

# **Item 12 - GRI Sector Standard for** Construction Materials (Compact) Prototype For GSSB information Date 03 November 2025

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# Introduction

- 2 GRI XX: Construction Materials Sector 20XX (Compact) provides information for organizations in the
- 3 construction materials sector about their likely <u>material topics</u>. These topics are likely to be material
- 4 for organizations in the sector on the basis of the sector's' most significant impacts on the economy,
- 5 environment, and people, including on their human rights.
- [GRI XX] also lists Disclosure 3-3 to help organizations report how they manage each topic. It also
   lists relevant Topic Standards.
- 8 The Standard is structured as follows:
- Section 1 provides a high-level overview of the construction materials sector, including its
   activities, <u>business relationships</u>, and context.
- Section 2 outlines the topics that are likely to be material for organizations in the construction materials sector and therefore potentially merit reporting. For each likely material topic, the sector's most significant impacts are described and relevant Topic Standards to report information about the organization's impacts in relation to the topic are listed.
- The Glossary contains defined terms with a specific meaning when used in the GRI Standards.
  The terms are <u>underlined</u> in the text and linked to the definitions.
- The Bibliography lists authoritative intergovernmental instruments and additional references used in developing this Standard, listed by topic. It also lists further resources that the organization can consult.
- The rest of the Introduction section provides an overview of the sector this Standard applies to, an
- 21 overview of the system of GRI Standards, and further information on using this Standard

# 22 Sector this Standard applies to

- 23 [GRI XX] applies to organizations undertaking any of the following:
- Manufacturing of cement and concrete.
- Manufacturing of glass products.
- Manufacturing of clay building materials, ceramic products, and refractory products.
- Cutting, shaping, and finishing stone
- 28 This Standard can be used by any organization in the construction materials sector regardless of size,
- 29 type, geographic location, or reporting experience.
- 30 The organization must use all applicable Sector Standards for the sectors in which it has substantial
- 31 activities.

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### Sector classifications

- 33 Table 1 lists industry groupings relevant to the construction materials sector covered in this Standard
- in the Global Industry Classification Standard (GICS®) [1], the Industry Classification Benchmark
- 35 (ICB) [2], the International Standard Industrial Classification of All Economic Activities (ISIC) [3], and
- 36 the Sustainable Industry Classification System (SICS®) [4].1 The table is intended to assist an
- 37 organization in identifying whether [GRI XX] applies to it and is for reference only.
- Table 1. Industry groupings relevant to the construction materials sector in other classification

### 39 systems

Classification system	Classification number	Classification name
GICS®	201020	Building Products
	151020	Construction materials
ICB	50101030	Cement



50101035	Building materials; other
50203020	Glass
2394	Manufacture of cement, lime and plaster
2395	Manufacture of articles of concrete, cement and plaster
2396	Manufacture of ready-mixed concrete
2310	Manufacture of glass and glass products
2391	Manufacture of refractory products
2393	Manufacture of other porcelain and ceramic
2392	products
2396	Manufacture of clay building materials
2399	Cutting, shaping, finishing of stone
	Manufacture of other non-metallix products n.e.c
EM-CM	Construction Materials
	50203020 2394 2395 2396 2310 2391 2393 2392 2396 2399

# System of GRI Standards

- 41 This Standard is part of the GRI Sustainability Reporting Standards (GRI Standards). The GRI
- 42 Standards enable an organization to report information about its most significant impacts on the
- economy, environment, and people, including impacts on their human rights, and how it manages
- 44 these impacts.

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- The GRI Standards are structured as a system of interrelated standards that are organized into three
- 46 series: GRI Universal Standards, GRI Sector Standards, and GRI Topic Standards (see Figure 1 in
- this Standard).

## Universal Standards: GRI 1, GRI 2 and GRI 3

- 49 GRI 1: Foundation 2021 specifies the requirements that the organization must comply with to report in
- accordance with the GRI Standards. The organization begins using the GRI Standards by consulting
- 51 *GRI 1*.
- 52 GRI 2: General Disclosures 2021 contains disclosures that the organization uses to provide
- 53 information about its reporting practices and other organizational details, such as its activities,
- 54 governance, and policies.
- 55 GRI 3: Material Topics 2021 provides guidance on how to determine material topics. It also contains
- 56 disclosures that the organization uses to report information about its process of determining material
- topics, its list of material topics, and how it manages each topic.

