

March 22, 2022

TO: Nathan D. Rich, Cromwell Wong / IsoTruss, Inc.

CC: Caitlyn Costley / IsoTruss, Inc.

FROM: Laura Hynes-Keller / LHK Communications, LLC

RE: ISOTRUSS, INC. CORPORATE FAQ

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## ISOTRUSS, INC.

### | Business and Financial

**Q: *What is IsoTruss, Inc.?***

**ANSWER:** IsoTruss, Inc. is an engineering, design and manufacturing services provider producing IsoTruss® carbon fiber lattice cell towers for the telecommunications industry. Its innovative lattice tower structures, which are competitive with steel on price, are exceedingly strong, yet lightweight, corrosion-resistant, sustainable and eco-friendly.

In addition, the enterprise utilizes its proprietary IsoTruss® Technologies, a family of patented grid structures, for a wide array of research & development (R&D) projects in aerospace, energy, civil infrastructure, sports, and entertainment production.

IsoTruss, Inc. is committed to accelerating its growth through innovation in engineering, design, and manufacturing, and through R&D projects featuring applications and solutions that are cost-effective, eco-friendly and sustainable.

**Q: *When was IsoTruss, Inc. founded?***

**ANSWER:** Nathan D. Rich, Founder, Chief Executive Officer, and board member, acquired IsoTruss Industries, LLC and its global patent portfolio from Brigham Young University, and IsoTruss® inventor and Professor Emeritus David W. Jensen, Ph.D., MIT in 2015.

Prior to the acquisition, IsoTruss Industries was in R&D mode and affiliated with BYU. In 2020, the enterprise was converted from an LLC to a C Corp, and rebranded as IsoTruss, Inc. Cromwell Wong is Chief Operating Officer.

***Q: Who invented the IsoTruss®?***

**ANSWER:** IsoTruss, Inc. Chief Technical Advisor David W. Jensen, Ph.D., MIT, invented the first IsoTruss® in 1994. Subsequently, while a Professor at the Ira A. Fulton College of Engineering at Brigham Young University, Dr. Jensen led the development and expansion of IsoTruss® Technologies, a family of patented grid structures made of carbon fiber and other composites.

***Q: Where is IsoTruss, Inc. headquartered?***

**ANSWER:** IsoTruss, Inc. is headquartered in Springville, Utah, at the IsoTruss Innovation Center for manufacturing and R&D. In Spring 2022, IsoTruss, Inc. will open its second manufacturing facility, in Pampanga, Philippines, to produce IsoTruss® carbon fiber lattice cell towers, which are well-suited to hurricane/typhoon-prone regions. The opening of the production plant will allow IsoTruss to significantly ramp up manufacturing to meet increasing demand for 5G rollout there, and other countries located in Southeast Asia.

***Q: How many employees work at IsoTruss, Inc.?***

**ANSWER:** IsoTruss, Inc. currently employs more than forty engineers, and fabricators, in its manufacturing facility. The enterprise is continually expanding its head count to meet market demand for IsoTruss® cell towers.

***Q: Has IsoTruss, Inc. attracted any investments?***

**ANSWER:** In March 2022, IsoTruss, Inc. raised \$4.5 million in a Series A funding round, which was led by the S.G. Koenig Trust. The funds will be used to scale up operations and accelerate production of patented IsoTruss® carbon fiber cell towers in support of 5G rollout by telecom infrastructure providers.

The Series A funding followed a \$3 million seed investment round led by the Sojitz Corporation of Japan in October 2020. Initial seed capital was provided by private investors in 2015.

Last year, IsoTruss, Inc. received a \$100,000 Phase 1 funding award from the U.S. Environmental Protection Agency (EPA) for research and development of a reinforced concrete foundation for telecommunication towers to increase resiliency to natural disasters, which followed additional government R&D grants.

***Q: Is IsoTruss, Inc. diversified?***

**ANSWER:** Yes, IsoTruss is diversified through its design, engineering capabilities in R&D, and in manufacturing in the U.S. and the Philippines.

IsoTruss' first line of manufacturing is its telecom tower business, the enterprise works in R&D across multiple sectors with clients and customers in aerospace, energy, civil infrastructure, and more, in the U.S., and in the Middle East.

IsoTruss, Inc. is working with Sojitz to accelerate the expansion of the telecom infrastructure business, primarily in Asia. Sojitz is an internationally renowned, expertly run company of more than 150 years that shares IsoTruss, Inc.'s business values and quality standards. By working with Sojitz, IsoTruss, Inc. plans for the synergies created by the arrangement to deliver exceptional products and solutions for customers, while enhancing IsoTruss' overall manufacturing, sales and service capabilities in the Philippines and Southeast Asia.

