

Reutilization of Existing Structures and Construction Components Affected by Fires

The City of Thousand Oaks, through enforcement of the California Building Code and the City of Thousand Oaks Municipal Code, requires certain exploratory and investigative tests to be submitted to the Building Division for evaluation of existing structures or portions thereof affected by fires prior to their reutilization. The City requires geotechnical and structural tests to be conducted and reports to be prepared by independent licensed or registered design professionals in the state of California to determine and evaluate conditions and capacities of these existing structures and their construction components prior to City consideration and/or approval of reutilization.

Existing structures and construction components, including footings/foundations, slabs, structures, and retaining walls, in fire-affected and fire-damaged structures generally shall be included in fire debris demolition and removal and shall not be reutilized. Adverse and irreversible effects of serious fire damage and intense heat rise typically render structures unusable, unsafe, or infeasible for reutilization based on the following information:

1. Subsurface soils beneath footings/foundations and/or slabs may consist of contaminated and/or hazardous materials released by building contents during serious fires. Subsurface explorations and geotechnical investigations, tests, and reports shall be required to determine and evaluate environmental hazard, health, and safety levels of subsurface soil composition.
2. Steel reinforcement in existing structures and construction components, including footings/foundations, footing/foundation stem walls, slabs, and retaining walls, may be seriously, permanently, and irreversibly compromised, weakened, and damaged by intense heat generated during serious fires. Despite concrete and masonry being considered noncombustible construction materials providing fire-resistive and fire-protective properties and characteristics, concrete and masonry construction materials are irreversibly altered, do not retain all or a majority of their structural integrity and strength capacity, and are rendered unacceptable for reutilization to support reconstruction of structures when exposed to extreme fire and heat levels.
3. Foundation connections and anchorage hardware, including bolts and anchors, may be severely compromised or destroyed during serious fires. Installation and replacement of connections and hardware in existing structures, especially footings/foundations, is extremely difficult and labor-intensive, requiring design re-engineering and special inspections continually during construction and installation as well as carefully bored, cored, or drilled locations, special installation techniques, and high-strength epoxies.
4. Utility pipe and/or conduit embedded in concrete, including mechanical, gas, plumbing, and electrical installations, may be extremely damaged or destroyed during serious fires. Installation, replacement, and repair of pipes and/or conduit in existing structures requires demolition and removal, usually with consaws or jackhammers, and replacement of encapsulating concrete further compromise existing concrete materials.
5. Moisture barriers and vapor retarders at footings/foundations and slabs, which protect from and prevent moisture intrusion that damages construction materials and interior finishes, including floor and wall coverings, may be heavily damaged or destroyed during serious fires. Removal and replacement of moisture barriers and vapor retarders require removal and replacement of entire slabs.
6. Existing footing/foundation and structural systems in existing structures frequently would not be compliant with structural and other code requirements in accordance with the present code edition, including structural integrity, lateral wind stability, and seismic earthquake resistance, particularly in existing structures initially constructed prior to 1974. These systems and elements are very difficult to determine or verify in existing structures without original construction documents, therefore those existing structures would not provide acceptable, viable, or code-compliant construction alternatives of construction means, methods, or materials.

Geotechnical investigations and structural tests may be expensive, cost-prohibitive, or impractical versus demolition, removal, and reconstruction of existing structures and construction components. Bored, cored, or drilled compressive tests as well as other test methods conducted for access and exploration to demonstrate geotechnical conditions, structural integrity, and strength capacity relative to reutilization of existing structures and construction components are also typically invasive, destructive, and infeasible to reutilization of footings/foundations and/or slabs.

Any consideration to reutilization of existing structures and construction components should be thoroughly explored and discussed in detail with proposed independent licensed or registered design professionals.

The City of Thousand Oaks does not provide professional evaluation, design, special inspection, and construction management services. Property owners shall employ independent licensed or registered design professionals to engage these professional services at their own expense. Please refer to the California Department of Consumer Affairs website for available licensed or registered design professional located at: <https://www.dca.ca.gov/> or <https://search.dca.ca.gov/advanced>.

