Biax®
FOUNDATION SYSTEM

Specification and Application of Void Spaces Below Concrete Foundations

A Discussion Presented in
Houston, Texas, to the
Foundation Performance Association

Common void materials used in foundations for single-family, multi-family, and light commercial structures

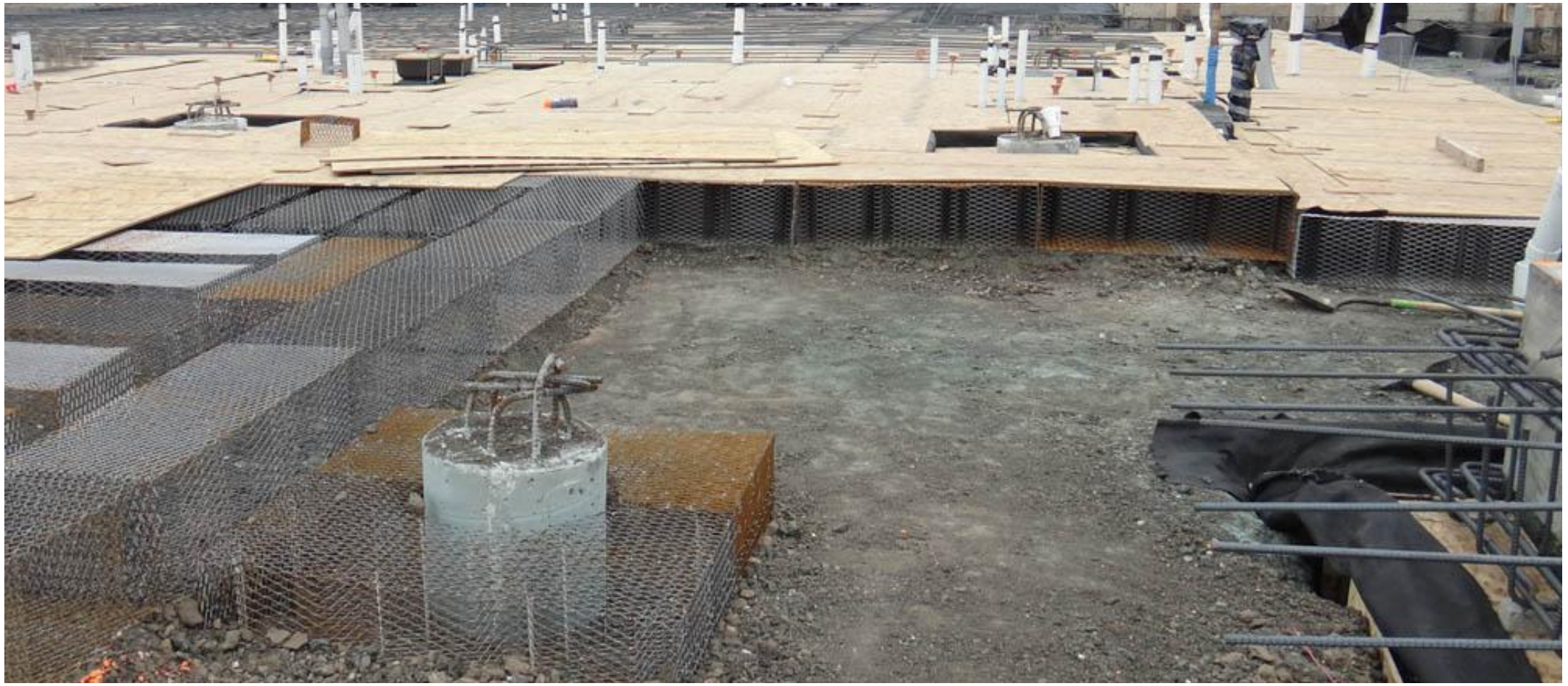
- Corrugated Paper
- Expanded Metal
- Metal Sheet
- Molded Plastic
- Stryrofoam
- Wood