***Q: Are there any companies IsoTruss, Inc. is looking to acquire?***

**ANSWER:** Yes. IsoTruss, Inc. is always evaluating strategic acquisitions that would catalyze its efforts.

***Q: How many patents does IsoTruss, Inc. hold?***

**ANSWER:** IsoTruss, Inc., through its business unit, IsoTruss® Technologies, features a global portfolio of more than thirty patented and patent pending designs and technologies. IsoTruss® patented grid structures feature many different geometric configurations.

## | environmental and social governance

***Q: Is IsoTruss, Inc. eco-friendly and committed to sustainability?***

**ANSWER:** Yes. IsoTruss, Inc. is committed to building the sustainable infrastructure of the future through innovative solutions in engineering, design and manufacturing. The enterprise's primary ESG efforts are directed towards creating cost-effective, eco-friendly and sustainable designs to provide cost-savings to customers while reducing waste at every level.

***Q: How do IsoTruss® carbon fiber cell towers perform in areas with high humidity and what is the environmental impact versus steel towers?***

**ANSWER:** IsoTruss® carbon fiber lattice cell towers are designed, engineered and tested to last at least 5 times longer than steel towers. In contrast, steel cell towers have to be replaced more often due to corrosion and other environmental factors, e.g., steel cell towers located in coastal regions with high humidity typically have a five year life span, and in other less humid regions, a 25 year lifespan.

***Q: What is the environmental impact of a IsoTruss® carbon fiber cell tower?***

**ANSWER:** On the environmental side, carbon fiber is better for reducing carbon dioxide emissions in contrast to steel. By utilizing composites instead of steel in a communications tower, emissions are reduced by 70% or more over the lifespan of the tower.

# ISOTRUSS® TECHNOLOGIES

## | Overview

**Q: *What is the IsoTruss®?***

**ANSWER:** The IsoTruss® is a unique geometric configuration based on 2-dimensional and/or 3-dimensional equilateral or isosceles triangular sections comprised of unidirectional members fabricated with composite materials.

Overall, the IsoTruss® combines high performing carbon fiber (such as carbon, glass, aramid, etc.) reinforced polymer composite materials with a very efficient geometry to allow those elements to carry the load efficiently, allowing extremely lightweight and extremely high performance.

**Q: *What are the potential strengths and/or weight advantages of IsoTruss® composite lattice structures?***

**ANSWER:** Innovative IsoTruss® composite lattice structures are up to twelve times stronger than steel for a given weight, or as little as one-twelfth the weight for a given load, depending on the design, and the site and its specifications.

**Q: *Which industries can utilize IsoTruss® Technologies?***

**ANSWER:** Because of the flexibility inherent in the lattice design of IsoTruss® composite structures, IsoTruss® Technologies offers many current and potential applications and solutions, especially in industries seeking cost-effectiveness, lighter weight loads, exceptional strength-to-weight ratios, and sustainability, such as aerospace.

In the telecommunications industry, the enterprise currently designs, engineers, and fabricates IsoTruss® lattice cell towers utilizing composite materials, most frequently with carbon fiber.

In addition, IsoTruss, Inc. is in R&D mode to develop applications and solutions in energy, with oil & gas pipelines, wind turbines, and utility poles; in aerospace, for

aircraft and spacecraft; in architecture and construction, for concrete reinforcement utilizing IsoTruss® composite lattice structures instead of rebar for buildings and foundations, and in civil infrastructure, with roadways, tunnels, and bridges. IsoTruss® designs are also utilized in sports equipment, including mountain bikes.

## ISOTRUSSE® TELECOM TOWERS

### | design and engineering

**Q: *What are the benefits of IsoTruss® carbon fiber cell towers?***

**ANSWER:** Cost-efficient IsoTruss® carbon fiber cell towers are up to twelve times stronger than steel for a given weight, or as little as one-twelfth the weight for a given load, depending on the design. Plus, the innovative IsoTruss® lattice grid towers require less carbon fiber to fabricate as compared to steel towers, which further tightens the price gap with traditional steel build-outs.

Ranging in height from 6 to 42 meters, the lightweight IsoTruss® composite cell towers are particularly suited to solve the “distancing” problem in 5G rollout, especially at sites with weight limits and zoning considerations, such as rooftops in densely populated urban settings, and in rural areas, which require “last-mile access.” Both strength and wind resistance are maintained, no matter the height of the tower. Shipping and installation costs are significantly decreased due to their lightweight.

Consequently, the total cost of ownership (TCO) is lower, and on the environmental side, carbon dioxide emissions are reduced by 70% or more over the tower’s lifespan.

