NORTHSTAR
BUILDING SYSTEMS

NORTHSTAR TECHNOLOGIES

NORTHSTAR BUILDING SYSTEMS are a lightweight, high-strength composite building system which combines the benefits of precision automated manufacturing with reduced onsite construction time and lowering the total cost of ownership over the life of the structure.

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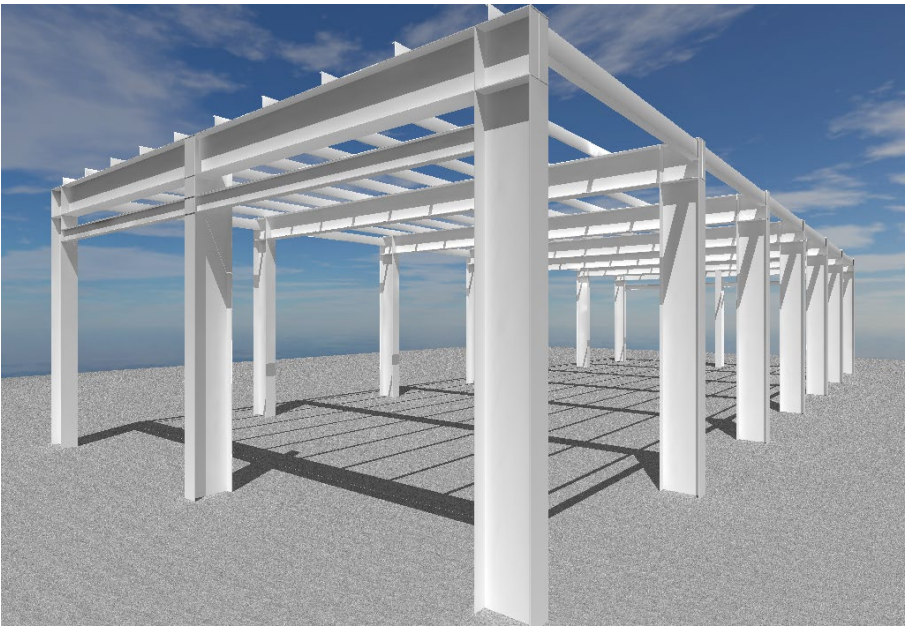
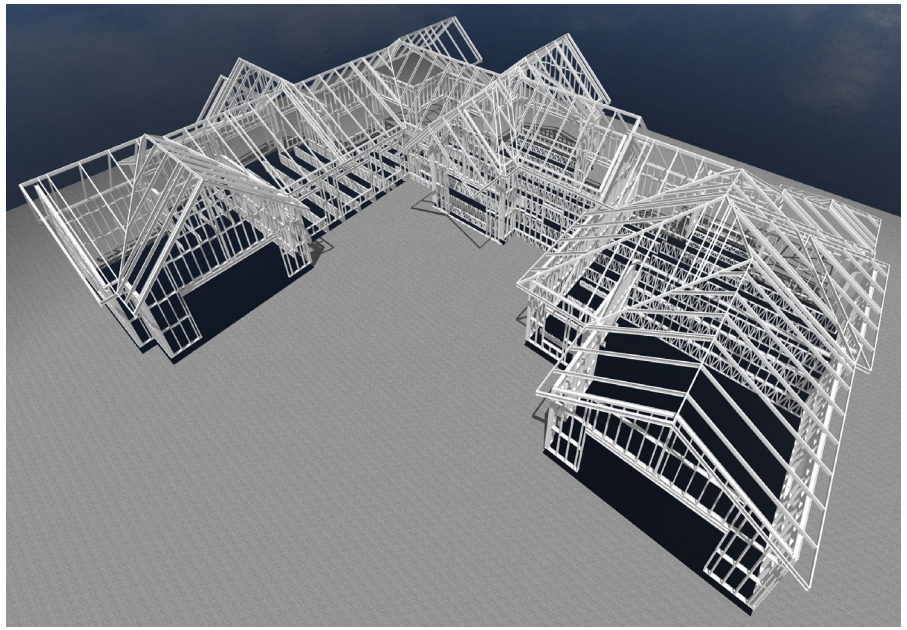
NORTHSTAR BUILDING SYSTEMS

Developed by Northstar Technologies Group, **Northstar Building Systems** was built on 35 years of experience in advanced composite and digital manufacturing to bring affordability, safety resiliency, and ecological responsibility to the construction industry.

