

# PLAY FEATURE

design manual

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PRESENTED FOR:  
HEAD START

PRESENTED BY:  
WPI TEAM-MIKE, WILL,  
MARCO, & MADISON

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# Bicycle Water Pump

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	wood_frame	Top and bottom structural frames	2
2	dowel_holder	Supports to hold up the wheel	2
3	Cycle wheel	Bicycle Wheel	1
4	bike_peg	Bike pegs that attach to the wheel	2
5	2in_4ft	4 foot segment of PVC pipe	1
6	2in Tee	PVC T Junction	1
7	2in_1ft	1 foot segment of PVC pipe	1
8	2in Elbow	PVC Elbow junction	1
9	trash_can	Water Basin	1
10	4x4_3ft	Pressure treated posts	2
11	plexi_top	Plexiglass top	1
12	2x4 16in	Middle support between wheel support beams	1
13	2x4 8in	Connection to hold the pipe	1
14	pvc_holder	Bracket to support the pipe	1
15	4x4_12in	Pressure treated bottom support	1
16	dowel	Connected to the pegs to reach the wheel support beam	2
17	Plexiglass Support	Holds up the plexiglass box	1
18	plexiglass_panel_12x12	Left side of the plexiglass box	2
19	plexiglass_panel_12x16	Front side of the plexiglass box	1

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FRACTIONS ARE IN INCHES	CHECKED
ANGLES IN DEGREES	ENG APPR.
ONE PLACE DECIMAL = .1	INC APPR.
TWO PLACE DECIMAL = .05	QA.
THREE PLACE DECIMAL = .005	COMMENTS:
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TYPED	
DATE	
BY	

NAME	DATE
M/G	4/20/24

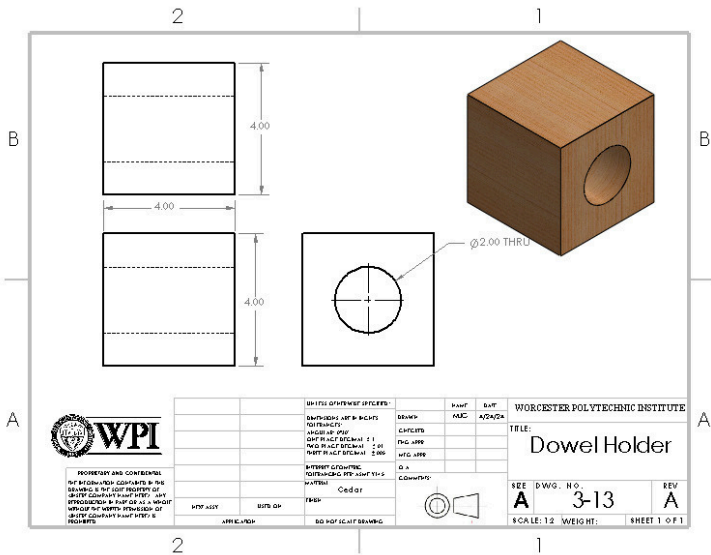
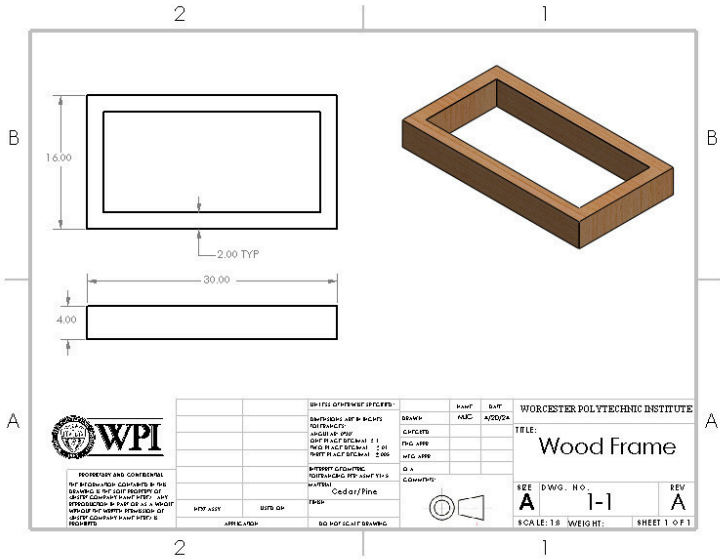
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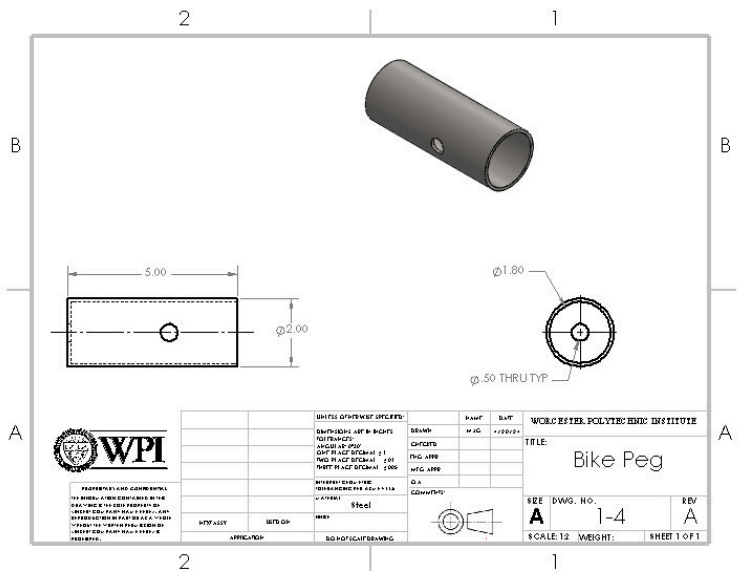
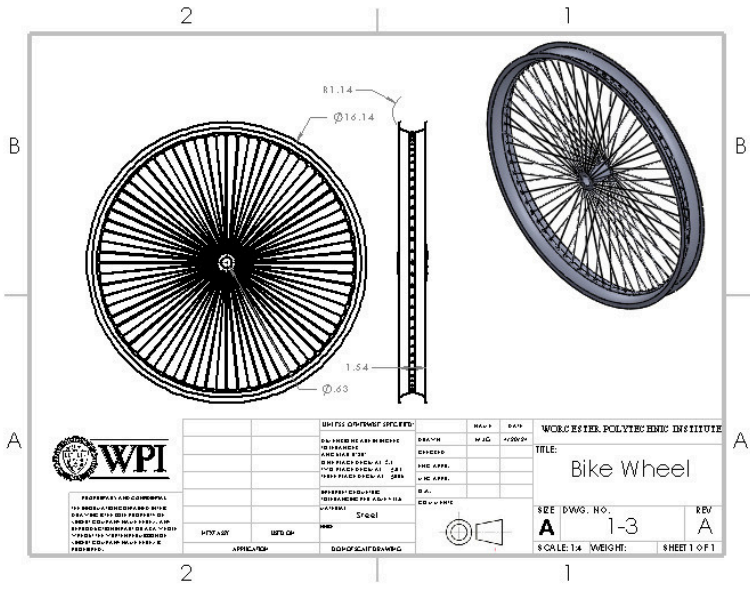
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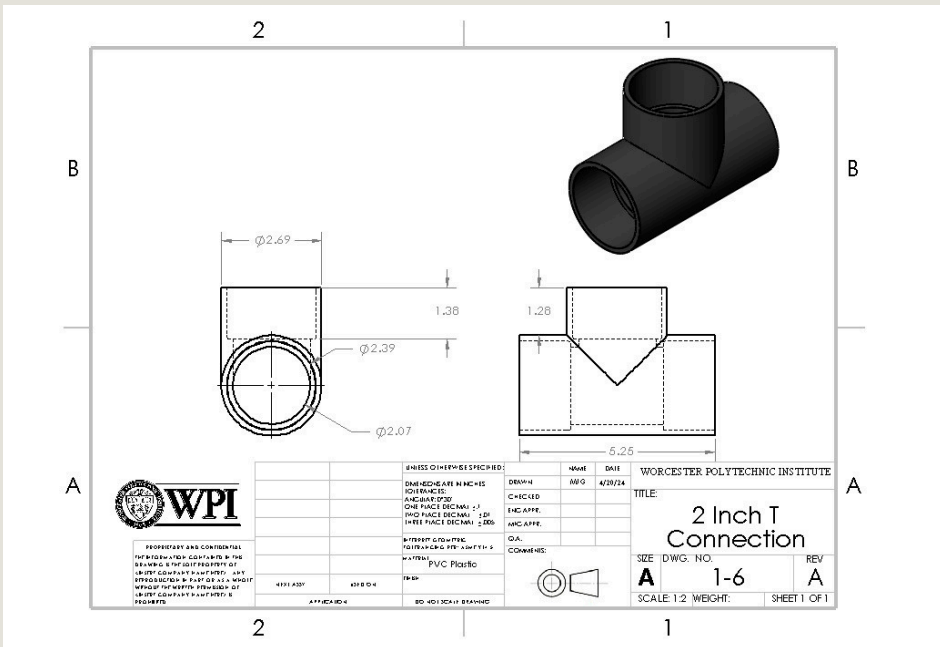
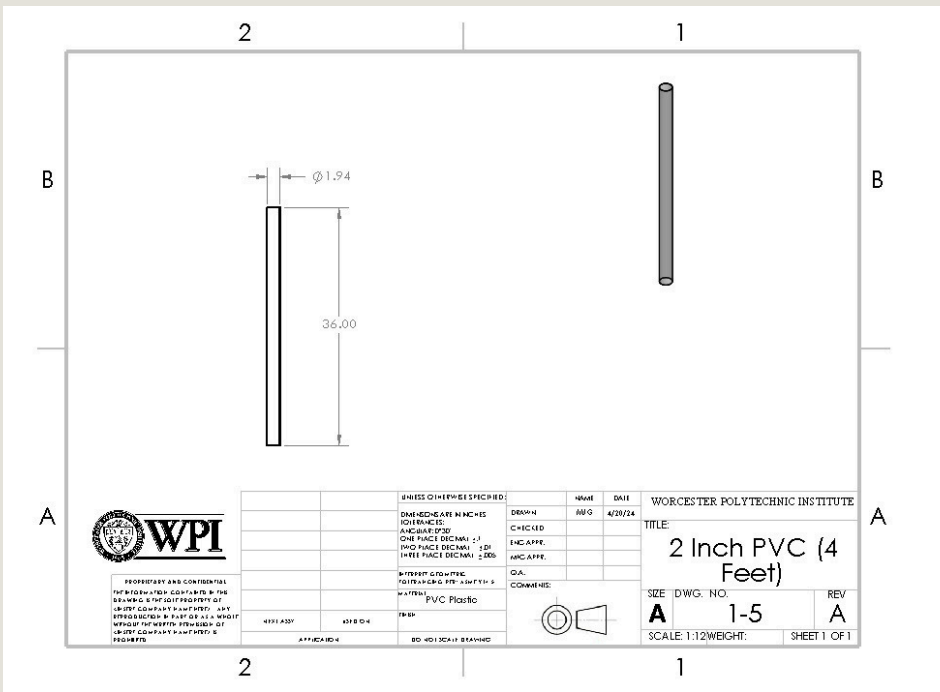
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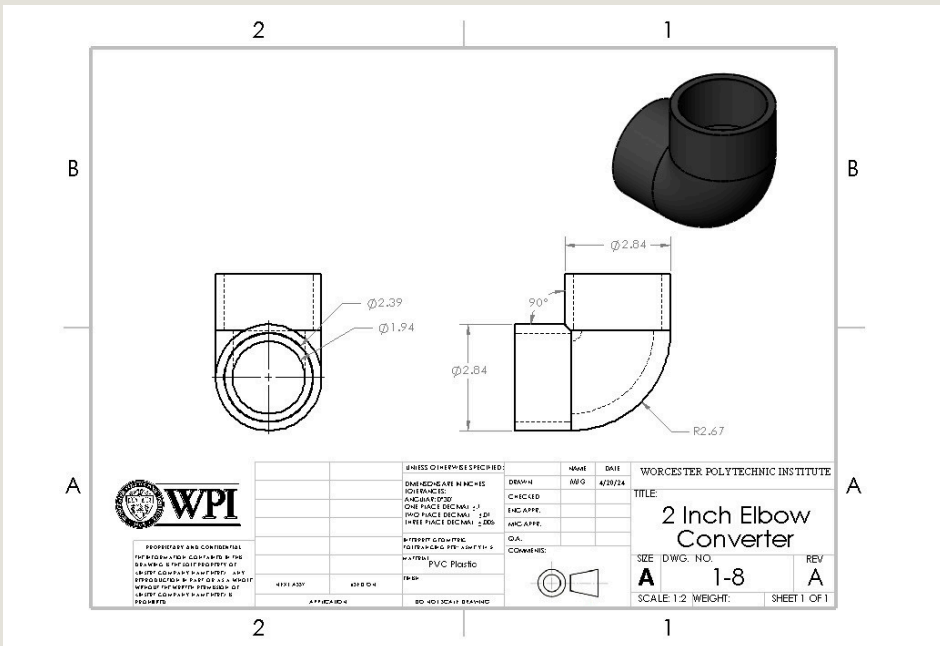
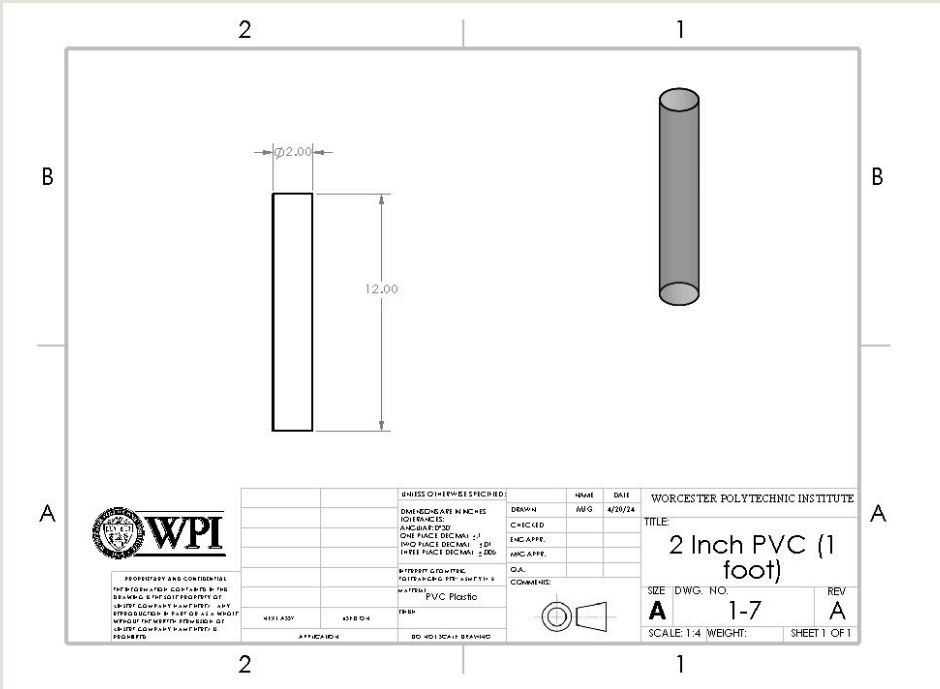
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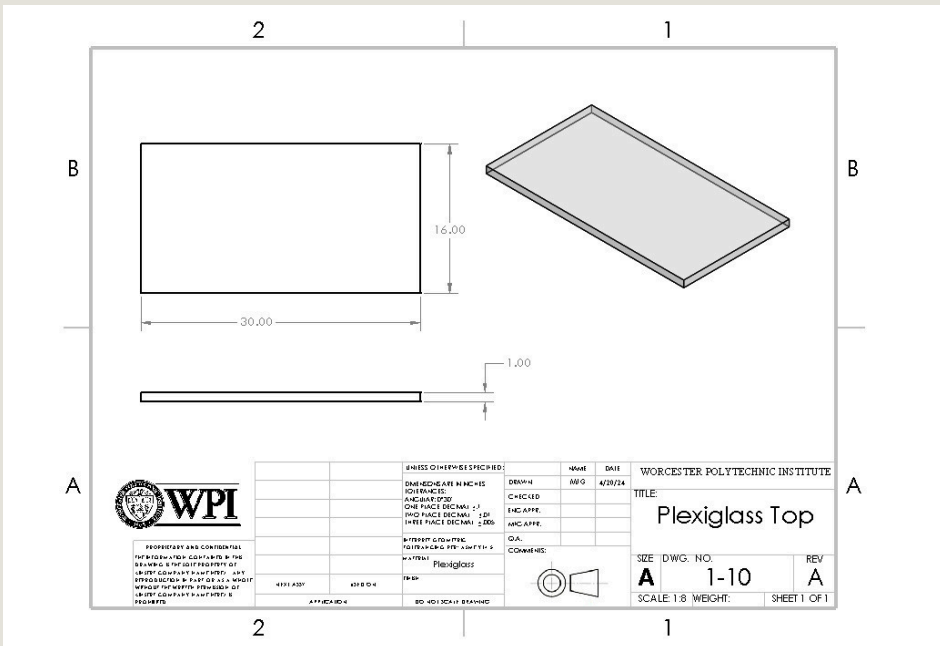
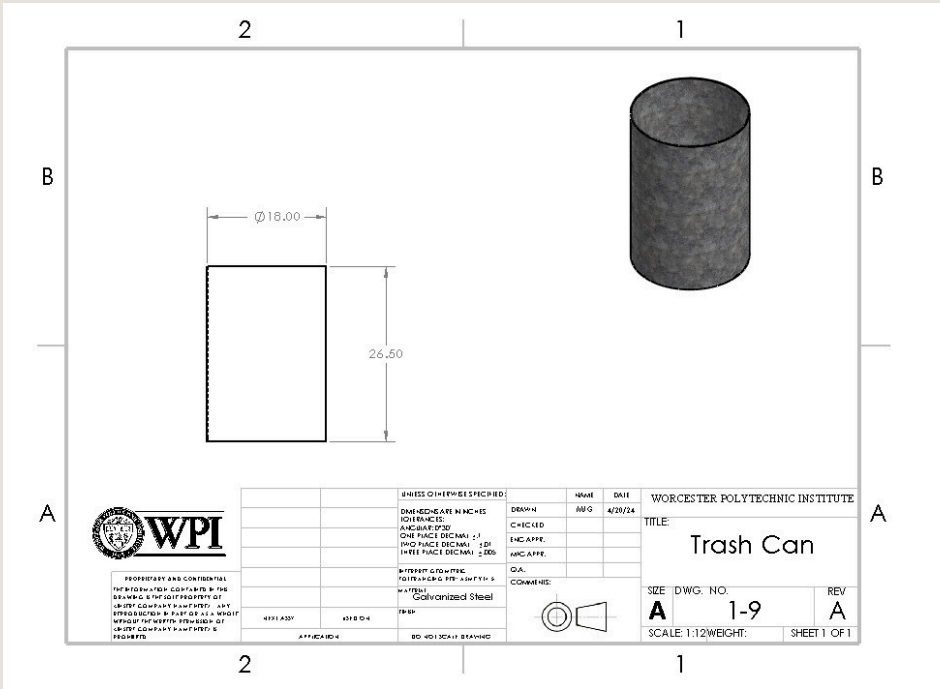
OVERARCHING  
DESIGN



