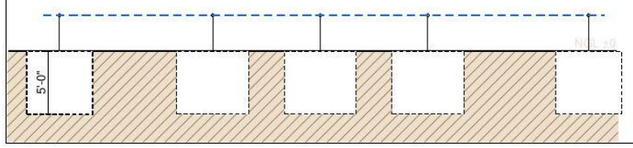
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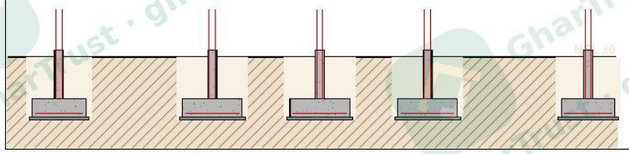
Sample drawing for illustration - all values indicative; final design by a qualified structural engineer per soil report and LDA/DHA bylaws

1 SITE MARKING & EXCAVATION



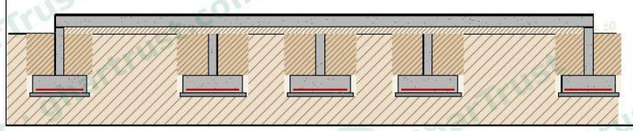
What happens
Layout from approved plan with pegs, string line & chalk; column centres checked with tape / diagonals.
Trenches / pits dug to about 5'-0" below natural ground (as per soil report).
Bottom levelled, rammed & watered.
Check
Plot size, setbacks, column grid, right angles (3-4-5 rule).

2 FOOTINGS: PCC + RCC PAD + COLUMN STARTERS



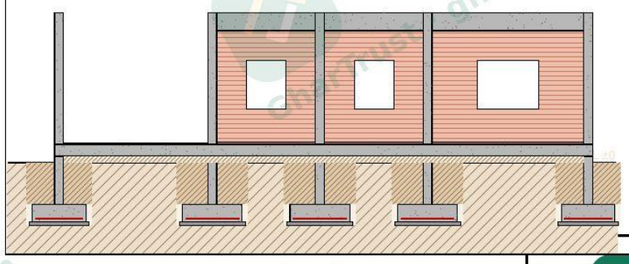
What happens
3" lean PCC 1:4:8 blinding layer.
RCC pad footing ~1'-6" thick, bottom mesh #4 (12mm) @ 6" c/c both ways, 3" clear cover.
Column starter bars (6 #5) + ties tied into footing mesh.
Concrete
1:2:4 (~3000 psi), vibrated, cured min. 7 days.

3 PLINTH BEAM, DPC & BACKFILL



What happens
Columns cast up to plinth.
Plinth beam 9" x 12" ties all columns.
DPC: 1.5" PCC 1:2:4 + 2 coats hot bitumen on top of plinth (red line).
Backfill in 6" layers, watered and compacted; anti-termite treatment.
Plinth
About 1'-6" above road / NGL (as per approval).

4 GROUND FLOOR COLUMNS + WALLS



What happens
RCC columns 9" x 12" (6 #5 bars, #3 ties @ 6" c/c), 1:1.5:3 concrete.
Walls: 9" outer, 4.5" inner (brick) or block option - see sheet 4.
Brick in 1:4 / 1:6 cement-sand, max ~4'-5' height per day.
RCC lintels over doors & windows.
Wet bricks before laying.

CONSTRUCTION SEQUENCE / TIMELINE (INDICATIVE, weeks; weather, approvals and design may change it)

W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W14	W15	W16	W17	W18
1 Mark+Excav	2 Fou	3 Plinth/DPC	4 GF walls				5 GF slab+cure		6 First floor					7 Stair/tank		Conduits, curing check	

Grey structure of a typical 5 marla double-storey: about 4 months (indicative). Slab props stay ~14-21 days; curing min. 7-14 days for every concrete pour.

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Construction steps 1-4 (section through house, front to back)
Sheet 1 of 4 · Units: feet-inches · Paper: A3
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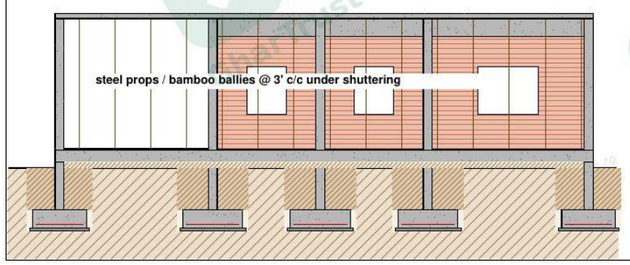
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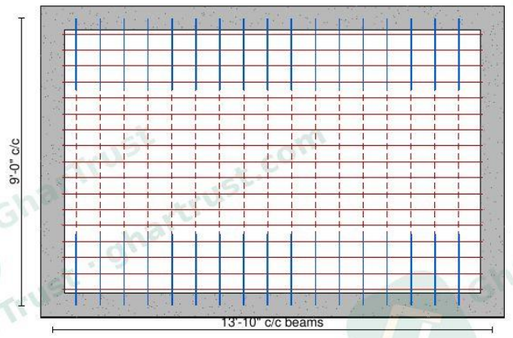
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5 ROOF SLAB: SHUTTERING, STEEL, POUR



