



WALLS, CEILINGS, AND FLOORING TRADE, FLOORING REPLACEMENT: SUBSTRATE CLEANING AND LEVELING

PROJECT OVERVIEW

During the renovation of a fourteen-story multi-family apartment building, supply chain availability issues required the project to switch flooring supplies to another manufacturer.

SUBSTRATE CLEANING AND LEVELING ISSUES

The flooring contractor suggested "what they believed" was equal-quality flooring products to replace the specified, previously approved, and submitted flooring products.

After installing the replacement flooring and adhesive on the concrete post-tensioned levels, flooring adhesion issues were noted. **Removal of the flooring revealed two significant issues: incomplete substrate leveling and lack of substrate cleaning.**

1. The first significant issue discovered was "no substrate leveling" before installing the replacement flooring.

The flooring contractor started installation before verifying if there were low spots on the floor.

The lack of leveling was a significant factor in the overall floor adhesion problems. Before installation, the specified and previously approved floor leveling compound should have been applied in these low spots.

2. The second significant issue discovered was poor substrate cleaning.

- The CM/GC performed construction cleaning. Foot traffic was allowed in these areas several days after the cleaning.
- The flooring contractor should have inspected the floor condition before installation started. If it is unacceptable from contract conditions, work should have stopped.

Substrate Cleaning and Leveling

An expert flooring consultant was hired to review the replacement installation.

- The inspection result was: "unacceptable floor, cleaning, and leveling."
- The flooring contractor filed a claim stating other issues caused the floor adhesion problems and that the replacement installation issues were minor.
- The architect denied any responsibility for the floor adhesion issues.

LESSONS LEARNED

Poor installation practices were determined to be the cause of these issues.

- The overall Product Failure Analysis noted poor installation.

How To Avoid These Issues

Substitution requests are sometimes proposed for project cost and schedule savings or are unavoidable because the original product cannot be obtained.

- In this case, caution should be exercised, and the submittals should be entirely voided and new products submitted.
- Poor quality replacement installations can cloud other issues involved in a product failure analysis.



DISCUSSION QUESTIONS

1. Do you know of any substitutions on this project?
2. How do we clean the substrate must be carried out before installing the flooring?
3. What needs to be done to level the floor before installation of the flooring? PT slab, Slab on grade?
4. Do we have photo documentation and inspection records to verify the installation in progress was done correctly?

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WALLS, CEILINGS, AND FLOORING TRADES

GUARDRAILS AND HANDRAILS

SAFETY TOOLBOX TALK

OVERVIEW

Fall incidents continue to plague the construction industry by remaining the number one killer in the workplace in the U.S. However, these incidents are almost always preventable. OSHA requires that all employers protect their employees from falling from work areas at an elevation of 6 feet or more for construction or 4 feet or more for general industry.

- **Guardrail** systems are barriers erected along an unprotected or exposed side, edge, or other areas of a walking-working surface to prevent employees from falling to a lower level.
Guardrails are a stationary safety system that protects workers and the public from falls when working at heights. Guardrails are one of the primary means of protecting workers because they do not have to rely on individual training to use them.
- **Handrail** means a rail used to provide employees with a handhold for support.
A handrail is a wall or open side-mounted structure designed to be grasped by the individual descending or ascending a stairway and provides extra support and fall prevention.

While we may think using handrails is mundane, falling downstairs is one of the most common incidents in the workplace and at home.

LEARN AND APPLY THE FOLLOWING

Handrail Safety Practices

“The height of handrails must not be any higher than 34 in or less than 30 in from the upper surface of the top rail to the surface of the tread.” (Refer to Construction Building Code and OSHA.)

- To ensure maximum safety, workers should hold on to the handrail so they always have two points of contact.
- Workers should not run up or down stairs.
- Do not be distracted while using stairs.
- Always look where you are going.
- Take one step at a time.
- Get help if you must carry materials or heavier equipment up or down stairs.
- Pay attention to weather conditions if stairs are exposed to outdoor conditions.

Guardrail Safety Practices

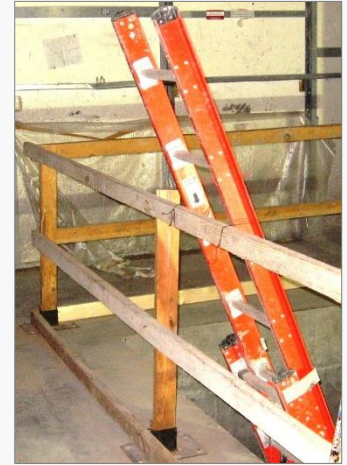
You must implement a guardrail system when workers are around wall openings larger than 18 inches wide and 30 inches tall.

- Guardrails can be made from a variety of different materials such as wood, steel, wire rope, or composites. Surfaces must be smooth to injury.
- The top of the guardrail must withstand 200 pounds of downward and outward pressure. They must also be at least 42 inches tall, plus or minus 3 inches.
- The mid-rail must withstand 150 pounds of downward and outward pressure. The mid-rail should always split the difference between the top rail and the working surface.
- A mesh screen and toe boards should be implemented when working with objects capable of being dropped to a lower level.
Note: Toe boards are required where people below are exposed to dropped objects from above.
- You should **never** climb or lean against a guardrail.
- **Never** connect your fall prevention equipment to a guardrail.

DISCUSSION QUESTIONS

1. What are the three main components that guard rails should have? Think rails.
2. What are things you should not do on or with a guardrail?
3. Are there General Contractor or Building Owner specific rules that apply to Finishes-Walls Ceiling Flooring Trade-Guardrails and Handrails above OSHA standards?

Guardrails



Meeting Date:

Supervisor:

Employee Name:
