Why a Basement Leaks and How To Fix It Permanently!

James Pratt

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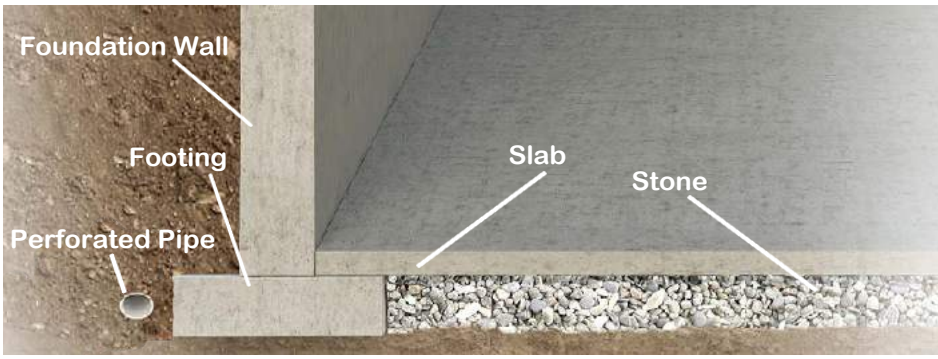
Chapter 1:

What causes a wet basement?

If you are reading this book, it is highly likely you have experienced some sort of wet or damp basement. The definition of "wet" may vary from one homeowner to another. For the purposes of this chapter, "wet" shall be defined as visible water collecting on the floor. A wet basement, by this definition, would have ¼" or more of standing water on the floor for our purpose. It is important to differentiate between a wet and a damp basement. Dampness can mean that there is a humidity problem – wetness means that you have a water problem. Each of these two issues is addressed differently.

The construction of the basement is a key factor in why a basement gets wet. When building a home, the contractor digs down approximately 8 to 10 feet, which creates a bowl-like formation in the lawn. The contractor then installs footings, which will bear the weight of the structure. These footings are made of concrete reinforced with steel. On top of the footing, the contractor will either build a poured concrete wall or will install block to at least grade (which is the finished lawn height) and usually a foot or two over the level of the grade. After the walls and footing are installed, 3 – 4" of stone should be placed over the dirt and the floor is then poured on top of the stone. The floor is usually 3 – 4" of 3,000 PSI concrete. This type of basement construction is called a "typical footing" configuration.

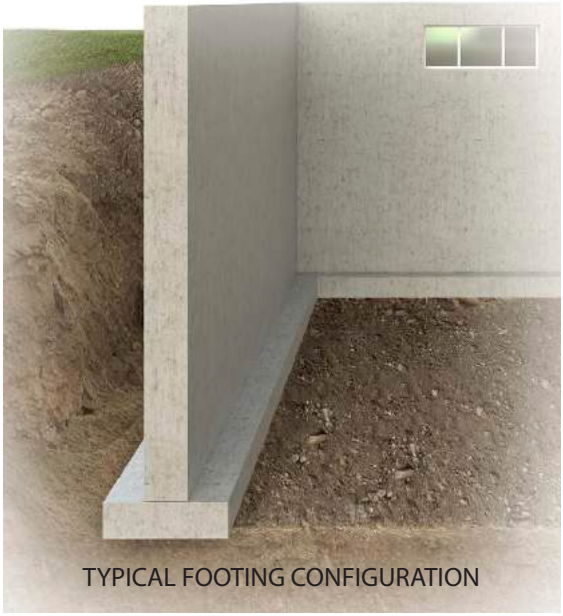


On the exterior of the wall, the contractor will usually damp proof the concrete blocks or poured foundation. At the base of this, there should be a footing drain of 4 in. perforated pipe, routing to a drywell or to "air" on a downwardly sloped hill. Theoretically, this will take any water pressure that is exerted on the exterior and drain it away from the foundation wall.

After these processes are completed, the exterior area around the foundation is back-filled with the dirt that was previously removed. When the contractor backfills around the 5' to 10' area surrounding the exterior foundation walls, he is using soil that is now looser and more aerated than the compact virgin soil that surrounded the building. This is due to the fact that the soil was dug up and then replaced. The virgin soil had been there (possibly for centuries) undisturbed and was very tight and not permeable. In this loose backfill area, the dirt is now porous and not as compacted as the virgin soil. Although it can be mechanically compacted, it will never be as dense as the virgin soil 5' to 10' out from the foundation wall. This is key to understanding why a basement leaks.

When it rains, water sinks into this backfill area and saturates it. The water will saturate the backfill area between the virgin clay soil "clay bowl" and the foundation – and will direct it towards the footing/wall intersection at the base of the new structure. This creates water pressure at this junction.

Pressure is created based on the fact that the virgin soil is less permeable than the newly replaced soil and concrete walls cannot allow water in. Concrete walls 10" thick with floors 4" thick will not typically allow the water in. Water cannot go directly through concrete unless there is a visible joint or crack.



