

To : Steve Maskell of MgO Corporation

From : Tony McAuliffe (Selleys Trade Technical)

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### **Adhesive Bonding of 6mm thick board form MgO Corporation using Selleys Adhesives**

#### **Materials tested:**

- 6mm Thick sheets of MgO as provided by supplier
- Selleys: a) Flexistik Polyurethane 100% solids adhesive  
b) Proseries Fireblock PSA Composite Fire and Acoustic Sealant

#### **Test Method:**

**A) Flexistik** . Pine timber blocks and Galvanised sheet panels were bonded to the rear surface of the supplied MgO panels by applying 'Blobs' of Flexistik to the surface and pressing the pine blocks and galvanised sheet onto the MgO board.

Initial adhesive 'grab' was assessed by immediately debonding the test pieces and then repositioning the pieces. After full cure (3 days) the samples were assessed for the strength of the overall bonding system.

#### **Results:**

Initial Grab: Good--> While there may be sufficient 'wet grab' to hold the board without other mechanical support as adhesive strength develops; this will need to be determined by appropriate site trials on full sized panels.

Adhesion to MgO Board---> excellent (board failure)

Pine Timber---> excellent adhesion (could not be removed without severely damaging the MgO board)

Galvanised Panel-> excellent adhesion (high bond strength)

**B) Fireblock** Sealant was evaluated by applying gunned strips of sealant to the edge and rear of the MgO board and then testing for peel adhesion strength after 7 days cure. This involves peeling the sealant bead from the surface and undercutting at the adhesion interface to force failure.

#### **Results:**

Peel adhesion strength----> Strong adhesive bond

Mode of failure---> There was neither adhesive nor cohesive failure of the sealant. As the sealant was peeled from the board, the top surface of the board was removed. In effect the adhesive strength of the sealant was greater than the cohesive strength of the board itself.

#### **Recommendations:**

From these Results

- a) Flexistik is suitable adhesive to bond the MgO boards to typical stud walls composed of either Pine wood or galvanised iron. Adhesive strength was ample for this application. On site tests should be used to confirm degree of additional mechanical fixing that may be required (if at all) to support panels during initial cure.
- b) Fireblock sealant bonds well to both the edge and surfaces of these panels and is a suitable sealant to provide fire rated joints for these panels. Please note that many fire rated systems, depth of sealant is an important consideration that needs to be taken into account to determine the overall fire rating of the whole system.

Work and report by: Tony McAuliffe (Selleys Trade Technical)