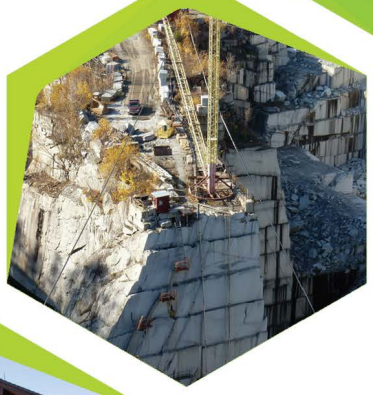

Natural Stone Sustainability Standard

ANSI/NSI 373-2022

Sustainable Production of Natural Dimension Stone

NATURAL STONE INSTITUTE

naturalstoneinstitute.org/sustainability

This standard is subject to revision.
Contact NSF to confirm this revision is current.

Users of this standard may request clarifications and interpretations, or propose revisions by contacting:

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American National Standard /
Natural Stone Institute

Sustainable Production of Natural Dimension Stone

Standard Developer
NSF International

Designated as an ANSI Standard
January 9, 2022
American National Standards Institute

Prepared by
The NSF Joint Committee on Natural Dimension Stone

Adopted by
Natural Stone Council (NSC)
March 2014

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Natural Stone Institute (NSI)
January 2022

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Contents

Foreword[1]

This American National Standard, ANSI/NSI 373: *Sustainable Production of Natural Dimension Stone*, has been developed as part of the ongoing efforts of a number of interested parties to document and improve the sustainability profile of natural dimension stone production. Stakeholders involved in developing the Standard included stone producers, fabricators, end users such as architects, state agencies responsible for environmentally preferable product procurement practices, academics, and other interested parties.

The purpose of this standard is to recognize and drive sustainability practices in the natural dimension stone industry. The standard establishes a set of well-defined environmental, ecological, social responsibility and human health metrics through a multistakeholder, science-based approach recognized by the green building movement as an indicator of leadership in sustainability performance. This standard provides an important opportunity to educate key members of the design and building professions, end users, government, and environmental advocacy groups about the production of natural dimension stone products. As a rating system, this standard creates a mechanism that differentiates natural dimension stone companies that demonstrate environmental leadership through commitment to sustainable operations and continued innovation. This standard considers national and international environmental, ecological, human health, and social responsibility requirements for stone quarrying and production.

This standard applies to all processors of natural stone, from quarry operations through final stone fabrication, and is intended to allow for both domestic and international market participation from natural dimension stone producers. The quarrier and processor will need to obtain the standard, chain of custody and conformance document in order to pursue certification. The certifier will not provide these.

This edition of the standard contains the following revisions:

Issue 6

This revision updates the name “Natural Stone Council” to “Natural Stone Institute.” In February 2021, NSI purchased this standard from the NSC. Additionally, Section 8.2: *Community involvement* was changed from required to optional.

Suggestions for improvement of this standard are welcome. This standard is maintained on a continuous maintenance schedule and can be opened for comment at any time. Comments should be sent to: Chair, Joint Committee on Natural Dimension Stone, NSF International, National Center for Sustainability Standards at ncss@nsf.org, or PO Box 130140, Ann Arbor, Michigan 48113-0140, USA.

[1] The information contained in this foreword is not part of this American National Standard (ANS) and has not been processed in accordance with ANSI’s requirements for an ANS. Therefore, this foreword may contain material that has not been subjected to public review or a consensus process. In addition, it does not contain requirements necessary for conformance to the standard.

About Natural Stone Institute (NSI)

The Natural Stone Institute is a trade association representing every aspect of the natural stone industry. The current membership exceeds 2,000 members in over 50 countries. The association offers a wide array of technical and training resources, professional development opportunities, regulatory advocacy, and networking events. Two prominent publications – the Dimension Stone Design Manual and Building Stone Magazine – raise awareness within the natural stone industry and in the design community for best practices and uses of natural stone.

The association serves as the authoritative source for safety and technical standards and information regarding the use of natural stone. It operates an industry accreditation program and two prestigious awards programs, as well as a continuing education program for architects and designers.

About NSF International

NSF International is a global independent organization that writes standards, and tests and certifies products for the water, food, health sciences and commercial and consumer goods industries to minimize adverse health effects and protect the environment. Founded in 1944, NSF is committed to protecting human health and safety worldwide. Operating in more than 150 countries, NSF is accredited by the American National Standards Institute (ANSI) and has been collaborating with the World Health Organization (WHO) since 1997 in water quality and safety, food safety and indoor environments. NSF Sustainability draws upon this expertise in standards development, product assurance and certification, advisory services and quality management systems to help companies green their products, services, operations, systems and supply chains. Through its National Center for Sustainability Standards, NSF has developed sustainability standards for product categories such as chemicals, building products and materials, and water quality. NSF works with leading regulators, scientists, engineers, public health and environmental health professionals, and industry representatives to develop these transparent, science-based standards, protocols, and product category rules (PCRs). NSF Sustainability also develops PCRs that enable environmental product declarations (EPDs) that report the results of life cycle assessments (LCAs).

ANSI/NSI Standard

Sustainable Production of Natural Dimension Stone

1 General

1.1 Purpose

The purpose of this standard is to recognize and drive sustainability practices in the natural stone industry. The standard establishes a set of well-defined environmental, ecological, social responsibility and human health metrics through a multistakeholder, science-based approach recognized by the green building movement as an indicator of leadership in sustainability performance. The standard provides an important opportunity to educate key members of the design and building professions, end users, government, and enviornmental advocacy groups about the production of natural stone products. As a rating system, this standard creates a mechanism that differentiates natural stone companies that demonstrate environmental leadership through commitment to sustainable operations and continued innovation. This standard considers natural and international environmental, ecological, human health, and social responsibility requirements for stone quarrying and production.

This voluntary standard emphasizes the disclosure of information necessary to mitigate negative impacts and promote efficiencies in the production of natural dimension stone products in a sustainable manner.

1.2 Scope

This standard establishes criteria to measure the extent to which natural dimension stone has been produced sustainably. The standard applies to all processors of natural stone, from quarry operations through final stone fabrication, and is intended to allow for both domestic and international market participation from natural dimension stone producers. In practice, the facility operator applies this standard to quarry operations, stone fabrication, or both. An operator with multiple facilities may choose which of those are to be certified; however, only natural dimension stone produced or processed exclusively by certified facilities may be considered environmentally preferable under this standard.

1.3 Principles

This standard was developed based on the following important principles:

1.3.1 Life cycle consideration

A comprehensive life cycle approach was employed to ensure that relevant aspects of quarry operations and stone fabrication associated with natural dimension stone products were considered when developing the criteria for this standard.

1.3.2 Relationship with legislation

A prerequisite for claiming conformance with this standard shall be that the facility operator is in compliance with health and safety, environmental, and other relevant regulations that are applicable to the quarry operations or processing facilities claiming conformance.

1.3.3 International trade aspects

The procedure and requirements included within this standard are designed to enhance trade while maintaining a level of awareness with respect to environmental and social issues.

1.3.4 Scientific basis

The criteria contained in this standard were developed and selected based on sound scientific and engineering principles intended to achieve credible, accurate, reproducible and measurable results.

1.3.5 Innovation

Use of this standard is intended to support, not inhibit, innovation that maintains or has the potential to improve environmental and social responsibility.

