



## SUSTAINABILITY ASSESSMENT AND LEED COMPLIANCE EVALUATION



### CONFIDENTIAL REPORT -- DUPLICATION ONLY WITH PERMISSION

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This report has been compiled by AmeriGreen Strategies, based upon written information and other tangible documentation provided by Saint-Gobain ADFORS America, Inc. and its parent company, Compagnie de Saint-Gobain, the manufacturer of FibaFuse products.

This report was developed based upon the ISO 14000 series standards, the ISO 19011 environmental systems auditing standards and the ASTM E-2129 environmental collection and assessment standards.



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## SCOPE AND METHODOLOGY

The purpose of this report is to document the sustainable characteristics involved in the manufacturing, distribution, installation and ongoing use of FibaFuse paperless drywall joint tapes and wall reinforcement fabrics, which are manufactured and distributed in the United States through Saint-Gobain ADFORS America, Inc. Although the format of this study follows that of a basic Life Cycle Assessment, no attempt was made to perform the in-depth audits that are typically generated in an LCA report. There was no on-site audit activity conducted at the point of manufacture. In preparing this report, AmeriGreen Strategies relied solely on documentation furnished in writing from the manufacturer as well as published reports, copies of which are attached to this report.

This report was compiled after the manufacturer completed and returned a questionnaire developed by AmeriGreen Standards based on ASTM E2129-05: Standard Practice for Data Collection for Sustainability Assessment of Building Products and ISO 14030: Environmental Performance Evaluation. Based on the questionnaire responses, the manufacturer also provided all requested documentation to justify the accuracy of the responses as well as additional documentation concerning the international company's overall environmental posture. This documentation data typically includes supplier invoices, bills of lading, documented test results, independent third-party environmental certifications, internal inventory and usage reports and similar information. Much of this data is proprietary in nature, therefore duplication and distribution of this report is being controlled by the consignee, Saint-Gobain ADFORS America, Inc.

AmeriGREEN Strategies is functioning as a third-party verification conduit between the manufacturer/distributor and the customer. The data generated in the development of this report was obtained directly from the manufacturer and from the consignee with no prior alteration. Non-proprietary questions concerning the development of this report may be directed via email to [info@AmeriGreenStrategies.com](mailto:info@AmeriGreenStrategies.com).

This report is divided into two parts and is being presented in a format that allows to consignee to supply either one or both parts, depending on the circumstances of the request. Part One is the above-defined analysis of the product's sustainable attributes within the framework of a Life Cycle Analysis. Part Two of this report provides insight into how the FibaFuse paperless drywall joint tapes and wall reinforcement fabrics can potentially assist in the earning of credit points in projects registered under the U.S. Green Building Council's LEED Rating System™.



## RELEVANT BACKGROUND

Founded in 1665, Compagnie de Saint-Gobain is one of the world's largest manufacturers and distributors of building materials and related products. Through a series of mergers and acquisitions, the company has a strong U.S. presence through its CertainTeed, Norandex, Saint-Gobain Containers, Saint-Gobain Abrasives, Saint-Gobain Performance Plastics, Saint-Gobain Crystals, Saint-Gobain NorPro and Saint-Gobain ADFORS brand family. In North America, Saint-Gobain employs approximately 22,000 people in 45 U.S. States, 6 Canadian Provinces and 2 locations in Mexico.

Saint-Gobain ADFORS was established in 2003 to specialize in the manufacture of industrial and commercial reinforcement fabrics from glass, polyester, and proprietary fibers. Its North American headquarters is located in Grand Island, New York. The two primary manufacturing facilities for the FibaFuse products are located in the Southeast United States.

The company and its major subsidiaries have documented evidence of various positive environmental initiatives throughout their history, with special efforts implemented with the past decade. In 2003, Saint-Gobain voluntarily joined the United Nations Global Compact, an international community of private corporations committed to a number of key values, including environmental responsibility. The company also subscribes to the principles of the ADEME (*Agence de l'Environnement et de la Maîtrise de l'Energie*—The French Environment and Energy Management Agency). In 2009, the company was named to the Global 100 Most Sustainable Corporations list and also won the U.S. Environmental Protection Agency's (EPA) Energy Star Partner of the Year Award.

