CONCRETE & MASONRY SAFETY

Safety and Quality Relationship

REINFORCING MISS-PLACED IN CONCRETE RESULTS IN WEAKEN STRUCTURE

IMPROPER PLACEMENT OF LINTEL BEAMS

INCORRECT MASONRY CEMENT OR GROUT MIX DESIGN

CONCRETE & MASONRY SAFETY

CONCRETE PLACEMENT OPERATIONS POTENTIAL FOR MULTIPLE SERIOUS SAFETY PROBLEMS

CRANES/BUCKET
CONCRETE PUMPING EQUIPMENT
FALL PROTECTION
LARGE CREWS
TIGHT PLACEMENT TIMING
ELECTRICAL GFCI
POWER FINISHING
FORMWORK FAILURE
IMPROPER SHORING RE-SHORING

MASONRY WALLS

BRACING OF MASONRY WALLS OVER 8 FEET HIGH TO BE BRACED 27.G.02

SCAFFOLDING CANNOT BE USED TO SUPPORT WALLS 27.G.03

Masonry Walls

LIMITED ACCESS ZONE

ESTABLISHED PRIOR TO START OF WORK

LOCATED OPPOSITE SIDE OF SCAFFOLDING

RESTRICTED ACCESS TO ACTUAL WORKERS

SPECIFIC HEIGHT AND LENGTH RESTRICTIONS!