PRODUCTIZED DESIGN

NORTHSTAR BUILDING SYSTEMS





EXOSTRUCTURE

A PRE-ENGINEERED COMPOSITE STRUCTURAL SYSTEM

A lightweight composite pre-engineered building system, designed to be an alternative to traditional pre-engineered and structural metal buildings.

EXOSTRUCTURE combines the benefits of precision automated manufacturing with high-strength lightweight composites, to deliver a building system which reduces on-site construction time and lowers the total cost of ownership over the life of the structure.

EXOFRAME

A COMPOSITE FRAMING SYSTEM

A lightweight composite alternative to cold formed steel and wood framing. Precision-designed, engineered, fabricated, and installed by Northstar's integrated team, EXOFRAME framing components represent the leading edge of advanced composite building technology.

EXOFRAME components are factory assembled, fire coated, and shipped to the jobsite ready for installation, reducing on-site construction time and job-site waste.

EXOSHELL

A COMPOSITE EXTERIOR WALL PANEL

The vast majority of exterior wall systems on the market require multiple layers of material to create the finished product. If one of the layers fails, the system fails.

EXOSHELL is a single layer of composite ballistic armor plate bonded to a composite frame assembly which is factory assembled, sealed, and fire coated which provides zero water absorption and zero air permeability without the reliance of a finish coat or a rainscreen system.

SUSTAINABILITY

GLOBAL RESPONSIBILITY

At Northstar we take seriously our global commitment to fabricate sustainable materials, reduce carbon emissions, and provide sustainable products for the residential and commercial marketplace.

We believe actions speak louder than words, which is why we have invested heavily in our building systems and methods along with manufacturing innovation to fabricate products that will reduce traditional wood, steel, and concrete in the construction industry which will lower our global carbon footprint.

ENERGY EFFICIENCY

Although the IECC and ASHRAE codes are not a binding legal requirement yet, they are the leading guidelines for design in the construction industry.

In February 2018, the DOE has issued a determination for increased energy efficiency in the commercial buildings across the nation with the expectation of energy savings: 8.2% energy cost savings, 7.9% source energy savings, and 6.7% site energy savings

Northstar, a pioneer of fiber reinforced polymer (FRP) building systems and methods, developed a curtain wall system solution based on a composite panel with an R-value of 24 - 43 completely thermally broken, which meets and exceeds the IECC and ASHRAE code requirements, making solar and alternative energy affordable solutions.

PRODUCT SUSTAINABILITY

Life Cycle Assessments (LCA)

We work closely with agencies to provide LCA certifications for our products. The carbon footprint of FRP composites are less than other materials utilized in the construction industry like metal and concrete.

Health Product Declarations (HPD)

Our products go through testing to provide transparency of the health impact of our building products.

Environmental Product Declarations (EPD)

Our commitment to the environment does not end with development of sustainable products, which is why our products go through testing to provide potential environmental and human health impact.

DOES NOT DEPLEATE NATURAL RESOURCES

15% LESS CARBON THAN STEEL, 30% LESS CARBON THAN GALVANIZED STEEL, AND 50% LESS CARBON THAN STAINLESS STEEL

OFFSITE MANUFACTURING DRAMATICALLY REDUCES ONSITE WASTE

WEIGHS 75% LESS THAN STEEL AND 30% LESS THAN ALUMINUM REDUCING TRANSOPORATION COSTS AND CARBON EMISSIONS

RESILIENCE

BUILDING RESILIENCE

Through diligent engineering and a desire to challenge long-standing construction practices, Northstar provides the end-user with a structure that looks familiar on the outside, but on the inside, contains a blueprint for next generation living.

With Northstar's patent pending fiber reinforced polymer (FRP) composite building systems and methods, we are redefining the standards for global construction.