1.3.6 Continuous improvement

This standard is maintained by the consensus body to promote continuous improvement within the industry.

2 Normative references

The following documents contain provisions that, through reference, constitute provisions of this standard. At the time this standard was balloted, the editions listed below were valid. All documents are subject to revision, and parties are encouraged to investigate the possibility of applying the recent editions of the documents indicated below.

Age Discrimination in Employment Act of 1967[2]

ASTM C119-11, *Standard Terminology Relating to Dimension Stone*[3]

ASTM C1528-12a, *Standard Guide for Selection of Dimension Stone*[3]

Civil Rights Act of 1991[2]

Equal Pay Act of 1963[2]

Globally Harmonised System (GHS), *The Globally Harmonized System of Classification and Labelling of Chemicals*[4]

International Agency on the Research of Cancer (IARC), *Monographs on the Evaluation of Carcinogenic Risks to Humans, International Agency on the Research of Cancer*[5]

Marble Institute of America Glossary[6]

[2] EEOC Headquarters, US Equal Employment Opportunity Commission. 131 M Street NE, Washington, DC 20507. <www.eeoc.gov>

[3] ASTM International. 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959. <www.astm.org>

[4] US Department of Labor, Occupational Safety and Health Administration. 200 Constitution Avenue NW, Washington, DC 20210. <www.osha.gov>

[5] World Health Organization, International Agency on the Research of Cancer. 150 Cours Albert Thomas, 69372 Lyon CEDEX 08, France. <www.iarc.who.int>

[6] Natural Stone Institute. 380 E Lorain Street, Oberlin, OH 44074. <www.naturalstoneinstitute.org>

Natural Stone Institute Chain of Custody Standard, Version 1.0[6]

State of California Environmental Protection Agency, Proposition 65, *Safe Drinking Water and Toxic Enforcement Act of 1986* – Title 22, Division 2, Subdivision 1, Chapter 3, Sections 1200, et. seq. [7]

Titles I and V of the Americans with Disabilities Act of 1990 (ADA)[2]

Title VII of the Civil Rights Act of 1964[2]

US Department of Health and Human Services, National Toxicology Program (NTP), Report on Carcinogens[8]

US Environmental Protection Agency (US EPA), *Toxics Release Inventory (TRI) Program – Persistent, Bioaccumulative, and Toxic (PBT) Chemicals Rules*[9]

US Occupational Safety and Health Administration (OSHA) – Regulated Toxic Metal or Carcinogen[10]

3 Definitions

3.1 authoritative list: An independent resource listing chemicals of concern for human or environmental health effects. For the purposes of this standard, see Annex I-1.

3.2 carcinogen: Chemicals which cause cancer. Those chemicals listed as known, probable, or possible human carcinogens by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP), the US Environmental Protection Agency, or the Occupational Health and Safety Administration. For the purposes of this standard, a carcinogen is also defined by reference in Annex I-1.

3.3 chemical of concern: A chemical identified through its listing on one or more authoritative human health and environmental hazards resources listed in Annex I-1.

3.4 dimension stone:[3] Naturally occurring stone used as units or cut and finished to specifications. This excludes natural stone processed for use as crushed stone, fines, or powder for any purpose, or as aggregate or chemical raw materials. For purposes of this standard, the term is used interchangeably with natural stone.

3.5 discharge water: Water discharged from a facility to the natural hydrologic system. All discharge shall meet at minimum, the US EPA's National Pollutant Discharge Elimination System (NPDES) requirements of the USA Clean Water Act.

3.6 environmentally preferable: An alternative chemical material, or manufacturing process that significantly mitigates a potential human health or environmental hazard.

[7] California Office of Environmental Health Hazard Assessment. 1001 I Street, Sacramento, CA 95814. <www.oehha.ca.gov>

[8] National Toxicology Program (NTP), US Department of Health and Human Services. PO Box 12233, MD K2-03, Research Triangle Park, NC 27709. <www.ntp.niehs.nih.gov>

[9] Toxics Release Inventory (TRI) Program, US Environmental Protection Agency. PO Box 10163, Fairfax, VA 22038. <www.epa.gov/toxics-release-inventory-tri-program>

[10] Occupational Safety and Health Administration, US Department of Labor. 200 Constitution Avenue NW, Washington, DC 20210. <www.osha.gov>

3.7 excess process materials: Discarded stone unsuitable for fabrication into any final product, discarded stone stored onsite for future use, such as reclamation; or both. Discarded stone includes overburden materials, grout from quarrying, fragments, trimmings, dust from fabrication operations, and other stone not suitable for final production.

3.8 facility operator: Any company that engages in quarrying or stone fabricating.

3.9 input water: Any potable or nonpotable water utilized in a facility's operation that may originate from public or private plants, wells, cisterns, rain collection systems, or other legally-acquired source, other than recycled water. Input water shall be accounted for in the operator's inventory.

3.10 material of concern: A material identified through its listing on one or more authoritative human health and environmental hazards resources listed in Annex I-1.

3.11 mutagen: A chemical that produces a mutagenic effect on an exposed human or animal. For the purposes of this standard, a mutagen is defined by reference in Annex I-1.

3.12 personal protective equipment: Specialized clothing or equipment worn by employees for protection against health and safety hazards. Personal protective equipment is designed to protect parts of the body (i.e., eyes, head, face, hands, feet, and ears).

3.13 physical hazard: A chemical that is classified as posing one of the following hazardous effects: explosive; flammable (gases, aerosols, liquids, or solids); oxidizer (liquid, solid or gas); self-reactive; phyrophoric (liquid or solid); self-heating; organic peroxide; corrosive to metal; gas under pressure; or in contact with water emits flammable gas. A chemical that meets the criteria outlined in Appendix B to § 1910.1200 – Physical Hazard Criteria of OSHA 29 CFR § 1910.1200.[10]

3.14 stone fabricating: Process which yields natural dimension stone cut and finished to specifications. This may include trimming of stone to standard units, application of finishes, coatings, or other surface treatments, and the packaging or other preparation for shipment (ready-to-set) for project application. Transportation beyond the operation facility's gate is not considered in this scope.

3.15 priority chemical of concern: Chemicals considered to be carcinogenic, mutagenic, reproductive toxins, potential endocrine disruptors, or persistent bioaccumulative or toxic (PBT) as identified through its listing on one or more of the "priority chemicals of concern" lists in Annex I-1.

3.16 quarry block: Rough stone as it comes from a quarry, which may be dressed (trimmed) or sawn for shipment.[6]

3.17 quarry operations: Development of site including removal of overburden and natural stone from the deposit and activities occurring at that location or other locations captured under these operations. This incudes (but is not limited to) trimming quarry blocks, if trimming occurs at the same location where the stone is extracted.

3.18 quarrying organization: The entity that oversees / manages all involved facility operators.

3.19 recycled water: Water that has been captured and reused one or more times for onsite operations prior to being returned to the natural hydrologic system.

3.20 reproductive toxin: Chemicals known to cause reproductive toxicity in humans, defined as those listed by the State of California CAL-EPA Proposition 65 – Known to cause cancer or reproductive toxicity (see Annex I-1).[10]

3.21 secondary chemical of concern: Chemicals considered to be asthmagens, ozone depleting substances, or chemicals with concerns for acute toxicity, chronic toxicity and other environmental effects

(other than PBTs) as identified through its listing on one or more “secondary chemical of concern” lists in Annex I-1.

