



INSTALLATION GUIDE

This guide is intended to aid in the installation of Dura-Trench slot drain systems. There are many different applications and situations for the use of this product and the installation procedures need to be carefully evaluated and altered to fit the application. This guide gives the standard procedures for the most common applications of the system. If additional installation methods are required or used it is the responsibility of the installation contractor to determine these procedures based on the soil conditions and project construction documents.

TOOLS COMMONLY NEEDED

SLEDGE HAMMER
SOCKET SET OR WRENCHES
WOOD SCREWS OR NAILS
2X4 LUMBER
LINEMAN PLIERS
TIE WIRE
MASON LINE (STRING)
LEVEL
SHOVELS



**PLEASE READ ENTIRE INSTRUCTION
MANUAL BEFORE PROCEEDING!**



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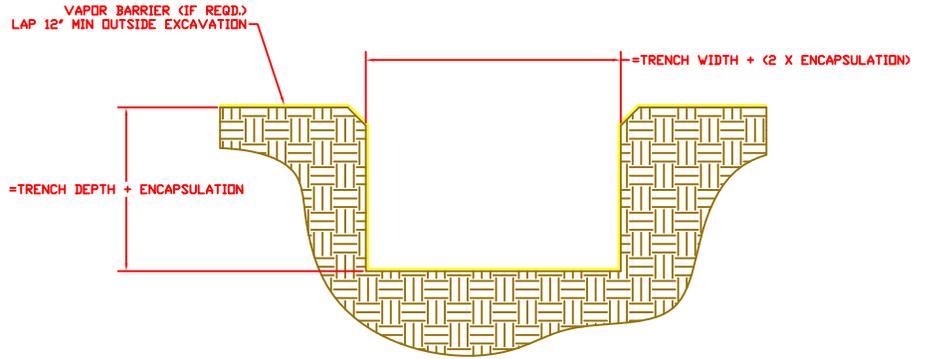


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1. Excavate, Grade, and Compact

- Excavation should be the slot drain pipe diameter plus the width of the concrete encapsulation on both sides. The depth of the excavation should follow the depth of the slot drain plus the encapsulation thickness. The excavation should be closely controlled in order to conserve concrete. Grade the bottom of the ditch closely and check the sides of the excavation prior to proceeding to make sure the excavation is wide enough along the entire length of the trench. Compact the bottom of the excavation with a compactor prior to proceeding and get any necessary compaction tests at this time. Alternatively, over excavate the trench width and set edge forms according to plan dimensions. Again, compact bottom of excavation before proceeding.



2. Vapor Barrier and Rebar -

Place any required vapor barrier and ensure that all seams and penetrations are properly sealed. Place any rebar that goes under the slot drain at this time. Ensure that the alignment of the rebar is straight and properly centered in the excavation. Tie all bars and make sure the rebar cage is rigid.

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3. Prepare slot drains - The Dura-Trench slot drain system is pre-assembled for you. First, remove bands and bracing on pallets to access the slot drains. If you are using U shaped rebar legs, insert the legs into the installation devices on the sides of the slot drain and tighten the bolt to secure them to the form. Note that if you are using straight bars do not put them in at this time. If using straight bars you will want them long enough to drive into the sub soil to maintain alignment and resist flotation. In firm soils the bars should be driven approximately 24" into the soil.



For sandy or less firm soil the bars will have to be driven deeper to resist flotation forces.

Begin the installation at the deep end / outlet end of the run. Place the slot drains beside the trench. The trenches are numbered according to the shop drawings and should be placed in order with the flow arrows pointing toward the outlet or deep end. The deepest sections need to be located adjacent to the outlet (pipe). The trenches should get sequentially smaller the further you move away from the outlet location.



4A. Hanging Method - If your installation has forms erected near the slot drain or is a retrofit application, the easiest way to install the trench is by hanging it from the forms or existing slab. Cut 2x4 lumber to a length that will span the opening or from form to form. Place the 2x4 boards across the top of the drain and use tie wire around the concrete anchors to attach the lumber to the Dura-Trench sections. You will need two boards for every section of Dura-Trench. Spacer blocks can be added below the hanging lumber to allow for proper slope of the concrete into the slot drain.

After the suspension lumber has been attached, starting at the deep end, set the sections inside the excavation by hanging from the forms. Center the forms and secure the first 2x4 to the forms (screws are preferred over nails because they help resist flotation. Nails can be used but they should be driven on an angle and the depth of the installation legs are more critical). We recommend applying a urethane or silicone joint sealant at the overlap joint at this time. Set the next section and slide it into the female flange of the previous section. Check that the frames are centered on one another. Repeat until all sections are installed.

Once all sections are installed, if you are using straight installation legs drive them deeply into the ground and tighten bolts to resist flotation. Soil condition will determine how deep the legs must be in the ground to resist the flotation. Sandy soils may need several feet while clay soils may only need one to two feet to secure the slot drain bodies against flotation.