Shuttering
Steel plates / ply on props @ ~3' c/c, levelled, joints sealed.
Steel (see plan at right)
Bottom: #4 @ 6" c/c short span, #3 @ 9" c/c long span.
Top: extra #4 @ 9" over beams.
Cover 3/4" on chairs / spacers.
Pour
5" slab, 1:2:4, vibrated, one go; ponding / wet curing 14 days.

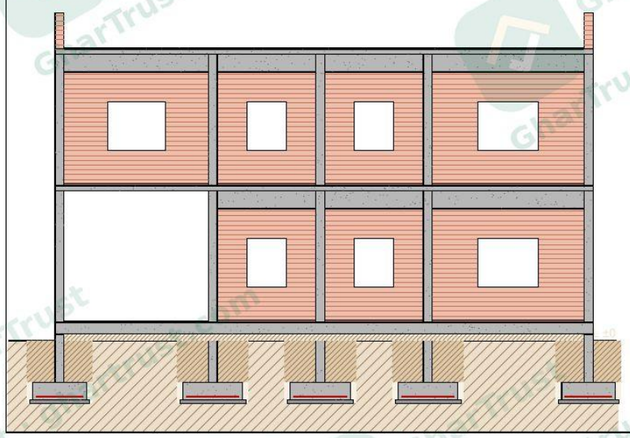
5A ROOF SLAB REINFORCEMENT PLAN - TYPICAL PANEL S3 (indicative)



LEGEND
- Bottom main #4 @ 6" c/c
- Bottom dist. #3 @ 9" c/c
- Top extra #4 @ 9", L/4 over beam

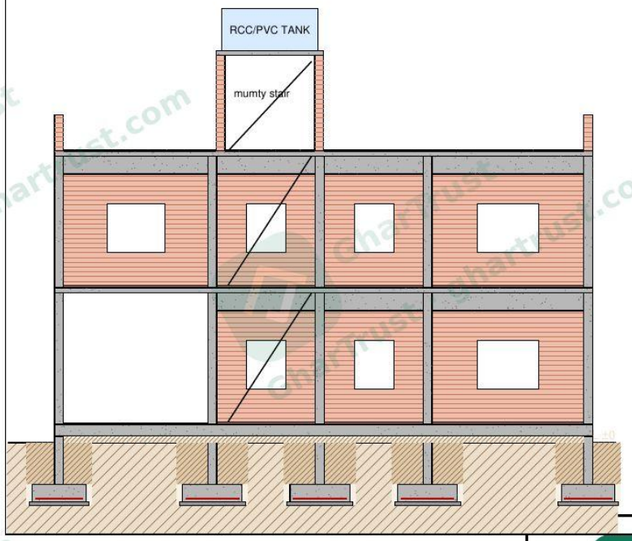
Slab data (indicative)
Thickness 5" (125 mm)
Clear cover 3/4" (20 mm)
Concrete 1:2:4, ~3000 psi
Steel Grade 60 deformed
Spacers / chairs @ ~3' c/c
Top bars on chairs ~4" high
Shown at ~1:18 for clarity

6 FIRST FLOOR



What happens
Column bars lapped above GF slab (lap ~40 x bar dia, staggered).
Same sequence: columns, walls, lintels, beams, slab, curing.
Conduits & sleeves for plumbing fixed in slab BEFORE pour.
GF props removed after ~14-21 days.

7 STAIRCASE, PARAPET, MUMTY & WATER TANK



What happens
RCC waist-slab stair ~6" thick, riser ~7", tread ~10".
Parapet 3'-0" (4.5" / 9" brick) with RCC coping.
Mumty (stair room) + slab; overhead tank on mumty roof (RCC or PVC on RCC base).
Roof waterproofing + insulation (see sheet 3).

