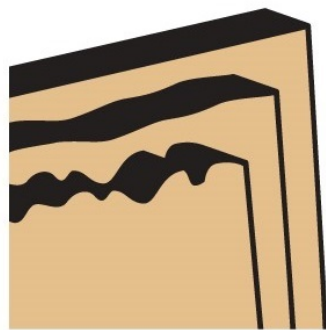


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NATURAL  
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INSTITUTE

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## FOREWORD

How did man discover the beauty hidden in stone? The curiosity of an unknown genius may have been sparked by markings on exposed ledges. Smoothing the surface and cleaning the stone to get a closer look may have revealed color, veins, and graining. Rubbing the stone with sand may have polished it. To work with stone is to work with the basic rhythms of the Earth.

By the time the pyramids were built, man had become highly skilled in the use of stone to shape and place it according to his needs. Many of the stone works of ancient man have survived with little visible sign of change, except for earthquakes, wars, natural disasters, and more recently, the pollution of civilization.

The need for building materials in which beauty and permanence are prerequisites is greater today than ever before. To meet this increasing need, the dimension stone industry, through its international trade association, the Marble Institute of America, provides products that satisfy contemporary design concepts while retaining all the outstanding qualities for which the industry has always been respected.

### Dimension Stone Design Manual

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## THE MIA+BSI

In 2016, the memberships of the Marble Institute of America (MIA) and the Building Stone Institute (BSI) entered into 2-year joint venture to operate as a consolidated organization.

Together, MIA and BSI serve more than 1900 members in 55 countries who represent every aspect of the natural stone industry, offering them a wide array of technical and training resources, professional development, regulatory advocacy, and networking events.

During the 2-year joint venture (2016-17), each organization will maintain its individual identity but will be working together to incorporate a number of BSI technical papers/topics into the next DSDM version (9.0).

## HISTORY - THE MARBLE INSTITUTE OF AMERICA

MIA traces its roots back to the National Association of Marble Dealers, founded in 1907, which joined with the National Association of Marble Producers in 1944 to form the Marble Institute of America (MIA). The National Association of Marble Builders merged with MIA in 1962.

## HISTORY - THE BUILDING STONE INSTITUTE

BSI traces its roots back to 1919 and has undergone several name changes. The National Cut Stone Contractor's Association was changed to The International Cut Stone Contractors and Quarrymen's Association in 1952 and then in 1955 became the Building Stone Institute.



# **DIMENSION STONE DESIGN MANUAL**

The purpose of the *Dimension Stone Design Manual* is to present reliable performance data and design information in one volume in order to facilitate use of dimension stone in architectural designs. The dimension stone industry provides quality products that meet the design and construction requirements of the buildings of today, as well as tomorrow.

The *Dimension Stone Design Manual* presents current practice in the industry. The information also represents industry recommendations and experience published in previous forms as the former *American Standard Specifications for Interior and Exterior Marble*, the *Marble Engineering Handbook*, and *Dimension Stone Design Manual I, I-R, II, III, IV, V, VI, VII* (these publications are out of print). Some detail plates from older MIA publications are reproduced because they still illustrate current practice.

## **ACKNOWLEDGEMENTS**

The MIA was able to compile the information in this edition only with the willing cooperation and assistance of many Members, Committees of Members, editors, other individuals and organizations, and MIA staff. We are grateful for their combined commitment to the MIA and the dimension stone industry.

# LIMITATIONS ON USE AND DISCLAIMER

As with any building material and technique:

1. Many variations, including but not limited to design, climate, topography, building and zoning codes, materials, labor cost, and quality, markedly affect the safety, cost, utility, and appearance of the applications shown in this Manual. Accordingly, the variations contained in the Manual are not being recommended or endorsed by the MIA.

2. Nothing in this Manual should be used without independent approval by a qualified architect, professional engineer, contractor, or other technically qualified person who should also specify dimension stone and installation methods and systems, with specific location of expansion and control joints on drawings, and use of standards, such as those of the American National Standards Institute (ANSI) and ASTM International, to develop specifications.

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This manual represents general practices found to be successful in natural stone applications. Regional practices may vary from those described in this manual. Given the variable involved in working with natural stone products, deviation from these practices does not

necessarily result in failure, nor does adherence to these practices necessarily result in success. Thorough review of project details should be completed by a competent industry professional prior to construction. The methods prescribed herein do not supersede those in applicable construction specifications and building codes. No warranty or guarantee is made by MIA.

# ORGANIZATION WEBSITES

**American Concrete Institute (ACI)**  
[www.concrete.org](http://www.concrete.org)

**American Geosciences Institute (AGI)**  
[www.agi-usa.org](http://www.agi-usa.org)

**American Institute of Architects (AIA)**  
[www.aia.org](http://www.aia.org)

**American National Standards Institute (ANSI)**  
[www.ansi.org](http://www.ansi.org)

**American Society of Civil Engineers (ASCE)**  
[www.asce.org](http://www.asce.org)

**American Institute of Steel Construction (AISC)**  
[www.aisc.org](http://www.aisc.org)

**American Iron and Steel Institute (AISI)**  
[www.steel.org](http://www.steel.org)

**APA The Engineered Wood Association**  
[www.apawood.org](http://www.apawood.org)

**Association of Marble Producers from Verona**  
[www.asmave.it](http://www.asmave.it)

**ASTM International**  
[www.astm.org](http://www.astm.org)

**Building Stone Institute (BSI)**  
[www.buildingstoneinstitute.org](http://www.buildingstoneinstitute.org)

**Construction Specifications Institute (CSI)**  
[www.csinet.org](http://www.csinet.org)

**European Commission for Standardization (CEN)**  
[www.cenorm.be](http://www.cenorm.be)

**Indiana Limestone Institute of America, Inc. (ILI)**  
[www.iliai.com](http://www.iliai.com)

**International Masonry Institute (IMI)**  
[www.imiweb.org](http://www.imiweb.org)

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**Masonry Institute of America (MIA)**  
[www.masonryinstitute.org](http://www.masonryinstitute.org)

