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ASHRAE Hellenic Chapter

#	**Antonia Tritou** Mechanical Engineer / MBA	
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Presentation title:	**Legionella Risk Management Using ASHRAE Standard 188 in DHW Systems**	

Legionella contamination in Domestic Hot Water (DHW) systems remains a significant public health concern, particularly in hotels, healthcare facilities, and large commercial buildings. Epidemiological data published by the European Centre for Disease Prevention and Control (ECDC) highlight the continuing burden of Legionnaires' disease in Europe, emphasizing the importance of effective prevention strategies and systematic water management.

This presentation examines Legionella risk management in DHW installations based on ANSI/ASHRAE Standard 188, focusing on risk identification, Water Management Programs (WMPs), operational control measures, monitoring, verification, and corrective actions.

Particular emphasis is placed on the challenges associated with integrating heat pump technologies into modern DHW systems, where energy efficiency targets must be balanced with microbiological safety requirements. Operating at reduced water temperatures to improve heat pump performance may increase Legionella proliferation risks if appropriate preventive measures are not implemented.

Indicative engineering solutions are evaluated, including high-temperature heat pumps, heat pumps combined with auxiliary booster heating, and thermal energy storage with instantaneous DHW production through heat exchangers. Additional design considerations include temperature management, circulation efficiency, avoidance of stagnant water, system monitoring, and commissioning procedures.

The presentation demonstrates that Legionella prevention should be incorporated from the earliest stages of mechanical system design rather than addressed solely through corrective disinfection. Integrating the risk-management framework of ASHRAE 188 with appropriate heat pump-based DHW design strategies can contribute to improved public health protection, operational reliability, and energy efficiency.

Keywords: Legionella, ASHRAE 188, Domestic Hot Water, Heat Pumps, Water Management Program, Risk Prevention, Energy Efficiency.

Short CV (EN) :	

I am a Mechanical Engineer with over 15 years of experience in HVAC engineering, energy-efficient building systems, and technical sales. I currently work as a **Senior Proposals Mechanical Engineer at METLEN**. I hold an MBA and serve as Promotion Committee Chair of the ASHRAE Hellenic Chapter, actively contributing to technical knowledge sharing, sustainability, and professional development within the engineering community.

Short CV (GR) :

Είμαι Μηχανολόγος Μηχανικός με περισσότερα από 15 χρόνια εμπειρίας στον κλάδο HVAC, στα ενεργειακά αποδοτικά κτιριακά συστήματα και στις τεχνικές πωλήσεις. Σήμερα εργάζομαι ως **Senior Proposals Mechanical Engineer στη METLEN**. Είμαι κάτοχος MBA Promotion Committee Chair του ASHRAE Hellenic Chapter, συμβάλλοντας ενεργά στη διάδοση της τεχνικής γνώσης, τη βιωσιμότητα και την επαγγελματική ανάπτυξη στον μηχανολογικό κλάδο.