Photo by Dror Baldi.

Emergent Design

San Antonio's state-of-the-art call center is built to stay online while helping dispatchers perform a stressful job

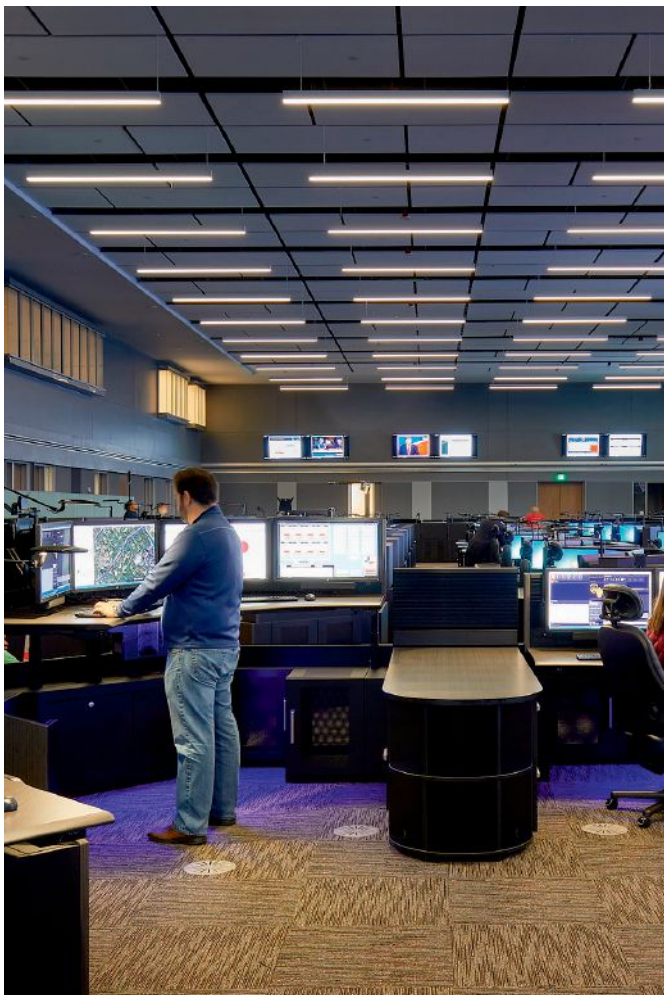
By Michael Mace and Freddy Padilla

Most people will never have to call 911, but we all take comfort in knowing that if we do call, help will be on the way. The 911 service is vital, so the facilities that support it must be designed to meet the unique needs of emergency response personnel.

The Quarry Run Regional Operations Center recently completed in San Antonio, Texas, shows what a 911 call center can be. The center supports the county sheriff, municipal police and fire departments, and surrounding counties with an emergency operations center, two data centers and a 13,878-square-foot public safety answering point (PSAP) facility with 100 consoles.

OPERATIONAL NEEDS INCLUDE WELLNESS

Occupant experience is vital to operational success. Responding to 911 calls is a stressful job with a high turnover rate, so the design team focused on the workplace experience and how to make it better.



Enhancing the workplace environment improves dispatchers' ability to perform their roles and decreases the likelihood that they will be consistently overcome with stress. The PSAP and supporting spaces such as breakrooms, offices, conference rooms, private decompression areas, and gym all focus on enhancing employee wellness. The project is a direct result of the goal of keeping the entire community of first responders thriving and healthy—physically and mentally.

The design team sought input from employees at all agencies and focused in particular on the daily experience of call takers. We spoke with dispatchers to ascertain their likes and dislikes about the workplace, exploring all elements of a daily routine, from where employees park and enter the facility to how they make their way to their desks and where they take breaks.

The team identified workstations and break areas as having the potential to enhance job performance, lower stress, and aid in employee retention. The design ultimately establishes a supportive and more enjoyable environment for everyone in the building.

WORKSTATION DESIGN

Because call takers spend many hours at their desks, workstations maximize individual employee comfort. They offer a "microclimate" feature with adjustable heating and cooling. Sit-stand desks offer comfortable seating, adjustable desk height, and keyboard proximity control to allow workers to customize the workspace for optimal comfort.

Acoustics were a primary consideration in an open space where many people are taking critical phone calls simultaneously. Elements such as acoustical wall panels and ceilings ensure a quiet atmosphere in the PSAP. Quarry Run's designers and project leaders addressed facility ergonomics—not just efficiency in the work environment, but also physical and thermal comfort.

BEYOND THE WORKSTATION

The interior design supports appropriate moods of the spaces. In the PSAP area, the environment is serious and professional, with low lights, large console workstations, and a video wall. By contrast, the common areas and public spaces such as breakrooms, conference rooms, lobby, and multipurpose training rooms are welcoming, full of natural light, and offer views to the outdoors.