Corrugated paper

Corrugated paper fabrication

Corrugated paper fabrication

Expanded metal



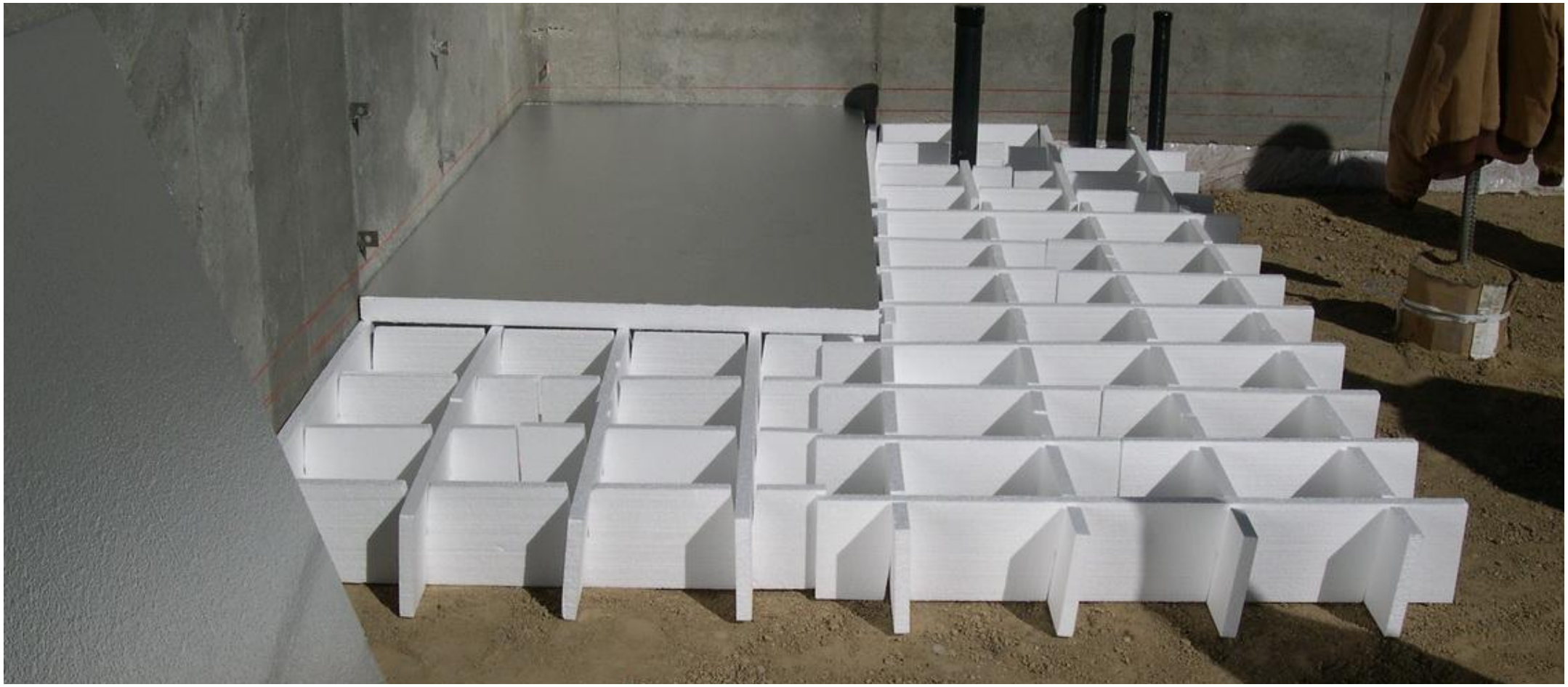
Metal sheet

Molded plastic

Molded plastic fabrication

Molded plastic fabrication

Styrofoam



