

ECOSPAN[®]

BY VULCRAFT & VERCO

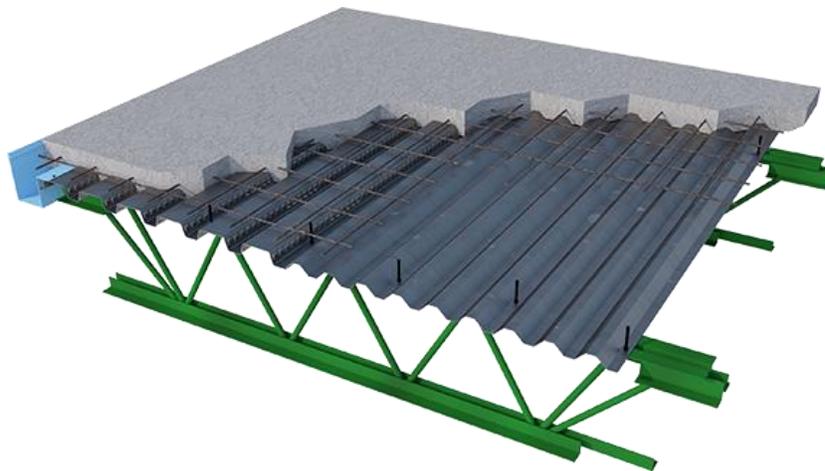
STRUCTURAL FLOOR SYSTEM

The Ecospan[®] Structural Floor System provides innovative, results-driven building solutions that surpass industry standards for safety, design flexibility, sound mitigation and fire ratings. Fabricated at Vulcraft plants throughout the U.S., Ecospan's high-strength to weight ratio makes it ideally suited for multistory residential and commercial buildings. It incorporates the benefit of open web configuration along with 48" to 72" joist spacing, allowing for maximum design and installation flexibility of HVAC and Electrical systems.

Ecospan is easy to install with the use of the Shearflex[®] Fastener that not only attaches the deck to the joists but also acts as the shear connector between the steel and the concrete. This system can be installed without the need for welding equipment.

ECOSPAN[®] IS A GREAT CHOICE FOR:

- Senior Living and Care Facilities
- Apartment Buildings
- Condominiums
- Student Housing
- Military Housing
- Hotels and Resorts
- Medical Facilities
- Office Buildings
- And many other structures...



EXPANDING DESIGN FLEXIBILITY



It can be difficult to balance the demands of your clients and architects, all while trying to meet the structural requirements of a project at the same time. With Ecospan, you gain more flexibility in a building's design with steel joists that have high strength-to-weight ratios, allowing for greater spans and spacing with lighter members. Ecospan also has joist orientation flexibility.

The Ecospan System enables you to span from the exterior to corridor or demise wall to demise wall. It can also be supported by virtually every framing system:

- Structural steel, joist girders
- Cold Form Steel Studs (CFS) load-bearing walls
- Concrete masonry units (CMU)
- Cast in Place (CIP) concrete walls
- Wood

ECOSPAN IS ECONOMICAL

The Ecospan System over-delivers on value toward each project. There are many reasons why the Ecospan System delivers a very economical solution for your next project.

- The system is simple and fast, and, along with a short learning curve for contractors, it saves the owner construction time and as a result... money.
- The lighter weight of the system, as compared to many competing systems, gives the designer some options for using lighter materials for the supporting structure, thus reducing material costs of the project.
- Shallower composite joists help reduce the floor-to-floor heights while maintaining inside ceiling heights, which helps reduce the height of the structure, thus reducing the cost of the project.
- The Ecospan System is produced at every Vulcraft/Verco facility throughout North America. This allows for the system to be produced at the closest facility to your project, which minimizes the cost of delivery of the material.



