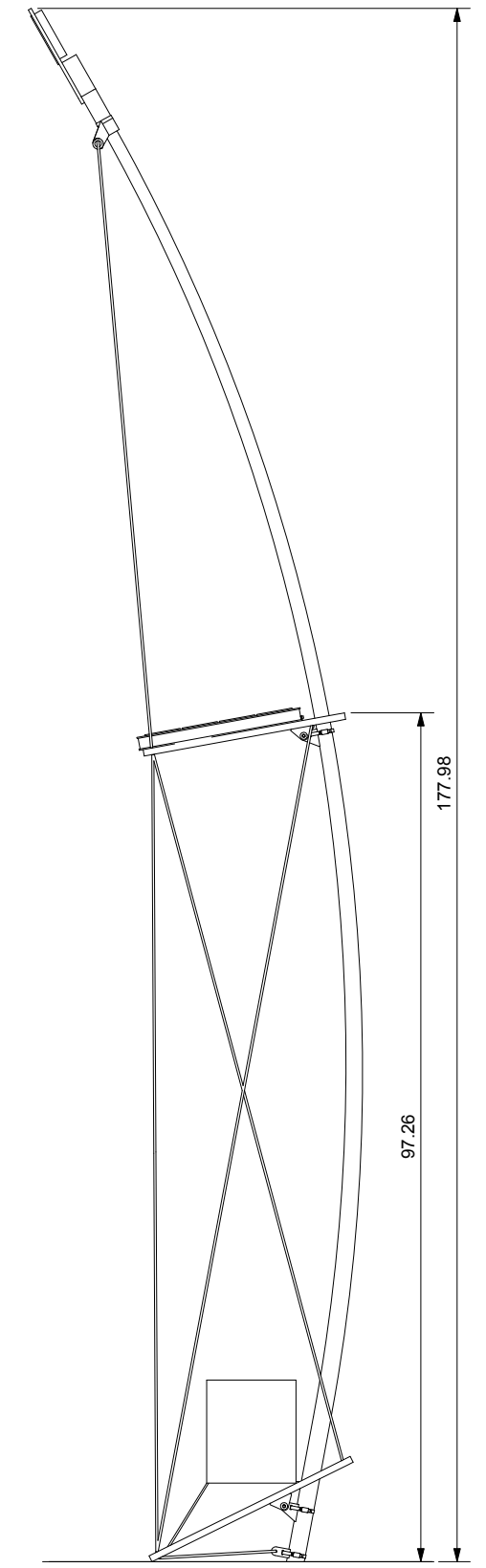
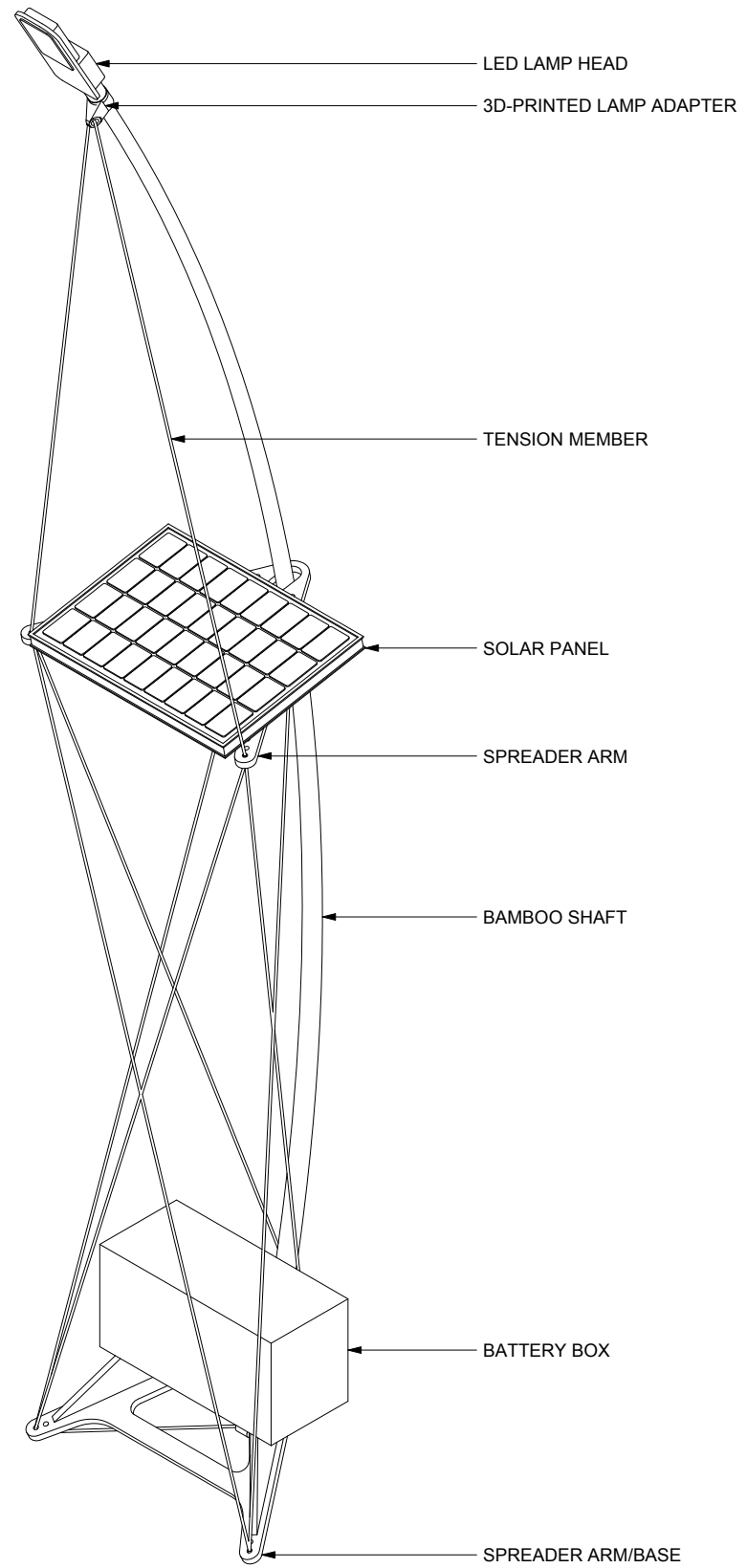
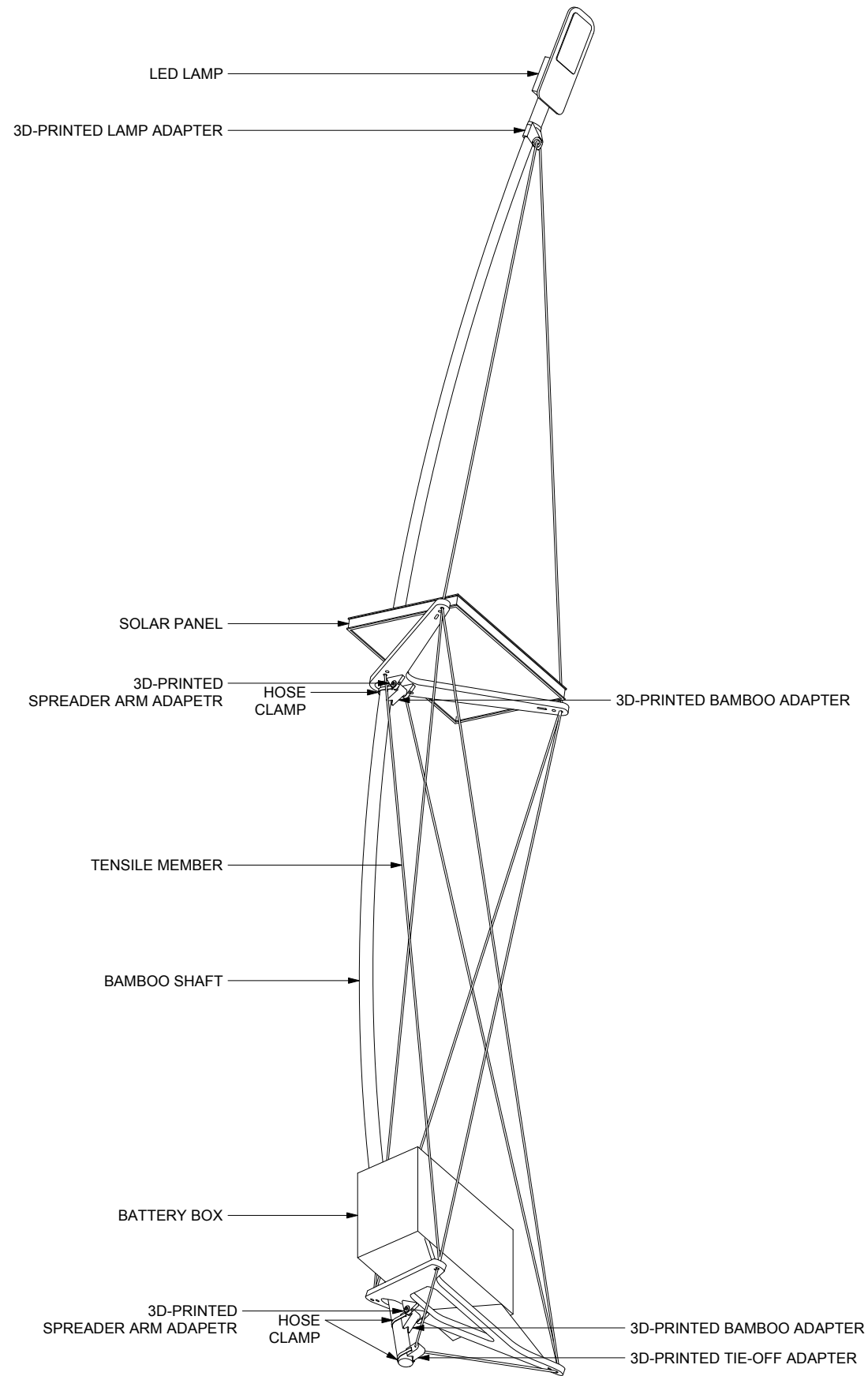