PRODUCT SAFETY FEATURES

IMPACT RESISTANCE

- 250 MPH Hurricane Impact Rated
- Florida HVHZ Approved – Exposure "D"
- 250 MPH EF-5 Tornado Impact Rating
- U.L. Ballistic Level 1

FIRE RESISTANCE

- ASTM E-84 Class "A" Fire Rating
- ASTM E-2768 30 Minute Fire Rating

SEISMIC RESISTANCE

- Prevents Progressive Collapse
- Will not permanently deform under impact
- Virtually unbreakable

WATER + CORROSION RESISTANCE

- Unaffected by moisture
- Will not rust like metal or rot like wood
- Superior resistance to chemicals

POUND-FOR-POUND STRONGER THAN STEEL

LIGHTWEIGHT COMPOSITE ALTERNATIVE TO COLD-FORMED STEEL AND WOOD FRAMING

XL

LARGE PANELIZED FRAMING SECTIONS SIMPLIFY INSTALLATION AND REDUCE ON-SITE CONSTRUCTION TIME

ROT AND CORROSION RESISTANT

NORTHSTAR'S APPROACH

Customer Hires
Architect

Architectural Drawings
2 -3 Months

Architect Hires Engineers
Engineering Drawings
2 – 3 Months

Customer Hires
General Contractor

General Contractor
Hires Subcontractors

Permitting
2 – 3 Months

Subcontractors
Mobilize

Construction
8 -12 Months

Site Release / Turnover
Total Duration = 14 – 21 Months

Customer Hires
Northstar

Northstar Integrated
Design - Engineering
2 Months

Northstar Manufacturing
2 Weeks – 2 Months
Project Size Dependent

Permitting
2 – 3 Months

Construction
6 Months

5,000 sq. ft.
Northstar Building
Structure (Shell)
Up in 1-2 Weeks

Site Release / Turnover
Total Duration = 6 - 8 Months

END-TO-END INTEGRATION

Northstar is fully integrated, providing sustainable end-to-end building services as a single partner with robust technology systems connecting everything together.

Through our automated manufacturing, we have the unique opportunity to optimize processes and develop integrated product systems for a sustainable future.

PRODUCTIZED DESIGN

Northstar designs to manufacture sustainable building components as repeatable sustainable products and streamlined field assembly.

This allows us to offer improved efficiency to a customer's building requirements, without sacrificing the freedom and configurability needed to make each customer's project a distinct holistic sustainable design.

OFFSITE MANUFACTURING

Northstar dramatically increases productivity by pushing the majority of the work to the controlled factory environment.

Shifting increased level of labor and finishing work into the factory rather than the jobsite supports increased speed to market, high quality, and dramatically reduced waste, which keeps to our vision of being sustainable in all that we do.

PRODUCT TESTING

Northstar products have successfully undergone rigorous Independent testing by Intertek.

AAMA 501-15, *Methods of Test for Exterior Walls*

TAS 201-94, Impact Test Procedures

TAS 202-94, Criteria for Testing Impact & Non-Impact Resistant Building Envelope ComponentsUsing Uniform Static Air Pressure

TAS 203-94, Criteria for Testing Products Subject to Cyclic Wind Pressure Loading

ASTM E283-04, Standard Test Method for Determining Rate of Air Leakage Through ExteriorWindows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Mockup

