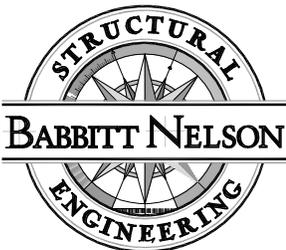


# RECOMMENDED STRUCTURAL NOTES



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## RECOMMENDED STRUCTURAL NOTES

1950 Industrial Drive  
Page, Arizona 86040  
TEL: 928-608-4801  
FAX: 928-608-4802  
[WWW.NavajoFlexCrete.com](http://WWW.NavajoFlexCrete.com)

Sheet No. 1.0

**GENERAL:**

All construction shall conform to the International Building Code (IBC) or International Residential Code (IRC).

FRAC block walls designed per ICC ESR -2866 and/or ACI 530 with the following classes per ASTM C 1694;

CLASS	COMPRESSIVE STRENGTH (PSI)	NOMINAL DRY DENSITY (lb/ft <sup>3</sup> )
AC2	290	22 to 34
AC3	435	28 to 34

The contractor shall be responsible for and provide all measures necessary to protect the structure during construction. These measures shall include, but not be limited to: bracing, shoring for loads due to wind. The contractor shall be responsible for the design implementation of all scaffolding, bracing and shoring.

Contractor shall verify all dimensions and coordinate the site conditions with the drawings prior to construction. Any discrepancies and omissions shall be resolved with the architect. Do not use scaled dimensions. Where any discrepancies occur between plans, details, general notes and specifications, the greater requirement shall govern, where no specific detail is shown, construction shall conform to similar work on the project. All details shown shall be incorporated into the project at all appropriate locations, whether specifically indicated or not.

Design loads:

Roof Live Load = \_\_ psf

Roof Dead Load = \_\_ psf

Floor Live Load = \_\_ psf

Floor Dead Load = \_\_ psf

Wind Speed = \_\_ mph at 3 sec. gust, Exposure - \_\_  
Seismic Design Category "\_\_"

In general, like all other construction products, FRAC blocks are susceptible to minor damage if mishandled. Less handling means lower potential for damage. In some instances, damage may occur from shipping. Damaged block should be trimmed and installed to reduce job waste.

**FOR ALL FRAC CONSTRUCTION PRODUCTS:**

Deliver only an amount of material that can readily be installed. Unload pallets using pallet forks (either forklift or pallet fork on a crane cable). Consult your OSHA safety manual for "rigging" for other safety considerations. It is not advisable to use crane straps and slings.

Storage areas should be accessible to delivery trucks and convenient to material staging areas. If possible, drop-deliver the material right to the material staging areas.

Storage material should always be stored away from other construction activities on a flat-graded area that is not susceptible to standing water, erosion or settling.

Keep the material covered and banded until ready for installation.

All FRAC blocks should be clean of any dust or particles - brushing and spraying down with water may be necessary to clean the FRAC blocks in order to achieve proper block adhesion.

**LEVELING MORTAR**

**BED (FIRST COURSE ONLY):**

Mortar shall conform to ASTM C270, type S or M mortar with water proofing additive to prevent moisture from wicking up the wall, mortar to have a 28 day compressive strength of 1800 psi.

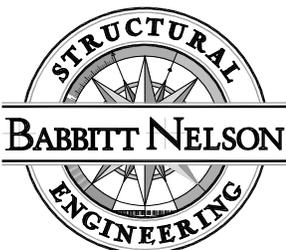
**THIN-BED MORTAR:**

Thin-bed mortar as provided by FRAC manufacturer per ASTM C 1660

**GROUT:**

Grout shall conform to ASTM C476, fine grout, 28 day compressive strength of 2000 PSI, tested per IBC standards.

See details and notes on drawings for size and spacing of reinforcing bars.



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Sheet No. 1.1

Provide vertical dowels from footings continuous through stem walls into FRAC block walls above. All shall match size and spacing of vertical dowels reinforcing above. Extend all horizontal bond beam reinforcing in FRAC walls continuous around corners and intersections or provide bent corner bars to match and lap horizontal bond beam reinforcing at corners and intersections. All reinforcing in FRAC wall shall be accurately located prior to grouting and the position maintained during grouting.

All cells and courses with reinforcing and additional grout spaces as required by the drawings shall be filled solid with grout. Maximum grout lift height shall be 12'-8" where the following conditions are met:

- A. The blocks have cured for at least 4 hours.
- B. The grout slump is maintained between 10 in and 11 in.
- C. No intermediate reinforced bond beams are placed between the top and bottom of the pour height.