### **Sector Standards**

- 59 The Sector Standards provide information for organizations about their likely material topics. The
- 60 organization uses the Sector Standards that apply to its sectors when determining its material topics
- and when determining what to report for each material topic.

### **Topic Standards**

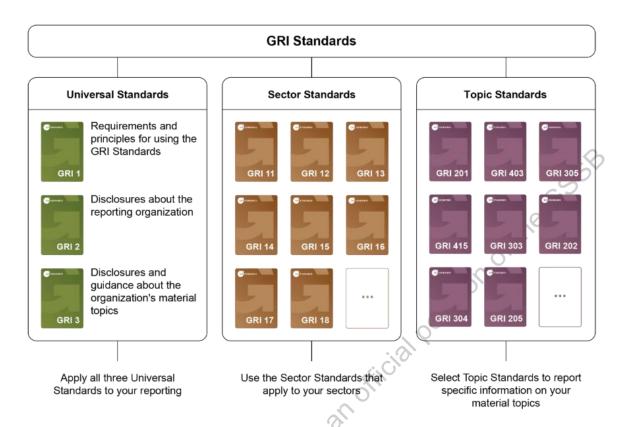
- 63 The Topic Standards contain disclosures that the organization uses to report information about its
- impacts in relation to particular topics. The organization uses the Topic Standards according to the list
- of material topics it has determined using GRI 3.





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# **Using this Standard**

An organization in the construction materials sector reporting in accordance with the GRI Standards is required to use this Standard when determining its <u>material topics</u> and then when determining what information to report for the material topics.

# Determining material topics

- Material topics represent an organization's most significant <u>impacts</u> on the economy, environment, and people, including their human rights.
- Section 1 of this Standard provides contextual information that can help the organization in identifying and assessing its impacts.
- Section 2 outlines the topics that are likely to be material for organizations in the construction materials sector. The organization is required to review each topic described and determine whether it is a material topic for it.
- materials sector. The organization is required to review each topic described and determine whether it is a material topic for it.

  The organization needs to use this Standard when determining its material topics. However,
- circumstances for each organization vary, and the organization needs to determine its material topics according to its specific circumstances, such as its business model; geographic, cultural, and legal operating context; ownership structure; and the nature of its impacts. Because of this, not all topics listed in this Standard may be material for all organizations in the construction materials sector. See *GRI 3: Material Topics 2021* for step-by-step guidance on how to determine material topics.
- If the organization has determined any of the topics included in this Standard as not material, then the organization is required to list them in the GRI content index and explain why they are not material.
- See Requirement 3 in *GRI 1: Foundation 2021* and Box 5 in *GRI 3* for more information on using Sector Standards to determine material topics.



# Determining what to report

- 90 For each material topic, an organization reports information about its impacts and how it manages
- 91 these impacts.

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- 92 Once an organization has determined a topic included in this Standard to be material, the Standard
- 93 helps the organization identify the relevant GRI Topic Standards to report information about its
- 94 impacts relating to that topic.
- 95 For each topic in section 2 of this Standard, a reporting sub-section is included. These sub-sections
- 96 list Disclosure 3-3 Management of material topics and the Topic Standards that are relevant to the
- 97 topic. The organization needs to identify which disclosures from the Topic Standards are relevant to
- 98 its impacts in relation to a material topic. Figure 2 illustrates how the reporting included in each topic
- 99 is structured.
- 100 If the organization reports information that applies to more than one material topic, it does not need to
- repeat it for each topic. The organization can report this information once, with a clear explanation of
- all the topics it covers.
- 103 If the organization intends to publish a standalone sustainability report, it does not need to repeat
- 104 information that it has already reported publicly elsewhere, such as on web pages or in its annual
- report. In such a case, the organization can report on a required disclosure by providing a reference in
- the GRI content index as to where this information can be found (e.g., by providing a link to the web
- page or citing the page in the annual report where the information has been published).
- 108 See Requirement 5-a in GRI 1 for more information on reporting disclosures from the Topic Standards
- for each material topic.

# 110 GRI Sector Standard reference numbers

- GRI Sector Standard reference numbers are included for all disclosures listed in this Standard. When
- 112 listing the disclosures from this Standard in the GRI content index, the organization is required to
- include the associated GRI Sector Standard reference numbers (see Requirement 7 in GRI 1:
- 114 Foundation 2021). This identifier helps information users assess which of the disclosures listed in the
- applicable Sector Standards are included in the organization's reporting.

### Defined terms

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- Defined terms are underlined in the text of the GRI Standards and linked to their definitions in the
- 118 Glossary. The organization is required to apply the definitions in the Glossary.

