CONCRETE TRADE
PROPER GRADING

PROJECT BACKGROUND

A concrete contractor was hired to pour concrete patios outside an apartment building.

PROPER GRADING ISSUES

The apartment complex management asked the concrete contractor to pour several concrete patios to create recreational areas outside of the apartment's sliding glass doors.

- The contractor was given the dimensions and position of each patio and told to ensure the elevation matched the door sill so there was minimal step-down to avoid trip hazards.
- The contractor formed and poured all the patios, and the complex management was satisfied.

After the first rainstorm, the contractor was called back because the rainwater had not drained off the patios properly.

- **The water built up and pooled against the glass sliding doors and caused flooding inside the apartments.**

It was determined that the concrete patios were not appropriately graded.

- They should have been graded away from the structure instead of toward it.

All the patios had to be demolished and removed to correct this mistake.

- The contractor then had to reform all the patios and re-pour them with a slight grade away from the structure.

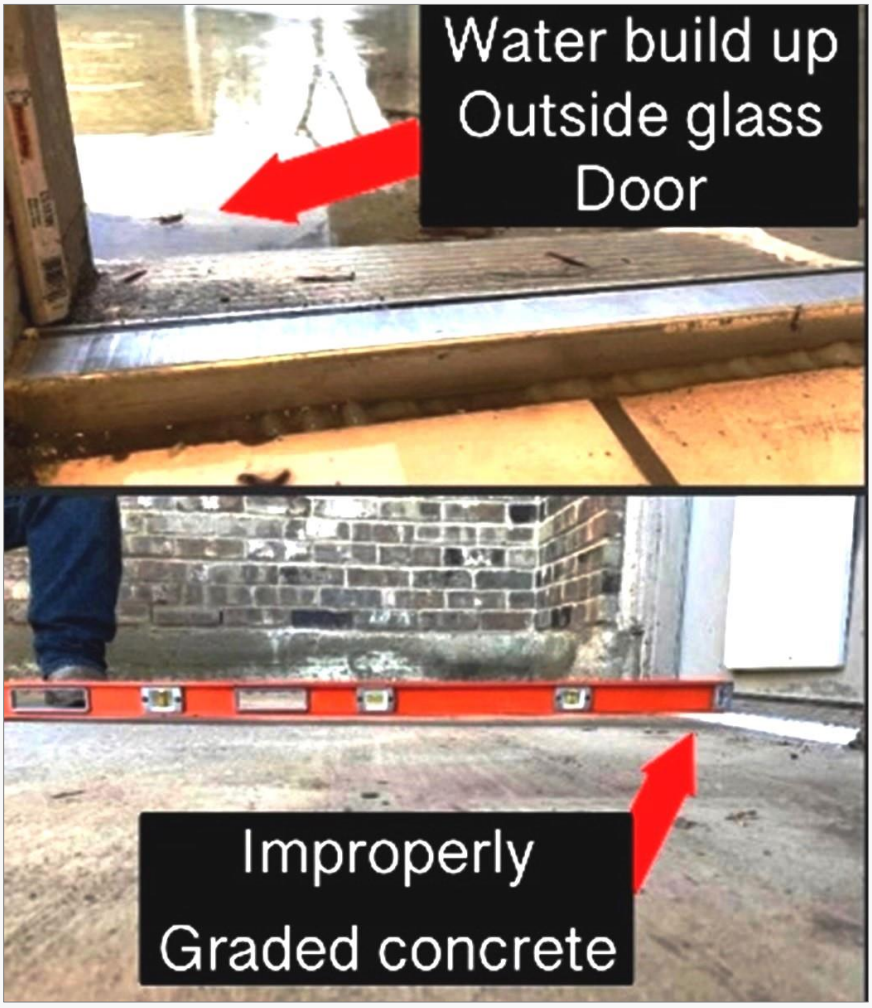
LESSONS LEARNED

The actual loss from this issue was approximately $65,000, including:

- Labor and material to remove the patios.
- Truck rental fees to haul the material away.
- Plus, labor and materials to re-form and pour the job with the correct slope.

The foreman could have avoided this event if he had clearly stated directions to the crew.

- The foreman never mentioned drainage grade to his crews, and the crews never considered proper drainage when forming.
- The building management is not expected to ask for a drainage grade, as a concrete contractor should know water must always be diverted away from doorways.



DISCUSSION QUESTIONS

1. Before forms are built, are we aware of the way the grade should be directed and how steep it should be?
2. When selecting the direction of the grade, are we aware of all doors and low-level windows that might be affected by the flow of water?
3. Have we discussed with the customer where the water will be directed before the concrete is poured?

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CONCRETE AND REBAR TRADE
WALKING AND WORK SURFACES
SAFETY TOOLBOX TALK

OVERVIEW

Trips, slips, and falls are among the top causes of fatalities and injuries among construction and general industry workers today.

- The conditions of your workplace, walking, and working surfaces play a huge role in workers' safety and ability to do their jobs efficiently and without hazards.
- Walking surfaces constantly change throughout the phases of your project. You must intentionally maintain safe conditions on your walking surfaces and always look for new hazards coming into your work area.
- **Protect yourself and your coworkers!**

Figure 1 Label Hole Covers

Figure 2 Tripping & Foot Hazard

LEARN AND APPLY THE FOLLOWING

Maintain Your Walking and Work Surfaces Safety

- **Always** start the day by completing a walk-through inspection of your work area to ensure there are no surface hazards. See **Figure 2**.
  Continue observing and clearing your work area throughout the day.
- Cover holes in floors as soon as they are found or created. Use a material that will withstand twice the intended load to be applied by a person, equipment, and material.
- Legibly label hole coverings. Often, a person picks up an unmarked hole covering material and walks into the hidden opening. See **Figure 1**.
- Clean up standing liquids and spills as soon as they occur or as they are spotted.
- Take your time, and do not rush on site. Pay attention to where you are walking and use handrails when traveling up or down stairs.
- When working near edges and exposed to a fall of 6 feet or more, always use guard rails and fall protection gear such as fall arrest equipment.
- Wear proper footwear with good tread to prevent slipping. Clean footwear often: remove mud, water, snow, grease, etc.
- When carrying heavy building materials, make sure that it will not prohibit you from seeing trip hazards from debris and surface hazards.

Scaffolding Surfaces Safety

- Always set up scaffolding according to the manufacturer's direction and have a competent person inspect the scaffolding before use.
- Scaffolding platforms must include safe access.
- Scaffolding platform surfaces must be filled in completely and have guardrails installed on all open edges and sides.

Maintaining Walking and Work Surfaces Safety for Concrete-Rebar Workers

- When there is room, hang electrical cords and hoses above workers' heads.
- Keep rebar and formwork concentrated in one location for use on the task.
- Rebar and PT cable must be controlled and protected from workers in the area.
- Before rebar is anchored and concrete is poured, ensure openings of any raised surfaces are covered to carry the intended load of workers and their equipment.
- Continuously ensure the walkways are clean around an elevated deck.
- Ensure sufficient space for the concrete finishing crew to perform their work.

DISCUSSION QUESTIONS

1. What should you inspect, verify, or correct at the "start of the day"? See **Figure 2**.
2. What are some key takeaways for Walking and Work Surfaces Safety?
3. Are there General Contractor or Building Owner specific rules that apply to walking and work surfaces safety above OSHA standards?

Meeting Date: **Supervisor:** **Employee Name:**