In summarizing its proactive environmental position, the company has released the following statement:

*“All Saint-Gobain facilities, regardless of location, implement site management methods that allow measurable environmental performance standards to be set and actual performance to be regularly evaluated and checked against the applicable standards. Local teams strive to raise the main relevant environmental performance indicators of their own sites to the levels achieved by particularly efficient (Saint-Gobain) Group facilities with comparable operations – even of that means going beyond the requirements of local legislation.”*

## THE IEQ IMPACT OF PAPERLESS DRYWALL TAPE

Sustainable attributes of building materials are both a valid and justifiable concern of architects, specifiers, designers and building owners seeking to earn recognition in the U.S. green Building Council's LEED Rating System, the BOMA Green Globes Program, as well as in other public and private “green” initiatives. At first glance, the significance of using a paperless drywall tape like FibaFuse may appear inconsequential in the overall scope of sustainability. However, paperless drywall tape is vital in the construction of a sustainable wall system that utilized mold resistant drywall covered with a mold resistant wallcovering or low-VOC mold resistant paint.



In moisture prone areas, conventional paper tape can serve as a food source for mold growth, despite the properties of the drywall or the wallcovering. In situations such as healthcare facilities and schools, where mold growth can have a detrimental effect on Interior Air Quality, it is important to evaluate all components of the wall system – studs, drywall, tape, joint compound and paint or wallcovering and adhesive. All elements must offer equal mold resistance properties as the sustainability of the wall is equal to that of least-performing component.

This report has been commissioned by Saint-Gobain ADFORS America, Inc. in order to document the sustainable aspects of its FibaFuse paperless drywall joint tapes and wall reinforcement fabrics and verify their mold resistant performance.

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## PART ONE SUSTAINABILITY ASSESSMENT

In accordance with the established categories identified in a typical Life Cycle Assessment, this report is divided into five specific categories. These include:

1. **RAW MATERIALS** – This is a breakdown of the specific components that make up the product. It includes the source of these materials as well as the extraction, formulation and/or refining of the raw materials into a usable component as well as both the environmental impact and energy needs associated with extraction/harvesting.
2. **MANUFACTURING PROCESS** – This includes environmental impact, energy consumption, waste and other factors involved in transforming the raw materials into a finished product at the manufacturing site.
3. **TRANSPORTATION AND DISTRIBUTION** – This section evaluates the costs and impacts associated with getting the product from the manufacturing plant to the job site.
4. **PRODUCT PERFORMANCE (USE & MAINTENANCE)** – This segment evaluates the energy and environmental impacts associated with the product's intended performance. This includes installation, required maintenance, any projected repair or replacement up to, but not including, final disposal.



5. **RECYCLABILITY AND DISPOSAL**– This phase includes the final disposition of the product and potential recycling of the used product after its useful life.

This report will individually analyze each of these five categories, and evaluate the Saint-Gobain FibaFuse products based on the data supplied by the manufacturer.

## **CATEGORY 1 – RAW MATERIALS**

The manufacturer has identified two basic raw materials that are used in the FibaFuse manufacturing process. These include Fiberglass (E-glass) staple fibers and a Urea-Formaldehyde resin. A specific analysis of each element is as follows:

**E-GLASS FIBER** – The FibaFuse product is comprised of staple glass fiber, which is manufactured from sand, chalk and clay. E-glass is identified as an alumino-borosilicate glass with less than 1 wt% alkali oxides. In Saint-Gobain’s manufacturing process these fibers are classified in accordance with ASTM D578. This specification covers the requirements for continuous fiber and staple fiber glass strands, including single, plied and multiple wound as well as textured glass fiber yarns. The strands typically have a nominal diameter of 16µm or greater, as defined by the ISO 2078 standard, and are therefore “non inhalable” because they are significantly larger in diameter than the 3 µm size deemed hazardous by the World Health Organization. The material is considered non toxic and non carcinogenic.

**UREA-FORMALDEHYDE RESIN** – The glass fibers are impregnated with a Urea polymer with modified, cured Formaldehyde. Urea is a solid, colorless, odorless, maintains a neutral pH, and relatively non-toxic. In its natural form, it serves an important role in the metabolism of nitrogen-containing compounds by animals and is the main nitrogen-containing substance in the urine of mammals. It is therefore essentially inert and renewable. Formaldehyde is produced industrially by the catalytic oxidation of methanol. Formaldehyde can be toxic, allergenic, and carcinogenic. When reacted with urea, Formaldehyde Urea-Formaldehyde resin, a coating which serves as both an adhesive and strengthening agent for the material it impregnates (in this case the fiberglass strands).

The presence of the Urea-Formaldehyde resin in the FibaFuse formulation may initially appear problematic in terms of IEQ issues. However, it must be noted that the design of the FibaFuse products is porous, allowing for joint compound to totally encapsulate the material. This is followed by the installation of paint or wallcovering material. Thus the possibility of Formaldehyde off-gassing is extremely remote. The sustainable benefits of mold resistance, moisture resistance and high tensile strength properties of the products offset the potentially negative aspects of the Formaldehyde content.