**SELCO Foundation**  
Inventing Green Meeting

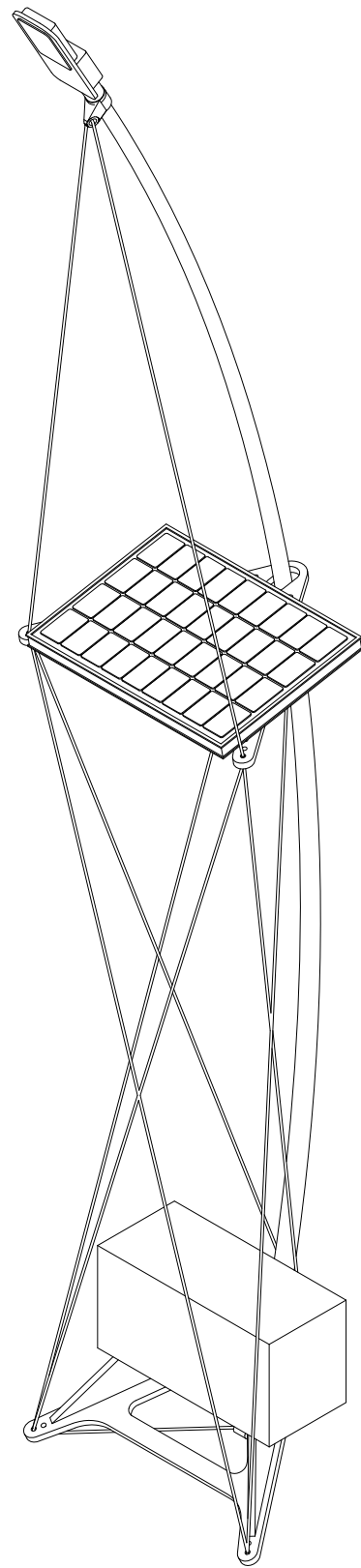
08-08-2016

**KVA**

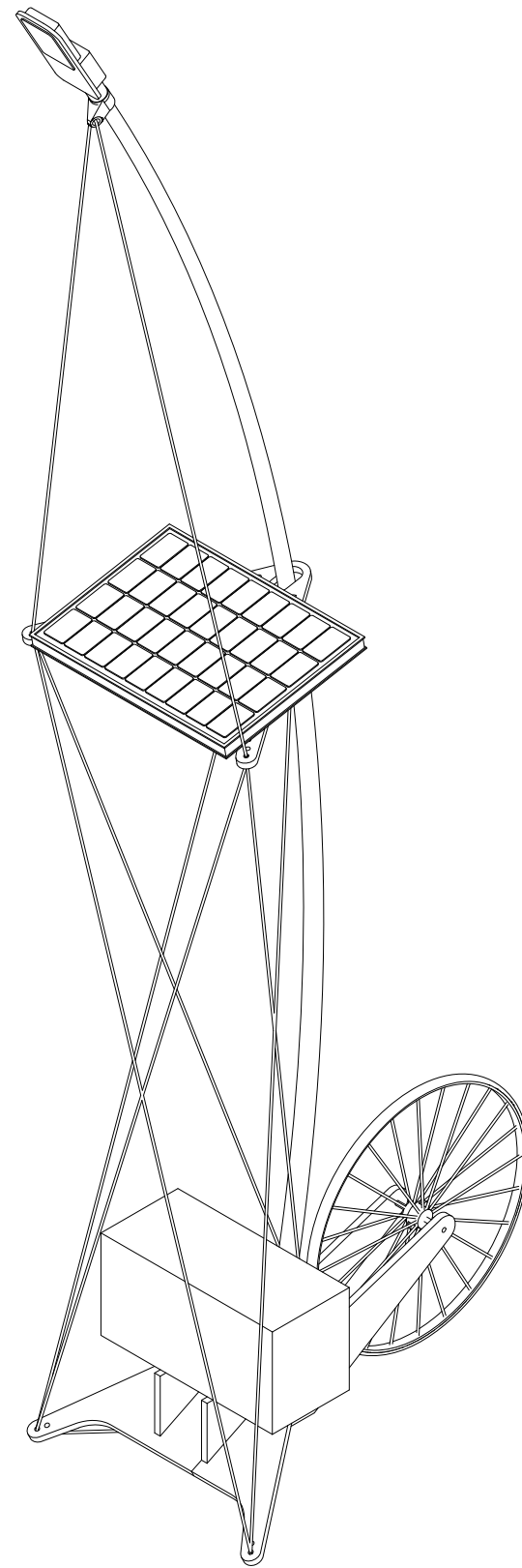
# Bending Bamboo Lamp System Scheme



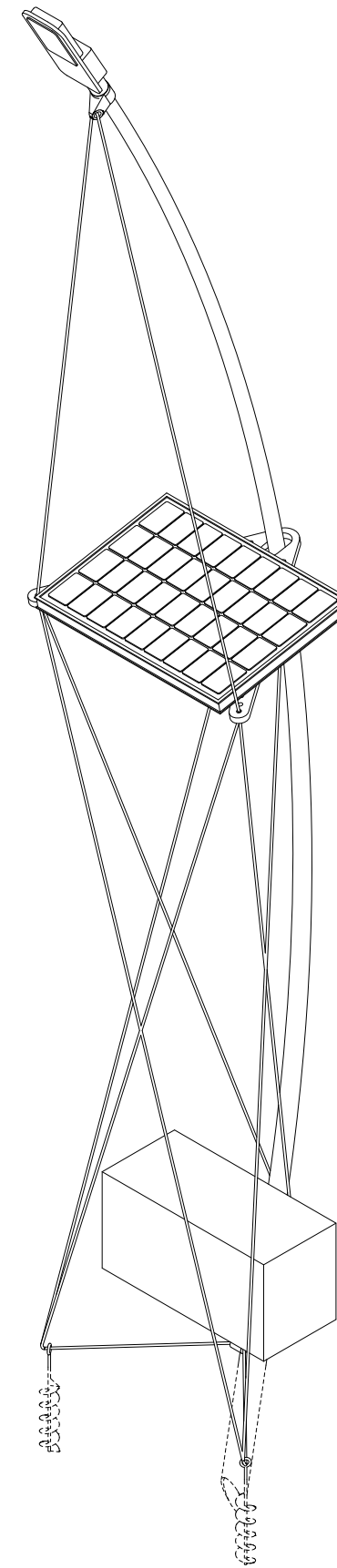
Bamboo Street Light: Base Condition Axo/Elevation



TRIPOD



BICYCLE



ANCHORED

## Bamboo Street Light: Variants

Useful Knots

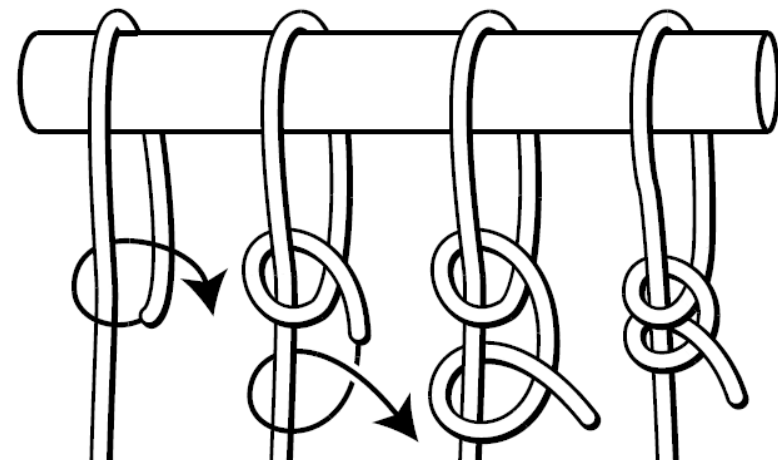


Tautline Hitch - Useful for adjusting lines in tension

Line Lok



Rope Cleat

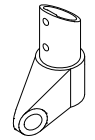


Two Half-Hitches - Useful for anchoring one end of Line