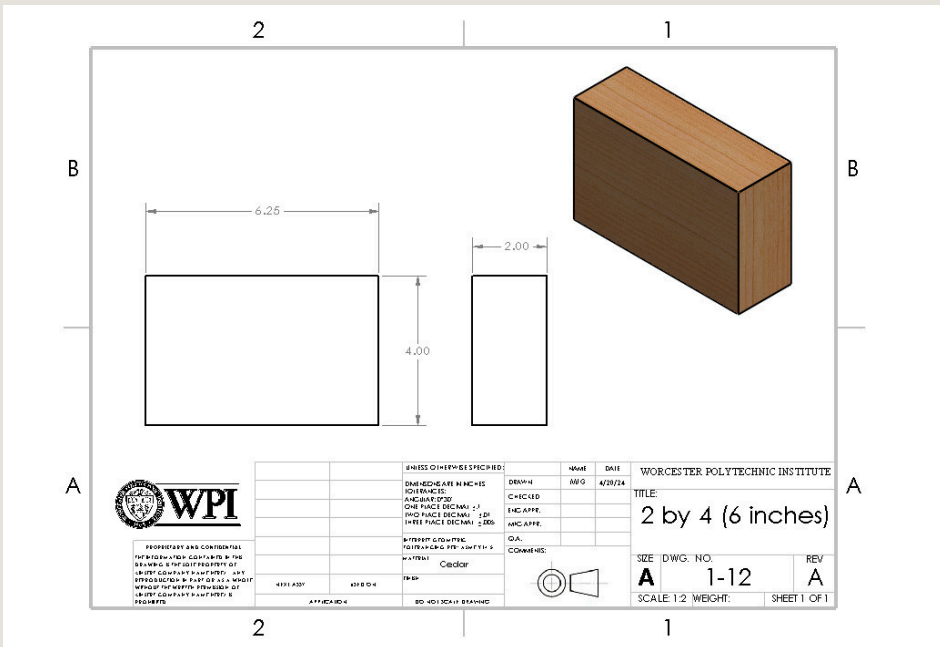
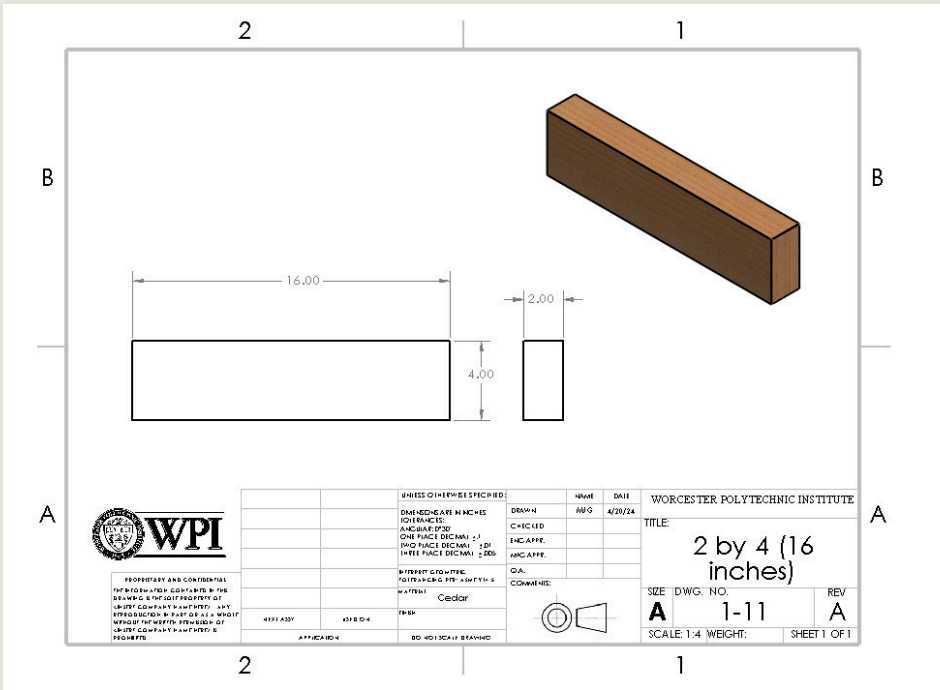