HVAC and Electrical System Friendly

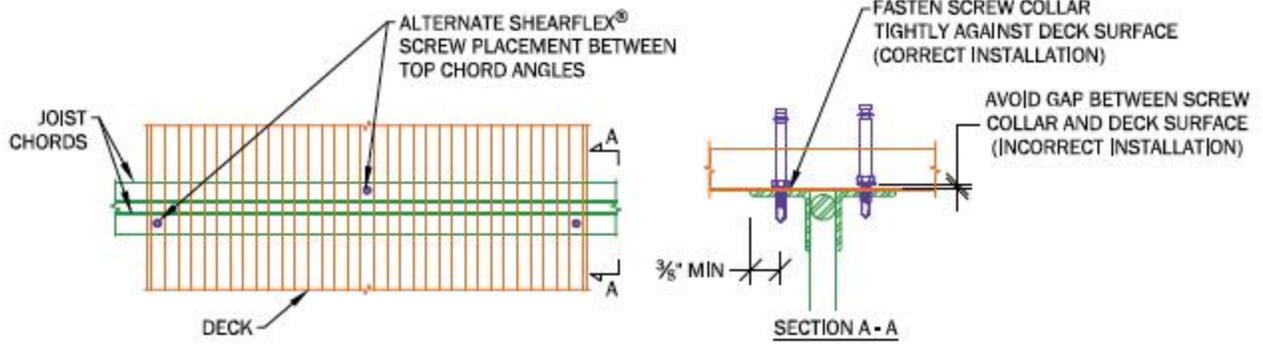
THE SHEARFLEX® FASTENER

The “key” to the whole system, the Ecospan Shearflex fastener not only provides the shear connection between the steel and the concrete, but it is also the fastening device for attaching the deck to the steel joists. In one quick motion, two steps are done.

This self-drilling, self-tapping fastener provides the following benefits:

- NEW Milled Point improves sharpness and provides consistent quality
- NEW thread formation improves ease of drilling
- NEW improved ductility helps improve the slip characteristics of the composite system.





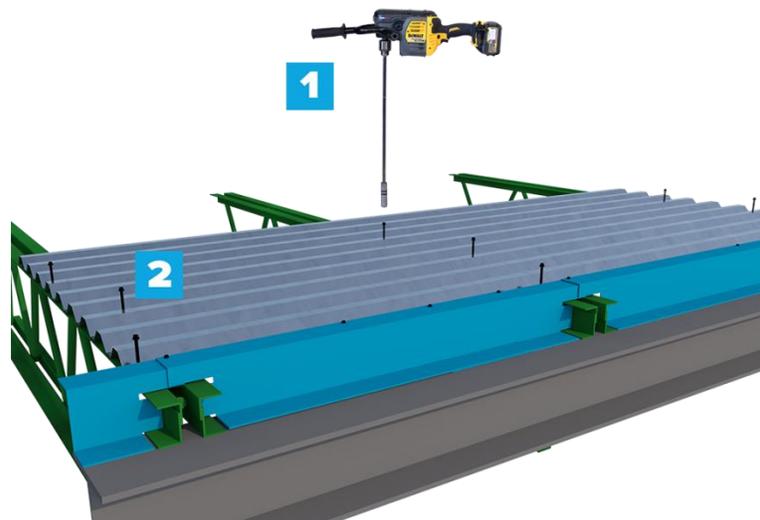
This self-tapping, self-drilling, Dual Process heat-treated Shearflex Shear connector creates a composite design, allowing for shallow, lightweight, longer span joists with greater rigidity; also providing a diaphragm.

LOWER PROJECT DOWNTIME

- 1** With Ecospan® there are no short deck sheets, plywood forms or shoring. Sub-trades can typically continue construction the day after the concrete is placed.

EASY AND INEXPENSIVE INSTALLATION

- 2** Average installation time of 10 seconds per screw. With the patented self-drilling, self-tapping connectors install the 2 1/2" or 3" long, 3/8" diameter screws in a uniform pattern using a Vulcraft-provided Shearset® Tool.



