into **Post**
- Drive 8× 2.5" screws through **Side Rail** into **Post**
- Drive 2× 2.5" screws through **Bench Cleat** into **Post**
- Drive 1× 2.5" screw through **Bench Cleat** into **Bench Post**
- Drive 3× 2.5" screws through **Bench Slat** into **Bench Cleat**
- Drive 3× 2.5" screws through **Bench Rear Slat** into **Bench Cleat**
- Drive 2× 2.5" screws through **Bench Post Foot** into **Bench Post**



4

Roof Rafters

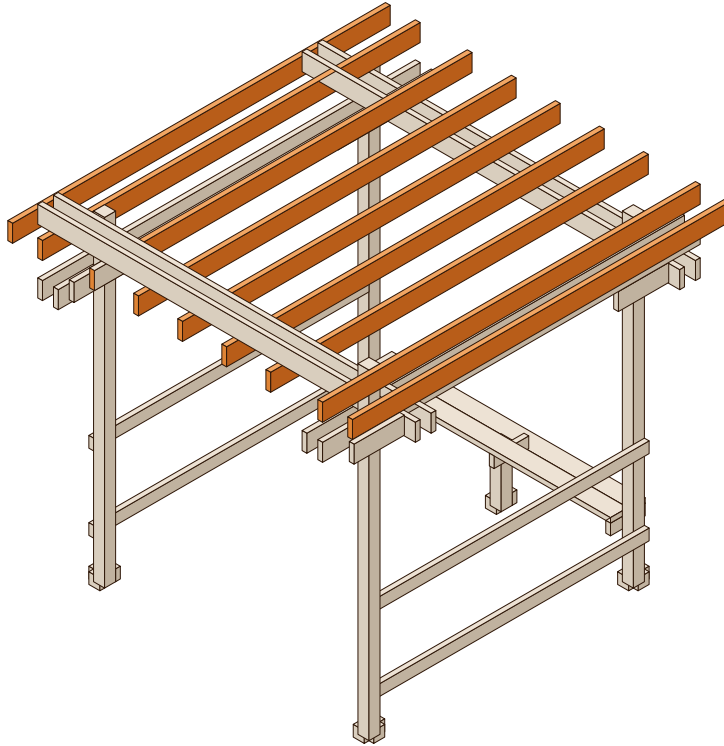
2× Post Rafter (2x6, 120")

2× Far Overhang Rafter (2x6, 120")

3× Rafter (2x6, 120")

2× Inner- Rafter (2x6, 120")

- Drive 4× 2.5" screws through **Post Rafter** into **Post**



5

Top Shade Purlins

9× Shade Purlin (2x4, 124")

- Drive 18× 2.5" screws through **Shade Purlin** into **Post Rafter**
- Drive 18× 2.5" screws through **Shade Purlin** into **Far Overhang Rafter**
- Drive 27× 2.5" screws through **Shade Purlin** into **Rafter**
- Drive 18× 2.5" screws through **Shade Purlin** into **Inner- Rafter**

