



## Roof Mounted Equipment

The principle of the bituminous built-up roof is well over a hundred years old. The economy, serviceability and long life of a waterproof shield consisting of alternate layers of bitumen and felt, custom built to fit the roof deck, has not as yet been equalled.

The built-up roof usually exceeds its life expectancy, however, despite this excellent record, problems in built-up roofing have been on the increase over the past thirty years. Largely responsible are new construction methods, new decks, new insulations and the practice of all year construction where traditional, inherent weaknesses have been aggravated and where the long term effects of these new concepts have been misunderstood or ignored.

Also responsible have been the conditions to which the built-up roof has been subjected over the period of its life. Not the least of these is equipment mounted on the roof. Today's building is not only fitted with the familiar flag pole, roof vent and stub column but is also subjected to air conditioning, heating and refrigeration equipment mounted on the roof. A significant feature of this roof mounted equipment is that it contains machinery which causes vibration. The mounting, therefore, should be designed so that vibration transmitted to the curb which supports the bituminous flashings is minimized.

Vibration transmitted through the deck cannot be entirely eliminated. However, its effect will be on the roof membrane and flashing membrane equally.

What can be prevented is differential vibration where the effect at the flashing is much greater.

Installation of roof mounted equipment often poses a problem with inadequate precautions taken to protect the membrane during installation and subsequently from the standpoint of maintenance.

CRCA recommends that roof mounted equipment be installed on raised platforms so as to provide an approximate 10-inch curb against which proper flashings can be constructed. For maintenance personnel some form of walkway such as duckboards should be installed.

Other little recognized items, but those forming a large portion of roof mounted equipment are parapet walls, penthouse construction and cladding of higher walls, all completed over the finished roof membrane without, or with inadequate protective measures. In severe cases, CRCA recommends that designers consider, where practical, the use of the vapour barrier as a temporary roof until this construction is completed. It can then be repaired and the roof completed in safety. It is not uncommon to cut into an insulated roof and find that the vapour barrier has been keeping out the water because the roof membrane was punctured.

Some roofing contractors, for their own protection, keep photographic records of their jobs. On too many jobs these photographs show the terrible abuse to which the membrane has been subjected. One wonders if any other completed component of a building is treated so carelessly during building construction and ignored so consistently afterwards.