



# AMVIC ICF

## LEED Product Assessment Report

Last Updated: September 25th, 2006

Prepared for:



Prepared by:



Yes Y? N? No

1 13

| Sustainable Sites |    |    |    | 14 Points | Description  | Amvic Direct Benefit? |   | Comments | Benefits  |          |
|-------------------|----|----|----|-----------|--|-----------------------|---|----------|---|----------|
| Yes               | Y? | N? | No | Yes       |  | No                    |   |          |   |          |
| N                 |    |    |    |           | Prereq 1 <b>Erosion &amp; Sedimentation Control</b>                                  | Required              |   | x        |   |          |
|                   |    |    | 1  |           | Credit 1 <b>Site Selection</b>   | 1                     |   | x        |   |          |
|                   |    |    | 1  |           | Credit 2 <b>Urban Redevelopment</b>  | 1                     |   | x        |   |          |
|                   |    |    | 1  |           | Credit 3 <b>Brownfield Redevelopment</b>   | 1                     |   | x        |   |          |
|                   |    |    | 1  |           | Credit 4.1 <b>Alternative Transportation, Public Transportation Access</b>           | 1                     |   | x        |   |          |
|                   |    |    | 1  |           | Credit 4.2 <b>Alternative Transportation, Bicycle Storage &amp; Changing Rooms</b>   | 1                     |   | x        |   |          |
|                   |    |    | 1  |           | Credit 4.3 <b>Alternative Transportation, Hybrid &amp; Alternative Fuel Vehicles</b> | 1                     |   | x        |   |          |
|                   |    |    | 1  |           | Credit 4.4 <b>Alternative Transportation, Parking Capacity and Carpooling</b>        | 1                     |   | x        |   |          |
|                   |    |    | 1  |           | Credit 5.1 <b>Reduced Site Disturbance, Protect or Restore Open Space</b>            | 1                     |   | x        |   |          |
|                   |    |    | 1  |           | Credit 5.2 <b>Reduced Site Disturbance, Development Footprint</b>                    | 1                     |   | x        |   |          |
|                   |    |    | 1  |           | Credit 6.1 <b>Stormwater Management, Rate and Quantity</b>                           | 1                     |   | x        |   |          |
|                   |    |    | 1  |           | Credit 6.2 <b>Stormwater Management, Treatment</b>                                   | 1                     |   | x        |   |          |
| 1                 |    |    |    |           | Credit 7.1 <b>Landscape &amp; Exterior Design to Reduce Heat Islands, Non-Roof</b>   | 1                     | x |          | The ICF allows the designer a freedom of choice for exterior finishing, including light colored, high albedo materials. | Designer |
|                   |    |    | 1  |           | Credit 7.2 <b>Landscape &amp; Exterior Design to Reduce Heat Islands, Roof</b>       | 1                     |   | x        |   |          |
|                   |    |    | 1  |           | Credit 8 <b>Light Pollution Reduction</b>  | 1                     |   | x        |   |          |

Yes Y? N? No

5

| Water Efficiency |    |    |    | 5 Points | Description  | Amvic Direct Benefit? |  | Comments | Benefits |  |
|------------------|----|----|----|----------|--|-----------------------|--|----------|----------|--|
| Yes              | Y? | N? | No | Yes      |  | No                    |  |          |          |  |
|                  |    |    | 1  |          | Credit 1.1 <b>Water Efficient Landscaping, Reduce by 50%</b>                   | 1                     |  | x        |          |  |
|                  |    |    | 1  |          | Credit 1.2 <b>Water Efficient Landscaping, No Potable Use or No Irrigation</b> | 1                     |  | x        |          |  |
|                  |    |    | 1  |          | Credit 2 <b>Innovative Wastewater Technologies</b>                             | 1                     |  | x        |          |  |
|                  |    |    | 1  |          | Credit 3.1 <b>Water Use Reduction, 20% Reduction</b>                           | 1                     |  | x        |          |  |
|                  |    |    | 1  |          | Credit 3.2 <b>Water Use Reduction, 30% Reduction</b>                           | 1                     |  | x        |          |  |