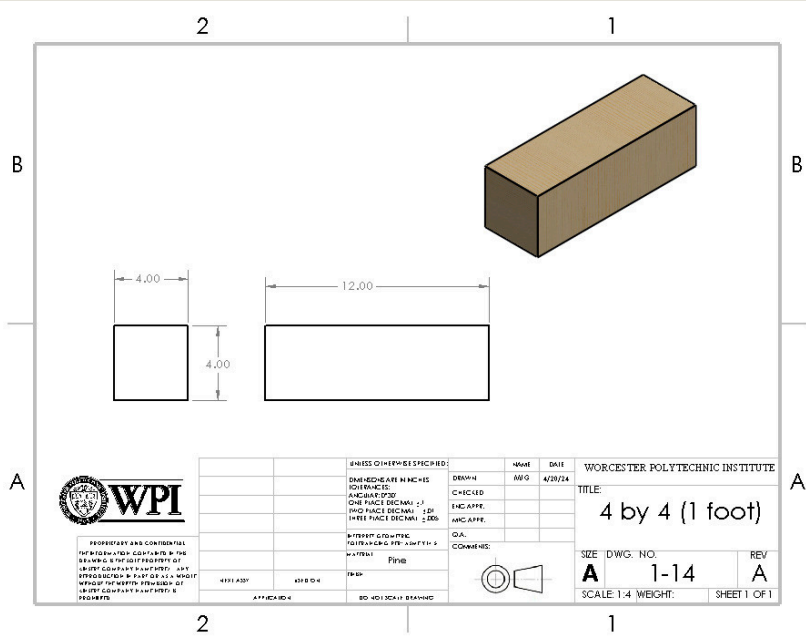
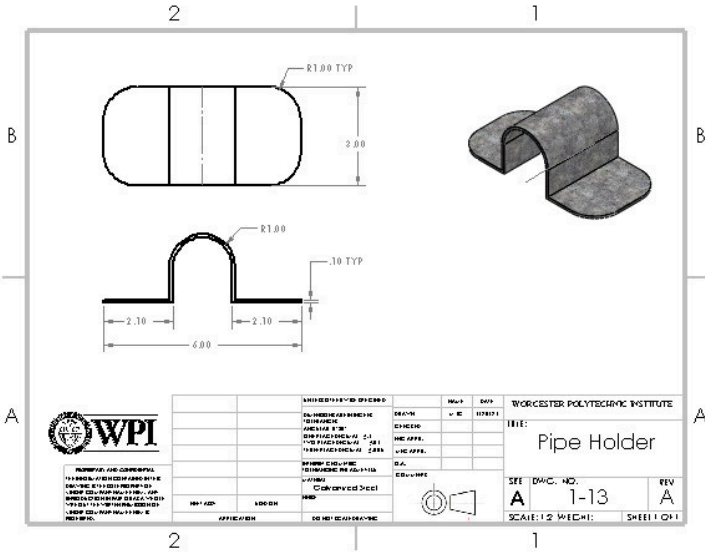


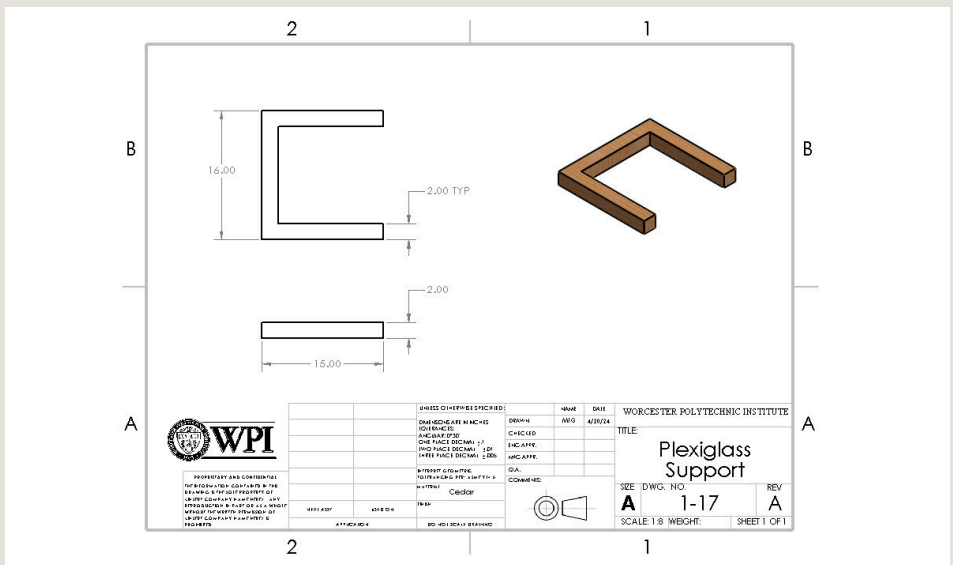
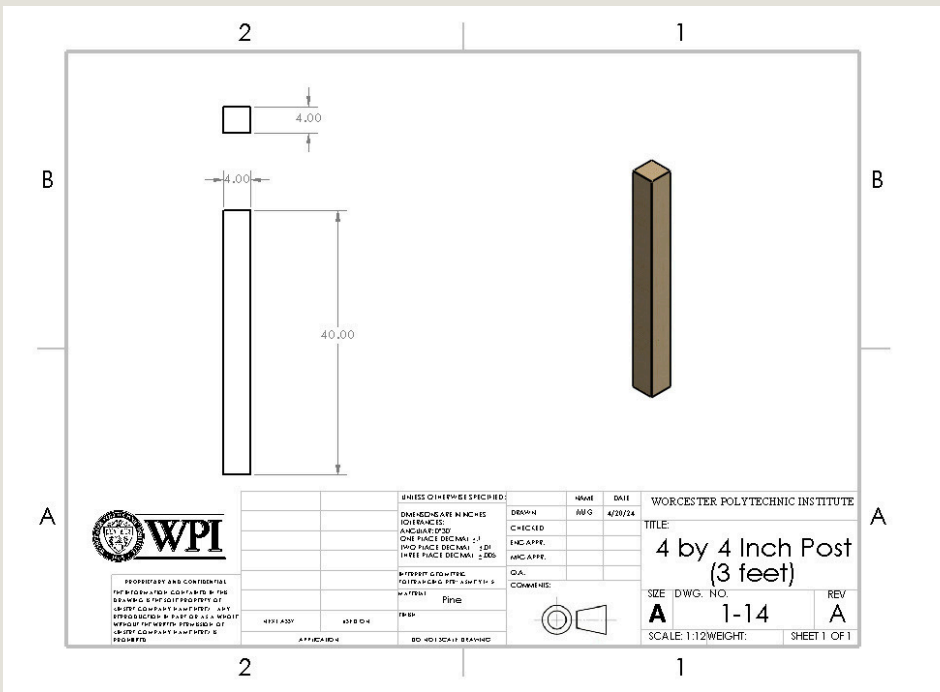


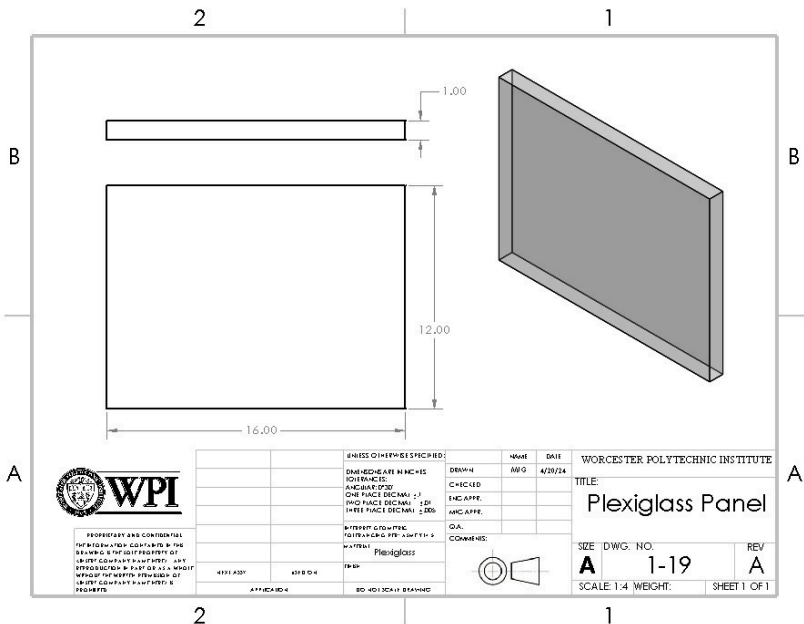
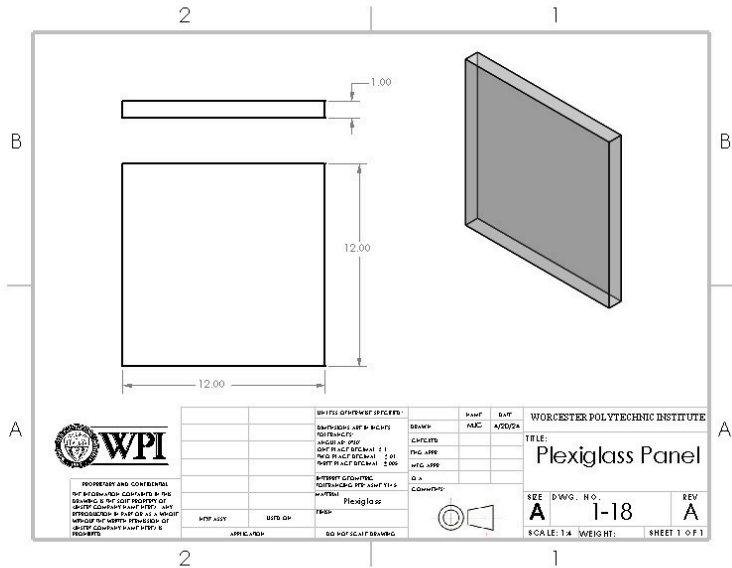











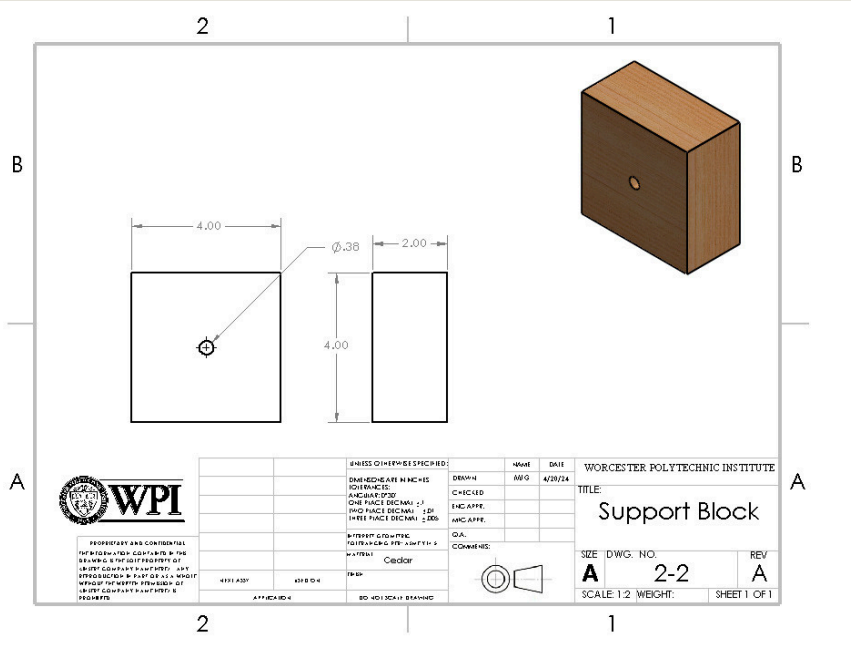
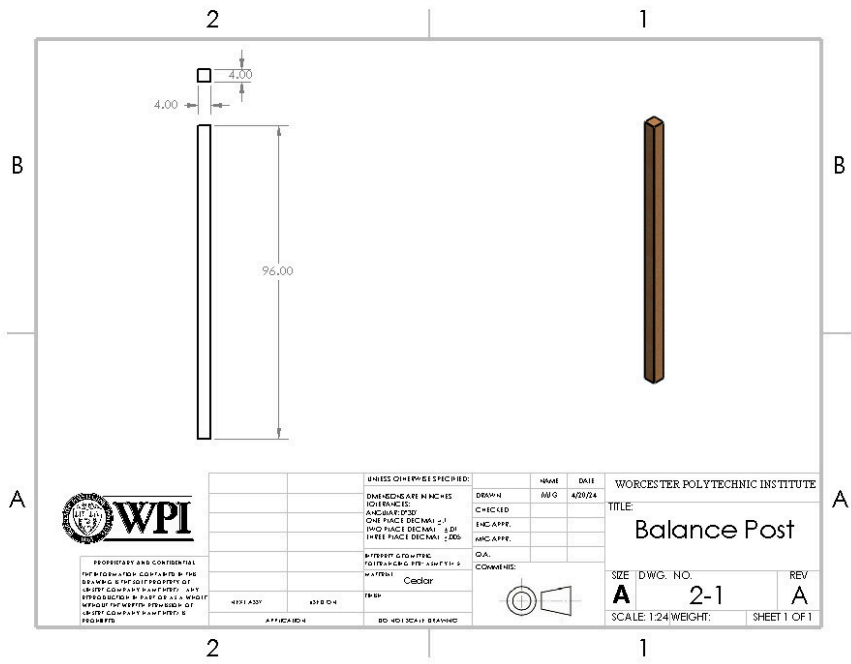