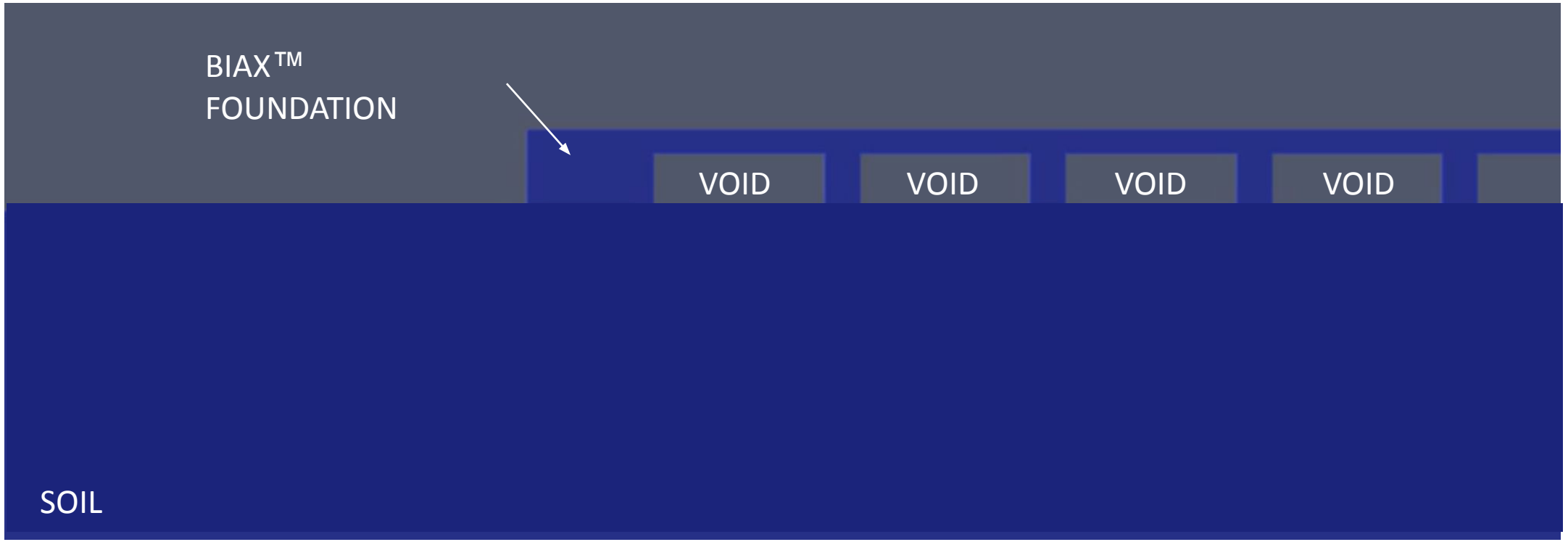
Wood

Why Use Void Forms?

Void space forms can:

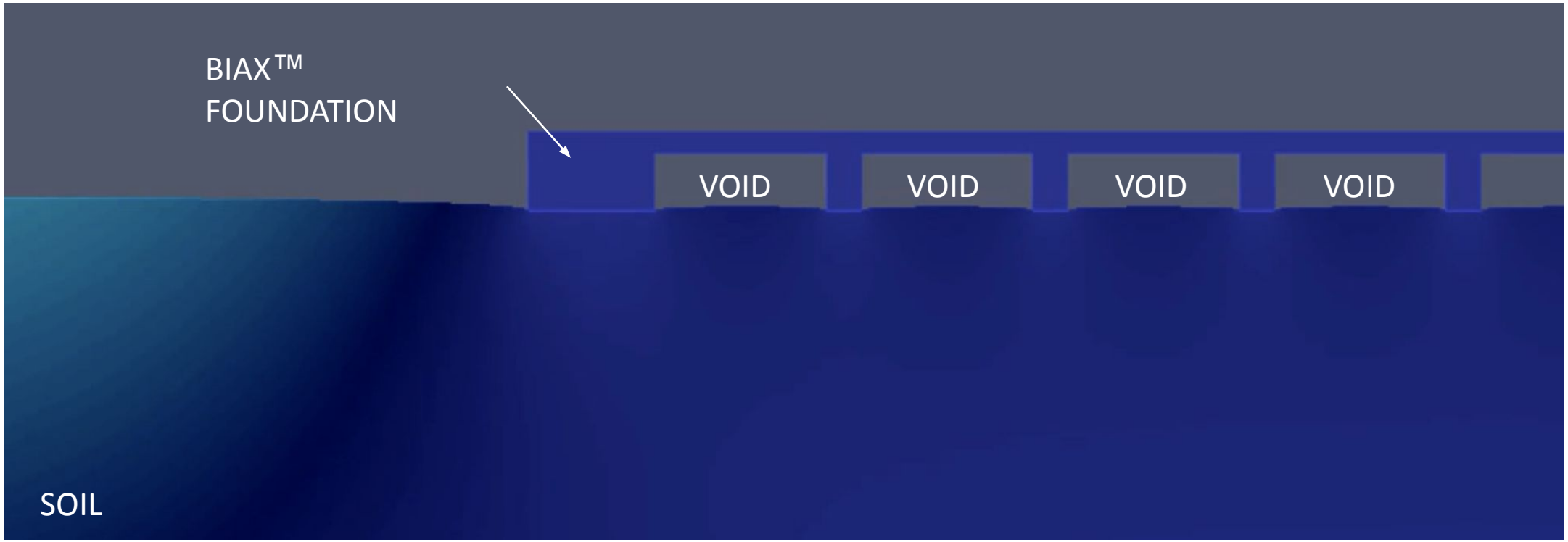
- Absorb expanding soil volume
- Create more rigid slab
- Reduce amount of concrete
- Reduce soil excavation