TYPICAL FOOTING CONFIGURATION

The poured foundation walls (if continuously poured at the same time) will not allow water in. However, if there is any type of break in that concrete structure – or – if another concrete structure is poured at a separate time, there will be a seam or crack on that structure. These seams can allow water to penetrate into the basement.

After the footing is poured and set-up – the foundation wall is poured and the forms taken away – the floor is poured and finished. There is always a seam between the footing, the wall and the floor. For our purposes, we will call this the "floor/wall joint".

The rainwater pressure from the outside by the over-dig will exert pressure on the seam between the foundation wall and the footing. Also, it is possible for the water to go underneath the footing between the virgin soil and the footing itself. This water can seep underneath the footing and into the perimeter of the basement under the floor and come in through the cracks.

When diagnosing a basement water problem, it is important to know exactly where the water is coming from. There are some common guidelines we can use to speculate where the water is entering the basement. This is very important in diagnosing the water problem and devising how to correct it.

When it rains, the water can exert an extreme amount of pressure at the foundation wall. In a majority of problem basements, the water emanates from the floor/wall joint. Water leaking from the floor/wall joint emanates from the pressure outside of the foundation and footing wall joint due to the over dig (which the contractor excavated out for the basement).

Clay Bowl Effect (summation)

The contractor digs holes similar to a "bowl" in the earth. The foundation footing and walls are installed inside this "bowl". The outside dirt by the wall is called the "over dig area". Water gathers around the exterior of the foundation and soaks through the over dig area. The reason that the water is more prone to soak through this over dig area is because the back fill soil against the wall (and approximately 5' to 10' away from the foundation wall) is looser than the virgin soil that the excavator dug out. The virgin soil represents possible

centuries (or more) of compaction and rain water is not prone to sink into this compacted virgin soil area.

Clay Bowl around a new foundation

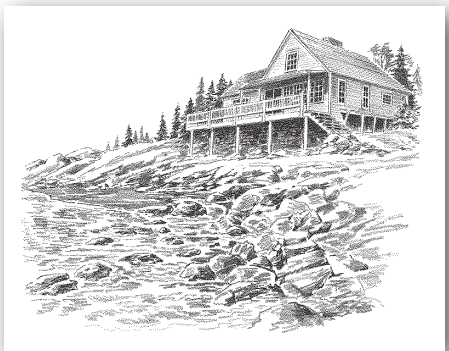
The rain water does saturate the back fill soil (loose soil) – creating a "clay bowl effect" between the foundation footing, foundation wall and virgin soil. This rain water creates pressure and will push its way through to the inside of the foundation footing and wall. This "push through" occurs over the foundation footing, underneath the foundation wall and also underneath the footing itself with the virgin soil underneath. Once again, this simple mechanic is the key to understanding why a basement gets wet.

Water Table?

Basements usually leak when it is raining outside. The common belief is that water rises through a "water table". Although the water table underneath the home does have the ability to rise, the reality is that the mechanics previously described are the real reasons why a basement typically gets wet. Very rarely will the water table rise to the point of flooding a basement. Building Departments and codes account for the water table presence when building permits are issued for the pouring and building of new foundation walls and basements.

On new construction, percolation tests are performed prior to the start of construction and the possibility of the water table rising to the point of flooding a basement is very rare.

For example if a home is on a hill and the belief is the leak is caused by the water table, then the streets leading up to the home would be a lake.



Chapter 2:

Where the water can enter the basement…

Basement 101:

There are six locations where water can enter into a basement:

1) Floor/ wall joint;

2) Floor crack;

3) Wall crack;

4) Bulkhead;

5) Window; and

6) Over the sill plate and down the wall.

1. Floor/Wall Joint

The floor/wall joint intersection is the most common entry source of water infiltrating the basement. This is where the foundation wall meets the floor. The water comes in from the outside over the footing under the foundation wall and up through the intersection where the foundation wall and floor converge. This type of wall seepage is seen most commonly when it rains. The reason for this is due to the over-dig mechanic previously described. If you have 3" to 4" or more of water in your basement, the source of the water is probably from the floor/wall joint. Water may seep in from other locations, but the most heavy water intrusion will be from the floor/wall joint.

Due to the nature of concrete, when one concrete structure is poured and another concrete structure is poured next to it (or on it), a seam is created between the two concrete structures. For example, the footing is poured – the foundation wall is poured – and finally, the floor is poured. Each concrete structure (the footing, the wall and the floor) is poured separately. There is now a seam between each of these three structures. This allows the potential for water (under pressure) to come into the basement area. The points of entry are over the foundation footing, between the foundation wall, underneath the foundation and up through the seams between the foundation footing and the floor. This floor/wall joint seepage is very common and is a predominant reason for basement flooding.