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4B. Install Installation Legs - If the trench will be poured with a slab placement or other pour where there are no forms nearby to hang the trench from, you will want to install the trench system using rebar legs. For placements where there is a vapor barrier that cannot be penetrated use U shaped rebar legs. If there is no vapor barrier straight #4 rebar can be used. Place a string line along the length of the trench at the desired elevation aligned with one edge of the slot drain frame. Starting from the deep end of the drain, hold the first section in line with the string. Loosen the set screws and move the rebar legs down to the ground. If using straight bars drive them into the ground. Pull the trench up to grade and tighten set screws. We recommend applying a urethane or silicone joint sealant at this time on the overlap between the two sections. Get the next section and slide the male end into the female overhang of the previous section. Adjust the rebar legs on these sections until the trench is on grade. Repeat until all sections have been installed. As required, drive additional bars



beside the trench and use tie wire to pull trench in line with the string and to ensure that the trench will not move during the concrete placement. Deeper slot drain throats are more likely to need additional bars to align the trench sections.

5. Connect to outlet pipe - The pipe connection is typically made with a rubber no-hub fitting, but it can be made with a coupler or other fitting as necessary. Simply connect the proper pipe size and type of pipe to the outlet pipe cast into the slot drain. If your outlet plates were shipped separately, they are typically screwed and glued with urethane or silicone caulk to the deepest section of trench drain.



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6. Place mud slab - Before starting, use tape or plastic to cover the slot so that concrete does not enter the slot drain. In order to keep the slot drain from floating during the final concrete placement a mud slab pour is recommended. It is possible to pour the trench without the mud slab if straight bars are driven deep enough to resist the flotation, or other means of anchoring the slot drain against flotation are taken. Pouring a mud slab is a sure way to ensure that flotation will not occur. The mud slab pour should come up 3-4 inches onto the bottom of the slot drain pipe. Before this pour sets up firmly, verify that the alignment and elevation of the slot drain has not been compromised. The concrete mix design should be fluid enough to ensure that the pour covers the entire bottom of the trench and gets around all of the installation and reinforcing bars. This pour needs to be set firmly before final concrete placement. The required



wait time varies with concrete mix design and temperature, but will range from 30 minutes to 48 hours.



7A. Place concrete after mud slab - Start placing concrete at one end and work towards the other end. Place concrete on both sides evenly so that the line of the slot is not disturbed. **DO NOT PLACE CONCRETE ON ONE SIDE ONLY!** This is best accomplished by placing concrete directly on top of the slot drain and allowing it to fall evenly on both sides. Once concrete is placed on both sides to the top of the form it is time to begin vibrating the concrete. Begin vibrating concrete back 8' from where the concrete is being placed. This will ensure that you do not alter the alignment of the slot drain. Begin vibrating the concrete with a pencil vibrator. Vibrator should be inserted at 1' on center and pulled back out when air bubbles cease to surface. Vibrator should be inserted quickly as deep as possible and pulled back out slowly. After the vibration of the concrete is complete, any suspension lumber and wires can be removed for finishing operations (this is assuming that you have properly anchored the trench with the rebar installation legs). Make sure the vibrator is a minimum of 20' away from where the suspension lumber is being removed.

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7B. Full lift concrete placement - THIS IS NOT THE RECOMMENDED PLACEMENT METHOD FOR INEXPERIENCED INSTALLERS. Start placing concrete at the deep end of the slot drain and work towards the shallow end. Place concrete on both sides evenly so that the line of the trench is not disturbed. DO NOT PLACE CONCRETE ON ONE SIDE ONLY! This is best accomplished by placing concrete directly on top of the slot drain and allowing it to fall evenly on both sides. The first lift of concrete should be poured up 2-3" on the bottom of the slot pipe. After placing this lift vibrate the concrete thoroughly on 1' centers ensuring that all trapped air has

been removed from the concrete. (DO NOT STAND ON THE SLOT DRAIN DURING THIS PLACEMENT AS IT MAY COMPROMISE THE ELEVATION OR ALIGNMENT). This concrete lift must now be allowed to firm so that it is no longer fluid. This is tricky because you should not allow this pour to become solid as it will create a cold joint. Test by pushing a rod into the mix. When the rod begins to get some resistance, but can still enter 2-3" it is time to begin the second concrete lift. This may take as little as 20 minutes in warm weather to as much as 3-4 hours in cold weather. It is also dependent on mix design so monitor the initial placement carefully. The next lift should be poured on the center of the trench to evenly fill both sides another 4-6" high. On slot drains larger than 12" diameter or deeper than 15" overall depth, an additional lift should be made after initial set on this lift has occurred. This next lift should be 8-10" high. Once this lift has firmed, place additional lifts in 12" increments to finish grade ensuring that the concrete is placed evenly on both sides of the slot drain. On each lift, begin vibrating concrete back 8' from where the concrete is being placed. This will ensure that you do not alter the alignment of the slot drain. Vibrator should be inserted at 1' on center and pulled back out when air bubbles cease to surface. The vibrator should be inserted down to the bottom lift to mix the two lifts (MAKE SURE THAT THE BOTTOM LIFT DOES NOT BECOME COMPLETELY FLUID AS IT WILL CAUSE THE TRENCH TO FLOAT). Vibrator should be inserted quickly and pulled back out slowly. After the vibration of the slot drain is complete, any suspension lumber and wires can be removed for finishing operations. Make sure the vibrator is a minimum of 20' away from where the suspension lumber is being removed. Finally, remove the tape during finishing operations. Do not wait for a long period of time as it can leave a sticky residue.



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