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A Publication For Our Clients & Friends

Winter 2002-03

THANK YOU

We want to give thanks to all of you for our 37th year in practice. We appreciate your business and support!

We here at DBM are especially grateful for one miracle this past summer, as long time principal Gene Bolgrean, P.E. and his wife Charm survived an out-of-state multiple death vehicle accident in August.

Why the Iron Ring?

Most Canadian Engineers wear an iron ring on their little finger as a symbol of recognition of membership in the brother or sisterhood of Engineers. Although the ring does symbolize the pride Engineers have in their profession, it is also worn as a reminder of our humility and our responsibility to society. According to one source, the rings were originally crafted from the steel of a bridge that collapsed near Quebec City, killing 75 people.

DBM Web Site

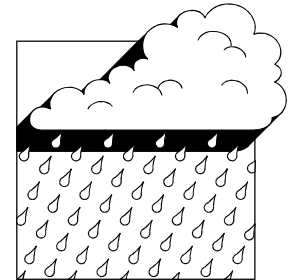
Visit www.dbm-inc.com for a company directory or click "News" for a listing of past articles on construction issues and solutions for facility managers.



How To Dry Out Wet Basements

There is a considerable amount of basement space being under-utilized due to water infiltration problems. When you think of the lost square footage on a national scale, it is probably staggering. For the most part, this needless waste of usable space is preventable with proper wall construction, waterproofing, drain tile and site grading. However, if you do have a wet basement, and have already done all the simple and inexpensive steps like adding long downspout extensions and sloping the grade away from the building, there is still hope.

There are three basic approaches to reducing or eliminating basement water infiltration. Probably the most common "first try" approach is installing an interior, above slab perimeter collector system, such as SquidGee Dry. These are just plastic baseboard sections and corners that are glued to the concrete slab with a special adhesive and usually routed to a sump pit. The big advantage to this method is it is simple and relatively cheap to install, particularly if the space is not finished. Unfortunately, this system only collects infiltrated water on the inside face of the basement wall and that which squeezes up under hydrostatic pressure between the floor slab and the wall. Water under hydrostatic pressure can still squeeze up through interior cracks in the slab, and there is still a risk of mold and mildew, as ground and/or surface water are still present, just contained.



Another principal method of de-watering is the Interior French Drain. This solution has a higher success rate, but is more expensive and disruptive. In this approach, an 18 inch swath of interior slab is jack-hammered and removed all around the basement perimeter. Care has to be taken to leave some strips of existing slab around the perimeter, called contact points, to restrain the bottom of the basement wall and prevent collapse from lateral earth pressure. We recommend consulting a structural engineer for size and spacing of contact points. About one foot of soil is removed and replaced with pea rock and drain tile routed to a sump pump. A new slab is then poured to replace that which was removed. Some disadvantages of this method are the dust, noise and mess created during construction. Also, there is still some risk of mold and mildew in that, depending on conditions, the inside face of the basement wall may remain damp or wet.

Finally, the third and most expensive approach is to re-excavate and clean the exterior side of the basement wall, and then install new waterproofing and drain tile. The wall should be backfilled with a clean, free-draining granular fill and capped with one or two feet of clay sloped away from the structure.

CAD Corner

By Dale Urevig, CAD Operator

AcadXTabs is a small, ObjectARX based add-in for AutoCAD 2000 or later.

AcadXTabs adds a tabbed MDI document control interface to AutoCAD. When installed and there are multiple documents open in the AutoCAD editor, AcadXTabs displays a horizontal row of tabs, one tab for each open document. You can use these tabs to activate documents with a single mouse click. The tabs can be placed above or below the drawing view area of the AutoCAD window.

AcadXTabs is a small (~ 60kb) ARX file. AcadXTabs integrates directly into the AutoCAD user interface, seamlessly and transparently, without relying on other third party tools for docking support. AcadXTabs automatically hides itself when less than two documents are open in AutoCAD. You can switch between open documents by clicking on a document's tab. You can also right click on a tab to access a document's window menu. If you have any questions, feel free to call Dale at (763) 544-8457 ext. 12.

Estimating Structural Steel Beam Sizes

The following span to depth ratios are meant as a quick reference guide for estimating the depth of structural steel beams. Always consult with a structural engineer for final sizes.

- ☐ For light loads, steel beam depth in inches \cong 2/3 of the span in ft. (i.e. for 30' span, bm depth \cong 2/3 x 30' = 20")
- ☐ For heavy loads, steel beam depth in inches \cong span in ft. (i.e. for 30' span, bm depth \cong 30")

Solutions for Facility Managers:

Adding a Mezzanine into an Existing Building

Adding an office or storage mezzanine (or second floor) into part of an existing building can be a great way to increase floor space without expanding the building footprint. It is also a good value because the cost per square foot is normally less than new construction because the roof and walls are already there. What do you do if the lower level of your current building does not have quite enough floor to roof height to add a mezzanine?

One possibility may be to tear out a section of floor slab, excavate down a few feet and then pour a new lower floor slab. Obviously, such issues as footing elevations, existing underground piping and/or utilities and the water table elevation need to be considered. Frequently, new window openings can be cut into the exterior walls and framed with new lintel beams to provide natural light to either story. Precast concrete slabs provide a fast and strong upper floor that has a relatively shallow structural depth. If you have questions or if your building has the potential for a mezzanine addition, call Harry at (763) 544-8457 ext. 16.



"Best of the Best"

By Lloyd W. Darg, P.E., Founding Principal

Previously, I have written about how the business is now so different due to computers, faxes and e-mail. Now I'll say something about drafting. Al Perruzzi started with me part time in 1966, later went full time and is now back part time. Don Christensen started in 1971 and still comes in part time.

Both are very good hand draftsmen. As a matter of fact, Don had a sign on his board that said, "I thought I was wrong once, but I was mistaken". I'm quite sure that was true. Al went on to become a CAD draftsman, and still does some of both for us. Now we have a couple of kids (they seem that way to me anyway) who do our drawings on CAD, and I must say, they are very good, too. I am amazed at what Dale and Scott can do with their computers. We have evolved into a state of the art CAD operation. Don and Al were amongst the best, and now Dale and Scott are amongst the best. Like they say on the P.G.A. Circuit, "These Guys are Good".

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DBM Projects

These are some of our projects that are in design or under construction:

- ◆ Public Works Facilities, Minnetonka, Fridley and Dakota County
- ◆ Mixed Use Retail/Apartment Bldgs; Little Canada, Mpls, Savage, MN
- ◆ Furniture Mega-Store; Becker, MN
- ◆ Golf Clubhouses; TX, WI and MN
- ◆ Historical Renovations; Minneapolis and St. Paul, MN
- ◆ Senior Housing/Apartments; Minneapolis, St. Paul, Minnetonka, Owatonna, Orono, Moorhead and Bloomington