



# Below Grade Moisture Management

## Drain Field-Drain Tile Installation

# So, you thought our Sump Basket ideas and instructions were worth sump-thing?

(Well, you ended up here at least!)

**If you installed your sump basket as to the instructions I hope it is working.**

**If you're asking yourself "What sump basket system?" please visit our sump basket presentation here before you view this one.**

# Still Getting Water In Your Basement?

Now you need a basement interior perimeter Drain Field-Drain Tile system that will be compatible with your sump basket and sump pump system.

# How and Why a Drain Field - Drain Tile System Works

- The system creates a reservoir (a place for water to run to or try to run across) that is lower than the lowest point of your basement interior areas.
- The Drain Tile and Drain Field of 1 1/4" round river rock is more open and porous than the surrounding fill. As a result water will migrate to this area because it is the path of least resistance.

# A Drain Field - Drain Tile System Works!

- If your Drain Field Drain Tile system is designed and installed correctly and it is connected to a sump basket-sump pump system that is also correctly designed and installed, very little water will ever run through the drain tile.

(Another thing you now know that 90%  
of the people that install Drain Field-Drain Tile  
systems do NOT know)

# Drain Field – Drain Tile Rules

## Rules:

- Buy the very best tile
- Use 1 1/4" or larger hard round river rock (if available. Do not use "pea gravel")
- Make your Drain Field as large as your budget will allow (*bigger is better* in this case)
- The bottom of your perimeter Drain Field should be slightly lower than the bottom of your perimeter footing.

# Myth Debunked!

Some people suggest using a *silt blanket, sleeve, or sock* to keep silt out of your drain tile system.

## Why?

So it won't plug your Drain Tile system

## The Truth:

If you had so much water moving in your Drain Field Drain Tile system that it eroded the fill around your below grade construction, some part or all of your basement must be below the water table!

Well, then you'd have a Well! (*Not* a Basement)

# So You Have A Well?

- Unfortunately you are not alone here either. Many below grade construction details have been improperly installed at or below the water table.
- There are some locations that are simply unsuitable for below grade construction (houses on basements). Perhaps on stilts would be a better choice.



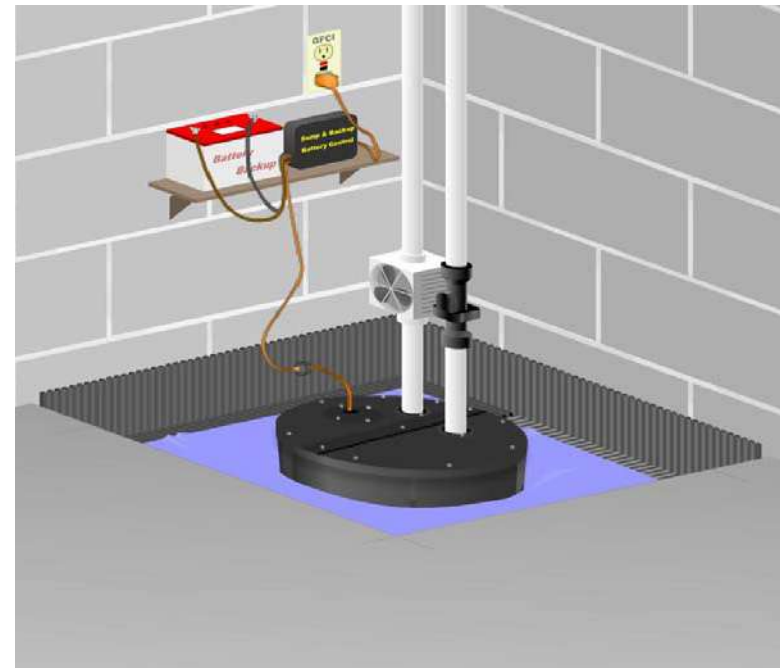
# So you have a well? Well...