Example: Performance of plastic voids in expansive soils



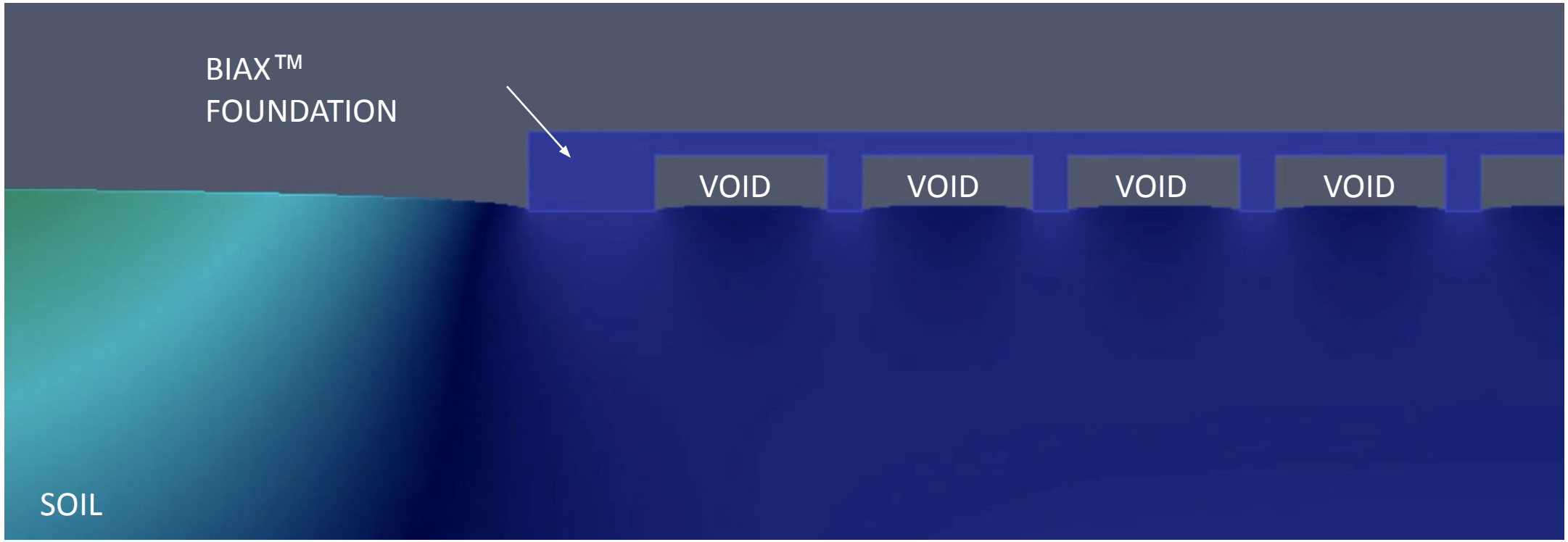
Computer Simulation for the interaction of a Biax™ foundation with a swelling soil