**National Association of Architectural Metal Manufacturers (NAAMM)**  
[www.naamm.org](http://www.naamm.org)

**National Building Granite Quarries Association, Inc. (NBGQA)**  
[www.nbgqa.com](http://www.nbgqa.com)

**National Tile Contractors Association (NTCA)**  
[www.tile-assn.com](http://www.tile-assn.com)

**Natural Stone Council**  
[www.genuinestone.com](http://www.genuinestone.com)

**NSF International**  
[www.nsf.org](http://www.nsf.org)

**Precast/Prestressed Concrete Institute (PCI)**  
[www.pci.org](http://www.pci.org)

**The International Stone Event (StonExpo)**  
[www.tisewest.com](http://www.tisewest.com)

**Terrazzo Tile and Marble Association of Canada**  
[www.ttmac.com](http://www.ttmac.com)

**Tile Council of North America (TCNA)**  
[www.tcnatile.com](http://www.tcnatile.com)

**United States Green Build Council (USGBC)**  
[www.usgbc.org](http://www.usgbc.org)

# GREEN BUILDING

## Introduction - History of Green Building

### History of Green Building – Historical Buildings

Green building is defined by the Office of the Federal Environmental Executive as “the practice of: 1) increasing the efficiency with which buildings and their sites use energy, water, and materials, and 2) reducing building impacts on human health and the environment, through better siting, design, construction, operation, maintenance, and removal throughout the complete life cycle.”<sup>1</sup> While the green building movement has gained momentum in the last decade, the origin can be traced back to the late nineteenth century.

According to David Gissen, curator of architecture and design for the National Building Museum in Washington, DC, structures such as London’s Crystal Palace and Milan’s Galleria Vittorio Emanuele II used methods that decreased the impact of the structure on the environment. Systems such as roof ventilators and underground air-cooling chambers were used to regulate indoor air temperature.<sup>2</sup> In the early twentieth century, several skyscrapers, such as the Flatiron Building and the *New York Times* Building in New York, utilized deep-set windows and the Carson Pirie Scott department store in Chicago had retractable awnings. Both of these techniques were effective in controlling interior temperature while lessening the buildings’ impact on the environment.<sup>3</sup>

From the 1930s through the 1960s, the forward-thinking cooling methods mentioned above gave way to some new building technologies that

would change inner-city building construction dramatically. The invention of air conditioning, reflective glass, and structural steel popularized the enclosed glass and steel buildings that dominate the American city today. These buildings were able to be heated and cooled with massive HVAC systems that consumed huge amounts of cheap and readily available fossil fuels.<sup>4</sup> The massive consumption of energy required to inhabit these buildings made their viability tenable and entirely dependent upon energy availability and cost.

### History of Green Building – The Infancy

Around the time that the “glass box” style high rise had become the icon of the American city (circa 1970), a forward-thinking group of architects, environmentalists, and ecologists<sup>5</sup> were inspired by the growing environmental movement and the higher fuel costs that were prevalent during the 1970s.<sup>6</sup> The genesis of these two scenarios ultimately resulted in the modern green building movement.

The first Earth Day, celebrated in April 1970, gave some credence to this new building concept, but the OPEC oil embargo of 1973 gave the burgeoning environmental movement, and subsequently the green building effort the kick start it needed. With gas lines stretching for blocks, some Americans began to question the conventional wisdom of being so reliant upon fossil fuels for our energy.<sup>7</sup>

As a result of the oil embargo, among other energy concerns, the American Institute of Architects (AIA) formed a Committee on Energy that was broken into two camps. “One group looked toward passive, such as reflective roofing materials and environmentally beneficial siting of buildings, to achieve energy savings, while the

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<sup>1</sup> Office of the Federal Environmental Executive, “The Federal Commitment to Green Building: Experiences and Expectations,” 18 September 2003.

