

Innovation, emerging technology and current safety codes

The challenge we face is how to identify and manage the new risks associated with innovative technologies while ensuring safety and optimizing efficiency.

Innovation and emerging technology helps improve the safety and comfort of people's lives, creating new jobs and fueling economic growth.

Innovation and new technologies continue to revolutionize people's lives and enhance the functionality and resiliency of the built environment. Continuous technological advancements promise improvements in the utilization of modern buildings, improve efficiency and enhance lifestyles for work and recreation.

What is needed

As states, cities and municipalities consider adoption of model codes that affect the deployment and adoption of new innovations, UL recommends the following:

- take a whole-of-government approach in considering policy solutions that may be needed, which is particularly critical when laws/regulations focused on one sector or issue can have consequences for others;
- build on what is already being done in the private sector, emphasizing the continued value of public-private partnerships in solving these challenges;
- participate in the development of codes and standards to ensure they continue to meet the needs of authorities having jurisdiction; and
- maintain a regular schedule of code adoption (e.g. update codes every three years).





Approach: Encourage innovation, mitigate risk, pursue safety

Model codes and standards development organizations help innovators understand and evaluate risks and vulnerabilities to create safe, secure and sustainable products by updating building and safety codes and product standards on a regular cycle. By applying safety science in the development of model codes, innovative technologies can move from the research lab to the built environment efficiently and safely. Through collaborating with industry, government and other stakeholders in a consensus process, codes and standards development organizations provide a path for safe integration of new innovations by anticipating and managing associated risks and promoting economic growth. Jurisdictions must follow through with a commitment and investment to update their construction and fire safety codes with a regular frequency.

Problem statement and supporting information

With unlimited possibilities, from connectivity through the internet of things (IoT) to additive manufacturing (also known as 3-D printing), solar and wind-generated electricity and energy storage systems, we have capabilities that were unattainable even a decade ago. The challenge we face is how to identify and manage the new risks associated with innovative technologies that are becoming an integral part of our built environment in a smooth and efficient manner for ensuring the safety and reliability people expect and rely upon. This is why the model building construction codes and fire safety codes are updated regularly (as required every three years in the United States) through a comprehensive consensus process involving innovative technology developers and all stakeholders such as designers, builders, manufacturers and code officials.

As has always been the case, new innovations have the potential to introduce new risks. For example, the introduction of electricity led to new fire and shock risks in our built environment. The introduction of oil or gas fueled heating appliances enhanced our comfort, but likewise added new risks for fire or carbon monoxide (CO) poisoning. Research also led to effective solutions through further innovation, such as electrical circuits that are grounded and provided with circuit breakers and CO detectors to alert occupants to the presence of this lethal gas, that helped reduce these new risks and pave the way for the safe adoption of these now ubiquitous technologies.

These are only a few examples of the challenges industry, policymakers, and others must confront in the effort to balance speed of innovation with safe deployment of those advancements. The public and private sector must work together proactively to solve these challenges; collaboration is key to addressing them holistically. The enhancement and adoption of model building construction and fire safety codes on a consistent and frequent cycle is an essential collaborative way states and jurisdictions can promote innovation and new technology while ensuring the safety we all expect in the built environment where we live, work and play.

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