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Steps 5-7 and roof slab reinforcement layout
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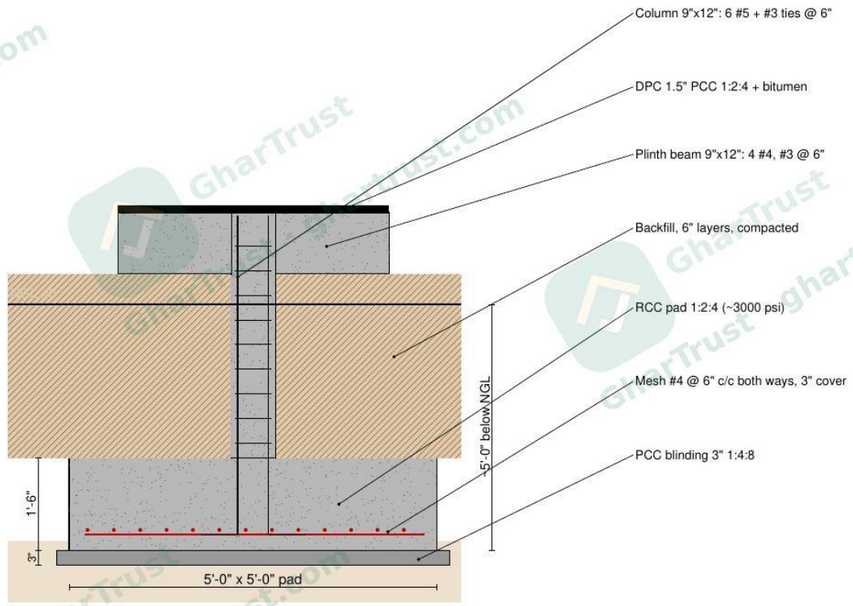
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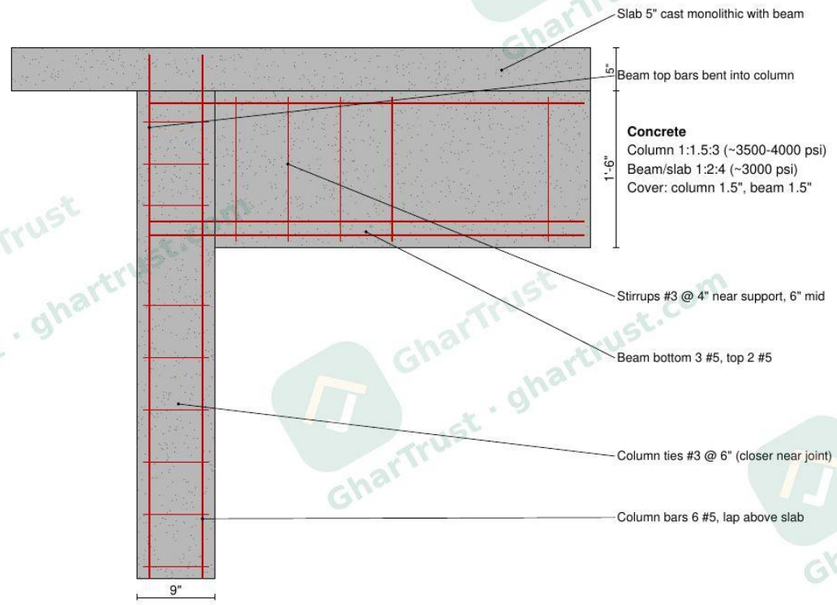
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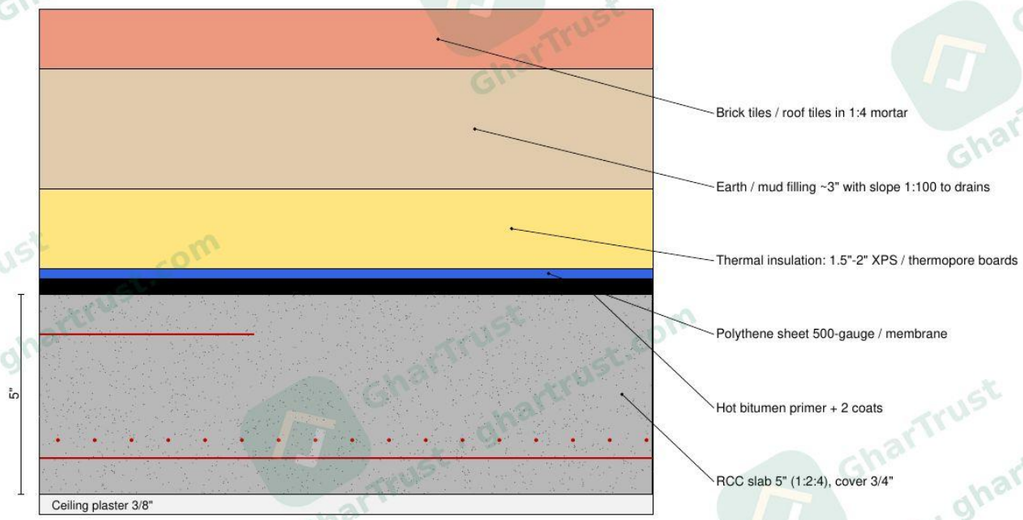
D1 FOOTING SECTION (F3, interior) ~1:30