2. Floor Cracks

Water cannot enter into the basement without having a visible crack, break or a seam. Concrete cannot "leak". If there is a visible floor crack in the poured floor, the water can enter from underneath the slab floor – through the visible cracks. Lally columns are a common source. If a footing was poured and the column was sunk under the floor, the intersection of the steel and the floor can create a floor crack.

After the water has penetrated over and under the footing, water is present underneath the floor. It is common for floors to produce cracks after they are poured and water can and will infiltrate through these floor cracks. Floor cracks can occur due to settling and temperature differences between the interior and exterior.

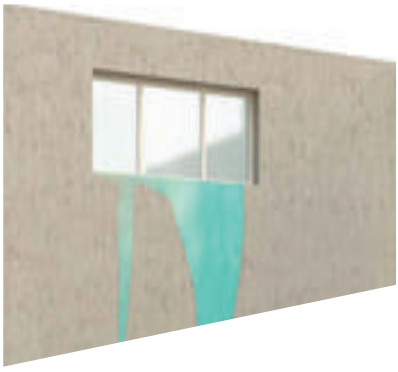
3. Wall Cracks

A visible wall crack in a poured foundation wall is another common source of entry by rain water. Wall cracks are easier to see than the floor/wall joint or a floor crack. Wall cracks would also include any pipe penetrations or tie rods that were used to construct and hold the forms in place when the wall was poured. Tie rods are metal pins that go all the way through the foundation wall and tend to rust over time. This rusted pin allows the water to enter between the rusted pin and the concrete. Wherever a pipe penetrates through a wall – between the exterior of the pipe and the concrete foundation wall – there is a seam. Water can enter through this seam.

4. Windows, 5. Bulkhead Entries and 6. Sill Plates

Other areas to inspect for water infiltration are windows, bulkhead entries and over the top of the foundation wall. Quite simply, a wet basement is caused when rainwater gathers around the foundation/wall footing due to the over-dig from the original construction. This rain water, under pressure, pushes through to the inside of your basement through a variety of different ways.

4. Bulkheads – It is common for some homes to have an entrance into the basement from the outside yard. It this case, it is typical to build three walls protruding from the primary foundation wall and installing stairs to and from the basement as well as a cover for access. This area can be a significant source of water infiltration. There are many varieties of bulkheads and bulkhead styles and the best solution for water infiltration is to stop the water from getting onto the floor of the basement.



5. Windows – It is not uncommon for basement windows to be below the grade of the lawn. Rain runoff can penetrate windows and leak down the wall onto the floor.

6. Sill Plate – This is the intersection where the wood framing sits on top of the foundation wall. This area can allow water infiltration depending on the grade of the lawn. If a house is at the base of a hill, water will flow down and pool at the foundation. When this happens, the water can come in over the foundation wall and underneath the sill plate.

In summation, the cause of a wet basement is usually the rainwater that has saturated the exterior of the home in the over-dig area. Water creates pressure at the base of the virgin soil and the foundation. The water can then infiltrate over or under the footing and enter the basement through any one of the above mentioned avenues.

Although it is possible that water tables can rise and flood a basement, the reality is that 9 out of 10 homes that suffer from wet basements do so because of saturation of the over-dig area. Heavy rainfall can enter the basement through any one of these (6) described methods. Flooding water cannot penetrate through concrete – unless there is less than 1" of concrete in the basement structure. Foundation walls are usually 10" thick and floors are normally 4" thick.

Water must enter through a visible crack, a floor/wall joint, a bulkhead, a window or sill plate. Homeowners must keep this in mind when diagnosing the source of the water in their wet basement.

Chapter 3:

Possible solutions to wet basement problems.

So, you have a wet basement. You now understand the mechanics of a wet basement and possible reasons for the leaking.

Now What?

This chapter will summarize all of the potential solutions for your wet basement. We will also discuss unrealistic solutions to give you a basic understanding of the possible remedies that have been tried over the years. Keep in mind – we are addressing wet basements with ¼" to ½" or more of water. We will discuss damp basements, crawl spaces, humidity and condensation in an upcoming book. For now, we will focus on "wet basements" as defined above.

It is necessary to discuss the unrealistic basement waterproofing solutions as well as the successful ones to fully educate the reader on every aspect of basement waterproofing. In this way, the reader will understand and be aware of the waterproofing methods that do and do not work.

Ineffective Exterior Methods of Basement Waterproofing

1. Installing a sidewalk or pavement around a foundation. The concept of installing a walkway or pavement around the foundation to stop water from saturating the over-dig is an unrealistic solution. The theory to installing a sidewalk is that the sidewalk will stop the water from penetrating around the foundation in the over-dig area.

In reality, when the rainwater falls outside the sidewalk, it will seep down

into the soil, saturate it and then find its way to the looser backfill under the sidewalk. This is not a permanent or effective measure to stop the basement from flooding.

Paving around the exterior is not a viable solution.