3.22 site restoration: Reconstitution of a quarry site to restore as closely as possible the original grade and vegetative cover.

3.23 sludge: A residual mixture of raw material fines created from cutting and shaping operations, which may include water (and other materials) used in those operations. Typically, sludge is diverted to facilitate separation, disposition, and/or recycling of both solids and liquids.

3.24 solid waste: All nonliquid waste that is not process scrap.

4 Conformance requirements

4.1 Elements

This standard is divided into basic categories consisting of credits that are potentially available to organizations seeking to demonstrate compliance with this standard. For facility operators, each section covers focus areas including water, energy, reclamation (waste), corporate governance and others. The criteria apply to all processors of natural stone, from quarry operations through final stone fabrication.

4.2 Intended users of this standard

Quarry operators and stone fabricators are able to claim conformance to this standard. Companies engaged in both quarrying and stone fabricating, or companies with multiple operations (e.g., more than one quarry) may elect to certify some or all of its operations to this standard. However, each operation shall be evaluated separately for conformance to the standard, and only stone produced or processed exclusively by certified operations may be considered environmentally preferable by virtue of this standard. Operations that are co-located on the same site may be combined and certified together as long as all requirements of the standard are met.

Specifiers, designers, governmental agencies, and consumers are among those intended to adopt and utilize the standard to qualify that the producers of natural dimension stone are following these sustainable principles.

4.3 Criteria

In addition to Section 1.3.2, each section may have one or more performance criteria that are considered prerequisites to comply with this standard. Once all prerequisite criteria are met, users may achieve additional points toward multiple levels of achievement in each category.

4.4 Achievement levels

In order to claim any level of conformance, all prerequisite criteria shall be met. The achievement levels are as follows:

- **Bronze**: All prerequisite criteria for each facility operator.
- **Silver**: All prerequisite criteria and a minimum of 9 additional points for each facility operator.
- **Gold**: All prerequisite criteria and a minimum of 16 additional points for each facility operator.
- **Platinum**: All prerequisite criteria and a minimum of 24 additional points for each facility operator.

Points to achieve Silver, Gold, or Platinum are total points independent of category. Points shall be earned individually by each facility operator and are site-specific.

4.5 Boundaries

The facility operator shall include a declaration of the boundary covered under application to this standard:

— for quarry operators, the declaration shall include a site map meeting the requirements as listed in Section 7.1. The declaration shall also list all company locations, both on-site and off-site, that support quarry operations (e.g., administration offices, equipment repair facilities); or

— fabricators shall include with their application a declaration listing all on- and off-site facilities essential to the fabrication of natural stone, along with a site map meeting the requirements as outlined in Section 7.1.

5 Water

5.1 Required – Water reduction planning

The facility operator shall establish and implement a documented program with a goal to systematically improve water consumption and recycling practices. The facility operator shall develop and maintain an annual inventory of water use including the quantity of water used on an annual basis, organized by water source (e.g., municipal potable, direct rainwater captured for reuse, on-site wells, or reclaimed grey water) and purpose of consumption (e.g., manufacturing, dust suppression, landscape watering, or office use).

The program shall also identify opportunities and methods for decreasing water use, minimizing water loss and increasing water recycling, establish target goals, quantify changes, and monitor progress. This program shall cover, but not be limited to, the following topics:

— sourcing of water (e.g., rain water, grey water, naturally occurring ground water, or other nonpotable sources);

— capture and recycling of water (e.g., holding and settling ponds, and filtering and recirculation systems);

— discharge and end-use of water (e.g., use for dust suppression, and discharge into natural drainage area);

— conservation of potable water (e.g., water-efficient taps with aerators or flow restrictors, low-flow toilets, signage, employee education);

— conservation of landscaping water (e.g., creation of climate-appropriate or nonirrigated landscapes, use of native plants, efficient watering); and

— create an inventory loss, evaporation.

5.2 Recycled water (maximum 2 points)

A facility operator shall earn points for water used in manufacturing operations, as detailed below. Operators that do not utilize water in the processing of dimension stone shall qualify for the required criterion as well as for the maximum points allowed under Section 5.2.2.

5.2.1 Required

A facility operator shall capture and recycle a minimum of 75% of the water accounted for in the water inventory in Section 5.1.

Quarry operators that cannot capture and recycle water are exempt from this criterion. Some examples of operations that would qualify for exemption include, but are not limited to, nonsolid formation pit quarries, and facilities that use water only for dust suppression, when 100% of water is used in the process. Evidence must be provided that water used cannot be collected and recycled.

5.2.2 Optional

— a facility operator shall capture and recycle a minimum of 85% of the water accounted for in the water inventory in Section 5.1 (1 point); or

— a facility operator shall capture and recycle a minimum of 95% of the water accounted for in the water inventory in Section 5.1 (2 points total).

5.3 Water use management

5.3.1 Required – Enhanced water treatment

Demonstrate on-site systems that result in enhanced treatment of discharge water. Enhanced treatment shall be demonstrated by one of the following:

— quality of discharged water, either to Publicly Owned Treatment Works (POTW) or directly to the environment, is demonstrated to meet State drinking water standards; or

— where no permits or regulations are applicable, the facility operators demonstrate that the quality of water discharged to the environment from their facility meets the US EPA's NPDES requirements.

If no water is discharged, then this criterion is met.

5.3.2 Optional – Enhanced sludge management

— the facility operator shall demonstrate operation of a sludge management system that diverts a minimum of 50% of annual sludge produced by operations from traditional disposal methods by landfill in favor of environmentally acceptable reuse applications (e.g., agricultural use). To qualify for this criterion, the facility operator shall provide documentation of the diversion, including a description of the end disposal method (1 point); or

— the facility operator shall achieve 1 point for demonstrating zero sludge creation for the performance year.

5.3.3 Optional – Water reuse (maximum 3 points)

The facility operator shall receive points for the percent of its input water, from both manufacturing and nonmanufacturing operations, that is sourced from rainwater, grey water, or other source that is nonpotable:

— 25 to 49% of input water is sourced from rainwater, grey water, or other nonpotable source (1 point); or

— 50 to 74% of input water is sourced from rainwater, grey water, or other nonpotable source (2 points); or

— more than 75% of input water is sourced from rainwater, grey water, or other nonpotable source (3 points).

6 Custody and transportation

For the purposes of this Section, transportation shall be defined as the operation of transporting stone to and from the quarry or processing facility to the *next* step, whether it be processing, block storage, or other location.

6.1 Required – Chain of custody

The facility operator shall develop, implement, and maintain a documentation and tracking system capable of meeting the requirements of the *Natural Stone Institute Chain of Custody Standard* (NSI COC), 2014.

6.2 Required – Transportation management program

Facility operators shall establish and implement a management program to manage and continually improve the efficiency of the transportation of dimension stone. The program shall include the following:

— measurement and recording of each of the following data, on a per shipment basis, for all shipments arranged by the facility operator:

  — weight of shipment and capacity of load (e.g., LTL);
  — shipment carrier information (e.g., company, DOT number, truck type); and
  — distance and mode of transport.

