



WarmlyYours

Radiant Heating Systems

Experts since 1999

WARMLYYOURS PRO RESOURCE

# Heated Tile Substrate Compatibility & Risk Map

This **PRO Pocket Guide** is designed to be a high-speed field resource. It strips away the "fluff" and focuses on the nonnegotiables that prevent bond failure and callbacks.

## Project/Installer

Project Name:

Job Address:

Installer/  
Company:

## Date/Substrate

### Tile Type

Standard / LFT-GPTP

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# Fast Pass/Fail Gates (Don't Skip)

Critical verification steps to catch major issues early. Skipping these puts the entire project at risk.

1

## Structural Integrity

Verify substrate rigidity – zero bounce, squeaks, or vertical deflection allowed.

2

## Flatness Check

Measure and document surface variation before proceeding with any installation.

3

## Bond Readiness

Confirm cleanliness and moisture conditions are within product limits.

4

## Substrate Risk

Classify substrate as Green, Yellow, or Red before committing to install.



**Do not skip these gates.**

Each one exists to catch a major failure mode before it becomes a costly callback.



# Structure & Movement

Structural integrity is non-negotiable.

Movement will telegraph through the assembly.

## Verified Rigidity

Substrate must be stable with **zero bounce, squeaks, or vertical deflection.**

## The "Uncoupling" Limit

Membranes manage lateral movement; you **cannot "uncouple your way out"** of a structural bounce.

## Fix First

**Address framing or joists before you install anything.**

# Flatness (Tile-Ready)



Variable mortar thickness leads to uneven heating and lippage.

## Standard Tile

Max 1/4" variation in 10'

## LFT/GPTP

Max 1/8" variation in 10' – stricter requirement.

## The Rule

**Measure and document findings before proceeding.**  
Do not rely on visual inspection alone.





# Bond Readiness



**Bond failure is a major contributor to tile floor problems.**



## Moisture

**Verify conditions are within product limits** — don't guess. Use a moisture meter and document results.



## Cleanliness

**Zero dust, paint, sealers, or adhesive residue.** Any contamination is a bond-breaker.

# Substrate Risk Map

Category	GREEN (Proceed)	YELLOW (Correct/Verify)	RED (Stop/Fix)
Wood	Sound assembly + Underlayment plan.	Minor flatness issues or OSB with wax residue.	Bounce or movement you can't eliminate.
Concrete	Clean, sound concrete.	Isolated cracks / Hollow spots.	Moisture issues / Contamination.
Old Tile	Well-bonded + stable.	Unknown history / Unknown bond.	Loose/Delaminated / Widespread hollow spots.

# Underlayment & SLU PRO Rules

## Prodeso Membrane

Profile height is 7/32" (5.5mm).

## Perimeter

Use **caulk or ThermalSheet at wall edges, floor vents and transitions** to prevent leaks.

## Tack Window

**Prime and pour within the manufacturer's window.**

## Adhesive Rule

**Tack cable every 6–12"** with hot glue.



## **The Danger: Never use duct tape**

Duct tape is a permanent bond-breaker. It creates hollow voids, prevents mortar encapsulation, and is the #1 cause of tile delamination over heating wires.

# Concrete Slab Add-On

Concrete is a **heat sink**. Without a thermal break, warm-up is significantly slower.

## ThermalSheet

**Recommended over concrete** to improve efficiency by up to **50%**. Even if the concrete slab has an insulating layer below - ThermalSheet is still needed as a thermal break.

## Why It Matters

A concrete slab will absorb heat energy before it reaches the tile surface. Installing a ThermalSheet creates the thermal break needed to redirect heat upward – where you want it – dramatically improving system response time and operating efficiency.

**50%** **Efficiency Gain**  
Potential improvement with ThermalSheet over concrete slab.

# Overlay on Existing Tile

## Hollow Spot Check

**Tap test or chain drag is mandatory.** Do not skip this step when overlaying existing tile.

## The Glaze Rule

**Glazed tile is a bond-breaker** — source a bond-promoting primer with grit or specially-formulated thinset before proceeding.

**⚠️ Any hollow spots beneath existing tile indicate delamination risk.**  
Widespread hollow spots = **○ RED — Stop and Fix before proceeding.**



# Stack-Up & Transition Reality Check

Understanding the final floor height, or "stack-up," is critical. With heated tile systems, the total build-up can range from  $\sim 3/4"$  to  $1 1/8"$ . Always calculate your total stack-up and plan for all transitions **before** opening any mortar bags.

## 1. Calculate Your Path (Choose one)

Begin by selecting your primary underlayment, which forms the base of your heated floor assembly:

### Path A: Cement Backer Unit (CBU)

Adds  $1/4"$  –  $1/2"$  to the total height.

- Commonly used for structural integrity and moisture resistance.
- Provides a rigid base over wood subfloors.

### Path B: Prodeso Membrane

Adds  $7/32"$  (approx. 5.5mm) to the total height.

- Uncoupling membrane, crack isolation, and waterproofing.
- Integrated cable channels for heating elements.

### Path C: Direct to Subfloor

Subfloor is ready for tile – bypass and move to 2. Add Fixed Components.

## 2. Add Fixed Components

These elements are constant regardless of your chosen underlayment path:

### Heating Cable + Mortar Embedment

We suggest 3/8" of thinset to embed the heating wire and set the tile.