ZONE TO REMAIN IN PLACE UNTIL

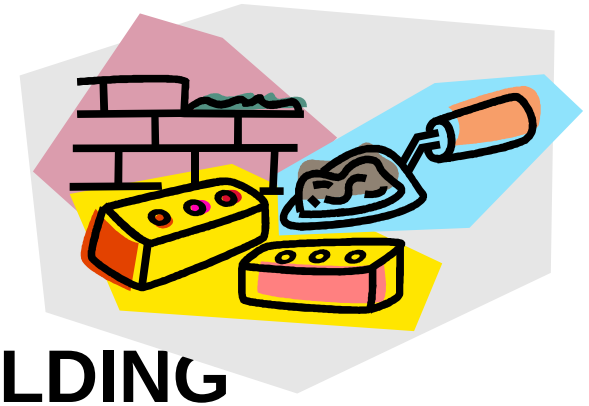
WALL IS ADEQUATELY SUPPORTED

27.G.01

**Don't forget,
The limited access zone when the wall gets to 8' high!!**

LIMITED ACCESS ZONE

HEIGHT OF WALL PLUS 4 FOOT



ENTIRE LENGTH OF WALL

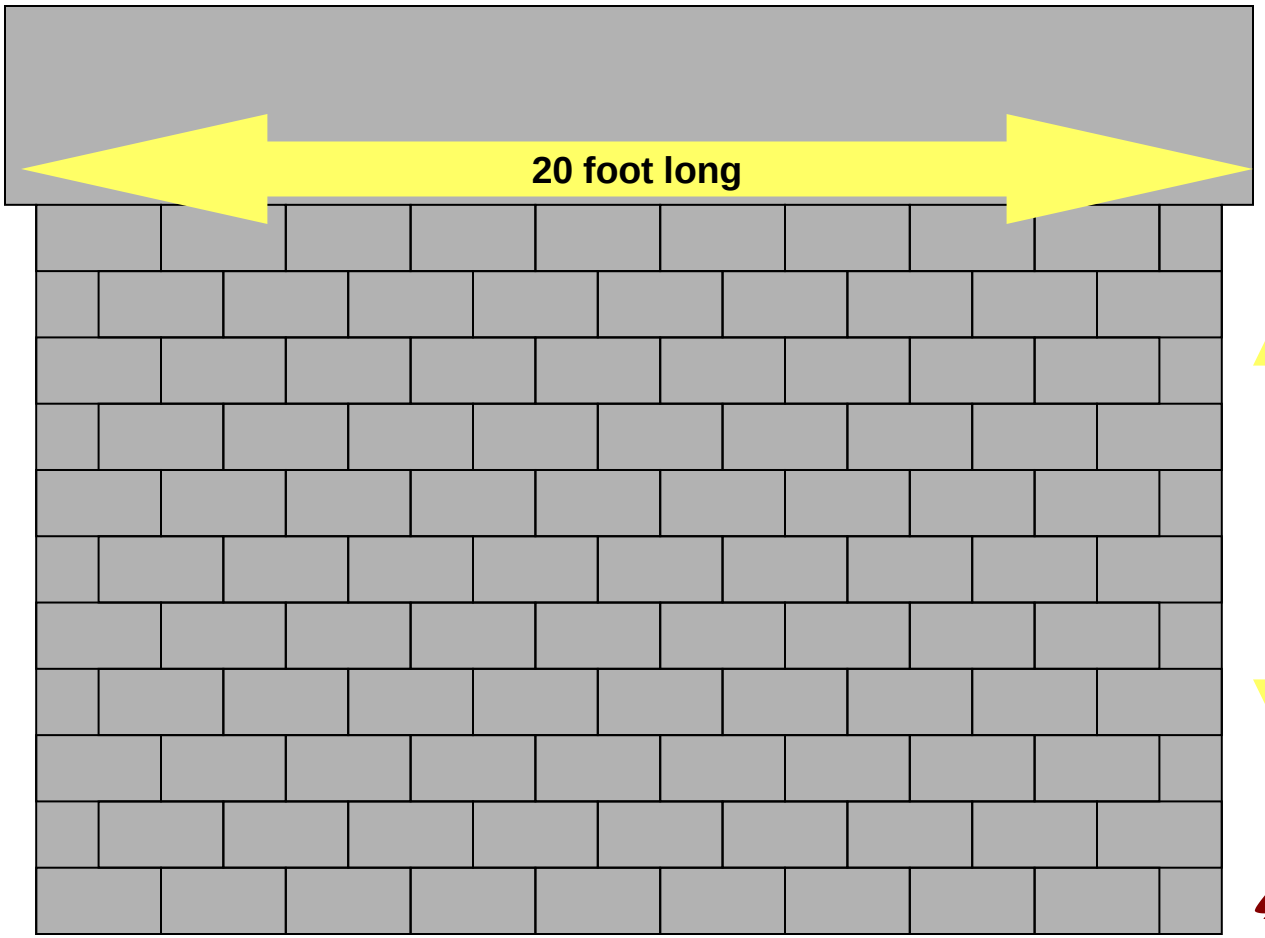
ON OPPOSITE SIDE OF SCAFFOLDING

RESTRICTED ACCESS/NECESSARY EMPLOYEES

Limited Access Zone Questions

What is the length & Height of the Limited Access zone for this Wall?

Which side of this wall It the limited access zone?



Note: Scaffold is on the opposite side shown

LIMITED ACCESS ZONE

Note: Clean-outs to be on opposite side of wall of the scaffolding?

Concrete Safety

Horizontal slabs/footings

Vertical Wall/columns

Concrete Safety Issues

NO LOADING OF STRUCTURES UNTIL CAPABLE TO SUPPORT LOADS

IMPALEMENT PROTECTION FOR RE-BAR

NO RIDING CONCRETE BUCKETS OR UNDER LOADS

PROPER PPE (RUBBER BOOTS, ETC)