Yes Y? N? No

8 1 1 7

| Energy & Atmosphere |    |    |    | 17 Points | Description  | Amvic Direct Benefit? |   | Comments | Benefits   |          |
|---------------------|----|----|----|-----------|--|-----------------------|---|----------|--|----------|
| Yes                 | Y? | N? | No | Yes       |  | No                    |   |          |  |          |
| N                   |    |    |    |           | Prereq 1 <b>Fundamental Building Systems Commissioning</b> | Required              |   | x        |  |          |
| Y                   |    |    |    |           | Prereq 2 <b>Minimum Energy Performance</b>                 | Required              | x |          | AMVIC ICF provides an improved thermal insulation performance level (up to 40%), high thermal mass, plus an improved air-tightness performance. These combined features free the designer to utilize strategies which will improve Building Performance. | Designer |

| N | Y? | N? | No | Prereq 3   | CFC Reduction in HVAC&R Equipment | Required | Reduce the use of CFC-based refrigerants   |   | x |   |                  |
|---|----|----|----|------------|-----------------------------------|----------|--|---|---|---|------------------|
| 4 | 1  | 1  | 4  | Credit 1   | Optimize Energy Performance       | 1 to 10  | Achieve increasing levels of energy performance above the prerequisite standard to reduce environmental impacts associated with excessive energy use.          | x |   | An estimated 4 points is associated to the incorporation of AMVIC ICFs based on it's contribution to thermal insulation, thermal mass, and improved air-tightness performance.  | Designer         |
| 1 |    |    |    | Credit 2.1 | Renewable Energy, 5%              | 1        | Encourage and recognize the increasing levels of on-site renewable energy in order to reduce the environmental impacts associated with fossil fuel energy use. | x |   | As the energy performance of a building is improved with an appropriate design using AMVIC ICF, the total energy use of a building will be reduced. As a result, the incremental costs to achieve a desired Renewable energy percentage will be accounted for as an off-set cost in energy savings. | Owner / Designer |
| 1 |    |    |    | Credit 2.2 | Renewable Energy, 10%             | 1        | Encourage and recognize the increasing levels of on-site renewable energy in order to reduce the environmental impacts associated with fossil fuel energy use. | x |   | As the energy performance of a building is improved with an appropriate design using AMVIC ICF, the total energy use of a building will be reduced. As a result, the incremental costs to achieve a desired Renewable energy percentage will be accounted for as an off-set cost in energy savings. | Owner / Designer |
| 1 |    |    |    | Credit 2.3 | Renewable Energy, 20%             | 1        | Encourage and recognize the increasing levels of on-site renewable energy in order to reduce the environmental impacts associated with fossil fuel energy use. | x |   | As the energy performance of a building is improved with an appropriate design using AMVIC ICF, the total energy use of a building will be reduced. As a result, the incremental costs to achieve a desired Renewable energy percentage will be accounted for as an off-set cost in energy savings. | Owner / Designer |
|   |    |    | 1  | Credit 3   | Best Practice Commissioning       | 1        | Verify and ensure that the entire building is designed, constructed, and calibrated to operate as intended   |   | x |   |                  |
|   |    |    | 1  | Credit 4   | Ozone Depletion                   | 1        | Reduce the use of HCFC based refrigerants  |   | x |   |                  |
|   |    |    | 1  | Credit 5   | Measurement & Verification        | 1        | Provide ongoing accountability and optimization of building energy and water consumption over time.  |   | x |   |                  |
| 1 |    |    |    | Credit 6   | Green Power                       | 1        | Encourage the development and use of grid-source, renewable energy technologies on a net zero pollution basis.   | x |   | As the energy performance of a building is improved with an appropriate design using AMVIC ICF, the total energy use of a building will be reduced. As a result, the costs to purchase a Green Power contract will be reduced.  | Owner            |