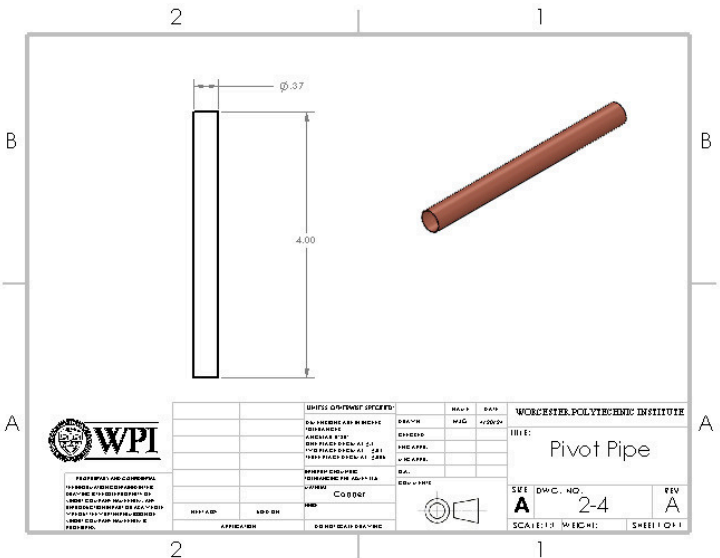
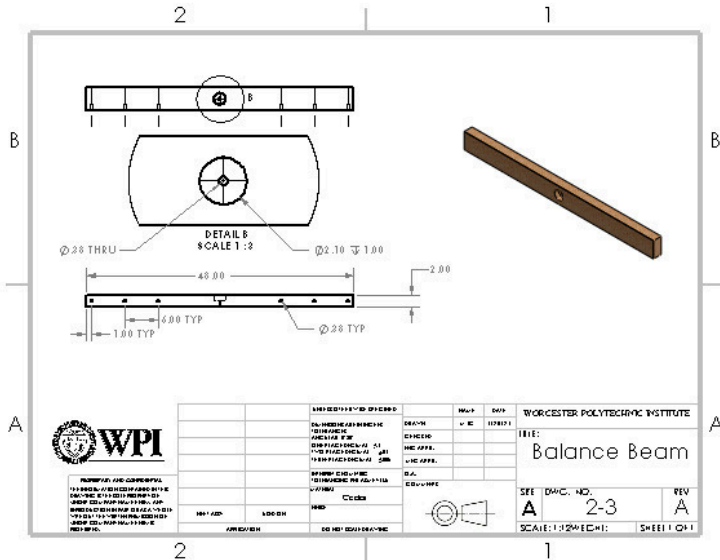
# Balance Scale

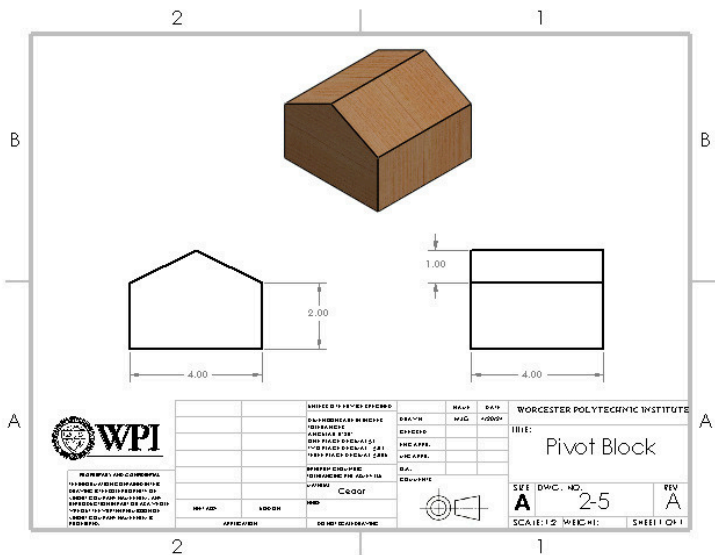
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	balance_post	4 by 4 cedar post	1
2	block	support block between the post and balance beam	1
3	balance_top	Balance beam	1
4	copper_pipe	Copper pipe for the bolt to pivot in allowing the beam to pivot	1
5	HOOK	3/8 inch eye hooks	6
6	pivot	Triangular block to limit the pivot motion of the beam	1

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	DRAWN CHECKED ENG APPR. MFG APPR. Q.A. COMMENTS:	MATERIAL FINISH TOLERANCES SURFACE FINISH DRILLING	TITLE: <b>Balance Exploded View</b>	SIZE: <b>A</b> DWG. NO.: SCALE: 1:48 WEIGHT:

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DESIGN



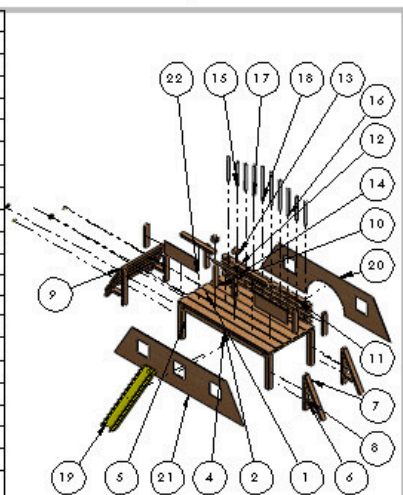






# Climbing Structure

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	2x4 48in	Top Frame	2
2	2x8 8ft	Top Deck	6
4	2x4 84in	Top Frame	2
5	4x4 32in	Main Posts	4
6	2x4 32in	Ramp Posts	4
7	2x4 37in 30deg	Ramp Support	4
8	2x4 12in support	Ramp Structure Support	4
9	2x8 48in	Ramp Deck	4
10	2x4 20in	Railing Support	6
11	long_rail	Long Rail	4
12	short_rail	Short Rail	2
13	dowel_holder	Hold Slide Dowel	2
14	dowel	Slide Dowel	1
15	pvc_21in	Sound Pipes	4
16	pvc_24in	Sound Pipes	2
17	pvc_27in	Sound Pipes	2
18	pvc_30in	Sound Pipes	2
19	slide	Slide (model)	1
20	front_panel	Front Plywood Panel	1
21	back_panel	Back Plywood Panel	1
22	short_rail_plywood	Short Rail Plywood	2

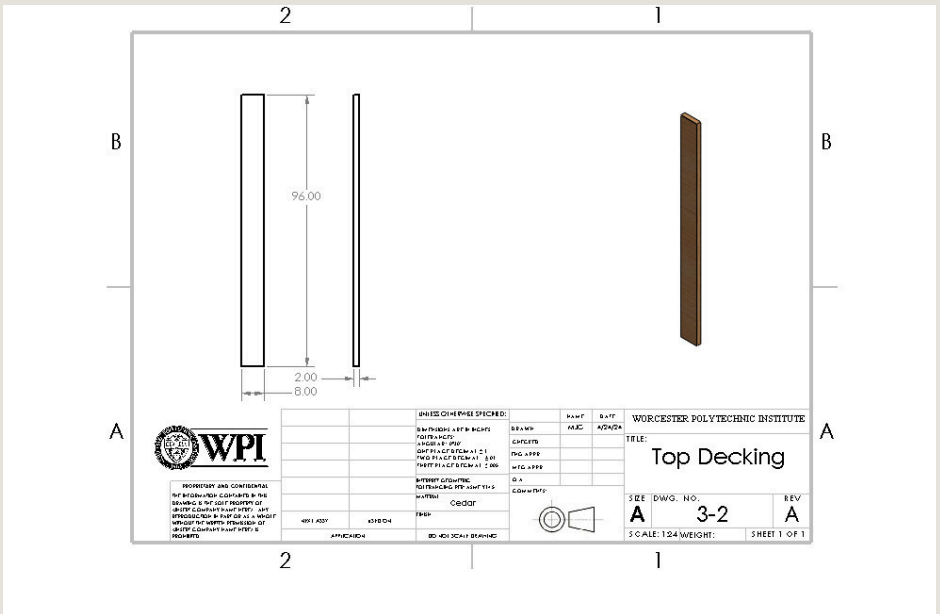
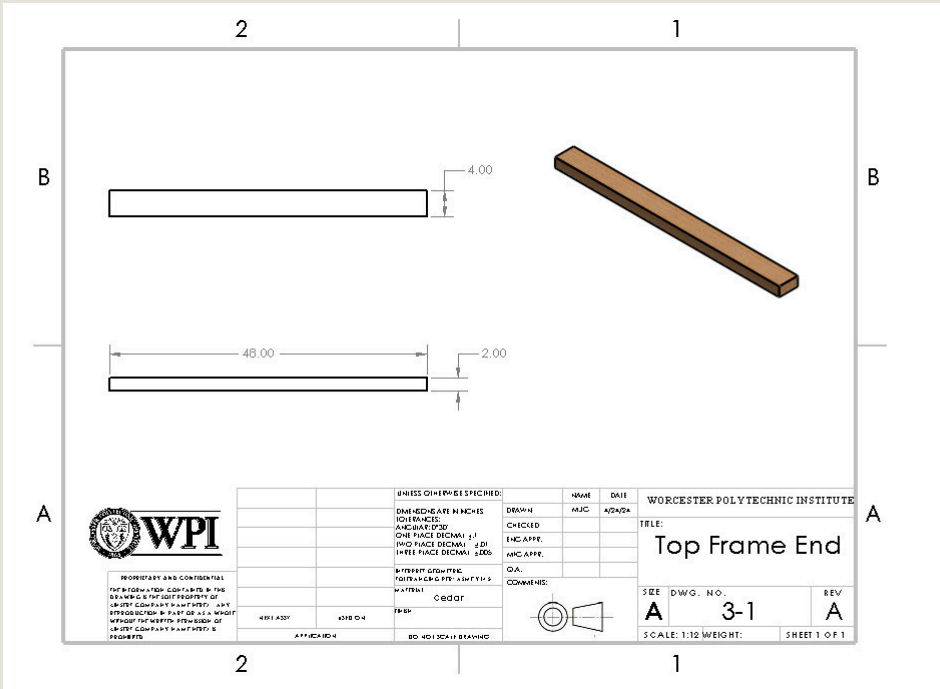


