

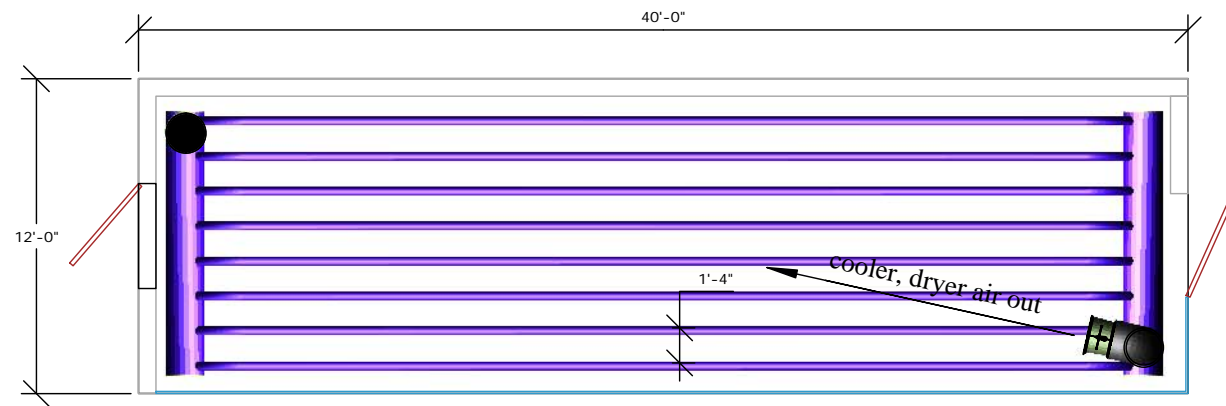
Alberto Bianco Greenhouse

The proposed greenhouse is conceived as a 40'x12' framed building with rigid glazing on all south exposures, the roof, most of the east end and only the gable of the west end. (two buttresses as end walls is suggested to stabilize the north block wall - western afternoon solar exposures are often too extreme, so we often opaque out and insulate the lower west walls)

The proposed SHCS layout includes two 18" culvert manifolds connected with 24 - 4" ADS air tubes (8 rows stacked 3 deep.)

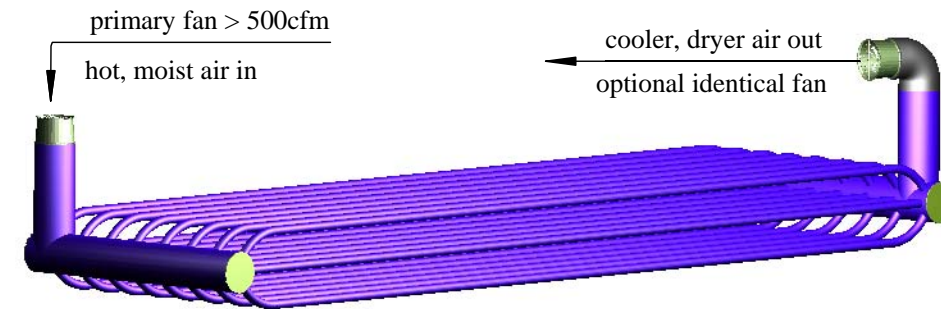
Each 4" ADS air tube is a total of 36' - 4" long, with a total length of $24 \times 36' - 4" = 872'$ (9 - 100 foot rolls)
The two 18" Manifolds are 10' each with two 4' risers for a total 18" Culvert length of 28'.

All 4" ADS tubing is thin walled, corrugated and slit perforated. The 18" ADS culverts must be field perforated with 3/4" holes 12" On Center along their bottoms. Each end of the culverts must be blocked off before backfilling.

