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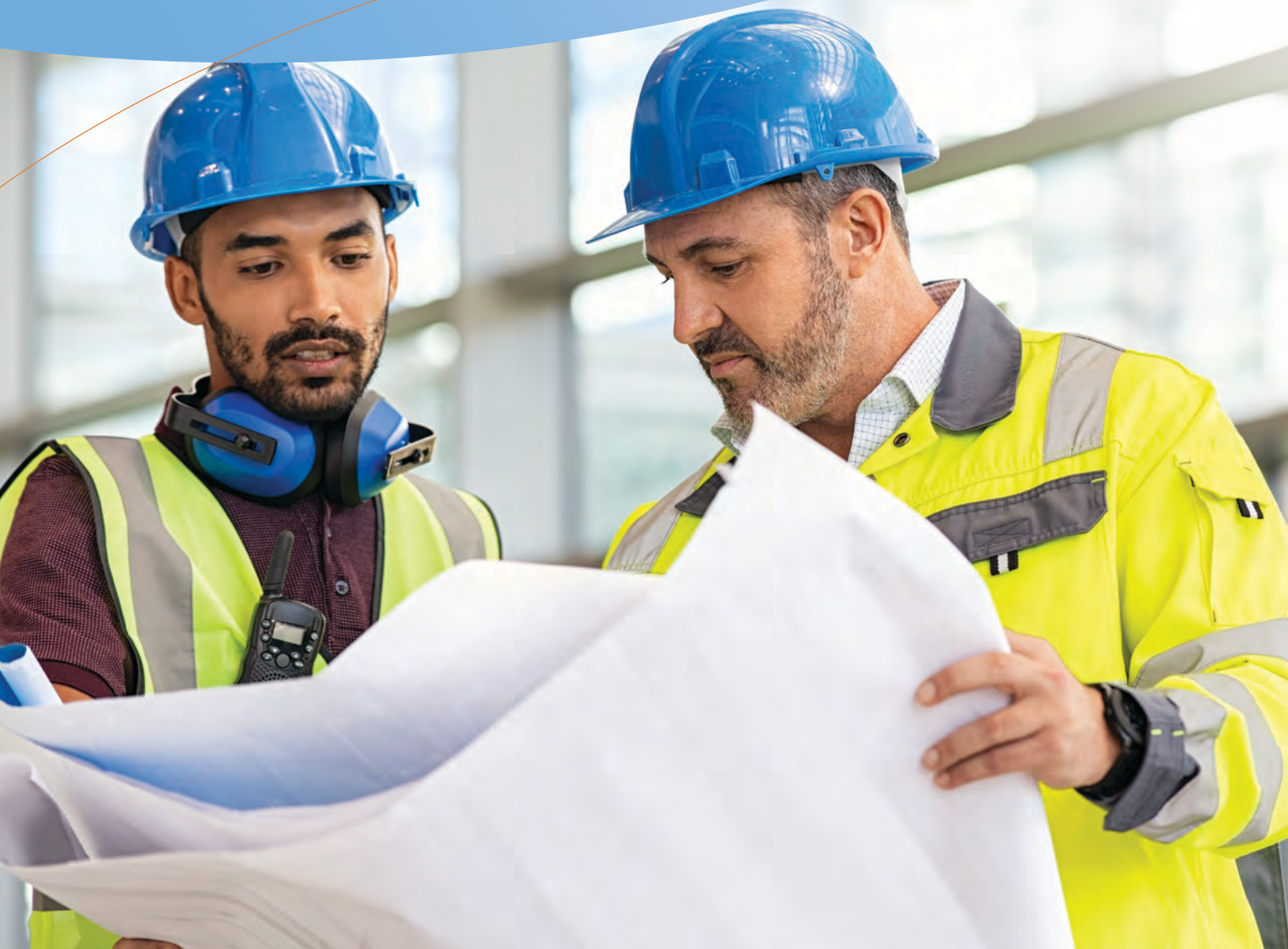
EIGHT ARCHITECTURE AND ENGINEERING **TRENDS TO WATCH IN 2025**

Construction



Faced with pressing challenges such as climate change, rapid urbanization and shifting regulatory requirements, Architects & Engineers (A&E) are adapting and transforming accordingly.