POWER TROWELS WITH DEAD MAN SWITCH

INSULATE BULL FLOAT HANDLES AS NEEDED

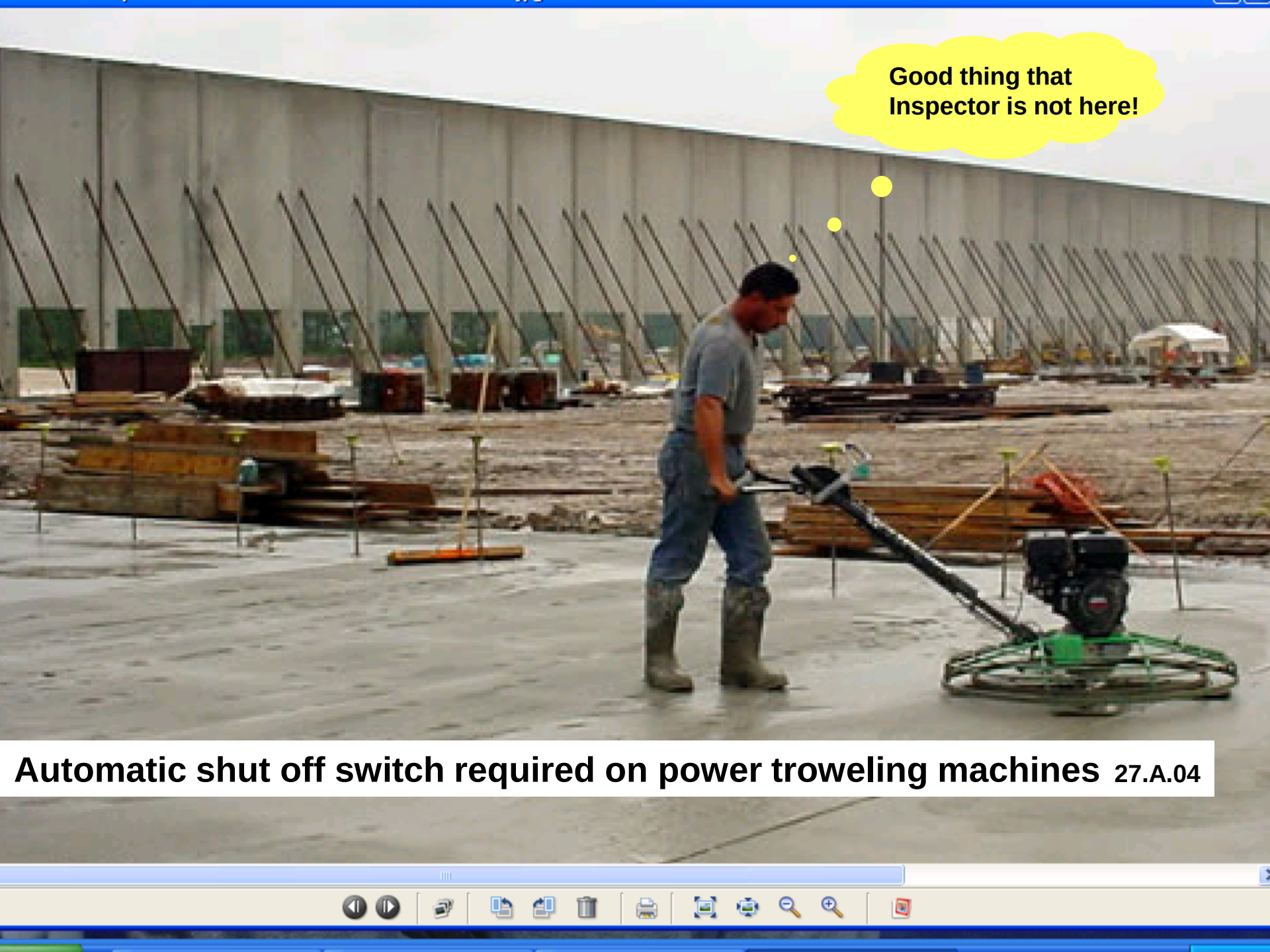
PROPER FORMS/SHORING/RE-SHORING

CONCRETE BUCKET SAFETY PRECAUTIONS

NO WORKERS UNDER CONCRETE BUCKET

TAG LINE ADVISED

NO RIDING!



Automatic shut off switch required on power troweling machines 27.A.04

WHICH ITEM IS APPROVED FOR IMPALEMENT PROTECTION?

