LV Service Termination (Bracket) Failures.

There have been two recent failures with regard to LV brackets and whilst the brackets themselves have remained intact, they have pulled bricks out of the wall, which have fallen to the ground. In both cases, the brackets have been under tension from ABC conductor and sited on relatively weak parts of the wall.

(1) Tension of the Conductor

The mechanical forces applied to a bracket (and fixings) from a conductor under tension can be significant and in cases where extension brackets are utilised, this load is magnified by the cantilever effect of the length of the bracket. As ABC conductor is generally installed under tension, there is a relatively large amount of force applied to the bracket (and fixings). This is not generally the case with concentric service cable which are usually pulled up "hand tight" and thus only the weight of the conductor is applied to the bracket (and fixings).

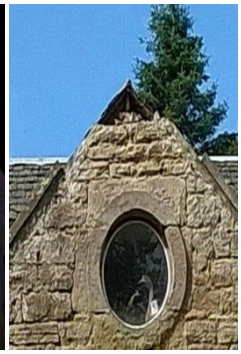
Considering the above, at present, single or three phase ABC conductor and three phase concentric service cables shall only be connected to flat wall brackets or corner wall brackets, though a new extension bracket that will be suitable for ABC conductor and three phase concentric service cable is currently under development.

(2) Position of All LV Brackets

Whilst it is not possible to test the integrity of the wall of the building, great care needs to be taken to ensure that the wall is suitable for the forces that will be applied. All LV brackets should be positioned away from the apex of the building or other locations where the wall may be weaker.

Typical Flat Wall Bracket

Typical Stand-Off Extension Bracket



Positions of Failed Brackets

Recommendations and Action Points

- LV brackets shall be installed in accordance with OHL-01-008 "Construction Policy for Distribution Overhead Lines" and OHL-03-110 "Specification for Overheads Line Services and Mural Wiring", which is currently being drafted and will be issued by the end of the year.
- Prior to any work being carried out, the wall shall be assessed for its suitability to take the forces applied.
- LV brackets shall not be positioned in the apex of the building or where the wall may be weaker.
- Only single phase concentric service cable may be attached to Stand-Off Extension Brackets.
- ABC and three phase concentric service cable may be attached to a corner bracket or a flat wall bracket.
- An ABC Extension Bracket, for use with single and three phase ABC and three phase concentric service cable, is in the process of being developed and should be available by the end of December 2015.

- Reminder: The maximum service span length for a single phase concentric service cable is 30m.
  The maximum service span length for a three phase concentric service cable is 15m.
  The maximum service span length for single and three phase ABC is 30m.