Yes Y? N? No

6 3 2 3

| Materials & Resources |    |    |    | 14 Points  | Description  | Amvic Direct Benefit? |   | Comments | Benefits |   |                               |
|-----------------------|----|----|----|------------|--|-----------------------|---|----------|----------|---|-------------------------------|
| N                     | Y? | N? | No | Yes        |  | No                    |   |          |          |   |                               |
|                       |    |    |    | Prereq 1   | Storage & Collection of Recyclables                                | Required              | Facilitate the reduction of waste generated by building occupants that is hauled to the landfill  |          | x        |   |                               |
| 1                     |    |    |    | Credit 1.1 | Building Reuse, Maintain 75% of Existing Shell                     | 1                     | Maintain 75% of existing walls, floors, and roof  | x        |          | As appropriately designed AMVIC ICF buildings are re-used, their energy performance benefits can be appreciated. Therefore, they will continue to provide value as well as design opportunity.                          | Designer / Owner / Contractor |
| 1                     |    |    |    | Credit 1.2 | Building Reuse, Maintain 100% of Shell                             | 1                     | Maintain 95% of existing walls, floors, and roof  | x        |          | As appropriately designed AMVIC ICF buildings are re-used, their energy performance benefits can be appreciated. Therefore, they will continue to provide value as well as design opportunity.                          | Designer / Owner / Contractor |
| 1                     |    |    |    | Credit 1.3 | Building Reuse, Maintain 100% Shell & 50% Non-Shell                | 1                     | Maintain 50% of interior non-structural elements  | x        |          | As appropriately designed AMVIC ICF buildings are re-used, their energy performance benefits can be appreciated. Therefore, they will continue to provide value as well as design opportunity.                          | Designer / Owner / Contractor |
| 1                     |    |    |    | Credit 2.1 | Construction Waste Management, Divert 50%                          | 1                     | Divert construction, demolition, and land clearing debris from landfill disposal, and return recyclable resources back to the manufacturing process.  | x        |          | The EPS constituent of the ICF product is not accepted at landfills, and is only recyclable. Moreover, the excess waste is accepted as resale to the manufacturer.  | Designer / Contractor         |
|                       | 1  |    |    | Credit 2.2 | Construction Waste Management, Divert 75%                          | 1                     | Divert construction, demolition, and land clearing debris from landfill disposal, and return recyclable resources back to the manufacturing process.  | x        |          | The EPS constituent of the ICF product is not accepted at landfills, and is only recyclable. Moreover, the excess waste is accepted as resale to the manufacturer.  | Designer / Contractor         |
|                       |    |    | 1  | Credit 3.1 | Resource Reuse, Specify 5%   | 1                     | Reuse building materials and products in order to reduce demand for virgin materials and to reduce waste.   |          | x        |   |                               |
|                       |    |    | 1  | Credit 3.2 | Resource Reuse, Specify 10%  | 1                     | Reuse building materials and products in order to reduce demand for virgin materials and to reduce waste.   |          | x        |   |                               |
| 1                     |    |    |    | Credit 4.1 | Recycled Content, Specify 7.5% (post-consumer + ½ post-industrial) | 1                     | Use materials with recycled content such that the sum of post-consumer content plus one-half of the post-industrial content constitutes 7.5% of the total value of materials in the project.                                      | x        |          | The AMVIC ICF block is comprised of 70% recycled materials, of which some is post-consumer polypropylene. Further, Portland cement used during construction can be structurally designed to handle 20% fly-ash content. | Designer / Contractor         |
| 1                     |    |    |    | Credit 4.2 | Recycled Content, Specify 15% (post-consumer + ½ post-industrial)  | 1                     | Use materials with recycled content such that the sum of post-consumer content plus one-half of the post-industrial content constitutes 15% of the total value of materials in the project.                                       | x        |          | The AMVIC ICF block is comprised of 70% recycled materials, of which some is post-consumer polypropylene. Further, Portland cement used during construction can be structurally designed to handle 20% fly-ash content. | Designer / Contractor         |
|                       |    | 1  |    | Credit 5.1 | Regional Materials, 10% Extracted & Manufactured Regionally        | 1                     | Use a minimum of 10% of building materials or products for which at least 80% of the mass is extracted, processed and manufactured 500 miles of the project site, or 1500 miles of the project site and shipped by rail or water. | x        |          | With six manufacturing plants distributed across North America and more under development, the regional content of the AMVIC ICF block can meet the intended requirements depending on site location.                   | Contractor / Owner            |
|                       |    |    | 1  | Credit 5.2 | Regional Materials, 20% Extracted & Manufactured Regionally        | 1                     | Use a minimum of 20% of building materials or products for which at least 80% of the mass is extracted, processed and manufactured 500 miles of the project site, or 1500 miles of the project site and shipped by rail or water. | x        |          | With six manufacturing plants distributed across North America and more under development, the regional content of the AMVIC ICF block can meet the intended requirements depending on site location.                   | Contractor / Owner            |

|  |   |   |  |   |   |   |  |   |   |  |                       |
|--|---|---|--|---|---|---|--|---|---|--|-----------------------|
|  |   |   |  | 1 | Credit 6 <b>Rapidly Renewable Materials</b> | 1 | Reduce the use and depletion of finite raw materials and long-cycle renewable materials by replacing them with rapidly renewable materials                           |   | x |  |                       |
|  | 1 |   |  |   | Credit 7 <b>Certified Wood</b>              | 1 | Encourage environmentally responsible forest management.   | x |   | The AMVIC ICF system, the need for certified wood-framing materials is reduced. Thus, the incremental costs to use certified wood will be reduced.   | Owner                 |
|  |   | 1 |  |   | Credit 8 <b>Durable Building</b>            | 1 | Minimize materials use and construction waste over a building's life resulting from premature failure of the building and its constituent components and assemblies. | x |   | As a building envelope product, the AMVIC ICF system details several water damage protection strategies (for damp-proofing and water-proofing) that can be practiced on a site-specific basis. | Designer / Contractor |

