

BBBF

testing

LDM 1202

LABORATORY DEVELOPED METHOD 1202

TESTING EMBEDDED ANCHORS IN GLASSFIBRE
REINFORCED CONCRETE – SHEAR LOAD

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SECTION 1: SCOPE

This laboratory developed method prescribes a process for determining the ability of a fixing insert or anchor to withstand shear applied load when embedded in Glassfibre Reinforced Concrete (GRC) material.

It is not intended to test the force required to detach a rib, pad or other formed section which may contain the embedded insert or anchor from a thinner section of GRC. Such forces must be calculated by a suitably qualified engineer using the known characteristics of the material determined by other test results.

SECTION 2: APPARATUS

- 2.1.: A suitable mechanical puller device which is capable of progressively applying a pull-out force to the insert.
- 2.2.: An attached electronic or analogue hydraulic gauge capable of measuring an applied force up to 25kN. The gauge is to be accurate to within 0.5% of the applied load and have been calibrated within the previous twelve months with full metrological traceability to ISO 17025: 2017.
- 2.3.: A suitable device to measure first movement of the anchor or fixing accurate to 0.02 mm.
- 2.4.: A restraint fixture constructed to the dimensions indicated in Figure 1.
- 2.5.: A fabricated metal puller constructed in 10 mm steel with attached A2 x 12 mm stainless steel threaded rod as illustrated in Figure 2.

FIGURE 1

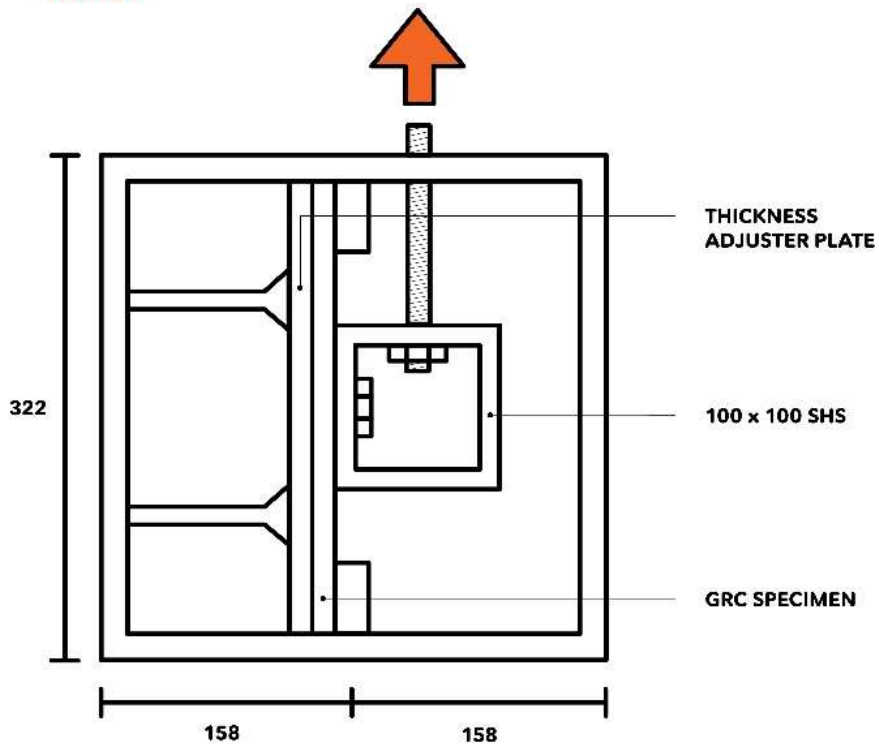
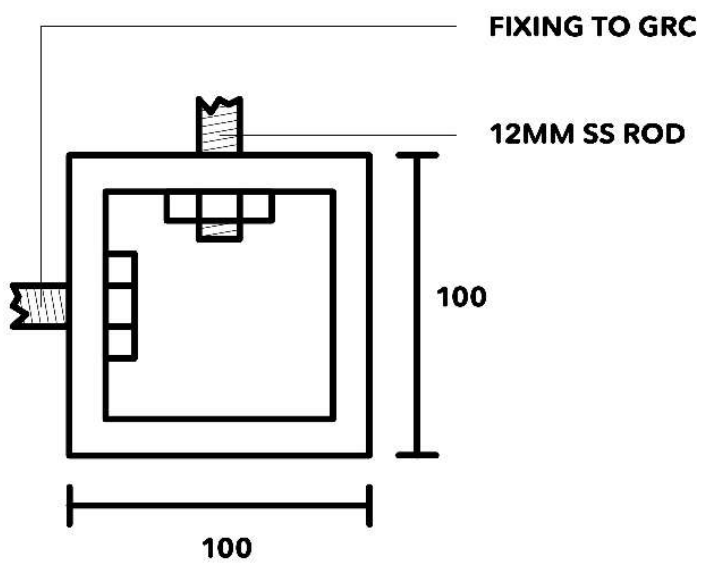


