NAVFAC
Naval Facilities Engineering Command

MISHAP PREVENTION: Contractor Masonry Wall Bracing Oversight Guidance

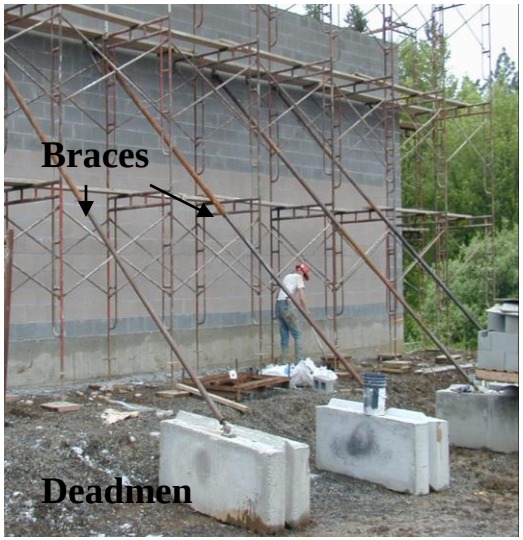
Follow-up to recent masonry wall collapse mishaps caused by a failure to adequately brace

THINGS TO BE CONCERNED ABOUT ON YOUR PROJECTS THAT WERE FOUND DEFICIENT:

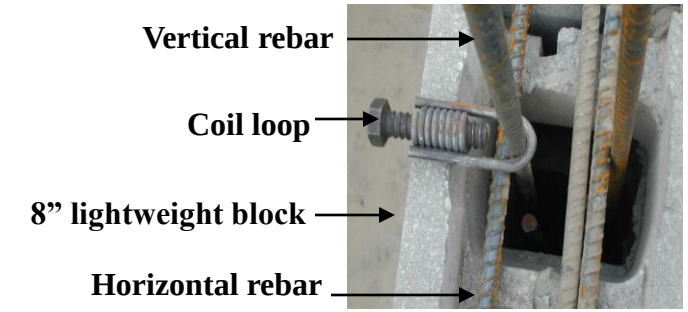
Has the contractor addressed bracing as part of the Activity hazard Analysis before work begins? Who is responsible for wall stability? Are the walls adequately braced? Who is responsible for designing and installing the wall bracing? Is the wall reinforcing installed correctly? Is there a Limited Access Zone? Is there an evacuation plan?

ANSWER: The Engineer! The General Contractor! The Masonry Sub-Contractor! The Qualified Person! All all responsible for wall stability.

- **Walls over 8' must be braced.**
- **Bracing must stay in place until wall is secured by permanent structure.**
- **In certain cases intersecting walls may substitute for bracing.**

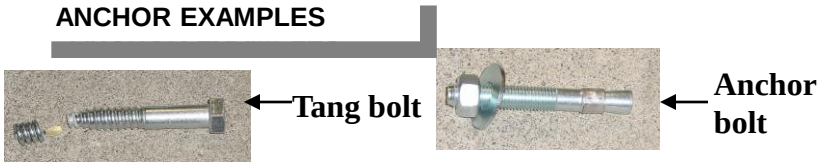


EXAMPLE: Here's one possible method of bracing for a reinforced masonry wall that can be performed using coil loops. Common bracing practice has been to use anchor bolts set in grout leaving a 12 hour or more collapse exposure until the grout sufficiently hardens. Using the coil loop allows braces to be installed before the grout is placed in the block cores providing protection and leaving no sign of where the braces were placed after construction.



- **SPACING OF BRACES: *Minimum* recommended horizontal spacing of braces for reinforced masonry walls is 20' & 10' from the end of a wall. This allows for scaffolding, trucks, forklifts and other equipment to operate and creates a safe and efficient environment for workers.**

- **Base connections must be evaluated by the qualified person. An example may include anchoring into a deadman or concrete slabs sufficient to support the intended loads.**



• QUALIFIED PERSON FOR MASONRY & CONCRETE DEFINED:

A person qualified in structural design capable of evaluating the structure or portion of the structure as being capable of supporting the loads.

• TYPES OF BRACES:

Wood not recommended unless contractor plan substantiates. Use of concrete or metal is preferred.

• Roof components should be in place before braces are removed.

• Scaffold should NOT be used for bracing.

• QUALITY ASSURANCE / QUALITY CONTROL CONCERNS (THREE PHASES):

PREPARATORY: Before any work is performed on a phase. Assure shop drawings, safety plan, and activity hazard analysis (AHA) have been submitted & approved? Plans for masonry wall bracing and the name of the qualified person must be included in the AHA. Review all specification requirements. Check to see if a masonry specialist is required.

INITIAL: Right before a work phase begins. Review accepted AHA with all workers involved to include methods & inspection requirements for wall bracing & limited access zones.

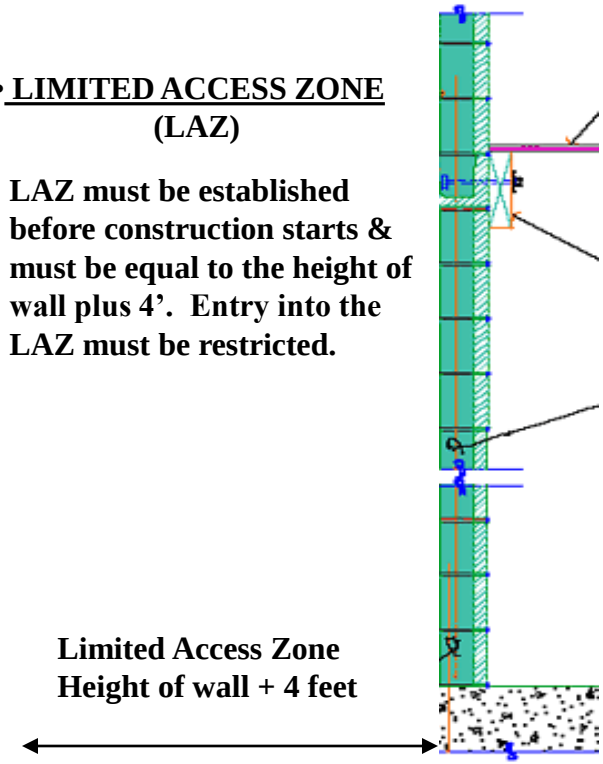
FOLLOW-UP: Are daily contractor compliance inspections being performed and documented for all safety items including bracing, limited access zones, & scaffold systems?

• WIND CONCERNS:

Is the weather & wind speed being monitored during wall construction? Is there a wind gauge on site? Does contractor have chart of historical winds? What action will be taken and at what wind speed? Are workers prepared to evacuate the work area? Are braces, etc. checked at 25 mph?

• LIMITED ACCESS ZONE (LAZ)

LAZ must be established before construction starts & must be equal to the height of wall plus 4'. Entry into the LAZ must be restricted.



CMU Wall Section

• REFERENCES:

EM385 Section 27
Masonry Bracing Task Force
Test Reports
OSHA 29 CFR 1926
USFG Guide Spec 04200

Prepared by NAVFAC ATLANTIC CI5 Jul 04