<sup>2</sup> [Building Design and Construction](#), “White Paper on Sustainability”, page 4, November 2006

<sup>3</sup> [Building Design and Construction](#), “White Paper on Sustainability”, page 4, November 2006

<sup>4</sup> [Building Design and Construction](#), “White Paper on Sustainability”, page 4, November 2006

<sup>5</sup> [Building Design and Construction](#), “White Paper on Sustainability”, page 4, November 2006

<sup>6</sup>[http://www.nyc.gov/html/nycwasteless/html/in\\_buiness/green\\_building.shtml](http://www.nyc.gov/html/nycwasteless/html/in_buiness/green_building.shtml)

<sup>7</sup>[Building Design and Construction](#), “White Paper on Sustainability”, page 4, November 2006

other concentrated more on technological solutions, such as the use of triple-glazed windows.”<sup>8</sup>

As energy concerns subsided, momentum for green building and the environment, in general, slowed down, but a dedicated core group of architects continued to push their green building concept forward. A couple of notable buildings constructed during the 1970s that utilized concepts of green design are: The Willis Faber and Dumas Headquarters in England, which utilized a grass roof, day-lighted atrium, and mirrored windows, and the Gregory Bateson Building in California, which used energy-sensitive photovoltaic (solar cells)<sup>9</sup>, under-floor rock-store cooling systems, and area climate-control devices.<sup>10</sup>

Through the late 1970s, throughout the 1980s, and into the early 1990s, much research was commissioned on energy efficient processes. This research resulted in more effective solar panels, pre-fabricated efficient wall systems, water-reclamation systems, modular construction units, and direct usage of light through windows in order to decrease daytime energy consumption.<sup>11</sup>

### **History of Green Building – The Greening of the White House**

When Bill Clinton was elected President in 1992, the green build/sustainability communities began to toss around the idea of “Greening the White House” as a way to put their ideas on the radar screens of everyday American society. Twenty-three years after the initial Earth Day, President Bill Clinton announced a

plan to make the White House the “model for efficiency and waste reduction.”<sup>12</sup>

The “Greening of the White House” program was designed to improve “energy efficiency and environmental performance of the White House complex by identifying opportunities to reduce waste, lower energy use, and make an appropriate use of renewable resources, all while improving the indoor air quality and building comfort.”<sup>13</sup> In March 1996, it was reported that through the first two years of the “Greening” project, more than \$150,000 per year in energy and water costs, landscaping expenses, and expenditures associated with solid waste were saved. Since 1996, \$300,000 has been saved annually due to additional projects. In all, 845 metric tons per year of carbon emissions were eliminated during Clinton’s presidency.<sup>14</sup>

Some of the methods utilized to “green” the White House were as follows:

1. Building Envelope – decreasing energy lost through the roof, windows, walls, etc.
2. Lighting – utilizing energy-saving light bulbs and maximizing use of natural light.
3. Plug Loads – Energy-saving office equipment was installed. Refrigerators and coolers were replaced with more energy-efficient models.
4. Waste – a comprehensive recycling program was initiated.
5. Vehicles – leased many vehicles that utilized cleaner-burning fuels.
6. Landscaping – reducing unnecessary water and pesticide usage.<sup>15</sup>

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<sup>8</sup>Building Design and Construction, “White Paper on Sustainability”, page 4, November 2006

<sup>9</sup>“Photovoltaic Fundamentals”,  
[www.fsec.ucf.edu/pvt/pybasics](http://www.fsec.ucf.edu/pvt/pybasics)

<sup>10</sup>Building Design and Construction, “White Paper on Sustainability”, page 4, November 2006

<sup>11</sup> Building Design and Construction, “White Paper on Sustainability”, page 4, November 2006

<sup>12</sup>Building Design and Construction, “White Paper on Sustainability”, page 5, November 2006

<sup>13</sup>“The Greening of the White House”,  
<http://clinton3.nara.gov/Initiatives/Climate/greeningsummary.html>

<sup>14</sup>“The Greening of the White House”,  
<http://clinton3.nara.gov/Initiatives/Climate/greeningsummary.html>

<sup>15</sup>“The Greening of the White House”,  
<http://clinton3.nara.gov/Initiatives/Climate/greeningsummary.html>

## History of Green Building – Where Are We Now?

With the overwhelming success of the “Greening of the White House”, other government institutions have since been given a green makeover. The Pentagon, the Presidio, and the U.S. Department of Energy, among others, have gone green.<sup>16</sup>

The concepts of green building and, on a larger scale, sustainability are ideas that we hear all of the time. These two concepts, however, are rarely properly understood.

“Sustainability is a *systemic* concept, relating to the continuity of economic, social, institutional and environmental aspects of human society, as well as the non-human environment. It is intended to be a means of configuring civilization and human activity so that society, its members and its economies are able to meet their needs and express their greatest potential in the present, while preserving biodiversity and natural ecosystems, and planning and acting for the ability to maintain these ideals for a very long time. Sustainability affects every level of organization, from the local neighborhood to the entire planet”.<sup>17</sup> In short, the concept of sustainability refers to thinking holistically about how everything you do affects everything around you. It is an attempt to minimize each person’s impact on the world.

Today, green building is one of the fastest growing building and design concepts. Every month, new magazines are popping up that report on this growing trend. Architects, designers, and homeowners are becoming infatuated with the cost-saving possibilities, energy-saving emphasis, modern look, and the symbiotic relationship with nature that green buildings possess.

The United States Green Build Council (USGBC) is the foremost leader and educator within the world of green building today. They are the sanctioning body for Leadership in

Energy and Environmental Design (LEED), the program with which points are awarded to various design applications within a building ultimately resulting in LEED certification for the building.

