



St Enda's Graiguecullen, Carlow Town



Prepared by



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EXECUTIVE SUMMARY

The building was originally a stone structure, that was partially demolished, rebuilt and extended at some time in the past. This is evident by the fact,

1. The front wall is of stone structure with deep window reveals and drylining to the front wall only.
2. The chimney in the attic space is brick construction.
3. The gable walls in the attic space are block construction.
4. The rear and side walls do not contain drylining on the internal face
5. The rear window reveals are of a standard depth which is inline with block wall cavity construction.
6. Any cracking visibility internally is none structural, cosmetic in nature and require minimal works to complete repair.
7. Minor external cracking below windows on external walls is none structural, cosmetic in nature and require minimal works to complete repair.

The property is in reasonable and expected condition for a building of its age. The building contains two large structural cracks visible on each gable wall. The structural cracking is due to loadings transferred onto the gable walls from the existing timber purlins which are providing the main structural support to the roof. Cut Roof truss collars appear under sized for the span and do not appear to be taking any structural loading.

The properties roof structure will require the following interventions

1. Structural crack repair by means of helifix-bar to the joints of blockwork on each gable.
2. Introduction of a precast pad stone to at loading point from the purlin.
3. Increase Purlin size and or increased the number of supporting struts
4. Localised repair to roof membrane (replacement in full if budget requirements allow)

1. STRUCTURAL CRACKING

Structural Cracking was identified on both gable walls. The Structural cracking was also visible in the attic space on the Southern Gable. The structural cracking range between 4mm to 5mm in width. The structural cracks were larger in width at the top of the wall in comparison to the base of the wall. This would indicate the cracking is due to forces/movement at roof level rather than foundation level.

TA Group are of the opinion that the structural cracking is due to excessive loadings from the Roof, namely the roof purlins. See fig 1 to fig 6.

Southern Gable

Fig 1 (Southern gable, above flat roof garage due for demolition).



Fig 2 (Southern gable, taken from inside flat roof garage due for demolition)



Fig 3 – Measurement of crack



Fig 4 – Cracking to blockwork due to excessive loadings from purlin (southern gable)

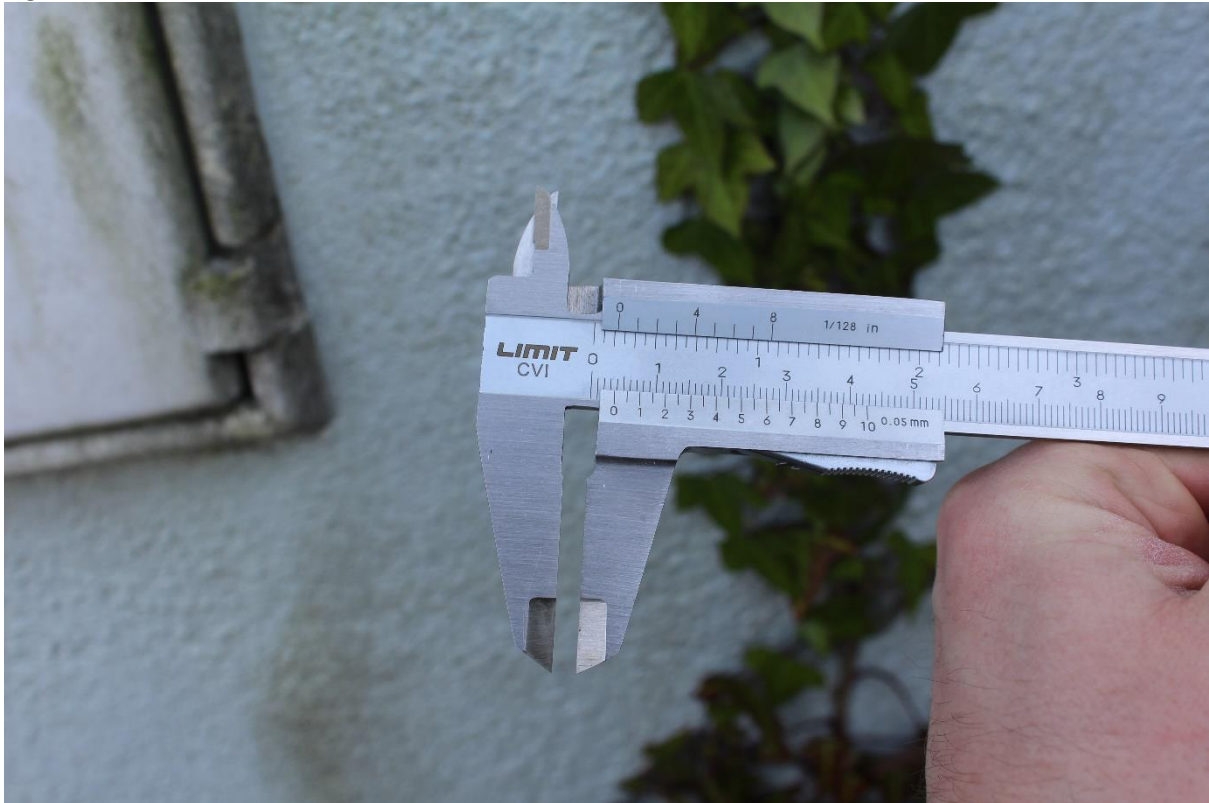


Northern Gable

Fig 5 – Northern gable visible cracking externally



Fig 6 – Crack dimension



2. ROOF STRUCTURE MODIFICATIONS AND REPAIR

The structural cracking to the gable walls is due to the lack of support to the Purlins and/or the under sizing of the purlins.

TA Group propose the following Roof Modifications

1. Double the number of Struts supporting the purlins. (See fig 7)
2. Double the number of Collar ties (See fig 7)
3. Use of helifix-bar to repair the inner leaf and outer leaf blockwork to each gable. The inclusion of a pad stone/bearing pad under each end of the purlin. (See fig 8&9)

Fig 7



Fig 8



Fig 9



3. OTHER WORKS

The following outlines other structural repairs required.

Roof Structure

1. As a Minimum localised roof membrane repair and treatment of timbers with any evidence of wet rot (See fig 10). TA Group would recommend replacement of all the roof membrane.

External Walls

2. Localised settlement/movement cracking below window cills (see fig 11)

Fig 10



Fig 11

