

# How building features impact veterans with PTSD

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Farzan Sasangohar and Carolina Rodriguez-Paras, authors of the study, work together in the lab. Credit: Texas A&M Engineering

The built environment, where someone lives (private) or works (public), influences a person's daily life and can help, or hinder, their mental health. This is especially true for those with mental health conditions such as PTSD, or post-traumatic stress disorder.

Researchers in the Wm Michael Barnes '64 Department of Industrial and Systems Engineering at Texas A&M University are working to determine which elements of built environments affect veterans with PTSD the most, and how they can be altered to help veterans thrive.

"We have already established collaborations with [veteran](#) support groups

to develop veteran-centered tools for monitoring and self-management of PTSD," said Dr. Farzan Sasangohar, assistant professor and principal investigator of the project. "Through interactions with hundreds of veterans diagnosed with PTSD, we realized the need to also investigate the context in which these tools are used and became interested in the design of built environments."

The researchers looked at three themes: architectural design features, interior design features and ambient features. As part of the project, researchers interviewed veterans with PTSD about their triggers in public and private spaces. From their interviews, the researchers categorized and provided suggestions for each theme area that would provide the greatest positive impact for veterans.

"Alarmingly, we learned there is a general gap in built environments' design guidelines for mental health habitants in general, and PTSD patients in particular, so we leveraged our wide network of veterans to study their preferences," Sasangohar said.

## **Architectural design features**

Architectural design features are permanent features of a building or [space](#) that would be difficult or expensive to change after construction is completed, like the entrance and exit locations.

In the study, veterans identified six areas that made a difference toward their comfort:

- Windows—large windows located closer to the ground made veterans feel safer in a space. They also preferred to have multiple windows in a space so they could see what was going on outside.
- Entrance and exit location—veterans liked to easily see the

entrance and exit to a room or building. This helped keep them from feeling trapped in a space.

- Walkways/hallways—larger hallways that allowed for increased maneuverability and reduced the chance of touching other people were preferred by veterans.
- Open floor plans—open spaces allowed veterans to see their surroundings and provided them with feelings of security. Sharp turns and blind corners caused stress due to the inability to see what was around the bend.
- Green space—open spaces with vegetation made the veterans feel calmer and gave them more visibility

## **Interior design features**

Interior design features are parts of a built environment that are easier to change and could be accommodated in spaces that are already built. Veterans preferred spaces with fewer pieces of furniture and walls that were painted in brighter, more vivid colors instead of muted colors.

## **Ambient design features**

Ambient design features are the easiest features to change in a space and include lighting and air quality. Overall, veterans preferred natural light. Some said that poor light, including too much artificial lighting, could trigger stress. Air and sound quality was important also, including ventilation, odor and noise levels. Many veterans said that certain odors could trigger fear or bad memories and that loud, unexpected noises were particularly startling for them. They felt that soundproofing was important in spaces they visited or lived in.

## **What can be done?**

While this research addressed an important gap in research and practice, the research team identified the need for more work to understand issues related to the design of built environments for those with PTSD. Further research should include a wide range of stakeholders including veterans, Veterans Affairs, architecture and housing regulatory bodies.

"We hope that this research contributes to the curriculum, codes and standards, regulatory documents, and general practice of designing built environments, including health care facilities, which are sensitive to the needs of veterans who are affected by PTSD and others with [mental health](#) conditions," Sasangohar said.

**More information:** Joseph Nuamah et al, Veteran-Centered Investigation of Architectural and Space Design Considerations for Post-Traumatic Stress Disorder (PTSD), *HERD: Health Environments Research & Design Journal* (2020). [DOI: 10.1177/1937586720925554](https://doi.org/10.1177/1937586720925554)

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