INSTALLING A NEW ROOF STRUCTURE OVER AN EXISTING ROOF SYSTEM

INTRODUCTION

There are many ways to repair a leaking or deteriorating roof. They are:

- Cut out the deteriorated section and patch the roof.
- Remove the existing roof covering and insulation and place new insulation and covering down (would be considered a new roof).
- Place new insulation and new covering over the existing roof.
- Install a second roof structure over the existing roof system.

This section describes installing a second roof structure on top of the existing roof system. The new roof structure can be a lap seam or standing seam metal roof system or a new joist and deck assembly.

Using this method of roof repair minimizes the chance of water entering the building while work is being carried out. However it creates additional loss prevention concerns that must be addressed.

POSITION

Analyze the existing building to determine if the additional weight of the new building material exceeds the existing design loads of the building. The analysis of the existing structure must include the wind, snow, earthquake and the total dead load of the building.

Design the new roof structure to meet wind and snow loads in accordance local building design standards[1] and PRC.2.0.1.1 and PRC.2.0.3.

Install only listed roof deck assemblies that have been tested for interior and exterior fire exposures.

Minimize ignition potentials in the space such as electrical wiring, electrical equipment and exhaust ducts from heated equipment. Replacing the conduit for electrical equipment from the junction box below the roof to the piece of equipment and installing listed chimney or vent connectors on heated exhaust ducts may be required.

Protect the concealed spaces between the new roof structure and the existing roof by **any** of the following methods:

- Remove the existing roof covering material.
- Install ½ in. (12 mm) thick gypsum board on top of the existing roof covering material.

- Completely fill the void space between the new roof system and the existing roof system with noncombustible insulation.
- Install an attic sprinkler system in accordance with NFPA 13.

Extend all vent lines and exhaust duct systems through the new roof system. Never let vent lines terminate in the space between the old and new roofs.

DISCUSSION

The installation of an overlayment roof structure, while eliminating the leaking roof problem, creates additional problems and concerns. If the overlayment is a lap seam or standing seam metal roof system, the installation could be either directly on top of the existing roof cover or a new framework installed to form a peaked roof. If the latter is done, it creates a large concealed space between the new roof and the old roof decking. If the overlayment is a new bar joist, metal deck, insulation and covering system, it too creates a concealed space between the new roof system and the old roof decking.

If any of the measures, indicated in AXA XL Risk Consulting's Position, are not taken to minimize the risk of the spread of fire due to the combustible materials (roof covering of a built-up roof covering system) on the roof, the fire could destroy the entire building.

Another concern is the additional weight of the new roof system on the existing building framework. This additional dead load, if not structurally verified, could result in a collapse of the building due to snow, earthquake or wind.

The last concern is the terminations of vent lines and exhaust ducts. If vent lines from gas-fired equipment are not piped through the new roof system, the discharged gas can accumulate in the space between the roof systems. If the exhaust ducts from ovens and boilers are not properly installed with listed chimney or vent connectors, the radiant heat from the metal duct could cause a fire on the surface of the older roof covering.

REFERENCES

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