



News Release

Heat Reflecting Membrane specified at Beijing Olympics

On the 8th August 2008 the Beijing Olympics will begin. The outside air temperature is expected to be in excess of 35°C with humidity heading towards 90%. No wonder the architectural teams involved have taken a close look at any “High-tech” materials that would help them construct energy efficient buildings and ensure pleasant environments for athletes and spectators alike.

The requirement for efficient buildings was emphasized by **Wang Jingjun**, chief engineer of the General Office of Beijing 2008 Construction Project Command who invited Chinese and international companies to provide technologies that would fully reflect the concept of “Green Olympics,” “High-tech Olympics” and “People’s Olympics.”

One of the main venues currently being constructed is the indoor Shooting Range. Located in the Shijingshan District on the western outskirts of the city, when finished it will be a 48,000 m² indoor facility having a seating capacity for 8,552 - 2101 permanent and 6,451 temporary. The venue will host Olympic events such as rifle, pistol, and running target shooting. After the games it will serve as a multifunctional training facility for all shooting disciplines.

UK based Apollo Energy Research has succeeded in having their Thermo-Foil®ES Heat Reflecting Membrane (HRM) specified in the roof and wall cavities of the Shooting Range. The contract was secured with invaluable help from the Commercial Department of the British Embassy in Beijing.

The function of Apollo’s HRM will be to block radiant heat from the sun penetrating into the interior and to seal the buildings envelope to greatly reduce air leakage and infiltration of the outside humidity.

Solar rays convert to conducted heat when they strike a surface such as a wall or roof. For example, the heat conducting through a roof structure will radiate from its underside down into the interior. A HRM membrane installed under the roof and within the walls works either by reflecting back most of the radiating infrared energy striking its bright non-tarnish surface (reflectance) or by *not radiating heat* (emittance).

Emissivity is a measure of the amount of heat a surface can either absorb or emit.

The Thermo-Foil®ES membrane from Apollo has an emissivity of only 0.046, so 96.7% of the radiant heat will be blocked. Whether stated as reflectance or emittance, the performance is the same. Apollo claims their HRM effectively blocks the passage of infrared energy through a building.

With a low moisture transmission rate and with the edges taped together, the membrane will greatly

reduce air leakage or infiltration and act as a vapour barrier halting moisture migration.

“The membrane has already proved itself”, Colin Hawkes, Apollo’s MD explains, “Accommodation huts for site workers were experiencing high temperatures and excessive humidity; the air conditioning units were working flat out for most of the day and night so we were asked to install Thermo-Foil®ES inside the huts. This reduced the requirement for air conditioning by more than half with the ac unit’s only coming into operation at the warmest parts of the day. I think it was this experience that proved to the Chinese engineers that our HRM worked and should be specified in the Shooting Range and other venues. The engineers involved in the design of the Shooting Range have calculated by installing and sealing the buildings envelope using Thermo-Foil®ES I they expect to reduce the air-conditioning load from between 30 to 50%”.

The following is an extract from a press release issued on behalf of Wu Jingjun, chief engineer of the Beijing 2008 Project Construction Headquarters Office.

Wang Jingjun, chief engineer of the General Office of Beijing 2008 Construction Project Command, invited Chinese and international companies to provide technologies for the construction of Olympic venues, which needs technology of **energy-efficient building**, eco-environment protection, water resources utilization, environment-friendly construction materials, information infrastructure and other specialized areas. Wang made the remarks at a promotional meeting about high-tech projects for the Olympic Games. He said technological demands of Olympic venue construction include air purification, lighting, energy system and noise control. Wang said Olympic venue construction will fully reflect the concept of “Green Olympics,” “High-tech Olympics” and “People’s Olympics.” Therefore, it is a natural requirement that all materials and technologies used should be environment-friendly



Artist impression of Beijing shooting range for the 2008 Olympics

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