# References and resources

- 120 The authoritative intergovernmental instruments and additional references used in developing this
- 121 Standard, as well as further resources that may help report on likely material topics and can be
- 122 consulted by the organization are listed in the Bibliography. These complement the references and
- resources listed in GRI 3: Material Topics 2021 and in the GRI Topic Standards.



### Figure 2. Structure of reporting included in each topic

3-3 Managem topic.	ent of material topics and Topic Standards identified as relevant for repor	ting on the	The organization is required to report how it manages each
STANDARD	DISCLOSURE	SECTOR STANDARD REF. NO.	material topic using <u>Disclosure</u> 3 in <i>GRI 3: Material Topics</i> 202
Managemer	nt of the topic		2 Topic Standards
GRI 3: Material Topics 2021	Disclosure 3-3 Management of material topics	XX.11.1	Disclosures from the GRI Topic Standards that have been
Topic Stand	dards		identified as relevant for organizations in the sector(s) a
GRI 401: Employment 2016	The organization needs to identify which disclosures from <i>GRI 401:</i> Employment 2016 are relevant to its impacts in relation to this topic.	N.A.	to be listed here. When the top is determined by the organizations in the sector(s) at
GRI 404: Training and Education 2016	The organization needs to identify which disclosures from <i>GRI 404: Training and Education 2016</i> are relevant to its impacts in relation to this topic.	N.A.	as material, it is required to rep those disclosures or explain what they are not applicable in the C
GRI 102: Climate Change 2025	The organization needs to identify which disclosures from GRI 102: Climate Change 2025 are relevant to its impacts in relation to this topic.	N.A	context index. See the Topic Standard for the content of the disclosure, including
			requirements, recommendation and guidance.
			and galdanoc.

# 1. Sector profile

The construction materials sector covers the manufacturing of materials used in building infrastructure, including cement, concrete, ceramics, plaster, aggregates, asphalt, glass, gypsum, and insulation material. These materials are essential for the construction of residential and commercial buildings, as well as non-building infrastructure such as transportation systems (e.g., roads, bridges, tunnels, ports, and pedestrian pathways) and water infrastructure (e.g., dams, reservoirs, levees, canals, and water treatment and delivery systems). The sector is a critical enabling force for other economic activities such as transportation, energy, and construction of infrastructure. Global production of construction materials has grown substantially over the past decades, driven by urbanization, population growth, infrastructure expansion, and industrialization. By the end of 2024, cement production was around 4.1 billion tons globally [7], which marked a fourfold increase since 1995 [8]. Demand is likely to continue rising, particularly driven by rapid urban growth and development in many low- and middle-income economies.

According to the OECD's *Global Material Resources Outlook to 2060*, materials use is projected to double by 2060, with construction materials such as concrete, sand, gravel, and metals among the largest contributors to greenhouse gas (GHG) emissions, air pollution, water stress, and biodiversity loss among all industries [9]. Notably, cement production alone accounts for roughly 7–8% of global CO<sub>2</sub> emissions, primarily due to its energy intensity and process emissions[9].

# Sector activities and business relationships

- Through their activities and <u>business relationships</u>, organizations can have an effect on the economy,
- 145 environment, and people, and in turn make negative or positive contributions to sustainable
- 146 <u>development</u>. When determining its <u>material topics</u>, the organization should consider the <u>impacts</u> of
- both its activities and its business relationships. See section 1 in GRI 3: Material Topics 2021 for more
- 148 information.

### Activities



- The impacts of an organization vary according to the types of activities it undertakes. The following list
- outlines some of the key activities of the construction materials sector, as defined in this Standard.
- 152 This list is not exhaustive.
- 153 Processing of raw materials: Grinding, blending, and heating raw materials, mixing binders and
- aggregates, and processing recycled materials back into the production cycle, and production of
- semi-finished goods like clinker, hydrated lime, or ready-mix concrete components.
- 156 Manufacturing of construction materials: Manufacturing finished construction materials such as
- 157 cement, concrete, bricks, mortar, plaster, glass, ceramics, asphalt, gypsum boards, and insulation
- 158 materials.

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- 159 Aggregation: Combining raw materials or semi-finished products (e.g., aggregates or clinker) from
- multiple sites for batching or regional distribution.
- 161 Storage: Storing bulk materials (e.g., cement, sand, pre-cast elements) in controlled environments to
- preserve usability and prevent degradation.
- 163 Transportation: Transporting materials from extraction sites to processing plants, from plants to
- 164 construction sites, or through distributors.
- 165 Sales and marketing: Buying and selling raw materials, semi-processed goods (e.g., clinker), and
- finished construction products in domestic and international markets for construction purposes.

