



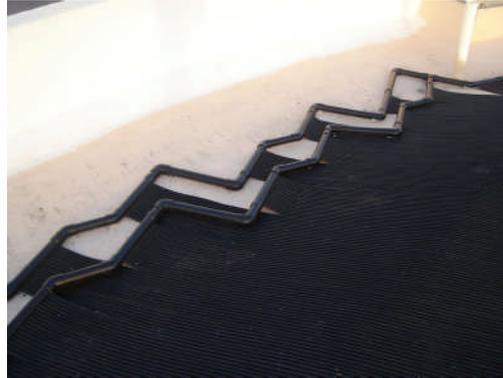
INTERFACE BARS AND STAGGERED HEADERS

Staggered headers means we're using two rows of headers at each end instead of just one. The purpose is to eliminate all the spaces between the individual collectors. We sometimes want to do this because we want to squeeze every square inch out of the available space. In a direct ground mount situation we are fully covering the ground to protect the poly weed barrier beneath. Other reasons include esthetics and to eliminate any place that wind can get underneath.



Note that with this technique we also eliminate the need for removable couplings. You have about 9.5 inches of pvc pipe between each headers so if you ever needed to replace one you'd simple cut the pipe and re-connect with a pvc coupling. You'll need a 1.5"

pvc coupling for each header pipe. Keep the headers rotated correctly as you glue (pvc cement) your way from one end to the other.



In the case of a rack mount you wouldn't care about the roof connections so you might elect to use a "hanger" at each header pipe location.

This is a hanger...



Note there are no removable couplings so in order to keep the plastic coated stainless steel strap in place we might elect to use a gear clamp and a strap clamp around the header instead of the loose loop shown above left.

The interface bar is often used with staggered headers because instead of needing a roof penetration every header we can secure the interface bar every 4 feet which is about 4 headers. Its easier to hit the rafters with our roof connections this way as well and hitting the rafters means meeting hurricane codes. The interface bar can be electrical conduit but we prefer galvanized chain link fence top rail. Home Depot carries it.



The picture above left shows the interface bar attached to the roof with a hanger. The photo above right shows the interface bar attached with a short piece of unistrut. The interface bar is secured to the unistrut using unistrut pipe clamps. The 1.5" black PVC pipe (painted) at the top of the photo is attached to the same piece of unistrut through a slip collar made of 2" PVC pipe. PVC pipe expands and contracts with temperature a lot more than metal pipe. Note that the interface bar allows for fewer roof penetrations and those roof penetrations can hit the rafters. That's important to engineers who have to certify that all this is valid structurally.



The two rows of headers are teed together at each end. We like to use a street elbow here because it allows the two rows of headers to be closer together. A street elbow is a 90 degree elbow that glues to pipe on one end and right into a fitting on the other.

We want to strap each row of headers to the interface bar every 2 feet or so. This means you need a loop of ppa (plastic) coated ss strap and a strap clamp for every single header and then you still have to secure the interface bar to the roof. Note that we use a spacer of PVC pipe to help keep the two header pipe runs parallel as we set all the straps in place..



The actual fin tubing can be strapped down, glued down directly or via a glue strip or some or all of the above.

It is best for the fin tubing to go over rather than under the other pipe as shown above. Its usually best to make all collector lengths the same. This means that if you ever take the system up for re-roofing you'll have to rill the whole system up as one piece. That's OK. If its too large you just cut the pvc pipes and glue them back together later with a pvc glue on coupling. The interface bar can be rolled up with the collector helping to strengthen the headers preventing them from breaking from bending stresses. It cases where the system is being built on the roof you may choose to make the inner bank shorter than the outer bank so the headers of the inner bank are inside the outer bank. This means two different length collectors but it means the outer bank can be rolled up without having to roll the inner bank up with it. This would rarely be of benefit but it is an option available to you.

Summary: Fin tubing over not under the pipe as shown above. All sections the same length. Loop of strap from interface bar to the midpoint of every piece of pvc joining adjacent headers. See full manual for details other than specifics to staggered headers.