Soils move into voids



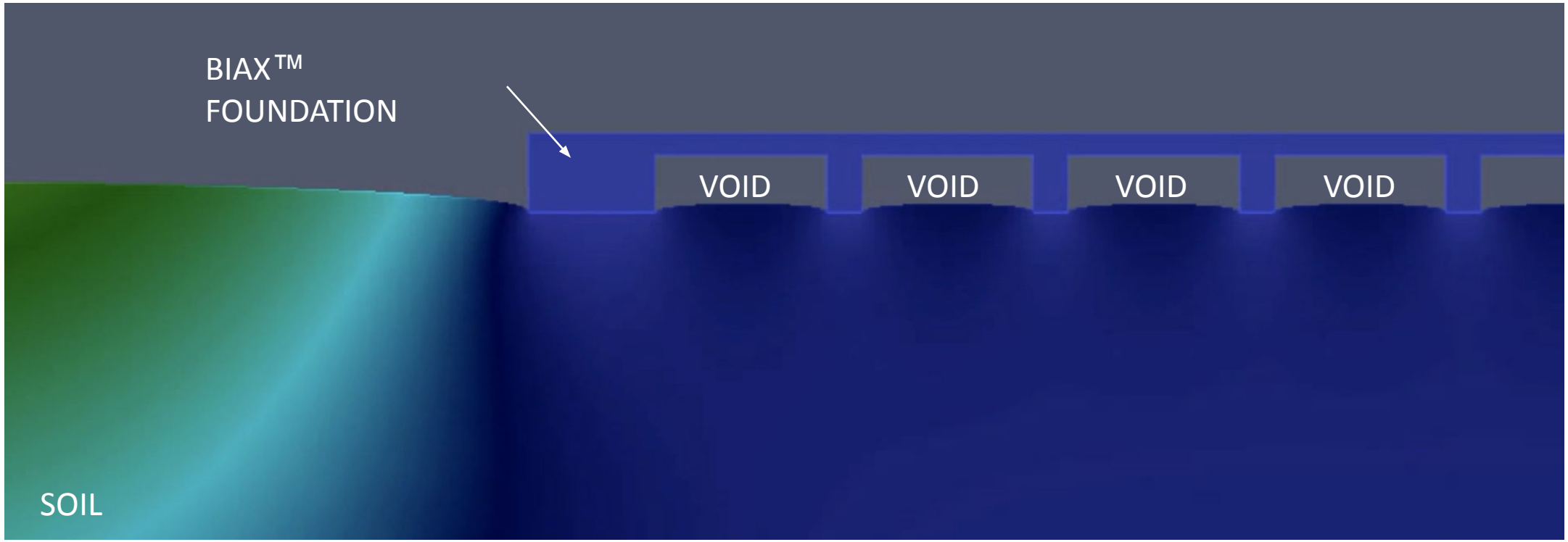
Computer Simulation for the interaction of a Biax™ foundation with a swelling soil

Pressure on slab is relieved



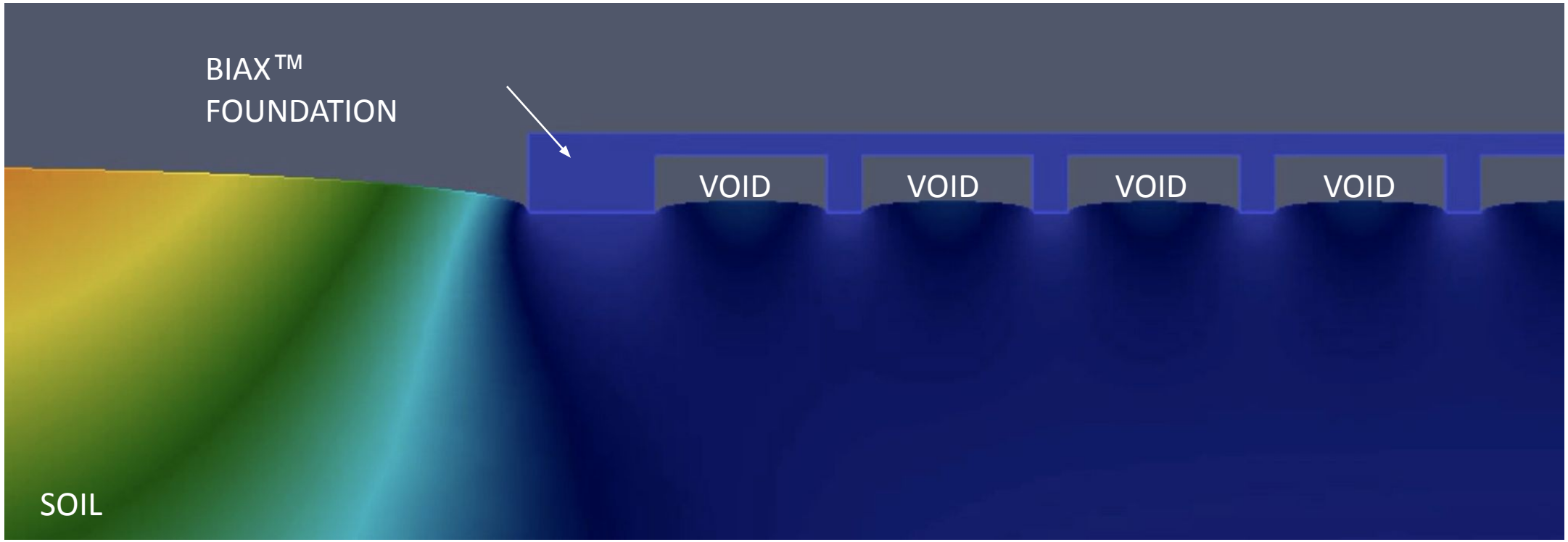
Computer Simulation for the interaction of a Biax™ foundation with a swelling soil