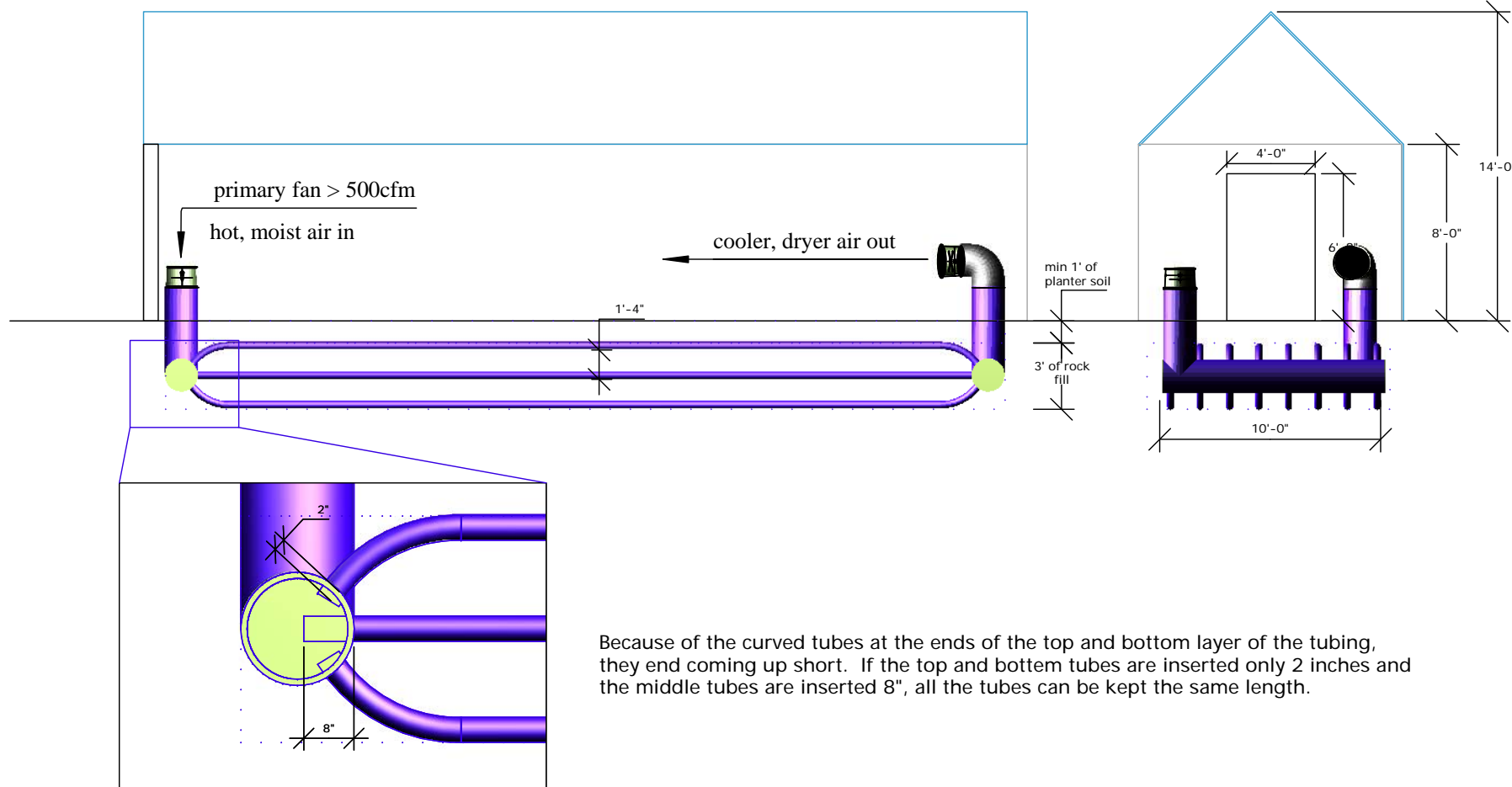


SHCS

This size system will need to be powered by at least one single input fan that can deliver a minimum of 500 cubic feet per minute. 1000 cfm would be a better single fan choice. Alternatively, two 500-1000 cfm fans can be used, one on the input and one on the output. The most affordable fans to use are 'duct booster' or attic ventilation style fans available from a number of suppliers. High volumes are only necessary for extract extreme summer heat. Use fan speed controllers on all fans larger than 500 cfm so you can slow their speed to suit the season.



The entire tubing system should be backfilled with 3/4"+ washed rock. The rock store heat/cool sink will contain approx. 50 tons of mass, sufficient to extract 2 million BTU's of excess thermal gain for daytime cooling that can be metered out at night if needed.



Because of the curved tubes at the ends of the top and bottom layer of the tubing, they end coming up short. If the top and bottom tubes are inserted only 2 inches and the middle tubes are inserted 8", all the tubes can be kept the same length.

