

G+2 Villa: Structural BOQ, Then Full BOQ

G+2 villa with pitched RCC roof, about 2,000 sq ft · India · Client names withheld

A builder sent the CAD drawings for one villa type. We measured the structure with a bar bending schedule, then every trade, and explained why his own RCC sheet was 50 m³ higher.

Key numbers

RCC (M25), house 133.35 m³	Steel (Fe500), house 13,178 kg	Centering and shuttering 11,621 sq ft
Excavation 4,790 cft	BOQ items, full BOQ 187	Bricks, main house 55,959

What the client asked

First the full structure: excavation, PCC, RCC, shuttering and steel with a BBS, plus two boundary wall options. Then RCC and PCC in cubic metres, slab areas in sq ft for his own client's billing, and an all-trades BOQ. Later, brick quantities in numbers.

Drawings received: 4 CAD (DWG) files: one architectural set and three structural sets (up to plinth, floor and roof framing, boundary wall).

What we did

- Measured the structure member by member: footings, columns through each floor, beams between column faces, slabs between beam faces, the pitched roof along its slope, stairs, lintels and bands.
- Wrote a cut-length bar bending schedule of about 3,600 rows for the steel.
- Extended the same workbook to all trades: 142 wall pieces, 49 openings and 34 rooms registered, plaster face by face, finishes room by room.
- Checked the client's own RCC sheet line by line and showed where each cubic metre of the difference came from.

How the numbers were checked

- Built a separate 3D model from the drawings and compared its concrete with the take-off: 125.20 against 126.73 m³ over the modelled scope (−1.2%), with every larger gap traced to a cause.
- Checked the bar sets against the drawing schedules: 131 of 131 beams, 64 of 64 column bands and 18 of 18 footings matched.
- Every BOQ quantity equals the sum of its measurement rows (187 items, 0 mismatches).

What we found in the drawings

- Five upper-floor columns are drawn larger on the plans than in the column schedule. We followed the schedule and listed it as an open point.
- A terrace edge noted as a parapet on the plan is a railing in the sections, so the coping was left out.
- The client's RCC sheet was 189.86 m³ against our 138.94 m³ (house plus boundary). The 50.92 m³ came from a blanket 5% wastage, the grade slab taken as 200 mm thick over the full plan, the roof counted twice, replaced footings counted alongside their replacements, and every column carried to every floor.

What the client received

- Structural BOQ in Excel: BOQ, basis, floor-wise measurement sheets, BBS and steel abstract. Dimensions in feet; RCC and PCC in m³.
- RCC comparison workbook explaining the client's figure step by step.
- Full BOQ in Excel, 27 sheets: summary, BOQ, slab areas, structure and 9 trade sheets, two boundary wall options, and a brick count sheet.
- 40 open points for the designer, listed in the BOQ.

The structural take-off with BBS went out the same evening the client paid. The all-trades BOQ followed the next day, a few hours after the add-on was paid.

Delivered and paid. Quantities only: the client applies his own rates.

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