Slab stiffness is not compromised



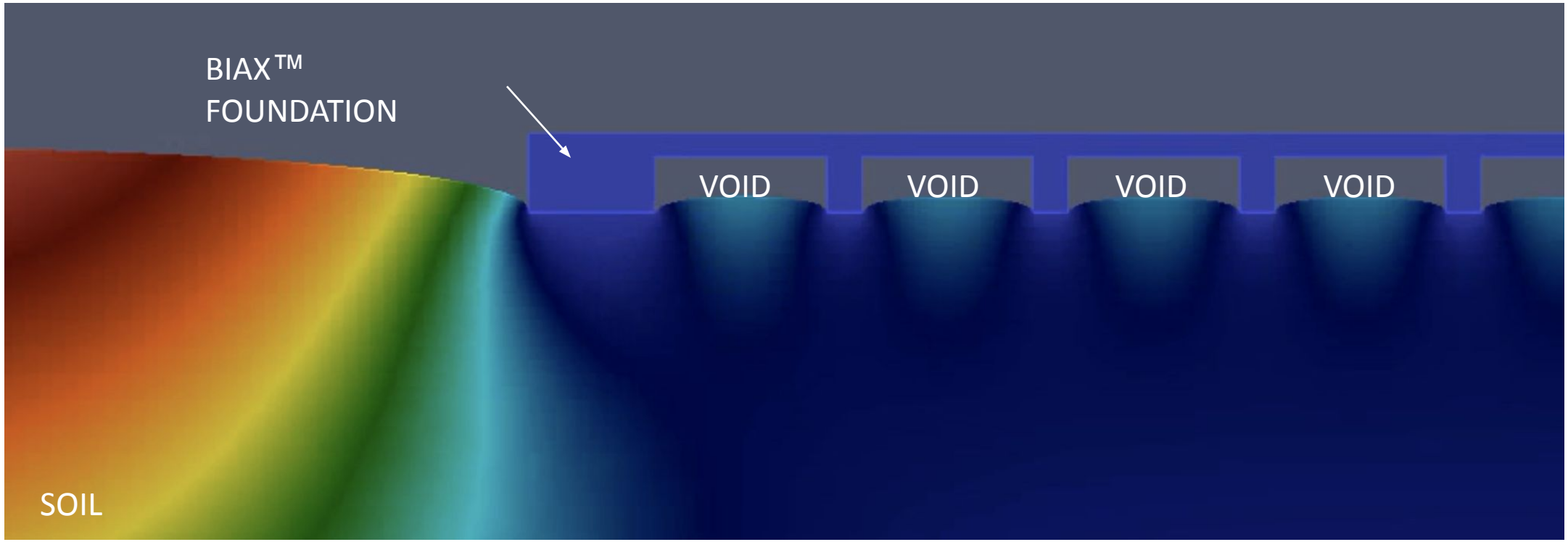
Computer Simulation for the interaction of a Biax™ foundation with a swelling soil