Yes Y? N? No

|   |   |  |  |   |                                     |           |                    |                              |           |                 |                 |
|---|---|--|--|---|-------------------------------------|-----------|--------------------|------------------------------|-----------|-----------------|-----------------|
| 6 | 2 |  |  | 7 | <b>Indoor Environmental Quality</b> | 15 Points | <b>Description</b> | <b>Amvic Direct Benefit?</b> |           | <b>Comments</b> | <b>Benefits</b> |
|   |   |  |  |   |                                     |           |                    | <b>Yes</b>                   | <b>No</b> |                 |                 |

|   |   |  |  |   |  |          |  |   |   |  |   |          |
|---|---|--|--|---|--|----------|--|---|---|--|---|----------|
| Y |   |  |  |   | Prereq 1 <b>Minimum IAQ Performance</b>                                  | Required | Establish minimum indoor air quality performance by meeting ASHRAE 62, addendum N.   | x |   | The AMVIC ICF product itself releases zero VOCs and/or air-borne particulates post-construction, and any adhesive and/or caulking required during construction can be met with low VOC levels. This product feature leads to an improved IAQ for the occupants. Improved noise attenuation properties are also beneficial. | Owner / Contractor  |          |
|   |   |  |  |   |  |          |  |   |   |  |   |          |
| N |   |  |  |   | Prereq 2 <b>Environmental Tobacco Smoke (ETS) Control</b>                | Required | Prevent or minimize the exposure of building occupants to second hand smoke.   |   | x |  |   |          |
|   |   |  |  | 1 | Credit 1 <b>Carbon Dioxide (CO<sub>2</sub>) Monitoring</b>               | 1        | Provide capacity for IAQ monitoring to help sustain long-term occupant comfort   |   |   | x  |   |          |
| 1 |   |  |  |   | Credit 2 <b>Ventilation Effectiveness</b>                                | 1        | Provide for the effective delivery and mixing of supply air to support the safety and comfort of building occupants  | x |   | When properly installed, the AMVIC ICF will reduce the infiltration levels within a building, which provides the designer with more control to achieve the required air-change effectiveness.  | Designer  |          |
| 1 |   |  |  |   | Credit 3.1 <b>Construction IAQ Management Plan, During Construction</b>  | 1        | Prevent indoor air quality problems resulting from the construction process in order to help sustain the comfort and well-being of workers and occupants during construction | x |   | The AMVIC ICF product itself releases zero VOCs and/or air-borne particulates post-construction, and any adhesive and/or caulking required during construction can be met with low VOC levels. This product feature leads to an improved IAQ for the occupants.  | Owner / Contractor  |          |
|   |   |  |  | 1 | Credit 3.2 <b>Construction IAQ Management Plan, Before Occupancy</b>     | 1        | Prevent indoor air quality problems resulting from the construction process in order to help sustain the comfort and well-being of workers and occupants during construction |   |   | x  |   |          |
| 1 |   |  |  |   | Credit 4.1 <b>Low-Emitting Materials, Adhesives &amp; Sealants</b>       | 1        | Reduce the quantity of indoor air contaminants that are odorous, potentially irritating, or harmful to the comfort and well-being of installers and occupants                | x |   | The AMVIC ICF product itself releases zero VOCs, and any adhesive and/or caulking required during construction can be met with low VOC levels.   | Contractor  |          |
|   |   |  |  | 1 | Credit 4.2 <b>Low-Emitting Materials, Paints</b>                         | 1        | Reduce the quantity of indoor air contaminants that are odorous, potentially irritating, or harmful to the comfort and well-being of installers and occupants                |   |   | x  |   |          |
|   |   |  |  | 1 | Credit 4.3 <b>Low-Emitting Materials, Carpet</b>                         | 1        | Reduce the quantity of indoor air contaminants that are odorous, potentially irritating, or harmful to the comfort and well-being of installers and occupants                |   |   | x  |   |          |
|   |   |  |  | 1 | Credit 4.4 <b>Low-Emitting Materials, Composite Wood &amp; Agrifiber</b> | 1        | Reduce the quantity of indoor air contaminants that are odorous, potentially irritating, or harmful to the comfort and well-being of installers and occupants                |   |   | x  |   |          |
|   |   |  |  | 1 | Credit 5 <b>Indoor Chemical &amp; Pollutant Source Control</b>           | 1        | Minimize exposure of building occupants to potentially hazardous particulates, biological contaminants, and chemical pollutants that adversely impact air and water quality. |   |   | x  |   |          |
| 1 |   |  |  |   | Credit 6.1 <b>Controllability of Systems, Perimeter</b>                  | 1        | Provide a high level of controllability of thermal, ventilation, and lighting systems to promote productivity and well-being.  | x |   | As the energy performance of a building is improved with an appropriate design using AMVIC ICF, the thermal frequency will be reduced. As a result, the designer will have more control over ventilation systems, and have more freedom to incorporate operable windows into the regularly occupied areas.                 | Designer  |          |
|   |   |  |  | 1 | Credit 6.2 <b>Controllability of Systems, Non-Perimeter</b>              | 1        | Provide a high level of controllability of thermal, ventilation, and lighting systems to promote productivity and well-being.  |   |   | x  |   |          |
| 1 |   |  |  |   | Credit 7.1 <b>Thermal Comfort, Comply with ASHRAE 55</b>                 | 1        | Provide a thermally comfortable environment that supports the productivity and well-being of building occupants  | x |   | An AMVIC ICF building offers the opportunity for design features to address thermal radiation, humidity control, and air speed control.  | Designer  |          |
|   | 1 |  |  |   | Credit 7.2 <b>Thermal Comfort, Permanent Monitoring System</b>           | 1        | Provide a thermally comfortable environment that supports the productivity and well-being of building occupants  | x |   | An AMVIC ICF building offers design features that address thermal radiation, humidity control, and air speed control; therefore, the implementation of a monitoring system is within the designers control   | Designer  |          |
| 1 |   |  |  |   | Credit 8.1 <b>Daylight &amp; Views, Daylight 75% of Spaces</b>           | 1        | Provide building occupants with a connection between indoor spaces and the outdoors through daylighting.   |   |   | x  | As the energy performance of a building is improved with an appropriate design using AMVIC ICF, the thermal frequency will be reduced. As a result, the designer will have more control over ventilation systems, which offers freedom to design a window layout such that daylight exposure is improved. | Designer |
|   | 1 |  |  |   | Credit 8.2 <b>Daylight &amp; Views, Views for 90% of Spaces</b>          | 1        | Provide building occupants with a connection between indoor spaces and the outdoors through daylighting.   |   |   | x  |   |          |

