Step 1: Build a left and right version of TE-23006, 4x GE-23007 and 3x GE-23008.
Step 2: Bolt all assemblies together in the order shown above with 1/4-20 x 4" long hex head bolts and wing nuts. Washers are optional.

Use 5 spacers in between each assembly to ensure the spacing between them is correct (this also simulates the size of the beams).

Pay close attention to the End Cone Ramps, to ensure that they are not backwards. The poles should be closer to the middle or the assembly.
Step 1: Build TE-23002, TE-23003 and TE-23004.
Step 2: Bolt together using 1/4-20 x 4" long hex head bolts and wing nuts, using 4 spacers in between each assembly. Washers are optional.

This can be converted to a co-op GRID by swapping out the 1 for another 2.
NOTE: All holes shown are for bolt/wing nut connections that are included to make it easier to store this assembly. If storage of this assembly is not a concern, wood screws could be used instead of bolts and wing nuts, and all drilled holes can be skipped except for the bolts that hold the poles and the holes in TE-23003.

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TE-23005</td>
<td>Cube Shelf Divider Beam</td>
<td>1</td>
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<tr>
<td>2</td>
<td>TE-23006</td>
<td>Spacer Plywood</td>
<td>2</td>
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<tr>
<td>3</td>
<td>TE-23007</td>
<td>Shark Fin</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>TE-23008</td>
<td>Cone Ramp Horizontal</td>
<td>2</td>
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<tr>
<td>5</td>
<td>TE-23009</td>
<td>Wide Cone Ramp Crossbeams</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>TE-23011</td>
<td>Cone Ramp Vertical</td>
<td>2</td>
</tr>
<tr>
<td>7</td>
<td>TE-23012</td>
<td>Cone Ramp Gusset</td>
<td>2</td>
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<tr>
<td>8</td>
<td>TE-23013</td>
<td>Cone Ramp Diagonal Beam</td>
<td>2</td>
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<tr>
<td>9</td>
<td>TE-23014</td>
<td>Wide Cone Ramp Diagonal Panel</td>
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<td>10</td>
<td>TE-23016</td>
<td>Lower Pole</td>
<td>1</td>
</tr>
<tr>
<td>11</td>
<td>TE-23017</td>
<td>Upper Pole</td>
<td>1</td>
</tr>
<tr>
<td>12</td>
<td>CCF-RT-13-1</td>
<td>Pole Cap</td>
<td>2</td>
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<td>13</td>
<td>tape_VISIONTARGET</td>
<td></td>
<td>4</td>
</tr>
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<td>14</td>
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<td>Steel Hex Head Screw, 1/4&quot;-20 x 2 1/2&quot; long, partially threaded</td>
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<tr>
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<td>hex.25_20_5.5</td>
<td>Steel Hex Head Bolt, 1/4&quot;-20 x 5.5&quot;, partially threaded</td>
<td>4</td>
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<tr>
<td>18</td>
<td>wing_.25_20</td>
<td>Steel Wing Nut, 1/4&quot;-20, 31/64&quot; Base Diameter</td>
<td>14</td>
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<tr>
<td>19</td>
<td>washer_flat_.25</td>
<td>Flat Washer for 1/4&quot; Screw</td>
<td>28</td>
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</tbody>
</table>

Material/Finish:
- Steel

Dimensions are in inches:
- Fractional: 1/16
- Angular, Mach: 1° bend
- Two place decimal: 0.13
- Three place decimal: 0.125

End Cone Ramp (Right)
Step 1: Assemble floor frame of Cone Ramp with #8 wood screws as shown.

Please note orientation of all holes in 4 while assembling. The holes in the two side beams should match up.
Step 2: Assemble 2x Cone Ramp Vertical assemblies using #8 wood screws as shown. Make a "left hand" and "right hand" version as shown.
Step 3: Assemble Cone Ramp Diagonal Assembly with #8 wood screws as shown. Note orientation of holes while assembling.
Step 4: If making the poles yourself, install the 12 caps to the end of the pipe with no holes with an arbor press or mallet. There is a CAD file of a similar but not exact version of the cap in the shared CAD files for this assembly that can be 3D Printed.

Apply 2 pieces of 13 vision tape per pole as shown.