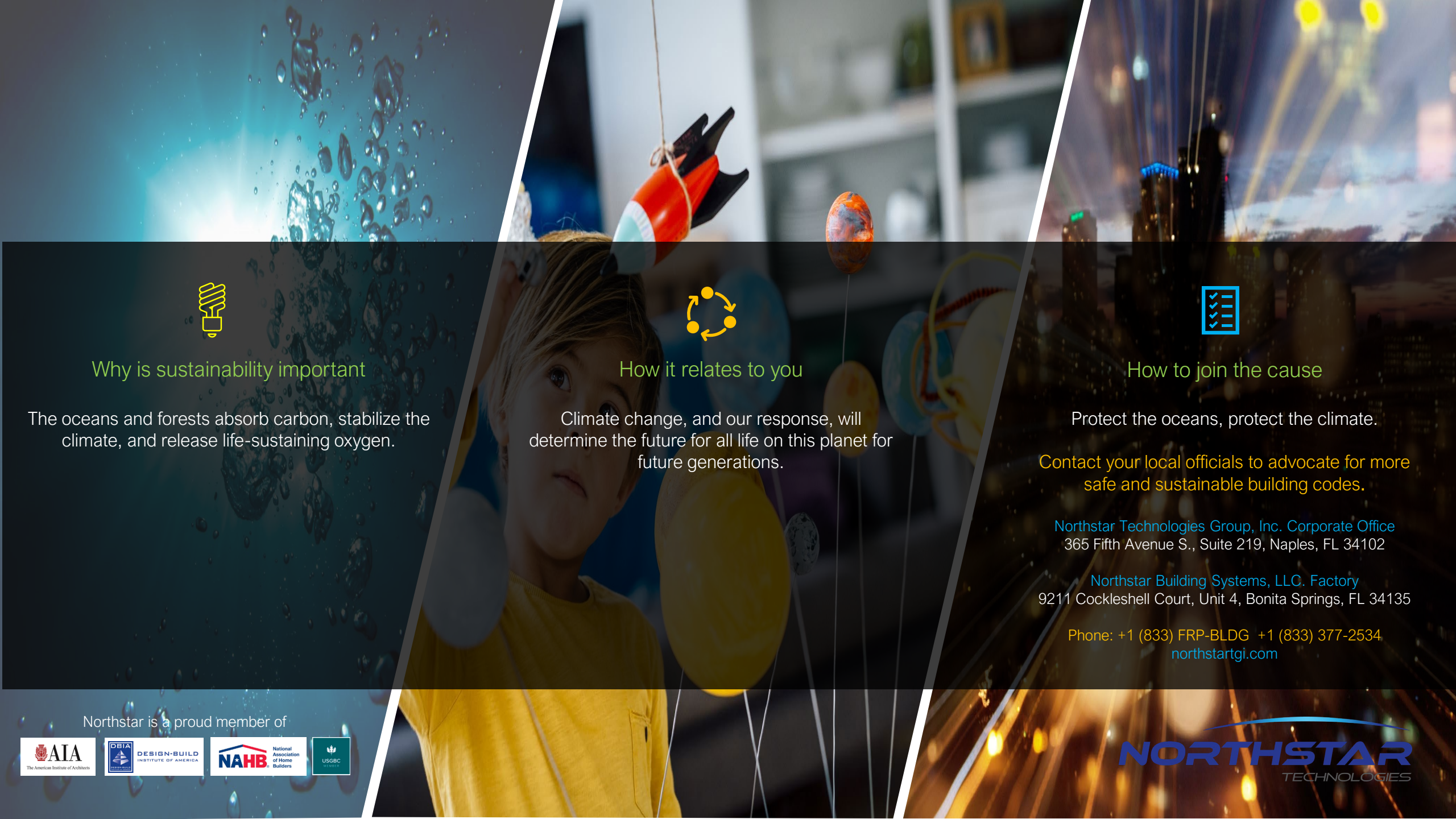
ASTM E330-14, Standard Test Method for Structural Performance of Exterior Windows, Doors,Skylights and Curtain Walls by Uniform Static Air Pressure Difference

ASTM E331-00(2009), Standard Test Method for Water Penetration of Exterior Windows,Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference

ASTM E1886-13a, Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials

ASTM E1996-14a, Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Windborne Debris in Hurricanes

ICC 500-2014, Standard for the Design and Construction of Storm Shelters (Total of three shots)



Why is sustainability important

The oceans and forests absorb carbon, stabilize the climate, and release life-sustaining oxygen.

How it relates to you

Climate change, and our response, will determine the future for all life on this planet for future generations.

How to join the cause

Protect the oceans, protect the climate.

Contact your local officials to advocate for more safe and sustainable building codes.

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Northstar is a proud member of

AIA The American Institute of Architects · DBIA Design-Build Institute of America · NAHB National Association of Home Builders · USGBC Member

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