# Bending Bamboo Lamp Construction + Assembly

## KIT OF PARTS



3D-PRINTED LAMP ADAPTER (x1)



3D-PRINTED BAMBOO ADAPTER (x2)



3D-PRINTED TIE-DOWN (x1)



3D-PRINTED SPREADER ARM ADAPTER (x4)



.75" WOOD SCREW (x8)



1/4" x 1" BOLT W/ NUT & WASHERS (x1)



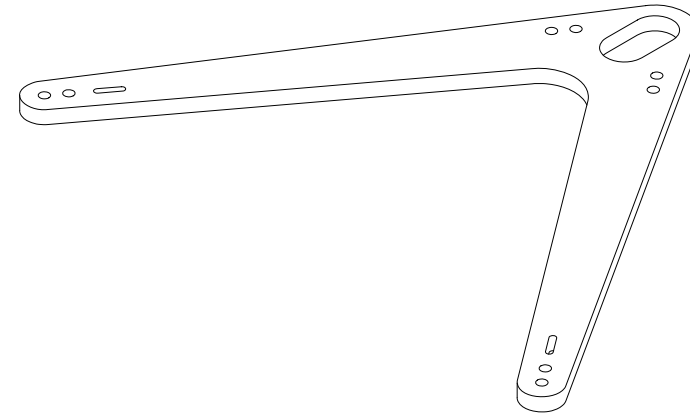
1/4" x 3" BOLT W/ NUT & WASHERS (x2)



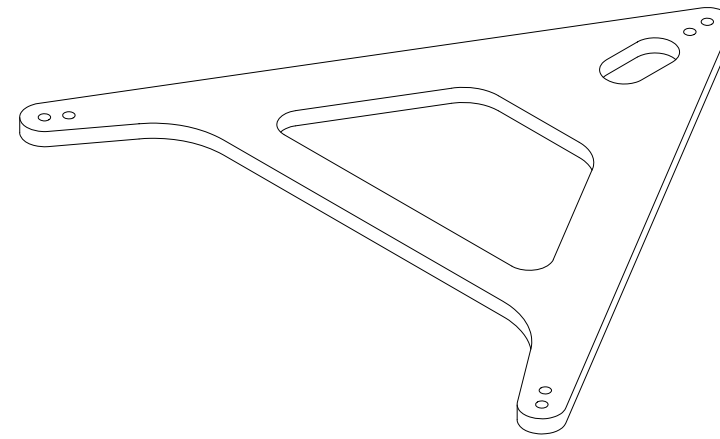
SPREADER ARM/ PANEL PLATFORM (x1)



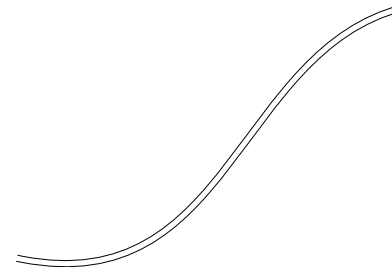
HOSE CLAMP (x3)



SPREADER ARM/ PANEL PLATFORM (x1)



SPREADER ARM/ BASE PLATFORM (x1)



CHORD AT LENGTHS:

71 (x2)

96 (x2)

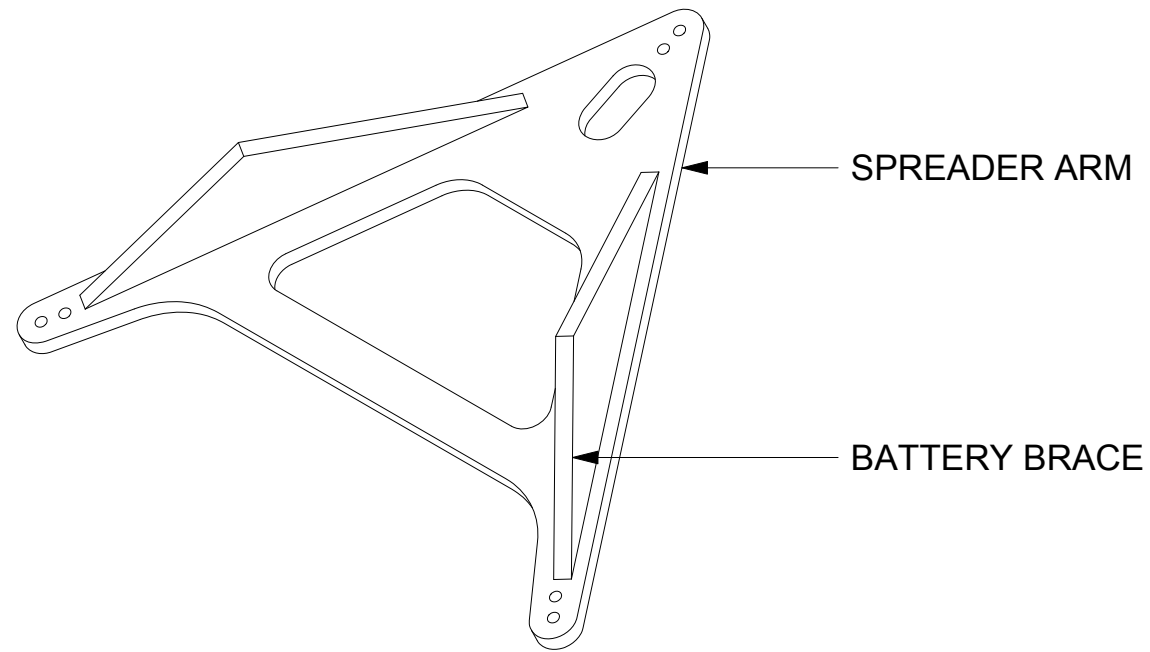
86 (x2)