A&E professionals are contributing to this development, embracing innovative strategies that prioritize sustainability, smart technologies, and adaptability. With the rise of green building practices and tools like Building Information Modeling (BIM) and intelligent building systems, the focus is shifting toward creating efficient and resilient spaces that are also deeply attuned to the needs of their users.

This paper explores eight trends reshaping the built environment. It offers a forward-looking analysis of how these developments address today's urban pressures and pave the way for more sustainable, livable communities. It also evaluates insurance and risk management considerations to future-proof architecture and engineering firms.

1

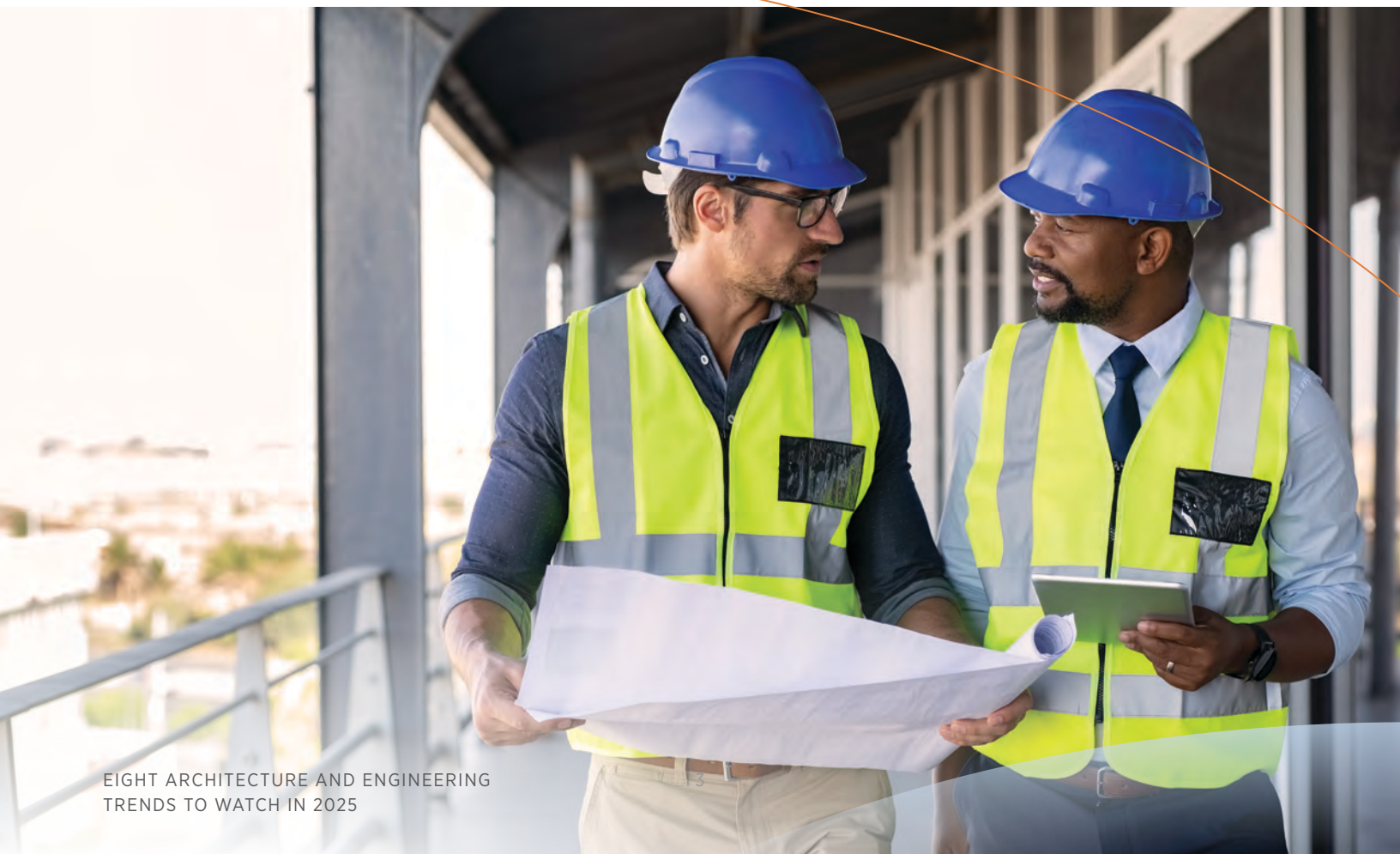
Sustainability and Green Building

Eco-friendly materials, energy-efficient systems and low-impact designs are becoming industry standards. Driven by increased environmental awareness, stricter regulations and the economic appeal of reduced construction and operating costs, the market for green buildings was valued at $152.37 billion in 2024[1] in the US alone, proving its growing influence. A decade of local policy changes has strengthened sustainable building codes and regulations across the US[2], creating both opportunity and demand.

Green buildings improve indoor air quality and occupant well-being and align with health-focused design trends supported by cutting-edge technologies. Certification programs like the Leadership in Energy and Environmental Design (LEED) and the Building Research Establishment Environmental Assessment Method (BREEAM) have become widely recognized standards, reinforcing the value of sustainable practices.

Sustainable buildings also appeal to insurers. Advanced technologies enhance risk management, health-related solutions decrease liability risks and certifications are benchmarks for risk assessment and underwriting. These factors make green buildings more resilient to climate-related threats, such as floods, through sustainable urban drainage systems.

