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<table>
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<tbody>
<tr>
<td>23/32&quot; (3/4&quot;) A/C or CDX Plywood</td>
<td>0.5 sheet</td>
</tr>
<tr>
<td>1/8&quot; Hardboard</td>
<td>0.75 sheet</td>
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<tr>
<td>2&quot; x 4&quot; x 8'</td>
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<tr>
<td>1.25&quot; wood screws</td>
<td>~40</td>
</tr>
<tr>
<td>2.5&quot; wood screws</td>
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</table>
Step 1:

1. Attach 1 and 2 with 2.5" screws.
2. Attach 1, 2, and 4 with 1.25" screws.
3. Pre drill if needed.

Note:

Step 2:

1. Assemble Item 3 QTY 2 together with 2.5" screws.
2. Attach with 2.5" screws to rest of assembly.

Note:
Step 3:

Assemble Item 2 and 1 to the bottom of 3 with 2.5" screws.

Assemble Item 6 to assembly using 2.5" screws as shown.

Step 4:

Add item 5 sides with 1.25" screws.
Note: A/C or CDX 23/32" Plywood

Note: 1/8" Hardboard

Note: 2"x 4" Lumber Pine

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES

TOLERANCES:

FRACTIONAL ± 1/16

ANGULAR: MACH ± 1° BEND ± 1°

TWO PLACE DECIMAL ± 0.01

THREE PLACE DECIMAL ± 0.001

INTERPRET GEOMETRIC TOLERANCING PER:

MATERIAL

FINISH

NEXT ASSY

USED ON

APPLICATION

DO NOT SCALE DRAWING

TITLE: 2"x 4" Hab lvl 3

SIZE DWG. NO. REV

A TE-19102

SCALE: 1:16 WEIGHT: SHEET 5 OF
Note:
To build the entire Hab, build QTY 2 of the TE-19103
Step 1:
Note:
Attach item 3 and 4 with 2.5" screws
Attach item 1 to assembly with 1.25" screws
Pre drill if needed

Step 2:
Note:
Attach item 2 to assembly with 2.5" screws, as shown
Step 3:

Note:
Attach item 4 and 3 to the lower part of item 2 with pre drilled 2.5" screw
Notes:
A/C or CDX plywood 23/32"

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<th>CHECKED</th>
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<th>MFG APPR.</th>
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<th>COMMENTS:</th>
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SCALE: 1:12 | WEIGHT: | SHEET 4 OF 5 |
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<tr>
<td>7</td>
<td>TE-19104-07</td>
<td>2</td>
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</table>

**Material**

- 23/32" (3/4") A/C or CDX Plywood: 2 sheets
- 2" x 4" x 8' Lumber Pine: 8
- 1.25 wood screws: ~70
- 2.5 wood screws: ~50

**Notes:**
- DIMENSIONS ARE IN INCHES
- TOLERANCES:
  - FRACTIONAL: ±1/16
  - ANGULAR: MACH ±1° BEND ±1°
  - TWO PLACE DECIMAL: ±0.01
  - THREE PLACE DECIMAL: ±0.001
- INTERPRET GEOMETRIC TOLERANCING PER:
- MATERIAL
- NEXT ASSY
- USED ON
- FINISH
- APPLICATION
- DO NOT SCALE DRAWING

**Title:** Full Hab lvl 1

**Size:** A

**Drawing Number:** TE-19104

**Scale:** 1:48

**Weight:**

**Sheet:** 1 of 5
Assembly notes:

Assemble 6 and 4 to make frame
pre drill and use 2.5" screws
Attach 1 to the frame; pre-drill and use 1.25" screws

Assembly notes:

Attach 5 and 7 to assembly as shown
Pre-drill and use 2.5" screws
Assembly notes:

Attach 3 and 2 to assembly as shown.

Pre-drill and use 1.25" screws.
Note:
23/32" (3/4"") A/C or CDX Plywood
Note: 23/32" (3/4") A/C or CDX Plywood

Note: 2" x 4" Pine lumber

Note: 2" x 4" Pine lumber

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES

TOLERANCES:

FRACTIONAL: ±1/16
ANGULAR: ±1° BEND ±1°
TWO PLACE DECIMAL ±0.01
THREE PLACE DECIMAL ±0.001

INTERPRET GEOMETRIC TOLERANCING PER:

MATERIAL

FINISH

NEXT ASSY USED ON

APPLICATION

DO NOT SCALE DRAWING

TITLE: Full Hab lvl 1
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**Material**

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<td>23/32&quot; (3/4&quot;) A/C or CDX Plywood</td>
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<td>2&quot; x 4&quot; x 8' Lumber Pine</td>
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<tr>
<td>1.25&quot; Wood screw</td>
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<td>2.5&quot; wood screw</td>
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**Title:** Half Hab

**Size:** A

**DWG. No.:** TE-19105

**Rev:** A

**Scale:** 1:24

**Weight:**
Step 1:

{64.00}

( 64.00 )

20.58

41.92

36.00

0

Note:
Attach Item 5 and 6 with 2.5" screws
Attach Item 1, 5, and 6 with 1.25" screws
Pre-drill

Step 2:

2.00

Step 3:

2.00

Note:
Attach Item 5 and 6 with 2.5" screws
Attach Item 1, 5, and 6 with 1.25" screws
Pre-drill

Note:
Attach 4 and 7 to assembly
Pre-drill and use 2.5" screws

Note:
Attach 2 so it is flush to the edge of 7
Attach 3 so it is flush to the edge of 4
Pre-drill and use 1.25" screws
Note: A/C or CDX 23/32" Plywood

Note: A/C or CDX 23/32" Plywood

Note: A/C or CDX 23/32" Plywood

**UNLESS OTHERWISE SPECIFIED:**

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**INTERPRET GEOMETRIC TOLERANCING PER:**

