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ISH is still a source of hydronic innovation

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What makes the ish show exciting and inspiring even after 20 years of visiting?

It is its flair. It is a truly international show with exhibitors, products and an audience from around the world. It's the innovative products. It's the trend-setting new technologies and ideas, directing the way our industry will move into the future. It's the anticipation of seeing the new, the better, the yet unknown.

Even so, it took years to get European boiler and floor-heating technology off the ground in the United States. You know that sooner or later European heating technology makes its way across the big pond. Now the time delay in introducing much of this technology is dramatically reduced, mostly because of our industry's exposure and our awareness of what's happening overseas.

Thousands of U.S. heating industry experts go to European trade shows every year; this was not the case 10 to 20 years ago. Moreover, European hydronics, as well as plumbing know-how, have been successfully applied over here in the intervening years.

Two words that describe ish 99 are "green movement." The smaller amount we use and the cleaner we burn oil and gas, the cleaner our planet and its atmosphere will remain for future generations, stopping and reversing climatic changes caused by decades of fossil-fuel pollution.

In the residential sector, the wall-hung, gas-fired, self-contained condensing boiler/dhw unit is clearly the winner. The trend toward wall-hung condensing boilers started two years ago and the devices are now the standard of the industry for natural gas-fired equipment in single-family homes as well as the apartments and condos in which the majority of Europeans live.

RPA purchased the booth space to begin introducing U.S. manufacturers to the European market.

The wall-hung boilers are pre-assembled heating marvels the size of a kitchen cabinet, encased in white insulation jackets, ready for supply and return distribution piping. They include a circulator, expansion tank, reset control, modulating gas valve and sealed combustion. They operate in the condensing mode if they are hooked up to low-temperature distribution systems such as floor heating or panel radiators, delivering seasonal efficiencies of 96%.

The flue gas temperatures are slightly higher than those of human breath. The exhaust discharges coming out of the stainless steel vent also resemble human breath: The only thing that is left is water vapor and CO2, with CO and NOX literally nonexistent.

These units are typically mounted in apartment kitchens, bathrooms and hobby/exercise rooms, eliminating the space required for mechanical rooms. In single-family homes the attic is a preferred location, keeping the

length and cost of the stainless steel venting equipment to a minimum.

The same type of technology is found in commercial sizes. Commercial condensing boilers in firing capacities of up to 3 mbh feature stainless steel combustion chambers.

Oil- and gas-fired scotch marine-type boilers with oversized heat exchangers installed externally in the flue discharge piping extract the last possible Btu by running the lowest possible system return water temperatures.

Viessmann Manufacturing Co. is a leader in combustion technology, using its unique radiant "Matrix" gas

burner in many of its residential boilers including its wall-hung units. The Matrix burner eliminates nox emissions. Viessmann's oil-fired "Rotrix" burner is a similar engineering marvel redefining oil-burning technology.

Man (Machine Factory Augsburg, Nürnberg), a German company known worldwide for its articulating accordion buses, newspaper printing presses and 40,000-hp diesel ship engines, introduced its latest generation of the residential "rocket burner."

The rocket burner is a super-efficient and clean combustion machine that has been applied for the past decade by many European heating contractors who prefer putting together their own boiler/burner package. About 50% of the heat in Germany comes from No. 2 fuel oil.

At ish '99, man finally introduced a packaged boiler/burner/dhw unit, a trend started many years ago by European boiler and (somewhat later) burner manufacturers. The suppliers offer a complete boiler, burner and control unit, fine-tuned to each other for optimum performance.

Ground-coupled heat pumps are experiencing a renaissance. Fifteen years ago this technology disappeared from the European continent when oil and gas prices dropped after the late-'70s fuel crisis.

With improved technologies and increasingly popular low-temperature distribution systems, cops (coefficients of performance) of 4 are standard with these state-of-the-art machines. The heat pumps produce 15,000 Btuh for every kW of electricity input. About 10,000 of these units are being installed in Germany, Austria and Switzerland this year alone.

Solar space heating and dhw systems are becoming a common sight on Europe's rooftops. High-tech vacuum tube solar collectors integrated into the tile roof structures are capable of producing solar energy even in Northern Europe where the number of sunny days is limited by the dreary North Sea and Baltic Sea climates.

Electricity-producing windmills dot the landscape all over Northern Europe. The closer you get to the always-windy North Sea and Baltic Sea regions, the higher the windmill density.

It is also important to mention that governmental tax incentives, rebates and tightening of emission standards year after year promote many of these "green movement" technologies. Government intervention constitutes the real driving force behind the development of all these energy-producing technology marvels exhibited at ish.

The floor-heating industry at ish did not show any earth-shaking innovations, although the trend to wireless thermostatic zone control systems seems to be unstoppable.

The trend to smaller tubing diameters is clearly marching onward. A 16mm or 1/2-in. nominal tube size is common in the United States. In Europe, tubing sizes of 14mm, 12mm and 10mm are becoming the norm for residential floor heating.

The movement toward one fitting type and pex tubing style for both heating and plumbing applications is already reality. The trend to dry floor radiant heating systems also is strong.

My own company was among those U.S. firms that took space in the Radiant Panel Association booth. Rpa purchased the booth space to begin introducing U.S. manufacturers to the European market.

Elsewhere at ish, the manufacturers of rough-in plumbing systems showed their latest innovations. In that department the Viega Co. exhibited both pex and metallic tubing as well as multi-layer pex-aluminum-pex press-fitting systems.

Viega's Profi-Press copper press-fitting system eliminates the need for soldering and bracing of tubing sizes from 1/2 in. to 4 in. The system uses O-rings inside copper fittings to join off-the-shelf copper tubing, a 20-year-old technology in Europe for steel and stainless steel tubing. Viega adapted the press-fit joining methods three years ago for copper.

The trend to multi-layer tubing for plumbing systems up to 2 in. in Europe is stronger than ever. The pipe contains a pex inner core topped with plasma-welded aluminum, which is itself topped with another layer of pex.

Called MT-pipe (Multi-Tech) or composite pipe, it combines advantages of both metallic and non-metallic tubing: hygienic, non-toxic, easy-to-install, no open flame, no solder fumes, no flow noises, low pressure drop, and the rigidity and appearance of metallic pipe.

Press-fitting technology for both metallic and MT-pipe is the fastest growing segment in European plumbing with 20% per annum growth in a multi-billion dollar market.

Overall ish '99 was another exhilarating, inspiring, breathtaking and adrenaline-producing event that never ceases to produce exciting new ideas and technologies in our line of business. It keeps us going, makes our work exciting and keeps us at the cutting edge of technology.