



# CHEMICAL ANCHOR PLATES IN BRICK MASONRY WALLS.

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## IS IT:

*Product*

*Technology*

*Equipment*

## APPLICABLE FOR:

*Restoration*

*Rehabilitation*

*New Construction*

## APPLICABLE ON:

*1. Foundations and underground structures*

*2. Vertical structures*

*3. Horizontal structures and vertical connections*

*4. Roof and terraces*

*5. Façade and building envelope*

*6. Finishes and completion elements*

*7. Integrated services*

*8. General strategies for building recovery*

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***Related companies:*** No companies; university research; structural study.

## DESCRIPTION

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When it is necessary to effectively join walls with other walls (made of rammed earth, stone masonry or ceramic masonry) or when it is necessary to join floors or slabs with rammed earth walls, in order to improve the overall stability of the building and its seismic response capacity.

## WHY TO USE

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To avoid having to repoint (drill) the wall and form concrete support cubes.

## HOW TO USE AND APPLY

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By driving anchors after drilling with a drill bit and setting out by means of a suitable gauge.

1. Proceed with a campaign of tests to extract the anchors foreseen in a first pre-dimensioning, based on the data provided by the manufacturer/supplier. Normally, brick masonry walls with lime mortar are not included in the catalogs or in the experience of anchor manufacturers.
2. It is necessary to extract samples with tripod (to verify the tangential tension deduced from the starting cone of the masonry; and samples without tripod, to verify the tension of the anchor with the brick masonry).
3. From these tests, applying statistical criteria, proceed to set the design pull-out force, and the design shear force as a percentage.
4. Proceed to the calculation of the plate, number of anchorages and dimensions by conventional system, taking into account the worst case stresses and unifying the type of anchorage.
5. The calculation involves the consideration of the distance between anchorages and distance to the wall edges (coefficients of reduction of the characteristic values).

## TECHNICAL CHARACTERISTICS

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The execution technique has no variants with respect to what is foreseen in this type of anchorage, whether chemical or expansion anchors.

## RECOMMENDATIONS AND OTHER INFORMATION

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It is advisable to study possible differences in tensile capacity, depending on whether the anchors are located in the brick or in the mortar of sores or tendrils. Take the most unfavorable values.

Experience confirms that anchors even work better in the joints and tendons if they are not very thick and on the contrary if they are too thick.

In plate design, it is necessary to ensure by means of stiffening elements that all anchors "work", not only the first upper pairs.

With this system of plates and anchors, isostatic or hyperstatic frames can be formed, as appropriate for the design, taking into account building stability factors, especially in the case of replacing load-bearing walls with structural steel frames.

## EXAMPLES

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An example of a building in the Eixample district of Barcelona (Rbla. Catalunya 125) is provided.

See figures 1 - 8.

## REFERENCES / SOURCES AND LITERATURE

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N/A

## WEBSITE OF THE COMPANY

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[www.aceweb.cat](http://www.aceweb.cat)

## IMAGES AND CAPTIONS



Fig.1: Sample of anchors to be tested.  
©Josep Baquer



Fig.2: Anchor removal. ©Josep Baquer



Fig.3: Anchoring in solid brick. ©Josep Baquer



Fig.4: Anchoring in lime mortar (tendel). ©Josep Baquer



Fig.5: Plate with anchors and central stiffener to transmit forces to the set of anchor pairs.

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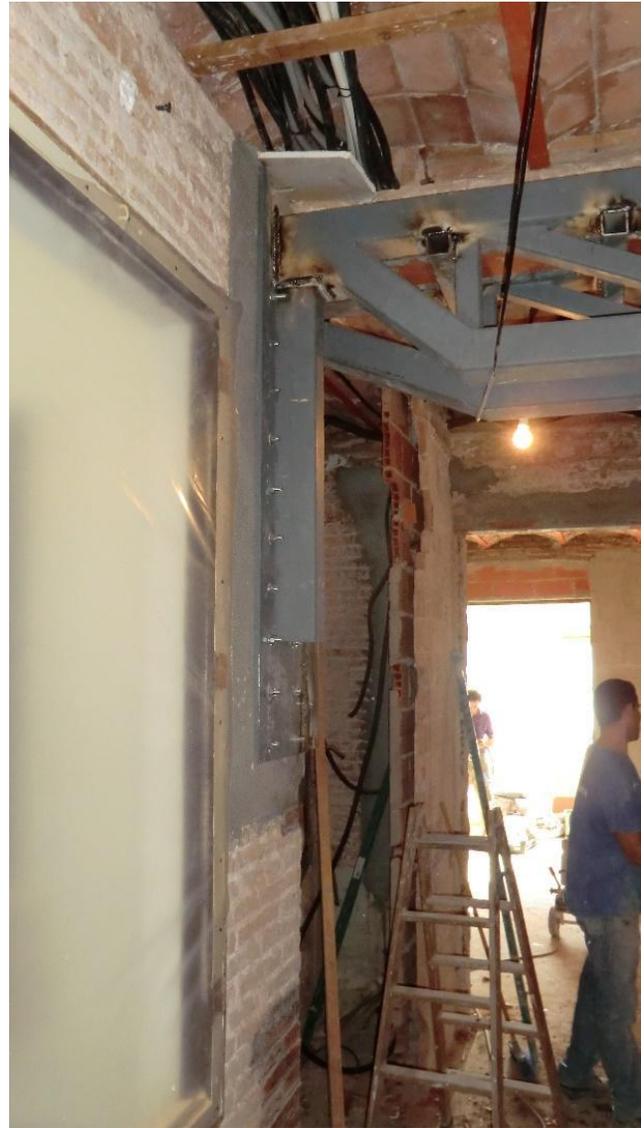