## USGBC (The United States Green Build Council) & LEED (Leadership in Energy and Environmental Design)

### USGBC

The USGBC was created to promote the design and construction of buildings that are environmentally responsible, profitable, and healthy places to live and work. They are focused on integrating building industry sectors and leading a market transformation towards greener construction. The organization consists of various trade associations, architects, designers, and individuals all interested in the greening of the construction business.<sup>18</sup>

Between 1990 and 1995, the USGBC worked feverishly with the American Society of Testing and Materials in order to create a rating system for sustainability. ASTM’s rigorous consensus-based process moved much too slowly for the USGBC, and in 1995, it was determined that they would create their own rating system to exist under the USGBC banner. A committee was formed to study other green building programs currently in existence, and after three years, LEED 1.0 unveiled.<sup>19</sup> By 2003, LEED was refined to its current form that is the talk of the construction and design communities.

### LEED

In short, LEED is a system for designing, constructing, and certifying green buildings. Buildings are classified as Certified, Silver, Gold, or Platinum, depending upon the number of

<sup>16</sup>[Building Design and Construction](#), “White Paper on Sustainability”, page 5, November 2006

<sup>17</sup> <http://en.wikipedia.org/wiki/Sustainability>

<sup>18</sup> “An Introduction to the USGBC and LEED Green Building Rating System”, [www.usgbc.org](http://www.usgbc.org)

<sup>19</sup>[Building Design and Construction](#), “White Paper on Sustainability”, page 7, November 2006

points they acquire within six building components<sup>20</sup>:

1. Sustainable Sites
2. Water Efficiency
3. Energy and Atmosphere
4. Materials and Resources
5. Indoor Environmental Quality
6. Innovation and Design Process

Within each of these categories, there are a specific number of credits available via many subcategories. LEED ratings are rapidly becoming boasting points for property owners, with property values of LEED-certified buildings skyrocketing.

LEED has been assisted in its success by the early adoption of many government agencies. Today, however, it is mostly a market-driven engine, with the number of LEED registered projects growing each year.

## Characteristics of LEED Building

### Site Design and Planning

- Site a building within proximity of commuter rail or bus lines to reduce pollution and any land-development impacts associated with increased automobile usage.
- Establish building specifications that maintain the current level of storm-water runoff or decrease the amount of imperviousness already existing on site.
- Develop a site with a minimum density of 60,000 square feet per acre. Channeling development to urban areas with existing infrastructure protects green spaces and preserves natural habitats and resources.

### Material and Product Selection

- Use building materials and products that contain post-consumer recycled content.

- Support the regional economy by using materials and products manufactured regionally.
- Encourage environmentally responsible forestry through the use of wood or wood-based material that meets Forest Stewardship Council's Principles and Criteria for wood building components.
- Utilize rapidly renewable materials, such as bamboo flooring, wool carpets, strawboard, cotton ball insulation (made from denim scrap), genuine linoleum flooring, or poplar oriented-strand board (OSB). Using rapid renewables helps reduce the use and depletion of finite raw materials.

### Construction and Demolition Waste Management

- Develop and implement a waste management plan that diverts a substantial amount of construction, demolition, and land-clearing debris from landfills to recycling or salvage facilities.
- Reuse a percentage of salvage or refurbished materials from construction, demolition, or land clearing as new building material. For more information on the benefits of salvaging materials from existing sites, go to [www.deconstruction.com](http://www.deconstruction.com).

### Energy and Atmosphere

- Generate building electricity on site from renewable resources like geothermal, solar, or biogas sources.
- Eliminate the use of chlorofluorocarbons (CFCs) in new heating, ventilation, air-conditioning, and refrigeration (HVAC & R) systems. Eliminating the use of CFCs reduces ozone depletion.
- Contract with a green power provider to purchase building electricity generated from renewable resources, such as solar, wind,

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<sup>20</sup>Building Design and Construction, "White Paper on Sustainability", page 7, November 2006

geothermal, biomass, or low-impact hydro sources.

- Optimize energy performance.

### **Water Management**

- Install water-efficient or low-flow equipment and appliances in kitchens and bathrooms to reduce water consumption.
- Use water-efficient irrigation, captured rain, or site-recycled water for onsite landscaping.
- Utilize innovative wastewater technologies, such as treating wastewater on site or significantly decreasing the amount of potable water used for sewage conveyance.

### **Indoor Environment**

- Design the HVAC system and building envelope to provide for the optimal delivery and mixing of fresh air. Effective air exchange supports the safety, comfort, and well-being of building occupants.
- Reduce the number of indoor air contaminants by selecting paints and coatings, adhesives, carpets, and composite woods that emit low Volatile Organic Compounds (VOCs) or none at all. Examples of low-VOC emitting products are carpets made of wool, carpets made of recycled plastic bottles, and low-VOC paint.
- Establish segregated areas for chemical-using operations (such as copy/printing rooms and housekeeping); these areas should have separate outside exhaust and no air recirculation.
- Maximize day lighting and view opportunities. Day lighting and increased view opportunities can save energy costs and enhance worker productivity.<sup>21</sup>

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<sup>21</sup>[http://www.nyc.gov/html/nycwasteless/html/in\\_bus\\_iness/green\\_building.shtml](http://www.nyc.gov/html/nycwasteless/html/in_bus_iness/green_building.shtml)

## **Stone in Green Building**

### **What is Stone's Current Perception?**

With the growing influence of green building, it is imperative that the natural stone industry does everything it can to position its product as being green friendly. Despite what many of us in the industry may think (natural stone is about as green as something can get), that perception is at odds with the prevailing thought among the architecture and design communities. Many of these misconceptions arise from the inaccurate idea that mining natural stone is somehow on par with strip mining, an environmentally devastating practice.