98 (x2)

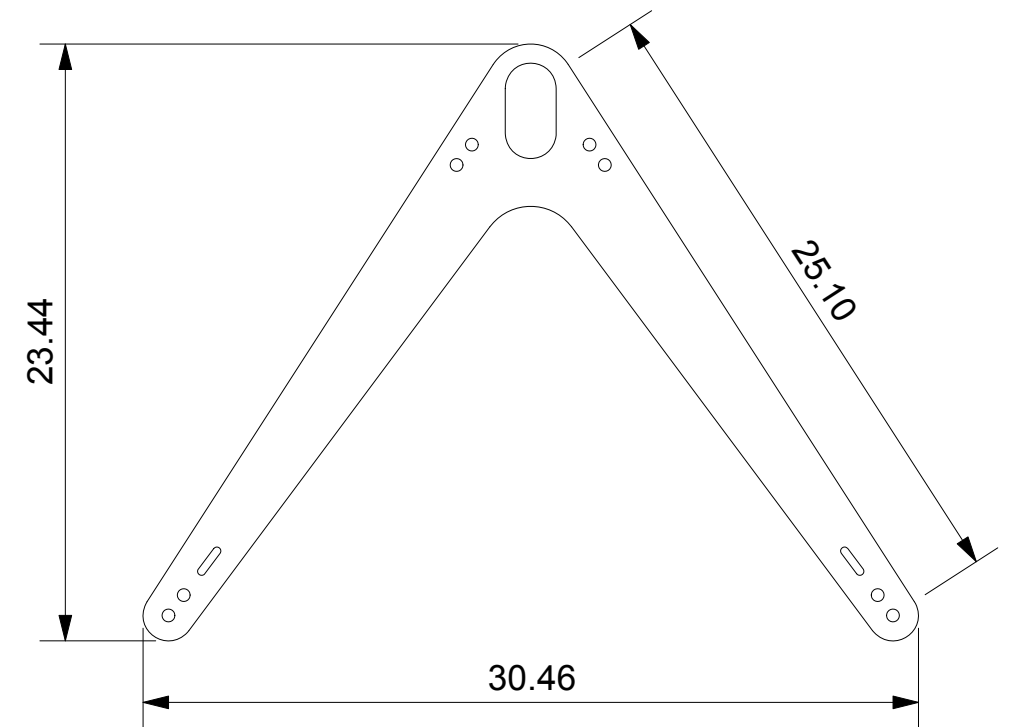
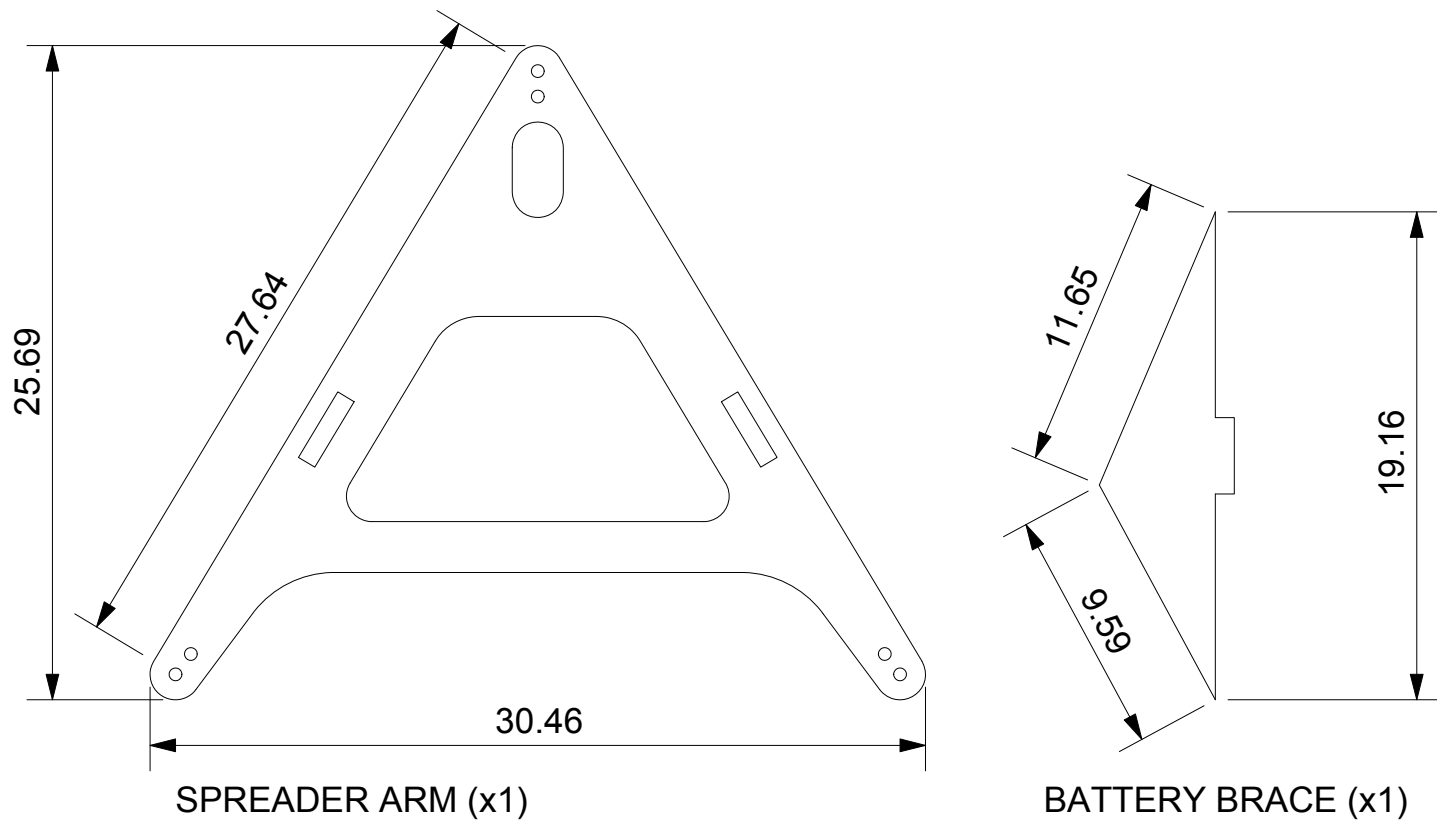
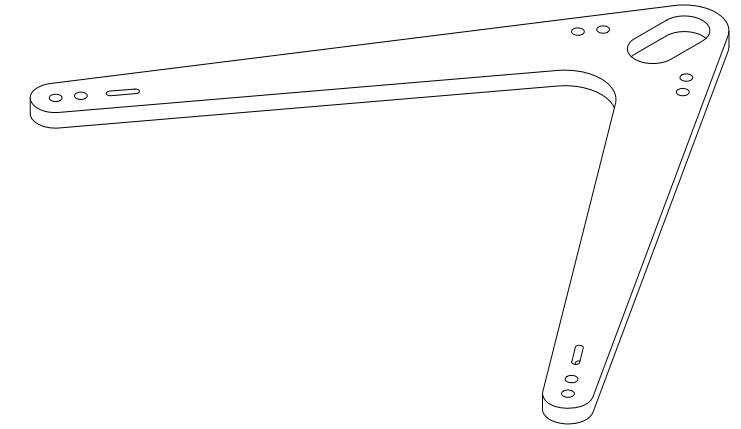
19 (x2)

(Lengths are ideal, excess is to be provided for knotting etc.)