**MATERIAL**

**FINISH**

**APPLICATION**

**DO NOT SCALE DRAWING**

**TITLE:** <br>Half Hab

**SIZE** | **DWG. NO.** | **REV.** | **SCALE:** 1:24 | **WEIGHT:** | **SHEET 3 OF 5**
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**Title:** Half Hab

**Size:** A

**Drawing No.:** TE-19105

**Revision:** A

**Scale:** 1:24

**Weight:**

---

**Note:**

2x 4" Pine Lumber

---

**Note:**

2x 4" Pine Lumber
Note:
2x 4" Pine Lumber

Note:
2x 4" Pine Lumber
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**Material**

- 15/32" (1/2") A/C or CDX Plywood: 1.5 sheets
- 23/32" (3/4") A/C or CDX Plywood: .125 sheets
- 2"x2"x8": 1.25
- 2"x 4"x 8": 1
- TEE nut .3/8"-16: 6
- 3/8"-16 nut: 6
- Hex Head 3/8"-16 x 0.75: 6
- 1.25" wood screws: 80
- 2.5" wood screws: 20
- Vision Tape: 11"
- 2" hook tape: 63.5"

**Title:** Single Bay Side

**Drawing Information:**
- **Title:** Single Bay Side
- **Size:** A
- **Drawing Number:** TE-19106
- **Revision:** A
- **Scale:** 1:24
- **Weight:**
- **Sheet:** 1 of 12

**Notice:** Proprietary and Confidential. Any reproduction in part or as a whole without the written permission of FIRST is prohibited.
Step 1:
TE-19006-01 Sub Assembly
QTY(1) Mirror (1)

Notes:
Attach 9 6 and 8 flush to 1 as indicated and touching 7.
Pre-drill and attach using 1.25" screws.

Step 2:

Notes:
Connect the assemblies from step 1 with three 10, 2, and 3.
Attach using 1.25" and 2.5" screws.
If using on carpet add 16 to bottom of 10.
Step 3:

Notes:
- Attach 15 to 4.
- 15 should be tangent to circular cutout.
- Mirror for the second.

Step 4:

Notes:
- Flip assembly from Step 3 over.
- Insert 19 to all holes on 4, hammer in to seat.
Step 5:

Notes:
Thread 19 all the way on to 20.
Insert into 18 repeat, for all instances.
Step 6:

Notes:
Attach 12 to 11.
Pre-drill and attach using 1.25" long screws

Step 7:

Notes:
Attach 13 to 14.
Pre-drill and attach using 1.25" long screws
Step 8:

Notes:
Attach 5 flush to the cleats of step 2.
Pre drill and attach with 1.25" screws.

Step 9:

Notes:
Attach assemblies from Step 5 to Step 8
Pre drill and use 1.25" screws. Step 5 over hangs .41 on both sides.
Step 10:

Notes:
Attach Step 6 and Step 7 to 4.
Step 6 Flush to opening and to Top of 4.
Step 7 Flush to opening and to bottom of 4.
Pre drill and attach using 2.5" wood screws.

Step 11:

Notes:
Attach 17 to 4, mirror for the other side.
Note: 15/32" A/C or CDX Plywood
Note: 15/32" A/C or CDX Plywood

Note: 15/32" A/C or CDX Plywood

Note: 2" x 2" Pine Lumber

Note: 2" x 2" Pine Lumber
TE-19106-08

Note:
23/32" A/C or CDX Plywood

TE-19106-09

Note:
2" x 4" Pine Lumber

TE-19106-10

Note:
2" x 4" Pine Lumber

TE-19106-07

Note:
2" x 4" Pine Lumber

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ± 1/16
ANGULAR: MACH ± 1° BEND ± 1°
TWO PLACE DECIMAL ± .01
THREE PLACE DECIMAL ± .001

INTERPRET GEOMETRIC TOLERANCING PER:

MATERIAL

NEXT ASSY USED ON
FINISH

APPLICATION
DO NOT SCALE DRAWING

TITLE: Single Bay Side

SIZE DWG. NO. REV
A TE-19106

SCALE: 1:24 WEIGHT: SHEET 10 OF 12
Note:
15/32" (1/2") A/C or CDX Plywood

Note:
2"X4" Pine Lumber

Note:
2"X4" Pine Lumber

Note:
15/32" (1/2") A/C or CDX Plywood
TE-19106-15

2X 15

10.00

(2.00)

Note: 2" Hook Fastener

TE-19106-18

2X 16

21.75

(2.00)

Note: 2" Hook Fastener

TE-19106-19

2X 17

5.50

(2.00)

Note: 2" Vison tape

Note:
2" Hook Fastener

Note:
2" Vison tape
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**Material**

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Step 1: QTY (1)

Note:
Attach 10  8 to 1
Spacing between 8 is for 1/2" Plywood
Use a scrap piece of plywood help set spacing
Pre-drill and use 1.25" wood screws

Step 2: QTY (1)

Note:
Attach 8 10 9 to 3
Pre-drill and use 1.25" wood screws

Step 3: QTY (1)

Note:
Attach 10 9 8 to 2
Pre-drill and use 1.25" wood screws
Step 4: Slide the assemblies from Step 2 and Step 3 into the assembly from Step 1.