2. Sodium Bentonite - Sodium Bentonite is a substance that was manufactured primarily for the iron and steel industry. Sodium Bentonite was manufactured in sheets and put over the iron and steel to stop rainwater from rusting the material. When the rain hit the Sodium Bentonite sheets, the sheets would form themselves around the iron or steel and "wrap" it to prevent the rusting. The sheets would soak up the water, thus stopping the water penetration. In the 1970's, knowing the sheets were used in this way, a basement waterproofing company sought to powderize the Sodium Bentonite and inject it around the perimeter of the exterior of the house. The thought process was that the powder would seal the foundation wall and footing joint. Several companies jumped on this band wagon and began using the Sodium Bentonite across the country.

This method rarely worked. Water would seep underneath the foundation footing to the floor wall joint by the tubes inserted in the lawn to install the

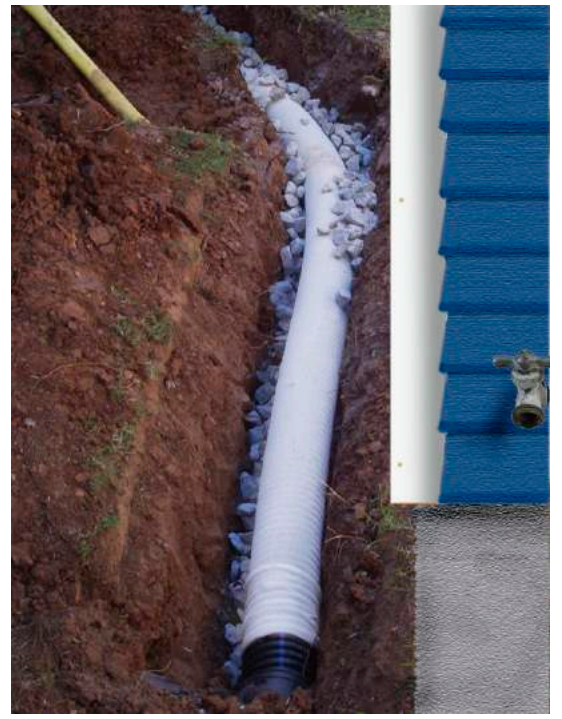
Sodium Bentonite. The method for installation of the powdered Bentonite was to put tubes in the lawn and inject the powder to intersect with the footing.

A series of lawsuits ensued and most of the companies that used the injected Sodium Bentonite methods were put out of business due to the numerous complaints.

It was common for these companies to state (in fine print) on the proposals that they would return – at an additional cost – and install a drainage system to stop the flooding, if the Sodium Bentonite did not work. However, be aware that there are still companies today that claim Sodium Bentonite works. This approach sounds attractive to the homeowner because there is no disruption inside the home, but usually Sodium Bentonite is not a cure for a flooded basement. Most reliable basement waterproofing companies do not offer Sodium Bentonite as a solution. The Sodium Bentonite sheets – placed on the foundation over the footing – may be suitable as a damp proofing method. But remember – water can still infiltrate underneath the footing and the virgin soil – so the flooding problem may continue. Be aware that in post-construction basement waterproofing, digging out around the perimeter and installing sheets of Sodium Bentonite is an ineffective and inadequate waterproofing solution.

3. Extending downspouts – Extending downspouts can help in directing rain water away from the house and re-directing it to virgin soil. This way, the rain water is not as prone to saturating the backfill area. This is helpful, but is not a primary or realistic means of stopping basement flooding. Downspouts should extend at least 10' to 15' away from the home. If you have a chronic problem, however, this will not solve the flooding.

4. Exterior French Drains – Exterior French drains are a realistic solution during construction. In fact, most new homes today do have an exterior french drain system. However, in a post-construction setting – when a water problem is diagnosed in a completed home – exterior French drains are not a realistic solution. With landscaping, decks and the necessity for heavy equipment to transverse the grounds, exterior French drains should be avoided once the house is built. Another negative factor is the fact that these systems can rarely be warranteed by legitimate companies.



Exterior French drains also tend to clog. During my tenure in the basement waterproofing industry, I have performed repairs at many homes with exterior french drains in place. The systems failed because of clogging with dirt. Although these systems can be wrapped with felt and back-filled with stone, dirt will still get into the stone and around the felt and can completely clog the system.

Another area of concern with exterior french drains is where the water should be drained. This can be a significant problem if the house is anywhere from 5' to 8' below grade and is running a pipe around the perimeter. This pipe needs to be pitched and dropped off to a point where the water may drain away. Some methods currently being used to accompliosh this are drywells, draining to a storm drain system or draining to an exterior or interior sump pump. These methods have the potential to be extremely unreliable.

The main reason that we do not recommend exterior french drains as a primary means of basement waterproofing is that they will clog. Catch basins and pits can fill up with water – supersaturating and causing backflow around the pipes – resulting in a bigger mess than you had before.