# 2. Likely material topics

- 168 This section comprises the likely material topics for the construction materials sector. Each topic
- describes the sector's most significant impacts related to the topic. The reporting sub-section lists
- 170 Disclosure 3-3 to report information about how the organization manages the topic. It also lists the
- 171 relevant Topic Standards to report information about the organization's impacts in relation to the topic.
- 172 The organization is required to review each topic in this section and determine whether it is a material
- topic for the organization, and then to determine what information to report for its material topics.

# 174 Topic 1. Climate change

- 175 The construction materials sector, particularly cement manufacturing, is a significant contributor to
- 176 global greenhouse gas (GHG) emissions, which are the single biggest contributor to climate change.
- 177 Concrete and cement producers alone are responsible for roughly 7–8% of global CO<sub>2</sub> emissions,
- making it the second-largest source of industrial emissions [10], [11].
- 179 Cement production generates significant greenhouse gas emissions from multiple sources. A major
- 180 share originates from process emissions, specifically during the calcination of limestone (calcium
- 181 carbonate), where the chemical conversion to produce clinker the primary binding agent in cement—
- 182 releases CO<sub>2</sub> directly as a by-product [12]. These emissions are inherent to the chemical reaction and
- occur independently of energy inputs, making the sector one of the hardest to abate. In addition,
- substantial energy-related emissions arise from the combustion of fossil fuels used to heat kilns to
- temperatures exceeding 1,400°C during clinker production [13]. Further emissions are associated with
- the transportation of raw materials to production sites and the distribution of finished products, given
- the weight and volume of construction materials [14].
- 188 Despite improvements in process efficiency, absolute emissions from the sector continue to rise
- 189 globally due to increasing demand for cement in infrastructure and construction. Furthermore, the
- 190 emissions intensity of cement production has increased since 2015, due largely to a rising global
- 191 clinker-to-cement ratio [10]. The continued reliance on high clinker-to-cement ratios exacerbates the
- 192 problem, as clinker is the most carbon-intensive component.
- 193 The sector is facing a significant challenge in transitioning toward low-carbon emissions to mitigate
- 194 climate change. This transition is likely to require substantial changes within the sector, such as the
- 195 adoption of new technologies and the replacement of CO2-emitting fuels and carbon-intensive raw
- 196 materials. This transition can create impacts on an organization's workforce as well as the broader



society. The adoption of climate mitigation measures may lead to changes in employment conditions, job displacement, or the need for reskilling, especially in communities whose livelihoods depend on high-emission operations. Workers employed in carbon-intensive facilities and in countries or regions where institutional support for transition is limited are particularly vulnerable.

# Reporting on climate change

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If the organization has determined climate change to be a <u>material topic</u>, this sub-section lists Disclosure 3-3 Management of material topics and Topic Standards identified as relevant for reporting on the topic.

STANDARD	DISCLOSURE	SECTOR STANDA RD REF. NO.
Manageme	nt of the topic	
GRI 3: Material Topics 2021	Disclosure 3-3 Management of material topics	XX.3.1
Topic Stan	dards	
GRI 102: Climate Change 2025	The organization needs to identify which disclosures from <i>GRI 102:</i> Climate Change 2025 are relevant to its impacts in relation to this topic.	N.A.

### References and resources

- 207 *GRI 102: Climate Change 2025* lists authoritative intergovernmental instruments and additional references relevant to reporting on this topic.
- The additional authoritative instruments and references used in developing this topic, as well as resources that may be helpful for reporting on climate change by the construction materials sector are listed in the Bibliography.

# Topic 2. Energy

- The construction materials sector is one of the most energy-intensive industrial sectors globally, with substantial environmental and social impacts arising from its energy consumption. Energy is a key
- 215 input to produce cement, lime, concrete, asphalt, and other materials, specifically during the high-
- 216 temperature processing of raw inputs in kilns and furnaces [10]. These activities rely on the
- 217 combustion of fossil fuels, including coal, petroleum coke, and fuel oil, as well as electricity sourced
- 218 from often carbon-intensive grids. As a result, the sector is among the main drivers of energy demand
- 219 across the economy.
- The sector has seen a rise in the use of alternative fuels in the production processes, such as
- bioenergy and renewable waste, hydrogen, or solar and geothermal. Yet, fossil fuels still represent
- the most significant share of fuel consumption in the sector [12]. This energy use contributes
- 223 significantly to greenhouse gas (GHG) emissions, both as direct (Scope 1) emissions from on-site
- 224 combustion and as energy indirect (Scope 2) GHG emissions associated with electricity purchased
- 225 from external providers.