Step 5: Attach 11 to bottom as shown. Pre-drill and use 2.5" wood screws. Apply 17 if used on carpet to the bottom of the 2"x 4".
Step 6:
Install Tee Nut 19
Hammer in to seat

Step 7:
Flip over
Attach (16) to (6) front.
Hook should be tangent to the circular cutouts.
Step 8:

Note:
Attach 21, then attach to 19
Repeat for all instances

Step 9:

Note:
Attach 13 to 12 as shown
Pre-drill and use 1.25" screws

Step 10:

Note:
Attach 14 to 15 as shown
Pre-drill and use 1.25" screws
Step 11:

Note:
Attach 6 to assembly, with an overhang of .41"; pre-drill and use 1.25" screws
Attach 5 to assembly; pre-drill and use 1.25" screws
Attach 7 to 5 and rest of assembly with cable ties
Attach 4 to 8; pre-drill and use 1.25" screws

Step 12:

Note:
Attach assembly from Step 9 flush to the opening and top of 6
Attach assembly from Step 10 flush to the opening and bottom of 6
Pre-drill and use 2.5" screws
Step 13:

Note:

Attach 18 to 6
### Table

<table>
<thead>
<tr>
<th>Material: 15/32&quot; (1/2&quot;) A/C or CDX Plywood</th>
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</thead>
</table>

### Diagram

**Cargo Front Single**

- **UNLESS OTHERWISE SPECIFIED:**
  - DIMENSIONS ARE IN INCHES
  - TOLERANCES:
    - FRACTIONAL \( \pm \frac{1}{16} \)
    - ANGULAR: MACH \( \pm 1^\circ \)
    - TWO PLACE DECIMAL \( \pm 0.01 \)
    - THREE PLACE DECIMAL \( \pm 0.001 \)
  - INTERPRET GEOMETRIC TOLERANCING PER:

**Notes:**
- Material: 15/32" (1/2") A/C or CDX Plywood
Note: Material: 15/32" (1/2") A/C or CDX Plywood

Note: Material: 15/32" (1/2") A/C or CDX Plywood

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES

TOLERANCES:

FRACTIONAL: ± 1/16

ANGULAR: MACH ± 1° BEND ± 1°

TWO PLACE DECIMAL: ± .01

THREE PLACE DECIMAL: ± .001

INTERPRET GEOMETRIC TOLERANCING PER:

MATERIAL

FINISH

NEXT ASSY

USED ON

APPLICATION

DO NOT SCALE DRAWING

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TITLE: Cargo Front Single

SIZE DWG. NO. REV
A TE-19107

SCALE: 1:24
WEIGHT: SHEET 9 OF 14
Note:
Material: 15/32" (1/2") A/C or CDX Plywood
Note:
Material: 15/32" (1/2") A/C or CDX Plywood

Note:
Material: 1/8" hardboard
Note: Material 2"x 2" Pine Lumber

Note: Material 23/32" (3/4") A/C or CDX Plywood

Note: Material 2"x 4" Pine Lumber

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±1/16
ANGULAR: MACH ±1° BEND ±1°
TWO PLACE DECIMAL ±.01
THREE PLACE DECIMAL ±.001

INTERPRET GEOMETRIC TOLERANCING PER:

MATERIAL

FINISH

NEXT ASSY

USED ON

APPLICATION

DO NOT SCALE DRAWING

Note:
Material 2"x 2" Pine Lumber

Note:
Material 2"x 2" Pine Lumber

Note:
Material 2"x 4" Pine Lumber

Note:
Material 23/32" (3/4") A/C or CDX Plywood

Note:
Material 2"x 2" Pine Lumber

Note:
Material 23/32" (3/4") A/C or CDX Plywood

Note:
Material 2"x 4" Pine Lumber

Note:
Material 23/32" (3/4") A/C or CDX Plywood
Note: Material: 15/32" (1/2") A/C or CDX Plywood

Note: Material 2"x 4" Pine Lumber

Note: Material 2"x 4" Pine Lumber

Note: Material: 15/32" (1/2") A/C or CDX Plywood

PROPRIETARY AND CONFIDENTIAL
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UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±1/16
ANGULAR: MACH ±1° BEND ±1°
TWO PLACE DECIMAL ±.01
THREE PLACE DECIMAL ±.001

INTERPRET GEOMETRIC TOLERANCING PER:

MATERIAL
FINISH
APPLICATION

DO NOT SCALE DRAWING

SCALE: 1:24 WEIGH T:
SHEET 13 OF 14

A

TE-19107

REV

B

B

2

1

2

1

Cargo Front Single

NAME DATE
Q.A.
ENG APPr.
MFG APPr.
COMMENTS:

PAINT
CUT
FINISH
APPLICATION

DO NOT SCALE DRAWING

SCALE: 1:24
WEIGHT:
SHEET 13 OF 14

A

TE-19107

REV

B

B

2

1

2

1

Cargo Front Single

NAME DATE
Q.A.
ENG APPr.
MFG APPr.
COMMENTS:

PAINT
CUT
FINISH
APPLICATION

DO NOT SCALE DRAWING

SCALE: 1:24
WEIGHT:
SHEET 13 OF 14

A

TE-19107

REV

B

B

2

1

2

1

Cargo Front Single

NAME DATE
Q.A.
ENG APPr.
MFG APPr.
COMMENTS:

PAINT
CUT
FINISH
APPLICATION

DO NOT SCALE DRAWING

SCALE: 1:24
WEIGHT:
SHEET 13 OF 14

A

TE-19107

REV

B

B

2

1

2

1
Note: 2" Hook Fastener

Note: 2" Vison Tape
### Notes:
- Set up for one side
- Mirror Assembly for Half Field for the opposite side

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### Revisions

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**Loading Station**

**Title:** Loading Station

**Size:** A

**DWG. No.:** TE-19108

**Rev:** A

**Scale:** 1:16

**Weight:** SHEET 2 OF 15

**Comments:**
Note:
- Attach 9, 10, 7, 8 together to make a frame. Use 2.5" screws to attach.
- Attach 1 to the frame flush to 7 and 10. Use 1.25" screws.
- Pre-drill as necessary

Note:
- Attach 13 to 11 with 2.5" screws. Reinforce with 3.
- Attach two more 3 as shown using 1.25" screws.
- Attach 20 as shown with 1.25" screws. Apply 20 to bottom.
Subassembly 3:

Note:
- Attach 19 to 2 with 23 and 25.