ITEM “A”

ITEM “B”

See Pages 7 through 10

QUESTION

ON YOUR CONSTRUCTION JOB, WHAT IS THE LEGAL USE OF THIS ITEM THAT IS COMMONLY CALLED A "MUSHROOM CAP"?

IMPALEMENT AND SCRATCH GUARD PROTECTION

ALTERNATE IMPALEMENT PROTECTION

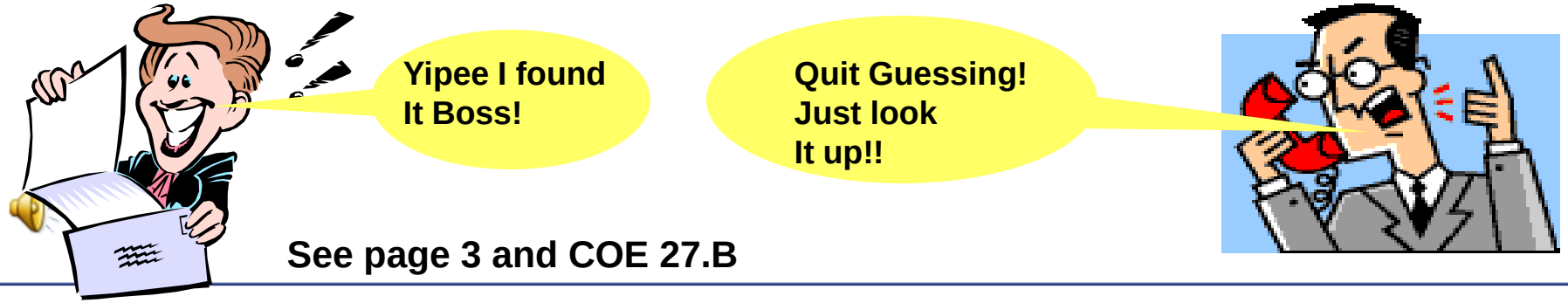
See Page #10

CONCRETE SHORING & RE-SHORING

PLANNING AND DESIGN OF FORMWORK AND SHORING SHALL BE IN ACCORDANCE WITH THE PROVISIONS OF ACI PUBLICATION 347. 27.B.02

THE DESIGN AND THE ERECTION AND REMOVAL PLANS FOR FORMWORK AND SHORING SHALL BE SUBMITTED FOR REVIEW TO THE GDA.

THE MANUFACTURER'S SPECIFICATIONS FOR FABRICATED SHORING SHALL BE AVAILABLE AT THE JOB SITE DURING JOB PLANNING AND EXECUTION.

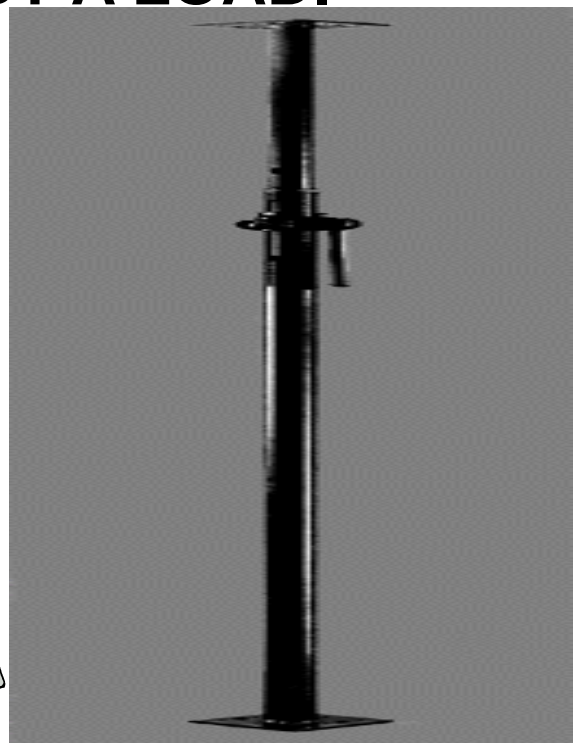


See page 3 and COE 27.B

SHORING & RE-SHORING

SHORING: A SUPPORT MEMBER THAT RESISTS COMPRESSSIVE FORCES IMPOSED BY A LOAD.

