

# THE HARTWALL ARENA

Europe's most up to date multi-purpose sports and entertainment center was built at breakneck speed.

by Tommy Haru



PHOTO 1

The Hartwall Arena, a top entertainment venue, was recently opened in the Finnish capital of Helsinki (photo 1). The new stadium features a variety of high attraction events ranging from music to sports. International stars like Luciano Pavarotti, Jean-Michel Jarre, the magician David Copperfield and many others have already performed at the Hartwall and others, including Eric Clapton and a spectacular version of the opera Carmen are scheduled for the near future. The Arena was the venue of the Ice Hockey World Championships in 1997 and other sporting events. The multi-purpose hall, with its gross area of 34,000 sq m (371,324 sq ft), and volume of 315,000 cm<sup>3</sup> (412,020 cubic yards), was built in only 18 months, from the first excavations to the finishing touches. The hall seats an average of 14,000 spectators and its overall project costs amounted to approximately 300 million Finnish marks. Some 40% of the financing came from the sale of private boxes, club seats and parking spaces.

## Assembling the design team

The Hartwall Arena project had two clear main objectives. To build Europe's most up to date multi-purpose hall and complete it in time for the Spring 1997 Ice Hockey World Championship home matches. The project was set in motion by leasing the required site from the State. A Canadian consultant assisted with the preparation of the computer program for the space. When assembling the building design team, sufficient expertise in CAD design (Computer Assisted Design) was a mandatory prerequisite. Without it the design task could not have been completed in time.

Seppo Kilpia and Markku Valjento were selected as architects. From the start of the project, design and construction were carried out simultaneously.

Because the short tendering period failed to provide a satisfactory result, negotiations continued with the two most promising contractor candidates. A ceiling-priced project management contract concluded with the Multipurpose Hall Skanska-Palmberg Consortium stipulated that the designers employed by the Client would be retained for further planning during the contract period. In

the Contract Agreement, the Client was also bound to achieve cost savings with the Contractor according to the principle that increases in ceiling prices would not be accepted unless equivalent savings were found elsewhere, so as not to exceed the Client's overall budget.

## The structure of the Hartwall Arena

The building sits entirely on excavated rock and rock in its natural state. The rock has been left visible in various places inside the hall. The floor plan is an ellipse 103 m (338 ft.) long, 133 m wide (436 ft.)

PHOTO 2







PHOTO 3

and 32 m (105 ft) high. The gross floor area is 33,900 sq m (364,866 sq ft) on six floors. The hall's frame is divided by expansion joints into four segments and the floor levels are precast concrete elements.

**Mapei solutions for intensive construction**

The project followed the so-called system unit procurement procedure, in which suppliers are responsible for both design and execution. The project was realized within approximately 24 months, an exceptionally tight design and construction time schedule. The foundation stone was laid in March 1996 and the job was completed in April 1997. This required an intense effort to complete work on the interior. Covering the interior floors and walls with ceramic tiles had to be done in just four months over a total area of 11,000 sq m (118,393 sq ft).

**Tiling in public areas and private boxes**

The hall walkways, lobbies and other public areas were covered with ceramic tiles. The total area of tile coverings on floors in public premises was 8000 sq m (86,104 sq ft). The tile chosen was a green 30x30 cm (12x12") fully vitrified tile from Grespor, supplied by Laattapiste Oy. (Photos 2 and 3). The installation substrate was prefabricated concrete which was leveled with NIVORAPID, a thixotropic cement based leveling mortar with ultra quick setting and hardening (Photo 4). Using NIVORAPID made it

PHOTO 4



PHOTO 5



PHOTO 6



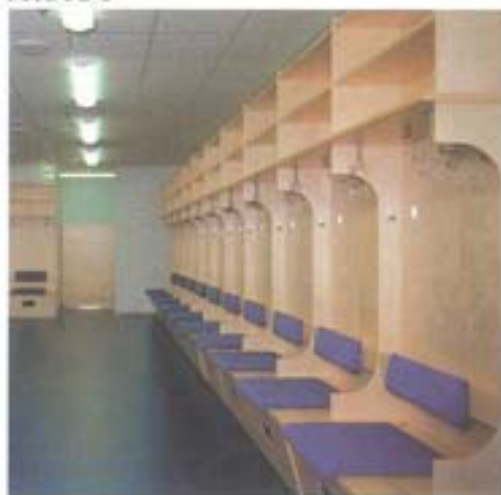
possible to begin the tile installation only 6 hours later. The tiles were laid with ADESILEX P4, the fast setting self back-buttering cement based adhesive for interiors and exteriors (Photo 5). The joints were grouted with KERACOLOR pre-blended cement based mortar. Using Mapei products was the perfect solution for managing the extremely intensive construction schedule.

