SMART VENT
Foundation Flood Vents

www.smartvent.com • 877.441.8368

SMART VENT Foundation Flood Vent
LEED-NC (New Construction) Certification Contribution

Smart VENT Products, Inc. is committed to a sustainable approach to construction. From recycled packaging, to an emphasis on education, Smart VENT believes in the power of a cooperative and integrated approach to planning, designing, and construction or remodeling of buildings. By the nature of the products, Smart VENT Inc's focus has been on practical engineering with a respect for the environment.

Redevelopment of infill sites is always encouraged over new development. Historically, urban areas have always developed near water (river, coast, lake, etc.). Due to this, many communities are in designated floodplains. Because of climatic changes, potentially devastating storms are increasing, and instances of flooding are more common, which results in larger flood zones. Smart VENT provides an environmentally responsible way to redevelop an area in a designated flood zone.

Specifying and installing Smart VENT Foundation Flood Vents can contribute toward achievement of numerous credits for LEED-NC certification. The performance and technologies engineered into these automatic openings can help to achieve prerequisites and accumulate points in the following categories and credit areas of LEED-NC Version 2.2: Site Selection; Energy and Atmosphere; Materials and Resources; and Indoor Environmental Quality.

In addition, several benefits of utilizing automatic engineered openings are not addressed by the LEED rating system, and provide opportunities to pursue points for *Innovation in Design.* Possibilities for achieving ID credits have been suggested and appear at the end of applicable sections.

The following pages include the prerequisites and credits that can be pursued with the help of Smart VENT Foundation Flood Vents. For each prerequisite or credit, see "Smart VENT Contribution" to find out how the solution contributes to attaining credit.

LEED-NC Version 2.2 – Site Selection

SS Credit 1 Site Selection

Intent:
Avoid development of inappropriate sites and reduce the environmental impact from the location of a building on a site.

Requirements:
Do not develop buildings, hard scape, roads or parking areas on portions of sites that meet any one of the following criteria:

- Previously undeveloped land whose elevation is lower than 5 feet above the elevation of the 100-year flood as defined by FEMA (Federal Emergency Management Agency).

Smart VENT Contribution (SS Credit 1):
Redevelopment of an area as infill into an existing community is always preferred. Planning with the intended utilization of Smart VENT Foundation Flood Vents in the building will enable redevelopment into an existing floodplain while fulfilling NFIP regulations and ICC code requirements. These vents are the only automatic engineered openings that are accepted by FEMA for NFIP requirements and certified by the ICC for code compliance.

SS Credit 6.1 Stormwater Design: Quality Control

Intent:
Limit disruption of natural water hydrology by reducing impervious cover, increasing on-site infiltration, reducing or eliminating pollution from storm water runoff, and eliminating contaminants.

Requirements:
CASE 1 — EXISTING IMPERVIOUSNESS IS LESS THAN OR EQUAL TO 50%
Implement a storm water management plan that prevents the post-development peak discharge rate and quantity from exceeding the pre-development peak discharge rate and quantity for the one- and two-year 24-hour design storms.

Smart VENT Contribution (SS Credit 6.1):
Use of fill soil disrupts the site conditions and contributes to a deterioration of the natural water infiltration and to the increase of storm water runoff. In addition, foreign soil may contain different components, potentially adding to site pollution contaminants. By utilizing Smart VENT Foundation Flood Vents in a continuous perimeter foundation wall, the building does not require fill soil to be placed under the foundation footprint to raise it above the base flood elevation.

LEED-NC Version 2.2 – Energy and Atmosphere

EA Prerequisite 2 Minimum Energy Performance

Intent:
Establish the minimum level of energy efficiency for the proposed building and systems.

Requirements:
Design the building project to comply with both—

- the mandatory provisions (Sections 5.4, 6.4, 7.4, 8.4, 9.4 and 10.4) of ASHRAE/IESNA Standard 90.1-2004 (without amendments); and
- the prescriptive requirements (Sections 5.5, 6.5, 7.5 and 9.5) or performance requirements (Section 11) of ASHRAE/IESNA Standard 90.1-2004 (without amendments).

Potential Technologies & Strategies
Design the building envelope, HVAC, lighting, and other systems to maximize energy performance.