These poles with caps installed can be purchased from AndyMark. These do not include the drilled holes or applied vision tape.
Step 5: Attach the Vertical Assemblies to the Floor Frame using 1/4-20 x 2.5" Long Hex Bolts (14) and 1/4-20 Wing Nuts (18). Washers are optional.

Note the orientation of the 7 panels being on the inside of the frame.

This step can be done with wood screws instead of bolts and wing nuts if storage space is not a concern.
Step 6: Install Poles into assembly using 1/4-20 x 5” Long Bolts 17 and Wing nuts 18. Washers are optional. Note that the tall pole is the one closer to the vertical assemblies.

This assembly is designed to be either a left or right end cone ramp, depending on what side both poles are bolted to. It will be relatively simple to adjust this later if you want to change which end you have built.
Step 7: Install Diagonal Assembly over the poles, and bolt into place with 1/4-20 x 3.5" Long Bolts (15) and wing nuts (18). Washers are optional.

This assembly is designed so that it can be a left or right end cone ramp because of the two sets of holes in the diagonal assembly. If you have only one drilled one set of holes, it will only work that way.
Step 8: Attach 3 to each of the poles with cable ties that go around the poles and through the holes in 3.
In this example, the poles are on the left side of the assembly so the 1 beam should be bolted on to the right side of the frame.

Step 9: Bolt 1 onto the side of the frame opposite of the installed poles using 1/4-20 x 4" long bolts 16 and wing nuts 18. Washers are optional.

2 spacers can be used to accurately represent the size of the real GRID frame and locate the End Cone Ramp off of a wall correctly.
NOTE: All holes shown are for bolt/wing nut connections that are included to make it easier to store this assembly. If storage of this assembly is not a concern, wood screws could be used instead of bolts and wing nuts, and all drilled holes can be skipped except for the bolts that hold the poles and the holes in TE-23003.

ITEM NO. PART NUMBER DESCRIPTION QTY.
1 TE-23007 Shark Fin 1
2 TE-23008 Cone Ramp Horizontal 2
3 TE-23010 Cone Ramp Crossbeams 4
4 TE-23011 Cone Ramp Vertical 2
5 TE-23012 Cone Ramp Gusset 2
6 TE-23013 Cone Ramp Diagonal Beam 2
7 TE-23015 Cone Ramp Diagonal Panel 1
8 TE-23016 Lower Pole 1
9 TE-23017 Upper Pole 1
10 CCF-RT-13-1 Pole Cap 2
11 tape_VISIONTARGET tape_VISIONTARGET 4
12 hex_.25_20_2.5_partial Steel Hex Head Screw, 1/4"-20 x 2-1/2" long, partially threaded 6
13 hex_.25_20_3.5_partial Steel Hex Head Bolt, 1/4-20 x 3.5", partially threaded 2
14 hex.25_20_5.5 Steel Hex Head Bolt, 1/4"-20 x 5.5", partially threaded 4
15 wing_.25 Steel Wing Nut, 1/4"-20, 31/64" Base Diameter 12
16 washer_flat_.25 Flat Washer for 1/4" Screw 24

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL: 1/16
ANGULAR: Mach 1° Bend 1°
TWO PLACE DECIMAL: 0.08
THREE PLACE DECIMAL: 0.008
MATERIAL/FINISH:
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COMMENTS:
DO NOT SCALE DRAWING
Step 1: Assemble floor frame of Cone Ramp with #8 wood screws as shown.

Please note orientation of all holes in 2 while assembling. The holes in the two side beams should match up.
Step 2: Assemble 2x Cone Ramp Vertical assemblies using #8 wood screws as shown. Make a "left hand" and "right hand" version as shown.
Step 3: Assemble Cone Ramp Diagonal Assembly with #8 wood screws as shown. Note orientation of holes while assembling.
Step 4: If making the poles yourself, install the 10 caps to the end of the pipe with no holes with an arbor press or mallet.

There is a CAD file of a similar but not exact version of the cap in the shared CAD files for this assembly that can be 3D Printed.

Apply 2 pieces of 11 vision tape per pole as shown.

These poles with caps installed can be purchased from AndyMark. These do not include the drilled holes or applied vision tape.
Step 5: Attach the Vertical Assemblies to the Floor Frame using 1/4-20 x 2.5" Long Hex Bolts and 1/4-20 Wing Nuts. Washers are optional.

Note the orientation of the panels being on the inside of the frame.