## CATEGORY 2 – MANUFACTURING

The FibaFuse products are manufactured at two facilities in the United States: North Charleston, South Carolina and Russellville, Arkansas. Both facilities were certified to ISO 9001 Standards in 2008 (Certificates attached) and both are actively involved in securing additional ISO 14000 Standard Certification.

ISO 9001 standard addresses Quality Management. This involves a comprehensive review of the company commitment and policies involving product quality requirements and applicable regulatory requirements, while aiming to enhance customer satisfaction and achieve continual improvement of its performance in pursuit of these objectives.

The objective of the 14001 Certification is to reduce the environmental footprint of a manufacturing facility and to decrease pollution and waste through the implementation of a series of energy efficient and environmentally friendly applications.

As documented in the Relevant Background section of this report (Page 3), Saint-Gobain's environmental policies and compliance efforts at its ADFORS Division manufacturing facilities have been supplemented by regulations set within the United Nations Global Compact, of which the company is a member, and voluntarily within the Saint-Gobain Group's Environment, Health and Safety Charter.

In addition, the company has been a member of the U.S. Environmental Protection Agency's voluntary Energy Star partnership since 2005 and was named Energy Star Partner of the Year in 2012. In awarding this designation, EPA officials cited Saint-Gobain's efforts in reducing greenhouse gas emissions and outstanding energy management at its U.S. manufacturing facilities.

The FibaFuse manufacturing process involves very high furnace temperatures as well as moderately energy intensive weaving and coating processes. The company's overall efforts in seeking alternative energy sources, together with innovative engineering, have resulted in steady across-the-board declines in both energy usage and emissions.

In specific terms, Saint-Gobain has instituted the following goals, initiatives and technologies as part of its overall corporate effort to minimize the environmental effects of its manufacturing operations:

**EMISSIONS REDUCTION** – Saint-Gobain has mandated a 6 percent reduction in emission levels from 2007 levels by the end of 2010. The company has documented a 2 percent reduction in 2008 emissions from the established 2007 levels.

**WASTE CONTAINMENT** – The company has established a mandate requiring “disposal as a last resort” for all manufacturing generated waste material with an overall goal to reduce landfill waste by 6 percent over 2007 levels by the end of 2010. Aggressive policies in place include reuse and recycling where ever possible and converting waste into energy sources.



**WATER CONSERVATION --** The company has installed control systems to carefully monitor and control the quality and quantity of all water used in manufacturing, along with a closed-loop water recycling system. An established goal is to reduce water usage by 6 percent over 2007 usage levels.

**RESEARCH & TECHNOLOGY –** Saint-Gobain has invested heavily in the development of new technologies designed to further reduce emissions, conserve depletable resources, reducing or elimination VOC's and improve product life cycles at its manufacturing facilities. Efforts include the development of technologies to make furnaces more efficient and enhanced treatment of smokestack gases.

The company has also submitted evidence that, within the past 24 months, it has improved its manufacturing process, product formulations and packaging in accordance with the terms of its published Environment, Health and Safety Charter as part of its ongoing commitment to make its manufacturing process more environmentally friendly. Specifically, these improvements include:

- Developed alternative streams for waste materials to reduce landfill impacts.
- Implemented aggressive recycling programs for both product and non-product related plant activity.
- Installed additional equipment to further reduce air and water pollution.
- Utilize recycled paper and plastics for material packaging and reduced the amount of material used for product packaging.
- Reduced energy consumption, CO<sub>2</sub> emissions, and water usage.

The Saint-Gobain management team is very proactive on environmental issues, often expending funds to go above and beyond the somewhat stringent regional requirements and industry mandates to maintain an ongoing legacy of environmental responsibility.

### **CATEGORY 3 – TRANSPORTATION & DISTRIBUTION**

The adoption of U.S. Green Building Council's LEED Materials & Resources Credit 5 (LEED-NC Version 2.2 et al) suggests that products manufactured with a 500-mile radius of a job or installation site are preferred over similar products that are transported more than 500 miles. Other similar sustainability initiatives have adopted similar guidelines.



This map shows the location of the Saint-Gobain FibaFuse plants in South Carolina and Arkansas with the projected 500-mile radius of each. Nearly every major market in Eastern and Central United States is located within this radius.

In addition, Saint-Gobain has implemented a global pro active initiative to reduce CO<sub>2</sub> emissions in its ground transportation system. The program involves modifying transportation routes and identifying alternatives to traditional truck transportation, advocating the use of rail and intermodal transit where possible. This mandate also caps truck speeds to a maximum of 55 mph, which in itself is expected to decrease fuel consumption by more than 10 percent.

