


Hit the Deck!

Solution Paths to Successful Exterior Deck Installations

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Founded in 1915, FPC International, Inc., is a family-owned and professionally managed company with a highly successful track record of acquiring and growing niche industrial businesses.



Founded in 1946, the Noble Company has established a reputation of providing quality, innovative products for the plumbing and tile industries.



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Session Description

The use of ceramic tile & natural stone on exterior decks has become increasingly popular for both residential and commercial projects. Despite the proliferation of waterproofing and tile installation products and systems, this type of installation is still subject to installation challenges which can result in failure and expensive remediation.

This presentation examines legacy installation shortcomings, current industry best practices, and innovative product development which address some of the concerns that heretofore have contributed to exterior deck failures. At the end of the presentation, you will be armed with the knowledge needed to move forward and identify the means and methods needed to ensure your exterior deck project is successful.

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Learning Objectives

- Examine the history of exterior deck installation techniques & challenges.
- Review the nature of exterior deck failures and the role legacy means & methods play in evolution of best practices.
- Highlight misinformation, misperceptions, and ineffective installation practices which are fueling the increase in shortened life cycles of exterior deck installations.
- The presentation culminates with supportive documentation and collaborative information from independent forensic and waterproofing consultants, strengthening the assertions and issues raised, and maps out a critical path of proactive specification language and installation techniques designed to minimize the incident of exterior deck failures, as well as promoting evolving best practices. By elevating materials, methods, and best practices, the risk of remediation associated with poorly installed exterior decks can be greatly reduced.

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The Joy of Open Air


The love of all things ceramic...and the beauty of natural stone continues to move outdoors...




9

The Joy of Open Air

The love of all things ceramic...and the beauty of natural stone continues to move outdoors...



Especially when you have a view and nice weather!



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The Sources of Failure


9 Points to Consider

- Improper Substrate
- Weight Load & Framing
- Lack of Movement Joints
- Deck-to-Door Details
- Inadequate Drain Detail
- Exposed Deck Edge
- Lack of Flashing
- Post & Rail Details
- Inadequate Waterproofing

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The Sources of Failure


Improper substrate preparation can lead to failure.



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The Sources of Failure

When you combine an improper exterior substrate with a product not designed for use outside, your chances of failure increase.




13

The Sources of Failure

Weight...load, and unacceptable deflection. Dry-pack mortar can add tremendous additional weight to an exterior deck framing structure.

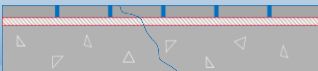

Ex: Pages 66 and 451 of the TCNA manual



14

The Sources of Failure

Lack of movement joints on an exterior deck will almost certainly result in failure.



15

The Sources of Failure

Lack of movement joints on an exterior deck will almost certainly result in failure...with no room to "move," tile will dislodge from the substrate to relieve movement forces.



16

The Sources of Failure

Thresholds, sliding doors, and transitions to interiors



17

The Sources of Failure

Decks drains can differ from interior drains...and, what about scuppers?



18

The Sources of Failure


Deck drains can differ from interior drains...and what about scuppers?



19

The Sources of Failure

"That's a wrap".....failure to wrap the edges and front of the deck with waterproofing have resulted in failure.



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The Sources of Failure

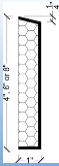



FRAMING DAMAGE

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The Sources of Failure


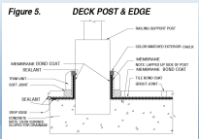
Failure to flash the waterproofing from the deck to main dwelling is all too often a source of failure.

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The Sources of Failure


The manner in which you attach your railings to the deck can either increase or decrease your chances of failure.

23

The Sources of Failure


Deck waterproofing must extend beyond doors.



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The Sources of Failure

When you combine an improper exterior substrate with a product not designed for use outside, your chances of failure increase.



25

The Sources of Resolution

- Use only ANSI, TCNA, NTCA, and industry recommended substrates
- Ensure that beams/joists/framing "handle" the load of the exterior deck system
- TCNA recommended movement joints must be used
- Deck waterproofing must extend beyond the doors
- Deck must be designed with adequate drainage

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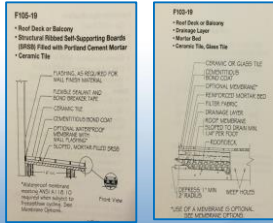
The Sources of Resolution

- Exterior deck edges must be wrapped
- Exterior deck WP must flash up the main dwelling
- Avoid post/railing penetrations through deck WP
- Exterior WP systems to must be used

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The Sources of Resolution

Use only ANSI, TCNA, NTCA and industry recommended substrates.



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The Sources of Resolution

Ensure that beams, joists, and framing can handle the load of the exterior deck system.



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The Sources of Resolution

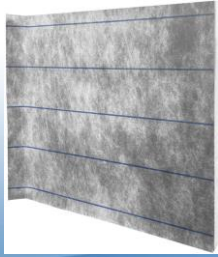
Weight...load, and unacceptable deflection are addressed by sourcing prefabricated substrates with compression resistant technology.



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The Sources of Resolution

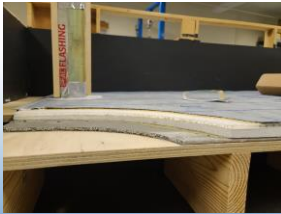
Exterior-rated waterproof membranes attached to these lightweight substrates assures that longevity issues are addressed.



