



Green Label Product Bricks, Blocks and Wall Panels (TGL-61-R1-24)

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Bricks, Blocks and Wall Panels

1. Background

Wall construction materials are essential in residential building construction. With the continuous increase in the global population, the real estate business is expanding to meet the growing demand for housing and buildings. Consequently, the demand for wall construction materials has also increased.

Establishing eco-friendly wall construction materials by promoting the reuse of waste materials, selecting environmentally friendly raw materials, and reducing pollutant emissions from wall construction products can help minimize environmental impacts and reduce potential harm to residents.

2. Scope

This criteria covers bricks and concrete blocks for wall formation, excluding refractory bricks.

3. Definition

- 3.1 Wall construction brick:** Clay bricks and sand-lime bricks
- 3.2 Clay brick:** A solid or hollow object, with pores or holes, made from clay or shale (with potential additives), shaped and then kiln-fired for use in wall or fence construction.
- 3.3 Sand-lime brick:** A solid object primarily made from lime and sand or sandstone, hardened by steam curing under pressure.
- 3.4 Concrete for wall construction:** Includes lightweight concrete, prefabricated concrete wall panels, and concrete blocks for wall construction.
- 3.5 Lightweight concrete:** Reinforced or non-reinforced concrete, lighter than conventional concrete of the same size, with uniformly distributed small air bubbles and hardened through steam curing.
- 3.6 Precast concrete wall panels:** A prefabricated concrete panel made from aggregate and binder, used as an interior or exterior wall partition in buildings.
- 3.7 Concrete wall block:** A concrete block made from cement, water, and various aggregates, with optional additives, used for wall or fence construction.
- 3.8 Post-Consumer Waste:** Products that have become waste or have been used.
- 3.9 Post-Industrial Waste:** Waste or by-products generated during the manufacturing or processing stages within a facility before reaching the consumer, such as fly ash, wood scraps, industrial slag, and crushed stone residues.
- 3.10 Agricultural residues:** Agricultural waste that needs to be disposed of or used as fuel for energy production but can be collected, processed, and reused as raw material to replace virgin materials in the production process.

- 3.11 Letter for Declaration of Compliance:** A certification document issued by the applicant or the manufacturer that it meets the special requirements specified in the Green Label requirements for the applied product.
- 3.12 Certificate:** A document issued by a certification body, which has been accredited by the National Accreditation Council (NAC) or other accreditation body under the IAF (International Accreditation Forum) agreement.
- 3.13 Legally Authorized person:** A person authorized to sign under the Civil and Commercial Law.

4. General requirements

- 4.1 The product must be certified to the applicable industrial product standard or tested according to the required specifications set by the relevant industrial product standard listed in Table 1 or an equivalent or higher international standard, such as ASTM or JIS.

Table 1 List of Industrial Product Standards for Bricks and Concrete for Wall Construction

No.	TIS no.	Title
1	TIS 57	Hollow loadbearing concrete masonry unit
2	TIS 58	Hollow nonloadbearing concrete masonry unit
3	TIS 59	Concrete building brick
4	TIS 60	Solid loadbearing concrete masonry unit
5	TIS 77	Building bricks
6	TIS 102	Structural clay loadbearing wall tile
7	TIS 103	Structural clay non-load-bearing tile
8	TIS 153	Structural clay nonloadbearing screen tiles
9	TIS 167	Calcium silicate face bricks or sand-lime bricks
10	TIS 168	Facing bricks
11	TIS 169	Structural clay facing tiles
12	TIS 1505	Autoclaved aerated lightweight concrete elements
13	TIS 1510	Autoclaved aerated reinforced lightweight concrete panels
14	TIS 2226	Precast concrete wall panels
15	TIS 2601	Cellular lightweight concrete blocks using preformed foam
16	TIS 2895	Solid nonloadbearing concrete masonry units
17	TIS 3410	Loadbearing concrete interlocking masonry units
18	TIS 3411	Nonloadbearing concrete interlocking masonry units

Verification method

The applicants shall submit evidence of an industrial product standard mark license **or** test results demonstrating compliance with the desired characteristics according to industrial product standards equivalent or higher international or national standards, such as ASTM or JIS.

4.2 Manufacturing, transportation and post-industrial waste disposal shall comply with national laws and regulations or the manufacturer shall be accredited by ISO14001.