Flush on indicated edges.
- Use 1.25" screws, but do not screw in all the way.

Subassembly 4:

Note:
- Attach 19 to 6 with 1.25" screws.
Note:
- Attach 14 to 15 with 1.25" screws.
- Keep flush at indicated edges.

Note:
- Attach 17 to 18 with 1.25" screws.
- Keep flush at indicated edges.
Step 8:

- Attach Subassembly 3 to Subassembly 1 using 1.25" screws.
- Attach Subassembly 4 to Subassembly 6 using 1.25" screws.
- Attach Subassembly 6 using 2.5" screws. Keep sides and top flush to opening.

Notes:
- Attach Subassembly 2 to the sides of Subassembly 1.
- Attach Subassembly 5 as shown. Use 2.5" screws to attach.
- Attach 12 using 2.5" screws.
- Attach 4 to 12 using 1.25" screws.
Step 10:

Note:
Attach 21 to 1 as shown.
Note: Material 15/32" (1/2") A/C or CDX Plywood
Note: Material 1/4" Hardboard

Note: Material 15/32" (1/2") A/C or CDX Plywood

Note: Material 15/32" (1/2") A/C or CDX Plywood

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±1/16
ANGULAR: MACH ±1° BEND ±1°
TWO PLACE DECIMAL ±.01
THREE PLACE DECIMAL ±.001

INTERPRET GEOMETRIC TOLERANCING PER:

MATERIAL

FINISH

NEXTassy	USED ON

APPLICATION

DO NOT SCALE DRAWING

NOTE:

Material 15/32" (1/2") A/C or CDX Plywood

Loading Station
Note:
Material 23/32" (3/4") A/C or CDX Plywood

Notes:
Material 2" x 4" Lumber Pine
### Notes:
- Material 2" x 4" Lumber Pine

#### Dimensions

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**Loading Station**

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Notes: Material 2"x 4" Lumber Pine

Notes: Material 2"x 4" Lumber Pine

Note: Material 15/32" (1/2") A/C or CDX Plywood
**Loading Station**

**TE-19108-19**

*Note:*
Material Frost King C35PH

**TE-19108-20**

2" Hook Fastener

**TE-19108-21**

2" Vison Tape
This page shows the change needed to revise an initial Rev TE-19108 to function as Rev A intends without having to remake TE-19108-16.

TE-19108-16 initial release version needs to be moved up 0.28" (~9/32") relative to the mating parts. All other alignment stays the same.
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<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>QTY.</th>
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<tbody>
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<td>1</td>
<td>TE-19110-01</td>
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<table>
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<th>QTY</th>
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<tbody>
<tr>
<td>15/32&quot;(1/2&quot;) A/C or CDX Plywood</td>
<td>1.5 sheets</td>
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<tr>
<td>2&quot;x 4&quot;x 8&quot;</td>
<td>.25</td>
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<td>2&quot;x 2&quot;x 8&quot;</td>
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<tr>
<td>Flat head Phillips 1/4&quot;-.20 x 1.75&quot;</td>
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<td>2&quot; Hook Fastener</td>
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<tr>
<td>2.5&quot; screws</td>
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</table>

Dimensions are in inches.

Tolerances:

- Fractional: ±1/16
- Angular: Mach ±1° Bend ±1°
- Two place decimal: ±.01
- Three place decimal: ±.001

Interpret geometric tolerancing per:

Material

Next Assy Used on

Finish

Application

Do not scale drawing

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Title: Single Bay Rocket

Size: A

Dwg. No.: TE-19110

Rev.

Scale: 1:16

Weight:

Sheet 1 of 8
Step 1: Top Piece

Note:
Attach 6 to 4, 5 places.
Pre-drill and attach using 1.25" screws.

Step 2: Bottom Piece

Note:
Attach 6 to 4, 6 places.
Pre-drill and attach using 1.25" screws.

Step 3:

Note:
Attach 10 to 1 as shown.
Attach 11 to the bottom in 3 places.
Pre-drill and attach using 1.25" screws.
Step 4:

Notes:
Attach 8 to 9 as shown.
Pre-drill and attach using 1.25" screws.

Step 5:

Note:
Attach 7 to 2 tangent to circle.
Attach 10 to 2 as shown.
Repeat for both Item 2.

Step 6:

Note:
Attach assembly from Step 4 to Item 2.
It should be flush to the top and side of cut out. Repeat.
Step 7:
Note:
Attach Items 1, 2, and 3 to Item 4 as shown.

Pre-drill and use 1.25" screws.

Step 8:
Note:
Insert 12 x12 in to 1 and 3. There should be a bolt in each counter sunk hole.

