The 2 referenced Reports below are from a Registered Testing Authority which meet A2.2, A2.3 and Specification A2.3 of the BCA (NCC) - DTS Compliance for Tested Systems:

**Exova Report RIR 27186 ID H33**: TBA Firefly Intubatt Frameless Boxout System consisting of 2 staggered layers of Intubatt hung from 2 parallel 50mm x 50mm x 1.5mm Galvanised Steel Angles, fixed to a Concrete Floor. Maximum External dimensions 600mm x 600mm x Infinite Length.

**Exova Report RIR 34088500**: All services contained within Table 1, Table 3, Table 3a, Table 3b, Table 5, Table 6, Table 8, Table 8a and Table 8b may pass through Seal ID H33

Spacing between Multiple Service Penetrations: Minimum 40mm apart
Overview of some of the Tested services through the vertical element of the double layer TBA Firefly Intubatt Boxout System Seal:
The Specific Service ID No's referenced below are from Exova RIR 34088500:

**ID V1 - D1 Power Cables with Tray:**
Protected with TBA Firefly Penowrap

**ID V59 - Pair Coil, Flexidrain & Cables:**
Protected with Intumastic HP

**ID V68 - PEX-AL Gas Pipe Up to 43mm OD:**
Protected with Intumastic HP

**ID V70 - 3 x 27mm OD PVC Conduits with NBN Cables:**
Protected with Intumastic HP

**ID Table 3a - ABB IP55 Busducts:**
Protected with TBA Firefly Penowrap

**ID Table 3 - VASS Electrical Busways:**
Protected with TBA Firefly Penowrap

**ID V67 - Up to 300mm OD Steel Pipe:**
Protected with TBA Firefly Penowrap

**ID V38 - 150mm uPVC Pipe:**
Protected with TBA Firefly RF150 Fire Collars
Overview of some of the Tested services through the horizontal element of the double layer TBA Firefly Intubatt Boxout System Seal:
The Specific Service ID No's referenced below are from Exova RIR 34088500:

ID H1 - D1 Power Cables with Tray:
Protected with TBA Firefly Penowrap

ID H40 - Pair Coil, Flexidrain & Cables:
Protected with Intumastic HP

ID H49 - Up to 43mm OD PEX AL Gas Pipe:
Protected with Intumastic HP

ID H51 - NBN Triple Conduits with Cables:
Protected with Intumastic HP

ID Table 8 - VASS Electrical Busways:
Protected with TBA Firefly Penowrap

ID H26 - 150mm uPVC Pipe:
Protected with TBA Firefly RF150 Fire Collars

ID Table 8a - ABB IP55 Busducts:
Protected with TBA Firefly Penowrap

ID H48 - up to 300mm OD Steel Pipe:
Protected with TBA Firefly Penowrap
**BOXOUT INSTALLATION METHOD**

**Step 1.**
Install 2 parallel 50mm x 50mm x 1.5mm Steel angles to the underside of the masonry slab using min 40mm long M6 Steel Masonry fixings @ 300mm centres.

**Step 2.**
Paint the underside of the slab and the top side of the Intubatt with Intumastic. Offer up a layer of Intubatt and screw fix it into the angle using 8g 75mm self-tapping screws and penny washers @ 200mm centres.

**Step 3.**
Then offer up a layer of Intubatt and screw fix it into the down leg of the angle using 8g x 75mm self tapping screws and penny washers @ 200mm centres.
Step 4.
Once the first layer of Intubatt is installed, repeat the process for the second layer ensuring that all abutments and joints are painted up with Intumastic.

Step 5.
Install the second layer and laminate it to the first layer ensuring a minimum 200mm stagger offset joint. Secure into place using Intumastic and 90mm Pigtail screws @ 100mm centres at the top and bottom of the sheet and Pigail screws across the centre line of the 1200mm sheet.

Pigtail Screw

Step 6.
Paint up all joints and abutments, offer up the first horizontal layer of Intubatt and secure into place by screwing through the downlegs of the Intubatt into the horizontal Intubatt using 90mm Pigtail screws @ 100mm centres.
Step 7.
Laminate the second layer of Intubatt to the first using Intumastic and 90mm Pigtail screws @ 100mm centers at the long edges of the Intubatt and 3 Pigtail screws down the centre line.

Step 8.
Continue with the same methodology. Cutting the Intubatts into jigsaw pieces around existing service penetrations and treating them locally with the correct TBA Firefly Fire-stopping Systems detailed within Exova RIR 34088500.