**Q: *Why are IsoTruss® carbon fiber cell towers for telecom so innovative?***

**ANSWER:** IsoTruss® carbon fiber lattice cell towers are innovative because they offer flexibility and modularity in structural design due to their particularly high strength-to-weight ratio, even over other composite structures. Composites in general are lighter than steel, wood and aluminum, but integration into the IsoTruss® lattice tower structure, which requires less carbon fiber material to fabricate, makes them even

lighter, depending on the design for a particular site, and its specifications, thereby making IsoTruss® towers cost-effective versus steel towers.

***Q: Can IsoTruss® carbon fiber cell towers be customized?***

**ANSWER:** Yes. With the unique geometry of IsoTruss® lattice structures, there is more latitude and a great deal of flexibility in customizing IsoTruss® cell towers to customer specifications.

IsoTruss® lattice structures feature modularity in design, painting is optional, and no electrolysis is required. Both fire retardant resins and lightning arresting systems— to give any lightning a quick direct path to the ground—can also be customized.

***Q: Can IsoTruss® carbon fiber cell towers be built to meet customer and other industry specifications?***

**ANSWER:** Yes. Each lattice structure is designed and manufactured to meet the client’s required “build-to-suit” specifications for each site. Plus, each design must meet IsoTruss, Inc.’s own rigorous design and production standards, in addition to various local, state and federal regulations, and both Telecommunications Industry Association (TIA®) and AASHTO standards.

## | production

***Q: Why is IsoTruss, Inc. directing its primary manufacturing towards cell tower production?***

**ANSWER:** IsoTruss, Inc. has ramped up production of IsoTruss® carbon fiber cell towers to meet increasing telecom carrier-acceptance, and demand, for cost-effective, “build-to-suit” cell tower solutions to support full 5G rollout.

IsoTruss® cell towers provide a crucial, cost-effective alternative to steel towers for telecom infrastructure providers. Plus, structural composites potentially offer a multi-billion dollar market for cell tower retrofit and renovation.

*Q: How expensive are IsoTruss carbon fiber cell towers as compared to steel towers?*

**ANSWER:** Carbon fiber prices have decreased over the past decade, generating ongoing price gap tightening between carbon fiber and steel. IsoTruss® carbon fiber cell towers are approaching parity on an apples-to-apples comparison to steel towers.

Plus, increased production in the very competitive carbon fiber industry, combined with ongoing technological changes to improve manufacturing efficiencies, will increase demand and allow producers to offer carbon fiber at lower prices going forward.

Among other developments, a study by the Oak Ridge National Laboratory showed how a new system might quadruple production speed and reduce energy needs and fiber prices by as much as 20%.

## | installation

*Q: What are the advantages for telecoms in carbon fiber cell tower installation?*

**ANSWER:** Because they are so lightweight, IsoTruss® carbon fiber cell towers are less expensive to ship as compared to steel towers. Labor and installation costs are lower, too, as a smaller crane, or even a ladder, can be utilized by small crews to lift the tower all at once, significantly decreasing the time, expense and environmental impact of heavy equipment and large installation crews required for equivalent steel cell tower build-outs, deliveries, and installations.

Those reductions together decrease cell tower carbon emissions by 70% to substantially lower the total cost of ownership (TCO).

# ISOTRUSS® CIVIL INFRASTRUCTURE

## | overview

*Q: What are key features of IsoTruss® Technologies' civil infrastructure products that can deliver lower lifespan costs?*

**ANSWER:** IsoTruss is currently in R&D mode to develop and test a reinforced concrete foundation for telecommunication towers to increase resiliency to natural disasters. The proposed IsoTruss®-reinforced concrete foundation aims to improve the resiliency over steel-reinforced concrete by better combining the axial and shear strength of the reinforcement, providing more energy absorption and allowing IsoTruss®-reinforced concrete to be rated to withstand higher loading conditions.

The advantages of IsoTruss®-reinforced concrete foundations can be also realized by decreasing installation costs and time. The IsoTruss®-reinforced foundation concept was successfully tested with a foam foundation pilot deployment for a commercial customer. The installation costs for this test were reduced by 60% compared to a typical tower foundation. The success of IsoTruss®-reinforced concrete solutions in the telecom industry will allow future entry into other applications such as roads, bridges, and buildings.

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### ***About IsoTruss, Inc.***

IsoTruss Inc., an engineering, design, and manufacturing services provider, produces patented IsoTruss® lattice cell towers for the telecommunications industry. IsoTruss® cell towers, fabricated with composite material, are cost-effective, corrosion-resistant, sustainable, eco-friendly and exceedingly strong, yet lightweight.

Utilizing [IsoTruss® Technologies](#), its family of patented, composite material grid structures, the enterprise offers R&D capabilities, applications, and solutions in telecommunications infrastructure, aerospace, civil infrastructure, energy, construction, leisure, and more.