Also noteworthy in terms of shipping is the fact that the FibaFuse products can be shipped through conventional freight carriers and parcel delivery services, thus taking maximum advantage of the economies of scale afforded by large domestic carriers such as UPS and FedEx. The material is not fragile, not subject to adverse temperature damage, neither oversized nor overweight, and is not hazardous to transport or to store.



## CATEGORY 4 – PRODUCT PERFORMANCE

The installation, use and maintenance of FibaFuse paperless drywall joint tapes and wall reinforcement fabrics can be considered sustainable in a number of ways. Primarily, FibaFuse functions as an integral component in a totally “green” wall system. A commercial interior wall assembly consisting of metal studs, paperless wallboard with a high concentration of recycled material such as fly ash, VOC-free joint compound, FibaFuse paperless tape, covered with a solvent-free low-VOC paint or a breathable or otherwise mold-resistant wallcovering affixed with a VOC-free adhesive. Such a wall system is ideal for situations where moisture and high humidity are present or where Interior Air Quality (IAQ) is an issue.

FibaFuse Paperless Drywall Tape achieved the highest rating possible in the ASTM D3273 mold test.

Since sustainability also encompasses concepts such as durability, low maintenance and reliability, FibaFuse products used independently, such as with conventional drywall or under cellulose based wallpaper, also can be considered sustainable because the non-woven fiberglass structure is conclusively lighter and stronger than similar paper joint tape (as per ASTM testing), providing better penetration by the joint compound and radiating added strength in all directions. Typically, an application in which FibaFuse products are included results in less maintenance in terms of repairing cracks and removing blisters.





## CATEGORY 5 – RECYCLABILITY & DISPOSAL

Like any wall related product, FibaFuse paperless drywall joint tapes and wall reinforcement fabrics are not reusable. They are, however, repaintable and recyclable.

Class E glass fiber material, as contained in the FibaFuse products, have been recycled since the 1960's and 70's. Its use is most popular in the boatbuilding industry where the used material is ground into a powder and used as a filler material. It is also used in the manufacture of other fiberglass products such as furniture and lightweight containers.

Disposal of used glass fiber material in a landfill is somewhat problematic because glass fiber has an extremely long degradation period, estimated by some to be in excess of 100 years. Arguably, it is no more dangerous than most other materials that would surround it the landfill, such as electronics, petroleum based products, etc., but because such a robust recycling market exists, there is no logical excuse for dispose of this product in a landfill.

## CONCLUSIONS

Neither the U.S. Environmental Protection Agency nor the Federal Trade Commission have yet issued any type of guidelines or mandates in terms of what makes a product environmentally acceptable or “green.” We must therefore rely on the foundation concepts on what constitutes sustainability along with government and industry regulations for guidance.

In general terms, FibaFuse paperless drywall joint tapes and wall reinforcement fabrics offer several irrefutable sustainable characteristics. These include:

- FibaFuse functions best as part of a sustainable wall system and, when used over paperless drywall with VOC-free joint compound and low-VOC paint, can significantly reduce the possibility of mold growth, even in high moisture applications, and thus preserve the IEQ of the room in which it is installed.
- FibaFuse products offer extreme durability and long life cycle potentially that is typically longer than the surface to which it is installed.
- The environmental effects associated with obtaining the raw materials are negligible.
- Although the manufacturing process is somewhat energy intensive, Saint-Gobain is a world leader in environmental preservation and employs technologies that are the least harmful.
- Glass fiber is recyclable.



In the design and building of commercial structures, sustainability does not always allow for purity in terms of environmental harmony. By their very nature they require materials that are first functional and durable and then sustainable. Most durable products with long life cycles typically require energy and resource intensive manufacturing processes. A balance must be struck between functionality, reality and environmental conscientiousness. FibaFuse paperless drywall joint tapes and wall reinforcement fabrics offer a realistic and environmentally sensitive compromise. Product performance is outstanding and the non-woven glass technology is far superior to conventional paper. Saint-Gobain exercises both prudence and responsibility in their manufacturing processes and thus produces a product that is the most sustainable available within the framework of its functionality.

Facts, statistics and other data presented herein as well as the conclusions formed are based upon documented, often proprietary printed reports, certifications and other relevant verified data provided by Saint-Gobain ADFORS America, Inc.





## PART TWO

# LEED COMPLIANCE EVALUATION

### INTRODUCTION

Although there are a number of national, regional and private-sector initiatives in place to measure sustainability and environmental responsibility, currently the leading standard in the United States is the U.S. Green Building Council's LEED Rating System<sup>®</sup>. This program has gained popularity among architects, designers, building owners, municipalities and school systems. Nearly all current sustainability programs use some component of LEED, therefore it is important when presenting the sustainable qualities of FibaFuse paperless drywall joint tapes and wall reinforcement fabrics, that their potential impact within LEED are also documented.