Smart VENT Contribution (EA Prerequisite 2):
When redeveloping in a floodplain, NFIP and code requirements demand proper venting in the foundation of the building to provide for wet flood proofing as recommended by FEMA. To achieve venting and maintain maximum energy performance through the building envelope, the foundation flood vents must provide a level of insulation. Smart VENT's Flood Vent offers both an automatic engineered opening accepted by FEMA for NFIP requirements and certified by the ICC for code compliance, and also a level of insulation. The flood vent door provides an R 8.34 insulation factor.

LEED-NC Version 2.2 – Materials & Resources

MR Credit 1.1 Building Reuse: Maintain 75% of Existing Walls, Floors & Roofs

MR Credit 1.2 Building Reuse: Maintain 95% of Existing Walls, Floors & Roofs

Intent:
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:
Maintain at least 75% (based on surface area) of existing building structure (including structural floor and roof decking) and envelope (exterior skin and framing, excluding window assemblies and non-structural roofing material).

Potential Technologies & Strategies:
Consider reuse of existing, previously occupied buildings, including structure, envelope and elements. Remove elements that pose contamination risk to building occupants and upgrade components that would improve energy and water efficiency such as windows, mechanical systems and plumbing fixtures.

Smart VENT Contribution (MR Credit 1.1):
Reuse of a structure in a floodplain requires a retrofit of the foundation walls to provide for proper flood venting. Smart VENT Foundation Flood Vents are manufactured in a standard masonry size (8” x 16”), affording an easy retrofit into an existing foundation wall to attain compliance with NFIP regulations and ICC codes. Smart VENT’s Flood Vents provide venting while also maintaining an R 8.34 insulation factor.
Color options allow for planned integration to minimize visual impact with the existing surface material. In addition, Smart VENT accessories provide for flood venting in unusual applications. When needed, an interior trim flange, installed on the inside of the wall, provides a finished appearance to the vent opening. Fire damper models provide certified 2-hours of fire resistance.

MR Credit 2.1 Construction Waste Management: Divert 50% From Disposal

MR Credit 2.2 Construction Waste Management: Divert 75% From Disposal

Intent:
Divert construction, demolition and land-clearing debris from disposal in landfills and incinerators. Redirect recyclable recovered resources back to the manufacturing process. Redirect reusable materials to appropriate sites.

Requirements:
Recycle and/or salvage at least 50% of non-hazardous construction and demolition debris. Develop and implement a construction waste management plan that, at a minimum, identifies the materials to be diverted from disposal and whether the materials will be sorted on-site or co-mingled.

Potential Technologies & Strategies:
Establish goals for diversion from disposal in landfills and incinerators and adopt a construction waste management plan to achieve these goals. Consider recycling cardboard, metal, brick, acoustical tile, concrete, plastic, clean wood, glass, gypsum wallboard, carpet and insulation.

Smart VENT Contribution (MR Credit 2.1):
Smart VENT Products are all minimally packaged in recycled cardboard. This packaging can be disposed of on site with any other cardboard for recycling. Additionally, depending on the number of units needed for the project, pallet packaging can be arranged to further reduce the on site waste.

MR Credit 3.1 Materials Reuse: 5%

MR Credit 3.2 Materials Reuse: 10%

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

Requirements:
Use salvaged, refurbished or reused materials such that the sum of these materials constitutes at least 5%, based on cost, of the total value of materials on the project.

Potential Technologies & Strategies:
Identify opportunities to incorporate salvaged materials into building design and research potential material suppliers.

Smart VENT Contribution (MR Credit 2.1):
Smart VENT Foundation Flood Vents are manufactured from stainless steel due to the requirements of flood proofing in coastal areas (salt corrosion resistance). As a result, they have been tested and given a life expectancy in excess of 20 years. They are an ideal building product for future reuse.

MR Credit 4.1 Recycled Content: 10% (post-consumer + ½ pre-consumer)

MR Credit 4.2 Recycled Content: 20% (post-consumer + ½ pre-consumer)

Intent:
Increase demand for building products that incorporate recycled content materials, thereby reducing impacts resulting from extraction and processing of virgin materials.

