



ROOF LIFTING FOR STRUCTURAL ENGINEERS – ANSWERING THE TECHNICAL FAQs

WHAT DOES THE LIFTEX ENGINEERING SCOPE TYPICALLY COVER?

LIFTEX produces structural construction drawings in collaboration with the Architect of Record and typically serves as the Engineer of Record. Design includes all load considerations in the final condition in compliance with all building codes. Temporary condition considerations during lifting are also included in the design.

WHERE DO OTHER STRUCTURAL ENGINEERS FIT INTO THIS?

- On many projects, the roof lift is the only structural work where LIFTEX designs the full scope. LIFTEX may be the only engineer on some projects.
- Often, ancillary scope items such as secondary structure/enclosure; roof frames and lintels; crane & conveyor systems; or mezzanines are assigned to a secondary engineer. LIFTEX is capable of absorbing these but does not require it.
- On rare occasions, the scope of work outside of the roof lift is very large, complex, or both. LIFTEX is comfortable working as a delegated designer under an overall project EoR in these scenarios where it makes sense.
- When LIFTEX's in-house team is not licensed in a state, LIFTEX may use an outside consultant to review and stamp the in-house developed design if a license cannot be acquired within the project timelines.
- Additionally, some projects are peer-reviewed by an outside engineer. LIFTEX can accommodate this with full calculation and coordination packages.

HOW DO YOU ADDRESS THE STRUCTURAL ISSUES LIFTING A ROOF CREATES?

TEMPORARY ROOF SUPPORT - Much of the temporary aspect of roof lifting is eliminated with the LIFTEX system. Two-piece, nested, structural steel telescoping columns are expanded to create lift and then rigidly connected, leaving the lift column as the final building column. The only temporary items typically are the hydraulic hardware and adequately sized and quantified erection cabling. Our columns maintain structural connections to the roof and foundations during the lift, unique to LIFTEX. ASCE Design guide 7 is used to appropriately design the size of lifting columns.

INCREASES TO THE TOTAL LOADING - Often, gravity loads remain the same, but roof additions, subtractions, uplift, and snow loads are all addressed in typical fashion. Diaphragms may require horizontal bracing; shear walls are typically reconnected, or sometimes replaced, utilizing steel cross-bracing and footing enhancement as needed.

WALL SUPPORT - In many instances, the existing perimeter columns do not have the depth to simply be extended. We install lift columns adjacent to the perimeter columns for lifting, where the outer tube is welded to the remaining low portion of the column. After the column is extended, the inner tube is then also welded back, creating a deepened section that works together. In bearing wall scenarios where there is only a lifting column, a backing column and/or intermediate columns are added as needed to accomplish the same.

BEARING PERIMETER WALLS - As a steel contractor, LIFTEX is adept at adding perimeter steel columns on footing, typically designed to be doveled into the existing wall footing, that then lift and support the roof. Other feasible options to help avoid foundation work include lifting with temporary beams, then extending masonry walls or adding load-bearing light-gage framing on top of bond beams to support the raised roof.

HINGE TREATMENT - A common concern. No matter the perimeter treatment, adequately deep and full-height rigid column combinations always remain at the walls. When used in conjunction with lateral wind girt support, whether that be a bond beam, interior steel girt, wall capping steel girt, or some combination thereof; the hinges are adequately addressed specific to the project and its enclosure design.



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