### FIBAFUSE AND LEED

The use of interior wall components within the commercial building environment is universal. Simply put, every building must have walls. And with the exception of some industrial warehouses and shell construction, all walls are finished. The Saint-Gobain FibaFuse products contribute a viable sustainable component to the wall finishing process, as documented in the accompanying Sustainability Assessment. The following pages offer potential opportunities where the use of FibaFuse paperless drywall joint tapes and wall reinforcement fabrics can assist architects, designers and building owners in gaining credit points in LEED-registered projects.

There are no specific instances with any FibaFuse product, on its own, can earn any specific LEED Point. In each of the documented possible point scenarios, FibaFuse products must be used in conjunction with other products, possibly from other manufacturers, to gain the potential points. In this report, there is an assumed reliance on those other products in terms of their individual characteristics involving VOC content, cellulose content and other performance and content claims.

In general terms from a LEED perspective, FibaFuse products are beneficial in two specific areas – component reuse and Environmental Air Quality (IEQ). FibaFuse paperless joint tape and wall reinforcement fabric can help make it possible to reuse certain wall assemblies. In the spirit of LEED, this means less of an impact in the manufacturing, shipping and installation of new walls as well as the generation of less landfill waste. From an IEQ overview, the products are an integral component of a sustainable wall system that significantly reduces the potential for mold growth, even in high moisture applications. The following pages offer specific details.



## WHAT IS LEED

The Leadership in Energy and Environmental Design (LEED) Green Building Rating System™ is the nationally accepted benchmark for the design, construction, and operation of high performance green buildings. LEED gives building owners and operators the tools they need to have an immediate and measurable impact on the performance of their buildings. LEED promotes a whole-building approach to sustainability by recognizing performance in five key areas of human and environmental health: sustainable site development, water savings, energy efficiency, materials selection, and indoor environmental quality.

LEED provides a roadmap for measuring and documenting success for every building type and for every phase of a building lifecycle. Currently, the USGBC administers five different LEED programs for commercial buildings. These include:

- **LEED for New Construction and Major Renovations**

This is the original LEED version and it is designed primarily for new commercial office buildings that are four or more stories tall. It can also be applied to major renovation projects involving existing buildings. As a rule of thumb, a major renovation includes the elements of major HVAC replacement, significant building envelope modifications and major interior rehabilitation.

- **LEED for Existing Buildings – Operations & Maintenance**

Recently revised and expanded, LEED-EB deals with the sustainability issues in operating and maintaining existing buildings. Unlike most other LEED versions, this one involves facility alterations and additions as well as operational issues and procedures for utilizing existing HVAC, lighting and other systems.

- **LEED for Commercial Interiors**

This LEED version deals specifically with the build-out of tenant spaces in government as well as private sector commercial buildings. In general terms, this initiative covers the areas of responsibility that a tenant of leased space normally has control of, such as interior floor and wall covering, maintenance and lighting.



- **LEED for Core and Shell Construction**

This is the opposite of the Commercial Interior version, structured specifically for the developer. It addresses the details of the building envelope in general, including the HVAC system, roof system and other components that are traditionally handled by the landlord in a tenant-landlord relationship.

- **LEED for Schools**

This version covers the construction and major renovations of K thru 12 educational facilities. It addresses the unique qualities of school spaces and children's health issues.

Additional LEED programs are also currently in development to address Retail Businesses, Healthcare, Community Development and other categories.

The LEED Rating System was created to transform the built environment to a higher degree of sustainability by providing the building industry with consistent, credible standards for what constitutes a green building. The rating system is developed and continuously refined via an open, consensus-based process that has made LEED the green building standard of choice for Federal agencies, as well as state and local governments nationwide.

The first step to LEED certification is to register a specific building project into one of the above-defined programs. A project is a viable candidate for LEED certification if it can meet all prerequisites and achieve the minimum number of points to earn the basic level of LEED project certification. The number of points needed to earn certification differs from program to program. To earn certification, a building project must meet certain prerequisites and performance benchmarks ("credits") within each category. Projects are awarded Certified, Silver, Gold, or Platinum designations, depending on the number of credits they achieve. This comprehensive approach is the reason LEED-certified buildings have reduced operating costs, have healthier and more productive occupants, and conserve our natural resources.