See how Ecospan® can fit into your next project!

This manual is for Design Professionals who are intending to design and use the Ecospan® Structural Floor System. It has been prepared in accordance with recognized engineering principles and is for general information only.



COMPOSITE FLOOR SYSTEM

DESIGN MANUAL

ECONOMY THROUGH ECOLOGY®



2018v2.2

[VIEW DESIGN MANUAL AND OTHER DESIGN AIDES](#)



Case Study

Choosing Ecospan® helped one customer save over \$1M in materials costs while finishing the project 4 months ahead of the projected schedule.

HOW RICK GILCHRIST CO., INC. SAVED 4 MONTHS OF SCHEDULE AND \$1.1M IN BUDGET

When a project start date slippage meant a potential 4 month delay due to winter, wall panelizer Rick Gilchrist Co., Inc. relied on Vulcraft's Ecospan® Structural Floor System to help get things back on schedule and save budget. Due to Ecospan®'s lack of required shoring, the building was dried in a month early, and Ecospan's LDM saved \$1.1M in materials costs.

Background

Skyvue Apartments is a 9-story, 116 foot tall, 418,000 sq. ft. student housing building. A P3 (public-private partnership) project, it's located in Lansing, MI near Michigan State University. The wall panelizer, Rick Gilchrist Co., Inc. is a design-build partner for design and construction, with many of its projects being mixed use. Rick Gilchrist Co., Inc. prefers design-build construction because it can be faster and less expensive. That's important because while the start date may slip, the completion date can't.

Project: Skyvue Apartments

Wall Panelizer: Rick Gilchrist Co., Inc.

Architect: Niles Bolton Associates

Engineer: PES Structural Engineers

General Contractor: Wolverine Building Inc.

Developers: RISE and EdR (joint)

Square Footage: 418,000

Completed: 2017



“ Choosing Ecospan® meant we finished the project early, despite a month delay in starting. That gave the construction manager an extra 4 months to complete the project because they didn't have to wait until the end of winter to finish the building, and that took pressure off of everybody.

- Michael Booth, Director of Preconstruction at Rick Gilchrist Co., Inc.

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STRUCTURAL FLOOR SYSTEM

VIEW THE CASE STUDY TALK TO AN EXPERT

PROJECTS BUILT WITH ECOSPAN®:



REDUCE WEIGHT AND IMPROVE SAFETY

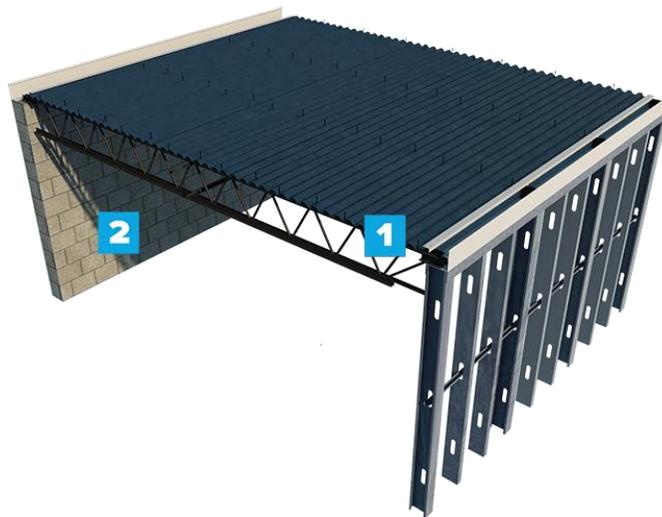
1

The Ecospan® system utilizes long sheets of light-gauge decking. This provides an overall reduction in weight compared to other traditional building methods.