— racking of annual tonnage shipped and number of shipments;

— calculation of the annual amount of packaging and/or transportation materials consumed, by type of product (e.g., block, slab);

— establishment of goals for reducing impacts of transportation of dimension stone and measurement and tracking of progress against those goals;

— identification of methods used by the facility operator for maximizing shipping efficiency (e.g., intelligent loading, logistics planning);

— identification of opportunities for environmentally-preferable (i.e., sustainable) packaging and shipping solutions; and

— description of measurement and evaluation process used (e.g., procedure for measuring or estimating transportation data).

7 Site management

7.1 Required – Site management plan

The facility operator shall develop and maintain a set of site-specific management plan(s) to ensure responsible environmental management of impacts associated with daily operations. Specifically, the plan at a minimum shall include or address the following:

For quarries:

— site maps, to-scale, of all inactive and active quarry pits as defined in the boundary declaration in Section 4.5. All maps shall clearly indicate the physical boundaries of the subject property, including key codes and legends, all areas where active, past, or future operations are being conducted, mark areas of operation (e.g., transportation staging, equipment maintenance) and storage (e.g., grout piles,

chemical storage), and identify all relevant environmental considerations (e.g., streams, rivers, riparian waterways, etc). All maps shall be maintained and kept current;

— Storm Water Pollution Prevention Plan, conforming to the requirements of US EPA National Pollutant Discharge Elimination System;

— measures to control dust (e.g., through regularly scheduled observation and control);

— presence and location of safety messages displayed such as “No trespassing” or other signage required by jurisdiction having authority;

— location of, and requirements for, fencing, gates, or other closure mechanisms to discourage entry while the site is inactive or other means required by jurisdiction having authority;

— provisions for safe exit as required by jurisdiction having authority, should accidental entry occur into the quarry or operations site. Such provisions shall be identified and detailed in the plan;

— procedures to secure equipment in areas of facility operation in order to prevent damage or unauthorized use;

— measures to prevent unauthorized entry into buildings and storage;

— location of designated hazardous materials storage areas and procedures for safe storage andremoval of such materials;

— location of storage areas for empty containers designated for recycle or reuse; and

— location of storage area(s) for natural quarry materials which are to be used for site reclamation, processing into any final product, or both. The facility operator shall outline planned use for those materials in the future.

For fabrication facilities:

— site map(s) covering all operations included in the boundary declaration in Section 4.5. Site maps shall include, at a minimum, all building entry and exit points, areas of fabrication operation (e.g., sawing, primary finish application, shipping), administrative space, support operations (e.g., shipping, equipment maintenance), water treatment, material storage (e.g., material stock, chemical storage), and points of waste collection and/or storage (e.g., solid waste, used chemical drums, hazardous waste). All maps shall be maintained and kept current;

— measures to control occupational exposure to chemicals, dust, or other harmful materials (e.g., environmental controls, ventilation, personal protective equipment);

— measures to control or contain potential releases to the environment (e.g., environmental controls, waste collection);

— procedures to secure equipment in areas of facility operation in order to prevent damage or unauthorized use;

— location of designated hazardous materials storage areas and procedures for safe storage and removal of such materials;

— location of storage areas for empty containers designated for recycle or reuse; and

— location of storage area(s) for natural stone materials which are to be used for site reclamation, processing into any final product, or both. The facility operator shall outline planned use for those materials in the future.

The plan(s) shall establish the physical "defined boundaries" to which the facility shall be assessed under this standard. To comply with this requirement, facility operators shall demonstrate that all sites are being managed as described in the plan(s).

7.2 Enhanced site management planning

The facility operator shall demonstrate conformance to one of the two enhanced site management planning activities listed below.

Additional points shall be earned if the site management plan for active, on-going operations is supplemented with the following:

7.2.1 Required – Ecosystem boundaries

The facility operator shall establish ecosystem boundaries to promote conservation (e.g., in a site preservation plan, keep disturbed area as small as possible and ensure vehicles keep to designated paths, research local wildlife populations, mitigate downstream effects from surface water diversion, minimize removal of native vegetation).

7.2.2 Optional – Environmental impact assessment

The facility operator shall conduct an independent assessment of environmental impacts of current and planned quarrying operations. The plan shall identify any potential impacts on biodiversity, endangered species, and critical habitats, as well as any other impacts anticipated to human health or the environment. To qualify for the points, the results of the impact assessment shall be used to inform other aspects of the site management plan, which shall describe how the plan acts to minimize or prevent identified impacts. Impact assessments performed as part of the site acquisition process meet this requirement, so long as it was performed by an independent third party (e.g., environmental professional engineer, or accredited organization) and within the past 20 years (2 points).

7.3 Optional – Verification of site management plan

The facility operator shall document verification of the site management plan conducted by an independent third-party organization (e.g., professional engineer or accredited organization) within the last year (and on an annual basis) that they shall be in compliance with the site management plan for on-going operations as required in Section 7.1 (1 point).

8 Land reclamation and adaptive reuse

This section addresses responsible and sustainable reclamation of a quarry site once operations have ceased. As such, criteria in this section apply only to facility operators with quarry operations.

8.1 Required – Postclosure reclamation plan

The quarry operator shall develop and maintain reclamation plan(s) that shall include a description of actions to be taken by the operator in the course of closing quarry-ground for each of the following:

— site cleanup (e.g., removal of equipment, storage tanks, septic tanks, and all garbage and debris);

— infrastructure removal (e.g., removal of buildings, utilities, capping of wells);

— site safety (e.g., protective barriers (if applicable), signs);

— reclamation of site. Acceptable reclamation approaches include those focused on both traditional site restoration as well as adaptive reuse (e.g., creation of a recreational area, fulfill community need for landfill, conform to community development, etc.);

— ecosystem restoration (e.g., revegetation, slope reconstruction, natural drainage); and

— monitoring the site according to postquarrying land use objectives.

NOTE — Credit will be awarded on a quarry-by-quarry basis.

8.2 Optional – Community involvement

The quarry operator shall document a postclosure reclamation plan with documented involvement of local community organizations including government and local citizens groups. To qualify for this criterion, the resulting plan shall be made available to the public over the period of certification.

NOTE — Credit will be awarded on a quarry-by-quarry basis.

8.3 Optional – Exemplary site closure

The quarrying organization shall demonstrate the successful closure of a site consistent with sustainable postclosure planning. The qualifying reclamation shall have met each of the following to qualify for this criterion:

— site reclamation shall have addressed each of the requirements listed in Section 8.1;

— site reclamation or adaptive reuse shall have been consistent with the needs of the local community, or have been carried out in consideration of the local ecosystem to minimize future impacts; and

— site closure and reclamation shall exhibit action commensurate with the plan or have been completed within the past 20 years.

Both sustainable site reclamation and adaptive reuse approaches are allowable under this criterion. Demonstrated postclosure care shall occur at a quarry currently or previously owned by the organization. Credit will be awarded on an organizational basis to all quarries seeking certification (2 points).

9 Corporate governance

9.1 Required – Prohibitions on forced labor

The facility operator shall document that it does not engage in or permit the use of forced or compulsory labor (per ILO Conventions 29 and 105[11]). To meet this requirement, the declaration shall encompass all corporate operations of the applicant, including all sites and quarries, including those that may not be certified under this standard.