Single Post Shores



Single Post Shore

SINGLE POST SHORES

ADJUSTMENT OF SINGLE POST SHORES TO RAISE FORMWORK SHALL NOT BE MADE AFTER CONCRETE IS IN PLACE.

27.B.09

MODULAR TYPE SHORES

See 27. B. 10 & 11

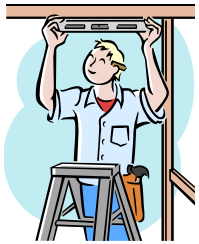
TUBULAR WELDED FRAME SHORES

FORMWORK & SHORING SYSTEMS

ALL FORM WORK, SHORING, AND BRACING SHALL BE DESIGNED, FABRICATED, ERECTED, SUPPORTED, BRACED & MAINTAINED SO THAT IT WILL SAFELY SUPPORT ALL VERTICAL AND LATERAL LOADS UNTIL SUCH LOADS CAN BE SUPPORTED BY THE STRUCTURE. 27.B.01

RESHORING PLANS

OSHA: RESHORING: The Construction Operation In Which Shoring Equipment (Also Called Re-shores Or Re-shoring Equipment) Is Placed As The Original Forms And Shores Are Removed In Order To Support Partially Cured Concrete An Construction Loads.



27.B.07 Re-shoring shall be provided to safely support slabs & beams after stripping or where such members are subject to superimposed loads due to construction