Still, the path towards sustainability is not without obstacles. Firms must navigate evolving regulations, manage high upfront costs and supply chain uncertainties. Certification processes are complex, and clients expect transparency and measurable results. Specialized skills and robust performance verification methods are essential. To remain competitive, firms should invest in innovation, training and long-term client support, ensuring that sustainability is not just a goal, but a lasting competitive advantage.



2

Technology and Integration

Technology is revolutionizing the construction industry by enhancing precision, collaboration and sustainability. Advanced tools such as Building Information Modeling (BIM), virtual reality (VR) and augmented reality (AR) are increasingly indispensable for architects and engineers.

BIM, a digital representation of physical and functional characteristics of a building, facilitates efficient planning, design and management throughout the project lifecycle. VR allows users to immerse themselves in a virtual environment, enabling architects and stakeholders to visualize designs in a realistic and interactive way before construction begins. AR overlays digital information onto the physical world, helping teams visualize project elements in real-time and improving on-site coordination. Together, these tools are driving smarter planning, immersive design experiences and seamless project execution.

Smart building systems, powered by (Internet of Things (IoT) devices and sensors, enhance functionality and energy efficiency. Connected devices can also improve the risk profile of such properties through early detection of risks, such as water escape.

Data analytics further improve safety and reduce risks by offering insights into building performance. Meanwhile, innovations like 3D printing, drones and robotics streamline construction processes, increasing accuracy and efficiency at a time when labor and material costs are continuing to rise.

These technologies also reduce the industry's carbon footprint. In 2024, buildings in the US accounted for 551 million metric tons of CO2 emissions, about 11.5% of the total energy-related emissions.[3] By integrating digital tools across the entire building lifecycle — from design and construction to maintenance and operation — firms can optimize resource use and extend the value of their projects.

Insurers are taking notice. Greater precision, better data and more resilient systems can lead to lower premiums and more comprehensive coverage, making technological integration a strategic advantage.

