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Fusible Links and Components of Fire Rated Hardware

Fire rated hardware plays a key role in helping to control and contain the effects of fire in a *building*.

During a fire, falling debris and/or a hose stream can activate door release hardware, causing the latch to disengage the strike plate on the frame, which allows the door to open. Fire rated hardware is designed to be unaffected by falling debris and/or the hose stream.

Hardware must achieve compliance with ULC CAN4-S104 "Standard Method of Fire Tests of Door Assemblies" as required by the British Columbia Building Code. Other similar tests include UL 10B, ASTM E152 and NFPA 252.

CAN4-S104-M80 Sentence 6.1.6. states: *"When hardware is to be evaluated for use on fire doors, it shall hold the door closed during the entire period for which the rating is required and, in addition, the latch bolt shall remain engaged in its intended strike and shall be intact after the test. The hardware need not be operable after the test"*.

Test methods are intended to evaluate the ability of a door assembly to remain in an opening (closed and latched position) during a predetermined fire exposure period and hose stream test.

This performance based requirement gives the manufacturers flexibility when choosing a method to achieve compliance, whether it is fusible links and/or fusible components as part of the fire rated hardware design.

Flexibility allows components of fire rated panic hardware and lever handles to be made from materials that are combustible or that have low melting points. Levers and vertical rods made from materials, such as aluminium or zinc, will disintegrate, leaving the latch mechanism remaining on or in the door, with no ability for a hose stream or falling debris to activate it.

Fire rated mortise latch sets, that have levers made of solid brass, bronze or stainless steel, may incorporate a fusible link, such as a plastic or zinc component, in the releasing mechanism. During a fire the fusible link disintegrates. The lever handle may still be movable but a hose stream or falling debris impacting the lever handle will not operate the latch.

Vertical rod, fire exit panic hardware, certified without the lower vertical rod, are provided with a spring loaded bolt, activated by a "fusible link", for the bottom of the fire door. This product addresses the problem caused by the constant damage that the lower rods and latch receive in hospitals or schools. A bent lower rod or damaged lower latch can mean that the lower latch will not fully engage its strike plate. This condition can remain undetected as the upper latch may still hold the door closed.

Compliant panic hardware is also labelled as "fire exit hardware" and like all fire rated hardware, must be certified for this use in Canada (ULC, cULus, cWHus, etc.) and acceptable to the *authority having jurisdiction*.

Uncertified or improperly installed latching hardware, door viewers, hinges, astragal plates and guarding devices, may compromise the *fire-resistance rating* and certification of a fire door.

The contents of this Information Bulletin are not intended to be provided as legal advice and should not be relied upon as legal advice.

Information Bulletins are distributed to British Columbia Fire Departments, Local Assistants to the Fire Commissioner and where applicable, other related agencies and authorities, in order to provide general information on fire-related issues.

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