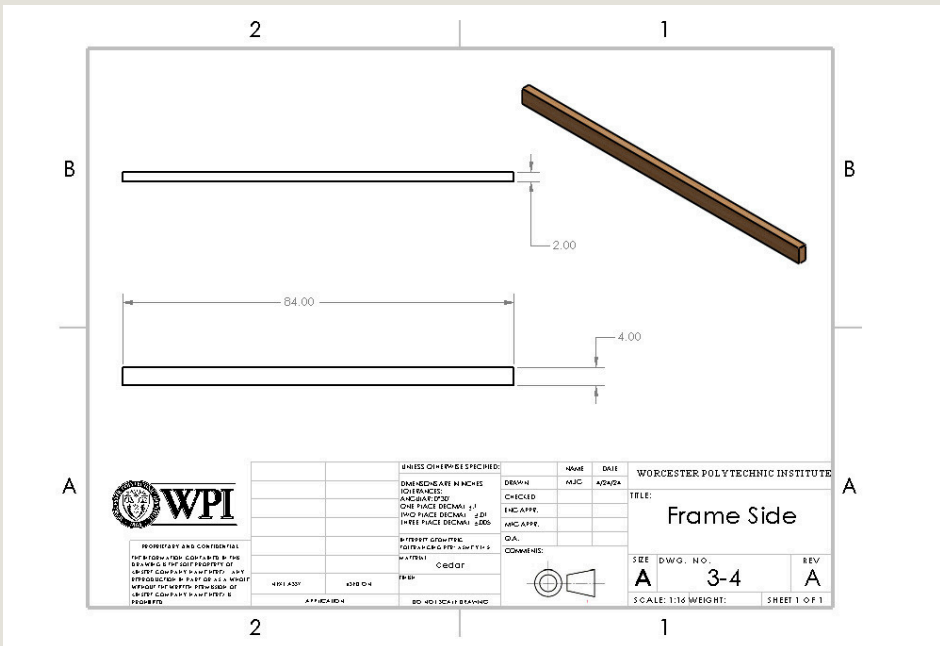
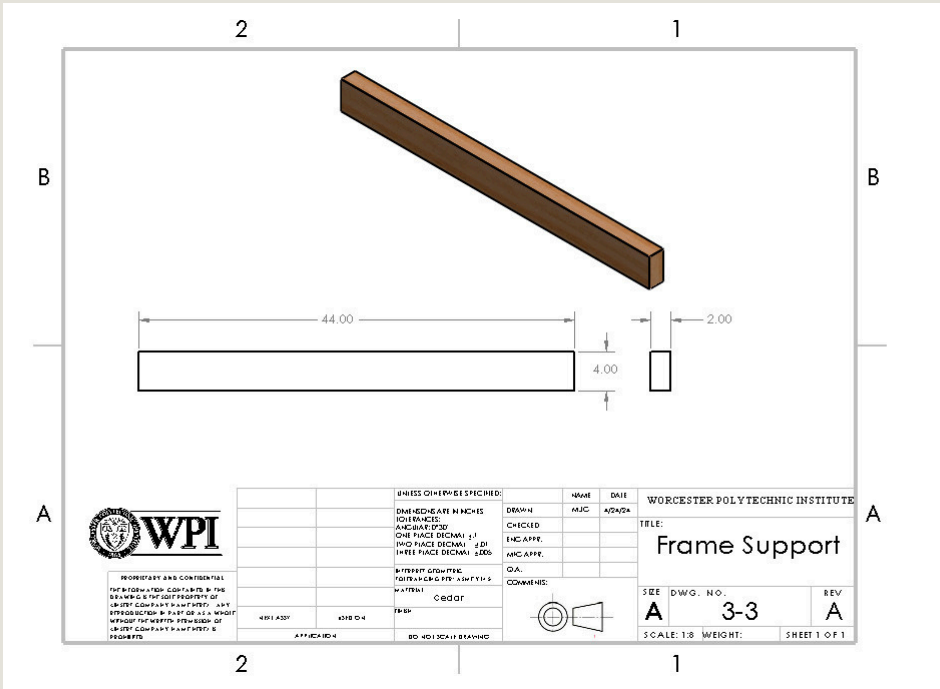
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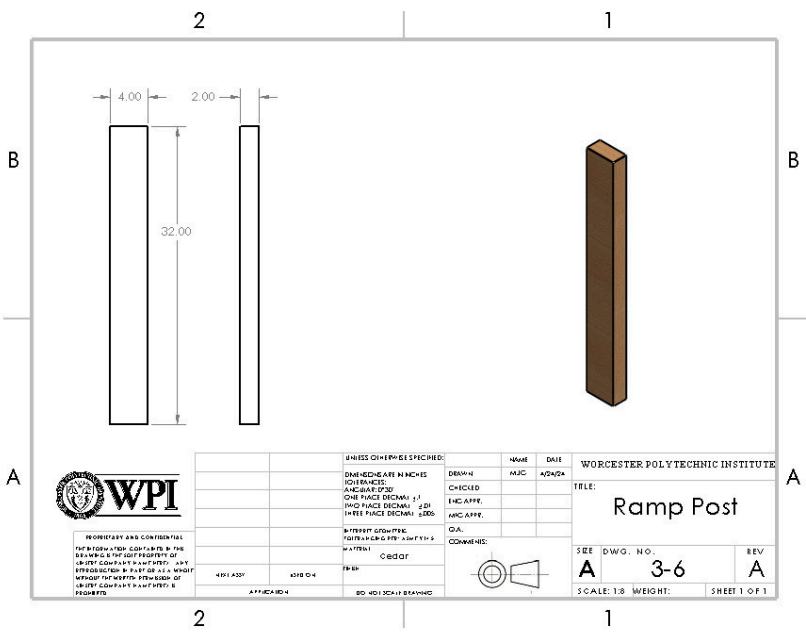
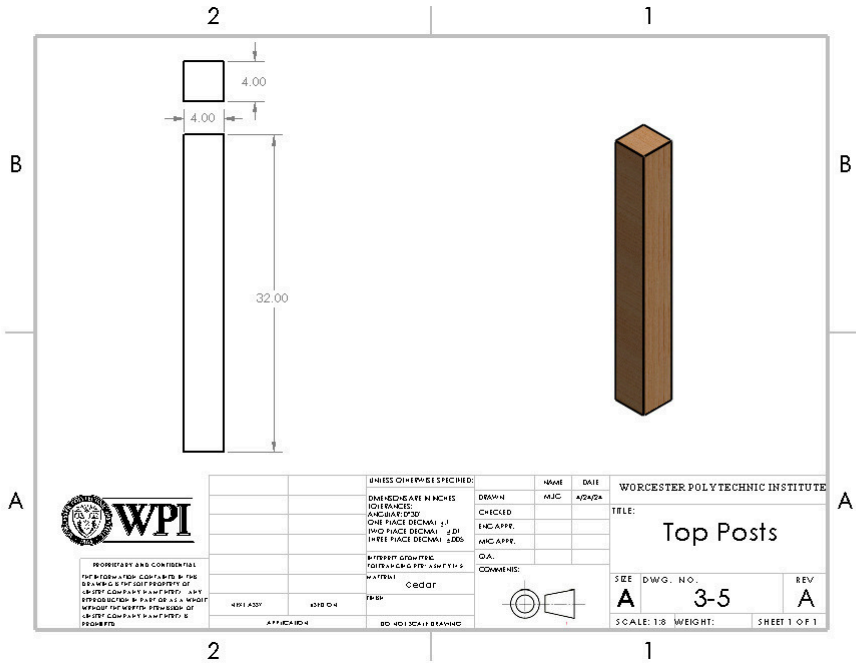
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PROTECT EXISTING CONDITIONS		
DO NOT SCALE DRAWING		

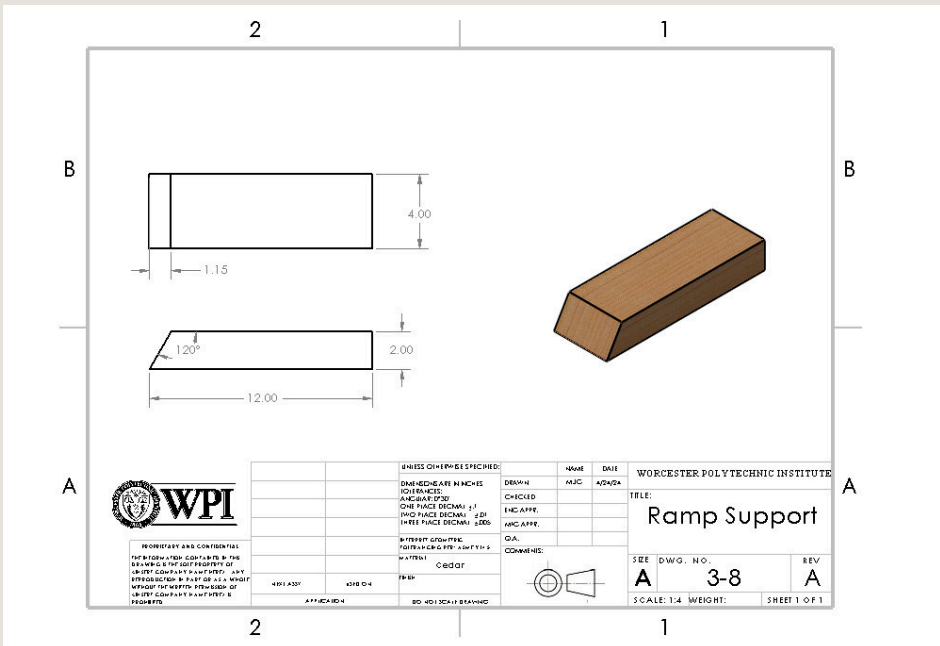
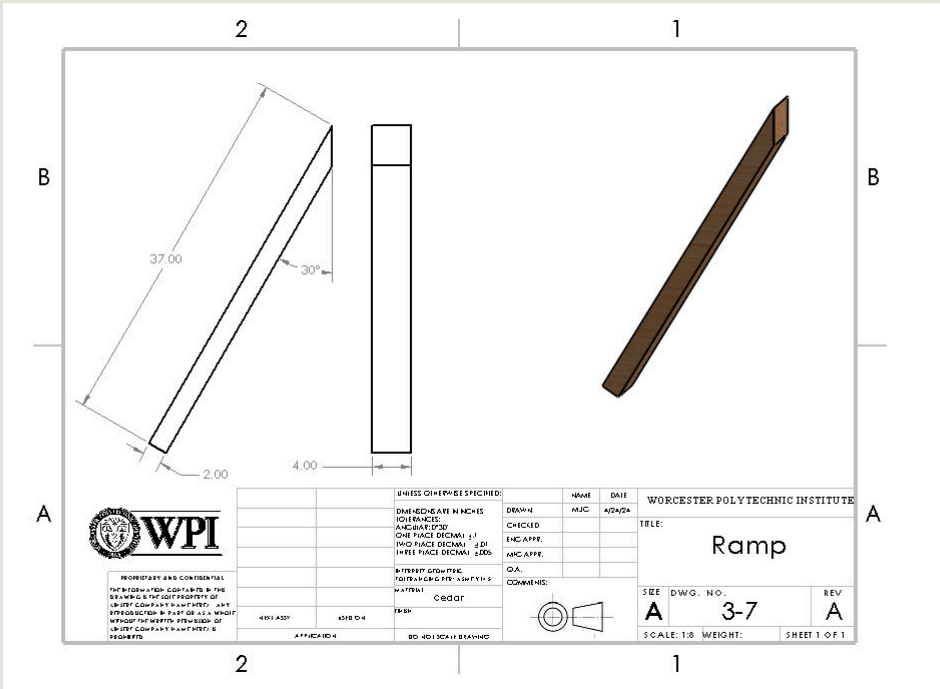
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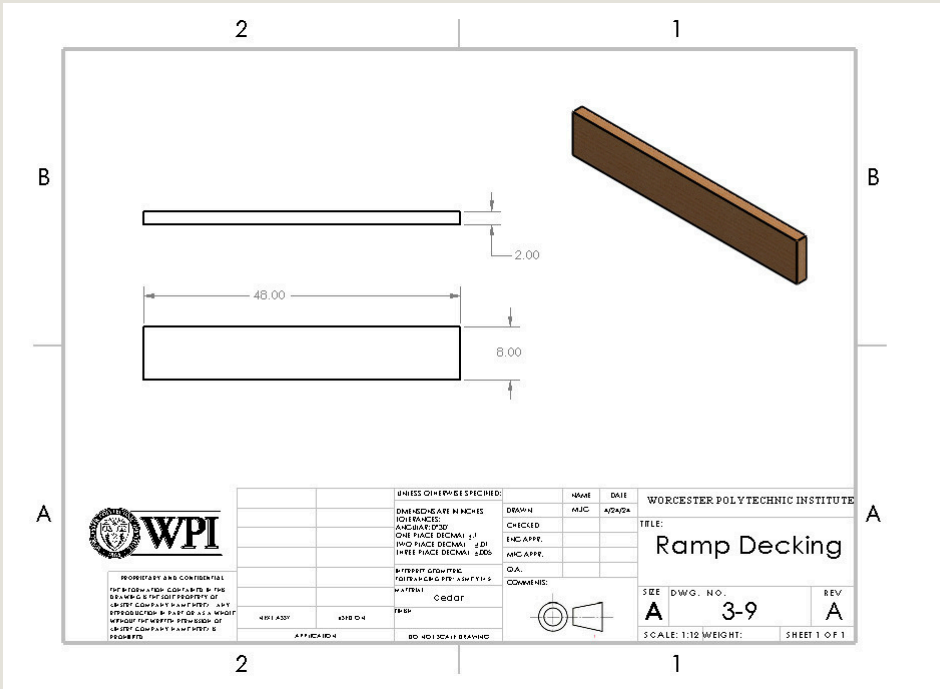
OVERARCHING  
DESIGN