One facet of LEED certification in which natural stone stands out is in product origin. A major tenet within the green community is that of supporting local products and business. LEED points are available for products whose origin or manufacturing is within 500 miles of the building site. Regionally manufactured and extracted materials reduce environmental impact by lowering emission of greenhouse gases during transportation while supporting local economies. Fortunately for the stone industry, there is a quarry site within 500 miles of nearly everywhere in the United States and Canada.

### **Future Areas of Emphasis**

There are some areas where natural stone should be an obvious choice for green builders, but where further research is needed to prove the hypothesis:

- The enduring life cycle of natural stone makes it a great green build option. Because stone has proven that over the centuries it holds up to weathering and time better than any other building material, one would think that less energy would be consumed by the initial fabrication and installation than in manufacturing and replacing another product.
- The ease of care and maintenance involved with maintaining natural stone applications



should be very attractive to those in the green community. Harsh chemicals are not needed to either clean or finish stone.

- The recyclability of natural stone is unequalled. Nearly 100% of stone from old projects and scrap stone are recyclable.

These components of natural stone use need to be studied and reported on adequately before the natural stone industry can go to the USGBC and request LEED certification points.

### **Quarrying**

In the past 15 to 20 years, the business of quarrying has been vastly cleaned up from an environmental perspective. Domestic quarries today are required to comply with a strict code of practice and are monitored by OSHA, U.S. Department of the Interior, EPA, the Department of Resources and Economic Development, and the Mine Safety and Health Administration, among others. This message needs to be spread throughout the entire construction industry: Quarrying is not what it was 20 years ago, and certainly not what it was 50 or 100 years ago.

Quarry reclamation projects have added to the ability of quarries to limit their long-term impact on the environment. Today, many old quarries are being turned into golf courses, lakes, recreation areas, and state parks. A list of quarry reclamation projects appears at the end of this chapter as examples of how old quarry sites can be successfully utilized for the public good.

As technology moves forward, the greening of quarrying will continue and this will, in turn, continue to further enhance natural stone's position within the green community.

### **The Committee of Sustainability**

In order to properly position natural stone, to research elements of building with natural stone that would qualify for LEED points, and to market the use of natural stone as a green product, the Natural Stone Council has commissioned a Committee on Sustainability. The NSC Committee on Sustainability (MIA is a member) will take the lead for the industry in ensuring that stone becomes a viable green building option. A couple of early initiatives for the committee are establishing a set of green best practices for quarrying and fabrication. The committee is also pursuing the commissioning of studies to research Life Cycle Assessment, Life Cycle Cost, Water Use Reduction, Construction Waste Management, and Material Reuse for the Natural Stone Industry. While the initiatives being undertaken by the Committee on Sustainability are aggressive, they are greatly needed in order to ensure that stone becomes a viable option for green building.

**Additional GREEN References**  
**Quarry Reclamation Site List**

**Quarry Park and Nature Preserve**  
County of Stearns, MN  
[www.co.stearns.mn.us/1450.htm](http://www.co.stearns.mn.us/1450.htm)

**Halibut Point State Park**  
Gloucester, MA  
[www.mass.gov/dcr/parks/northeast/halb.htm](http://www.mass.gov/dcr/parks/northeast/halb.htm)

**The Quarry Golf Club**  
San Antonio, TX  
[www.quarrygolf.com/](http://www.quarrygolf.com/)

**Oak Quarry Golf Club**  
Riverside, CA  
[www.oakquarry.com/](http://www.oakquarry.com/)

**Crystal Springs Quarry Golf Club**  
Maryland Heights, MO  
[crystalspringsquarry.com/](http://crystalspringsquarry.com/)

**Old Quarry Nature Center**  
Danbury, CT  
[www.danbury.org/oldquarry/](http://www.danbury.org/oldquarry/)

**Quarry Lakes Regional Recreational Area**  
Fremont, CA  
[www.ebparks.org/parks/quarry.htm](http://www.ebparks.org/parks/quarry.htm)

**Quarry Oaks Golf Club**  
Ashland, NE  
[www.quarryoaks.com/](http://www.quarryoaks.com/)

**Bomoseen State Park**  
Fair Haven, VT  
[www.vtstateparks.com/htm/bomoseen.cfm](http://www.vtstateparks.com/htm/bomoseen.cfm)

**Natural Bridge State Park**  
North Adams, MA  
[www.mass.gov/dcr/parks/western/nbdg.htm](http://www.mass.gov/dcr/parks/western/nbdg.htm)

**Elephant Rocks State Park**  
Bellevue, MO  
[www.mostateparks.com/elephantrock.htm](http://www.mostateparks.com/elephantrock.htm)

**Canoe Creek State Park**  
Hollidaysburg, PA  
[www.dcnr.state.pa.us/STATEPARKS/PARKS/canoecreek.aspx#history](http://www.dcnr.state.pa.us/STATEPARKS/PARKS/canoecreek.aspx#history)

**Banning State Park**  
Sandstone, MN  
[www.dnr.state.mn.us/state\\_parks/banning/index.html](http://www.dnr.state.mn.us/state_parks/banning/index.html)