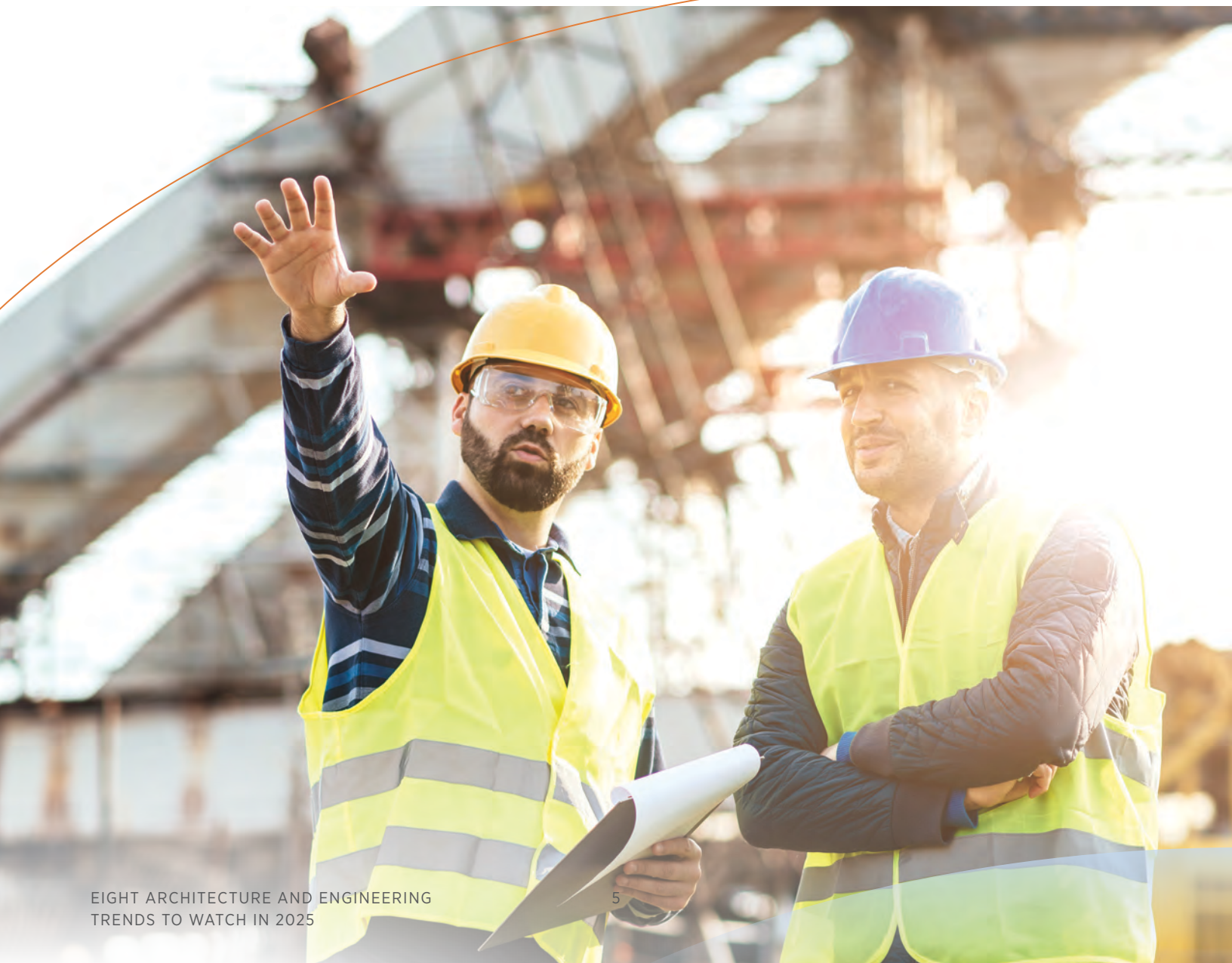
3

Modular and Prefabricated Construction

The growing use of modular and prefabricated components is transforming how buildings are assembled. By manufacturing components in controlled factory environments and assembling them on-site, firms can reduce construction timelines and minimize delays caused by weather or site conditions. This approach also reduces material waste and improves resource efficiency.

Modular construction often lowers overall costs, with an average cost reduction of 10-30%[4] due to streamlined labor and material use. Its growing adoption reflects a broader industry shift towards innovation and sustainability.

From an insurance and risk management standpoint, modular and prefabricated construction introduces unique considerations. Off-site components are treated as products, which brings product liability into play, as defects in design, manufacturing or labeling could trigger claims. When using modular construction, it's important to check that there are no gaps in coverage. Meanwhile, completed operations coverage addresses risks that emerge after project completion, such as hidden structural flaws. To effectively manage these risks, insurance policies need to be carefully tailored to cover both the manufacturing process and the completed structure.