Requirements:
Use materials with recycled content such that the sum of post-consumer recycled content plus one-half of the pre-consumer content constitutes at least 10% (based on cost) of the total value of the materials in the project.
The recycled content value of a material assembly shall be determined by weight. The recycled fraction of the assembly is then multiplied by the cost of assembly to determine the recycled content value.

Smart VENT Contribution (MR Credit 4.1):
Smart VENT Foundation Flood Vents are manufactured with a recycled content in excess of 70% due to its stainless steel construction. The vast majority of the steel is from post-consumer recycled steel products. Some is also from pre-consumer, with a very small percentage of the metal composed of the virgin elements needed to bring the steel up to grade specification. Additional materials (plastics, fibers, and other materials) used in the flood vents are minimal, as they comprise only the components integrated into the product for functionality and performance features.

LEED-NC Version 2.2 – Indoor Environmental Quality

EQ Prerequisite 1 Minimum IAQ Performance

Intent:
Establish minimum indoor air quality (IAQ) performance to enhance indoor air quality in buildings, thus contributing to the comfort and well-being of the occupants.

Requirements:
Meet the minimum requirements of Sections 4 through 7 of ASHRAE 62.1-2004, Ventilation for Acceptable Indoor Air Quality.

Potential Technologies & Strategies:
Design ventilation systems to meet or exceed the minimum outdoor air ventilation rates as described in the ASHRAE standard. Balance the impacts of ventilation rates on energy use and indoor air quality to optimize for energy efficiency and occupant health.

Smart VENT Contribution (MR Credit 2.1):
Smart VENT's Dual Function Vent provides NFIP and code compliant flood vent protection with automatic natural air ventilation. The air vent offers a bi-metal coil that closes the vent louvers in cold weather, and opens them in warm weather, providing efficient functionality that can improve the building's HVAC efficiency. For those floodplain installations in climates that utilize natural foundation ventilation, the Smart VENT affords a perfect solution to install one product that achieves two purposes. When installed in accordance with ICC codes in a crawlspace over vapor barrier, the air ventilation requirements are exceeded, supplying foundation air ventilation to attain building breath ability.

LEED-NC Version 2.2 – Innovation & Design Process

The following Innovation in Design credits are suggested by Smart VENT to provide design teams and projects the opportunity to be awarded points for innovative performance in areas not specifically addressed by the LEED Rating System.

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

ID Credit 1-1.4 Innovation in Design

Smart VENT Contribution (ID Credit 1):

Reuse of an existing building is often the biggest design challenge. Innovation in that reuse is the key to an effective reuse plan. Smart VENT Foundation Flood Vents afford innovative solutions to reusing an existing building that is sited in a floodplain. Smart VENT's stacked flood vent configurations afford flood protection on a large scale for buildings with a large footprint, but without the foundation wall space to vent in a traditional manner.
Smart VENT Foundation Flood Vents are engineered to mitigate structural damage; to maintain the structure in a flood, a far more sustainable solution to the problem than to replace a flood damaged structure. Smart VENT Foundation Flood Vents have been approved in Historic Districts, and provide an innovative solution to reuse an existing building in a floodplain. Should a designer have a reuse project in a floodplain, Smart VENT Products encourages that design team to contact them to find an environmentally sustainable, practical and economical solution to flood protection.

SmartVent Contribution (ID Credit 1.1):

Water is a natural resource that often needs special engineering solutions to properly manage it on site. Smart VENT Foundation Flood Vents are designed for installation into foundations to provide wet flood proofing for a building constructed within a floodplain. However, due to their design, these vents have been installed in other applications. Should a designer need an automatic opening to provide a "floodgate" in an unusual application, Smart VENT Products encourages that design team to contact them. Whether a roof-top that needs storm water flood control, or a landscape wall that needs storm water engineering, flood vents can be utilized in innovative situations to help control and manage water flow.

Smart VENT Contribution (ID Credit 1.2):

Providing for an emergency flood situation can be a design difficulty. In a laboratory, brewery, or other manufacturing facility that handles large quantities of fluids, the best solution is a flood vent that integrates into the building, while maintaining the sustainable structural engineering unobtrusively. For an innovative solution to this design difficulty, Smart VENT encourages a solution of their Foundation Flood Vents, installed in an innovative way to provide for emergency internal flood events.