**Sleeping Giant State Park**  
Hamden, CT  
[www.sgpa.org/](http://www.sgpa.org/)

**Knightdale Environmental Education Park**  
Knightdale, NC  
[www.hsम्म.com/UPLOADS/BD/News/20050427\\_013046/Art\\_Knightdale\\_Lnd%20Wtr\\_10%2004%20\(final\).pdf](http://www.hsम्म.com/UPLOADS/BD/News/20050427_013046/Art_Knightdale_Lnd%20Wtr_10%2004%20(final).pdf)

**Emerald Lake State Park**  
East Dorset, VT  
[www.vtstateparks.com/htm/emerhist.cfm](http://www.vtstateparks.com/htm/emerhist.cfm)

# SUGGESTED CONTRACT WARRANTY PROVISION/ DISCLAIMER

The following warranty is provided as a guide only to Marble Institute of America Members who desire to or are required to provide warranties in connection with contracts with their customers (“Owner”). However, the Member is cautioned that such language and the legal obligations arising therefrom *must* be reviewed and approved by the individual Member’s legal counsel prior to usage on a case-by-case basis. MIA is not providing legal advice to Members, nor may a Member rely on these provisions as being in compliance with relevant federal, state or local statutes, ordinances or codes.

## Warranty

1. [Name of Company] (“Company”) warrants to the Owner on project in which Company installs dimension stone for one year from the date of the completion of installation, that the dimension stone shall be free from defects in material and workmanship IF, BUT ONLY IF:
  - a) The dimension stone, its specifications, and installation are set forth in a written contract signed by Company and Owner;
  - b) The Owner does not hinder Company from installing dimension stone and other materials and performing services in conformity with the contract; and
  - c) Such dimension stone installation was not exposed to conditions more severe or otherwise exceeding those set forth in the contract specification.
2. Company’s obligation under this warranty is limited to replacing or repairing, free of charge, F.O.B. point of fabrication, any defective dimensional stone, IF, BUT ONLY IF:
  - a) Owner notifies Company by certified mail, return receipt requested, of such breach of warranty, within ninety (90) days after the discovery thereof, otherwise such claim is waived. (However, without limitation on the foregoing, any alleged defect discovered more than one year after installation is excluded from warranty.)
3. Company does not warranty dimension stone or its installation to any safety, building, or other code of any state, municipality or other jurisdiction unless the terms of such code are specifically incorporated into Company’s written contract with Owner. Except for this warranty by Company, Owner assumes all risk and liability for the use of such dimension stone, whether alone or in combination with other building materials.
4. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. COMPANY SHALL NOT BE LIABLE UNDER THIS WARRANTY FOR ANY OTHER LOSS OR DAMAGE INCLUDING WITHOUT LIMITATION, CONSEQUENTIAL DAMAGE, SAFETY PROBLEMS, OR PERSONAL INJURY RESULTING DIRECTLY OR INDIRECTLY FROM THE PURCHASE, OTHER ACQUISITION, USE, OR LOSS OF THE DIMENSION STONE, EXCEPT AS EXPRESSLY SET FORTH HEREIN.
5. No statement by Company’s employee or agent directly or indirectly admitting liability under this warranty shall be binding against Company unless: a) made in writing; b) made by a representative of Company authorized to do so.
  - b) No attempted alteration or repair of the dimension stone or its installation has been made without Company’s written consent;
  - c) The dimension stone is inspected by Owner or representative on arrival at the project site for visible defects, and complaints relating thereto are filed in writing immediately with Company before installation; and
  - d) The dimension stone or installation thereof is not subjected to misuse, negligence, accident, or use contrary to Company’s written instructions.

# SUGGESTED RESIDENTIAL CONTRACT (INSTALLATION OF DIMENSION STONE)

The following residential contract is provided as a guide only to Marble Institute of America Members. However, the Member is cautioned that such language and the legal obligations arising therefrom *must* be reviewed and approved by the individual Member's legal counsel prior to usage on a case-by-case basis. MIA is not providing legal advice to Members, nor may a Member rely on these provisions as being in compliance with relevant federal, state or local statutes, ordinances, or codes (for example, Home Sales Solicitation Act in Ohio).

## Residential Contract

This RESIDENTIAL CONTRACT to provide and install dimension stone, entered into between \_\_\_\_\_ ("Purchaser") residing at \_\_\_\_\_ ("Residence") and \_\_\_\_\_ ("Seller") with principal office at \_\_\_\_\_, with effective date of the \_\_\_ day of \_\_\_\_\_, 20\_\_.

1. **Services.** Subject to the terms and provisions herein, Seller agrees to provide to Purchaser the following services (check applicable boxes):

- Fabricating and installing kitchen countertops
- Supplying and installing stone paving
- Supplying and installing stone bath work
- Supplying and installing other stone work:

\_\_\_\_\_  
(describe)

2. **Contract price.** The total contract price, as installed, is \$ \_\_\_\_\_.

3. **Schedule of payments.** The contract price shall be paid as follows:

- A. \$ \_\_\_\_\_ on signing this contract.
- B. \$ \_\_\_\_\_ on completion of field measuring.
- C. \$ \_\_\_\_\_ on commencement of fabrication.
- D. \$ \_\_\_\_\_ on completion of fabrication.
- E. \$ \_\_\_\_\_ on completion of installation.