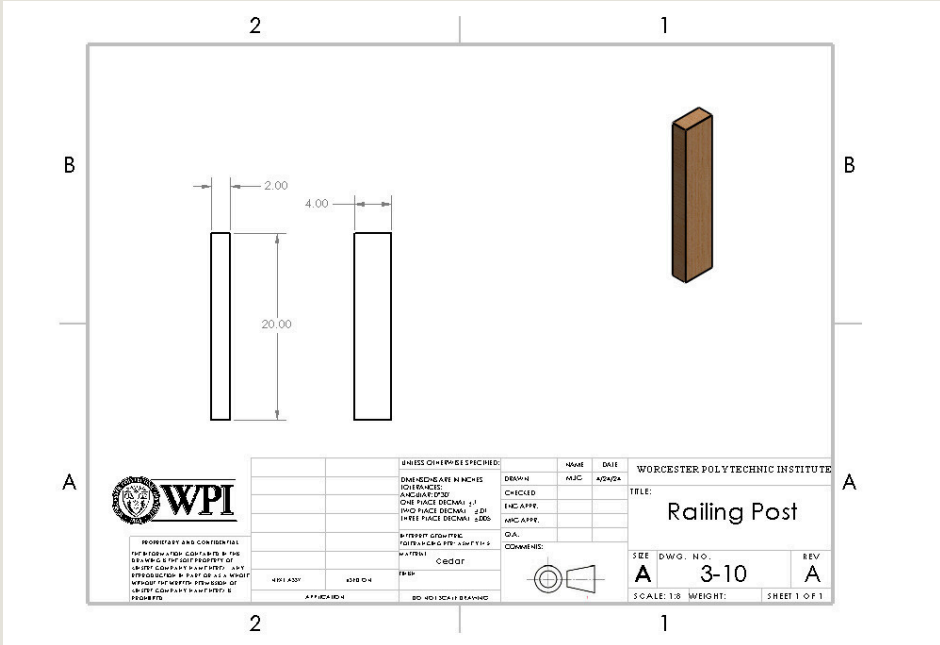




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DIMENSIONS ARE IN INCHES	FRAMES:	DRAWN	MJC
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THREE FACE DIMENAL ±3/64		MJC APPR.	
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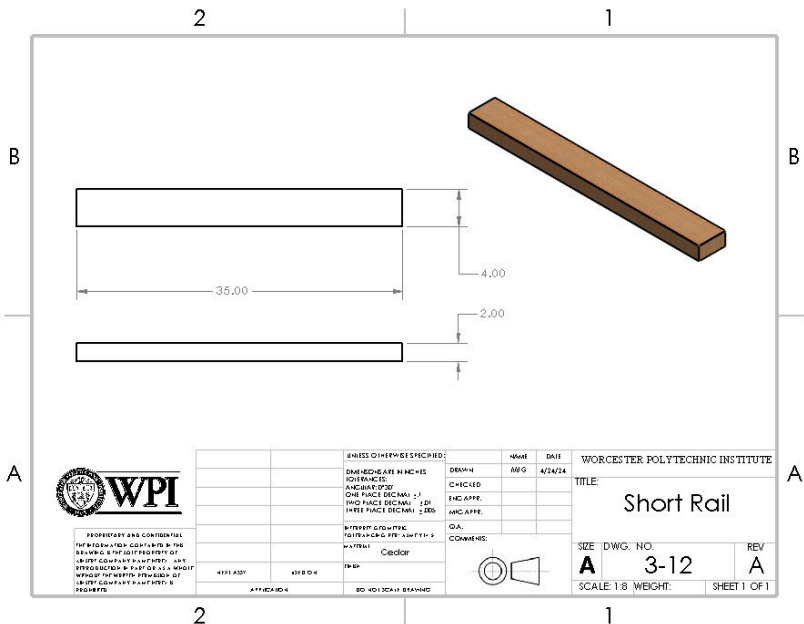
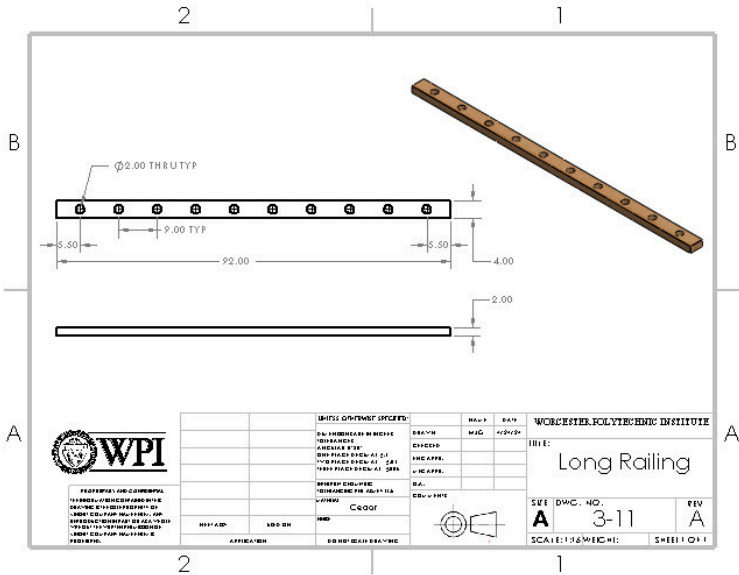
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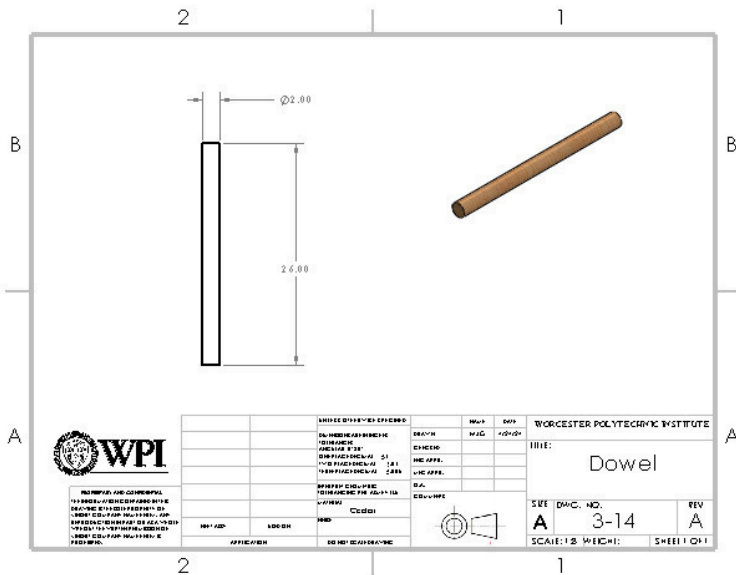
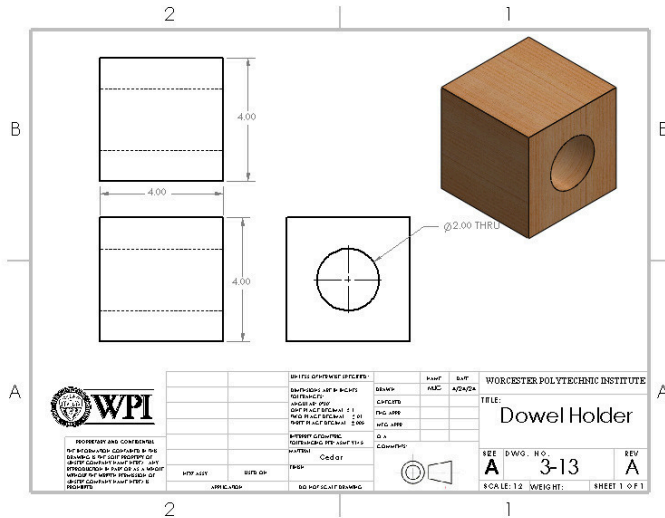


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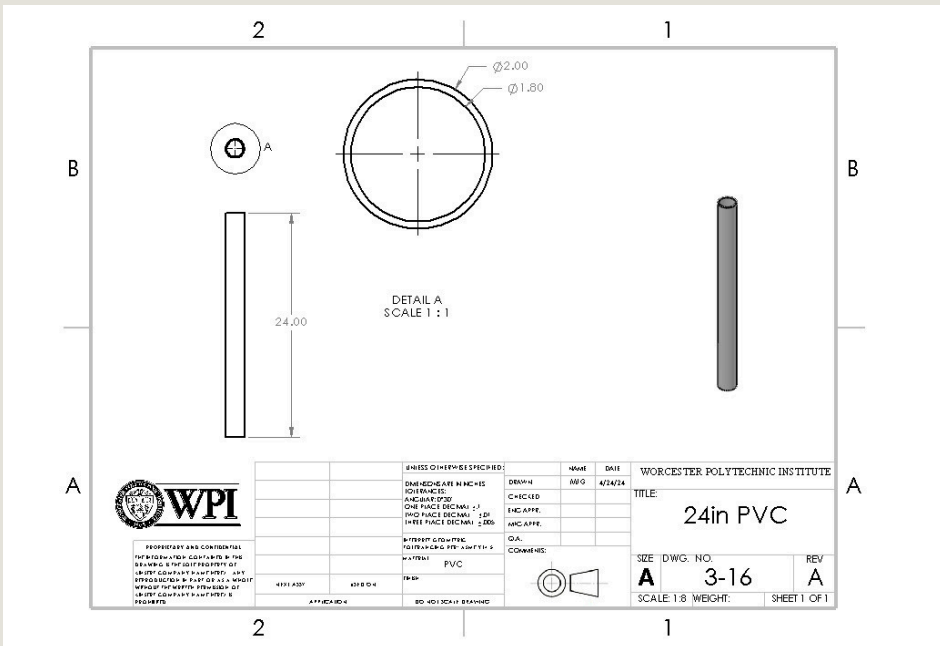
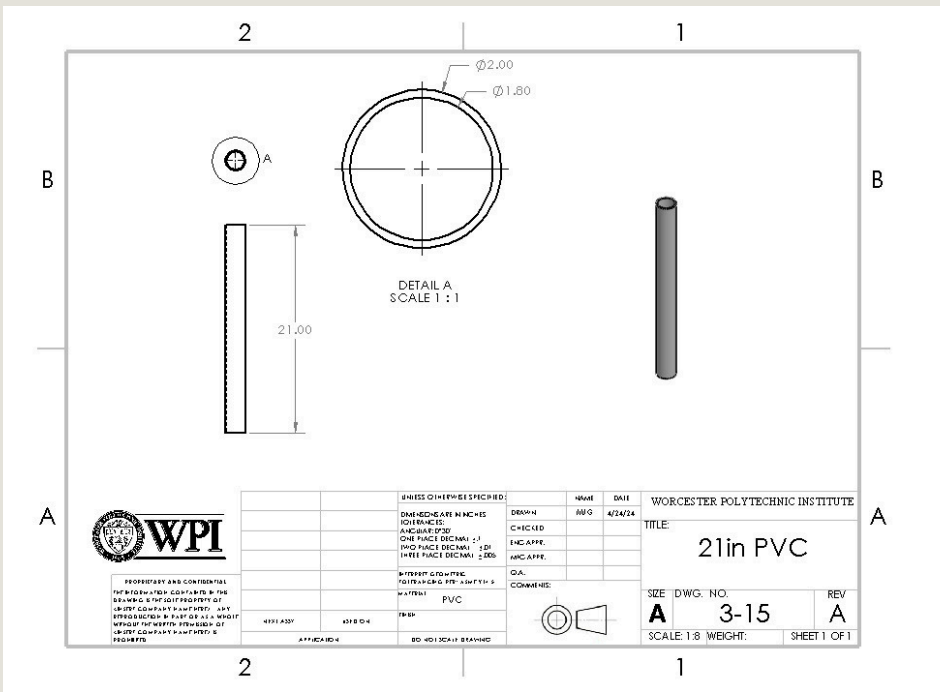
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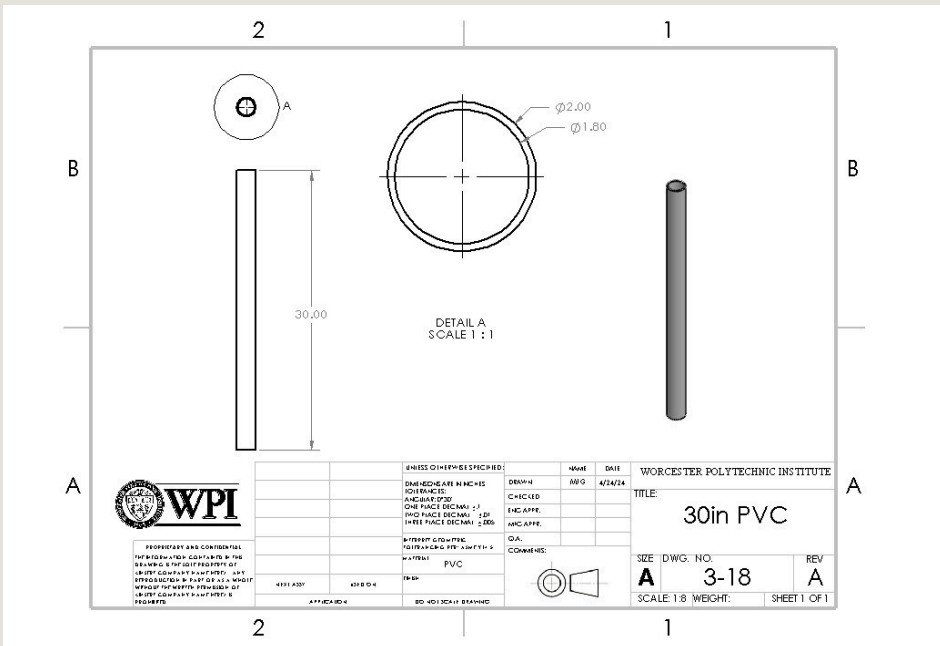
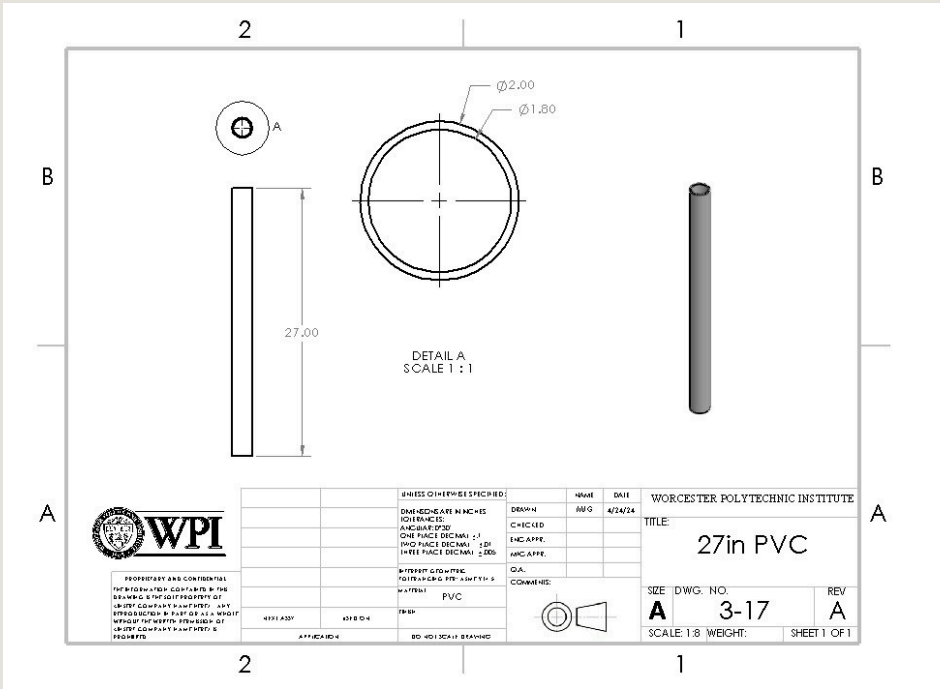
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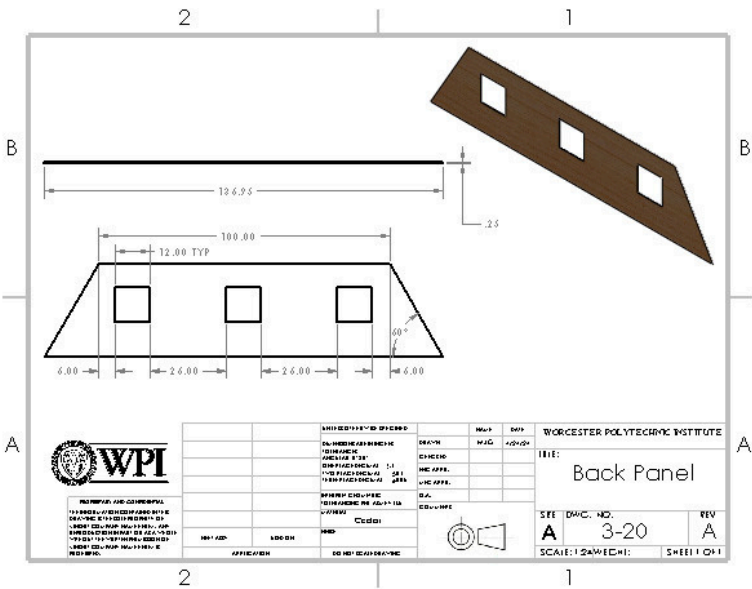
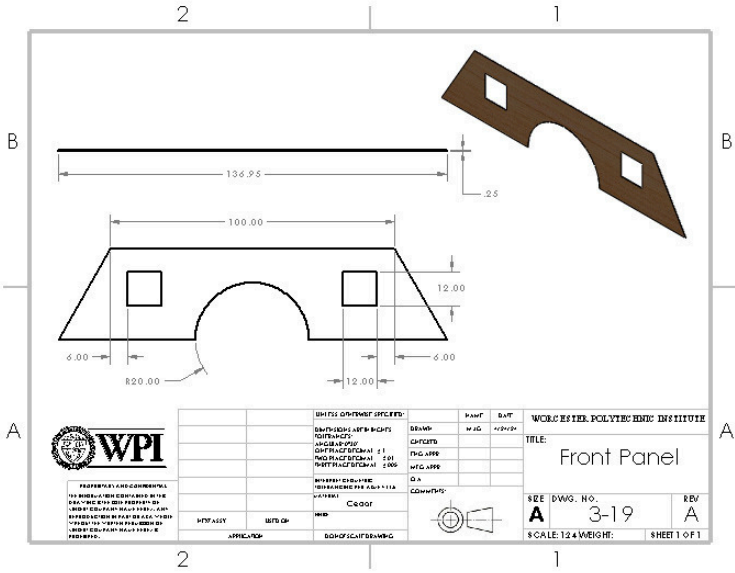