Fig.6: Anchor plate in a 15 cm thick wall, made of solid brick masonry with lime mortar. ©Josep Baquer

Details of project

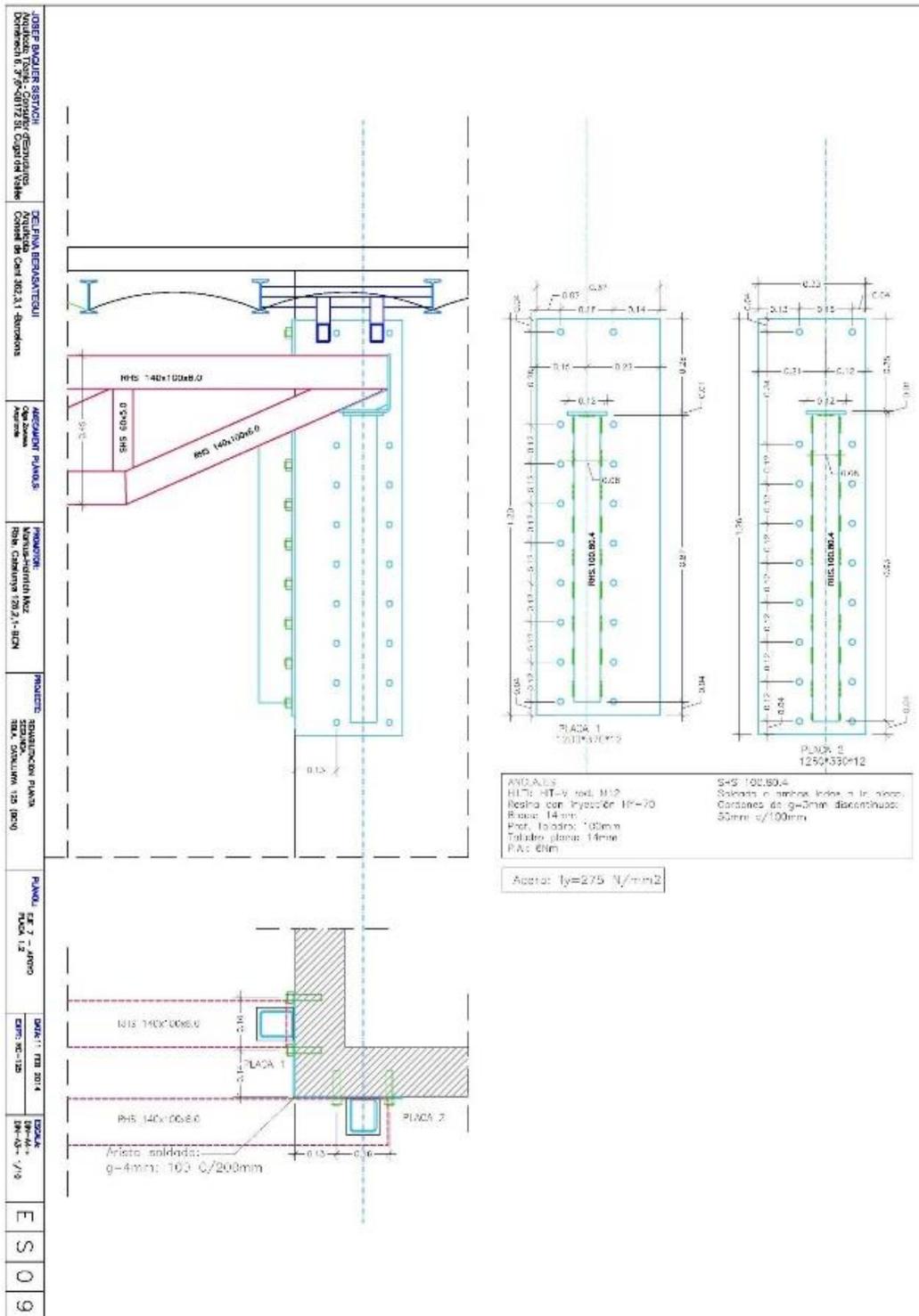


Fig.7: Technical details showing how to anchor the structural elements to the masonry wall. ©Josep Baquer