9.2 Required – Prohibitions on child labor

The facility operator shall document that all facilities owned or operated by the facility operator comply with ILO Convention 18211.[11] To meet this requirement, the declaration shall encompass all sites and quarries of the operator, including those that may not be certified under this standard.

[11] International Labour Office, 4 route des Monillons CH-1211 Geneva, Switzerland <www.ilo.org>

9.3 Required – Prevention of discrimination

The facility operator shall document that it does not engage in or support discrimination in the employment process. To qualify, the operator shall demonstrate that their corporate operations are not in conflict with any of the following:

— Title VII of The Civil Rights Act of 1964 (Title VII),[2] which prohibits employment discrimination based on race, color, religion, sex, or national origin;

— The Equal Pay Act of 1963 (EPA),[2] which protects men and women who perform substantially equal work in the same establishment from sex-based wage discrimination;

— The Age Discrimination in Employment Act of 1967 (ADEA),[2] which protects individuals who are 40 years of age or older;

— Title I and Title V of the Americans with Disabilities Act of 1990 (ADA) as amended 2008,[2] which prohibits employment discrimination against qualified individuals with disabilities in the private sector, and in state and local governments;

— Sections 501 and 505 of the Rehabilitation Act of 1973,[2] which prohibit discrimination against qualified individuals with disabilities who work in the federal government; and

— The Civil Rights Act of 1991,[2] which, among other things, provides monetary damages in cases of intentional employment discrimination.

Facility operators shall provide documentation of established and implemented corporate policies, available to all employees that demonstrate compliance with the above listed acts.

9.4 Required – Employee participation

The facility operator shall document company-supported employee activities within the community and/or involvement in community outreach. Company-supported employee activities consist of community service work performed by company employees on its behalf for that purpose, community service work performed, educational activities, and financial contributions. Activities and contributions deemed political in nature shall not qualify under this credit.

9.5 Required – Social accountability

The facility operator shall develop and implement a social accountability plan that shall address the following:

— demonstration of fair hiring practices;
— education for applicable employees social accountability issues or practices;
— corporate ethics;
— receipt of gifts; and
— prohibitions against engaging in insider trading, in cases where a company is publicly traded.

To qualify, the facility operator shall demonstrate through documentation the implementation of each aspect of the plan, including demonstration of training to all employees.

10 Energy

10.1 Required – Energy inventory

The facility operator shall complete an inventory of energy use, including the quantity and type of energy consumed (e.g., diesel, local power grid), organized by location or function (e.g., power use by building, equipment). Inventory shall include both electricity and fuel usage and identify factors important to consumption (e.g., number of tons shipped, hours of operation, etc). Energy consumption shall be reported in energy consumed per unit processed (e.g., KWh per ton of dimension stone produced), and a total energy consumption for the facility operations (i.e., combined energy from all sources) shall be calculated.

10.2 Energy management

A facility operator shall earn points by implementing an energy management program (e.g., Energy Star), managing their carbon footprint, or through the implementation of measures directly resulting in a reduction in energy consumption.

10.2.1 Required – Energy management program

The facility operator shall establish and implement a program to systematically improve energy consumption and associated greenhouse gas emissions. The quarry or processing facility shall measure and track energy consumption by energy source and purpose of consumption, identify opportunities and methods for reducing energy use, establish target goals, quantify changes, and monitor progress. This program shall cover, but not be limited to, the following topics:

— equipment operation and maintenance (e.g., minimizing idle times, improved maintenance, replacement of inefficient equipment);

— transportation and logistics (e.g., maximizing shipping loads, utilizing advanced logistics); and

— office and administration energy and lighting.

This program shall track progress towards established goals on a rolling 5-year period based on percentage reduction, and shall be reported publicly (e.g., corporate sustainability report, website posting). Alternatively, this criterion shall be met if the facility operator has earned Energy Star Challenge recognition, or international equivalent.

10.2.2 Optional – Total energy reduction (maximum 3 points)

The facility operator shall demonstrate a reduction in energy use. They shall compare the performance year energy use, normalized by dimensional stone production, to the average of the previous 5 years of energy use, normalized by dimensional stone production. Points shall be earned as follows:

— maintenance of energy use, and up to a 1% reduction (1 point);
— achieved reduction of 1 to 5% (2 points total); or
— achieved reduction of greater than 5% (3 points total).

An increase in percentage of energy use, normalized by dimensional stone production, will not achieve this credit.

All reductions shall be measured relative to total energy (e.g., KWh per ton of stone), as determined in Section 10.1, and shall be measured and documented to receive credit. Achieved reductions shall be calculated by comparing the total energy consumption for the most recent completed year to that of the baseline year, and calculating the percent of total energy reduction achieved. The baseline year shall be the year 6 years prior, providing that a complete inventory meeting the requirements of Section 10.1 exists for that year. Otherwise, the baseline shall be the most recent year for which a complete energy inventory

meeting Section 10.1 exists. Under no circumstances shall energy data from more than 6 years prior be used as a baseline in this criterion.

10.3 Optional – Carbon management

The facility operator shall perform a carbon footprint analysis of its operations. Boundaries of the analysis shall include the manufacturing and transportation stages of the product life-cycle, as well as all stages upstream, including materials extraction and processing and energy generation. Analysis shall include carbon emissions associated with all of the following:

- manufacturing processes directly related to stone production;
- on- and off-site transportation during production; and
- off-site support and administrative processes.

To qualify, carbon footprint shall have been performed in the last 3 years and shall be documented in a report meeting the specifications of ISO 14064. Carbon footprint shall be performed using any commercially available software package or by a credible, qualified third party (2 points).

10.4 Optional – Renewable and alternative energy sourcing (maximum 3 points)

The facility operator shall demonstrate the use of renewable energy in its operations. Renewable energy sources include energy derived from water, wind, and solar sources, as well as the use of renewable fuels such as biodiesel and those derived from sources such as switch grass.

- demonstrate 10% or greater of total energy use is derived from renewable sources (1 point);

- demonstrate 25% or greater of total energy use is derived from renewable sources (2 points total); or

- demonstrate 40% or greater of total energy use is derived from renewable sources (3 points total).

All contributions of renewable energy are measured relative to total energy use for entire operation, as determined in Section 10.1, and shall be measured and documented to receive credit.

11 Management of excess process materials and waste

11.1 Required – Inventory of excess process materials and solid waste

The facility operator shall create and maintain an inventory of excess materials generated by its operations. The inventory shall characterize the nature of the excess materials (e.g., sludge, fines, cuttings), the annual quantity generated (estimated or measured), the source of the excess materials (e.g., cutting operations, rejects), the percent or quantity reclaimed or recycled, and the disposal, storage, or reclaim method. In addition, the inventory shall also track general solid waste and recyclables generated on-site, characterizing the nature and annual quantity of the waste, the percent recycled or reclaimed, and the method of reclaim or disposal.

11.2 Required – Excess process material and waste management program

The facility operator shall establish and implement a program to track and manage excess process material and to systematically reduce or eliminate waste. Specifically, the program shall track and measure the amount of excess process material and solid waste produced by source and type, identify opportunities and methods for reducing generation rates, establish target goals, quantify changes in generation rates (normalized by production volume), and monitor progress of program efforts. At a minimum, the program shall address each of the following:

- material yield improvement;
- management of stone excess material from dimensional stone production;
- alternative uses for processing excess material;
- management of solid waste including collection, separation, disposal and/or recycling;
- reuse, recycling or reclaim of goods used in processing; and
- office waste reduction.

