Annexure XI – Structural Guidance

1. **ADA Toilet Construction.**
2. **Lintel Construction.**
3. **New and Old Masonry connection.**

Note:

1. Entire structural design and civil work shall be done as per IS:456 (latest version).
2. Vendor shall produce basis of design and share CADD calculations along with submittals for OBO representative review and approval.

1. ADA Toilet Construction:

Pre-Construction Activities

1. Site inspection and measurement of available vacant space.
2. Verification of existing structural system (RCC frame / load-bearing walls)
3. Preparation of layout as per ADA (Americans with Disabilities Act) guidelines:
    a. Minimum clear space (minimum 5 ft clear turning radius)
    b. Door width ≥ 32 inches clear opening
4. Approval of drawings (architectural + plumbing + electrical)

Option I:
Civil & Structural Works

- Marking and layout on site
- Excavation for the new foundation as designed and certified by a registered structural engineer and approved by COR.
- Designing of the columns and beams along with design basis and CADD calculations.

- Vendor shall test the SBC and also extent of existing foundations for the house, around to ensure that the design happens according to the ground realities.
- Construction of PCC (Plain Cement Concrete) bed followed by RCC footing (independent structure).
- Floor slab design and calculations.
- Masonry walls (brick/block work)
- Roof slab design and calculations.
- Plastering (internal & external)

Method:

- Provide independent foundation and columns
- Maintain a small gap (20–50 mm) between new and old structure
- Fill gap with flexible material (foam / sealant)

Points to be noted:

- No stress transfers to existing structure.
- Prevents cracks due to differential settlement

C. Plumbing Works

- Extension of water supply lines from existing system
- Installation of:
    - WC (Western, ADA height ~17–19 inches. Please refer guidance provided in SOW and Annexures)
    - Wash basin (ADA compliant. please refer guidance on installation of washbasin in SOW)
    - Health faucet / bidet spray

- Floor trap and drainage connection to existing sewer line (please refer attached plumbing drawing showing the main sanitary line passing close to this location for new connections.
- Proper slope for drainage
- Installation of grab bars (SS, ADA compliant)

D. Electrical Works

- Light points and exhaust fan
- Switches at accessible height (max. 48 inches above finished floor surface)

E. Finishing Works

- Anti-skid floor tiles
- Wall tiles up to lintel level
- Door installation (outward opening)
- Painting and waterproofing

F. Fixtures & Accessibility Features

- Grab bars (horizontal & vertical)
- Mirror at accessible height (bottom of mirror max. 40 inches above finished floor surface)
- Lever-type faucets
- Adequate maneuvering clearance
- Threshold-free entry

G. Waterproofing (Critical for Toilets)

- Apply waterproofing membrane on floor and walls (min 300 mm height) preferably full height)
- Conduct ponding test for 24–48 hours
- Use sealing around pipe penetrations

H. Key ADA Design Requirements

- Clear turning radius: 5 feet / 1524 mm
- Door: outward opening or sliding
- WC centerline: 16–18 inches from wall
- Grab bar height: 33–36 inches
- Sink clearance below for wheelchair

I. Important Precautions

- Do NOT cut existing beams/columns without structural approval
- Ensure proper slope for drainage (1:40 approx.)
- Maintain ventilation (window/exhaust)
- Avoid rigid connection if soil settlement risk exists

J. Deliverables

- Architectural drawings
- Structural drawings with connection details
- Plumbing & electrical layouts
- Testing reports

1. **Lintel Construction (where new door openings are coming):**
   Note: No opening in masonry wall shall be more than 1m.
   All walls are 230mm thick.
   Make sure no slab or beam are directly resting on lintel.

   a. Mark Opening.
   b. Provide temporary support.
   c. Cut wall up to the lintel level.
   d. Place shuttering.

e. Fix reinforcement.
f. Pour concrete (minimum M20)
g. Cure for 7-10 days.
h. Remove support gradually.
i. Minimum bearing on each side – 150mm.

2. <u>Old and New Masonry Joinery</u>

a. Existing wall is cut in a staggered (toothed) pattern.
b. New bricks are interlocked in to these gaps.
c. Use strong mix of cement mortar (1:4 or less).
d. No butt joints.