

Property Management

Colorado construction defects: Address early and often

Construction defects are one of the most common and costly risks contractors, developers, and owners face in the industry. Construction defects are flaws or errors in the design, materials, workmanship, or installation of a building that cause damage or reduce its value.

In fact, [condominium construction on the Front Range decreased 76% between 2018 and 2022](#) compared to construction between 2002 to 2008. This is due in part to Colorado's condo and townhome construction defect laws and legal risks. Knowing this, developers, construction firms, building operators, and faculty managers need to be aware of new and existing construction deficiencies, including how to identify them, and what action to take.

Common construction defects

Ideally, the structure you are building or managing has no construction defects. However, with the adoption of new materials, multiple trades working together, and the speed at which construction must progress, issues are bound to develop. Construction defects run the gamut but fall into three main categories.

■ **Design.** Miscalculations, incorrect specifications or code violations are all defects that result from errors in the architectural



Stanley Stoll
CEO and principal engineer, Knott Laboratory

or engineering design phases of construction. When there are issues within the design, it can lead to moisture intrusion, inadequate drainage, reduced service life, and even foundation failures.

■ **Material.** Inappropriately selected or incompatible materials used during the construction process can lead to cracking or failure of building envelope components. Some of the more common material defects manifest in improper moisture management that leads to the degradation of materials and moisture intrusion.

■ **Workmanship.** Poor workmanship and/or the lack of collaboration between trades or the design team is the leading cause of construction defects. This includes deviations from the project and material specifications.

Signs and symptoms

Some defects are obvious and visible, while others are hidden and latent. Some may appear immediately upon completion of the construction, while oth-

ers may take months or years to manifest. Some of the common signs and symptoms of construction defects are:

■ **Water intrusion.** This is arguably the most serious problem signaling a potential construction defect. The damage water can cause to the structure, building materials and interior cannot be understated. Pinpointing the source of water intrusion can be challenging, as defects may arise in the roof, walls, flashings, windows, doors, plumbing, or drainage systems.

■ **Grading and drainage.** As Colorado has both expansive and collapsible soil, managing the grading and drainage around a property is also paramount. This helps prevent water infiltration into the soil, which causes foundation movement. Again, whether water is infiltrating the building or the soil beneath, it is the leading cause of structure damage.

■ **Cracks or gaps.** These are the more obvious indicators of construction defects, and they develop in the interior or exterior finishes. The first step is to determine if and how quickly the crack or gap is growing. Typically, cracks result from material expansion, contraction, or differential movement within the building.

The gap's progression in size can indicate the issue's severity.

Best practices

Construction defects can present myriad problems in the form of lawsuits, claims, repairs and loss of reputation. If you are working on a real estate project from the ground up, carefully planning and designing the structure is critical, as well as following codes, standards and specifications. Because of Colorado's unique soil and severe weather conditions, selecting suitable materials to withstand the test of time and mitigate risks is essential. Similarly, it is crucial to inspect the property diligently along the way to ensure materials, workmanship and installation are aligned.

If you see signs of defects after building completion or in an existing building you own or manage, figure out the root cause of why it has developed before repairing. Proactive building monitoring and maintenance helps identify underlying issues quickly and prevents them from developing into major problems.

Technology brings cost savings

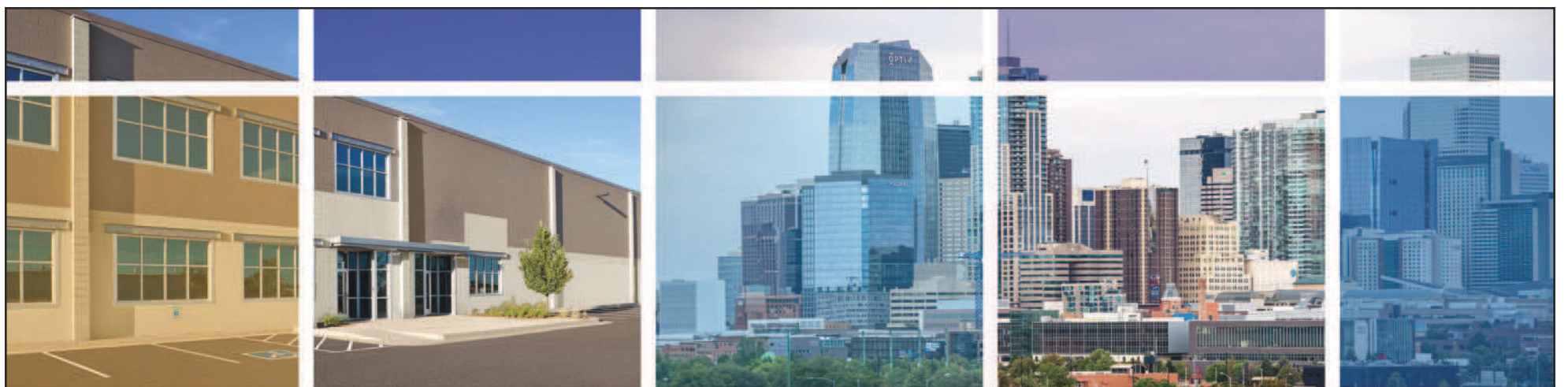
Periodic building inspections are important for commercial structures and multifamily build-

ings. What once took weeks to complete due to scheduling inspections for each tenant's unit can be done quickly, thanks to 3D laser scanners. These portable devices project millions of laser lines into a 3D space and record their distances to capture up to 2 million points per second and simultaneously record high dynamic range imagery. The resulting digital twin provides structural engineers with a scientifically accurate model from which measurements can be taken.

Drones are another tool used in building assessments to quickly access and inspect building elements such as roofs and balconies. They reduce time and costs, provide safer data collection and can also be used with a thermal imaging camera to detect moisture hidden in the wall or roof assembly. Identifying construction defects with the least disturbance to tenants boosts efficiency and saves building owners time and money.

Construction defects can be a severe problem if not addressed; educate yourself on the signs and symptoms and take prompt action to mitigate risks and maintain your property's value. ▲

sstoll@knottlab.com



STEP FORWARD WITH BOMA

IT'S TIME TO DIVERSIFY AND ENGAGE OUR STRENGTHS

BOMA
Denver Metro
Building Owners and Managers Association
WWW.BOMADENVER.ORG
DESIGNED BY DCPS