5. Damp Proofing - It is important to understand the difference between damp proofing and waterproofing. Damp proofing is a process that is used during new construction and consists of applying a coating on the exterior of the foundation wall. It is a common belief among homeowners that there is a damp proofing method on the exterior that will also provide waterproofing. The damp proofing method is a spray-on application on the exterior foundation wall to stop water from coming in through the tie-rod holes or through small wall cracks. This method will not permanently solve a floor/wall joint problem and should not be used in a post-construction basement waterproofing project.

It would be cost prohibitive to dig out around the foundation and at the very best, would be unreliable. Always remember, the water comes in from under and over the footing between the foundation wall and up through the floor.

6. Landscaping and Regrading – Landscaping and re-grading is a trial and error method at best. It cannot be expected to solve a flooding wet basement.

It can help to stop water from coming in through the windows, bulkheads and sill plates. However, if there is a floor/wall joint problem or floor/wall crack problem, landscaping and re-grading will not serve as a primary means of waterproofing. This method is experimental or speculative, at best.

7. Paints and Sealants – It is a common misconception that there is some sort of paint or sealant that will stop water from coming into a basement. When there is a major flooding situation, paints or sealants will not work in the basement. There is no paint or sealant product currently on the market that will permanently stop the water from coming in.

Realistic Interior Methods of Basement Waterproofing

1. Hydraulic Cement – Hydraulic cement has been installed where the wall meets the floor by many people for many years. Although this may work for a short period of time, it is surely not a permanent solution for basement waterproofing. Hydraulic cement is a special fast-setting cement that adheres to existing concrete. It will create a bond between the old concrete and the new hydraulic cement. Concrete shrinks and expands with the changing of the seasons and the difference in temperatures from the outside to the inside. The bond between the old and the new cement will (over a period of time) create a new crack which will

eventually let the water in. That is why this method (although a realistic and viable approach) is not a permanent solution and will ultimately fail. Therefore, we do not recommend hydraulic cement as a permanent means of stopping water in a basement.

2. Epoxy and Polyurethane Injections – These types of injections are very reliable on wall cracks in poured foundation walls only. This method, however, does not work well on floor/wall joint seepage or in floor cracks. Although there are specialized methods of grouting and filling large voids underneath the basement floor as a means of waterproofing, I strongly suggest avoiding epoxy and polyurethane injections unless you are working on a poured foundation wall crack.

3. Interior French Drains (pipe and stone) – These types of systems have been used for years and do work - but have drawbacks. Although this is one of the more reliable types of systems currently available to homeowners, it can cause subsequent problems and has some flaws. French drains (pipe and stone) are installed at such a depth that they tend to "dredge" for water that is not necessary to be pumped out. Also, these types of systems can pull dirt from underneath the foundation footing, creating a void. This void brings the potential for walls dropping or settling which creates a significant trauma for the home and the homeowner.

These systems – due to the depth – make the pump remain very active and work very hard. The pump is, in essence, pumping out water that is not necessary to be pumped out. It would be more effective to simply address the water that is threatening the top of the floor. The water that is underneath the basement floor will always be present.

Although the interior french drain is the best method for waterproofing as discussed in this Chapter, there is a better technology which is far superior to the systems we have previously outlined here.

4. Baseboard Systems – The theory on baseboard systems is that when the water comes in where the floor meets the wall, it will be channeled in an above ground system mounted with epoxy to the basement floor. These systems work well, but if there is a crack in the center of the floor or if it is not leaking where the floor meets the wall, the system will not be effective. It works only on the perimeter.

5. Shallow Depth Interior Systems - A few specialty companies have specialized sub-floor channels. These channels are the most reliable and least prone to failure of any other basement waterproofing method.

Chapter 4:

Sump Pumps

After all of this analysis of many of the available possible basement waterproofing systems, it has been determined that the shallow depth interior sub-floor system is the most reliable and effective in a post-construction basement waterproofing situation.

The second most reliable system is the interior pipe and stone system. This system, however, does have inherent problems due to the fact that it can under-excavate the foundation wall by sucking dirt into the system creating a potential clog. These types of systems also pump out more water than is necessary.

In determining the top two ways to resolve a basement waterproofing problem, the question is asked – "What do we do after we gather the water that is threatening the floor? Where do we put it?"

There are many options for drainage of the water that threatens the floor.

1. ***A gravity fed drain to the exterior*** - A problem with the gravity fed drain to the exterior is that it involves digging underneath the footing and continuing at a greater depth to pitch the pipe to an area where the pipe will meet air. This scenario involves a house being on a hill and is not a desirable option.

2. ***Draining to a drywell on the exterior*** – the problem with this method is possible saturation causing a back-up. This back-up could cause more problems on the interior of the home than you had before you tried to solve the problem.

3. ***Draining to a sewer drain underneath the floor*** – in most states, this is not

a legal option and extreme caution should be used. Back-up sewerage into the sub-floor area is a possibility which makes this a very unrealistic and undesirable option.