Verification method

The applicant shall submit one of the following documents:

1. License or evidences to prove that manufacturing, transportation, and post-industrial waste disposal complies with national laws and regulations. **or**
2. Certification of ISO14001 from the manufacturer

Remark: In the case of imported products, the manufacturing facility must be certified to ISO 9001 (Quality Management System) and ISO 14001 (Environmental Management System)

5. Environmental requirements

5.1 The bricks must be made from used product or residue waste from manufacturing process or agricultural waste not less than 40% of product weight.

Verification method

The applicant shall submit a credible evidence demonstrating that the bricks made from used product or residue waste from manufacturing process or agricultural waste not less than 40% of product weight.

5.2 The block must be made from used product or residue waste from manufacturing process or agricultural waste not less than 50% of product weight.

Verification method

The applicant shall submit a credible evidence demonstrating that the block made from used product or residue waste from manufacturing process or agricultural waste not less than 50% of product weight.

5.3 Wall construction materials must not contain the following:

- 1) Phosphogypsum
- 2) Asbestos
- 3) Heavy metals or compounds of heavy metals, such as cadmium, mercury, lead, and chromium hexavalent, must meet the limits specified in Table 2.

Table 2 Allowable Heavy Metal Content in Products

Parameter	Concentration (mg/kg)
Cadmium	≤ 100
Mercury	≤ 1,000
Lead	≤ 1,000
Chromium hexavalent	≤ 1,000

Verification method

The applicant shall the following documents/evidence:

1. A declaration letter ensuring the absence of phosphogypsum in the product.
2. A declaration letter ensuring the absence of asbestos in the product.
3. Test results for heavy metals, including lead, mercury, cadmium, and hexavalent chromium, obtained by sampling the fully mixed raw materials of the product applying for certification. The quantity and sampling method should follow the relevant industrial product standards for the product under certification. Testing should comply with US EPA SW 846 standards or equivalent testing methods capable of detecting heavy metals, such as lead, mercury, cadmium, and hexavalent chromium, using an extraction method suitable for the sample type and composition.

5.4 Product must meet one of the following carbon footprint criteria:

- 1) Certified Carbon Footprint Reduction Label
- 2) The carbon footprint of the product for the current year (with a full 12-month dataset) has reduced by 2%¹ or more compared to the product's carbon footprint in the base year (with data no older than 3 years).
- 3) For new facilities without prior baseline data, the carbon footprint of the product for the current year (with a full 12-month dataset) must be lower than the benchmark value for products of the same category.

Verification method

The applicant shall submit one of the following documents:

1. A certificate for the Carbon Footprint Reduction Label. or
2. Results of the current year carbon footprint calculation for the product (with data covering 12 months) compared to the base year carbon footprint (historical data not exceeding 3 years), certified by a third-party registered with the Thailand Greenhouse Gas Management Organization (Public Organization), or
3. Results of the current year carbon footprint calculation for the product (with data covering 12 months) compared to the benchmark for similar products, certified by a third-party registered with the Thailand Greenhouse Gas Management Organization (Public Organization).

¹ Carbon Footprint Label, Thailand Greenhouse Gas Management Organization (Public Organization)

6. Testing and Certificate

6.1 Testing

6.1.1 Must be a government laboratory or a laboratory under the supervision of the government that has been appointed according to Section 5 of the Industrial Product Standards Act B.E. 2511 (and the amendments) or a laboratory that has been certified as a testing laboratory according to TIS 17025 or ISO/IEC 17025.

6.1.2 Testing result

6.1.2.1 The testing report that the method specified in the green label requirements.

6.1.2.2 In case, the applicant submits the testing report with according to other test methods equivalent to the method specified in the green label requirements, the applicant shall submit the document as follow;

- 1) The certified signature document of the apply product from the laboratory that equivalent with test method standard specified in the green label requirements.
- 2) The method validation document of the product specified in the green label requirements.

6.1.2.3 The test report must not be more than 1 years up to the date of application for green label certification.

6.2 Declaration letter to verify compliance with Green label requirements

6.2.1 The declaration letter shall not exceed 1-year duration since the apply date

6.2.2 The declaration letter by legally authorized person and stamped with the company hallmark (if any)