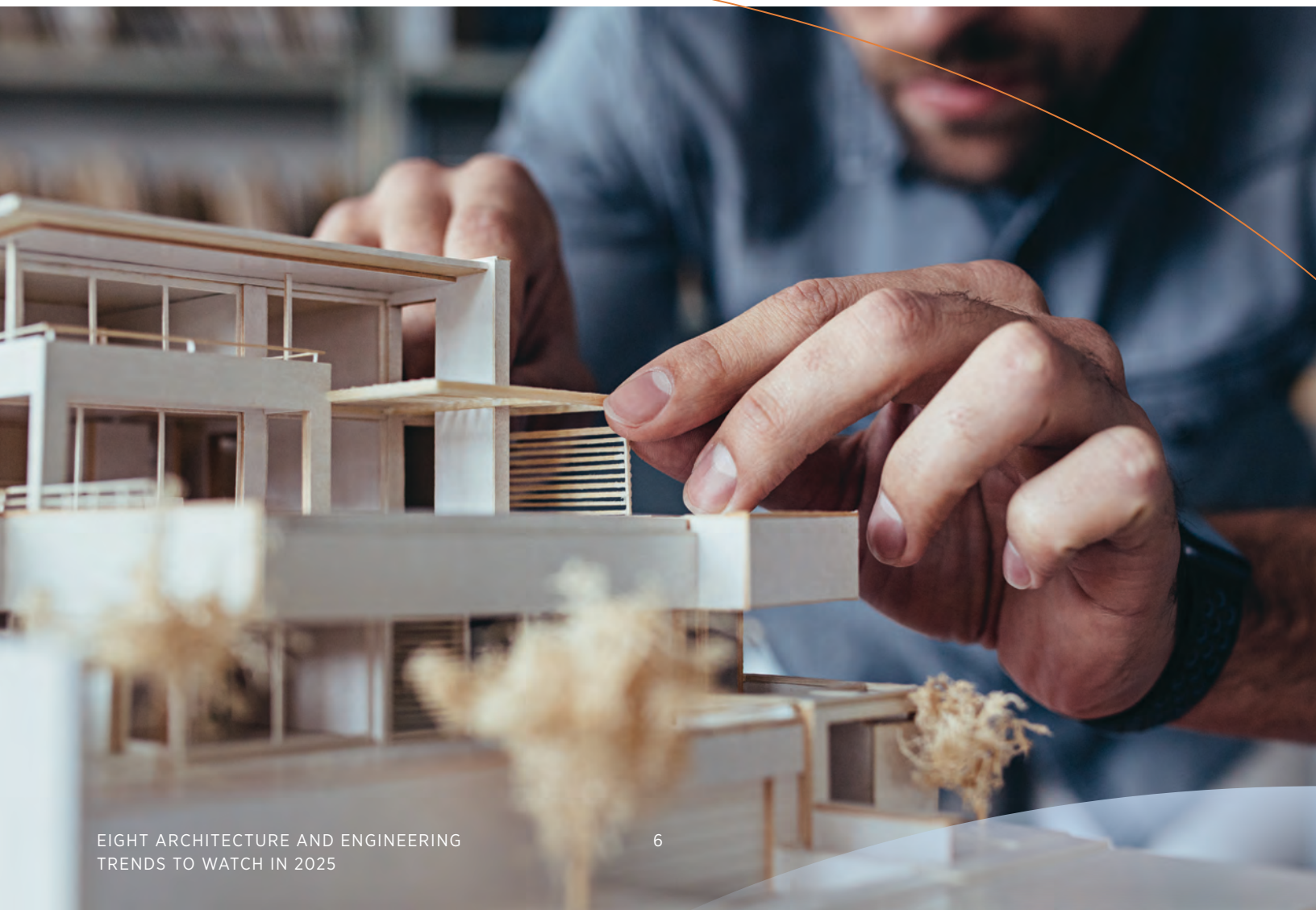
4

Resilient Design

As climate change intensifies, resilient design is emerging as a top priority in architecture and engineering. The goal of this design is to create buildings that can withstand extreme weather events such as earthquakes, floods, heatwaves and hurricanes, while minimizing environmental impact and enhancing long-term durability.

