

Ignis Advice

Evaluation No.4099.3 [2016]

**Technical Desktop Review
for compliance of penetrations
through the ResCom MgO board**

ResCom – MgO Board

Penetrations

IGNIS

Advice

No. 4099.3 I01R00


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To Whom It May Concern:

Introduction

Ignis Solutions has been engaged by ResCom to evaluate the compliance of penetrations through their MgO board in accordance with the National Construction Code – Volume One – Building Code of Australia 2016 (BCA).

The ResCom MgO board is a Magnesium Oxide board available in a number of thickness, being 10mm, 12mm, 14mm, 15mm and 18mm. The following evaluation is based on compliance with the Deemed to Satisfy requirements of the BCA Clause A0.2(b) being a Deemed-to-Satisfy Solution where penetrations through the ResCom MgO Board where the board is used in a wall, floor or ceiling within a building.

BCA Compliance

Penetrations in a building element (being a floor, wall, ceiling or the like) is to comply with the requirements of Clause C3.15 of the BCA. Clause C3.15 of the BCA permits three methods of compliance:

1. Tested Systems; or
2. Ventilation and air-conditioning; or
3. Compliance with Specification C3.15.

ResCom recommends penetrations comply with the requirements of BCA Specification C3.15.

Clause C3.15 of the BCA sets requirements for select penetration scenarios. These include:

- A. Metal Pipes,
- B. Sanitary plumbing (metal or UPVC),
- C. Wire or cables (individual or cluster),
- D. Electrical switch, outlet or the like.

The requirements under Clause C3.15 and Specification C3.15 of the BCA for each of the penetration scenarios is detailed below.

Conclusion

Penetrations of the materials detailed above, through the ResCom Board will comply with the BCA through Performance Requirement CP6, Clause C3.15 and Specification C3.15 if installed as detailed below.

A. Metal Pipes

The metal pipe is permitted to penetrate the ResCom board provided;

- i. It does not contain a flammable or combustible liquid or gas; and
- ii. Comprised entirely of metal (excluding pipe seals or the like); and
- iii. If not normally filled with liquid the penetration through the ResCom MgO board must not be located within 100mm of any combustible building elements or where combustible elements may be located adjacent to the penetration. This includes any timber studs or beams supporting the ResCom MgO Board; and
- iv. The opening must be neatly formed, cut or drilled; and
- v. Be no closer than 200mm to any other service penetration; and
- vi. Accommodate only one pipe within the single penetration; and
- vii. The gap between the pipe and floor must be fire-stopped as follows:
 - a. Any lagging or thermal insulation through the penetration must be fire-stopping material of concrete, high-temperature mineral fibre, high-temperature ceramic fibre or other material that does not flow at a temperature below 1120°C when tested in accordance with ISO 540;
 - b. Any fire stopping material used must have been tested in accordance with AS 1530.4 and demonstrate to not impair the fire-resisting performance of the building element or fire-resisting performance of the test slab;
 - c. If the penetration of the metal pipe is through a hollow wall or floor/ceiling system, the cavity must be framed and packed with fire-stopping material that is packed into the gap between the metal pipe to a thickness of 25mm all round the service for the full length of the penetration and compressed to the same degree as tested in accordance with AS 1530.4.

B. Sanitary plumbing (metal or UPVC)

- i. Is of metal or UPVC pipe; and
- ii. Where it penetrates floors be of a Class 5, 6, 7, 8 or 9b building only; and
- iii. If in a sanitary compartment separated from other parts of the building by walls with an FRL required by BCA Spec C1.1 for a stair shaft in the building and a self closing -/60/30 fire door; and
- iv. The opening be neatly formed and no large than is necessary to accommodate the pipe or fitting; and
- v. The gap between the pipe and floor must be fire-stopped as follows:
 - a. Any lagging or thermal insulation through the penetration must be fire-stopping material of concrete, high-temperature mineral fibre, high-temperature ceramic fibre or other material that does not flow at a temperature below 1120°C when tested in accordance with ISO 540;
 - b. Any fire stopping material used must have been tested in accordance with AS 1530.4 and demonstrate to not impair the fire-resisting performance of the building element or fire-resisting performance of the test slab;
 - c. If the penetration of the pipe is through a hollow wall or floor/ceiling system, the cavity must be framed and packed with fire-stopping material that is packed into the gap between the pipe to a thickness of 25mm all round the service for the full length of the penetration and compressed to the same degree as tested in accordance with AS 1530.4.

C. Wire or cables (individual or cluster)

- i. The opening must be neatly formed, cut or drilled and no closer than 50mm to any other service; and
- ii. The opening must be no larger in cross-sectional area than
 - a. 2,000mm² if only a single cable is accommodated and the gap between the cable and wall, floor or ceiling is no wider than 15mm; or
 - b. 500mm² in any other case; and
- iii. The gap between the service and the ResCom MgO board must be fire-stopped as follows:
 - a. Any lagging or thermal insulation through the penetration must be fire-stopping material of concrete, high-temperature mineral fibre, high-temperature ceramic fibre or other material that does not flow at a temperature below 1120°C when tested in accordance with ISO 540.
 - b. Any fire stopping material used must have been tested in accordance with AS 1530.4 and demonstrate to not impair the fire-resisting performance of the building element or fire-resisting performance of the test slab.
 - c. If the penetration of the metal pipe is through a hollow wall or floor/ceiling system, the cavity must be framed and packed with fire-stopping material that is packed into the gap between the pipe to a thickness of 25mm all round the service for the full length of the penetration and compressed to the same degree as tested in accordance with AS 1530.4.

D. Electrical switch, outlet or the like.

- i. If an electrical switch, outlet, socket or the like is accommodated in an opening or recess in a wall, floor or ceiling of ResCom MgO board, the opening or recess must not:
 - a. Be located opposite any point within 300mm horizontally or 600mm vertically of any opening or recess on the opposite side of the wall; or
 - b. Extend beyond half the thickness of the wall; and
- ii. The gap between the service and the ResCom MgO wall, floor or ceiling must be fire-stopped as follows:
 - a. Any lagging or thermal insulation through the penetration must be fire-stopping material of concrete, high-temperature mineral fibre, high-temperature ceramic fibre or other material that does not flow at a temperature below 1120°C when tested in accordance with ISO 540.
 - b. Any fire stopping material used must have been tested in accordance with AS 1530.4 and demonstrate to not impair the fire-resisting performance of the building element or fire-resisting performance of the test slab.
 - c. If the penetration is through a hollow wall or floor/ceiling system, the cavity must be framed and packed with fire-stopping material that is packed into the gap between the pipe to a thickness of 25mm all round the service for the full length of the penetration and compressed to the same degree as tested in accordance with AS 1530.4.