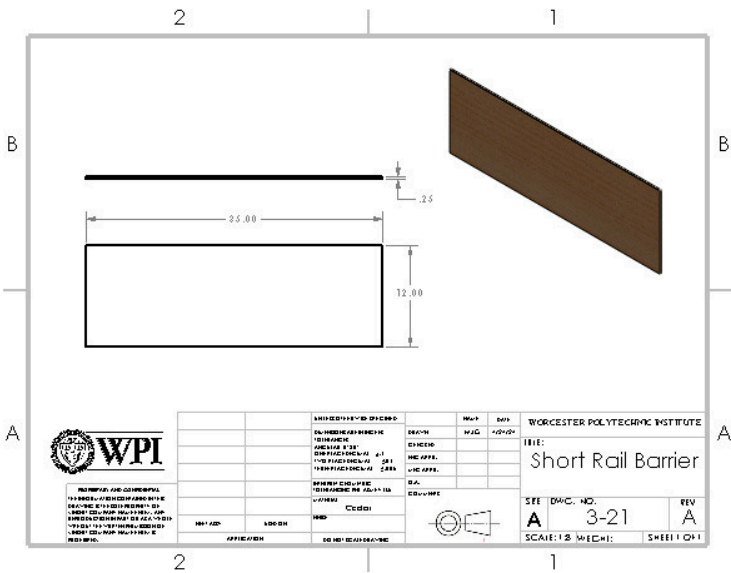












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DESIGNED BY	DATE	SCALE	REV
DRAWN BY	DATE	SCALE	REV
CHECKED BY	DATE	SCALE	REV
APPROVED BY	DATE	SCALE	REV
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DRAWING NO.			
TITLE	Short Rail Barrier		
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SCALE: 1/8" = 1'-0"	MECH:		SHEET 1 OF 1

# Shadow Tarp

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	4x4 5ft	Long Post	2
2	2x4 diagnol	Diagonal 2x4 Support	2
3	2x4 straight	Straight Beam Long	4
4	2x4 56in	Straight Beam Short	2
5	tarp_top	Model Tarp	1

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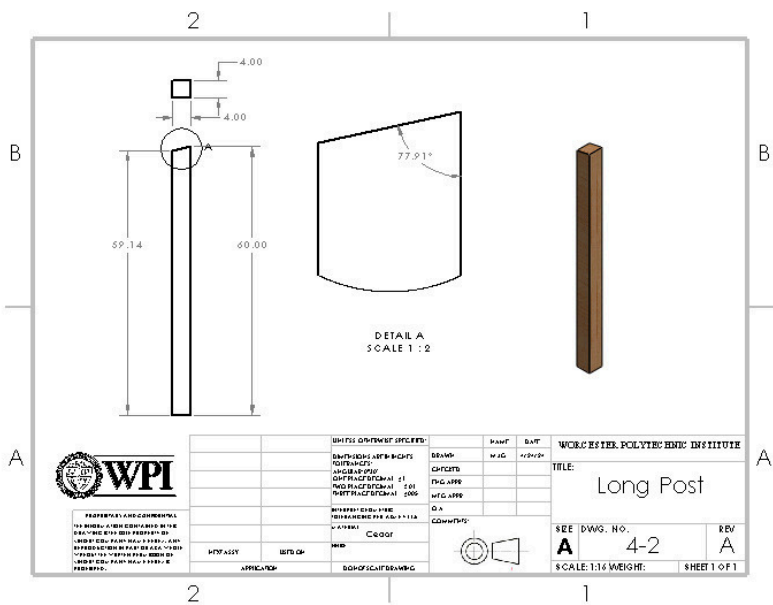
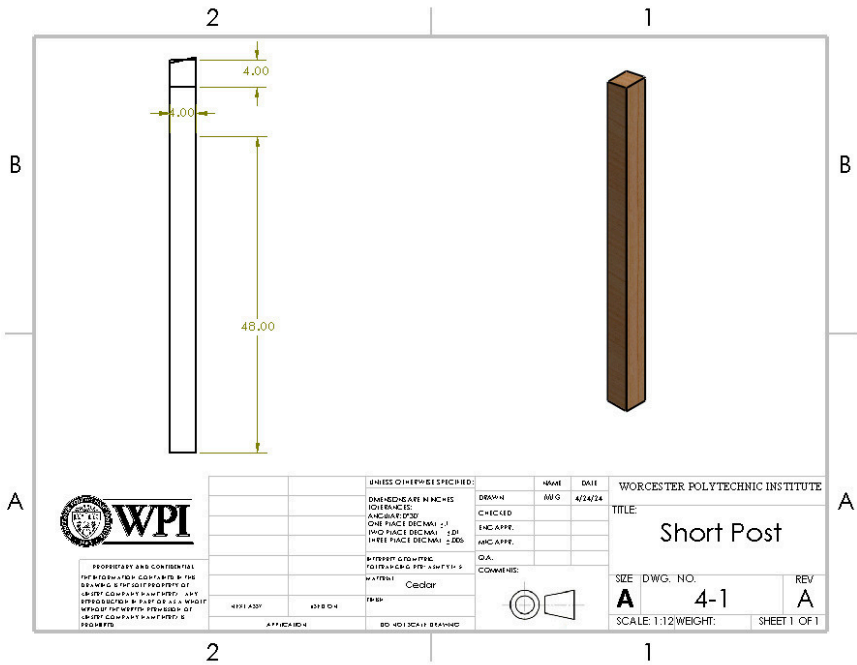
**Shadow Tarp Exploded**

