



# CONCRETE—REBAR TRADE

## CONCRETE EXCESSIVE SHRINKAGE CRACKING

### PROJECT OVERVIEW

To make up the construction schedule, a concrete contractor poured a retaining wall in 50-foot sections while neglecting to perform some curing methods for expansion and contraction during hot weather pouring. The concrete cracked, and the contractor changed course.

### EXCESSIVE SHRINKAGE CRACKING ISSUES

Crews should be aware of hot and cold weather conditions when pouring concrete — and forecast how it reacts to changing temperatures.

- The concrete contractor wrapped up the job, and soon after, the wall began to develop excessive shrinkage and cracking.
- The crew working on the wall had to install expansion joints at 20-foot intervals. Then, they had to repair the cracks — **a massive re-do.**

### LESSONS LEARNED

**In hot, dry, windy conditions, the crew should take precautions to prevent water evaporation from concrete.**

- Shrinkage and cracking occur when the top layer of concrete dries quickly, causing it to shrink rapidly, as the middle section stays wet and maintains its original volume.

**Large pour sections are more prone to cracking.**

- To prevent cracking, limit concrete walls to 20-foot-long pours.

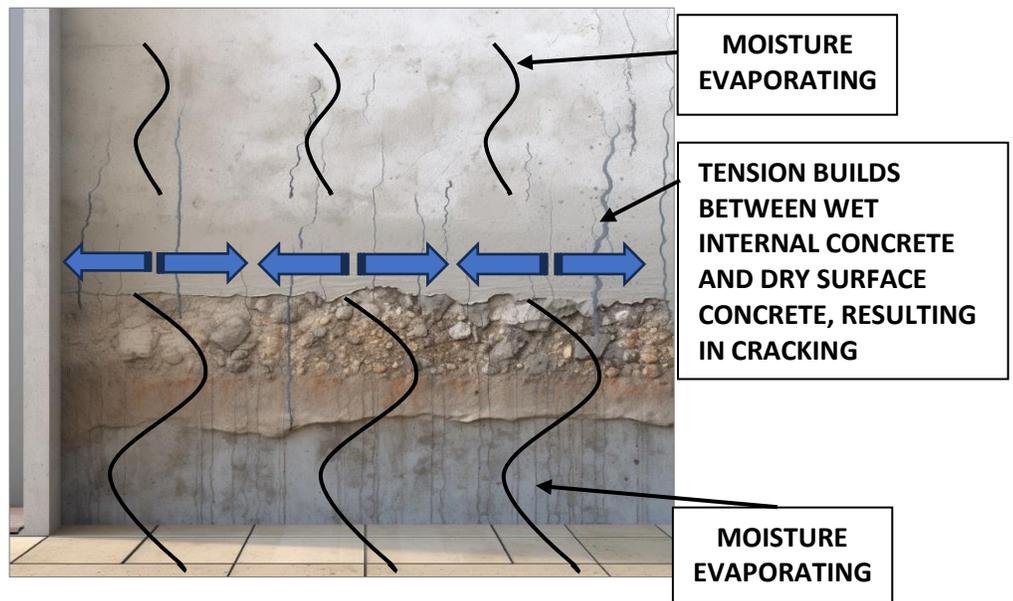
**If large pour sections must be over 20 feet, consider the following:**

- Build in expansion joints.
- Use curing additives after pouring.
- Use the wet-curing method by using a wet burlap covering.
- Use fogging systems, allowing bleeding water to evaporate before finishing.

### DISCUSSION QUESTIONS

1. How would you defend against excessive shrinkage and cracking during hot weather concrete placement?
2. Why should there be concern over shrinkage or cracking in the first place?
3. How will you prepare for excessive cracking on our next project?

Here is shrinkage and cracking in concrete.





# CONCRETE AND REBAR TRADE FLOOR AND WALL OPENINGS SAFETY TOOLBOX TALK

## OVERVIEW

Holes in floors and walls not identified, adequately covered, or repaired can lead to severe injuries or death.

- It is always crucial for any trade working inside or on top of structures that you are aware of any gaps or empty spaces within the exterior of the building or the walking-working surface and how to take steps to fix the issue so that you may prevent accidents from happening.
- **Protect yourself and your coworkers!**

## LEARN AND APPLY THE FOLLOWING

### Identify and Mark the Locations of Any Holes in Floor Surfaces or Walls

It is a best practice to walk your work area before every shift to ensure the conditions in the structure are free from structural damage or uncovered holes.

- It is crucial to identify the location of any gaps in surfaces or walls and to let your supervisor or safety personnel know.
- Mark the locations of holes with barricades or warning signs to alert others who pass by that there is a hazard.

### Cover the Hole and Label the Hole Cover

Once you have created a penetration in a walking-working surface or a wall, you will protect others from accidental access through the opening.

- Wall openings shall have guardrails installed following guardrail requirements, such as 250 pounds down and out support and at least 39 inches high.
- Walking-working surfaces on floors, roofs, and the ground must cover any hole 2 inches in diameter or larger.
- A cover must carry twice the intended load of people, vehicles, or material storage.

### Standardize Work Procedures

When holes are created for any work-related activity, clear procedures must be established to ensure that the holes are created safely and covered with the cover labeled correctly to ensure minimal to no incident risk. See **Figure 1** and **Figure 2**.

- Workers should be trained to install, label, and remove hole covers safely.

### Always Be Aware of Your Surroundings

If you have identified a hole in your work area, stay cautious and remember where that hazard is in proximity to you so that you do not lose track and walk into it while moving around the area.

- Cover and label the hole immediately to protect yourself and others and to prevent incidents.
- Avoid walking or standing near an uncovered hole if possible.
- Fall protection equipment may be necessary if you cannot keep a distance from an uncovered hole.

## DISCUSSION QUESTIONS

- What should you inspect, verify, or correct at the "start of the day"?
- What are some key takeaways for Floor and Wall Openings Safety?
- Are there General Contractor or Building Owner specific rules that apply to Floor and Wall Openings Safety above OSHA standards?

Figure 1 Label the Hole Cover



Figure 2 Wall Openings Warning



<b>Meeting Date:</b>
<b>Supervisor:</b>
<b>Employee Name:</b>