Step 9:
Note:
Place two Item 5 on top of the two inner bolts.
The outer bolts will be located on top of each ramp, securing it in position.
Note: 15/32"(1/2") A/C or CDX Plywood

TE-19110-01

TE-19110-02

Note: 15/32"(1/2") A/C or CDX Plywood
Note:
15/32"(1/2") A/C or CDX Plywood

Note:
15/32"(1/2") A/C or CDX Plywood
**Single Bay Rocket**

**Note:**
15/32"(1/2") A/C or CDX Plywood

**Note:**
2" 2" Pine Lumber

**Note:**
2" Hook Fastener

**Note:**
2" 4" Pine Lumber

---

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<th>DATE</th>
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**Title:** Single Bay Rocket

**Size:** A

**Dwg. No.:** TE-19110

**Rev:** A

**Scale:** 1:16

**Weight:**

**Sheet:** 7 of 8

---

**Note:**
15/32"(1/2") A/C or CDX Plywood

**Note:**
2" 2" Pine Lumber

**Note:**
2" Hook Fastener

**Note:**
2" 4" Pine Lumber

---

**Proprietary and Confidential**
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Note:
2" Vison Tape

Note:
2" Hook Fastener

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±1/16
ANGULAR: MACH ±1° BEND ±1°
TWO PLACE DECIMAL ±.01
THREE PLACE DECIMAL ±.001

INTERPRET GEOMETRIC TOLERANCING PER:

MATERIAL
FINISH

NEXT ASSY USED ON

APPLICATION

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- **Material**
  - 15/32"(1/2") A/C or CDX Plywood: 2 sheets
  - 1/8" Hardboard: .5 sheet
  - 2"x4"x8": 1
  - 2"x 2" 8": 3
  - 2" hook: 83.5"
  - 1.25" wood screws: ~100
  - 2.5" wood screws: ~40
  - 2" Vison Tape: 22'
  - 23/32"(3/4") A/C or CDX Plywood: .25 sheet
  - TEE nut 3/8"-16: 9
  - Hex nut 38"-16: 9
  - Hex head bolt 3/8"-16 x.625(.75): 9

*UNLESS OTHERWISE SPECIFIED:
- DIMENSIONS ARE IN INCHES
- TOLERANCES:
  - FRACTIONAL 1/16
  - ANGULAR: MACH 1° BEND 1°
  - TWO PLACE DECIMAL .01
  - THREE PLACE DECIMAL .001

*INTERPRET GEOMETRIC TOLERANCING PER:

*DO NOT SCALE DRAWING

**Cargo Front**

**Title:** Cargo Front

**Size:** A

**DWG. NO.:** TE-19111

**Rev:** A

**Scale:** 1:24

**Weight:**

**Sheet 1 of 13**
Step 1:
- Attach 9 flush to the top of 1 as shown using 1.25" screws.
- Attach 10 to 1 as shown using 1.25" screws.
- Leave enough room for 1/2" plywood where indicated.
- Pre-drill for all hardware.

Note:
- Attach 9 flush to front of 1.
- Attach 11 flush to angle 3.
- Attach 10 to 2.
- Pre-drill and attach items using 1.25" and 2.5" screws.
- Create mirrored version of this assembly.

Step 2:
- Attach 9 flush to front of 2.
- Attach 11 flush to the top 2.
- Attach 10 to 2.
- Pre-drill all holes and use 1.25" screws.
- Create mirrored version of this assembly.

Step 3:
- Attach 9 flush to front of 3.
- Attach 11 flush to angle 3.
- Attach 10 to 3.
- Pre-drill on opposite side.

Note:
- Attach 9 flush to the top of 1 as shown using 1.25" screws.
- Attach 10 to 1 as shown using 1.25" screws.
- Leave enough room for 1/2" plywood where indicated.
- Pre-drill for all hardware.

Note:
- Attach 9 flush to front of 3.
- Attach 11 flush to angle 3.
- Attach 10 to 3.
- Pre-drill on opposite side.

Note:
- Attach 9 flush to front of 1.
- Attach 11 flush to angle 3.
- Attach 10 to 2.
- Pre-drill and attach items using 1.25" and 2.5" screws.
- Create mirrored version of this assembly.

Note:
- Attach 9 flush to front of 2.
- Attach 11 flush to the top 2.
- Attach 10 to 2.
- Pre-drill all holes and use 1.25" screws.
- Create mirrored version of this assembly.

Note:
- Attach 9 flush to front of 3.
- Attach 11 flush to angle 3.
- Attach 10 to 3.
- Pre-drill on opposite side.
Step 4:
**QTY 2**

Notes:
- Attach 13 to 14 as shown.
- Pre-drill and use 1.25" screws.

Step 5:
**QTY 2**

Notes:
- Attach 16 to 15 as shown.
- Pre-drill and use 1.25" screws.
Step 6

Note:
- Attach assemblies from Step 4 and Step 5 to Items 6 and 7 as shown using 2.5" screws. Pre-drill as necessary.
- Attach 18 and 17 to 6 and 7

Step 7

Note:
- Flip over and insert 20 to holes. Use a hammer to press them in.
- Flip and thread 22 and 21 in to 20.

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±1/16
ANGULAR: MACH ±1° BEND ±1°
TWO PLACE DECIMAL ±.01
THREE PLACE DECIMAL ±.001

INTERPRET GEOMETRIC TOLERANCING PER:

MATERIAL

NEXT ASSY USED ON

FINISH

APPLICATION DO NOT SCALE DRAWING

TITLE: Cargo Front

SIZE DWG. NO. REV
A TE-19111

SCALE: 1:24 WEIGHT: SHEET 4 OF 13

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Step 8:

To attach here, pre-drill at an angle and fasten with screws.

Note:
- Insert subassemblies from Steps 2 and 3 into subassembly from Step 1 as shown. Secure with 2.5" screws.
- Place Item 8 on to the supports. Secure with 1.25" screws.
- Pre-drill as necessary.