- Designing and installing an interior perimeter Drain Field and Drain Tile system with sump basket and sump pump in these adverse conditions will be very difficult.
- The functioning life span of the system in these conditions will be very short as well.

Good Luck!

# Drain Field – Drain Tile System Installation Notes

- The installation should start at the fully operational sump pump- sump basket system.
  - If there is excessive water infiltration it can be immediately controlled by the sump basket – sump pump system, pumping it out of your construction.



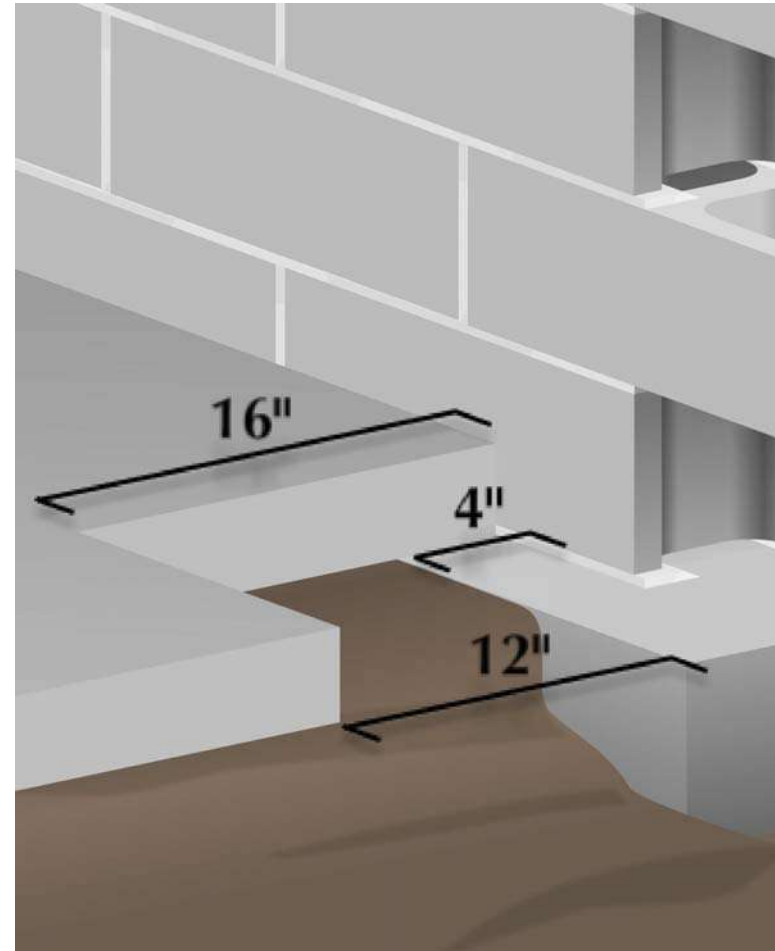
# Drain Field – Drain Tile System Installation Notes

- Great care must be taken to prevent construction debris, dirt or mud, from contaminating the Drain Field around your sump basket.
- Mismanaging site drainage during construction costs the construction industry and its customers billions of dollars each year.

*Believe me on this one!*

# Drain Field – Drain Tile System Installation

1. Saw cut your basement floor approx. 16" out from your basement wall.
  - This 16" *should* represent 4" from the wall to the edge of the footing and 12" wide for the Drain Field trench.



# Drain Field – Drain Tile System Installation

- You can expect to find some variation in basement floor, wall, and footing measurements. Don't be surprised to find 10" or none of your basement floor on the footing!
- No matter where the basement wall is on your footing, you have to remove enough of your basement floor to excavate a 12" wide trench next to the footing for your Drain Field – Drain Tile system
  - If things look too crazy and out of line, call the structural engineer that did your pre-sump basket installation inspection. Get a professional opinion. There are very important structural concerns here and safety concerns too. *Believe me!*

# Drain Field – Drain Tile System Installation

2. Remove the required width of basement floor.
3. If your basement wall is constructed with open cored concrete masonry units (a “block wall”), use a hammer drill with 1” diameter bit to open each core on each block where the bed joint of mortar meets the top of your footing. Monitor the amount of water that drains out.
4. Excavate your drain field trench, a minimum of 12” wide and to a depth slightly lower than the bottom of the footing.

