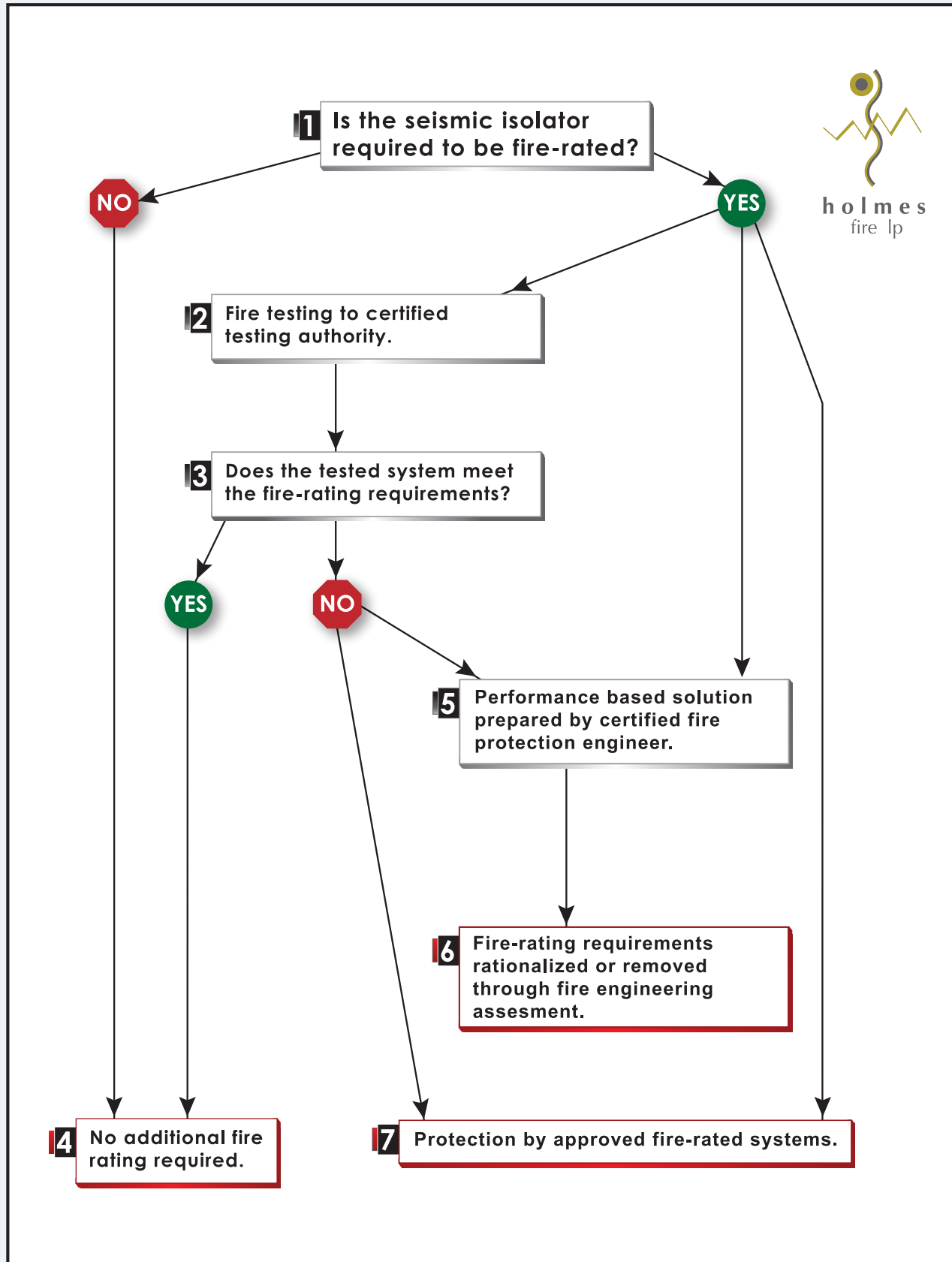




DYNAMIC ISOLATION SYSTEMS

Fire Protection of Seismic Isolation Systems





Explanatory Information



- 1** Is the seismic isolation system required to be fire protected under the relevant building code regulations or other building regulations specific to the building use? An example of these requirements can be found in Section 714.7 of the International Building Code (IBC) and the protection of seismic systems. There are many instances where fire protection of the seismic isolation system may not be required. Guidance on methods to assess the requirements are provided within Section 703.2 of the IBC and Section 703.3 of the CBC. The specific requirements should be confirmed with the Authority Having Jurisdiction(AHJ).
- 2** If protection of the seismic isolator is required, one method to determine the fire-resisting performance of the system, is to have the isolator tested by a Nationally Recognized Testing Laboratory (NRTL) that is certified by the State Fire Marshall Office for that testing. Testing will generally be undertaken in accordance with ASTM E119 and any other standards cited by the AHJ.
- 3** Testing will determine if the seismic isolation system meets the specific fire-resistance requirements. If the tested system does not meet the specific requirements, additional protection measures such as approved fire-rated materials may be required to protect the system [7] alternatively a fire engineering assessment undertaken by an accredited professional fire protection engineer may be undertaken to justify the unprotected seismic isolation system [6].
- 4** If testing the isolation system by a NRTL demonstrates that the specific fire-resistance requirements are met, then no further fire protection measures are required. It should be confirmed that there are no additional requirements by the AHJ that are specific to the particular building use.
- 5** Another method of satisfying the fire protection of the seismic isolation system is to have a fire engineering assessment undertaken by an accredited professional fire protection engineer.
- 6** The fire engineering assessment may consider fuel loading, location and fire exposure of the isolators, fire protection measures installed in the building and other relevant factors to rationalize the fire protection measures required to the isolators. A likely outcome from such an assessment is that no additional fire protection measures would be required to achieve the required level of fire safety.
- 7** Another method to achieve the required fire protection of the seismic isolation system is to conceal the system within an approved and appropriately tested fire-rated product, such as a gypsum board enclosure, fire-rated fabric wrap or similar proprietary system. It is important that whatever system is selected to achieve the necessary fire rating, will not impair the performance of the seismic isolator under seismic loadings. Guidance can be provided by an accredited fire-protection engineer on appropriate systems suitable for protecting seismic isolating systems.