4. Sump pumps – the most realistic and successful method for draining the water from the basement area is to utilize a sump pump. There are many varieties of sump pumps. The best sump pump is one with a sealed lid that pumps to the

exterior. The exit point is through the band board (where the first floor joists are situated) to the outside – straight down to a Freeze Stop and then to a 4" pipe and out onto the lawn or to an area where the water can be pumped without causing further disruption to the landscape.

There are pumps available that do not look like sump pumps. Above are pictures of sump pumps that are currently available on the market.

What is a Sump Pump?

The perception of a sump pump is a visualization of an open pit with dead rodents and bugs floating around. The sump pumps of today are much different than the pumps of yesteryear.

The best sump pump on the market is the Water Grabber Bulldog made by Basement Technologies. This sump pump has a radon-sealed lid with hidden pipes to avoid the old look of the sump pump. The Water Grabber has a drain in the front of it (in case of plumbing pipe breakage or hot water heater failure) and this drain is radon-sealed as well.

The Components of a Sump Pump

Liner

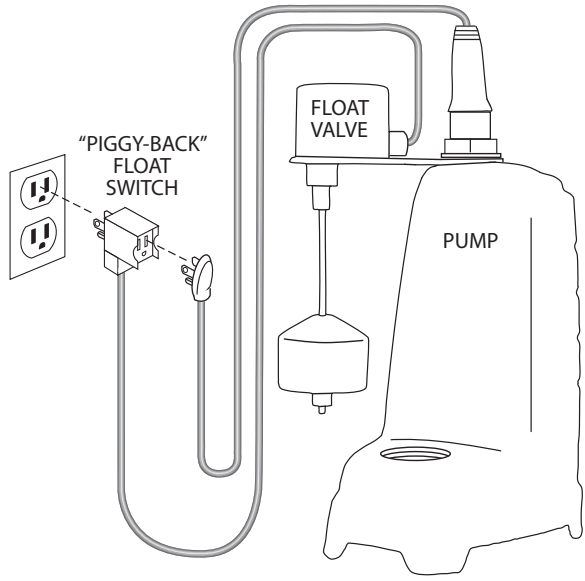
The liner is the housing of the sub-floor pumping unit. The liner should have perforations from top to bottom and have solid construction at the bottom. There should be a raised platform on the bottom of the liner to allow the pump to stand off the bottom of the liner itself. There should be an option for redundancy in each sump pump. (i.e. - You should be able to put more than one sump pump into the liner when necessary.) The optimum situation is to have (2) primary sump pumps (one over the top of the other) with a battery back-up system.

Horse-Power

Sump pumps come in many varieties and are diversified by horse-power. Most basement waterproofing sump pumps are available in 1/3HP, 1/2HP and 3/4HP models. These should be adaptable to 1½" PVC pipe for ease of installation. The 1½" PVC pipe is more than sufficient to handle large amounts of water in a de-watering situation. The best horse power pump for use in most basement applications is the 1/2HP.

We always recommend the 1/2HP over the 1/3HP. Most 1/2HP will pump approximately 3600 gallons per hour dependent on the "lift" to the discharge exit point.

Piggy-Back Switch



It is important to have a little more capacity when installing the primary pump. We always suggest having a piggy-back float switch where the primary motor of the pump can be plugged directly into the wall and the float switch can be by-passed. The most common way for a pump to fail involves the float switch. The piggy-back float switch cord is a great alternative to avoid a problem if the float does not work properly. By merely unplugging the back cord from the front cord and then plugging the primary cord directly into the wall (thus, bypassing the float switch) you will avoid having any disruption to the pump. Be sure that you have a piggy-back float switch whenever you buy a sump pump for a basement waterproofing system.

The pumping units installed are mechanical devices and need to be inspected and tested at least once a year. It is important that this process be scheduled

as the pumps are mechanical devices and any mechanical device can have a problem or fail at some point.

Battery Back-Ups

It is important to have a battery back-up in the event of an emergency situation. Power outages occur during storms, particularly when it is raining. If it is raining, your basement can get wet. If the power to the sump pump goes out, you will suffer a wet basement. Battery Back-Ups are designed to help get you safely through the storm for short periods of time. The best form of a back-up system is a direct generator for the sump pump or a whole house generator that automatically comes on if there is a power outage.

If a direct generator is not available, a battery back-up will be a good alternative to get you through the storm.