The expansion joints were sealed with MAPESIL AC, a single-component silicone sealant for ceramic tile floor and wall installations. The easy workability and rapid curing of Mapei products were essential for the success of the tile setting project. Mapei's large variety of adhesives also provided the solution for areas in the Hartwall that would be heavily trafficked right from the early stages of construction. Setting tiles with KERAQUICK, the ultra fast-setting cement based adhesive for interiors and exteriors, enabled these areas to be ready for traffic only two hours after the tiles were laid. KERAFLEX SK (called LAATTAFLEX in Finland) powdered adhesive for installing ceramic tiles in interiors and exteriors was used to set the tiles on walls, staircases and steps (Photo 6).

**Wall coverings in kitchens and rest rooms**

10x20 cm (4x8") glazed wall tiles manufactured by Pavigres of Portugal were installed in the public rest rooms, 426 of them in all. The gypsumboard walls were waterproofed with PRIMER S, waterproofing primer in water dispersion for absorbtive

PHOTO 8



substrates. The tiles were set with KERAFLEX SK, and were grouted with

PHOTO 7







**ULTRACOLOR** special rapid setting and hardening cement based grout. The expansion joints were sealed with **MAPESIL AC**. The same products were used to install tiles in the numerous kitchens located around the Arena (photo 7). The tiled surfaces in the kitchens and rest rooms totaled 2,200 sq m (236,789 sq ft).



#### Bathrooms and locker rooms



A total area of 1700 sq m (18,297 sq ft) in the athletes' bathrooms and locker rooms were waterproofed with **MAPELASTIC** two-part cement based mortar for flexible waterproof protection of concrete after leveling the floors with **NIVORAPID**. **MAPELASTIC** was also used as a waterproofing membrane on the gypsum wall boards. 15x15 cm (6x6") glazed El Barco tiles were used on the walls and 10x10 cm (4x4") fully vitrified stoneware tiles from Cercom were used on the floors. The tiles were grouted with **ULTRACOLOR** special fast setting cement based grout and sealing the expansion joints with **MAPESIL AC** provided the finishing touch (Photo 8).



#### Ready for the audience in only four months



The project was a big success. Time and money were saved by using the best materials on the market for ceramic tile installations. The tile contractors, Laatta Mestarit, had a big job to do, and they rose to the occasion with Mapei products. The floor and wall coverings were completed right on schedule, just in time for the Hockey Championship's opening face-off.



*Tommy Haru is Sales and Marketing Director of Heikki Haru Oy, exclusive Mapei distributors in Finland*



PHOTO 9

The Technical Data Sheets for the products mentioned in this article are contained in Mapei Binder No. 1, "Ceramic Tile Installation Products".



#### TECHNICAL DATA

**Project:** Hartwall Arena Multipurpose Hall, Helsinki, Finland

**Year of execution:** March 1996 to April 1997

**Architects:** Kontio-Kilpiä - Valjento Oy

**Contractors:** Multipurpose Hall Skanska - Palmberg Consortium

**Tile contractors:** Laatta Mestarit, Äänekoski, Finland

**Materials:** (supplied by Laattapiste Oy)  
Grespor fully vitrified ceramic tiles  
Cercom fully vitrified stoneware tiles  
Pavigres glazed single-fired ceramic tiles  
El Barco glazed double-fired ceramic tiles

**Project Coordinators:** Heikki Haru Oy - Mapei distributor for Finland

**Mapei products for the ceramic tile installations:**

NIVORAPID  
ADESILEX P4  
KERAQUICK  
PRIMER S  
KERAFLEX SK\*\*  
ULTRACOLOR  
KERACOLOR  
MAPESIL AC  
MAPELASTIC

\*These materials are part of Mapei's European product lines

\*\*KERAFLEX SK is specially formulated for Scandinavia