



Don't Get Soaked with Leaks Penetrating Through Your Kitchen Floor

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Water seepage through floor penetrations into basements and lower level spaces cost the foodservice industry millions of dollars. Water penetrates floor slabs in food preparation and sanitation areas several ways: cracks in a floor that may follow a seam or matching crack in the floor; crevices and openings around utility stub-ups and conduits; along the edges of floor drains and troughs at ice machines; kettles and other areas with standing water; and through breaches in the floor construction and waterproofing crated when new utilities or anchor devices are installed.

A common but incorrect assumption is that if a floor slab is on grade (poured on the ground) waterproofing is not important because water seeping through the slab will filter through into the ground. Unfortunately while this may occur, over an extended time this contaminated and acidic water can corrode utilities under the slab. Water penetration through floor slabs on or above grade can be controlled by designing and specifying floors, drainage, and utility locations using the methods below, which have been effective for more than 50 years.

- Route all utilities that do not require gravity from through walls or through chases from ceilings. This includes

electrical, water, gas, steam (supply) services, refrigeration, soda and beer lines, and communications. While it is common to run kitchen utilities under a floor, this is not commonly done in other commercial or industrial facilities. Utility services in almost all food processing, fabrication or production facilities, commercial laundries, etc. are routed from the ceiling. *Just from the standpoint of cleaning, sanitation, and flexibility for future changes, utility services should never be run through the floor.*

- Install a waterproof membrane under the wearing floor on top of the concrete slab. Assure that all drains, troughs, and sleeves penetrating the floor are ordered or fabricated with a flange that interlocks with the water proofing materials.

- When renovating an existing floor, be very careful when cutting and patching floors to install new drains and utilities. Floor leaks are commonly created when the existing waterproofing is cut or damaged and is not properly resealed. In older structures, waterproofing was often metal roofing tin or copper sheets soldered together. A roofing or waterproofing specialty contractor is usually the best qualified to properly reseat the metal before the floor is re-installed.

- Install general-purpose floor drains in all potentially wet areas. Drains should always be placed in front of all prep and pot sinks, dishwashers, ice machines, and any area or equipment that can leak or splash water. When installed in new construction or a major renovation, the additional cost of the drains is very small when compared to the damage leaking water can create.

- Specify a gentle pitch to all floor drains and monitor the installation of the floor to assure there are no pockets or valleys without drains where standing water can collect. A major advantage of using thick-set quarry tile floors is the ability to easily create a smooth slope to floor drains and troughs. Laser leveling guides can assist floor installers to achieve exact elevations difficult to obtain with hand levels.

- Install floor plans with trough drains under all equipment where you expect standing water. Areas with standing water concerns include floors under steam kettles, braising pans, pressure steamers, etc.

- If you must install a utility pipe through the floor, always place a protective steel or cast iron pipe called a sleeve through the slab preferably when it is poured.

Sleeves protect the actual utility line, which may be soft copper, aluminum pipe or conduit. A common

Continued on page 48

Leaks, continued

source of leaks is unprotected utility penetrations that become bent or loose when struck by carts, cleaning equipment, or general wear and tear.

Sleeves also allow multiple utilities to be grouped and share a single floor penetration. They protect pipe insulation on items like refrigeration lines. And, allow a pipe, cable, or conduit to be added or replaced without disrupting the floor surrounding that utility.

A properly installed utility sleeve will have a rim and collar to receive and seal the waterproofing which will be installed under the wearing floor.

- Protect sleeves or other floor penetrations in wet areas by surrounding them with a protective masonry curb. A simple wood form can be set over

the sleeves and filled with grout or cement. When the form is removed, the wearing floor can then be covered with coved tile base, troweled epoxy, or vinyl flooring.

- Use special caution when installing equipment that may produce vibration or requires heavy mounting bolts that penetrate into the slab. Vibration can come from large mixers, pumps, garbage grinders, pulpers, and extractors, compressors, etc. Over a period of time the vibration can cause utilities connected to

that equipment to separate from the floor construction. Breaches in floor waterproofing can occur when holes for mounting bolts are drilled into the slab. The proper method of installing large machines subject to vibration is to install a concrete housekeeping pad under the equipment (deep enough

to accommodate the mounting bolts). Housekeeping pads are often isolated from the base slab floor with special rubber gaskets or spacers that reduce vibration and sound transfer.

- Consider adding mini-floor troughs called parameter drains around entire work areas subject to moisture build up. These mini-troughs are common in European kitchens and can be ordered with bright yellow fiberglass grating to provide a safety warning of the potential of a slip hazard. A source for drain systems is ACO (800-543-4764). A highly publicized kitchen using this type of drainage trough is Lespinasse, at the St. Regis hotel in New York.

- Insist your designers and contractors carefully inspect every square foot of your new floor area and install latex grout or non-shrinking silicon sealants in any crack or crevice that could become a potential leak. This should be done immediately after the floor and utility installation is completed and before it is washed or placed in service. Once a floor has been subjected to grease and detergents, it is difficult for grout and sealants to properly adhere to ceramic or masonry finishes.

Solving problems with water penetration and damage to spaces under foodservice areas should never be an after thought. Successful waterproofing demands developing and using the right construction details before the floor is poured and utilities are installed. The additional initial cost of a properly waterproofed floor is quite small when compared to the long-term cost of water damage, patching, and other remedial work to correct leaks. □

About The Author

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