

"Can we remove this? Maybe we should call an engineer."

KEY TAKEAWAYS

Value Beyond the Obvious

There are many scenarios where seeking the expertise of a structural engineer provides value, even if the need is not immediately obvious.

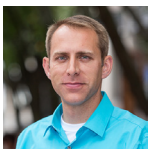
Identify Limitations

Structural engineers identify an existing structure's limitations, which can prove critical in planning for renovations and alternations.

Design Solutions

Structural engineers identify design solutions that may reduce or eliminate costly reinforcements or retrofits.

INSIGHT Thought Leadership



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Demolished elevator shaft requiring infill framing

There are several scenarios a project team may encounter where structural engineering is beneficial:



Load test to verify capacity of the existing floor framing



Removal of an existing stair shaft requiring modification of the floor framing (in-progress)

CHANGE OF OCCUPANCY

Repurposing an existing building requires a deep understanding of how the building functions and how the structure could be impacted by a change of occupancy. Schools, office buildings, and retail store occupancies, for instance, have different minimum loading requirements, as defined in the building code. With adaptive reuse projects becoming more prevalent, gauging an existing structure's ability to transition to a new occupancy type can be critical in early planning stages. A structural engineer can identify areas of the structure that may be better suited than others to support different occupancies or program components.

BUILDING EXPANSIONS

Whether previously planned for or not, building additions can impact the original structure in ways that structural engineers can anticipate (i.e., creation of snow drifting conditions, foundation system influences, movement joint limitations). Structural engineers identify areas where additional strengthening may be required and integrate new solutions with existing building construction. Comprehensive structural observations can help prevent the need for costly modifications or reinforcing of existing elements later in the design process.

RENOVATIONS AND INSTALLATIONS

Whether a vertical circulation path is being modified or a wall removed to open up a room, structural engineers provide insight and identify implications for these scenarios. Creating a floor opening for a new stair in an existing structure may seem straightforward. However, an engineer will identify the optimum location in terms of function

and cost. Similarly, creating a new elevator shaft in an existing building can negatively impact the foundations if a location is selected arbitrarily. Structural engineers help identify how these changes affect the structure, allowing the design team to seek optimized design solutions, limiting potential conflicts and associated costs.

ALTERNATE LOAD CONFIGURATIONS

Building owners can find that load demands for a given area may change even without a change of occupancy. An industrial facility may require the replacement of equipment which may be heavier or in a different configuration than the current condition. This equipment may also need to be anchored or otherwise supported in an alternate fashion than the previous components. In this case, structural engineers evaluate the capacity/suitability of the existing conditions to support the updated load conditions. A structural feasibility study performed early in the design process will identify obstacles that hinder the owner's goals and help ensure success.

CONCLUSION

Structural engineers are well-versed in the analysis, behavior, and mechanics of many types of structures and can add value to projects of any size or scope. Evaluating project objectives and providing recommendations to meet said objectives early in the process will ensure the project stays on schedule and on budget.