

Building a Bike Training Obstacle Course Kit

Building a Bicycle Training Obstacle Course Kit will teach attendees how to build a stackable, modular set of components for use in creating an obstacle course. Attendees will become familiar with the construction concepts, the materials, and the skills needed to build the kit. A scale model will be used to demonstrate how to use the kit to conduct bike-handling/decision-making training on many different levels by changing the difficulty of the course and modifying the layout of the components. Attendees will receive a set of plans to construct their own easy-to-store kit. *Invented and presented by members of the Denton Police (TX) Bicycle Team.*

Obstacle Course Kit Materials and Cut List

Pallets (8 - Pallets + 2 half pallets)

Materials List

5 - 4' X 8' sheets of 5/8" CDX Plywood @ \$24.75 each = \$123.75
24 - 2" X 6" X 8' @ \$3.86 each = \$92.64
Total cost \$216.39

Cut List

24 - 2" X 6" X 45
20 - 2" X 6" X 44 5/8
6 - 2" X 6" X 21
8 - 48" X 44 5/8"
2 - 24" X 44 5/8"

Short Ramp (2 - Short ramps)

Materials List

6 - 2" X 4" X 92 5/8 (stud) @ \$2.12 each = \$12.72
2 - 4' X 8' sheets of 5/8" CDX Plywood @ \$24.75 = \$49.50
1 - 4' X 4' sheet of 5/8" CDX Plywood left over from pallet project
Total cost \$62.22

Cut List

6 - 2" X 4" X 92 5/8 Cut to match diagram = 6 of each piece
4 - Triangle end caps cut from the 4' X 4' sheet of 5/8 CDX Plywood (you will have a 48" X 12" piece left over that you will use on the Long Ramp project)
2 - 48" X 48" pieces of 5/8" CDX Plywood (cut from one sheet)
2 - 48" X 18" pieces of 5/8" CDX Plywood (You will have a piece 30" X 8" left over that you will use on the long ramp project)

Long Ramp (3 - Long Ramps)

Materials List

5 - 4' X 8' sheets of 5/8" CDX Plywood @ \$24.75 = \$123.75
15 - 2" X 4" X 92 5/8 (stud) @ \$2.12 each = \$31.8
1 - 48" X 12" piece left over from Short ramp program
1 - 30" X 8' piece left over from Short ramp program
Total cost \$155.55

Cut List

15 - 2" X 4" X 92 5/8 Cut to match diagram = 15 of each piece
3 Sheets of 4' X 8' X 5/8" CDX Plywood used whole
3 - 8' X 18" cut from one sheet of CDX and the 30" X 8' left over from the short ramp project.
1 Sheet of 4' X 8' X 5/8" CDX Plywood cut according to diagram (makes the end caps and braces)
1 - 48" X 12" piece left over from Short ramp program cut into 8" X 12" brace configuration - modified from the 8" X 12 3/4" the diagram shows

Wall (2 side supports and 1 center section)

Materials List

13 - 2" X 4" X 8' @ \$2.71 each = \$35.23
4 - 4' X 8' sheet of 5/8" CDX Plywood @ \$24.75 = \$99.00
Total cost \$134.00

Cut List

17 - 41 5/8" X 2" X 4"
4 - 48" X 2" X 4"
2 - 96 X 2" X 4"
4 - 44 5/8" X 48" X 5/8 CDX Plywood
2 - 44 5/8" X 96" X 5/8 CDX Plywood

Building a Bike Training Obstacle Course Kit

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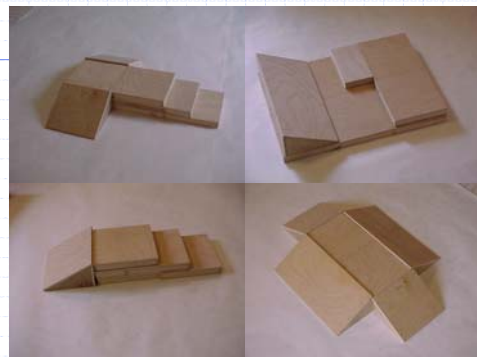
We needed something to use
for:

- ◆ In service training
- ◆ Basic Police Cyclist Course
- ◆ Advanced Police Cyclist Course
- ◆ Local competition.



We were looking for:

- ◆ A variety of obstacles
- ◆ Obstacles with multi-purpose applications
- ◆ Portability
- ◆ Storability





What we came up with:

- ◆ A set of obstacles
 1. Ramps
 2. Pallets
 3. Wall
- ◆ Uniform size
 1. Stack ability
 2. Interchangeability
 3. Least amount of wasted material

Construction Materials

- ◆ 2" x 4" x 8"
- ◆ 2" x 4" X 92 5/8" (studs)
- ◆ 2" x 6" x 8'
- ◆ 5/8" CDX plywood
 - Cheaper grade of plywood
 - Rougher surface with better traction
- ◆ Screws
 - 3" X 8 Deck Mate Philips square drive screws
 - 1 5/8" X 7 Deck Mate Philips square drive screws

