

## **GENERAL**

As you assemble the components, install the bolts for each joint finger-tight. When all bolts for that joint are in place, tighten them. This allows the part to be repositioned for bolthole alignment. Stainless steel bolts gall easily and should be lubricated with wax, soap, or threadlocking compound.

## **TOOLS**

6" spring clamps (three) 9/16" socket and ratchet handle 9/16" combination wrench Pinch bar or long, tapered punch 5mm Allen wrench (hex key)

(If you are sealing the joints, add gaskets before inserting bolts. You only need gasket in the lower portion of the joint. Install it close to, but inside the boltholes.)

## Be sure that the Cascade Ladder System is securely bolted or weighted down.

The following procedure will temporarily unbalance it.

- 1. Install the first slide tube onto the Chute, referring to the numbers marked on the tube's flanges. The first joint (Entry/Tube) is Joint#1. Find the tube marked #1 on the male flange and align the circled hole marked #1 on the tube, with the threaded insert marked #1 on the Entry. Bolt this joint using 3/4" bolts/washers, lubricating each bolt. Tighten all 12 bolts.
- 2. Locate the tube with #2 marked on the male flange. Align the circled hole marked #2 on this tube, with the circled hole marked #2 on the female flange of the first tube. The spring clamps will help you hold the tube in place while you align the boltholes. Install 1¼" bolts w/washers (2) and NYLOC nuts finger-tight, using thread lubricant on each bolt. Install these bolts from the top so that the Nyloc nut is shielded under the hood of the flange. Use a pinch bar or punch to line up the holes when installing the bolts. Tighten all 12 bolts.
- 3. Assemble the rest of the tubes in the same manner, following the numerical sequence. You will need to install support post(s), or temporary supports, during the assembly. The posts are either surface-mounted or have been cut to allow about 12" to be buried and mortared. Saddle-brackets should be bolted onto the female flange, at the lowest point of the flange. Drill ½" holes in the flange, for two 1¼" bolts. The saddle-bracket is bolted to the post or branch with a 1¼" bolt.
- 4. Helical, or spiral, configurations use a centerpost that is long enough for burial or surface-mounting. 'Branches' slide into position from the top, and must be drilled for attachment to the saddle-brackets. After all height adjustments, branches are 'hardened' to the centerpost with #14 U-drives. Use 7/32" drill. Discard any temporary set-screws, as they will corrode.
- 5. 'Hands' can be cut to reduce the exit height. If you cut away the threaded inserts you will need to thru-bolt the anchors. Bolt L-brackets to the 'Hands' using ¾" bolt/washer thru the round holes. (*The slotted holes are for anchoring*) If the stainless steel horizontal exit support is used, it should be positioned so its 'saddle' supports the barrel of the exit, not the flange.
- 6. Bolt the Exit to the 'Hands', if used. When Exit and Hands are satisfactorily aligned, drill (2) 3/8" holes in the Exit, using the two holes in the fingers as guides. Assemble the two components using the socket-head connector bolts and 5mm Allen wrench. The 'Barrel Nut' should be inside the tube, while the bolt comes from the outside. Move the exit into alignment for mounting to the last tube. Make any necessary adjustments, and then mark the locations for the last 2 masonry wedge anchors. Move the Exit subassembly aside to drill the two anchor-bolt holes, and complete the installation.