# Drain Field – Drain Tile System Installation Notes

- Be very careful when removing fill in close proximity to the structural footing. You could potentially destabilize your foundation.
- Monitor the amount of water that moves into this excavation. Sometimes it is a good idea to take a break from the project and let it drain.
- Be careful! You are working in close proximity to a structural detail.

# Drain Field – Drain Tile System Installation

5. Install your drain tile and connect it to your sump basket – sump pump system
6. Install 1 1/4" round river rock around and over Drain Tile to top of footing.
7. Install 16" course of **MTI Control Cavity™** (CC4800) on base of basement wall continuously around perimeter of your basement.
8. Install **MTI Floor Edging™** (FE8555) continuously around the perimeter of your basement wall.



# Drain Field – Drain Tile System Installation Notes

- Make sure that the bottom horizontal leg of the **MTI Floor Edging™** (FE8555) covers the footing and extends past the interior edge of the footing.
  - If it does not, use **MTI Control Cavity™** (CC4800) to extend it over the interior edge of the footing.

# Drain Field – Drain Tile System Installation

9. Cover all the exposed drain field stone with 6 mil poly

Note: Monitor your new Drain Field – Drain Tile system for a period of time before pouring the basement floor patch. That way you can see whether it is working properly.

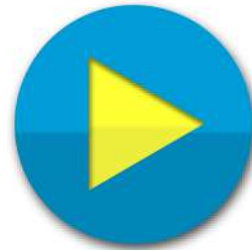
# Drain Field – Drain Tile System Installation

11. Pour concrete floor patch over your excavation site. Slope it slightly to drain back to the wall.
  - Do NOT pave over the top of the **MTI Floor Edging™** (FE8555)!
12. Use a bull nosed edger to make a trough where the patch meets the wall/**MTI Floor Edging™**. Edge of patch should be 2" lower than top edge of **MTI Floor Edging™**.

# Installation Animation

The next slide contains an animation of the installation instructions you just read.

# Visit Our YouTube Channel to View Drain Field - Drain Tile Animation



[www.youtube.com/mtidry](http://www.youtube.com/mtidry)