**It is important to understand that LEED rates projects, not products. LEED credits are earned when a product or a series of products are combined to achieve a specific end result (lower energy use, collective recycled content, etc.). It is rare when a single product can be utilized to earn credit points. The total number of available credits varies in each of the above categories. In addition to available credits, each of the above categories also contains one or more prerequisites which MUST be met in order for the project to achieve LEED certification. Examples of these prerequisites include minimum energy performance standards, the collection of recyclables, and requirements for smoking within the building.**



LEED points are awarded in six basic categories:

1. Sustainable Sites (SS)
2. Water Efficiency (WE)
3. Energy & Atmosphere (EA)
4. Materials & Resources (MR)
5. Indoor Environmental Quality (IEQ)
6. Innovation & Design (ID)

## **LEED – NC**

### **New Construction (& Major Renovations) Version 3.0**

The LEED-NC Rating System is applicable to new commercial construction and major renovation projects. This was the original LEED program and still remains the one used most often. In LEED-NC there are a total of 100 possible base points, 6 possible Innovation in Design points, and 4 Regional priority Points. LEED Certification can be achieved as follows:

- Basic Certification    40 – 49 points
- Silver                    50 – 59 points
- Gold                      60 – 79 points
- Platinum                80 or more points

FibaFuse products manufactured by Saint-Gobain may contribute possible credit points in the following specific LEED-NC categories:

#### **MR Credit 1.2: Building Reuse – Maintain Interior Non-Structural Elements**

1 Point

##### Intent

The purpose of this credit is to help extend the life cycle of existing building stock, conserve resources, retain cultural resources, reduce waste and reduce environmental impacts of new buildings as they relate to materials manufacturing and transport.



## Requirements

Use existing interior non-structural elements (walls, doors, floor coverings and ceiling systems) in at least 50% (by area) of the completed building (including additions). If the project includes an addition to an existing building, this credit is not applicable if the square footage of the addition is more than 2 times the square footage of the existing building.

## Strategy

The use of FibaFuse paperless drywall joint tapes and wall reinforcement fabrics may contribute to the building reuse interior non-structural elements because the substantial nature of non-woven glass FibaFuse tape and fabric material can be used to rehabilitate and fortify existing wall surfaces by replacing cracked joints, patching holes and otherwise providing a durable, potentially mold resistant solution to an existing wall problem.

## **MR Credit 3: Materials Reuse**

1 - 2 Points

### Intent

Reuse building materials and products in order to reduce the demand for virgin materials and to reduce waste, thereby lessening impacts associated with the extraction and processing of virgin resources.

### Requirements

Use salvaged, refurbished or reused materials so that the sum of these materials constitutes at least 5% for one credit or at least 10% for two credits, based on cost, of the total value of materials on the project. Identify opportunities to incorporate salvaged materials into building design and research potential material suppliers. Consider salvaged materials such as beams and posts, flooring, wall panels, doors and frames, cabinetry and furniture, brick and decorative items.

### Strategy

FibaFuse paperless drywall joint tapes and wall reinforcement fabrics can potentially be used to re-make joints and patch holes and other irregularities on interior drywall panels and partitions, providing a fresh and clean look and thus allowing them to be reused. The durable aspects of the FibaFuse non-woven glass fiber texture can add strength and rigidity to the panels.



## MR Credit 5

1-2 Points

### Intent

Increase demand for building materials and products that are extracted, processed and manufactured within the region, thereby supporting the use of indigenous resources and reducing the environmental impacts resulting from transportation.

### Requirement

Use building materials or products that have been extracted, harvested or recovered, as well as manufactured, within 500 miles of the project site for a minimum of 10% and/or 20% (based on cost) of the total materials value. If only a fraction of a product or material is extracted/harvested/recovered and manufactured locally, then only that percentage (by weight) shall contribute to the regional value.

### Strategy

FibaFuse products are manufactured in North Charleston, SC, And Russellville, AK. This map shows a 500-mile radius around Each of these plants. LEED registered projects located within either of the two the circles are eligible to qualify for these credits.



## ID Credits 1: Innovation in Design

1-5 Points

### Intent

To provide design teams and projects the opportunity to be awarded points for exceptional performance above the requirements set by the LEED Green Building Rating Systems and/or innovative performance in Green Building categories not specifically addressed by a LEED Green Building Rating System.





### Requirements (select one)

#### Path 1: Innovation in Design (1-5 points)

Achieve significant, measurable environmental performance using a strategy not addressed in the LEED 2009 for New Construction and Major Renovations Rating System.

#### Path 2: Exemplary Performance (1-3 points)

Achieve exemplary performance in an existing LEED 2009 for New Construction and Major Renovations prerequisite or credit that allows exemplary performance as specified in the LEED Reference Guide for Green Building Design & Construction, 2009 Edition. An exemplary performance point may be earned for achieving double the credit.

