Instructions: How To Construct The Bean Seed Dryer

**Base Construction**

1. Weld 4 pieces of angle iron together to form a square of predetermined size
   a. Recommended to do in 6” increments with smallest dryer 3’x3’
   b. Angle iron facing upwards so shape resembles “L” from the side
   c. Attempt to minimize amount of splash weld falling around the joints
2. Cut 4 pieces of angle iron for the legs at approx. 8” long
   a. Drill a 0.25” hole in the center of one of the sides approx. 1” from the end of
      the angle iron
   b. Repeat 3 additional times ensuring the exact same length and hole placement
      each time
3. Weld these short legs to the previously constructed square at approx. 15° offset
   from the vertical plane
   a. Ensure hole side down in every instance
4. Cut additional 4 legs out of angle iron
   a. Drill 4 - 0.25” holes in each leg that are 1” apart, starting at 1” from the end of
      the leg
   b. Ensure new set of holes will line up with existing holes in short legs
5. Connect the legs to the leg braces. Place appropriate sized bolt through given hole
   and lock into place
   a. Ensure the BSD is level
6. Cut sheet metal squares and weld onto base of legs to create “feet/pads” for the BSD
   to rest upon
7. Cut 4 pieces of angle iron to serve as supports for the walls
   a. Length determined by how tall the designed structure should be
   b. Minimum recommended height 3’
   c. Increase to desired height
8. Weld additional truss links (made of sheet metal) to base of structure and bolt to
   vertical angle iron to increase structural stability
   a. Links should be at 45° angle relative to the ground
   b. Edges should be cut to ensure they rest flush on angle iron
   c. 0.25” holes drilled into each link approx. 0.5” from one side
   d. To determine location to bolt links
      i. Weld links at desired distance away from corner
      ii. Rest vertical angle iron pieces in location to be bolted
      iii. Draw circle where hole lines up with angle iron
      iv. Drill 0.25” hole here

**Roofing Construction**

9. Cut 4 equi-dimensional pieces of sheet metal resembling a trapezoid
   a. Lower base should be same size as base of BSD
   b. Upper base should be 1’ long
   c. 60° angle should be cut
   d. Punch holes periodically along the angled edge of sheet metal
10. Weld 4 pieces of angle iron together that resembles the base discussed in Step 1
   a. However, “L” should now resemble “I” shape
11. Attach newly constructed roofing structure to vertical angle iron supports
   a. As instructed in Step 8
12. Weld 4 pieces of angle iron onto upper base that was constructed in Step 10
   a. Angle of angle iron should match angle of sheet metal cut
   b. Angle iron should resemble inverted “V” when welded onto base
13. Weld & construct cube of angle iron 1’x1’
14. Weld cube to angled angle iron to finalize skeleton of chimney design
15. Physically hold sheet metal onto angled roofing section constructed of angle iron
   a. Tack weld inside holes punched in sheet metal onto angle iron
   b. Fill holes with weld to solidify bond
16. Cut 4 pieces of sheet metal 1’x1’ and punch holes along 2 matching sides as in Step 9 – d
17. Tack weld 1’x1’ sections in perpendicular fashion around cube
18. Rivet on a slanted roof to ensure water does not leek into the BSD in the event of rain
   a. The opening left by the chimney must be covered with screen meshing to prevent animals from crawling inside
19. Paint roofing black

Body Of BSD
20. Drill holes in vertical angle iron to support runners for treys
   a. Must allow approx. 1’ plenum to allow for air pressurization
   b. Determine number of treys in BSD (suggested minimum is 3)
   c. Cut and bolt 2” x 4” onto angle iron supports
21. Cut and bolt additional angle iron supports incrementally to increase stability
22. Cut plywood to fit wall dimensions and bold plywood into vertical angle iron supports
   a. Screw plywood into wooden trey supports as well
23. For door and solar collector sides, additional work necessary
   a. Door
      i. Cut dimensions of door our of plywood wall
      ii. Attach hinge to door frame and cutout section
      iii. Attach a handle to door
   b. Solar Collector
      i. Mark where solar collector would be resting on BSD and mark line
      ii. Take slightly more length to ensure solar collector can slide in and out of BSD
24. Use caulking agent to fill holes where necessary to maintain pressure inside BSD

Solar Collector
25. Cut base of solar collector from 0.5” wood
   a. Width equaling base of BSD – 4’
b. Length equaling ___
26. From same wood cut same length and ___ m high x 2
   a. Remove notch with dimensions ___x___ from one corner on each board
   b. Cut another board with dimensions width x height
27. Attach boards respectively with nails and brackets
28. Cut boards ___x___ to create 4 different compartments
29. Fill solar collector with sand
30. Attach stainless steel metal plate atop the compartments
   a. Paint metal sheet black
31. Create plexiglass sandwiched structure
   a. Attach 2 plexiglass sheets with same dimensions as base of collector
   b. Separate plates by 0.5”x0.5” wooden board that runs the perimeter of the plexiglass plates
32. Screw plexiglass into solar collector above the metal sheet
33. Fit solar collector into BSD
34. Caulk any significant holes

Notes
*All welding is TIG
*All metal is steel