



JAY R. SMITH MFG. CO.®

# case study

## Siphonic Roof Drains as a Value Engineering Solution Location: Carousel Center Mall, Syracuse, NY



Carousel Center Mall addition – Syracuse, New York - Jay R Smith Mfg. Co.® Siphonic Roof Drain, figure #1005

Burns Brothers Mechanical, a MCAA Contractor, in Syracuse, New York has knowledge of the efficiency and savings that siphonic roof drains can provide on large commercial projects, especially jobs with large flat roofs. As these types of installations work well with an engineered siphonic roof drain system.

The building owner also knew about siphonic roof drains and wanted Burns Brothers to use them on

the Carousel Center Mall project based on the value engineering benefits of the system\*. The decision was made by the owner and Burns Brothers to use Jay R. Smith Mfg. Co.®'s siphonic roof drains and to install a siphonic roof drain system on the Carousel Center Mall shopping addition because of these benefits. The shopping mall addition is to be built in three phases. The project scope is in excess of 1.3 million square feet.

---

(\*Smaller Piping = Cost Savings: In a siphonic system, the pipe diameters on any installation can be cut in half. In other words, if traditional pipe sizing for horizontal pipe requires an 8 inch pipe, a siphonic roof drainage system can drain the same quantity of water with a 4 or 5 inch pipe. This translates to cost savings. There have been many cost saving numbers posed but a conservative estimate is around a 40 percent savings overall compared to a traditional system.)

The Carousel Center shopping addition is the first siphonic roof drainage system project for Burns Brothers Mechanical. To aid them with the design and product education, the Jay R. Smith Mfg. Co. representative in upstate New York, Kolstad Associates, worked closely with this MCAA contractor during the design process. Mike Kolstad of Kolstad Associates knew that on a job of this size the siphonic roof drain system design had to be done correctly so that the installation went smoothly. To ensure the proper design of the system, the SiphoniTec® Siphonic Roof Drain Design software (by Rainwater Management Solutions and distributed by Smith) was used. Using the siphonic software provided many benefits in designing the roof drainage system for the mall addition. It ensured that all of the siphonic calculations were correct and that the installed system would work as engineered. At the conclusion of the design, Smith figure number 1005, siphonic roof drains were specified and used with the engineered siphonic system.

The siphonic roof drainage system is an excellent way of transporting rainwater from the roof to a single point of discharge from the building\*. The full-bore flow of the siphonic system also reduced pipe diameter on the project and allowed the piping to be run horizontally. The horizontal piping allowed for additional open space in the mall's design and did not interfere with the mechanical systems.

### **Benefits of Using a Siphonic Roof Drainage System on the Carousel Center Mall**

- The smaller horizontal pipe diameters reducing material costs – 2", 3", and 4" pipe vs. conventional 6" and 8" pipe
- Labor savings due to horizontal piping – Less manpower to install as the pipe is hung without pitch.
- Fewer main rain leader conductors instead of multiple rain leader conductors
- Less sleeving and coring – One main riser as opposed to four risers
- Below slab piping – Separate main conductors as opposed to several connection points
- Maximum use of space without intrusion of piping – Avoid elevation conflicts with HVAC and lighting systems

Dan Grove, a project manager for Burns Brothers Mechanical has been impressed with the installed siphonic roof drain system and says "any time you can use smaller diameter pipe and less of it you really open up the ceiling, which creates more room for mechanical systems and makes the architect happy." He also understands the importance of saving money for the building owner and states "we quoted the job using a traditional system versus a siphonic system and the savings that the siphonic system provided really opened the eyes of the owner."

The Carousel Center Mall is a massive project. It is still in the construction phase. However, most of the siphonic roof drain system has been installed and both the MCAA contractor and the Smith representative are pleased with the results. This project is a great example of how siphonic roof drainage can save time and money in a value engineering application.

For more information about siphonic roof drains and to download the free SiphoniTec® Siphonic Roof Drain Design software, please go to [www.jrsmith.com](http://www.jrsmith.com).

---

*(Pipe Consolidation: The ability to run drainage pipe horizontally overhead gives the designer the opportunity to combine several drain systems into one manifold and one stack. So it is possible for a building's roof drain system to use one eight inch stack (just for example) instead of three eight inch stacks.*