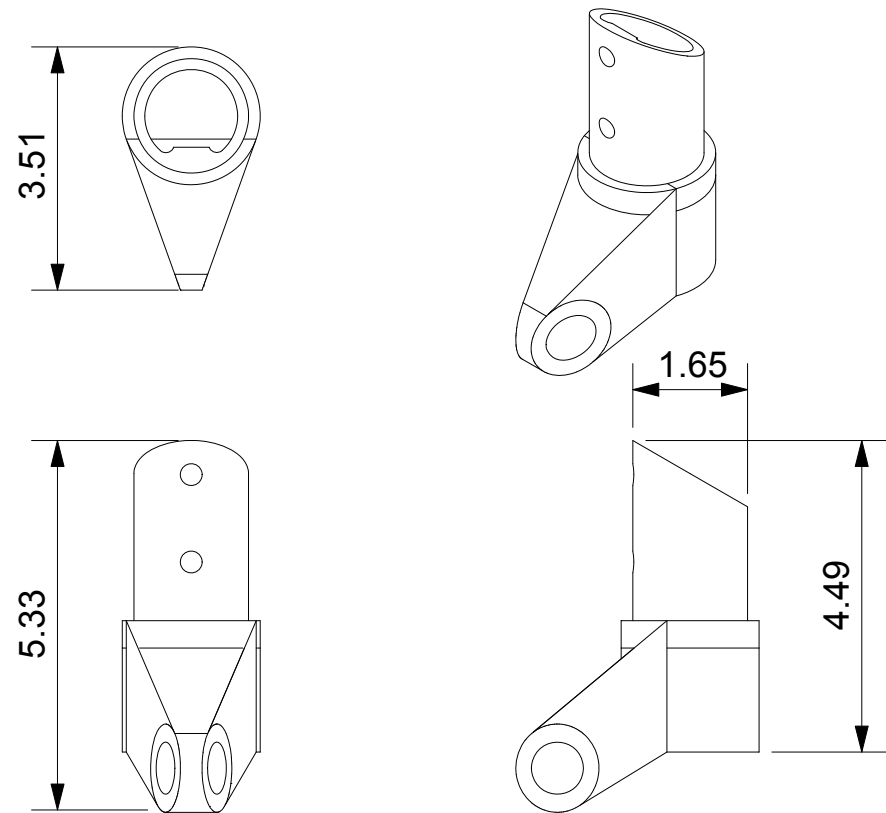
SPREADER ARM/ BASE PLATFORM (x1)



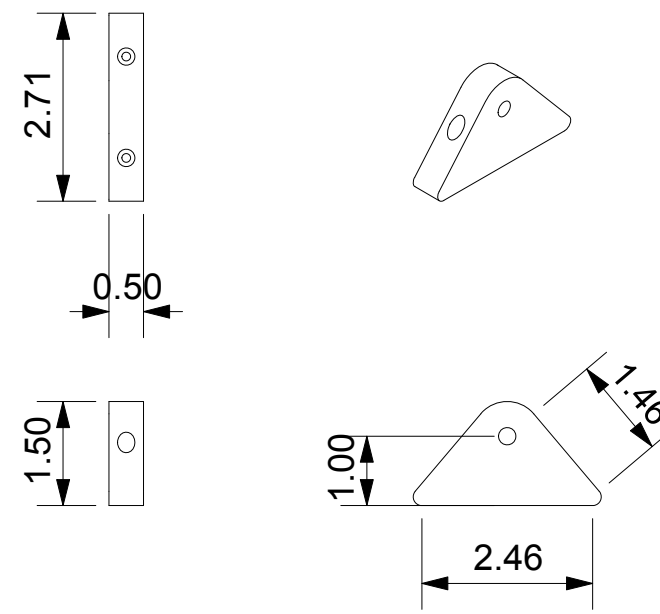
SPREADER ARM/ PANEL PLATFORM (x1)