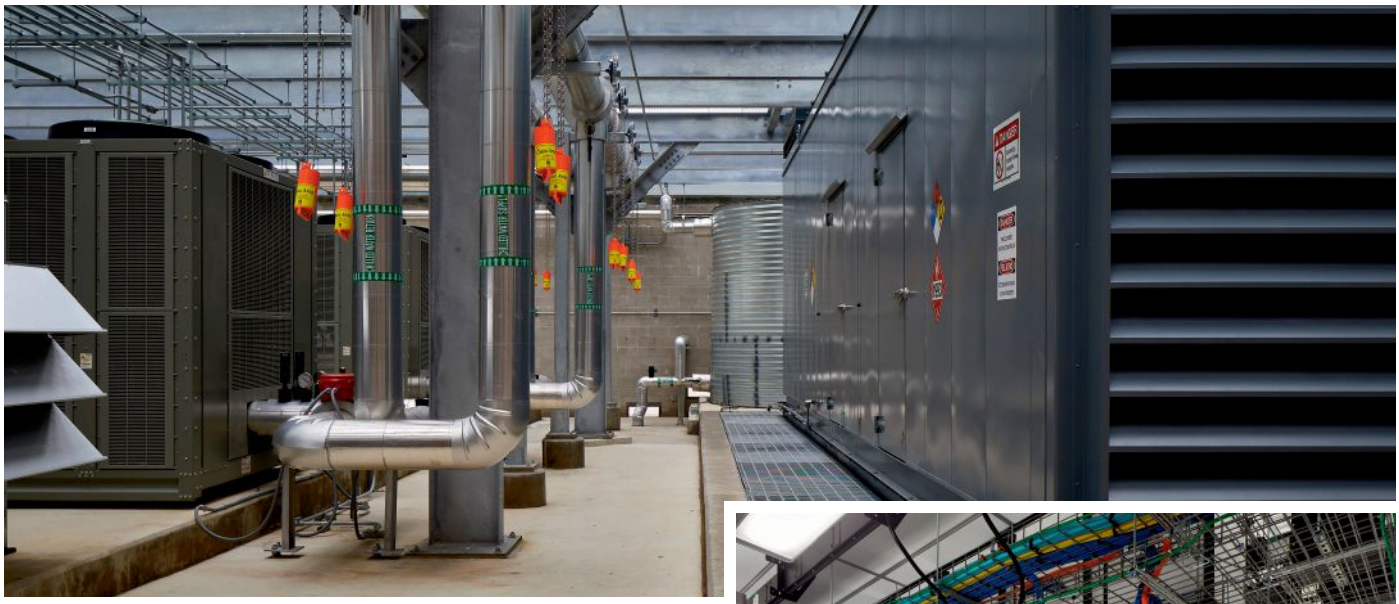
In such a high-intensity job, breaks are vital. Dispatchers ideally take short breaks, including one 15-minute break and one 30-minute break per shift. Originally, the clients requested a breakroom in the PSAP itself, but the design team advocated that the breakroom should be separated from the high-stress work area to provide a real reprieve for the call takers.

Ultimately, the primary break area was incorporated into the main kitchen, encouraging call takers to leave the PSAP to socialize away from the quiet, highly concentrated environment of the call center. The breakroom/kitchen has a wall of windows looking out on a private outdoor courtyard; there are ample food preparation facilities and storage space, as well as a variety of seating areas. The social areas in the building purposefully contrast the isolation of being on the phone all day, encouraging face-to-face interactions.

Access to daylight and the outdoors were priorities for the designers. Two courtyards ensure that natural light is widely available in the building.

COMMUNICATION

Communication is the cornerstone of any successful venture; it leads to solutions that optimize facility performance. The project was successful because the team took the time to listen to the clients and future building occupants attentively. The process provided the design team with significant insights into how the building needed to function.



Open communication among the client, design, and construction teams established productive relationships based on trust and respect. The same team, including the Whiting-Turner Contracting Company, stayed with the project from beginning to end. This consistency helped foster a high-performance team with a rapport comfortable enough to communicate effectively and disagree respectfully.

Although it took time to cultivate the dynamic, once it was in place, the project ran smoothly through its successful completion, resulting in a state-of-the-art facility that exceeds the expectations of its occupants and the community it serves.

MISSION CRITICAL

At Quarry Run, technology and resiliency are at the heart of its mission. The rapid pace of technological advancements is a challenge for any project that has a deep IT infrastructure, but for a 911 center, there are stringent requirements for resiliency in the face of natural disasters.

The support provided by these call centers is critical to the communities they serve, and they can't fail. The design needed to accommodate the most cutting-edge technology available while also anticipating what future developments will be and planning space for them.

Because the PSAP and emergency operations center is at the heart of rescue efforts during major events, the facility must be built to withstand the effects of natural and man-made disasters. The building is designed to the Uptime Institute's Tier III standards, which require a rigorous mechanical, electrical, and plumbing (MEP) infrastructure to support long-term viability.

The facility relies on 2N redundancy, which means all critical elements are doubled. Critical power is sourced from two separate distribution substations. Critical power requirements comply with National Electrical Code Section 708, defined nationwide by Critical Operations Power Systems for facilities whose operation is considered critical to public safety or national security.

Mechanically, the building itself responds to component faults or failures. Electrical systems are equipped to automatically respond to a fault or failure in any component or distribution path without loss of critical load. The chilled-water plant and distribution are designed on a looped system, providing the ability to maintain, repair, or replace any component in the system without impacting critical services.

The facility also benefits from two data centers designed in accordance with Uptime Institute's Tier III standards. The structure is designed to withstand wind and ballistic attacks equivalent to Enhanced Fujita Scale EF3 tornado forces. Finally, the MEP courtyard features fully redundant systems protected by a breathable, hardened roof that protects critical electrical and mechanical components to EF3 levels.

MAKING 911 MORE EFFECTIVE

Upgrading or building an emergency response center is no small task. Multiple specialized factors have to be taken into consideration and addressed throughout each phase of the project. Addressing these challenges with insightful solutions helps create a state-of-the-art emergency communications center—and ensures that when an emergency does occur, the 911 safety net is effective.

Michael Mace, AIA, is a senior principal and leads science and technology projects at Page Southerland Page Inc. in Austin, Texas. Freddy Padilla, PE, is a principal and MEP engineering director at Page.