Resilient design and sustainability go hand in hand. New materials and technologies are improving structural performance, while evolving regulations are accelerating adoption. In high-risk areas, such as Florida and California, robust and reliable construction and continuous monitoring are essential, with building codes set out by entities such as IBHS offering the gold standard.[5]

Insurers recognize the importance of resilient buildings, as their capacity to endure disasters reduces risk profiles, minimizes the probability of claims and may even lead to eligibility for lower premiums. In a competitive market, clients who can showcase investments in resilience are better positioned during policy renewals. Additionally, adhering to regulatory requirements helps mitigate legal risks. Beyond the financial advantages, resilient building designs contribute to community stability and enable quicker recovery in the aftermath of disasters.



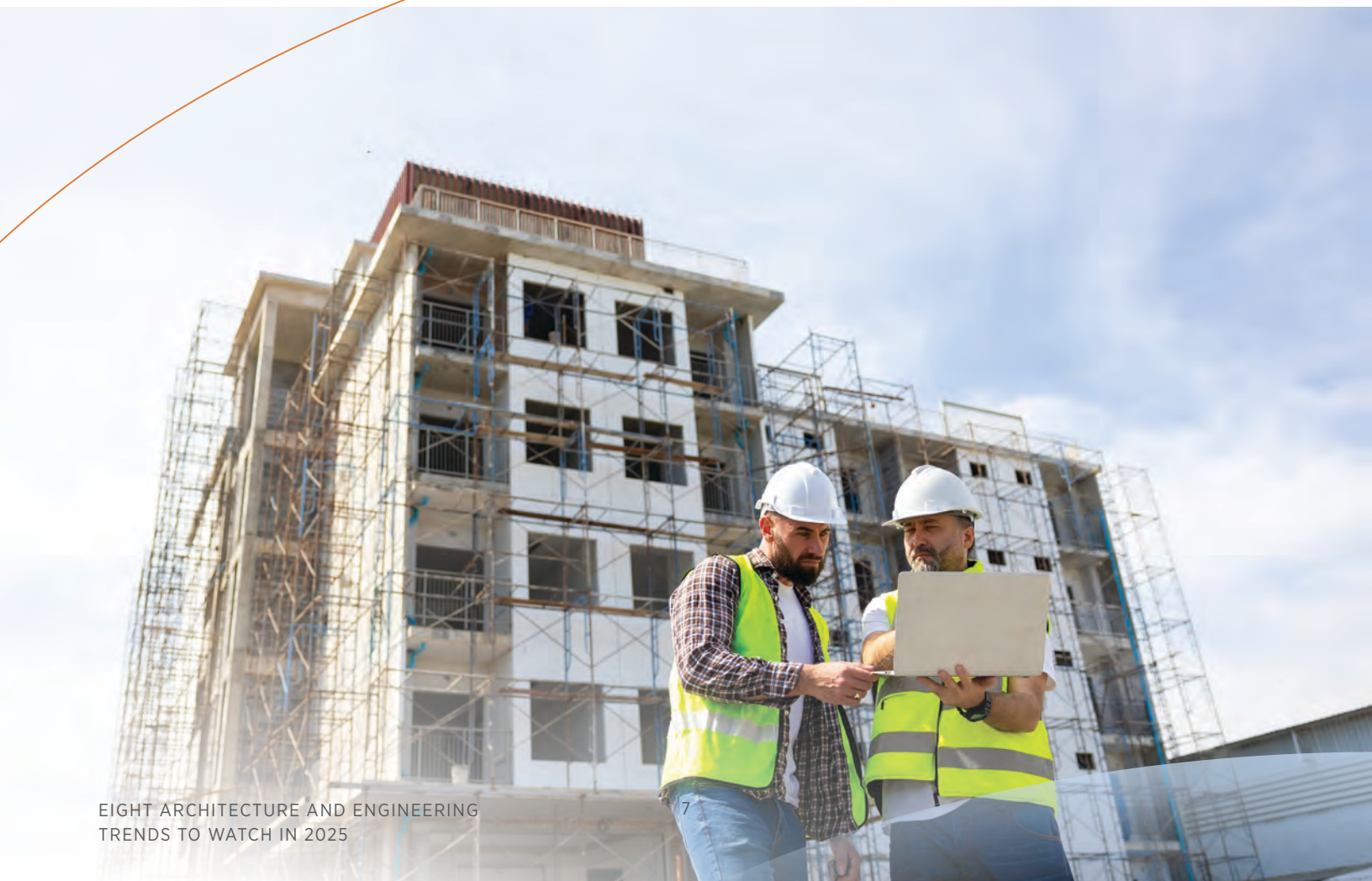
5

Urbanization and Mixed–Use Developments

As cities grow and space becomes more limited, mixed-use developments are transforming urban life. By blending residential, commercial and recreational spaces, they promote walkable communities, curb uncontrolled growth and make more efficient use of the land. Backed by growing evidence from the World Health Organization[6] and accelerated after the COVID-19 pandemic, this trend also supports human health and wellbeing, environmental sustainability and economic resilience.