4. **Sample approval.** Fabrication of stone will not commence until the Purchaser has approved in writing below the stone samples or slabs to be furnished by the Seller. Seller shall not be bound by samples furnished by the Purchaser (from third parties) unless indicated below:

- Samples provided by Seller, approved by Purchaser. \_\_\_\_\_ (Purchaser's Initials)
- Seller acknowledges review of Purchaser's samples and acceptance. \_\_\_\_\_ (Seller's Initials)

5. **Commencement; Completion.** The work shall commence on or about \_\_\_\_\_ and will be completed on or about \_\_\_\_\_, provided, however, Seller shall not be responsible for delays in commencement or completion caused by events beyond the Seller's reasonable control.

6. **Ownership of work.** No legal interest in the stone work shall pass to Purchaser until full price has been paid, regardless of the location of the stone work, and whether it has been installed or not installed in the residence.

7. **Standards and Guidelines.** Installation of the stone work by the Seller shall be in strict accordance with the Marble Institute of America's Dimension Stone Design Manual, as updated from time to time. No deviation from the standards, guidelines, or other work specifications set forth in said Manual shall be permitted.

8. **Assignment.** This agreement is personal to the parties and may not be assigned without the written consent of the nonassigned party.

PURCHASER: \_\_\_\_\_  
Print Name: \_\_\_\_\_  
Date Signed: \_\_\_\_\_

PURCHASER: \_\_\_\_\_  
Print Name: \_\_\_\_\_  
Date Signed: \_\_\_\_\_

SELLER: \_\_\_\_\_  
Print Name: \_\_\_\_\_  
Date Signed: \_\_\_\_\_

# MIA CODE OF ETHICS

*Members of the Marble Institute of America, upon acceptance as Members in good standing, agree to abide by the following Code of Ethics:*

*Members of the Marble Institute of America believe and affirm that:*

The fabrication and installation of dimension-cut natural stone should meet MIA and other industry standards as articulated in the MIA *Dimension Stone Design Manual* and other technical publications, along with courteous and professional customer service. To achieve these goals, we pledge adherence to the following principles and policies:

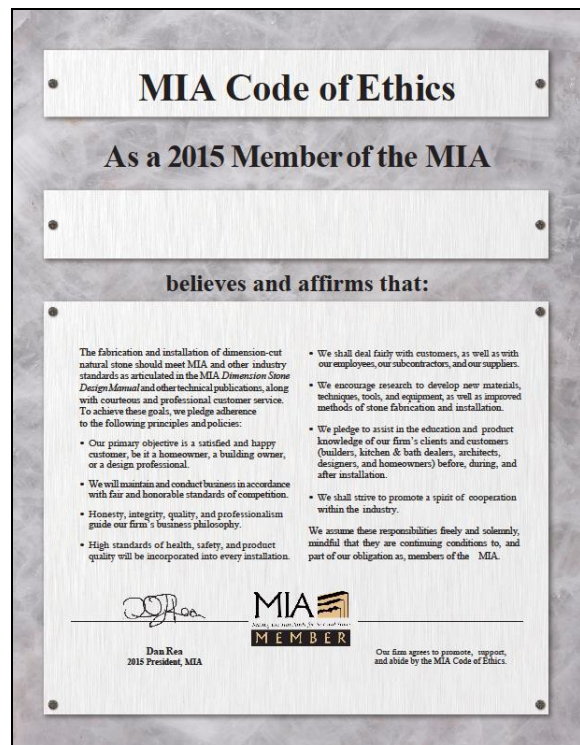
- Our primary objective is a satisfied and happy customer, be it a homeowner, a building owner, or a design professional.
- We will maintain and conduct business in accordance with fair and honorable standards of competition.
- Honesty, integrity, quality, and professionalism guide our firm's business philosophy.
- High standards of health, safety, and product quality will be incorporated into every installation.
- We shall deal fairly with customers, as well as with our employees, our subcontractors, and our suppliers.
- We encourage research to develop new materials, techniques, tools, and equipment, as well as improved methods of stone fabrication and installation.
- We pledge to assist in the education and product knowledge of our firm's clients and customers (builders, kitchen and bath dealers, architects, designers, and

homeowners) before, during, and after installation.

- We shall strive to promote a spirit of cooperation within the industry.

We assume these responsibilities freely and solemnly, mindful that they are continuing conditions to and part of our obligation as Members of the Marble Institute of America.

NOTE: A copy of the MIA Code of Ethics is presented to each Member upon acceptance into membership. The document is suitable for framing and display in the Member's office or showroom.



# MIA MEMBERSHIP

Membership in the Marble Institute of America provides you with outstanding advocacy, networking, marketing & publicity, information & education, and professionalism and stone craftsmanship — benefits that continue to make MIA one of the fastest-growing trade associations in the world. Members are also encouraged to take advantage of a whole array of value-added services that can easily pay for your membership costs and add money to your bottom line.

With MIA and its member-friendly, cost-saving services you can save money on collections, credit card transactions, office supplies, lead referrals, shipping, and utility costs.

## **MIA Member Benefits Include:**

### **MIA Freight Discount Program**

Save money on your shipping costs by using the services of FedEx®, YRC, and UPS Freight.