Step 9:

Note:
- Attach Item 12 as shown, using 2.5" screws. 4 Places.
- Add Item 19 to bottom of Item 12.
Step 7 Subassembly

Note:
- Attach subassembly from Step 7 as shown using 1.25" screws.
- Attach Item 4 using 1.25" screws.
- Attach 5 with cable ties.
Note: 15/32" (1/2") A/C or CDX Plywood

Note: 15/32" (1/2") A/C or CDX Plywood
Note:
15/32" (1/2") A/C or CDX Plywood

Note:
15/32" (1/2") A/C or CDX Plywood
Note:
15/32" (1/2") A/C or CDX Plywood

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±1/16
ANGULAR: MACH ± 1°
TWO PLACE DECIMAL ± .01
THREE PLACE DECIMAL ± .001

INTERPRET GEOMETRIC TOLERANCING PER:

MATERIAL

NEXT ASSY
FINISH

APPLICATION
DO NOT SCALE DRAWING

Note:
15/32" (1/2") A/C or CDX Plywood

SCALE: 1:24
WEIGHT:

FIRST ROBOTICS
COMPETITION

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Note:
15/32" (1/2") A/C or CDX Plywood
Note: 2"X 2" Pine Lumber

Note: 23/32" (3/4") A/C or CDX Plywood
Note: 15/32" (1/2") A/C or CDX Plywood

Note: 2'X 4' Pine Lumber

Note: 2'X 4' Pine Lumber

Note: 15/32" (1/2") A/C or CDX Plywood

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL: ±1/16
ANGULAR: MACH ±1° BEND ±1°
TWO PLACE DECIMAL: ±.01
THREE PLACE DECIMAL: ±.001

INTERPRET GEOMETRIC TOLERANCING PER:

MATERIAL
FINISH
APPLICATION
DO NOT SCALE DRAWING

TOLERANCE:

PROPRIETARY AND CONFIDENTIAL
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UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ± 1/16
ANGULAR: MACH 1° BEND ± 1°
TWO PLACE DECIMAL ± .01
THREE PLACE DECIMAL ± .001

INTERPRET GEOMETRIC TOLERANCING PER:
MATERIAL
FINISH

NEXT ASSY USED ON
APPLICATION
DO NOT SCALE DRAWING

FULL CARGO SHIP
Subassembly 1:

![Diagram of Subassembly 1]

Notes:
- Attach Items 9, and 11 to Item 1 as shown.
- Repeat on opposite side.
- Pre-drill and use 1.25 and 2.5" screws as necessary.

Subassembly 2:

![Diagram of Subassembly 2]

Notes:
- Attach Items 8, 9 and 11 to Item 2 as shown.
- Pre-drill and use 1.25" screws as necessary.

Space for 1/2" plywood required.
Subassembly 3:
QTY(2)

Subassembly 4:
QTY(1)

Notes:
- Repeat on both sides
- Attach 9 x4 flush to surfaces of 2 as shown.
- Attach 11 x4 flush to surfaces of 2 as shown.
- Attach 8 x4 to 2 vertical flush to cutout
- Pre-drill and attach with 1.25" and 2.5" screws

Notes:
- Attach 9 to 2 flush to top and cutout.
- Attach 8 to 2 as shown. Middle items to be flush with cutout.
- Attach 11 flush to angled surfaces of 2.
- Pre-drill and attach with 1.25" and 2.5" screws

Space for 1/2" plywood required.
Subassembly 5:

- Maintain gap for 1/2" plywood

Notes:
- Attach 8x6 to 3 as shown using 1.25" screws.
- Pre-drill as necessary.

Subassembly 6:

Notes:
- Attach 9 flush to surfaces of 6 as shown using 1.25" screws.
- Attach 8 to 6 as shown using 1.25" screws.
- Pre-drill as necessary.
- Repeat process to create a mirrored version of subassembly.
Notes:
- Lower Subassembly 1 onto Subassemblies 2, 3 and 4. Cutouts of the subassemblies should intersect. Secure with 2.5" screws at available cleats.
- Lower Subassembly 5 so that Subassembly 1 sits inside the cleats mounted on the bottom. Secure with 2.5" screws.
- Align Subassembly 6 (and mirrored) with the cleats on Subassembly 4. Secure with 1.25" screws.
- Attach Item 8 as shown on both sides of Subassembly 1. Secure with 2.5" screws.
Subassembly 10:
QTY 8

Note:
- Attach 14 to 13 using 1.25" screws. Top surfaces should be flush.
- Pre-drill as necessary

Subassembly 11:
QTY 8

Note:
- Attach 15 to 16 using 1.25" screws. Top surfaces should be flush.
- Pre-drill as necessary

Note:
- Attach 12 16X as shown using 1.25" screws. Stagger inner 2x4's for easy attachment. Outer 2x4's will require pre-drilling at an angle to attach. All 2x4's should be flush with the bottom of frames.

- Add 22 to the bottom of the inner 2x4's.
Note:
- Apply 20 to 4 and 7 as shown.
  20 should be tangent to the curve.
- Create the quantities listed.

Note:
- Press in 17 into each hole in subassembly 12, 13, and 14. Flange should be on the non-hook side of plywood. Use hammer if necessary.
- Thread 18 19 into 17.
Note:
- Attach Subassemblies 12, 13 and 14 as shown using 1.25" screws.
- Attach Subassemblies 10 and 11 as shown using 1.25" screws.
- Pre-drill as necessary.
Notes:
- Apply 21 as shown.
- Attach 10 with cable ties. Quantity 2.
Note:
Material 15/32" (1/2") A/C or CDX Plywood
Note:
Material 15/32" (1/2") A/C or CDX Plywood

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ± 1/16
ANGULAR: MACH ± 1°
TWO PLACE DECIMAL ± 0.01
THREE PLACE DECIMAL ± 0.001

INTERPRET GEOMETRIC TOLERANCING PER:

MATERIAL

FINISH

NEXT ASSY

USED ON

APPLICATION

DO NOT SCALE DRAWING

TITLE: Full Cargo Ship

SIZE DWG. NO. REV
A TE-19112

SCALE: 1:32 WEIGHT: SHEET 11 OF 17
Note: Material 15/32" (1/2") A/C or CDX Plywood

