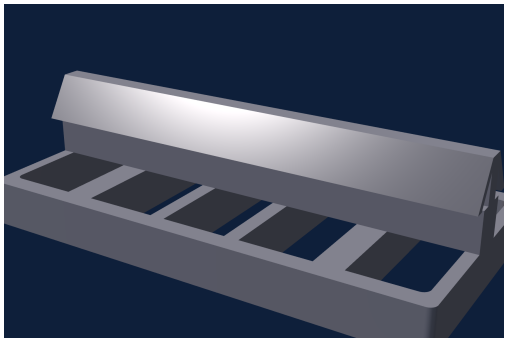
HIDDEN FASTENER SYSTEM

InvisiClip (Grad System)

A clean, screw-free deck surface for American Pro grooved PVC decking. Engineered POM clips and aluminum rails snap boards into place with no visible fasteners on the walking surface, faster installs versus top-fasten, and individually removable boards.



0	16"	4"
screws on surface	max joist / rail O.C.	first rail from edge

SYSTEM COMPONENTS

Part	Reference	Material	Function
Individual Clip	1483	POM (acetal)	Primary clip; snaps grooved board to rail.
Half Clip	1485	POM (acetal)	End/fascia condition; half-width footprint.
Start Rail	Standard	Extruded aluminum	Continuous rail; supports field clips.
Mini Rail	Standard	Extruded aluminum	Short rail for blocking and tight conditions.
TOP LINK	Joiner	Aluminum / POM	Splices rails end to end without a joist.
Cushion Clip	20356	Engineered polymer	Compresses to absorb board movement.

INSTALLATION SPECIFICATION

Parameter	Specification
Joist spacing	16" O.C. maximum (residential and commercial); 12" O.C. for heavy loads or angled installs.
Rail layout	One rail sits on top of every joist, parallel to the joists. Rails are therefore 16" O.C. maximum. First rail max 4" from board edge.
Boards on the rail	Deck boards run perpendicular to the rails. One full clip (1483) seats every adjacent board pair at every rail; one half clip (1485) at each rail end. Rails per board run = (board length in inches ÷ 16) + 1, rounded up.
Fasteners (Start Rail)	Every 20" along the rail, minimum two per rail.
Fasteners (Mini Rail)	Every 10" along the rail, minimum two per rail.
Approved screws	T08162WPB, #8/#10, 1.5" Type 316 stainless, Simpson Strong-Tie.
Approved nails	N10D5HDG-R, 0.148" × 1.5", hot-dip galvanized, class D.
Board engagement	Board grooves snap onto clip; no surface fastener required.
Removability	Any board lifts out using Grad keys at the Start Rail (Mini Rail boards locked).
Compatibility	American Pro grooved decking profile. Coordinate substructure spacing before order.

Cleaner finish.
No surface fasteners. Uninterrupted wood-look or solid-color surface.

Faster installs.
Up to 50% time reduction versus top-fasten on production layouts.

Removable boards.
Lift individual boards to reach wiring or framing, or to swap a board.

Engineered to last.
POM clips, aluminum rails, stainless or HDG fasteners for exterior service.

THIRD-PARTY TESTING

Independent uplift testing
by Intertek Building & Construction.

American Pro grooved decking installed with InvisiClip technology was submitted to Intertek Building & Construction (TL-144 IAS-accredited, ISO/IEC 17025) for wind uplift testing under **ICC-ES™ AC174 Section 4.1.4** using methods described in **ASTM E330**. Testing was conducted June 2024 at the Intertek B&C facility in York, Pennsylvania and reported under **Intertek report R1545.01-119-19 R0**, dated 08/05/24.

TEST SETUP

Parameter	Value
Joist material	2x8 MCA preservative-treated Southern Yellow Pine
Joist spacing	16.0" on center, three-span condition
Mock-up size	Approx. 75" x 49-1/2" with six grooved deck boards (51" long)
Fastener	#10 x 2-1/2" coated steel screw (9 TPI, 0.191" maj. dia., star drive, type 17)
Fastener spacing	4" from each end of rail and 16" on center
Test method	Inverted mock-up over vacuum chamber; pressure stepped 100 psf, +25 psf increments, 10 sec hold
Standards referenced	2021 IBC, 2021 IRC, ANSI/AWC NDS-2015, ASTM E330-02

TEST RESULTS

Specimen	Pressure at Failure	Max Sustained Uplift (10s hold)	Mode of Failure
1	307 psf	300 psf	Plastic clip released from aluminum rail
2	283 psf	275 psf	Plastic clip released from aluminum rail
3	327 psf	300 psf	Plastic clip released from aluminum rail
Average	**306 psf**	**292 psf**	Plastic clip released from aluminum rail (all)

Average ultimate uplift = 292 psf across three specimens. Failure mode in every specimen was plastic clip release from the aluminum rail (the engineered, repeatable failure mode of the system, not joist withdrawal). Allowable design ratings under AC174 are derived from these tested values with code-required safety and adjustment factors; see the full Intertek report for the AC174 / NDS allowable load calculation.

Typical test setup. Source: Intertek R1545.01-119-19 R0, Photo 1.

Typical failure mode: clip releasing from aluminum rail. Source: Intertek, Photo 2.

Source. Intertek Building & Construction, 130 Derry Court, York PA 17406. Report R1545.01-119-19 R0, issued 08/05/24, by Scott T. Gladfelter, P.E. The full 12-page report including the AC174 allowable-load derivation is available at americanprobp.com. Always follow current American Pro and GRAD installation guides; specifications are subject to change.