

SYSTEM APPLICATION

AquaTray® System

Original leak source:

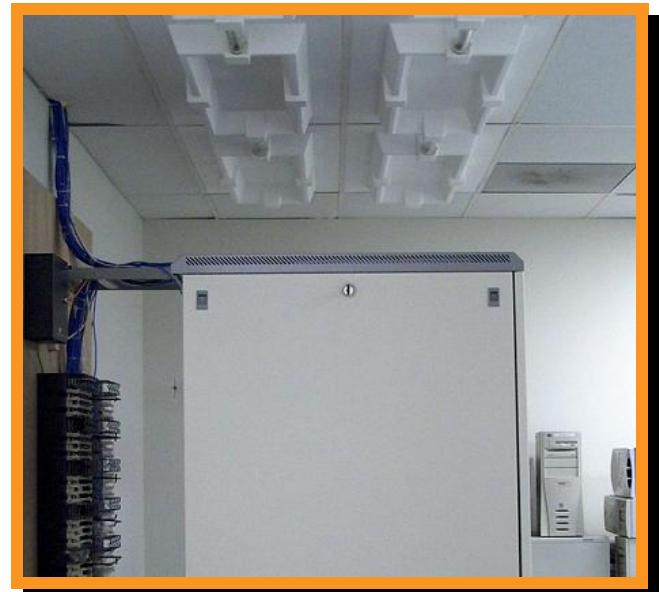
- If the system is being installed to guard against the re-occurrence of a previous leak the original leak source should be identified and corrected.

Layout of trays with protected zone or equipment:

- Layout the trays in coordination with the zone or equipment that is to be protected. "Drainage" trays are to be used for full 2x4 panels. "Raised Flat Panels" are to be used if there are ceiling elements (sprinklers, etc.) or if smaller cut tiles are needed. If the zone of protection does not line up with the equipment needing protection then modifications to the grid layout and/or the layout of protected equipment will need to be considered. Also any ceiling elements (Sprinkler heads, air grilles, etc) within the footprint of coverage should be relocated out of the protected zone.

Weight bearing capacity:

- Each 2'x4' "Drainage" tray weighs 7 pounds and contains 12 quarts of water when at full flow conditions (32 lbs total). This is less than the weight of a heavy lighting fixture and at the low end of weight capacity for a typical ASTM - C635 Intermediate commercial grid. The supports for the t-grid should be checked. The support configuration should be according to grid manufacturer's recommendations to support the total resulting weight in accordance with ASTM - C636 for Intermediate or Heavy duty commercial grid. Because a catastrophic leak could result in over-flow conditions with resulting added weight additional hanger wire is recommended to support each leak tray independently through support brackets at the (4) corners of each panels. This is recommended to fix the tray to the grid



AquaTray® – 2x4 Ceiling Drainage System

and provide a solid support. The "Raised Flat Panels", where installed, limit the amount of water and therefore do not require separate wire hanger supports. For heavy duty grid with a weight capacity in excess of 12.5 lbs/square foot added supports are not needed however hold down/ retaining brackets are recommended.

Bulkhead fittings

- Determine the location for the bulkhead fittings which drain each tray. Use a drill/arbor and 1-1/16" diameter hole saw to cut the openings then fasten the bulkhead fittings through the drainage holes. Tighten with the gasket on the outside surface of the tray.

Tray -to-Tray tubing and drainage pipe.

- Install the clear plastic tray-to-tray tubing over the outside of the bulkhead fittings and secure leak tight with tube clamps. At the end of a series of trays install standard 3/4" threaded PVC pipe or pipe fittings to the inside threads of the bulkhead fitting. Extend the piping to a suitable drainage location. The pipe size of this extension should be determined based on the area of protection and the length of run to the drain location.

Drainage pipe flow capacity:

- A collection of (6) trays installed in a flat ceiling were flow tested to result in a maximum

flow capacity of 15 gallons per minute before overflowing. Flow occurs even in a level ceiling because the drainage channels that project down from the ceiling by 3-1/2" generate an elevation head when containing a leak. In order to achieve the maximum flow the final drain pipe layout and size should be designed and installed to accommodate this flow. Typically a 2" pipe pitched at 1/4" per foot or a 2-1/2" pipe pitched at 1/8" per foot is suitable for the main drain.

Tray-to-tray leak tightness:

- Each location where the leak trays adjoin each other must be provided with flashing tape - up and over the t-grid. Install the provided "t-grid boot" and additional flashing tape at grid intersection locations. Hanger wires are installed by poking them through the flashed tray support brackets and adjacent t-grid. Provide addition pieces of flashing tape to seal the poke-throughs at hanger wire locations.

Leak detection system:

- It is strongly recommended that a leak detection system be installed, tested, maintained and monitored. The AquaTray® system is intended as a back-up and safeguard only. If a leak occurs a suitable detection system will make the leak immediately known to facility management. Immediate action should then be taken to address the problem. The AquaTray® system will accommodate the installation of standard leak detection wire within the trays or point detectors at the final drainage points. In addition the clear tubing from tray-to-tray will provide a visual indication of any leak occurrence.

Future leak action:

- If an overhead leak occurs the source should be identified and corrected. The AquaTray® system should be thoroughly dried-out, cleaned and inspected then returned to original condition. This may require that part of the ceiling, including a portion of the AquaTray® trays or panels will need to be temporarily removed then re-installed.

Maintenance:

- The system requires minimal maintenance for proper stand-by operation. However, all components above and below the ceiling should be inspected periodically. This includes; trays, panels, wire hangers, flashing tape, fittings, hoses and clamps (listed by way of example not by way of exception). In addition wire hangers, hose clamps and bulkhead fitting nuts should be physically checked for tightness at the time of inspection. Also, the top surface of the trays or panels should be regularly inspected for ceiling debris and cleaned as needed.

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Canadian Patent No. 2,476,898

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