

Project Case Study

Scott Springfield Mfg. Inc.

CS0604

Calgary Olympic Oval



The Calgary Olympic Oval, the first covered speed skating oval in North America built for the 1988 Calgary Winter Olympic Games is now used for international competitions and as a training center for elite athletes from across Canada and around the world. Maintaining an ice surface from -2 to -7 degrees Celsius depends on the needs of the activity and creating an ice surface where world records are consistently broken requires finite control of humidity, air temperature, and air circulation. In order to ensure that the Olympic Oval continues to carry the title of the "fastest" ice in the world, the air distribution system was re-evaluated by Earth Tech Engineering.

Design Considerations

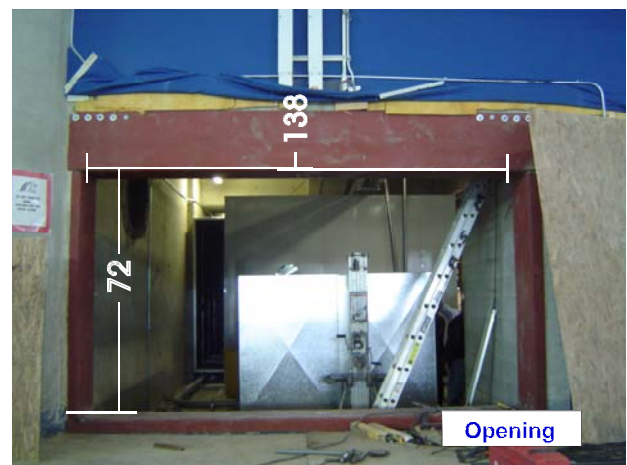
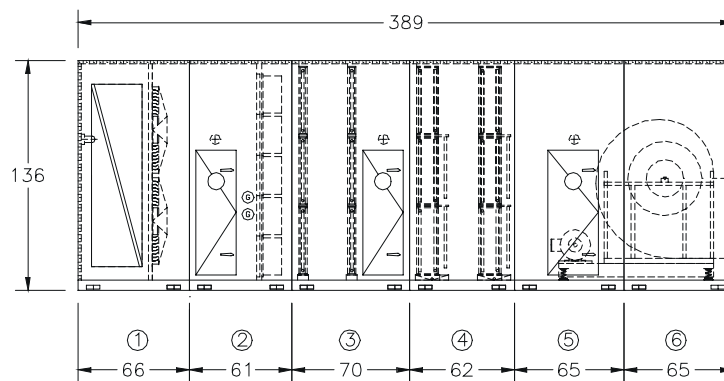
Typically controlled to one inch thick, optimum speed skating ice requires the upper layer of the ice to be "soft" so that the skate blade cuts into the ice. Cold, brittle ice causes the ice to break, preventing the optimum energy of the skater from being transferred to forward motion. In order to maintain the best surface, a uniform surface temperature needs to be controlled.

The consultant designed a new air distribution system whereby two existing 30,000 cfm units were to be replaced with two 60,000 cfm units. Since there was insufficient space for additional units and with the doubling of air volume, the only option was to replace the existing air handlers. Since this was a retrofit

project and the mechanical footprint was defined, the consulting engineer felt that the only way to retrofit new equipment of this size into the existing building space was to treat the project as a built up system.

The local representative, Olympic International Ltd, working closely with the consulting engineer, believed that a more cost and time effective option was custom air handling equipment. Providing a custom preliminary drawing using HQDesignPro, the concept of providing a unit with multiple splits was validated and allowed the project bid to include custom air handlers.

Given the challenging design requirements and short delivery window, Scott Springfield became the only custom air handler manufacturer to take up the challenge and bid on this project. The successful contractor was able to show a substantial savings against a built up system and also created a win situation for himself by transferring delivery and product quality liability burden to the manufacturer.



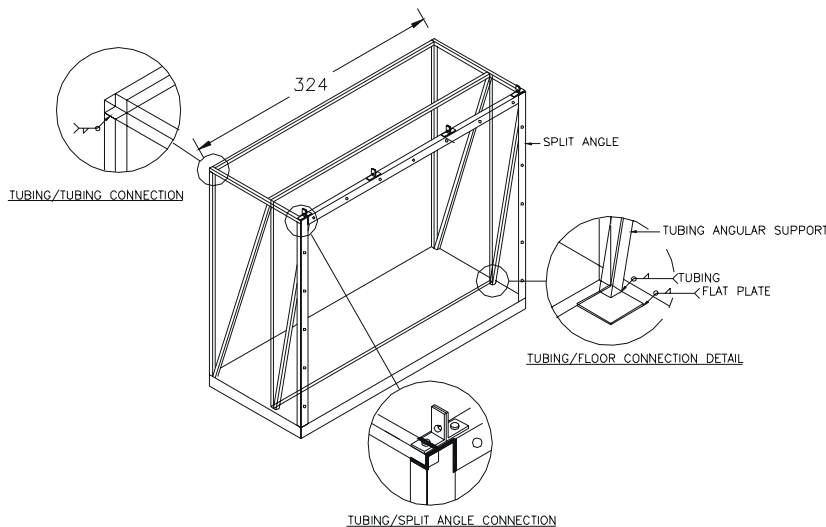
Engineering Considerations

The unit design incorporated air blenders, “staggered in casing” heating and cooling coils, high efficiency filters and a 44 Inch centrifugal fan driven by a 75 horsepower motor. Due to the dimensional critical nature of this project, Scott Springfield engineering



went to the job site to validate the critical opening dimensions and review the rigging process for the units. The final dimensional footprint of the unit of 389” long x 162” wide and 136” high, was designed with splits to accommodate rigging through a 136” wide x 72” high opening.

Since the unit geometry and opening had strict parameters, a number of structural issues presented themselves during the design of the units. The air handler was designed to incorporate six (6) sections with a maximum section length (including screw heads) of 71”.



The units also had to be rotated flat, moved through the opening, rotated 90° in the horizontal plane while in the mechanical room, and then rotated upright. With the heaviest section weighing 7500 lbs, consideration was given to the loading capabilities of

the framework while also ensuring that the equipment was secured within the casing. A fully welded tubular frame was designed to take into account compression and tensile forces and special rigging points were designed to ensure stability and frame strength during the rotation process.

Since the equipment was within the designed tolerance, each unit entered the mechanical room with space to spare and was installed by the contractor within an 8 hour time frame. With the units being delivered within seven weeks and the quicker than anticipated install time, the contractor was in a good position to meet his project completion ahead of schedule.

Scott Springfield Mfg Inc. manufactures equipment for the custom air handler market and has the capability to effectively serve the market place for any of your air handler requirements. Scott Springfield engineering also provides site measurement services on specific project applications. If you wish to learn more about this project or any project for the industrial or institutional markets, contact the Sales and Marketing Group at Scott Springfield Mfg Inc.

Other products manufactured by Scott Springfield Mfg Inc. include custom gas fired heating systems, heat recovery units, custom packaged air conditioning systems and a wide variety of control systems specific to your application. For more information, contact the Sales and Marketing Department at Scott Springfield Mfg. Inc.