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The Sources of Resolution

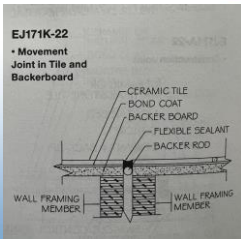
The weight reduction per square foot and the significant weight savings of these pre-fabricated exterior deck systems allows tile & stone to be installed where budget & deflection concerns used to halt such installations.



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The Sources of Resolution

TCNA recommended movement joints must be used as required for exterior applications.



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The Sources of Resolution

Deck waterproofing **must** extend beyond doors.

Figure 3. SLIDING DOOR

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The Sources of Resolution

Exterior decks should be designed with adequate drainage and/or drains.

If a drain is considered, it should have adequate consumption (GPM).

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The Sources of Resolution


Exterior deck edges must be considered and manufacturer's details of the termination point.

Figure 8. EXTERIOR DECK - PLYWOOD WITH BACKER BOARD

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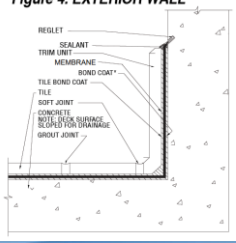
The Sources of Resolution

Exterior deck waterproofing must flash up at all change of plains.



Foam Bases have been used

Figure 4. EXTERIOR WALL



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The Sources of Resolution


When you fail to flash "up" where the deck meets the dwelling, your chances of failure increase.



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The Sources of Resolution

Even when the exterior finish on the main dwelling has already been applied, the deck waterproofing must flash up...underneath the finish.



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The Sources of Resolution

Exterior waterproofing systems must be used in outdoor environments.

...brand X is rated as a secondary waterproofing system and a primary waterproofing must be used in conjunction with this product...

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The Source of Resolution

It is critical to ensure that the waterproofing membrane being used for exterior applications meets the requirements for this demanding environment.



A primary waterproof membrane for exterior applications is recommended.

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Summary

Exterior decks are growing in popularity... "The devil is in the details."

Architects, owners & contractors are making WP decisions based on limited information on new systems.

New systems for substrates & exterior WP systems are addressing legacy shortcomings.

Go through the "source of resolution"....before the failure happens.



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Why leave it to just anyone?

"Because tile is a permanent finish, the lowest bid should not be the driving factor, but rather who is the most qualified to perform the scope of the work specified." - TCNA Handbook



The Tile Council of North America urges design professionals to include language in specifications to secure qualified contractors and installers. The following nonprofit programs are well-established and recognized by the Handbook Committee:

- Advanced Certifications for Tile Installers (ACT)
- Ceramic Tile Education Foundation (CTEF) Certified Tile Installer Program
- International Masonry Institute (IMI) Contractor College
- Journeyman Tile Layer Apprenticeship Programs
- Natural Stone Institute (NSI) Accreditation for Natural Stone Tile Installation
- National Tile Contractors Association (NTCA) Five Star Contractor Program
- Tile Contractors Association of America (TCAA) Trowel of Excellence Program




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MasterSpec®

1.5 QUALITY ASSURANCE

A. Installer Qualifications:

1. Installer is [a **Five-Star member of the National Tile Contractors Association**] [or] [a **Trowel of Excellence member of the Tile Contractors' Association of America**].
2. Installer's supervisor for Project holds the International Masonry Institute's Foreman Certification.
3. Installer employs only [Ceramic Tile Education Foundation Certified Installers] [or] [installers recognized by the U.S. Department of Labor as Journeyman Tile Layers] for Project.
4. Installer employs at least one installer for Project that has completed the Advanced Certification for Tile Installers (ACT) certification for installation of [mud floors] [mud walls] [membranes] [shower receptors] [gauged porcelain tile/gauged porcelain tile panels and slabs] [and] [large format tile].



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BSD SpecLink

QUALITY ASSURANCE

Insert one copy of [SDS ACT/CTEF/CTI](#) and [TCNA 001](#) in this section.

Manufacturer Qualifications: Company specializing in manufacturing the types of products specified in this section with minimum five years of documented experience.

Installer Qualifications:

Company specializing in performing the installation, with minimum of five years of documented experience.

- Accredited Five Star member of the National Tile Contractors Association (NTCA) or Trowel of Excellence member of the Tile Contractors' Association of America (TCAA).

Installer Certification:

- Ceramic Tile Education Foundation (CTEF) Certified Tile Installer (CTI) Apprenticeship Program. Installer has achieved Journeyman status through an apprenticeship from the International Union of Bricklayers and Allied Craftworkers (IBAC) or a U.S. Department of Labor (DOL) recognized program.
- Advanced Certifications for Tile Installers (ACT). Certificate in the installation of membranes, mapei level/slope floors, mapei level/walls, shower receptors, large format tile, gauged porcelain (impervious) and grout.
- International Masonry Training and Education Foundation (IMTEF) Supervisor Certification Program (SCP).



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LARGE FORMAT TILE
MEMBRANES
MUD WORK
SHOWERS
GAUGED PORCELAIN TILE
GROUTS

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Advanced Certifications for Tile Installers
tilecertifications.com

Ceramic Tile Education Foundation
ceramictilefoundation.org
info@ceramictilefoundation.org

International Masonry Institute
imiweb.org

National Tile Contractors Association / Five Star Contractor Group
tile-assn.com
NTCAqualifiedlabor@tile-assn.com

Tile Contractors' Association of America
tcainc.org
info@tcainc.org

Tile Council of North America, Inc.
www.tilecouncil.com
info@tilecouncil.com

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ANY QUESTIONS?

This concludes our program.
Please feel free to contact me for additional information.

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THANK YOU!

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