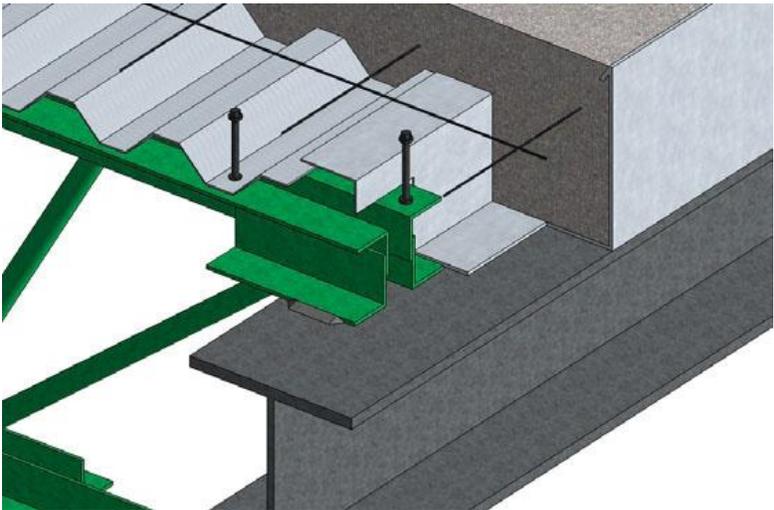
EASY AND INEXPENSIVE SIMPLE INSTALL

2

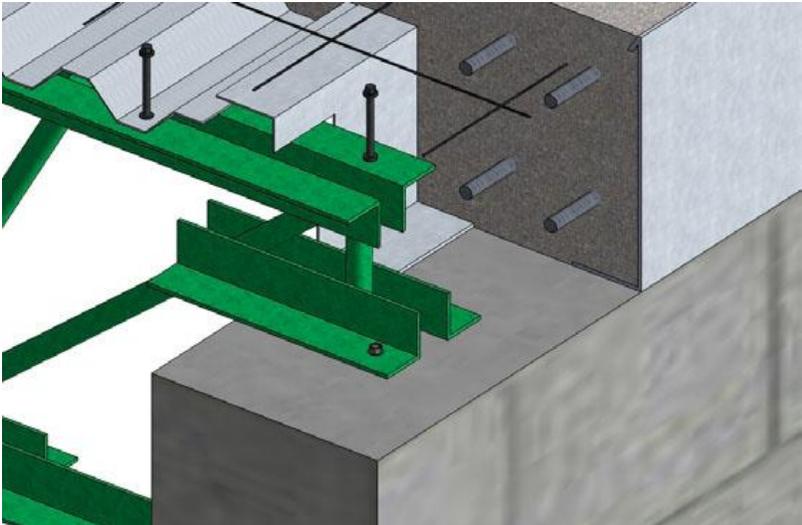
Ecospan® is a welded or weld-less system install.



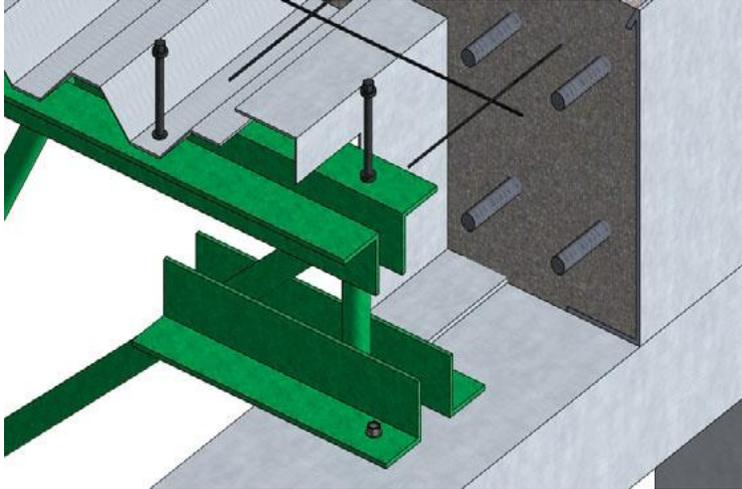
See how Ecospan[®] can fit into your next project!