Construction Plans

- ◆ This ain't Bob Vila, This Old House or the New Yankee Workshop
- ◆ The cost projections came from our local Home Depot and will vary for your area
- ◆ Materials list is pretty accurate

Reading the plans

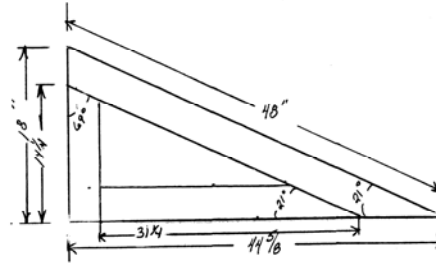
◆ Materials list for pallets

- 8 – 48 X 44 5/8 X 5/8
- 2 – 24 X 44 5/8 X 5/8
- 24 – 2 X 5 1/2 X 45
- 20 – 2 X 5 1/2 X 44 5/8

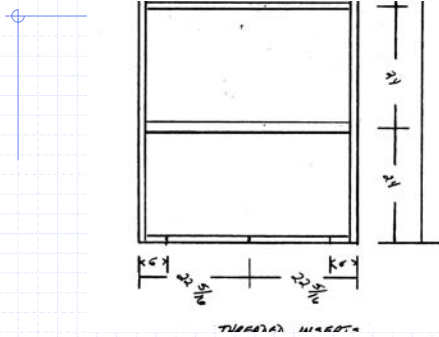
◆ What to purchase

- 5 – 4' X 8' 5/8 CDX Plywood @ \$24.75 = \$123.75
- 24 – 2 X 6 X 8' @ \$3.86 = \$92.64
- Total project = \$216.39

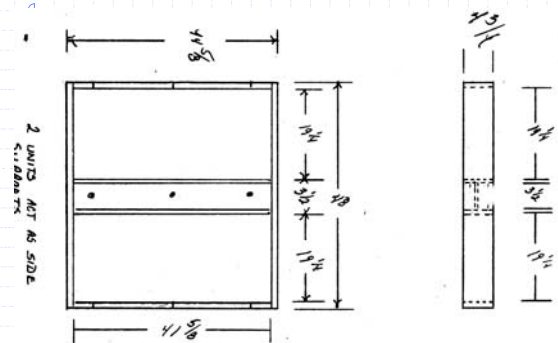
Reading the measurements



Reading the assembly



Reading the assembly



Tools

- ◆ Circular Saw
- ◆ Saw guide or 8' straight edge
- ◆ Electric Drill with screw driver bit
- ◆ Tape Measure
- ◆ "C" clamps
- ◆ Square
- ◆ Miter Saw *
- ◆ Table Saw *

*Nice to have but not necessary

Construction techniques

- ◆ Measuring
 - Measure twice. Cut once.
 - Remember to take into account the saw's "kerf"
 - Use one standard of measure

Cutting

◆ Use a Saw guide

- ◆ Clamp the guide in place
- ◆ Wear eye protection
- ◆ Measure twice / Cut once
- ◆ Know your saw's offset



- ◆ Cut the required number of pieces all at once

Assembly

◆ Pallets

- Use 3" X 8 screws
- Two screws per joint is sufficient
- Drill pilot holes through the first piece *
- Attach the Plywood with 1 5/8" screws

* Optional



Assembly

◆ Ramps

- Make an assembly jig and cut the frame pieces
- The jig acts as a saw guide



Assembly

◆ Ramps

- ◆ Use the assembly jig to build the frames



Assembly

- ◆ Build 16 frames with braces
- ◆ Attach end caps to the other side of 5 of the 16 frames
- ◆ Build 5 frames with end caps only, instead of braces.
- ◆ End caps and braces both attached with 1 5/8" screws



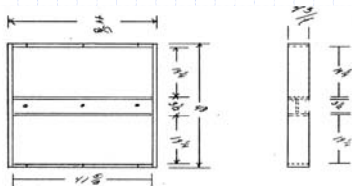
Assembly

- ◆ Attach the back to frames with 1 5/8" screws
- ◆ Attach the ramp surface with 1 5/8" screws



Assembly

- ◆ Wall (can be used as a short pallet)
 - Build the center "1" beam first
 - Use 3" X 8 screws to build the framework



Assembly

- ◆ Assemble frames for the side supports and center wall
- ◆ Attach Plywood to both sides of the two side supports
- ◆ Attach Plywood to one side of the center wall

Assembly

- ◆ Aligning and drilling the side supports
- ◆ Stand one side support and the wall on edge and position in a "T"
- ◆ Using a long drill bit drill through the side support and the outside frame of the center wall.



Assembly

- ◆ Push the bolt through from outside and put the threaded insert on
- ◆ Tighten the bolt down to seat the insert in the outside frame upright



Assembly

- ◆ While the bolt is tight, drill and install the other 2 bolts and threaded inserts
- ◆ Repeat for the other side support
- ◆ Mark each side support and corresponding end of the wall so the same side support always goes on the same end.