### Strategy

The LEED 3.0 version contains stringent monitoring and performance requirements in the area of indoor Air Quality (IAQ or IEQ). Opportunities for credits involve the reduction of VOC's and the preservation of a healthy indoor environment. FibaFuse products can assist in the creation of a mold-free interior wall system when used in conjunction with paperless drywall, VOC-free joint compound and low-VOC paint or a sustainable wall covering enhanced with antimicrobial additives.

### **RP Credit 1: Regional Priority**

1 – 4 Points

### Intent

The purpose of this credit is to provide an incentive for the achievement of credits that address geographically-specific environmental priorities.

### Requirements

Earn 1-4 of the credits identified by the USGBC regional councils and chapters as having environmental importance for a project's region. A database of Regional Priority credits and their geographic applicability is available on the USGBC website, <http://www.usgbc.org>. One point is awarded for each Regional Priority credit achieved; no more than 4 credits identified as Regional Priority credits may be earned.



## Strategy

Using FibaFuse paperless drywall joint tapes and wall reinforcement fabrics as part of a mold resistant sustainable wall system can be potentially used to help earn these credits in areas where heat and humidity promote the growth and development of mold and mildew and other VOC contamination, and are viewed as regionally acute. Tropical summer conditions in the southern United States, Central America and the Caribbean are often prone to high moisture and humidity because local climate conditions such as stagnant air, frequent rain or rapid temperature changes, which have been identified as regionally specific.

## **LEED-CI Commercial Interiors Version 3.0**

The LEED-CI Rating System is applicable to tenant improvements of new or existing office space.

In LEED-CI there are a total of 100 possible base points, 6 possible Innovation in Design points, and 4 Regional priority Points. LEED Certification can be achieved as follows:

- Basic Certification      40 – 49 Points
- Silver                      50 – 59 Points
- Gold                         60 – 79 Points
- Platinum                  80 Points or more

FibaFuse paperless drywall joint tapes and wall reinforcement fabrics may contribute possible credit points in the following areas:

### **MR Credit 1.2: Building Reuse: Maintain Interior Non-Structural Components**

1 – 2 Points each

The Intent, Requirements and Strategy for these credits are the same as those previously identified on Page 14 of this report under MR Credit 1.2, except that in this situation 1 point is awarded for 40 percent interior reuse and 2 points are awarded for 60 percent.

**MR Credit 3: Materials Reuse**

1 - 2 Points

The Intent, Requirements and Strategy for these credits are the same as those previously identified on Page 15 of this report under MR Credit 3, except that in this situation 1 point is awarded for 5 percent materials reuse and 2 points are awarded for 10 percent.

**MR Credit 5: Regional Material**

1 - 2 Points

The Intent, Requirements and Strategy for these credits are the same as those previously identified in this report on Page 16 under LEED NC, MR Credit 5. However, in this version, the 20% criteria must be met before the 10% bonus point is added.

**ID Credits 1: Innovation in Design**

1 – 5 Points

The Intent, Requirements and Strategy for these credits are the same as those previously identified on Page 16 of this report under ID Credits 1.

**RP Credit 1: Regional Priority**

1 – 4 Points

The Intent, Requirements and Strategy for these credits are the same as those previously identified on Page 17 of this report under RP Credits 1.



## LEED-EB Operations & Maintenance 2.0

This LEED version was recently revamped to focus on the Maintenance and Operations of existing buildings, rather than the rehabilitation of existing commercial space. This program has also become somewhat of an operations template for municipalities, government offices and many private-sector companies.

To achieve certification under LEED-EB, there are a total of 100 possible base points, 6 possible Innovation in Design points, and 4 Regional priority Points. LEED Certification can be achieved as follows:

- Basic Certification      40 – 49 points
- Silver                      50 – 59 points
- Gold                        60 – 79 points
- Platinum                 80 or more points

Unlike other LEED versions, LEED-EB requires various criteria for consideration of certification. Factors include occupancy rate and/or percentage of occupancy as well as a number of other factors and conditions. Please refer to the USGBC website ([www.usgbc.org](http://www.usgbc.org)) for more specific details.

FibaFuse paperless drywall joint tapes and wall reinforcement fabrics products can help earn LEED-EB O&M credits in the following areas:

### **ID Credits 1: Innovation in Design**

1 – 5 Points

The Intent, Requirements and Strategy for these credits are the same as those previously identified on Page 16 of this report under ID Credits 1.

### **RP Credit 1: Regional Priority**

1 – 4 Points

The Intent, Requirements and Strategy for these credits are the same as those previously identified on Page 17 of this report under RP Credits 1.