SHORING FAILURE

THE RESULTS OF NOT FOLLOWING SPECIFIC PROCEDURES & SCHEDULE PRESSURES

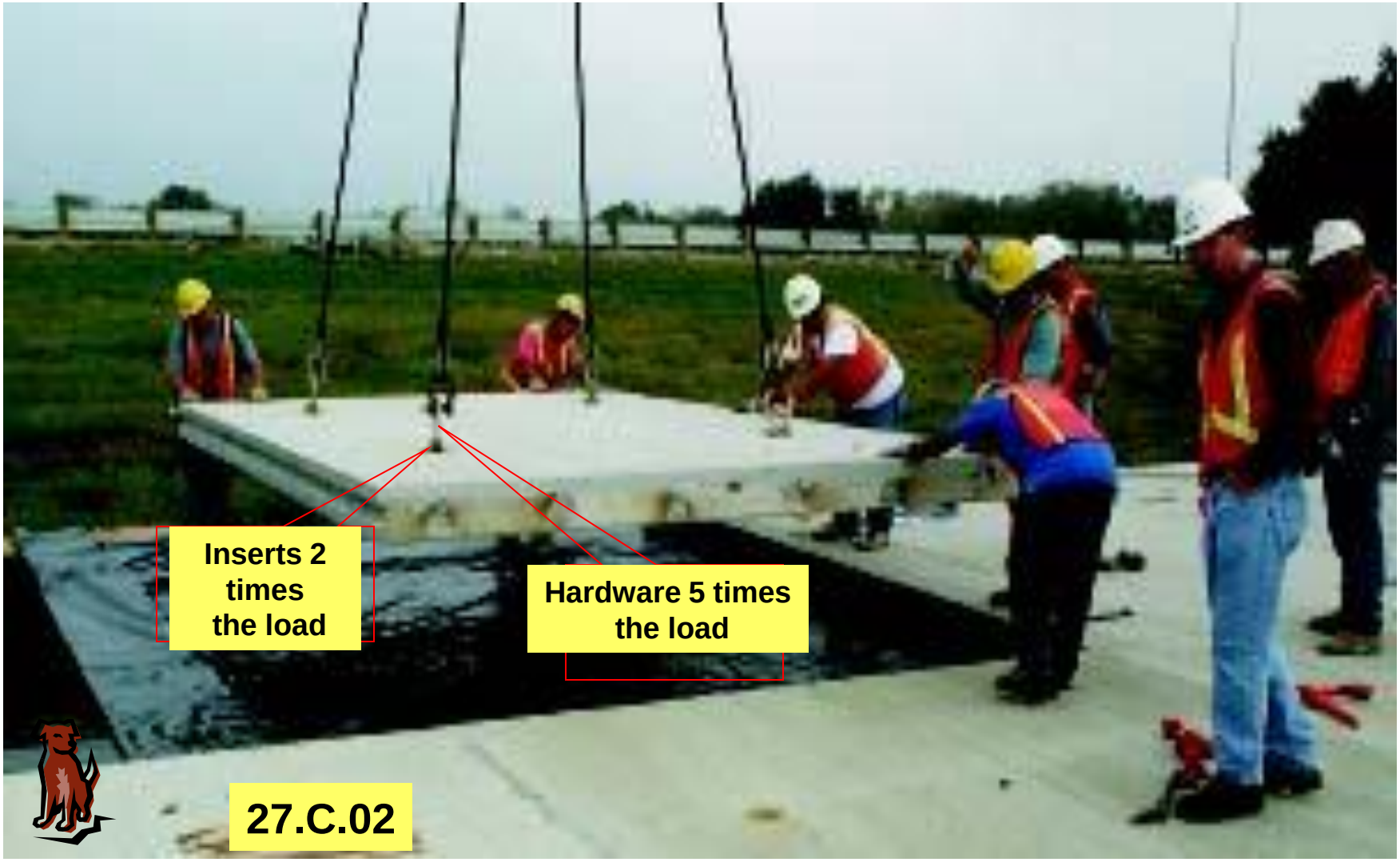
PRECAST CONCRETE

SLABS, BEAMS, LINTELS, COLUMNS, TILT-PANEL

PRECAST CONCRETE OPERATIONS

- Precast concrete members shall be adequately supported to prevent overturning or collapse until permanent connections are complete.
- Lifting inserts which are embedded or otherwise attached to tilt – up precast concrete members shall be capable of supporting at least two times the maximum intended load.
- Lifting inserts which are embedded or otherwise attached to precast concrete members , other than tilt–up members, shall be capable of supporting at least four times the maximum intended load.
- Lifting hardware shall be capable of supporting at least five times the maximum intended load applied load applied or transmitted to the lifting device

PRECAST CONCRETE PANEL



PRE-CAST TILT PANEL

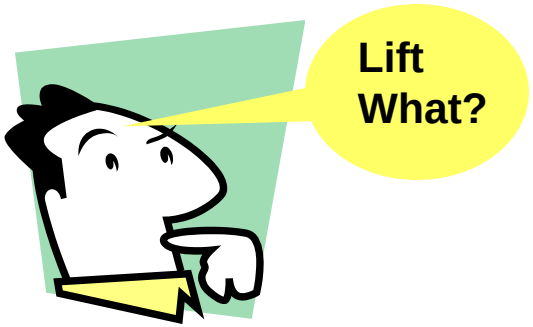
LIFTING INSERTS & REINFORCING PLACEMENT IS CRITICAL!

LIFT-SLAB OPERATIONS

- **Lift-slab operations shall be planned and designed by a registered engineer or architect. Such plans and designs shall include detailed instructions and sketches indicating the prescribed method of erection and shall be submitted to the GDA for review**