Full Cargo Ship
Note: Material 15/32" (1/2") A/C or CDX Plywood

Note: Material 15/32" (1/2") A/C or CDX Plywood

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL: ±1/16
ANGULAR: MACH ±1° BEND ±1°
TWO PLACE DECIMAL: ±.01
THREE PLACE DECIMAL: ±.001

INTERPRET GEOMETRIC TOLERANCING PER:

MATERIAL
FINISH

NEXT ASSY USED ON

APPLICATION

DO NOT SCALE DRAWING

FULL CARGO SHIP

DRAWN
CHECKED
ENG APPR.
MFG APPR.
Q.A.
COMMENTS:

TITLE: Full Cargo Ship

SIZE DWG. NO. REV

TE-19112 13 A

SCALE: 1:32 WEIGHT: SHEET 13 OF 17

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Note:
Material 15/32" (1/2") A/C or CDX Plywood

Note:
Material 2"x 2" Lumber Pine

Note:
Material 2"x 2" Lumber Pine

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±1/16
ANGULAR: MACH ±1° BEND ±1°
TWO PLACE DECIMAL ±.01
THREE PLACE DECIMAL ±.001

INTERPRET GEOMETRIC
TOLERANCING PER:

MATERIAL
FINISH

NEXT ASY SS
USED ON
APPLICATION
DO NOT SCALE DRAWING

DRAWN
CHECKED
ENG APPR.
MFG APPR.
Q.A.
COMMENTS:

TITLE: Full Cargo Ship

SIZE
DWG. NO
REV

A
TE-19112

SCALE: 1:32
WEIGHT:
SHEET 14 OF 17
11.00
3.00
13 8x

Note:
15/32" (1/2") A/C or CDX Plywood

3.00
3.00
( .47 )

14 16x

Note:
2"x 4" Pine lumber

3.00
5.25
.85
( 1.50 )

Note:
2"x 4" Pine lumber

3.00
11.00
( 1.50 )

Note:
15/32" (1/2") A/C or CDX Plywood

15/32" (1/2") A/C or CDX Plywood

Note:
15/32" (1/2") A/C or CDX Plywood
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<tr>
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<tr>
<td>17</td>
<td>flat_phil_.25_20_1.75</td>
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**Material**

<table>
<thead>
<tr>
<th>Material</th>
<th>QTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>23/32&quot;(4/3&quot;) A/C or CDX Plywood</td>
<td>0.25 sheets</td>
</tr>
<tr>
<td>15/32&quot;(1/2&quot;) A/C or CDX Plywood</td>
<td>3 sheets</td>
</tr>
<tr>
<td>2&quot;x4&quot;x8'</td>
<td>4</td>
</tr>
<tr>
<td>Flat Head 1/4&quot;-20 x1.75</td>
<td>18</td>
</tr>
<tr>
<td>2&quot; Hook Fastener</td>
<td>267&quot;</td>
</tr>
<tr>
<td>2&quot; Vison Tape</td>
<td>33&quot;</td>
</tr>
<tr>
<td>1.25&quot; screws</td>
<td>~60</td>
</tr>
<tr>
<td>2.5&quot; screws</td>
<td>~100</td>
</tr>
</tbody>
</table>
Subassembly 1:
QTY 4

Notes:
- Attach 7 to 8 and 9.
- 7 is centered on top of 8 and 9.
- Pre-drill and attach items with 2.5" screws.

Subassembly 2:
QTY 6

Note:
- Attach 11 to 12 2X.
- 12 should be flush to top edge and side faces of 11.
- Pre-drill and attach using 1.25" screws.

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ≤ 1/16
ANGULAR: MACH ≤ 1° BEND ≤ 1°
TWO PLACE DECIMAL ≤ 0.01
THREE PLACE DECIMAL ≤ 0.001

TITLE: Full Rocket
SIZE: A
DWG. NO.: TE-19113
REV.
SCALE: 1:32
WEIGHT:
SHEET 2 OF 11

DO NOT SCALE DRAWING

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Subassembly 3:

Note: Attach 14 x 2 to 1.

Subassembly 4:

Qty. 2

Note:
- Attach 13 x 6 to 2. 13 should be tangent to opening.
- Attach Subassembly 2 (qty. 3) to 2. It should be flush to the top opening edges.
- Use 1.25" or 2.5" screws to attach items.

---

Dimensions are in inches.

Tolerances:
- Fractional ± 1/16
- Angular: MACH ± 1° BEND ± 1°
- Two Place Decimal ± 0.01
- Three Place Decimal ± 0.001

Interpret geometric tolerancing per:

Material

Finish

Next Assy

Used On

Application

Do not scale drawing

Full Rocket
Subassembly 5:

3.25

2.43

10 16

Note:
- Attach 16 to 10 as shown.
- Attach Subassembly 1 using 1.25” screws.

Step 8:

Subassembly 3

Subassembly 4

Subassembly 1

Note:
- Attach Subassembly 3 and 4 to Subassembly 5 using 1.25” screws. Have additional people on hand to hold components in place.
- Attach Subassembly 1 at the locations indicated using 1.25” screws.