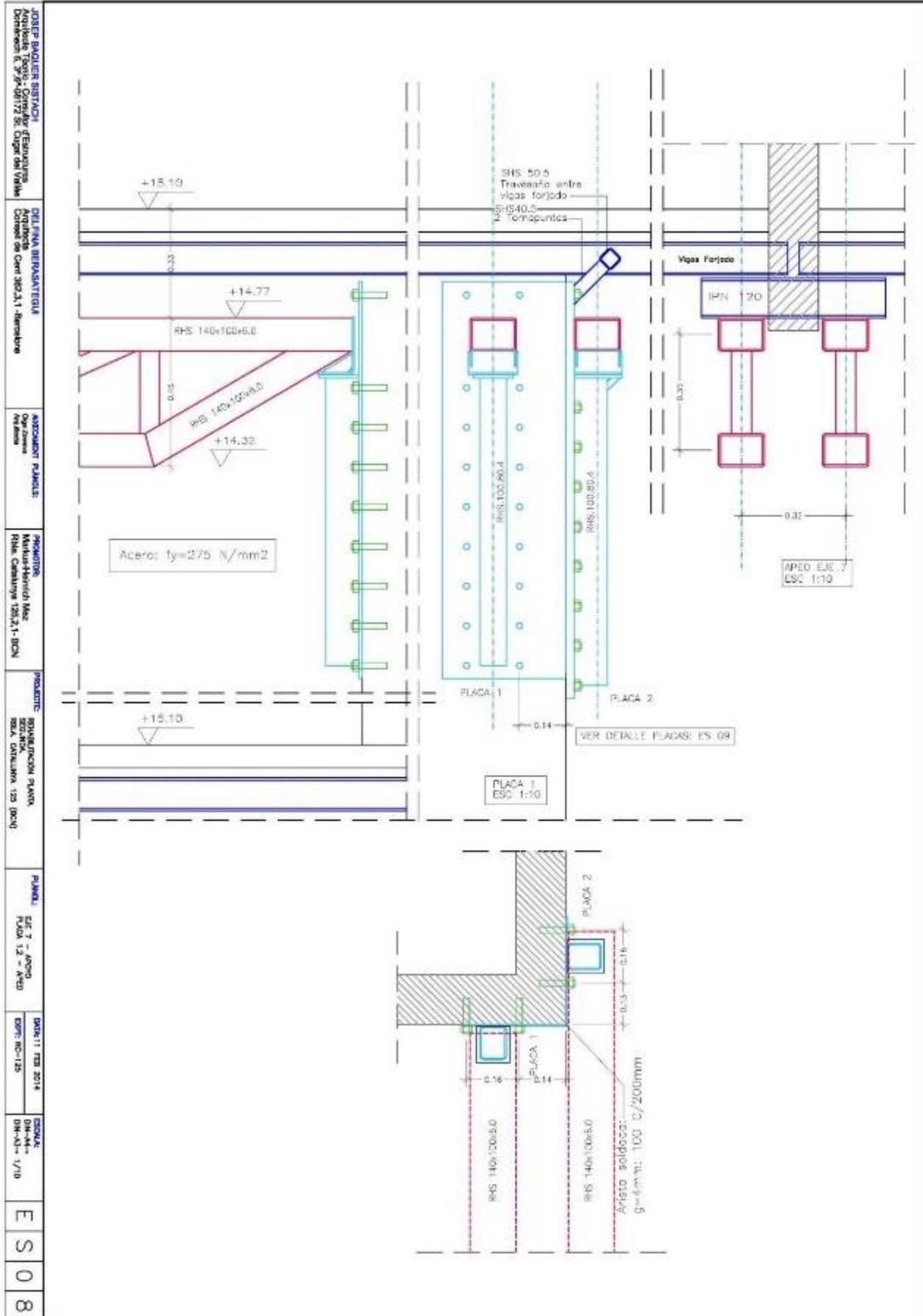


Fig.8: Technical details showing how to anchor the structural elements to the masonry wall. ©Josep Baquer