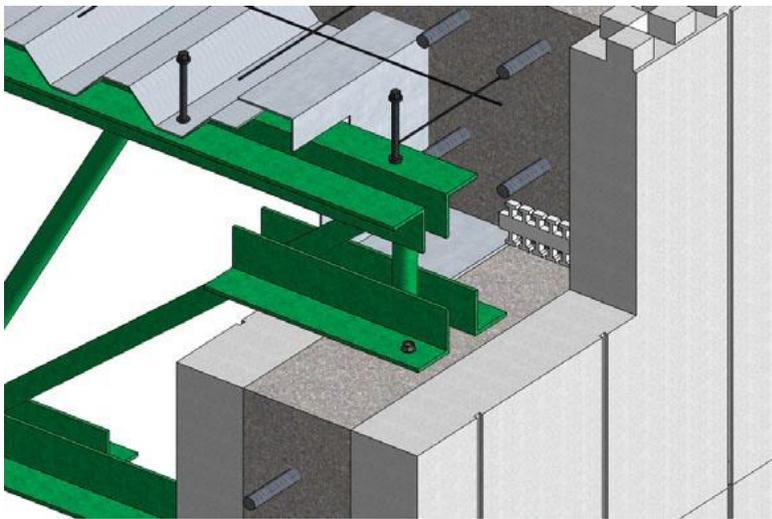
Compatible with Structural Steel



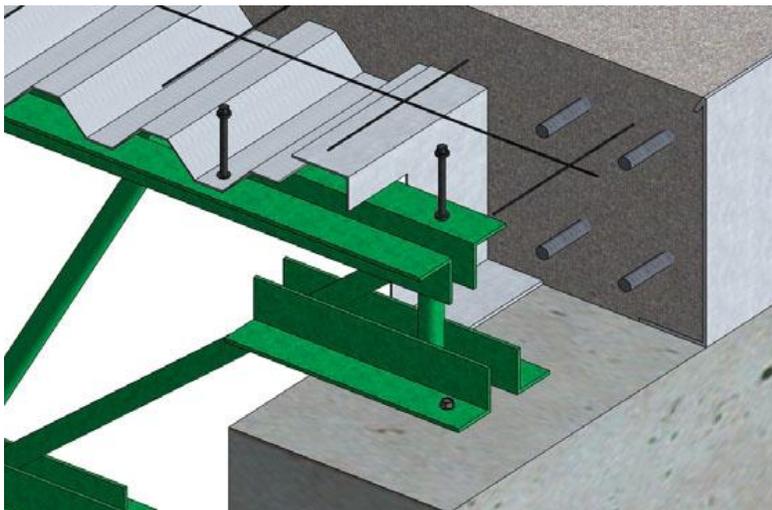
Compatible with Masonry



Compatible with Light Gauge Steel Stud



Compatible with Insulated Concrete Forms



Compatible with Concrete

ECOSPAN IS SAFE AND EASY

We know that safety on the job site is paramount. With Ecospan, you can improve safety and reduce your construction liability since this system utilizes longer sheets of light-gauge decking that are easy and inexpensive to install. Using the Shearflex Fastener and Shearset Tool, you can attach the deck to joists in just a single step.

With fire safety and regulations always a concern when starting new projects, Ecospan has gone above and beyond to make sure you're safe and up to code. Ecospan has a UL List Fire Rating of G-561 for 1, 2 and 3 hours with gypsum board ceilings; a ULG-229 listing that provides for the use of acoustical materials for suspended ceiling applications; and a ULG-710 listing that allows for "spray-on" applications for commercial and medical projects.