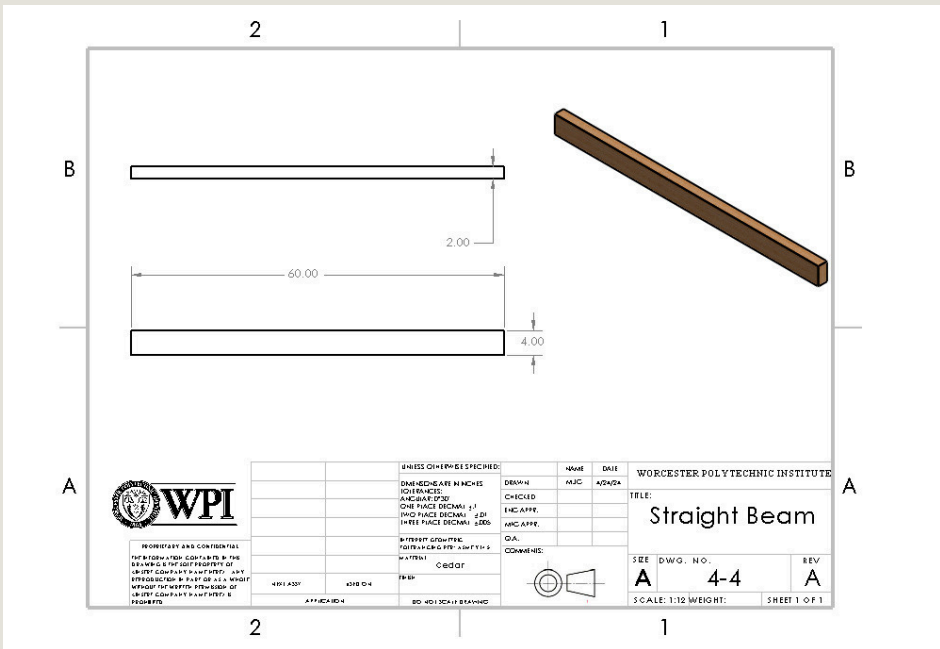
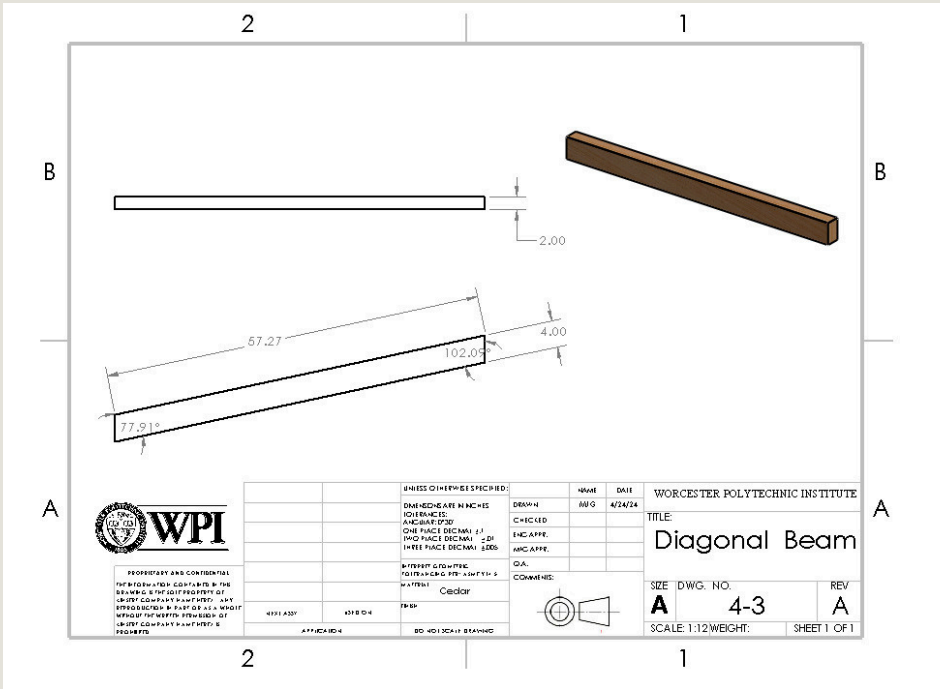
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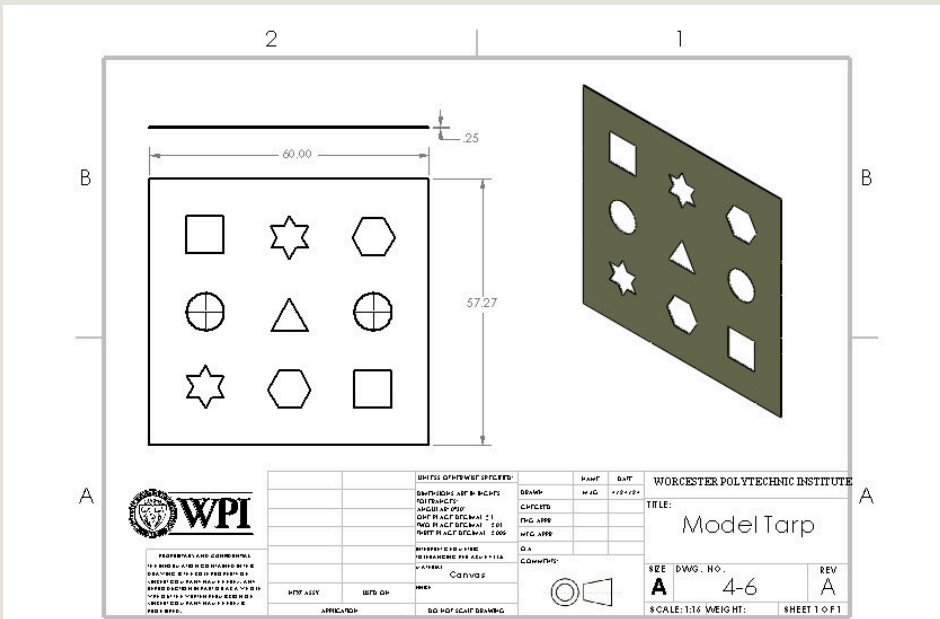
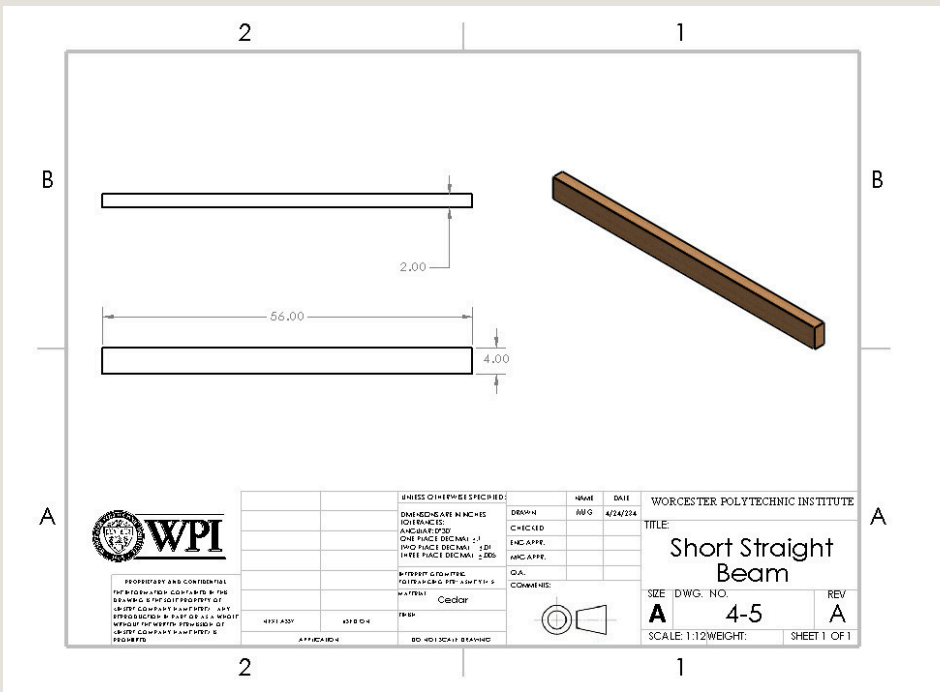
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		TOLERANCES:	CHECKED		
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		ONE PLACE DECIMAL ± .1"	ENCAPPE.		
		TWO PLACE DECIMAL ± .01"	ENCAPPE.		
		THREE PLACE DECIMAL ± .005"	ENCAPPE.		
		UNLESS OTHERWISE SPECIFIED:	Q.A.		
		WATERPROOFING:	COMMENTS:		
		WATERPROOFING:			
		WATERPROOFING:			
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		WATERPROOFING:			
		WATERPROOFING:			

OVERARCHING  
DESIGN









# Così

# Breakdown

## Bicycle Waiver Pump

Bike Pump	Part	Price	Store	Amount	Total price	Total Cost
	elbow pvc pipe	\$3.21	Home Depot	1	\$3.21	\$415.55
u pvc pipe	\$14.99	Ace Hardware	1	\$14.99		
tee pvc pipe	\$6.28	Home Depot	1	\$6.28		
Clear pvc 5 ft	\$114.00		1	\$114.00		
pvc pipe (2 in by 10 ft)	\$17.74	Home Depot	10 ft	\$17.74		
boat rope (1/2)	\$25.53	Home Depot	15 ft	\$25.53		
1 in by 6 in by 8 ft cedar	\$10.68	Lowe's	8 ft	\$10.68		
2 by 4 cedar	\$8.98	Lowe's	8 ft	\$8.98		
2 by 4 pressure treated pine		Home Depot	8 ft			
4 by 4 pressure treated pine	\$11.18	Home Depot	8 ft	\$11.18		
Pool Noodles	\$4.99	Ace Hardware	2	\$9.98		
bike wheel	\$13.99	ReStore	1	\$13.99		
2 in Galvanized pipe bracket	\$1.12	Home Depot	2	\$2.24		
1 1/4 in wood dowel	\$10.88	Ace Hardware	1	\$12.99		
1 in bi-metal hole saw	\$13.48	Lowe's	1	\$13.48		
2 1/4 in. Hole Saw Carbine tip	\$59.96	Lowe's	1	\$59.96		
1/8 in drill bit	\$3.97	Home Depot	1	\$3.97		
Plexiglass Cutter	\$4.98	Home Depot	1	\$4.98		
#10 x 2 in Star Drive Screws (47 ct)	\$10.48	Home Depot	1	\$10.48		
#10 x 3 1/2 in Star Drive Screws (47 ct)	\$10.48	Home Depot	1	\$10.48		
washer		Lowe's	4			
bolt		Lowe's	2			
nut		Lowe's	2			
20 gallon galvanized steel trash bin	\$33.99	Ace Hardware	1	\$33.99		
Electrical Tape	\$1.98	Home Depot	1	\$1.98		
Masking Tape	\$4.78	Home Depot	1	\$4.78		
Duct Tape	\$5.98	Home Depot	1	\$5.98		
PVC glue	\$8.18	Lowe's	1	\$8.18		
ABS glue	\$5.50	Home Depot	1	\$5.50		
Bike Pump	\$0.00	Donated	1	0		

Balance	Part	Price	Store	Amount	Total price	Total Cost
	screw hook	\$5.98	Home Depot	6	\$35.88	130.72
	4 by 4 Cedar post 8ft	\$49.98	Lowe's	1	\$49.98	
	2 by 4 cedar 8ft	\$8.98	Lowe's	1	\$8.98	
	Metal Pails	\$5.98	Lowe's	6	\$35.88	
	5in c 3/4 in bolt		Lowe's	0		
	3/4 in washers		Lowe's	25		

## Balance Scale

Climbing Structure	Part	Price	Store	Amount	Total price	Total Cost
	2 by 4 cedar 8ft	\$8.98	Lowe's	13 (104ft)	\$116.74	\$1,339.99
	4 by 4 Cedar post 8ft	\$49.98	Lowe's	2 (16ft)	\$99.96	
	2 in Wood Dowel	\$10.98	Lowe's	1 (4ft)	\$10.98	
	2 by 8 Cedar 8ft	\$44.98	Lowe's	8 (48ft)	\$359.84	
	2in PVC Pipe (10ft)	\$17.74	Lowe's	3 (30 ft)	\$53.22	
	Slide	\$164.33	Amazon	1	\$164.33	
	Cedar Plywood 4ft by 4ft	\$54.59	Home Depot	5	\$272.95	
	Rock Climbing Holds	\$26.99	Amazon	1 (10 pcs)	\$26.99	
	Climbing Net	\$187.50	Jammar Nets	1	\$187.50	
#10 x 3 1/2 in Star Drive Screws (475 ct)	\$47.48	Home Depot	1	\$47.48		

## Climbing Structure

Shadow Tarp	Part	Price	Store	Amount	Total price	Total Cost
	2 by 4 cedar 8ft	\$8.98	Lowe's	5 (40 ft)	\$44.90	\$275.20
	4 by 4 Cedar post 8ft	\$49.98	Lowe's	3 (24ft)	\$149.94	
	#10 x 3 1/2 in Star Drive Screws (47 ct)	\$10.48	Home Depot	1	\$10.48	
	screw hook	\$5.98	Home Depot	4	\$23.92	
	Canvas Tarp	\$45.96	Covers and All	1	\$45.96	

## Shadow Tarp

# RESOURCES

- |    |  |  |
|----|--|--|
| 01 | Ecotarium<br>Exhibit<br>Constructor                              | Dan Ouimette<br><a href="mailto:douimette@ecotarium.org">douimette@ecotarium.org</a>                       |
| 02 | Worcester<br>Technical<br>High School -<br>Carpentry<br>Division | Kevin Letourneau<br><a href="mailto:letourneauk@worcesterschools.net">letourneauk@worcesterschools.net</a> |
| 03 | Exhibit<br>Companies   | -Blue Hive   |
| 04 | Feature<br>Vendors   | -Kodo Kids<br>-Natural Playgrounds Company<br>-Nature Explore  |