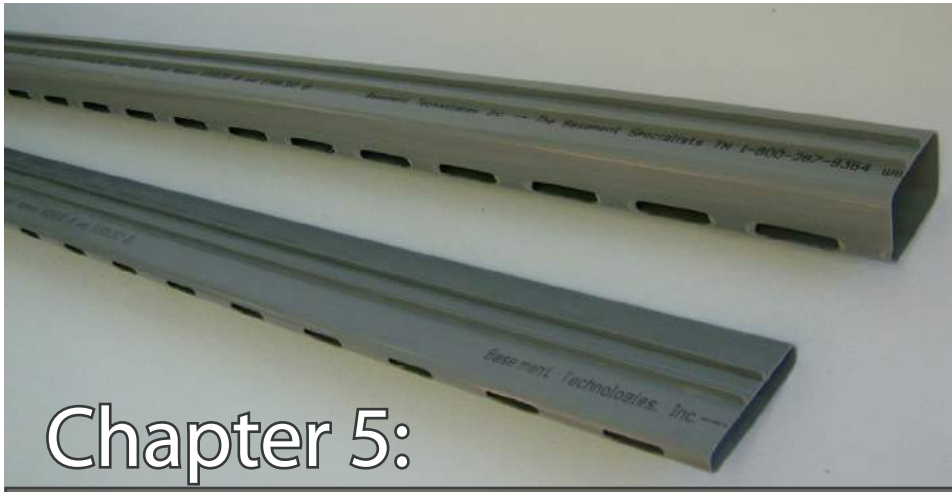
Sump Pump Discharges

Unfortunately, there is no easy answer to where to pump the water from your basement. The most common and the most reliable method is to come out from the side of the house with an 1 ½" discharge pipe – go down directly to a Freeze Stop – switch to a 4" pipe that is placed 10" underneath the surface – going out 15' to 20' from the house into a Bubbler Pot.

Holes should be dug approximately 12" deep with a bed of stone underneath the Bubbler Pot. A hole is drilled in the bottom of the Bubbler Pot approximately ¾" to 1¼" in diameter – so the water will not spray up onto the lawn as it

flows into the Bubbler Pot. The water will saturate into the stone underneath. As this water builds up, it can then flow onto the lawn. Obviously, the amount of water that is pumped onto the lawn is contingent upon the amount of water pumped from the home. There is no way to measure or even guesstimate how much water will flow from the basement out onto the lawn. Therefore, it is always better to be safe than sorry. The Bubble Pot should always be placed in a location where water puddles will not affect the landscape or disrupt any other activity in the yard.

Another excellent option is the Lawn Magnum®– a patented system for water disbursement. The Lawn Magnum will not create sink holes in the yard as drywells will. It will accept the water at a 4 foot depth and push the water laterally into the aquifer. If the soil is hard and non-porous (clay) these systems should not be installed.



Chapter 5:

The Solution.

The best solution for a basement water problem is a shallow depth interior sub-floor system based on a sump pump configuration with a battery back-up draining to the yard. A possible generator in the home as an alternate back-up and companion to the sub floor system is optimum.

In the post-construction setting, this is the most reliable proven method to resolve a basement waterproofing problem.

Managing water in a basement is a tricky project and you want to trust your home to a professional who will be available to stand behind your project. Most systems installed will work properly from day one. Sometimes it is necessary to "fine tune" systems to be sure all areas are addressed. Always do the entire perimeter of the basement to ensure that all infiltration will be managed.

Basement Technologies has fully trained and licensed dealers in nearly every state in the U.S., Canada and parts of Europe.

About the Author

James Pratt

The Early Years

James Pratt was born in New York City at Saint Clare's Hospital to Nancy Hildegard Brown Pratt and Dr. Gerald Hillary Pratt. Dr. Gerald Hillary Pratt was a prominent cardiovascular surgeon who practiced at St. Vincent's Hospital, St. Clare's Hospital, Poly Clinic, Doctor's Hospital and other medical facilities in the Manhattan area. He had a busy practice with two offices in Manhattan and yet still found the time to write five books. Dr. Gerald Hillary Pratt was a very well-known surgeon and was the team surgeon for the New York Giants Football Team and the New York Yankees Baseball Team.

College and Beyond

James graduated from Southern Guilford high school and was deciding to enter the Merchant Marine Academy. With the help of his father, James organized a trip on the Austral Pilot – a ship in the Farrell Lines - to South Africa. Over 6 weeks during the summer, James spent three weeks on the deck and three weeks in the engine room to decide if he wanted to enter the Merchant Marine Academy for the "Deck" program or the "Engineer" Program. James moved on to Monmouth College in New Jersey and then the University of Colorado in Boulder and finally onto Florida Institute of Technology in Jensen Beach, Florida. Here, James earned a Bachelor of Science Degree for Applied Technology with a 2- year Associates Degree in Offshore Marine Technology and a 2-year Associates Degree in Petroleum Technology.

After graduating from college, he was unable to find legitimate work in his field in offshore petroleum related jobs. He continued to work in construction with the goal of becoming a carpenter in a short period of time. In order to do this, he worked seven days a week – year-round – often times, for free, on Saturdays and Sundays to learn the trade. The contractors he worked for were understandably thrilled to have free labor on Saturdays and Sundays and were quick to accommodate him in reaching his goal.