This program shall track progress towards established goals on a rolling 6-year period for both solid waste and excess process material. Progress shall be estimated or measured based on percentage reduction in generation rates (per unit of dimension stone produced), and be reported publicly (e.g., corporate sustainability report, website posting). If estimated, the facility operator shall provide method of estimation and documented data on which the estimation is based to receive credit.

11.3 Optional – Demonstrated process reduction of excess process materials

The facility operator shall demonstrate a reduction of excess process material generated. They shall compare the performance year excess process materials generated, normalized by dimensional stone production, to the prior year, normalized by dimensional stone production. Methods for reducing such materials shall include, but are not limited to, process modification, operational changes, efficient use of materials, and use of more sustainable materials (estimated or measured). If estimated, the facility operator shall provide the method of estimation and documented data on which the estimation is based, in order to receive credit:

- maintenance of excess process material generated, and up to a 2% reduction (1 point);
- achieved reduction of 2 to 5% (2 points total); or
- achieved reduction of greater than 5% (3 points total).

An increase in excess process material percentage generated, normalized by dimensional stone production, will not achieve this credit.

11.4 Optional – Demonstrated solid waste reduction

The facility operator shall demonstrate a successful reduction of solid waste generation. They shall compare the performance year solid waste generated, normalized by dimension stone production, to the prior year, normalized by dimension stone production. Methods for reducing waste include, but are not limited to, process modification, operational changes, efficient use of materials, and use of more sustainable materials (estimated or measured). If estimated, the facility operator shall provide method of estimation and documented data on which the estimation is based to receive credit.

- maintenance of solid waste generated, and up to a 2% reduction (1 point);
- achieved reduction greater than 2 to 5% (2 points total); or
- achieve reduction of greater than 5% (3 points total).

An increase in percentage of solid waste generated, normalized by dimensional stone production, will not achieve this credit.

12 Safer chemical and materials management

The following requirements shall apply to all company associated with the production of dimension stone. Operations that are not co-located with the primary production facilities, but which are necessary for the production of stone, shall be included in the scope of this Section.

12.1 Required – Chemical inventory

The facility operator shall develop and maintain an inventory of all materials and products used in operations directly associated with the production of dimension stone, as well as all those used in operations required to support stone production. Cleaning products used to maintain workspace and administrative areas (i.e., nonproduction areas), lubricants, and fuels, may be excluded from the inventory, while cleaners used to maintain equipment shall be included. Such an inventory shall at a minimum include the following, if applicable:

— product or material name or trade name;

— Material Safety Data Sheet (MSDS) reportable product ingredients (as defined by OSHA 29 CFR § 1910.1200) for each product or material identified. Reportable product ingredients shall be identified by chemical name and Chemical Abstract Service Registry Number (CASRN), if available;

— MSDS reportable chemicals shall be reviewed and all chemicals of concern (primary and secondary) shall be identified (see Annex I-1);

— supplier of the chemical product or material, including the manufacturer and/or distributor;

— description of how product is used including method of application (e.g., spray) and the manner of storage onsite;

— annual quantity purchased;

— maximum quantity stored (unit of measure); and

— MSDS reportable physical hazards associated with the material or product.

12.2 Required – Chemical management plan

The facility operator shall develop and maintain a plan to safely manage the chemical inventory identified in Section 12.1. The plan shall:

— document procedures for the handling, storage, and disposal of materials and products containing chemicals of concern or those identified as physical hazards in a manner consistent with federal, state, and local regulations and international guidelines;

— develop a program to inform workers of the potential hazards of chemicals they are reasonably expected to come in contact with, and to train those workers in the proper procedures for the safe handling, storage, and disposal of such chemicals. The program shall include information specific to the chemicals of concern, their potential hazards, the procedures for safe handling, and information on the proper use of personal protective equipment. Such a program shall be mandatory for all employees working in the immediate area where chemicals of concern are handled, stored or disposed, or for employees who might otherwise be expected to be exposed to such chemicals; and

— document the implementation of the training program, including a log of the employee name, and date of completion of training.

12.3 Optional – Chemical management program (2 points total)

The facility operator shall develop and implement a safer chemical and materials management program that establishes priorities for replacing or reducing the use of chemicals of concern with environmentally preferable alternatives. The program shall include, at a minimum, the following elements:

— assigned priorities for replacement or reduction to chemicals of concern and those presenting physical hazards. Priorities shall be based on the overall human health and environmental health concerns of each chemical, its potential for oral, inhalation, or dermal exposure to workers (see Safety Data Sheet for exposure potential), and the potential availability of alternatives;

— established goals and timelines for replacement or reduction;

— established baselines for chemical or material use against which progress shall be quantified and reported;

— defined roles and responsibilities for identified personnel and staff responsible for executing the plan;

— defined process for identifying and evaluating potential environmentally preferable alternatives; and

— schedule for reporting progress.

12.4 Optional – Elimination of chemicals of concern (maximum 5 points)

The facility operator shall demonstrate the absence of chemicals of concern (see Annex I-1) by:

— elimination of all priority chemicals of concern (3 points);

— elimination of all persistent, bioaccumulative toxins from the chemical inventory in Section 12.1 (Pbts) (1 point); and

— elimination of all asthmagens from the chemical inventory in Section 12.1 (1 point).

To claim these points, the chemical inventory in Section 12.1 shall undergo a hazard review by an independent third party. The facility operator shall demonstrate the elimination of all chemicals identified in the third-party review within the category being targeted.

13 Human health and safety

13.1 Required – Occupational safety plan

The facility operator shall document a safety plan adequate to insure that workers are provided with a safe and healthy work environment. Such a plan shall include, but not be limited to, the following:

— occupational and process safety training for both full and part-time workers, including contractors that work on-site;

— emergency preparedness and response plan that protects the health and safety of workers during emergency situations;

— a system for tracking, classifying, and reporting occupational injuries and work-related illness;

— documented procedures for safeguarding workers using potentially hazardous machinery (e.g., using barriers, interlocks, periodic inspection, and maintenance);

— documented procedures to identify, evaluate, and control worker exposure to chemical, biological, and/or physical agents that are likely to be present in the workplace; and

— documented procedures to identify, evaluate, and control general safety hazards in the workplace (e.g., electrical, fire, slip-trip-fall hazards).

13.2 Optional – Improved workplace safety (maximum 2 points)

The facility operator shall demonstrate using industry accepted documentation (e.g., OSHA Form 300, Log of Work-Related Injuries and Illnesses,[10] Mine Safety and Health Administration [MSHA][12]), an improvement in occupational injuries, as compared to previous year. A site demonstrating zero recorded injury or work-related illness also qualifies as meeting this criterion (1 point each: injury, and work-related illness; maximum 2 points).

13.3 Management of air quality

13.3.1 Required – Air emissions inventory

The facility operator shall create an inventory of air emissions including both point (i.e., fixed place) and mobile sources. The inventory shall include a description of each source, the type of expected emissions (e.g., diesel fumes), the likely location of the source, and the presence and type of control technology, if applicable. Inventory shall consider the presence of any ozone depleting substances, green house gas emissions as well as any other additional emissions required to be reported under applicable federal or local regulations. Quantities of emissions shall be estimated or measured, but shall not be required to be tested.

