

ENDURE™ DATA SHEET

SYSTEM: ENDURE DIRECT ATTACH | STYLE: ED400



Endure™ Direct Attach is a tough, long-lasting ceiling system designed for a variety of applications, from adverse exterior environments to decorative interiors and more.



Endure™ Direct Attach 400 is a wood-alternative, metal-alternative, or solid color virtually maintenance-free extruded polymer system with tongue & groove edges and a flat back for direct attach applications. The 400 ceiling system consists of extruded linear strips that are installed end-to-end with perimeter and expansion trims as required to create a continuous, monolithic appearance.

Endure™ Direct Attach 400 is available in Endure™.



DESIGN

Endure™ Direct Attach 400 is manufactured by the extrusion of Endure™, a proprietary engineered polymer blend, and is a tongue & groove ceiling or wall system. Strips install via staples or rivets attached to the back of the groove. [Primary Access Panels](#) can be coordinated with MEP locations and cut in-field.



ACOUSTICS

Endure™ Direct Attach 400 is manufactured with tongue & groove edges to achieve a monolithic appearance and is considered **acoustically transparent**.



FIRE PERFORMANCE

Endure™ Direct Attach 400 has been tested and meets **Class A** requirements as per ASTM E-84. Extrusions and carriers require no additional fire treatment.



SUSTAINABILITY

Endure™ Direct Attach 400 contributes to sustainability initiatives like **WELL** and **LEEDv4** through Indoor Advantage Gold certification.



SEISMIC

Endure™ Direct Attach 400 is generally **exempt from seismic code requirements**. Local code should be consulted to determine additional seismic requirements.



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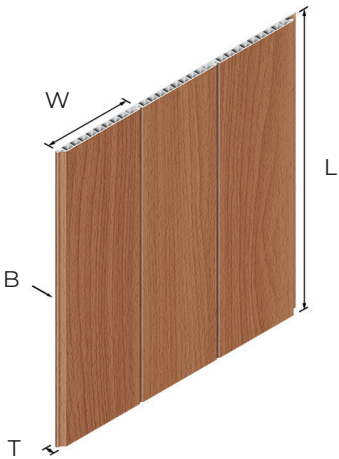
SPECIFICATION

COMPONENTS

SYSTEM PROFILES & DIMENSIONS

Endure™ Direct Attach is twin-walled to provide added structural strength, and to enhance thermal insulation. Standard widths/profiles are as follows:

SYSTEM	ED400
W (WIDTH)	4" (NOMINAL)
T (THICKNESS)	3/8"
L (LENGTH)	12'
B (BACK)	SMOOTH
E (EDGE)	SQUARE



INSTALLATION

ATTACHMENT

Endure™ Direct Attach is attached to furring strips or plywood backing via fast acting adhesive or 1/4" crown staples placed 16" [406 mm] or 24" [610 mm] on center through the back leg of the groove side of Endure™ strip. Strips are installed consecutively.

SPECIAL CONDITIONS

Ceiling termination at a wall or soffit is accomplished using Rulon perimeter trim #470 (see drawing P4700001).

MATERIAL CHARACTERISTICS

DENSITY & WEIGHT

All Endure™ products have a density of 96.8 lbs/cu.ft. Endure™ Direct Attach weighs 0.6 lbs/sq.ft.

YIELD STRESS & TENSILE STRENGTH

6,525 psi (Yield stress is the tension at which the Endure™ Direct Attach strips will no longer return to their original shape). 6,525 psi (Tensile strength is the tension at which the Endure™ Direct Attach strips break.)

MODULUS OF ELASTICITY

464,000 psi (MOE is the value used to determine the behavior of Endure™ Direct Attach strips under various load conditions).

VICAT SOFTENING POINT

82C = 180F (Temperature at which Endure™ Direct Attach strips become pliable for bending)

SPECIFICATION

CHEMICAL RESISTANCE

Endure™ Direct Attach has excellent resistance to many chemicals making it is suitable for a wide range of harsh environment applications. Additional information regarding specific chemical resistances is available upon request.

THERMAL RESISTANCE

Endure™ Direct Attach has excellent thermal insulation characteristics compared to metal and other ceiling materials. It resists the formation of condensation and retards heat. The following is a list of specific thermal characteristics:

Usable Temperature Range

- Maximum Allowable Temperature = 72°C = 162°F
- Minimum Allowable Temperature = -50°C = -58°F

Insulating Properties

- Coefficient of Thermal Conductivity = 0.17W / °C × m
- Similar in value to Oak of the same thickness

Expansion & Contraction

- Coefficient of Linear Expansion = $55 \pm 5 \times 10^{-6}$ / °C
- For every +10°F, an 18' piece of Endure™ Direct Attach will expand by .066" [2 mm] (approx. 1/16")

IMPACT & GRAFFITI RESISTANCE

Endure™ Direct Attach is naturally resistant to denting or marking from impacts. Endure™ Direct Attach is inherently anti-graffiti which can simply be removed with pressure washing. Graffiti prone installations should include appropriate carrier spacing, contact Rulon International Engineering.

CLEANING

Once installed, Endure™ Direct Attach can be wiped clean with a damp cloth or a very mild detergent solution reduced for additional strength.

FOOD PROCESSING

Endure™ Direct Attach's smooth surface meets USDA/FSIS guidelines for use in food processing areas.

FINISHES & MINIMUM ORDER QUANTITIES

ENDURE™ FINISHES

Endure™ Direct Attach is available in a variety of standard colors, woodgrain films, and metallic films. A full range of finishes can be found at rulonco.com/endure-fs. Endure™ Direct Attach colors are very stable for interior and exterior use, and will exhibit insignificant change or fading with time.

ENDURE™ MINIMUM ORDER QUANTITIES

Endure™ Direct Attach is subject to minimum order quantities based on project size. For orders under 1,700 ft², Rulon's [Select n' Ship](#) program offers limited finish options with shorter lead times.

SPECIFICATION

SHIPPING & STORAGE

SHIPPING

Endure™ Direct Attach is shipped in full-box cartons either on skids or floor load depending on size of order.

STORAGE

Endure™ Direct Attach shall be stored flat and level, either inside or outside. If material is stored outside and left on the skid(s), a tarp is required to cover the material to prevent water saturation.

NOTES

SPECIAL NOTES

¹ Primary Access Panels are sections of a system that have been removed and assembled into a lift & shift panel for required-access locations.

TYPICAL DETAILS