# Reporting on energy

227 If the organization has determined energy to be a <u>material topic</u>, this sub-section lists Disclosure 3-3 228 Management of material topics and Topic Standards identified as relevant for reporting on the topic.



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STANDARD	DISCLOSURE	SECTOR STANDA RD REF. NO.
Manageme	nt of the topic	
GRI 3: Material Topics 2021	Disclosure 3-3 Management of material topics	XX.3.1
Topic Stan	dards	
GRI 103: Energy 2025	The organization needs to identify which disclosures from <i>GRI 103:</i> Energy 2025 are relevant to its impacts in relation to this topic.	N.A.

### References and resources

- 231 GRI 103: Energy 2025 lists authoritative intergovernmental instruments and additional references
- 232 relevant to reporting on this topic.
- 233 The additional authoritative instruments and references used in developing this topic, as well as
- resources that may be helpful for reporting on energy by the construction materials sector are listed in
- the <u>Bibliography</u>.

# Topic 3. Materials

- Materials use is a significant impact area for organizations operating in the construction materials
- sector, as the sector is among the largest consumers of primary raw materials. The sector depends
- heavily on non-renewable minerals used in the production of cement, asphalt, concrete, glass, and
- 240 other foundational construction materials.
- 241 Global use of primary raw materials (including fossil fuels, metals, and non-metallic minerals) is
- expected to nearly double over the next 50 years, rising from 89 gigatonnes in 2017 to 167
- gigatonnes by 2060 [9]. The largest portion of this demand comes from non-metallic minerals, which
- are projected to increase from 44 to 86 gigatonnes, driven largely by rising consumption of sand,
- gravel, and crushed stone [9].
- 246 Material inputs cannot easily be substituted or eliminated. Unlike energy-related emissions that can
- be reduced through fuel switching or efficiency gains, material use is structurally embedded in the
- 248 processes and end-products of the sector. For example, clinker cannot currently be eliminated without
- compromising performance, and alternative binders remain commercially limited [9], [15]. As such, the
- intensity of raw material consumption is tightly coupled with output levels, making absolute reductions
- in material use difficult to achieve as demand for built infrastructure continues to rise [9].

# Reporting on materials

If the organization has determined materials to be a <u>material topic</u>, this sub-section lists Disclosure 3-3 Management of material topics and Topic Standards identified as relevant for reporting on the topic.

STANDARD	DISCLOSURE	SECTOR STANDA RD REF. NO.	
Manageme	Management of the topic		
GRI 3: Material Topics 2021	Disclosure 3-3 Management of material topics	XX.3.1	



Topic Standards		
GRI 301: Materials 2016	The organization needs to identify which disclosures from <i>GRI 301 Materials 2016</i> are relevant to its impacts in relation to this topic.	N.A.

## 256 References and resources

- 257 *GRI 301: Materials 2016* lists authoritative intergovernmental instruments and additional references relevant to reporting on this topic.
- 259 The additional authoritative instruments and references used in developing this topic, as well as
- 260 resources that may be helpful for reporting on materials by the construction materials sector are listed
- in the <u>Bibliography</u>.

# **Topic 4. Waste**

- The construction materials sector generates substantial amounts of waste, tied to industrial production processes, raw material inputs, and hazardous waste and control systems.
- The most significant waste category for the sector activities is cement kiln dust (CKD), a fine,
- 266 hazardous particulate by-product of the cement production process [12]. CKD has high alkalinity, and
- it can contaminate soil and water if improperly stored or disposed. In addition to CKD, other waste
- streams include sludges, baghouse dusts, refractory bricks, and materials from emissions control or
- 269 maintenance operations, some of which may be classified as hazardous depending on the jurisdiction
- 270 [15].

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- 271 Waste generation has potential impacts on air, soil, and water quality, ecosystem degradation near
- 272 disposal or storage sites, and human health risks, particularly for an organization's workforce and
- 273 communities near cement plants or waste landfills.

# Reporting on waste

If the organization has determined waste to be a <u>material topic</u>, this sub-section lists Disclosure 3-3 Management of material topics and Topic Standards identified as relevant for reporting on the topic.