No effect for seasonal expansion and contraction on slab



Computer Simulation for the interaction of a Biax™ foundation with a swelling soil

Performance retained



Computer Simulation for the interaction of a Biax™ foundation with a swelling soil

Foundation Failures in Expansive Soils Where Void Forms Were Not Used

Biax® FOUNDATION SYSTEM

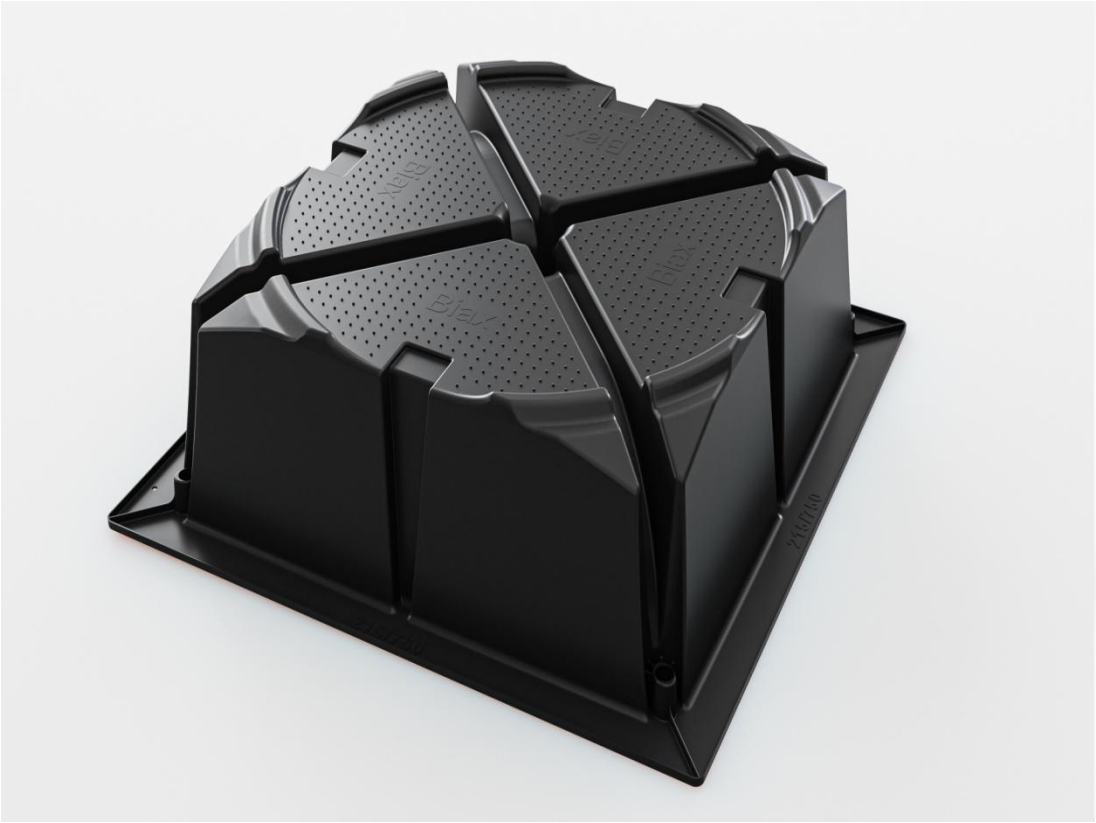
Types of void space forms

- Degradable
- Collapsible
- Non-Collapsible

Degradable

Collapsible

Non-collapsible



Recent changes and improvements in void space systems

- Types of systems – more choices
- Improved design – better engineered, availability of both mild and p/t options for reinforcement
- Specifications of materials – stronger
- Handling and installation – greater acceptance, more ‘general’ knowledge and experience of local crews

The Biax foundation-forming system is a 4th generation, on-grade, waffle slab designed and engineered specifically for expansive, compressible, collapsible, or rocky soils. It delivers superior performance and significant hard-dollar cost savings – especially when compared to in-ground ribbed and/or uniform thickness foundations.

For more information on Biax go to www.biaxusa.com or call Tom Richards at 925.683.2739