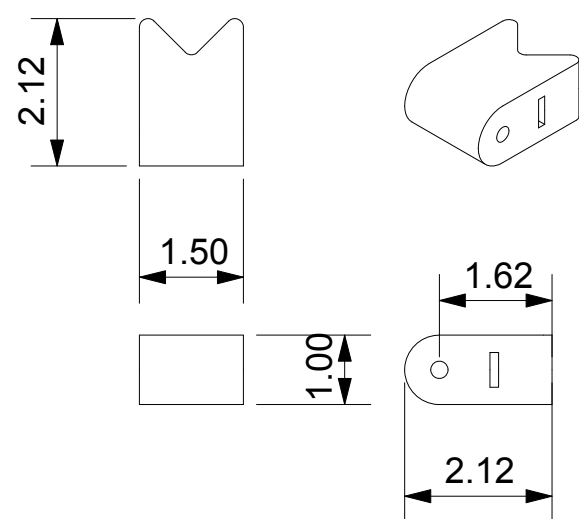




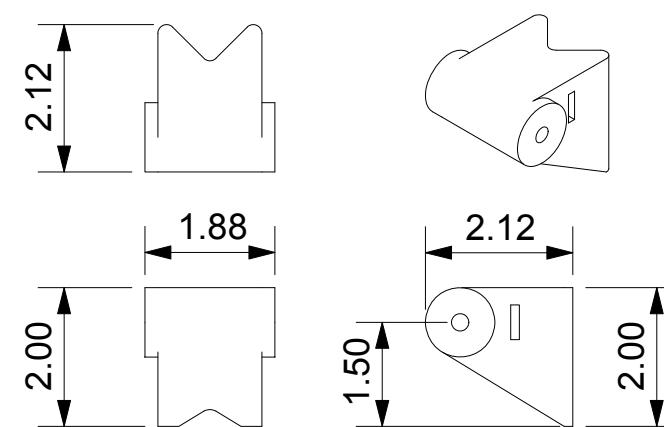
LAMP ADAPTER



SPREADER ARM ADAPTER



TIE-OFF



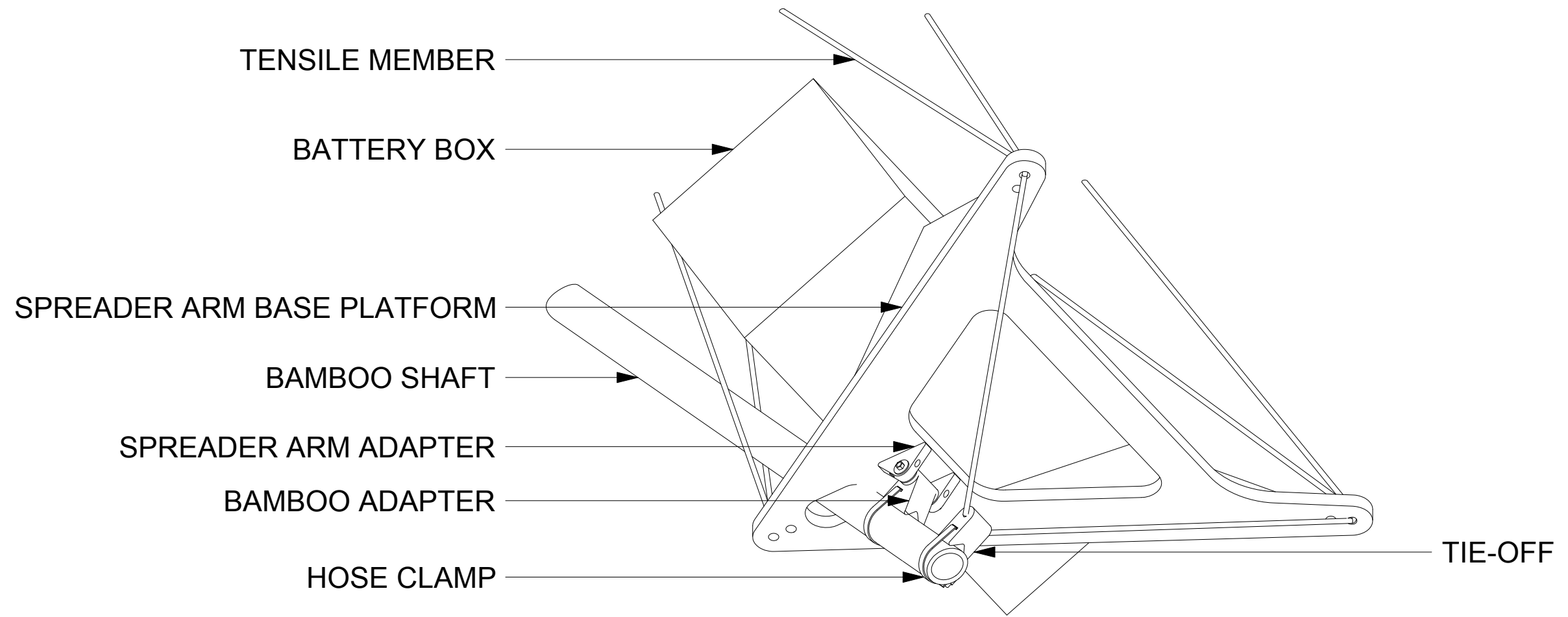
BAMBOO ADAPTER

Inventing Green Prototype Bill Of Materials 08/10/2016														
Responsible Entity	Product	Category	Item	Tripod Qty.	Mobile Qty.	Concrete Qty.	Total Qty.	Cost	Total	Machining/Tooling Req'd for future mass production	Labor Req'd for future mass production	Notes		
SELCO Foundation	Bamboo Street Lights	3D Printing	LED Head	1	1	1	3	-	-	3D Printing supplanted by cast metal (iron, recycled steel, aluminum) for mass production or plywood alternate for rural production		3D Printed parts to be produced in simultaneously in India as well as at KVA.		
			Bamboo Adapter	2	2	2	6	-	-					
			Tie-Down	1	1	1	3	-	-					
			Spreader Arm Adapter	4	4	4	12	-	-					
		Steel	Steel Base Plate	1	1		2	-	-					Cold-Rolled MS sheet, 2MM Galvanized. To be hand cut, bent, and welded as noted in forthcoming construction drawings.
			Steel Spreader Bar	1	1	1	3	-	-					To be cut, welded and coated (galvanized/painted) for permanent concrete base.
			Steel Tube			1	1	-	-					See <a href="https://www.amazon.com/dp/B01FU XDZV2?psc=1">https://www.amazon.com/dp/B01FU XDZV2?psc=1</a>
			Steel Plate			1	1	-	-					700C Wheel is Basis of design, alternate is acceptable, must be coordinated with KVA
			Earth Anchors	2	2	2	6	-	-					
		Bamboo	Bamboo, 4.5m H x 34mm Ø	1	1	1	3	-	-			Bamboo forest cultivation	Manual processing of bamboo to include harvesting, drying, treating for insect resistance	To be cut, cleaned and dried. Chemical rot and insect treatment preferred. Quantity provided is a contingency number but should be held due to variations in natural material.
			Bamboo, 4.5m H x 28mm Ø	1	1	1	3	-	-					
			Bamboo, 4.5m H x 26mm Ø	1	1	1	3	-	-					
		SELCO Street Light Solar Components	PV Panel, 40Wh				3	-	-			Smaller LED head and more efficient battery		
			Battery, 55Ah Lead Acid				3	-	-					
	LED Luminaire Head					3	-	-						
	Misc. Hardware	Rope				50 meters	-	-					3-5mm, nylon braided rope, 70kg min breaking strength. See <a href="https://www.amazon.com/dp/B00W URFHMC?psc=1">https://www.amazon.com/dp/B00W URFHMC?psc=1</a>	
		Bolt M4x0.7				25	-	-					Type 316 SS, M4x0.7. See <a href="http://www.mcmaster.com/#93635a110/=13njh18">http://www.mcmaster.com/#93635a110/=13njh18</a>	
		Nut, M4				25	-	-					Type 316 SS, M4x0.7. See <a href="http://www.mcmaster.com/#94150a335/=13nj5b">http://www.mcmaster.com/#94150a335/=13nj5b</a>	
		Washer, M4				25	-	-					Type 316 SS, M4. See <a href="http://www.mcmaster.com/#90965a150/=13nj64">http://www.mcmaster.com/#90965a150/=13nj64</a>	
		Wood Screw, 20mm				25	-	-						
	Areca Desk & Home Lamp	Areca	Areca Leaves				10	-	-			Areca producer	To be cut and dried prior to molding	
	Resources/Costs to be shared between Street and Home Lights	Materials/Tools for prototype construction and assembly	Step ladder, 3 meter				1	-	-				To be used for installation, need not be purchased	
			Metric Socket Set				1	-	-					
			Hammer				1	-	-					
			Metric Screw Driver Set				1	-	-					
			Shovel				1	-	-					
			Ready Mix Concrete Bag				2	-	-					To be used for installation of permanent mounted bamboo light
Mixing Pail, 18-20 liter						4	-	-						
Water for Concrete						-	-	-						
Multimeter						1	-	-						
Electrical shrinkwrap						-	-	-						
18GA electrical Wire						-	-	-						
wire stripper						1	-	-						
pliers						1	-	-					To be used for installation, need not be purchased	
electrical tape						-	-	-						
lighter (for shrinkwrap)						-	-	-						
metric measuring tape						-	-	-						
pens/pencil						-	-	-						
X-ACTO / Boxcutters				-	-	-								
Soldering Iron				-	-	-								
Solder				-	-	-								
Shipping Costs							1	\$500	\$500.00			Based on FEDEX international, assuming 30lbs total. This is "Not To Exceed" budget allowance and may be considerably less.		
KVA	Bamboo Streetlight	3D Print	PLA Spool White, 1KG				2	\$44.95	\$89.90	3D Printing supplanted by cast metal (iron, recycled steel, aluminum) for mass production or plywood alternate for rural production		3D Prints to be produced by KVA. Selco to reimburse material costs.		
			LED Head				3							
			Bamboo Adapter				6							
			Tie-Down				3							
			Spreader Arm Adapter				12							
	Molding	Wood Molding				4	-	-			Steel Mold			
		Misc. Hardware	Brads				25	-	-					
	Areca	KVA Portable Light Solar Components	PV Panel, 5Wh				1	\$77.31	\$77.31				Goal Zero Nomad 7 PV to be purchased by KVA, SELCO to reimburse	
			Battery Packs				5	-	-				To be provided by KVA for education light	
			LED Head				5	-	-					