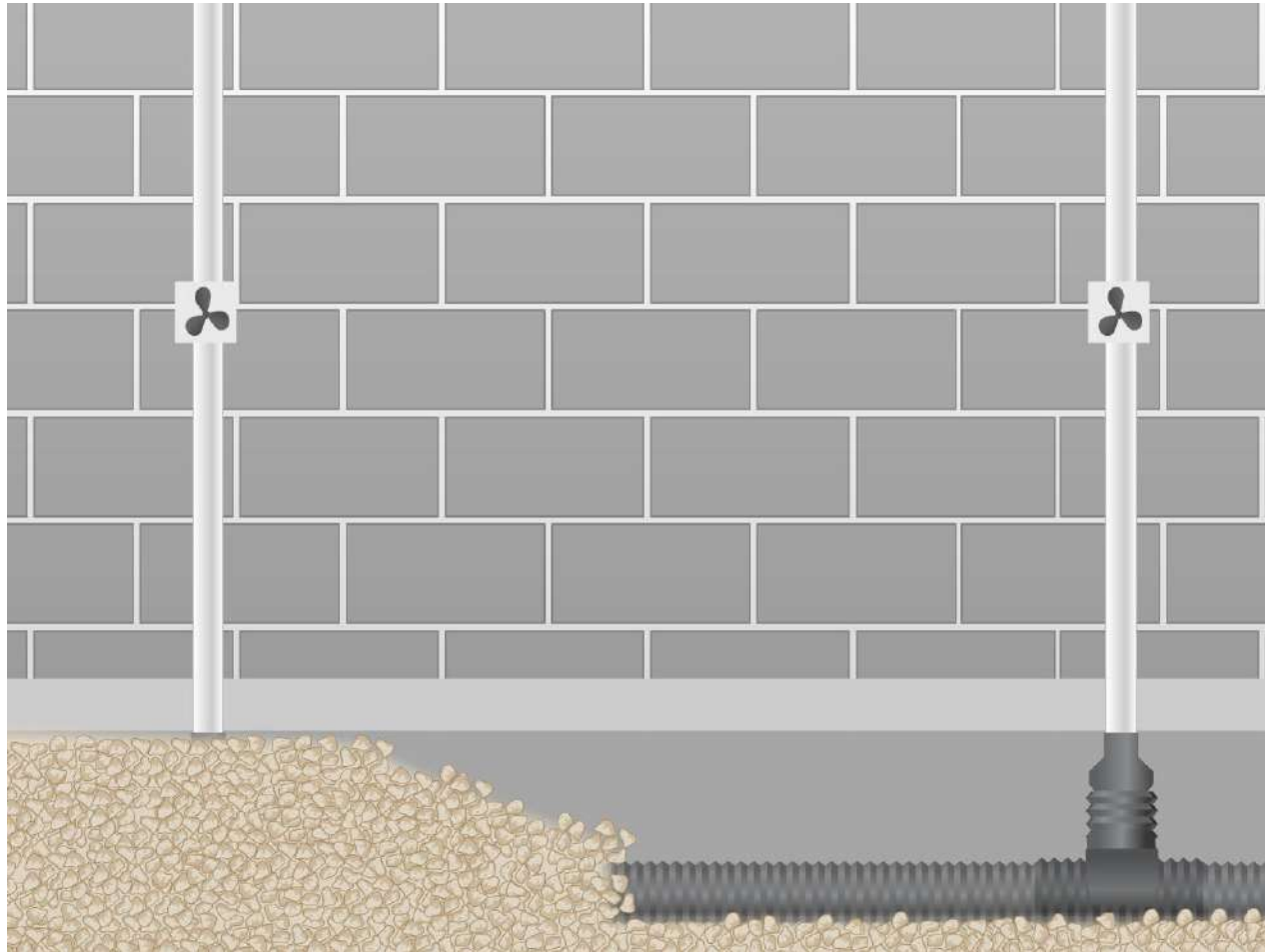
# Soil Gases

- Your properly designed, vented sump basket – sump pump system working in conjunction with your properly designed Drain Field – Drain Tile system form one of the best (if not *the* best) soil gas control systems that money can buy.
  - The only improvement that may be worth considering is adding vent stacks on your drain tile system.

# Two Systems in One

- When you have designed a below grade moisture management system or a below grade soil gas management system, you have to address both issues simultaneously.
- An important fact to remember in this two layer approach is that neither system has to be “perfect” to get exceptional results.
  - Anyone with real experience in waterproofing or making construction airtight uses the words “absolutely” and “perfect” very carefully!

# Soil Gas Vents





# Moisture Management and Soil Gas Management – Learn to Share

- Systems that manage below grade moisture and below grade soil gas “have to share” wall space, floor space, and the areas where they meet. The designer understands this and will have a system that accomplishes moisture and soil gas management at an acceptable level.

# Mission Complete!

- Now you have a complete Drain Field Drain Tile system connected to a complete Sump Pump – Sump Basket system.
- MTI strongly recommends venting the sump basket, at a minimum.
  - Venting the Drain Field Drain Tile system ensures the remediation of all soil gas in that location of your construction

# A Few Notes from MTI

- Obviously there are many variations of below grade construction details. The one that has been depicted in the graphic art and the animations is a very common and straightforward one. You can expect others to follow
  - Drain Field – Drain Tile draining to open air
  - Drain Field – Drain Tile and Sump Pump – Sump Basket in a walk-out basement
  - Controlling condensation in below grade construction

# Thank you!

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