13.3.2 Required – Air emissions management plan

The facility operator shall develop a plan to systematically control and reduce air emissions, where possible. The plan shall include, but not be limited to, the following elements:

— each source and type of associated emissions;

— key parameters for each source that may directly or indirectly contribute to the air emissions;

— site-specific best practices / procedures for minimizing emissions during facility or site operations, and ways to minimize periods of unproductive idling or operation;

— document and tracking of required maintenance of equipment and other sources that contribute to air emissions;

— implementation of the plan through direct training, printed procedures, or other methods to employees; and

— definition and on-going measurement of key metrics (e.g., operating time of emission sources, miles traveled by vehicle) that track the effectiveness of the plan and facilitate the estimation of emissions over time.

14 Innovation

In order to facilitate continuous improvement, this standard recognizes efforts that result in innovations that advance or improve the industry. There is no limit to the number of times an innovation may be claimed as long as it continues to meet the requirements of a criterion in this Section. To qualify, innovations shall be documented, improvements quantified, exceed any local or federal requirements, and shall not qualify for a point under another criterion in this standard (i.e., resulting in double-counting), including other innovation credits.

[12] Mine Safety and Health Administration (MSHA), United States Department of Labor. 201 12th Street S, Suite 401, Arlington, VA 22202. <www.msha.gov>

14.1 Optional – Health and safety (maximum 2 points)

The facility operator shall document and demonstrate innovation leading to overall improved environmental and/or human health and safety. Innovations include those related to equipment improvement, process modifications, operational changes, or some other relevant innovation. To qualify, innovations allowable under this credit shall meet one or more of the following:

- 10% or greater improvement in operating efficiency directly resulting in an overall improvement to human health or the environment;

- reduction or elimination of greater than 10% of emissions to air;

- improved efficiency in chemical use resulting in a 10% reduction in the purchase of chemicals appearing in the chemical inventory. Reductions in purchased chemicals exempted from the inventory do not qualify; or

- 10% or greater improvement in a human health or environmental related metric not specifically covered above. metric must be directly measureable and its correlation to human health or the environment defined by the facility operator.

Additionally, at a minimum, a qualifying innovation shall be able to demonstrate the reduction claimed was achieved over the previous 12-month period, or over the previous 36-month period when applying for a renewal of a previously awarded innovation.

Alternatively, a facility operator may qualify for innovation points if they demonstrate a clear environmental or human health benefit through the use of life cycle assessment or emissions modeling performed by an independent third party.

A total of two innovations shall be allowed under this criterion (1 point each innovation, 2 points total).

14.2 Optional – Transportation

The facility operator shall document and demonstrate innovative processes that improve the efficiency of transportation and the associated environmental impacts (1 point).

14.3 Optional – Waste reclamation or reuse

The facility operator shall document and demonstrate innovative processes or approaches that result in the reclamation, reuse, or recycle of currently generated solid waste. Innovations include, for example, those related to process or technology innovations, new market development, new product development, and partnerships with potential consumers of the desired waste stream (1 point).

14.4 Optional – Energy conservation

The facility operator shall document and demonstrate innovative practices that result in the conservation of energy resources. Points will be awarded for individual innovative projects. A maximum of 2 points can be achieved for this credit. (1 point each innovation; 2 points total).

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Normative Annex 1

Scorecard

Section 5 – Water						
Checklist			Criteria	Required or optional	Description	Maximum possible points
Yes	No	Comment				
			5.1	Required	Water reduction planning	R
			5.2 Recycled water (maximum 2 points)			
			5.2.1	Required	A minimum of 25% of the water accounted for in the water inventory (in Section 5.1) for processing and quarry operations shall be captured and recycled.	R
			5.2.2	Optional	A facility operator shall capture and recycle a minimum of 85% of the water accounted for in the water inventory in Section 5.1; or A facility operator shall capture and recycle a minimum of 95% of the water accounted for in the water inventory in Section 5.1.	2
			5.3 Water use management			
			5.3.1	Required	Enhanced water treatment has 2 options to choose from.	R
			5.3.2	Optional	Enhanced sludge management: diversion of 50% annual sludge to environmentally acceptable reuse applications; or The facility operator shall achieve 1 point for demonstrating zero sludge creation for the performance year.	1
			5.3.3	Optional	25 to 49% of input water is sourced from rainwater, grey water, or other nonpotable source (1 point); or 50 to 74% of input water is sourced from rainwater, grey water, or other nonpotable source (2 points); or More than 75% of input water is sourced from rainwater, grey water, or other nonpotable source (3 points).	3
			Total points for water			**6**

Section 6 – Transportation						
Checklist			Criteria	Required or optional	Description	Maximum possible points
Yes	No	Comment				
			6.1	Required	*Natural Stone Institute Chain of Custody standard* (NSC COC), 2014	R
			6.2	Required	Establish and implement a management program to manage and continually improve the efficiency of the transportation of dimension stone	R
			Total points for tranportation			**0**

Section 7 – Site management						
Checklist			Criteria	Required or optional	Description	Maximum possible points
Yes	No	Comment				
			7.1	Required	Site management plan covering maintenance and operations	R
			7.2 Enhanced site management planning			
			7.2.1	Required	Ecosystem boundaries to promote conservation	R
			7.2.2	Optional	Environmental impact assessment for current and planned operations	2
			7.3	Optional	Verification of site management plan through independent third-party organization	1
			Total points for site management			**3**

Section 8 – Land reclamation and adaptive reuse						
Checklist			Criteria	Required or optional	Description	Maximum possible points
Yes	No	Comment				
			8.1	Required	Postclosure reclamation plan	R
			8.2	Optional	Community involvement with development of post closure plan	2
			8.3	Optional	Exemplary site closure reclamation plan with documented involvement of local community	2
			Total points for land reclamation and adaptive reuse			**4**

Section 9 – Corporate governance						
Checklist			Criteria	Required or optional	Description	Maximum possible points
Yes	No	Comment				
			9.1	Required	Prohibition on forced labor – Documented	R
			9.2	Required	Prohibition on child labor – Documented	R
			9.3	Required	Prevention on discrimination – Documented	R
			9.4	Required	Employee participation in company supported activities in the community or community outreach / service work	R
			9.5	Required	Social accountability plan in place	R
			Total points for corporate governance			**0**

Section 10 – Energy						
Checklist			Criteria	Required or optional	Description	Maximum possible points
Yes	No	Comment				
			10.1	Required	Energy inventory including quantity and type of energy consumed	R
			10.2 Energy management			
			10.2.1	Required	Energy management program to improve energy consumption and GHG emissions; measure and track energy data	R
			10.2.2	Optional	They shall compare the performance year energy use, normalized by dimensional stone production, to the average of the previous 5 years of energy use, normalized by dimensional stone production. Points shall be earned as follows: — maintenance of energy use, and up to a 1% reduction (1 point); — achieved reduction of 1 to 5% (2 points total); or — achieved reduction of greater than 5% (3 points total).	3
			10.3	Optional	Carbon management – Carbon footprint analysis of operations	2
			10.4	Optional	Renewable energy sourcing – Reduction in energy use by switching to renewable or alternative sources	3
			Total points for energy			**8**