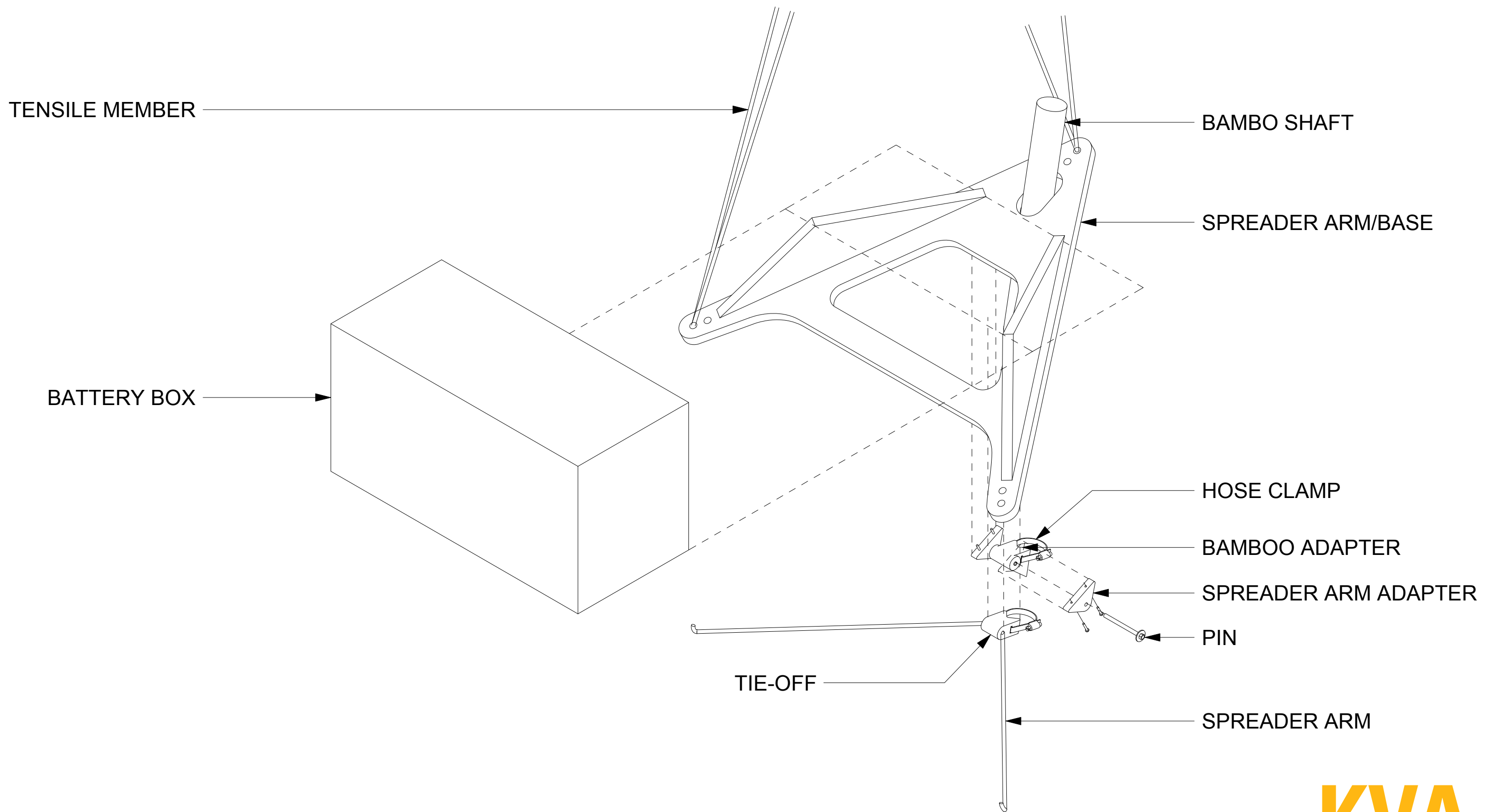
Bamboo Street Light: Draft Tripod BOM



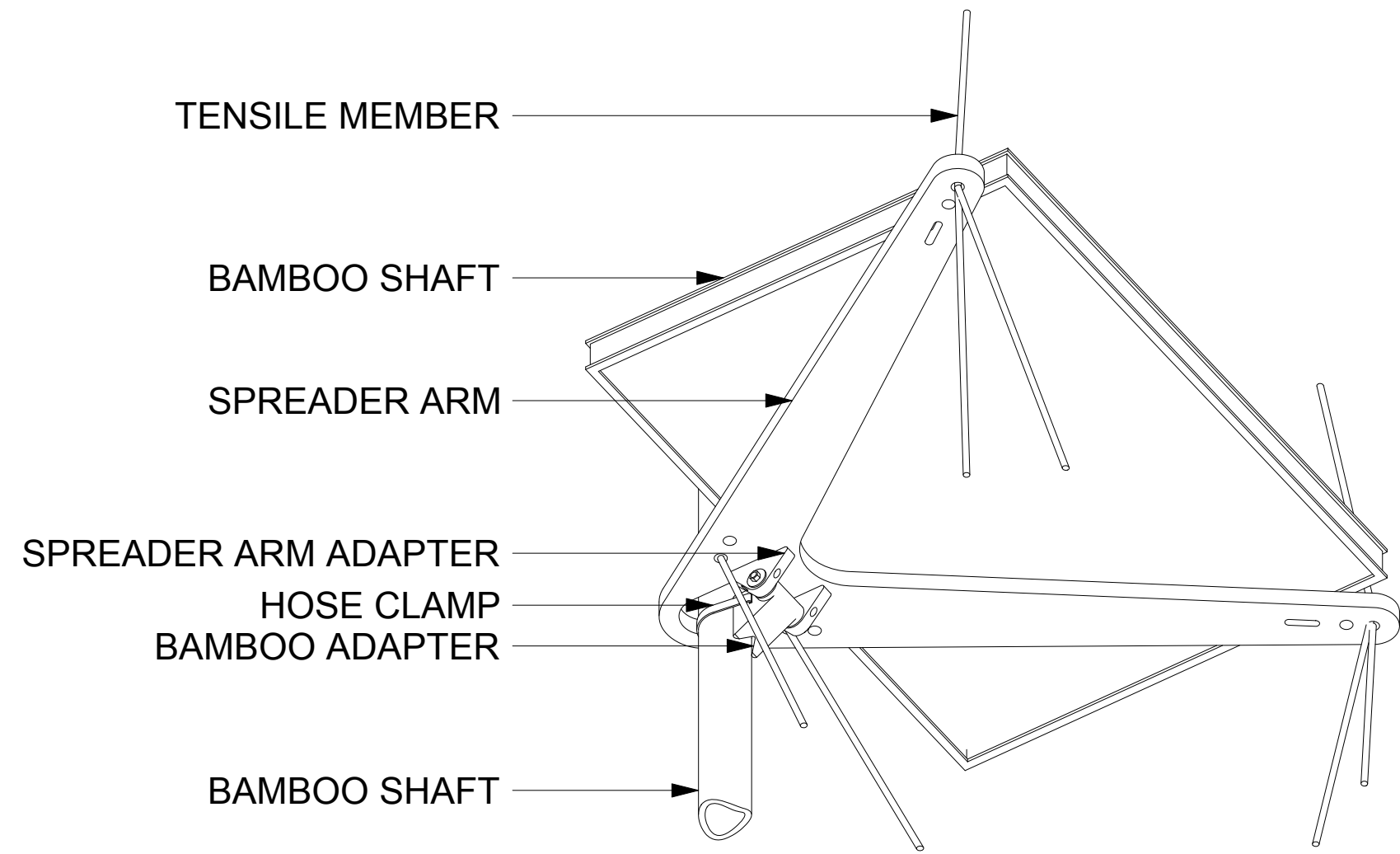
# Bending Bamboo Lamp Construction Appendix