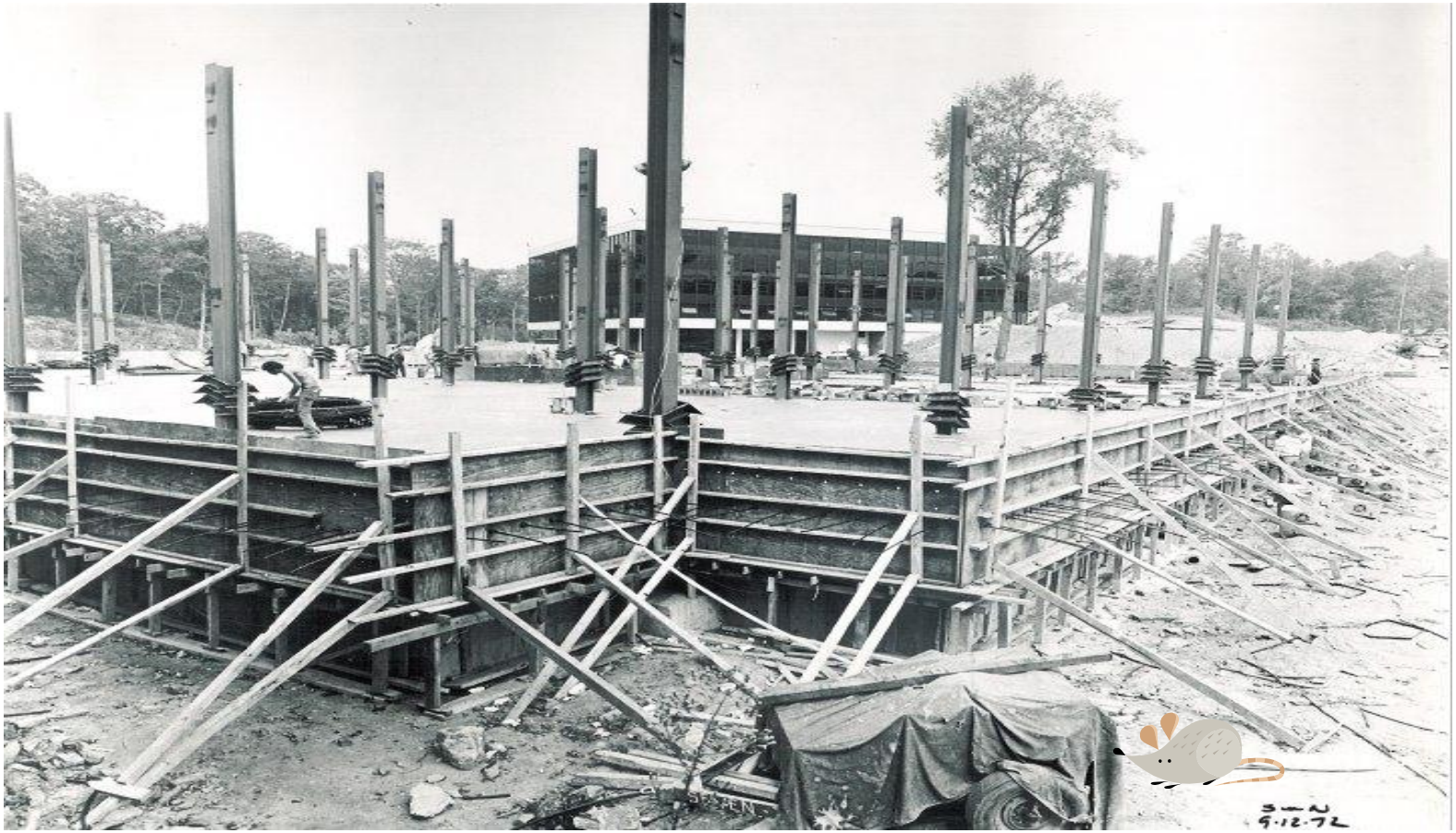
- **During lifting, all points of the slab support shall be kept within ½ inch of that needed to maintain the slab in a level position**

- **No one shall be permitted under the slab during jacking operations**



27.D

LIFT SLAB OPERATIONS



INITIAL CASTING OF SLABS

LIFT SLAB OPERATIONS

START OF LIFTING SLABS

LIFT SLAB OPERATIONS

LIFT SLAB PROGRESS

PRE-STRESSED- POST TENSION CONCRETE

SAFE CLEARANCE FROM THESE TYPE OF OPERATIONS!

Post Tension Placement

Post Tension Placement

Placing Cables in a Pre-Cast Member