### Tile Thickness

Adds 3/8" – 1/2" (Standard or LFT).

- Standard tiles typically fall in the lower end of this range.
- Large Format Tile (LFT) may be thicker, impacting overall height.

## 3. Verify Clearances

Once the stack-up is determined, critically assess how it will affect surrounding elements:

### **Doors:**

Will existing doors still swing freely? Measure the gap from the bottom of the door to the subfloor now. Plan for trimming or replacing doors if needed.

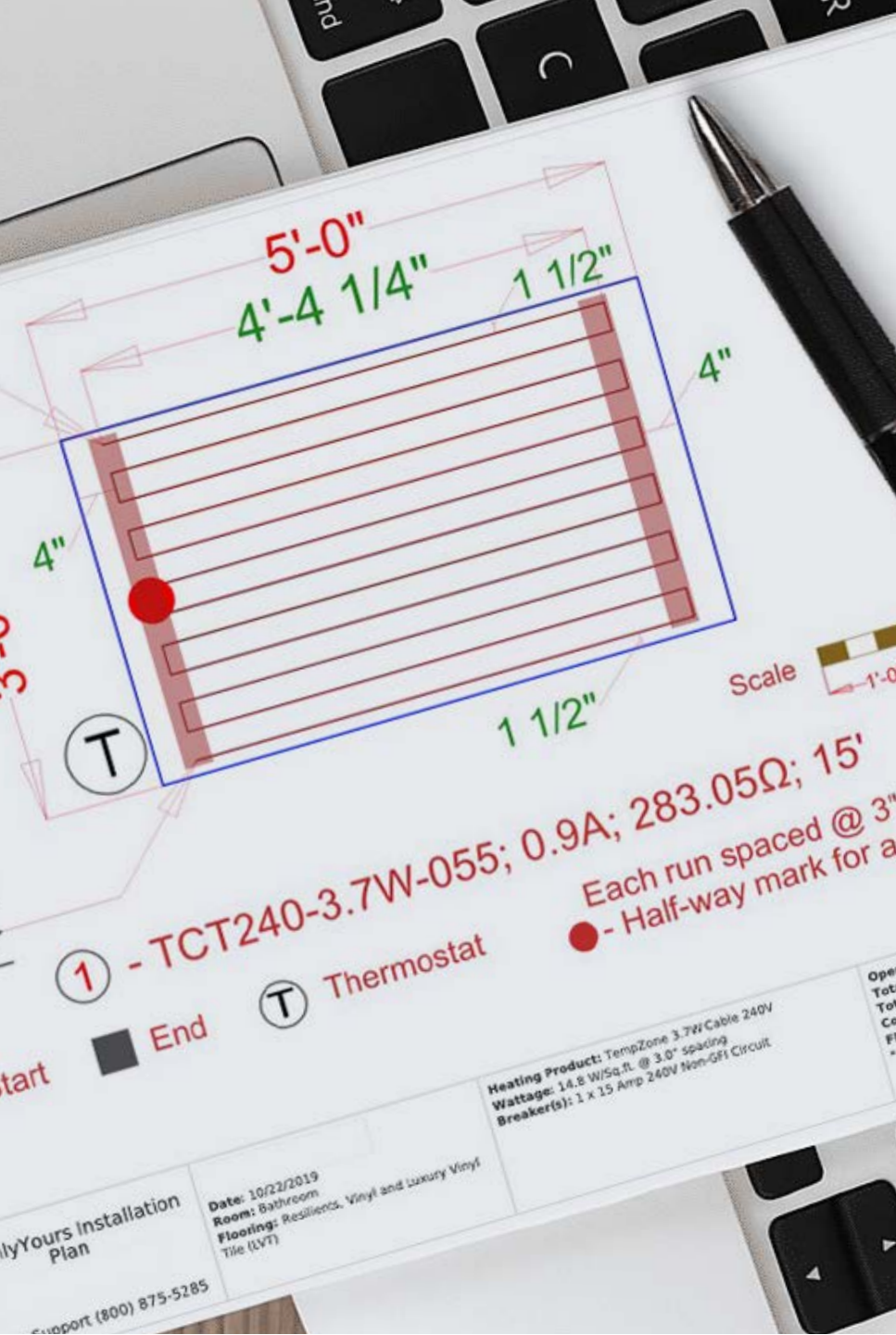
### **Transitions:**

Design appropriate reducers or ramps for seamless integration with adjacent flooring materials like hardwood, carpet, or other tile. Abrupt changes create trip hazards.

### **Cabinets & Appliances:**

Check toe-kicks, dishwasher clearances, and refrigerator space. Ensure appliances can still be pulled out for service and that cabinet doors open without obstruction.

**PRO Rule: "Fix it in prep."** If your calculated stack-up creates a trip hazard or compromises functionality, it's a liability. Resolve all transition and clearance issues **before** you proceed with installation.



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→ [Receive](#)

**Custom layout, electrical plan, and operating cost estimates.**

# Resources

Access the full suite of WarmlyYours PRO support tools to stay current on best practices and technical guidance.



## Watch

### [Scott's Monthly PRO How-To videos.](#)

Stay up to date with the latest installation techniques and field tips from a trusted industry expert.



## Visit

[WarmlyYours Trade](#) for technical best practices. The go-to online destination for PRO installers seeking in-depth product and installation guidance.

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