*Aimed at advancing future-ready sustainable construction in the UAE,*

# Abu Dhabi University inaugurates research-driven 3D concrete printed research chamber

**Abu Dhabi, UAE, 16 January 2026:** Abu Dhabi University (ADU) has inaugurated its '3D concrete printed instrumented research chamber,' a unique, first-of-its-kind full-scale research facility built by an academic institute in the UAE. This space has been designed to advance scientific understanding of the long-term performance of 3D-printed concrete structures and support the future development of smart, sustainable construction practices.

The inauguration ceremony took place at ADU's Innovation Center (ADUi) and 3D Concrete Printing Research Lab. The event was attended by the Chancellor, senior academic leadership, faculty members, and key government and industry stakeholders.

Representing the culmination of four years of dedicated research and experimentation, the chamber was designed, printed, assembled, and equipped with measurement instrumentation by ADU's research team, led by Professor Samer Al Martini, Professor of Civil Engineering and Dr. Reem Sabouni, Associate Professors of Civil Engineering, College of Engineering. The structure was developed at ADU's 3D Concrete Printing Research Lab which was inaugurated in 2023 and provides faculty and students with access to advanced 3D concrete printing technologies and hands-on research opportunities.

While several 3D-printed concrete structures have been developed across the UAE as industry-led demonstration projects focused on constructability and architectural feasibility, this project is the first-of-its-kind to be developed entirely within a university-led research framework. The ADU chamber has been designed as an integrated research-driven platform to evaluate how 3D-printed concrete structures perform over time under environmental and operational loading conditions.

**Professor Ghassan Aouad, Chancellor of Abu Dhabi University,** said: "This inauguration reflects our commitment to advancing research excellence and applied innovation that delivers real-world impact in the field of civil engineering. The UAE provides an environment that empowers universities to innovate, experiment, and push the limits of what is possible.

This 3D concrete printed instrumented research chamber strengthens our contribution to national priorities in developing sustainable infrastructure, smart construction, and future-ready engineering solutions."

The facility is fully instrumented with advanced sensors and monitoring systems, enabling continuous, real-time assessment of structural behaviour. The data generated will help advance research in building performance and materials, supporting smarter, more sustainable construction and the development of future 3D-printed buildings.

**Professor Samer Al Martini, Project Lead**, said: "This chamber enables long-term, data-driven research into how 3D-printed concrete structures perform in real conditions, helping move the technology towards scalable and well-informed future applications."

A key feature of the project is the use of research-developed concrete mixes, formulated in-house by the ADU team using locally sourced UAE materials. These mixes are supported by published research outcomes, including internationally recognized US publications, contributing original scientific knowledge to the field of 3D concrete printing.

**Dr. Reem Sabouni, Project Lead,** added: "This project applies modular construction principles to 3D concrete printing, with all wall elements fully 3D-printed and assembled as an integrated modular system. This approach enhances scalability, transportability, quality control, and repeatability, which are critical for future large-scale deployment and sustainable infrastructure applications"

Beyond its research objectives, the facility plays a key role in enhancing experiential learning for civil engineering students, offering practical exposure to advanced construction technologies, materials development, structural monitoring, and real-world research applications. This hands-on engagement supports ADU's commitment to preparing future-ready graduates with industry-relevant skills in sustainable and smart construction.

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