

TECHNICAL BULLETIN – TB050

MOVEMENT AND CONTROL JOINTS IN CONCRETE & TOPPINGS

Date, Monday, 15 September 2014

INTRODUCTION & SCOPE

The flooring contractor is often asked to complete building works that goes against Building Standards and good practice. One of the most commonly asked for repair procedures is for products and methods to fill in **movement joints in concrete**.

Another issue that should be considered is the maximum size of panel size for topping areas, particularly where the thickness exceeds several millimetres. The purpose of doing this is to reduce strain within the system.

The following points are the basic building requirements for treatment or filling of movement joints and recommended sizes of topping pours.

PANEL SIZES

Where areas of floor smoothing cement are to be poured onto large area subfloors which have either no or few control or movement joints (for example hundreds to thousands of square metres), the maximum size of panel that can be poured shall not exceed 100m² and no single dimension should exceed 8m-10m in length without prior consent of Ardex.

For areas exceeding these dimensions control movement joints shall be installed in the topping system between adjacent pours such that these dimensions are not exceeded. These joints must be full topping thickness and be filled with a flexible sealant or metal joint strip. Further, existing subfloor joints whether they correspond or not with the topping joints must also be carried through the topping.

Typically this process will entail either detailing the joints before had with edge strips (if permanent), or pouring the topping and then cutting the joints to full thickness of the topping the day after it is poured (when hard enough to take the weight of a diamond floor saw).

TOPPING CONTROL JOINTS

- Control joints in toppings may be filled with rigid materials after 28-42 days of cure have elapsed from the time of the pour (e.g. ARDEX A45 or an epoxy such as ARDEX RA88).

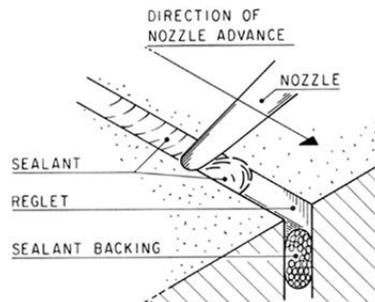
MOVEMENT JOINTS

- Low modulus silicone, polysulphide, silane-urethane or polyurethane sealants should be specified for concrete movement joints.
- The selection of the joint filling compound is directly related to the expected movement of the joint and sealants should have durability requirements that pertain to ASTM specification C920 (<http://www.astm.org/Standards/C920.htm>), type S (single component), grade NS (non-sag), and class 25 (25% expansion).
- Joint filling materials generally are required to be capable of movement to $\pm 50\%$ of the joint width and comply with ASTM C719

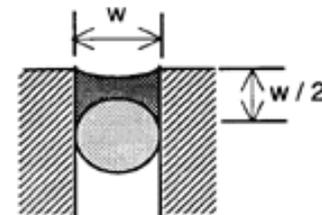


(<http://www.astm.org/Standards/C719.htm>) to determine joint movement capability.

- Joint filling is typically achieved by placing a polyethylene backing rod (compressed to no more than 25% of the rod diameter) in the joint. The backing rod is placed just below the joint surface to ensure that the Low Modulus Sealant, when installed, will have a width to depth ratio of 2:1. Maximum width using this system is typically 30mm.



<http://www.nrc-cnrc.gc.ca/eng/fbp/irc/cbd/building-digest-96.html>



Depth-to-width ratio

<http://www.nrc-cnrc.gc.ca/eng/fbp/irc/cp/sea2.html>

- An alternative is to use a proprietary pre-made type of floor joint (for example 'Latham joints' <http://www.latham-australia.com/> or 'Miska joints' <http://www.miska.com.au/>).
- A.S. 1884-2012 section 4.2 (f) states "Floor coverings shall not be laid over structural expansion joints or construction joints."
- B.S. 8203-2001, Section 4.4.1 states, "Floor coverings should not be installed to cover expansion joints. A proprietary joint should be inserted and the floor covering terminated either side of this joint."
- **Floor levelling cements or indeed any type of cement based product WILL NOT fall into the category of a "low modulus" material. These materials are very rigid, do not deform and are high modulus materials.**
- High modulus cements will either be cracked or crushed and then forced out of the joint with resultant show through and possible damage to vinyl. Tiles may be cracked, and joint lines fail.
- The site engineer should be required to specify the type of movement joint construction used. All products and systems to be used for the filling of movement joint should be forwarded to the site engineer for approval prior to use.
- Floor covering manufacturers have specified joint configurations to be followed.

SUMMARY

Should the contractor wish to take the risk, and install a floor-levelling cement, they consequently then take the ultimate responsibility of replacement costs, should there be a failure of the applied system.

Ardex recommends that where floor levelling cements are applied in these situations the joints are marked on the floor prior to any levelling installation. After the topping has set completely, a 3mm thick diamond saw is used to

make clean cuts through the floor levelling cement for the placement of suitable joint materials.

Where Ardex Moisture Barrier is used, the barrier must be re-instated back into the cut, as detailed in Ardex Technical Bulletin TB006 or TB192.

IMPORTANT

This Technical Bulletin provides guideline information only and is not intended to be interpreted as a general specification for the application/installation of the products described. Since each project potentially differs in exposure/condition specific recommendations may vary from the information contained herein. For recommendations for specific applications/installations contact your nearest Ardex Australia Office.

DISCLAIMER

The information presented in this Technical Bulletin is to the best of our knowledge true and accurate. No warranty is implied or given as to its completeness or accuracy in describing the performance or suitability of a product for a particular application. Users are asked to check that the literature in their possession is the latest issue.

REASON FOR REVISION

Addition of Ardex RA88 epoxy. Some text modifications.

REVIEW PERIOD

24 months from issue

NSW 02 9851 9100, **QLD** 07 3817 6000, **VIC** 03 8339 3100, **SA/NT** 08 8406 2500, **WA** 08 9256 8600

New Zealand (Christchurch) 64 3384 3029

Web: <http://www.ardexaustralia.com> email: technicalservices@ardexaustralia.com