## LEED for Schools

The LEED for Schools program is modeled after the LEED-NC 3.0 version previously presented on pages 14-17. The same potential credits listed on those pages would also apply here, with one exception. LEED for Schools also offers the following potential credit to which FibaFuse products could contribute:

### IE Q Credit 10: Mold Prevention

1 Point

#### Intent

To reduce the potential presence of mold in schools through preventive design and construction measures.

#### Requirements

Develop and implement on an ongoing basis an IAQ management program for buildings based on the U.S. Environmental Protection Agency (EPA) document, Building Air Quality: A Guide for Building Owners and Facility Managers, EPA reference number 402-F-91-102, December 1991.

#### Strategy

The use of FibaFuse products in conjunction with paperless drywall and other components as part of a sustainable wall system may assist in securing this credit.

## CONCLUSIONS

It really doesn't matter if an architect, designer or building owner has LEED points on his mind when he specifies Saint-Gobain's FibaFuse paperless drywall joint tapes and wall reinforcement fabrics as part of a new construction project or a major renovation effort. The vast majority of so-called "green" building projects across the country never earn a LEED certification. But a majority of them do use the LEED criteria in some form as a guide for achieving their own pre-determined level of sustainability.



There are three general characteristics present in any legitimate effort toward achieving “green” or sustainable objectives. These include energy savings, a preservation of interior environmental quality (IEQ) and earth-friendly building practices, which embrace concepts such as materials reuse, recycling and minimal waste disposal.

It’s important to understand that, in various ways, FibaFuse paperless drywall joint tapes and wall reinforcement fabrics embrace qualities from two of these three areas. In terms of IEQ performance, FibaFuse used in combination with other mold-resistant wall system components, such as CertainTeed GlasRoc® high performance sheathing or ProRoc® mold resistant wallboard, Novelio® Mold-X wallcovering, or other similar products offers long-term sustainable benefits by eliminating interior mold growth and significantly contribute to maintaining healthy and save VOC levels in interior office environments..

Saint-Gobain has been named as one the Global 100 Most Sustainable Corporations. Their two FibaFuse manufacturing plants have achieve ISO 9001 quality certifications and are both in process of achieving ISO 14001 environmental certifications. No matter which sustainability initiative it is measured against, the manufacturing process, installation and performance of FibaFuse paperless drywall joint tapes and wall reinforcement fabrics can be considered “green.”

## **VERIFIED CERTIFICATIONS**

The follow pages contain copies of ISO 9001 Certifications from both the North Charleston, South Carolina, and Russellville, Arkansas manufacturing plants.



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# CERTIFICATE OF REGISTRATION

This is to certify that

## **SAINT-GOBAIN TECHNICAL FABRICS INC.**

2900 Bird Street, North Charleston, South Carolina 29405 USA

operates a

### **Quality Management System**

which complies with the requirements of

### **ISO 9001:2008**

for the following scope of registration

**The Quality Management System as it applies to the manufacturer of glass mat products containing chopped glass and modified binder for a wide variety of building material industries throughout the world.**

Certificate No: CERT-0033651  
File No: 1064281  
Issue Date: September 24, 2009

Original Certification Date: September 23, 2009  
Current Certification Date: September 23, 2009  
Certificate Expiry Date: September 22, 2012

Chris Jouppi  
President,  
QMI-SAI Canada Limited

Alex Ezrakhovich  
General Manager,  
SAI Global Certification Services Pty Ltd



ISO 9001



Registered by:  
SAI Global Certification Services Pty Ltd, 286 Sussex Street, Sydney NSW 2000 Australia with QMI-SAI Canada Limited, 20 Carlson Court, Suite 100,  
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# CERTIFICATE OF REGISTRATION

This is to certify that

## **SAINT-GOBAIN TECHNICAL FABRICS INC.**

475 Walnut Gate Road, Russellville, Alabama 35654 USA

operates a

## **Quality Management System**

which complies with the requirements of

## **ISO 9001:2008**

for the following scope of registration

**The quality management system as it applies to the manufacturer of glass mat products containing chopped glass and modified binder for a wide variety of building materials industries throughout the world.**

Certificate No: CERT-0033652  
File No: 1064282  
Issue Date: August 25, 2009

Original Certification Date: August 12, 2009  
Current Certification Date: August 12, 2009  
Certificate Expiry Date: August 11, 2012

Chris Jouppi  
President,  
QMI-SAI Canada Limited

Alex Ezrakhovich  
General Manager,  
SAI Global Certification Services Pty Ltd



ISO 9001



Registered by:  
SAI Global Certification Services Pty Ltd, 286 Sussex Street, Sydney NSW 2000 Australia with QMI-SAI Canada Limited, 20 Carlson Court, Suite 100,  
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