This step can be done with wood screws instead of bolts and wing nuts if storage space is not a concern.
Step 6: Install Poles into assembly using 1/4-20 x 5" Long Bolts (14) and Wing nuts (15). Washers are optional. Note that the tall pole is the one closer to the vertical assemblies.
Step 7: Install Diagonal Assembly over the poles, and bolt into place with 1/4-20 x 3.5" Long Bolts (16) and wing nuts (15). Washers are optional.
Step 8: Attach 1 to each of the poles with cable ties that go around the poles, and through the holes in 1.
NOTE: All holes shown are for bolt/t-nut connections that are included to make it easier to store this assembly. If storage of this assembly is not a concern, wood screws could be used instead of bolts and t-nuts and all drilled holes can be skipped.
Step 1: Assemble 2x Cube Shelf Side Frames using #8 wood screws. Match orientation of t-nut holes as shown above if you are using them.
Step 2: Install 14 t-nuts as shown if you are using them for storage.
Step 3: Attach 1, 8, and 9 to the Cube Shelf Side Frames with #8 wood screws as shown. Create a left and right version, as shown below.

If you are building a full GRID or set of GRIDS, these holes should be oriented as shown.
Step 4: Attach 10, 11, and 12 panels to the frames with 1/4-20 x 2" Long Hex Head Bolts 13 into t-nuts as shown (or #8 wood screws), washers 15 are optional. Panels should end up flush with each other at the top edges.
UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL: \( \frac{1}{16} \)
ANGULAR: \( 1° \)
BEND: \( \frac{1}{16} \)
TWO PLACE DECIMAL: \( \frac{1}{32} \)
THREE PLACE DECIMAL: \( \frac{1}{128} \)

MATERIAL/FINISH:
2" x 4" Lumber

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COMMENTS:
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TEAM | NAME | DATE
--- | --- | ---
JO | 11/7/2022 | 

TITLE: Cone Ramp
Vertical

SIZE | DWG. NO. | REV
--- | --- | ---
C | TE-23011 | 

SCALE: 2:3 SHEET 1 OF 1
Cone Ramp Diagonal Beam

Dimensions are in inches. Tolerances:
- Fractional: $\frac{1}{16}$
- Angular: Mach to $\pm \frac{1}{16}$
- Two place decimal: $\pm \frac{1}{10}$
- Three place decimal: $\pm \frac{1}{100}$

Material/Finish:
- 2" x 4" Lumber

Comments:
- Remove all burrs and sharp edges.

Scale: 1:3

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团队: JO
日期: 11/7/2022

尺寸: 23013

Sheet 1 of 1
2x Ø .31 [1/8"] THRU ALL

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±1/16
ANGULAR, MACH ±1° BEND ±1°
TWO PLACE DECIMAL ± 0.13
THREE PLACE DECIMAL ± 0.0125

MATERIAL/FINISH:
2" x 4" Lumber
Front Short Cube Shelf

Material/Finish: 2" x 4" Lumber

Dimensions are in inches. Tolerances:
Fractional: ±1/16
Angular: Mach ±1° Bend ±1°
Two Place Decimal: ±0.13
Three Place Decimal: ±0.025

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UNLESS OTHERWISE SPECIFIED:

Scale: 1:1

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Comments:
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Proprietary and Confidential

Title: Cube Shelf Front Short Vertical

Team: JO

Date: 11/7/2022

Drawing No. TE-23022

Scale: 1:1

Sheet 1 of 1
Cube Shelf Top
Horizontal

Dimensions are in inches

Tolerances:
- Fractional: ±1/16
- Angular, Mach: ±1° Bend: ±1°
- Two place decimal: ±0.13
- Three place decimal: ±0.125

Material/Finish:
2" x 4" Lumber

Comments:
- Do not scale drawing
- Remove all burrs and sharp edges.

Scale: 3:4

Title: Cube Shelf Top Horizontal

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Title block information:
- Team
- Name
- Date
- Drawn
- Jo
- 11/7/2022
- DWG. No.
- TE-23023
- Sheet 1 of 1

Remove all burrs and sharp edges.

Scale: 3:4

Sheet 1 of 1
Cube Shelf
Front Panel

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±1/16
ANGULAR, MACH ±1° BEND
TWO PLACE DECIMAL ±0.13
THREE PLACE DECIMAL ±0.125

MATERIAL/FINISH:
1/2" Plywood

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