Section 11 – Management of excess process materials and waste						
Checklist			**Criteria**	**Required or optional**	**Description**	**Maximum possible points**
Yes	**No**	**Comment**				
			11.1	Required	Create and maintain an inventory of excess materials generated by its operations	R
			11.2	Required	Establish and implement a program to track and manage excess process material and to systematically reduce or eliminate waste	R
			11.3	Optional	Demonstrated waste reduction: — maintenance of excess process material generate and up to a 2% reduction (1 point); — achieved reduction of 2 to 5% (2 points total); or — achieved reduction of greater than 5% (3 points total).	3
			11.4	Optional	Demonstrated solid waste reduction: — maintenance of solid waste generated, and up to a 2% reduction (1 point); — achieved reduction of 2 to 5% (2 points total); or — achieve reduction of greater than 5% (3 points total).	3
			Total points for management of excess process materials and waste			**6**

Section 12 – Safer chemical and materials management						
Checklist			Criteria	Required or optional	Description	Maximum possible points
Yes	No	Comment				
			12.1	Required	Chemical inventory of all materials and chemicals directly used in operations	R
			12.2	Required	Develop and maintain a plan to safely manage the chemical inventory identified in Section 12.1	R
			12.3	Optional	Develop and implement a safer chemical and materials management program that establishes priorities for replacing or reducing the use of chemicals of concern with environmentally preferable alternatives	2
			12.4	Optional	Elimination of chemicals of concern	5
			Total points for safer chemical and materials management			**7**

Section 13 – Human health and safety						
Checklist			Criteria	Required or optional	Description	Maximum possible points
Yes	No	Comment				
			13.1	Required	Occupational safety plan for safe working environment	R
			13.2	Optional	Improved workplace safety using data for less injuries or illness (1 point for each; 2 maximum)	2
			13.3 Management of air quality			
			13.3.1	Required	Air emissions inventory and description of sources	R
			13.3.2	Required	Air emissions management plan	R
			Total points for human health and safety			**2**

Section 14 – Innovation						
Checklist			Criteria	Required or optional	Description	Maximum possible points
Yes	No	Comment				
			14.1	Optional	Health and safety	2
			14.2	Optional	Transportation	1
			14.3	Optional	Waste reclamation or reuse	1
			14.3	Optional	Energy Conservation	2
			Total points for innovation			**6**

Informative Annex 1

Informational Sources

The information contained in this annex is not part of this American National Standard (ANS) and has not been processed in accordance with ANSI's requirements for an ANS. Therefore, this annex may contain material that has not been subjected to public review or a consensus process. In addition, it does not contain requirements necessary for conformance to the standard.

The following resources are all considered authoritative sources of environmentaland human health hazard data.

I-1.1 Priority chemicals of concern

CAL-EPA Proposition 65 – Known to cause cancer or reproductive toxicity. State of California Environmental Protection Agency, Office of Environmental Health Hazard Assessment (OEHHA). <www.oehha.ca.gov/proposition-65/proposition-65-list>

ECHA REACH SVHC – Reason for inclusion: Carcinogenic, Toxic for Reproduction, Mutagenic, Endocrine activity. <www.echa.europa.eu/information-on-chemicals>

European Commission Directive 76/769 Carcinogen, Mutagens, and Reproductive Toxins (CMRs):

- Carcinogen: Category 1 or 2 or GHS Category 1A or 1B
- Mutagen: Category 1 or 2 or GHS Category 1A or 1B
- Reproduction: – Category 1 or 2 or GHS Category 1A or 1B

<https://eur-lex.europa.eu/eli/dir/1976/769/oj>

European Union Priority List of suspected endocrine disruptors (prioritized for further testing):

- Category 1 or Category 2 endocrine disruptors

<https://ec.europa.eu/environment/chemicals/endocrine/strategy/substances_en.htm>

IARC Cancer Monographs, International Agency for Research on Cancer, World Health Organization:

- IARC Group 1: Carcinogenic to humans
- IARC Group 2A: Probably carcinogenic to humans

<https://monographs.iarc.who.int/agents-classified-by-the-iarc/>

PBT European Union - European Chemicals Agency

<https://echa.europa.eu/pbt>

US Environmental Protection Agency, Toxics Release Inventory Program:

- US EPA Toxic Release Inventory (TRI) Persistent, Bioaccumulative, and Toxic Substances

<https://www.epa.gov/toxics-release-inventory-tri-program/persistent-bioaccumulative-toxic-pbt-chemicals-covered-tri>

US Department of Health & Human Services, National Institutes of Health, National Institute of Environmental Health Sciences, National Toxicology Program. US NIH NTP Report on Carcinogens:

- known to be a human carcinogen
- reasonably anticipated to be a human carcinogen

<https://ntp.niehs.nih.gov/whatwestudy/assessments/cancer/roc/index.html>

US EPA & US Department of Labor, Occupational Safety and Health Administration:

- US OSHA Carcinogens

<https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1003>

I-1.2 Secondary chemicals of concern

Association of Occupational and Environmental Clinics (AOEC) Exposure Code List [30]:

- AOEC Asthmagens: Sensitizer induced asthmagens (Rs or Rrs)

<http://aoecdata.org>

European Union - European Chemicals Agency:

- ECHA REACH SVHC: Reason for inclusion: vPvB

<www.echa.europa.eu/information-on-chemicals>

US Environmental Protection Agency, Ozone Layer Depletion Program:

- US EPA Ozone Depleting Substances: Class I and Class II

<https://www.epa.gov/ozone-layer-protection/ozone-depleting-substances>

Informative Annex 2

**Key elements of a certification program
for environmentally preferable and sustainable dimension stone**

The information contained in this annex is not part of this American National Standard (ANS) and has not been processed in accordance with ANSI's requirements for an ANS. Therefore, this annex may contain material that has not been subjected to public review or a consensus process. In addition, it does not contain requirements necessary for conformance to the standard.

I-2.1 General

Declaring conformance to this standard identifies that a facility operator proceeds in a sustainable and/or environmentally preferable manner. Conformance to this standard alone does not imply certification. The facility operator can provide additional public confidence regarding the attainment of these goals by undertaking independent conformity assessment (certification).

I-2.2 Certification process

I-2.2.1 Selection of conformity assessment body

The facility operator identifies a certification organization qualified by National Stone Council to perform the conformity assessment of the product(s) assessment process for conformance with this standard.

I-2.2.2 Conformity assessment to this standard

The certifying organization performs the necessary functions to determine whether the operations of the facility operator conform to the specified criteria. This involves activities such as the review of documentation submitted in support of certification, or an on-site audit for assessing conformance with the specified criteria.

I-2.2.3 Issuance of product(s) certification

If the dimension stone(s) has been demonstrated adequately to meet the specifications described in this standard, and any issues of nonconformance have been addressed, the certifying organization provides a dimension stone certification to the facility operator. This includes the provision of documentation of certification of the dimension stone to the quarry operator and/or processor, as well as inclusion of the dimension stone on any publicly available lists of certified products maintained by the certifying organization. The certifying organization instructs the facility operator regarding appropriate use of the registered certification mark of the certifying organization.

I-2.2.4 Monitoring of product(s) conformance

At intervals determined by the certifying organization, the continued conformance of the certified product(s) to the specified criteria is monitored using periodic audits and document review or both.