Subassembly 5
Subassembly 6:

Notes:
- Attach 5 to 6 at the two locations indicated. Pre-drill and use 2.5" screws.
- Attach 15 to 6

Step 10:

Note:
- Attach 3 to Step 8 pre drill 2.5" screws
- Attach Step 9 to 3 pre drill and 2.5" screw
Step 9 sits flush to floor
Note:
- Insert 17 x36 into all countersunk holes
- Lay 4 onto 17. One of the 17 will be on top of 4

Note:
- Attach 14 2X as shown. Repeat on other side.
TE-19113-01

1X 1

(.47)

Note: 15/32" A/C or CDX Plywood

18X 0.27 THRU

\( \phi 0.51 \times 82^\circ \)

2X 42.7
2X 42.3
2X 41.1
26.8
2X 14.7
2X 14.3
2X 13.1
0

TE-19113-02

2X 2

Note: 15/32" A/C or CDX Plywood

2X 70.7
2X 70.3
2X 69.1
54.8
2X 42.7
2X 42.3
2X 41.1
26.8
2X 14.7
2X 14.3
2X 13.1
0

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL \( \pm \frac{1}{16} \)
ANGULAR: MACH\( \pm 1^\circ \) BEND \( \pm 1^\circ \)
TWO PLACE DECIMAL \( \pm 0.01 \)
THREE PLACE DECIMAL \( \pm 0.001 \)

INTERPRET GEOMETRIC TOLERANCING PER:

MATERIAL

FINISH

NEXT ASSY USED ON APPLICATION

DO NOT SCALE DRAWING

FULL ROCKET

Note: 15/32" A/C or CDX Plywood

SHEET 7 OF 11
Note: 15/32" A/C or CDX Plywood

Note: 23/32" A/C or CDX Plywood

Note: 15/32" A/C or CDX Plywood
Note:
2" x 4" Pine lumber

2" Vison Tape

2" Hook Fastener

2" Hook Fastener

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES

TOLERANCES:
FRACTIONAL: ±1/16
ANGULAR: MACH ±1° BEND ±1°
TWO PLACE DECIMAL: ±.01
THREE PLACE DECIMAL: ±.001

INTERPRET GEOMETRIC TOLERANCING PER:

MATERIAL

FINISH

NEXT ASSY

USED ON

APPLICATION

DO NOT SCALE DRAWING

FULL ROCKET

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<td>TE-19117-03</td>
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<td>TE-19117-04</td>
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<td>6</td>
<td>TE-19117-06</td>
<td>9</td>
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</table>

Material | QTY
---|---
23/32"(3/4") A/C or CDX Plywood | 2 sheets
1/8" Hardboard | .75 sheets
2"x4"x8' | .125 sheets
1" Hook Fastener | 210"
1" Loop Fastener | 210"
2.5" screws | 8
Step 1:
- Attach 3 to 1.
- Pre drill and attach using 2.5" Screws

Step 2:
- Arrange 2 in pattern above.
- Apply 5 to the edge of 2 on 3 sides
- Apply 6 to 5. Do not remove the protective backing.
Step 3:
- Attach assembly from Step 1 to Step 3
- Pre drill and attach using 2.5" screws

Step 4:
Note:
- Remove the protective backing from the loop.
- Attach 4 on three sides by pressing firmly to the loop.
Notes:
23/32" (3/4") A/C or CDX Plywood

Notes:
23/32" (3/4") A/C or CDX Plywood
(6X R.13 added for router)
Note: Material: 2"X 4" Lumber Pine

Note: Material: 1/8" HardBoard

Note: Material: 1" Hook Fastener

Note: Material: 1" Loop Fastener

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES

TOLERANCES:
FRACTIONAL ± 1/16
ANGULAR: MACH ± 1° BEND ± 1°
TWO PLACE DECIMAL ± .01
THREE PLACE DECIMAL ± .001

INTERPRET GEOMETRIC TOLERANCING PER:

MATERIAL

FINISH

NEXT ASSY

USED ON

APPLICATION

DO NOT SCALE DRAWING

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<td>8</td>
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<table>
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<th>Material</th>
<th>QTY</th>
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<tbody>
<tr>
<td>23/32&quot; (3/4&quot;) A/C or CDX Plywood</td>
<td>.75 sheet</td>
</tr>
<tr>
<td>2'x4'x8'</td>
<td>.125</td>
</tr>
<tr>
<td>1/8&quot; Hardboard</td>
<td>.125</td>
</tr>
<tr>
<td>1&quot; Hook Fastener</td>
<td>24&quot;</td>
</tr>
<tr>
<td>1&quot; Loop Fastener</td>
<td>24&quot;</td>
</tr>
<tr>
<td>2.5&quot; screws</td>
<td>16</td>
</tr>
</tbody>
</table>

Note: Double and mirror for half field
**Step 1:**
- Attach 6 to 1 at locations shown.
- Pre drill and use 1.25" screws to attach.

**Step 2:**
- Arrange 2 and 3 as shown. Grooves in the parts will intersect with one another.

**Note:**
- Attach 6 to 1 at locations shown.
- Pre drill and use 1.25" screws to attach.
Step 3:
- Place subassembly from Step 1 onto the plywood frame from Step 2. Pre-drill and secure with 2.5" screws.
- Attach 7 x 6 to the edge of 3 and 2 on two sides only.
- Apply 8 x 6 to 7 , and remove the backing.

Note:
- Place subassembly from Step 1 onto the plywood frame from Step 2. Pre-drill and secure with 2.5" screws.
- Attach 7 x 6 to the edge of 3 and 2 on two sides only.
- Apply 8 x 6 to 7 , and remove the backing.

Step 4:
- Press 5 and 4 to 8 Flush to floor and edges.
- Press firmly to ensure loop adhesion to hardboard.

Note:
- Press 5 and 4 to 8 Flush to floor and edges.
- Press firmly to ensure loop adhesion to hardboard.
Note: 23/32" (3/4") A/C or CDX Plywood

Note: 23/32" (3/4") A/C or CDX Plywood

Note: 23/32" (3/4") A/C or CDX Plywood (6X R.13 added for router)
TE-19118-04

Note: 1/8" Hardboard

TE-19118-05

Note: 1/8" Hardboard

TE-19118-06

Note: 2"x 4" Lumber Pine

TE-19118-07

Note: 1" Hook Fastener

TE-19118-08

Note: 1" Loop Fastener

LY

Note:

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