| Yes Y? N? No |    |    |    | Innovation & Design Process  | 5 Points | Description  | Amvic Direct Benefit? |    | Comments   | Benefits              |
|--------------|----|----|----|--|----------|--|-----------------------|----|--|-----------------------|
| Yes          | Y? | N? | No |  |          |  | Yes                   | No |  |                       |
|              | 1  |    | 4  |  |          |  |                       |    |  |                       |
|              | 1  |    | 1  | <b>Innovation in Design:</b> Exceptional performance (construction waste management 95%) | 1        | Divert construction, demolition, and land clearing debris from landfill disposal, and return recyclable resources back to the manufacturing process. | x                     |    | The EPS constituent of the ICF product is not accepted at landfills, and is only recyclable. Moreover, the excess waste is accepted as resale to the manufacturer. | Designer / Contractor |
|              |    |    | 1  | Credit 1.2 <b>Innovation in Design:</b>  | 1        |  |                       | x  |  |                       |
|              |    |    | 1  | Credit 1.3 <b>Innovation in Design:</b>  | 1        |  |                       | x  |  |                       |
|              |    |    | 1  | Credit 1.4 <b>Innovation in Design:</b>  | 1        |  |                       | x  |  |                       |
|              |    |    | 1  | Credit 2 <b>LEED™ Accredited Professional</b>  | 1        |  |                       | x  |  |                       |

| Yes Y? N? No |   |   |    | Product Point Contribution | out of 70 Points |
|--------------|---|---|----|----------------------------|------------------|
| 21           | 7 | 3 | 39 |                            |                  |

70 Certified 26-32 points Silver 33-38 points Gold 39-51 points Platinum 52-69 points