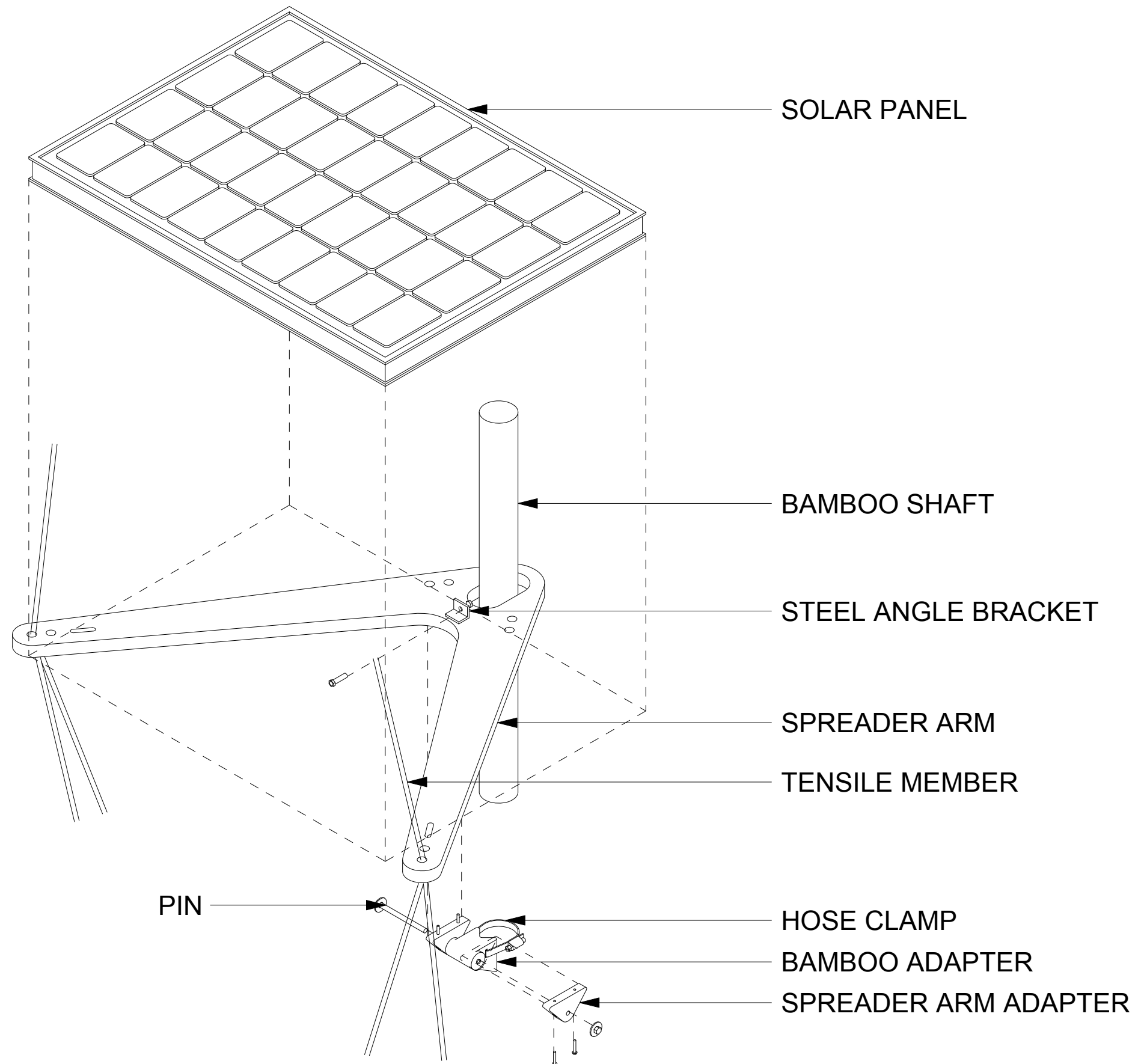
BASE ASSEMBLY WORMS-EYE AXONOMETRY



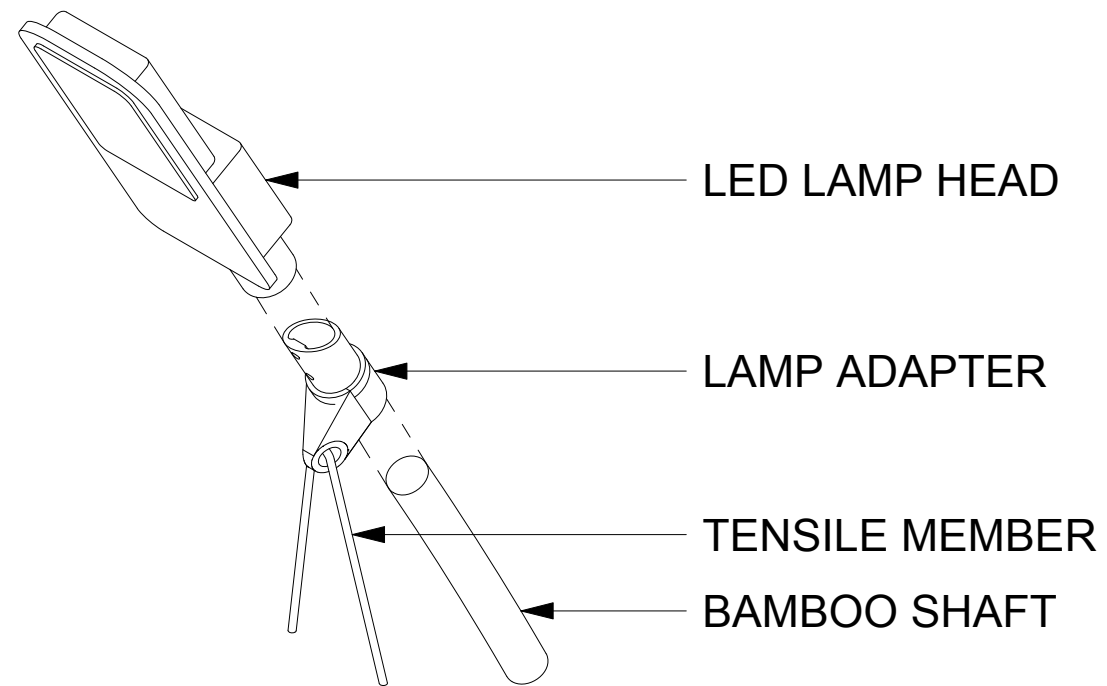
Bamboo Street Light: Base Construction Assembly



PANEL ASSEMBLY WORMS-EYE AXONOMETRY



Bamboo Street Light: PV Assembly



LAMP ASSEMBLY EXPLODED AXONOMETRY