D2 COLUMN-BEAM-SLAB JOINT (elevation) ~1:15

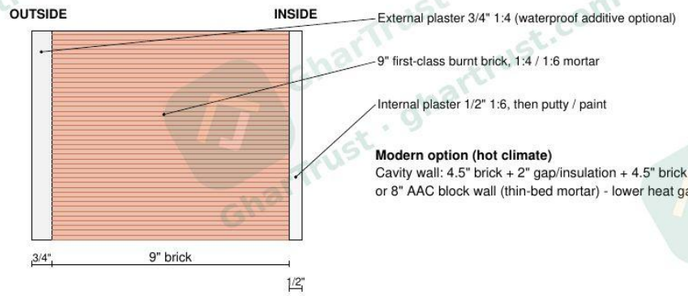


D3 ROOF SLAB SECTION WITH WATERPROOFING & INSULATION ~1:5



Top bars over beams; bottom main bars (dots/line). Roof insulation cuts summer heat gain noticeably; final layers as specified.

D4 EXTERNAL WALL SECTION WITH PLASTER (plan cut) ~1:6



Modern option (hot climate)
Cavity wall: 4.5" brick + 2" gap/insulation + 4.5" brick with ties,
or 8" AAC block wall (thin-bed mortar) - lower heat gain & AC load.

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Typical section details (indicative)

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MATERIALS SPECIFICATION - INDICATIVE (brand-agnostic; final spec by structural engineer)

Item	Typical specification (indicative)	Where used
Cement - OPC	Ordinary Portland Cement Type-I (ASTM C150 / PS 232), fresh stock, grade as per design	All RCC, mortar, plaster
Cement - SRC	Sulphate Resisting Cement (ASTM C150 Type-V)	Footings/plinth where soil or water is salty (soil test)
Steel	Grade 60 deformed bars (ASTM A615, fy ~60,000 psi / 420 MPa)	All RCC
Bar sizes	#3 (10mm) ties/stirrups/dist., #4 (12mm) slab/footing, #5 (16mm) column/beam, #6 (20mm) if design needs	As per drawings
PCC blinding	1:4:8 lean concrete, 3"	Under footings
RCC - slab/beam/footing	1:2:4 nominal mix (~3000 psi / ~20 MPa at 28 days)	Slabs, beams, footings
RCC - columns	1:1.5:3 nominal mix (~3500-4000 psi / ~25 MPa at 28 days)	Columns, stair
Aggregate / sand	Crush 1/2"-3/4" (Margalla/Sargodha type), clean coarse sand (Lawrencepur/Chenab type)	Concrete; mortar
Mortar	1:4 for 9" walls & external plaster, 1:6 for 4.5" walls & internal plaster	Masonry, plaster
DPC	1.5" PCC 1:2:4 with waterproof additive + 2 coats hot bitumen	Top of plinth
Curing	Wet curing min. 7 days walls/plaster, 14 days slabs (ponding / wet hessian)	Every pour
Roof waterproofing	Bitumen + polythene / membrane, earth filling with slope, tiles	Roof & mumty
Roof thermal insulation	1.5"-2" XPS / thermopore boards over waterproofing	Roof

WALL OPTIONS COMPARED (general guide)

Property	Burnt clay brick (9" walls)	Concrete hollow blocks (8")	AAC / lightweight blocks (8")
Thermal insulation	Fair (better with cavity / insulation)	Low-fair (hollows help a little)	Good (light, air-filled cells)
Strength / load	Good, long proven in Pakistan	Good if filled/reinforced; brittle if poor	Lower per block; non-load-bearing in RCC frame
Speed	Slower (small units)	Faster (big units)	Fastest (big, light, easy to cut)
Cost (material)	Moderate	Usually lower per sq ft of wall	Higher per block; saves mortar, plaster, AC
Weight on frame	Heavy	Medium-heavy	Light (about 1/3 of brick)
Watch-outs	Brick quality varies; soak before use	Block quality varies; cracks if not cured	Needs special mortar/plaster; fixing anchors

GHARTRUST RECOMMENDATION FOR A MODERN BUILD (to be confirmed per project with the structural engineer)

- RCC frame (columns + beams + slabs) for both floors.
- Outer walls: 9" first-class burnt brick, or cavity / insulated outer wall where budget allows; AAC blocks are a good option for lighter, cooler walls in an RCC frame. Inner walls: 4.5" brick or 4"-6" AAC / hollow blocks for speed.
- SRC in footings where soil test shows salts; OPC elsewhere. Grade 60 steel throughout.
- Roof: waterproofing + 1.5"-2" insulation boards + earth filling + tiles; proper curing at every stage.

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Materials specification & wall options (indicative)

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