These projects enhance community life and local economic vitality by fostering connectivity and attracting a diverse mix of residents and businesses. Many incorporate sustainable design principles, such as energy-efficient buildings and green solutions, aligning with broader sustainability goals such as the Environmental, Social and Governance (ESG) standards, which increasingly impact investment and compliance tendencies.

From an insurance perspective, mixed-use developments present complex risk profiles. Their integrated nature requires tailored coverage to address varied exposures across residential, retail and public spaces. However, their emphasis on sustainability and resilience can reduce risk, and may lead to lower insurance premiums. Additionally, economic viability and community connectivity increase property values and stability, making these developments attractive to both investors and insurers.



6

Smart Buildings

Smart buildings combine efficiency, automation and data to improve how spaces are used and managed. Equipped with Internet of Things (IoT) devices and automated systems, they offer personalized lighting and climate controls, while smart surveillance and access systems improve safety.

These buildings generate real-time data-driven that support better decision-making around maintenance, energy use and space optimization. As urban areas evolve into smart cities, buildings are increasingly integrated with broader urban infrastructure, boosting connectivity and urban efficiency.

However, smart buildings also introduce new risks and exposures. Cybersecurity threats, system failures and data breaches require careful assessment, with adequate due diligence around third-party software providers, to ensure devices and systems are adequately protected and regularly patched. Insurers must adopt policies to cover digital vulnerabilities. At the same time, the focus on energy efficiency, proactive maintenance and enhanced security can reduce overall risks, potentially leading to favorable premiums.

As adoption grows, insurers and developers must evolve their strategies to manage complex risk profiles, ensuring comprehensive protection and long-term resilience in intelligent urban environments.

7

Health and Wellness Space

Health and wellness are becoming central to building design, driven by increased awareness of how physical spaces affect well-being. Post-pandemic priorities have accelerated demand for features that support air quality, mental health and physical activity. These include natural lighting, ventilation systems and active design elements. Wellness-focused spaces are increasingly integrated into residential and corporate environments, where they are seen as drivers for productivity and comfort.

Smart technologies like automated lighting and climate control enhance comfort and support health monitoring. At the same time, sustainable design promotes energy efficiency and encourages community interaction through shared spaces like gardens and parks.

Prioritizing wellness in design can lower health-related risks and potentially reduce insurance premiums. While wellness features may decrease liability exposure, advanced technologies introduce new vulnerabilities around data safety and systems integrity, which require specialized insurance policies. As health-centered design becomes more widespread, insurers need to adapt their strategies to handle evolving risk profiles and provide comprehensive protection.

8

Adaptive Reuse Projects

Adaptive reuse is gaining momentum as a sustainable and cost-effective alternative to new construction. By repurposing existing buildings, developers can reduce material waste, limit the impact of demolition and demand for new materials, preserve cultural heritage and minimize the environmental impact of urban development. This approach is particularly beneficial in densely populated urban areas, where space is scarce and land prices are elevated.

Beyond environmental and economic benefits, adaptive reuse projects allow architects to apply their creative solutions to complex design challenges. However, these projects come with unique insurance risks. Older structures and unconventional transformations raise concerns around structural integrity, historical preservation and complex renovations.

Specialized coverage, such as business risk and professional liability, is essential. Early engagement with specialized brokers like Gallagher can help identify and mitigate risks during planning and due diligence. Extensive expertise in projects ranging from old mills to repurposed power plants helps guide adaptive reuse projects toward successful completion.

Sources

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[2]"Architects' Guide: Navigating the Landscape of Green Building Standards in the U.S.," *Architizer,* accessed 05 Aug 2025.
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