He explained to them that he needed to become a carpenter with the equivalent of 15 years experience in a short period of time. He worked as a carpenter

during college, but did not gain the necessary expertise to command the salary necessary to support himself. After a short period of time, he started subcontracting from major contractors in new construction developments. He specialized in framing, sheathing, complicated roof rafter work and finish carpentry and worked up and down the Jersey coast and into Delaware for many years.

In the mid 1980's, he moved to Needham, Massachusetts where he immediately started his own remodeling company. With a strong work ethic instilled in him before college, he quickly became successful in remodeling. After a short while, James branched off into basement waterproofing and then purchased a franchise operation for fire and water damage restoration and reconstruction.

Shortly after that, he bought a dealership for steel buildings. In the 1990's, James had four companies in operation: a residential remodeling company, a basement waterproofing company, a franchise for fire and water damage restoration and a steel building installation company (that coupled with commercial construction specializing in commercial framing, blueboard and finish).In the mid 1990's, the realization that the endless hours and effort in the reconstruction and remodeling arena was an uphill battle (although successful) resulted in a slow-down in the residential and commercial construction and then the closing of the fire and water damage restoration franchise. He started focusing on the basement waterproofing only.

James saw a need to improve on the waterproofing designs or systems and started developing his own products for the basement waterproofing industry. He saw a niche market where he had a special proficiency and started developing and patenting his own products. After much research, analysis and scrutiny of the industry, James now moved toward a goal of forming an international chain of basement waterproofing contractors.

Basement Technologies started to grow exponentially when he focused on basement waterproofing exclusively - without the distractions of three other companies. He set up an international network of dealers, using the franchise model that he had obtained from the previous fire and water damage franchise. James wrote manuals on the daily practices, procedures and intricacies of running a basement waterproofing business which included Sales, Marketing, Administrative and Production. He set up a template based

on his local company and started to sell dealerships throughout the country, into Canada and currently has one in the Ukraine as well.

Currently, James has (9) patents, (8) patents pending, (23) trademarks and (6) trademarks pending.

In 2005, 2006, 2007 and 2008, Basement Technologies and Boston Basement Technologies had upwards of 100 employees. This statistic coupled with almost 100 international dealers for Basement Technologies with an average of 10-15 employees per company makes the impact of the operation quite significant.

A new company - Basement Transformation Technologies - that specializes in the selling of basement finishing products was introduced in 2009 after three years of intensive research. James has a patent-pending on the finishing system which is unique in the industry and is designed to compete against major players in the basement finishing market. The same dealership network plan that made Basement Technologies successful will be applied to this latest enterprise and the number of new Dealers is expected to grow very quickly.

James Pratt Biography: Family Life

James Pratt, Jr. (James Pratt's first-born son) was born in Bricktown, New Jersey in 1988. James is currently at Kean University majoring in Physical Education and is the starting center for the Kean University Football Team. James, Jr. earned a football scholarship to Bryant University in 2008 and stayed for one season before transferring to Kean. He can bench-press nearly 400 pounds and is dedicated to physical fitness while working as a Personal Trainer at a local gym. He is working towards his Bachelor's Degree and aspires to be a professional football coach at the high school or college level.

James's younger son, Barrett James Pratt was born in 2001. Currently, Barrett lives with his mother in Needham and father in Canton and is attending Dexter Academy in Brookline, Massachusetts. Barrett is 8 years old and spends a great deal of time with his much-loved extra-curricular activities such as ice hockey, Pop Warner tackle football, flag football, lacrosse, Little League baseball, karate (blue belt) and is a dedicated sports aficionado. Barrett is also an excellent student and plays the piano.

When James is not working, you will usually find him with his son Barrett - attending a variety of sports activities as often as possible. Despite his hectic work schedule, James prioritizes spending quality time with his children.

If you ask James what it took to climb to the top of his industry, he will tell you – hard work, creativity, dedication and the tenacity to never quit.

BASEMENT TECHNOLOGIES®

Basement Technologies designs, manufactures, supplies and installs all their own patented products. Our network of dealers (similar to a franchise set-up) cover the U.S. and Canada. All dealers are "licensed" by Basement Technologies corporate office as a certified "licensed" dealer adhering to our rigid standards for quality installations, products and customer service. Our products can be "Custom Tailored" to each sub-floor situation.

No one tries harder than Basement Technologies to provide superlative Basement Waterproofing and to continually upgrade the industry's standards.

Basement Technologies, along with our local flagship company, Boston Basement Technologies, trains our new and existing dealers at our international training center in Massachusetts. Our international basement and crawl space training center maintains a complete inventory of products and supplies. It is the home for the training of our new dealers and employees in state-of-the-art basement waterproofing techniques. Customers are presented our "done once - done right" solutions from only fully trained and experienced technical estimators.

Call 1 • 800 • BUSY DOG (287-9364) or email us at info@basementtechnologies.com. Please visit our website at www.basementtechnologies.com.