Otherwise, place grout in lifts not exceeding 5'-0". In all cases, between grout pours, a horizontal construction joint shall be formed by stopping all wythes at the same elevation and with grout stopping a minimum of 1 1/2 inches below mortar joint; except at the top of wall where bond beams occur, the grout pour shall be stopped a minimum of 1/2" below the top of the masonry. Provide clean outs in the bottom course of masonry for each grout pour when the grout pour height exceeds 5'-0". Construct clean outs with a minimum opening dimension of 3". Construct clean outs so that the space to be grouted can be cleaned and inspected. Place grout continuously. Do not interrupt grouting for more than one hour. Mechanically vibrate grout in vertical spaces immediately after pouring and again about 5 minutes later. Rodding of grout is not acceptable.

Unless noted otherwise on the drawings, provide vertical FRAC wall control joints such that no straight run of wall exceeds 20'-0". Coordinate locations with architect. Moisture and

temperature shrinkage is inherent to the material and may result in minor wall cracks. Every effort is made in the design to minimize the possibility of cracks, but they may still appear, in most cases these cracks are non-structural. Coordinate location of control joints with architectural plans.

**REINFORCING STEEL:**

Reinforcing steel shall conform to ASTM A615, grade 40 (Fy = 40 KSI) deformed bars for all bars #5 and smaller. Welding of reinforcing shall be in according to AWS D1.4. No tack welding of reinforcing bars allowed.

Extend all horizontal reinforcing continuous around corners and intersections or provide bent corner bars to match and lap with horizontal bars at corners and intersections of walls.

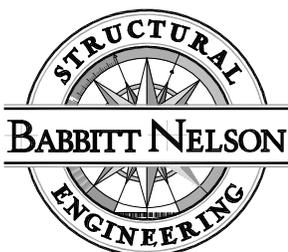
Provide vertical wall reinforcing at all corners, wall ends, wall intersections, each side of control joints and within 24" of wall openings, see plans for size and additional requirements; typical unless noted otherwise.

Provide two horizontal reinforcing bars in solid grouted FRAC "U" blocks at roof and floor supports and one horizontal reinforcing at top of parapet, see plans for additional requirements.

Lap splices of reinforcing in FRAC walls unless noted otherwise, shall be per tables below

Vertical Bar Lap Splice Length (in.) - (Strength Design per ACI 530-05)		
Bar Size	f <sub>y</sub> = 40 ksi	f <sub>y</sub> = 60 ksi
3	12	N/A
4	17	25
5	27	40
6	N/A	54

Horizontal Bar (Bond Beam) Lap Splice Length (in.) - (Strength Design per ACI 530-05)		
Bar Size	f <sub>y</sub> = 40 ksi	f <sub>y</sub> = 60 ksi
3	17	N/A
4	30	44
5	46	69



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Sheet No. 1.2

**SPECIAL INSPECTIONS: (REQUIRED FOR ALL FRAC BLOCK WALLS):**

Special inspections shall be performed by a qualified inspector approved by the architect and the building official.

Special inspections for FRAC block walls shall be performed by a qualified inspector under the direct supervision of a state registered structural engineer who is familiar with the structural design of this project. The special inspection certificate shall be sealed by the supervising structural engineer. The contractor shall be responsible for providing a minimum of 24 hours notice to the special inspector prior to beginning any work for which special or testing is required.

Special inspection shall be performed in accordance with the special inspection requirements for masonry as outlined in IBC table 1704.5.1. Prism test is not required for FRAC masonry system.

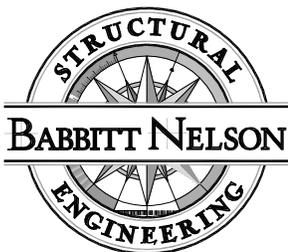
Structural FRAC walls: During placement of reinforcing, inspection of grout space immediately prior to closing of clean outs and during placement of all grout. Special inspection for placing of units may be performed on a periodic basis.

Duties and responsibilities of the special inspector:

The special inspector shall inspect the work assigned for conformance with the approved design drawings and specifications.

The special inspector shall furnish inspection reports to the building official and to the engineer or architect of record. All discrepancies shall be brought to the immediate attention of the contractor for correction, then, if uncorrected, to the engineer or architect of record and the building official.

Upon completion of the assigned work, the special inspector shall complete and sign a final report verifying that to the best of the inspector's knowledge, the work is in conformance with the approved plans and specifications, and the applicable workmanship provisions of the code.



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**Sheet No. 1.3**