### **MIA Credit Card Processing Program**

MIA members in the U.S. receive tremendous savings on Visa, MasterCard, & debit card processing. Online account management, 24 hour a day customer service, plus exclusive discounts on point of sale solutions and additional products and services are all accessible with no monthly minimum fee.

### **Free Technical Guidance**

MIA serves as the industry's leading clearinghouse of information about natural stone and can respond to technical and other questions from Members as well as those in the construction, architectural, and design communities. Consultation on specific questions is also available at no charge to Members from MIA's Technical Director.

### **MIA Bookstore Discounts**

MIA Members save up to 50% on technical publications and consumer brochures.

### **Industry Promotion**

MIA actively works to educate design professionals, homeowners, and others about the

advantages of natural stone to increase demand within the commercial and consumer markets.

### **MIA Receivables Management Solutions**

MIA Members can receive a variety of customized outsourcing services to meet their collection needs from VeriCore. Preferred rates are offered on all collection accounts, outsourcing, complimentary demand letters and many other services to help improve your bottom-line.

### ***The Cutting Edge Newsletter***

This monthly newsletter provides valuable industry and association news, new member listings, member activity updates, and Technical Q&A column.

### **MIA Membership Directory**

Print and online versions of the directory give you quick access to fellow producers/quarriers, fabricators, installers, distributors, and contractors with whom you can do business.

### **Discounted StonExpo Registration**

MIA Regular Members receive reduced-rate admission to StonExpo, the premier trade show of the natural stone industry, held concurrently with the MIA Annual Meeting.

### **Office Supplies and Print Services Program**

The MIA and OfficeMax introduce the new OfficeMax Partner Advantage<sup>SM</sup> program. This members-only program will allow you to take advantage of special promotions and other one-of-a-kind benefits.

### **Internet Exposure**

MIA operates a web site that can drive new business your way: [www.marble-institute.com](http://www.marble-institute.com) is designed for natural stone professionals, architects and members of the design community. Direct links to your web site draw interested parties to your business.

**And more!** For a complete listing of MIA member benefits, go to [www.marble-institute.com](http://www.marble-institute.com) or call the Membership Department at 440.250.9222.

**NOTES:**

# MARBLE INSTITUTE OF AMERICA (MIA)

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## SAMPLE SPECIFICATION LANGUAGE FOR DESIGN PROFESSIONALS

### Marble Institute of America (MIA)

For over 70 years the Marble Institute of America (MIA) has been the world's leading information resource and advocate for the natural stone industry.

- **MIA members** include marble, granite, limestone, sandstone and other natural stone producers and quarries, fabricators, installers, distributors and contractors around the world. MIA Members, upon acceptance as members in good standing, agree to abide by a Code of Ethics.

#### Sample Language for Fabricator/Installer Qualifications (Residential or Commercial Projects)

**Fabricator/Installer Qualifications:** A Marble Institute of America (MIA) member firm experienced in fabrication/installation of dimension stone as indicated for this project and whose work has a record of successful in-service performance.

- The **Dimension Stone Design Manual (DSDM)** is the stone industry's single-source reference for dimensional stone design and construction facts and details. Contents include sections on granite, marble, limestone, serpentine, soapstone, travertine, quartz-based stone and slate with product descriptions and technical data; general installation guidelines; guidelines and typical detailing for horizontal surfaces, vertical surfaces, wet areas, furniture and countertops; maintenance of exterior and interior stone installations; and a glossary of terms relating to dimension stone.

#### Sample Language to Reference the MIA's DSDM

For granite, limestone, marble and onyx, quartz-based, serpentine, slate, soapstone, and travertine, comply with recommendations in MIA's Dimension Stone Design Manual (DSDM), version 8 (©2016).

- **MIA Accreditation** for natural stone fabricators and commercial contractors recognizes those companies that meet the industry's highest standards for business activities, product knowledge, fabrication and installation. To earn MIA Accreditation, a company must complete an intensive, rigorous process that includes documentation of



its business and employment practices, letters of recommendation, a written examination and site visits to the facility and completed jobs.

**Sample Language for MIA Accredited Natural Stone Fabricators  
(Residential Projects):**

Fabricator Qualifications: Preference shall be given to an MIA Accredited Natural Stone Fabricator. MIA Accredited Natural Stone Fabricators are those companies that meet the industry's highest standards for business activities, product knowledge, fabrication and installation. Bidding company must supply their official MIA Accreditation number as proof of accreditation.

**Sample Language for MIA Accredited Commercial Contractors:**

Installer Qualifications: A firm experienced in installing engineered dimension stone cladding systems. Company must be an MIA Accredited Commercial B Contractor (low rise) or an MIA Accredited Commercial A Contractor (high rise) of current good standing with the Marble Institute of America. Bidding company must supply their official MIA Accreditation number as proof of accreditation.

Installer's responsibilities include sourcing of qualified fabricator of dimension stone cladding and providing professional engineering services per project requirements. Engineering Responsibility includes comprehensive design of stone attachment systems by an experienced, licensed professional in accordance with practices outlined by the MIA Dimension Stone Design Manual and compliant with applicable codes. Comprehensive shop drawings with attachment details shall accompany engineering analysis.

**For more information:**

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USA  
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FAX: 440-774-9222  
[www.marble-institute.com](http://www.marble-institute.com)