



The provision of automatic sprinklers in a building or floor area will in many instances relax the *National Building Code of Canada (NBCC)*¹ fire-protection requirements. The underlying principle is that a sprinkler system provides a level of fire safety at least equal to that of an unsprinklered building with passive fire protection requirements in place.

The use of sprinklers results in an increase in the size of buildings permitted to be constructed of wood.

Sprinkler installation costs can be weighed against savings resulting from their use, either in the form of reduced construction costs or reduced insurance premiums for the building. An automatic sprinkler system properly installed and maintained ensures a high level of fire safety for occupants at all times.

Automatic sprinklers have a direct impact on fire protection requirements in several areas:

- The area or height of a building can be increased without increasing the level of fire resistance or changing construction type to that otherwise required for the larger sized building

- A heavy timber roof assembly can be used in all sprinklered buildings up to two storeys in building height without a limit on building area
- The fire-resistance rating for roof assemblies is waived for all sprinklered buildings.

This last item expands opportunities for the use of exposed unrated wood-frame roof assemblies especially in non-residential applications (warehouses, schools, retail stores). In this case, if glulam or solid sawn timber elements or solid wood roof decks are used, the heavy timber minimum sizing requirements would not apply.

Minimum size specifications for heavy timber components would still apply when a heavy timber roof assembly is used in a sprinklered noncombustible building of two storeys or less. However, no fire-resistance rating would be required for the roof assembly.

By waiving the fire-resistance ratings for roofs, the roof's loadbearing support elements such as columns or walls are also exempt from ratings.

¹ National Building Code of Canada, National Research Council, Ottawa, ON, 2010.