FIGURE 2



SECTION 3: TEST SPECIMEN

The test specimen shall be manufactured to a size deemed appropriate to that of the manufacturing process and be representative of the quality and characteristic properties of the finished product.

- 3.1.: The specimen shall be 300 mm x 300 mm.
- 3.2.: The thickness of the specimen must represent that to be used in the actual production and should be uniform across the specimen. The maximum thickness should be 100 mm.
- 3.3.: The fixing must be located centrally along both x and y axis.

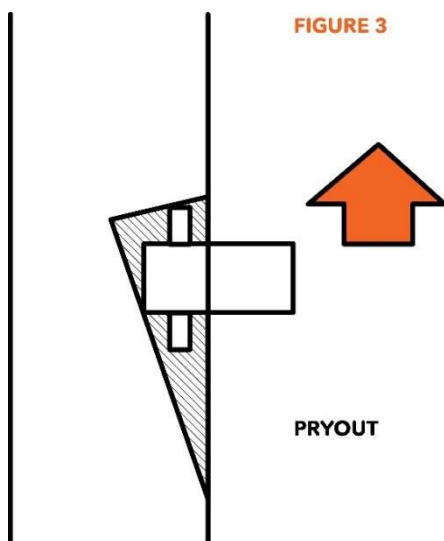
SECTION 4: NUMBER OF TEST SPECIMENS

A minimum of 4 specimens shall be tested.

SECTION 5: PROCEEDURE

- 5.1.: The specimen is to be placed in a vertical orientation within the restraint fixture.
- 5.2.: The specimen is to be restrained against the restraint lip using the restraining screws as illustrated.
- 5.3.: The rectangular hollow section adapter is to be attached to the specimen using a suitable length and thread A2 stainless steel bolt.
- 5.4.: The mechanical puller is to be placed directly over the hole at the top of the fixture and attached according to the manufacturer's instructions to the stainless-steel rod.
- 5.5.: The hydraulic gauge is to be attached to the puller and if necessary, set to zero.
- 5.6.: Load is to be progressively applied incrementally with the applied load being recorded at each increment.
- 5.7.: Continue applying load incrementally until the gauge records first movement of the fixing.
- 5.8.: Record the applied load at first movement.
- 5.9.: Remove the puller and spreader plate.

- 5.10.: Measure the displacement of the fixing.
- 5.11.: Re-attach the puller and apply load until fixing pulls out of the specimen allowing measurement of the pry out.
- 5.12.: Record the measurement of the pry out area.
- 5.13.: In the vent there is no failure at maximum load this should be noted in the notes section.



SECTION 6: TEST REPORT

The test report should detail the following:

- 6.1.: Name of manufacturer.
- 6.2.: Manufacturing process used (Spray or Premix).
- 6.3.: Age of specimen.
- 6.4.: Type of fixing including thread, depth, and material.
- 6.5.: Applied load at each increment.
- 6.6.: Failure load of each specimen at first movement.
- 6.7.: Displacement of anchor or fixing at first movement.
- 6.8.: Diameter of failure cone for each specimen.