GREEN CHOICE PHILIPPINES

FIBER-CEMENT BOARD

I. ENVIRONMENTAL SCENARIO

In the Philippines, the use of environment-friendly alternative building materials has remarkably gained its ground in the construction business. Such materials that offer unique strength, stability and versatility in its applications have significantly become a necessity in choosing and buying the product.

Fiber cement-based board is fast becoming a favorite material in the construction industry. It has found its applications in domestic housing needs as well as for commercial building construction. These products are largely found in non-structural components that include wall siding, flooring, ceiling and roofing materials.

It is a composite material made of sand, cement and cellulose fibers. As a cellulose-fiber based composite, it offers distinct advantages in terms of: availability of cellulose fibers from renewable resource, high fiber tensile strength and modulus of elasticity, relatively low cost and well-developed technology to extract the fibers. As a cement-based composite material, it offers decay and fire resistance, dimensional stability, "nailability", and good mechanical properties among other properties.

As claimed by its manufacturers, it is environment-friendly and asbestos-free. It also boasts of being able to recover and utilize waste materials like natural fibers and fly ash, reduce its emissions during manufacturing operations, conserve and preserve the environment through the efficient utilization of water, energy and other resources.

II. DEFINITION OF TERMS

Asbestos – means the fibrous forms of varieties of mineral silicates belonging to rock forming minerals of the serpentine group, i.e. chrysolite (white asbestos); and the amphibole group i.e. actinolite, amosite (brown asbestos, cummingtonitegrunerite), anthophyllite, crocidolite (blue asbestos) and tremolite (DENR - Administrative Order No. 02 Series of 2000)

Cellulose fiber/Virgin pulp – is a fibrous material separated from wood or other plant material by chemical or mechanical means for the manufacture of fiber cement board.

Cement – a powdery substance made by processing, at a high temperature, a mixture of clay and limestone producing lumps called "clinkers" which are ground into a fine powder consisting of hydraulic calcium silicates.

DAO 2005-27 – Department of Environment and Natural Resources (DENR) Administrative Order No. 27, Series of 2005, which provides for the listing of the "Revised Priority Chemical List" as stated in RA 6969 otherwise known as "Toxic Substances and Hazardous and Nuclear Wastes Control Act of 1990" .

DAO 2000-02 – Department of Environment and Natural Resources (DENR) Administrative Order No. 02, Series of 2000 (The Chemical Control Order for Asbestos)

Fiber-cement board – is a composite material made of sand, cement and cellulose fibers.

Hatchek process - is a manufacturing process to make fiber-cement board. In this process, the aqueous slurry is dewatered on sieve rolls and transported along a felt conveyor where further water is removed by vacuum.

Post-Consumer Solid Wastes – are waste materials generated by households, or by commercial, and institutional facilities in their role as end-users of the product, which can no longer be used for its intended purpose.

Pre-Consumer Recycled Wastes – are materials diverted from the waste stream during a manufacturing process.

Republic Act (RA) 6969 - "Toxic Substances and Hazardous and Nuclear Wastes Control Act of 1990"

Recycled fiber- is any fibrous material that has already undergone a manufacturing process and is being recycled as a raw material for another manufactured product (i.e., fiber-cement board).

Sustainably-managed forest – is a forest managed to meet all existing regulations such that environmental, social and economic factors are balanced to meet the needs of the present generation without compromising the ability of future generations to meet their needs.

III. SCOPE

These criteria shall apply to fiber-cement boards.

IV. GREEN CHOICE CRITERIA

To carry the Green Choice Philippines Seal of Approval, the product shall meet the following requirements:

GREEN CHOICE PHILIPPINES REQUIREMENTS	EVALUATION AND VALIDATION METHOD
Product Quality Performance	
The product shall comply with the requirements of the relevant Philippine National Standard (PNS) or in its absence, shall comply with the applicable International Product Standard for fiber-cement boards (eg. ISO 8336 and ASTM C1186)	The applicant shall submit a certified true copy of the independent audit or test reports conducted by recognized and/or accredited laboratories confirming that the product conforms to relevant International Product Standards, i.e., ASTM C1186, ISO 8336.
Environmental Requirements	
If the product is a cellulose fiber-cement based material, it shall contain fibers sourced from a sustainably managed forest.	The applicant shall submit evidences or any verifiable documents as a proof that the cellulose pulp was sourced from a sustainably-managed forest.
If the product is a recycled fiber-cement based material, it shall contain raw materials from recycled wastes, both for post consumer and pre-consumer sources. Post-consumer and pre-consumer recycled wastes shall not be less than 3%.	The applicant shall submit a copy of the certificate that shows the design specifications indicating the schedule for raw materials making up of Post consumer and Pre-consumer wastes and shall not be less than 3%.
The product shall not contain asbestos or/and any other toxic and hazardous substances as stipulated in the law (such as RA 6969, DENR AO 2005-27, DENR AO 2000-02 or its equivalent).	The applicant shall submit a certified true copy of the report/s of test /analysis conducted indicating/confirming that the product conforms to DENR regulations on prohibited toxic substances and hazardous wastes, as stipulated in RA 6969 and its relevant rules and regulations or its equivalent. The required laboratory test/s

	shall be performed by recognized and/or accredited laboratories.
In-plant water recycling and reuse shall be thoroughly implemented in the manufacturing process, utilizing at least 50% of its processed water.	The applicant shall submit a self-certification duly signed by the company's production manager or its equivalent that the manufacturing process is utilizing at least 50% of its processed water. It shall also submit a copy of documentation outlining how the use of processed water is recycled and managed. The applicant shall submit a mass balance detailing water consumption, recycling or reuse and signed by the accredited Pollution Control Officer/any registered engineer, preferably chemical or mechanical engineer or its equivalent.
Air emissions and wastewater discharge from the plant shall comply with the requirements of the relevant environmental standards of the Philippines and/or the country of its origin.	The applicant shall submit a copy of applicable licenses and permits to operate indicating the company's compliance to existing environmental laws and regulations. In case of imported raw materials or products, the applicant shall submit a certification, in English, from the Environment Ministry or Department of the country where the product/s is/are manufactured that states that the manufacture of the product/s has complied with their air emissions and effluent standards.
Product handling, storage, transport, distribution and disposal activities shall be in compliance with the relevant/applicable environmental and occupational health and safety laws and policies.	The applicant shall submit a copy of the certificate/s issued by authorized agency/institution indicating its compliance with the relevant environmental (such as but not limited to handling, storage, distribution and disposal plan, including contract with an accredited or legitimate TSD facility) and occupational health and safety laws and policies.

V. References:

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Republic Act 6969: Toxic Substances, Hazardous and Nuclear Waste Control Act of 1990.

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