The Ecospan Structural Floor System by Nucor/Vulcraft is an innovative, effective and economical method of providing all-steel, open web structural components for elevated floor construction while incorporating the benefits of lighter weight composite design. Ecospan requires only a nominal 3" thick, 3,000 psi concrete slab, with no shoring or stripping of framework needed. The open web configuration and 48" on center joist spacing allows for HVAC and electrical design flexibility. And erectors will love Ecospan because it utilizes standard steel joist and deck components with which they're already familiar. Plus, it's mechanically fastened, so it's easy for less experienced workers to quickly and effectively install. These are just a few examples of how the Ecospan Structural Floor System is a safe and easy choice for your next project.

UL CODES

The Ecospan Structural Floor System is listed by Underwriters Laboratories Inc. with multiple Fire Ratings for Acoustical and Gypsum ceiling applications. Click a Design No. below to see it's corresponding Fire Rating web page.

UL Code	Application
<u>Design No. G561</u>	Direct Applied & Suspended Gypsum Board Ceiling
<u>Design No. G229</u>	Suspended Acoustical Ceiling
<u>Design No. D916</u>	Composite Deck (used in corridors)
<u>Design No. G213</u>	Suspended Acoustical Ceiling
<u>Design No. G222</u>	Suspended Gypsum Board Ceiling
<u>Design No. G227</u>	Suspended Acoustical Ceiling
<u>Design No. G236</u>	Suspended Acoustical Ceiling
<u>Design No. G243</u>	Suspended Acoustical Ceiling
<u>Design No. G547</u>	Suspended Gypsum Board Ceiling

Design No. G710

Spray-On Fire Proofing

Design No. N789

Spray-On Fire Proofing

Full Scale Tests		
Flooring Materials/Thickness	IIC	STC
Concrete	26, 30*	57
Carpet 1. 6 PCF Pad (0.4") 2. 100% Pet polyester carpet (0.438")	77	57
Ceramic Tile 1. Loose-laid cork (0.235") 2. Thinset mortar 3. Glazed ceramic tile (0.3")	51, 54*	N/A
Wood Laminate 1. Underlayment (.07") 2. Wood laminate floor (0.38")	54	N/A

Small Scale Tests				
Flooring Materials/Thickness		Total Depth	IIC	
CERAMIC TILE	Ceramic Tile (0.30") Nobleseal CIS (0.03") Levelrock 2500 (1.00") SRM-25 (0.25")	1.62"	54	
	Ceramic Tile (0.3") Nobleseal CIS (0.03") Levelrock 2500 (1.50") USG SRB (0.375") SRM-25 (0.25")	2.46"	58	
	Ceramic Tile (0.3") Nobleseal CIS (0.03") USG Underlayment (0.25") Levelrock 2500 (1.50") USG SRB (0.375") SRM-25 (0.25")	2.71"	62	
	Ceramic Tile (0.30") USG Wonderboard (0.25") Enkasonic Underlayment (0.40")	1.01"	59	
	Ceramic Tile (0.30") USG Wonderboard (0.50") Enkasonic Underlayment (0.40")	1.26"	58	
	Ceramic Tile (0.30") Cork (0.25")	0.63"	51	
	HARDWOOD	Hardwood Flooring (0.5625") Sound Underlayment (0.0625") Levelrock 2500 (1.00") SRM-25 (0.25")	1.88"	53
		Hardwood Flooring (0.5625") Sound Underlayment (0.0625")	0.63"	53
	PERGO	Pergo Flooring (0.375") Sound Underlayment (0.0625") Levelrock 2500 (1.00") SRM-25 (0.25")	1.69"	54 54 W/ RISC-1 *
		Pergo Flooring (0.375") Sound Underlayment (0.0625")	0.44"	53

SOUND SOLUTIONS

The Ecospan Composite Floor System has been tested by a renowned acoustical laboratory where the system received an STC (Sound Transmission Classification) of 57. In addition, many tests were performed with various common flooring materials and in all cases, the results exceeded an Impact Insulation Classification (IIC) of 50 (the IBC Code minimum), when typical sound attenuation materials were used.