STANDARD	DISCLOSURE	SECTOR STANDA RD REF. NO.
Manageme	nt of the topic	
GRI 3: Material Topics 2021	Disclosure 3-3 Management of material topics	XX.3.1
Topic Standards		
GRI 306: Waste 2020	The organization needs to identify which disclosures from <i>GRI 306:</i> Waste 2020 are relevant to its impacts in relation to this topic.	N.A.

### References and resources

- 279 *GRI 306: Waste 2020* lists authoritative intergovernmental instruments and additional references relevant to reporting on this topic.
- The additional authoritative instruments and references used in developing this topic, as well as
- resources that may be helpful for reporting on waste by the construction materials sector are listed in
- 283 the Bibliography.



# Topic 5. Water and effluents

The construction materials sector exhibits high reliance on water [16], [17]. Water is used throughout the manufacturing process, including for cooling, material washing, rinsing, dust suppression, and in the chemical reactions used during cement and concrete manufacturing. Large volumes of freshwater are withdrawn from surface water or groundwater sources, placing direct pressure on local water bodies.

Water withdrawals can contribute to lower water availability for other users and for ecosystems, especially in regions already experiencing water stress or droughts. Over-extraction may reduce stream flows, degrade wetlands, and harm aquatic habitats. In some cases, it can also lead to salinization and subsidence with knock-on effects on ecosystems and populations.

The sector's activities carry the risk of water pollution through effluent discharges such as slurry water or processed water containing fine particulates and alkaline residues. Discharges may contribute to elevated pH, turbidity, or suspended solids in local waterways, potentially harming aquatic life and altering natural hydrology.

# Reporting on water and effluents

If the organization has determined water and effluents to be a <u>material topic</u>, this sub-section lists Disclosure 3-3 Management of material topics and Topic Standards identified as relevant for reporting on the topic.

STANDARD	DISCLOSURE	SECTOR STANDA RD REF. NO.
Manageme	nt of the topic	
GRI 3: Material Topics 2021	Disclosure 3-3 Management of material topics	XX.3.1
<b>Topic Stan</b>	dards	
GRI 302: Water and Effluents 2018	The organization needs to identify which disclosures from <i>GRI 302:</i> Water and Effluents 2018 are relevant to its impacts in relation to this topic.	N.A.

# References and resources

GRI 302: Water and Effluents 2018 lists authoritative intergovernmental instruments and additional references relevant to reporting on this topic.

The additional authoritative instruments and references used in developing this topic, as well as resources that may be helpful for reporting on water and effluents by the construction materials sector are listed in the <u>Bibliography</u>.

# **Topic 6. Air pollution**

Air pollution is an impact area for the construction materials sector due to the nature of its manufacturing processes and on-site activities. Cement manufacturing, asphalt production, glass melting, and other activities in the sector involve significant on-site fuel combustion and high-temperature chemical reactions. These operations release a range of air pollutants, including nitrogen oxides (NOx), sulphur dioxide (SO<sub>2</sub>), particulate matter (PM), volatile organic compounds (VOCs), dioxins, and heavy metals such as mercury.



- The construction materials sector, particularly cement manufacturing, is a significant contributor to global greenhouse gas (GHG) emissions, which are the single biggest contributor to climate change.

  Concrete and cement producers alone are responsible for roughly 7–8% of global CO<sub>2</sub> emissions, making it the second-largest source of industrial emissions.
- These pollutants can have severe local and regional environmental and health impacts. Elevated levels of NOx and SO<sub>2</sub> contribute to acid rain and the formation of ground-level ozone, which harm vegetation, soil health, and water bodies. Fine particulate matter (PM2.5 and PM10) reduces air quality, affecting both nearby ecosystems and human health in surrounding communities. The sector's air emissions are often concentrated around production facilities with localized impacts on air quality for an organization's workers as well as the local communities.

# Reporting on air pollution

 If the organization has determined climate change to be a <u>material topic</u>, this sub-section lists Disclosure 3-3 Management of material topics and Topic Standards identified as relevant for reporting on the topic.

STANDARD	DISCLOSURE	SECTOR STANDA RD REF. NO.
Manageme	nt of the topic	
GRI 3: Material Topics 2021	Disclosure 3-3 Management of material topics	XX.3.1
Topic Stan	dards	
GRI 305: Emissions 2016	The organization needs to identify which disclosures from <i>GRI 305: Emissions 2016</i> are relevant to its impacts in relation to this topic.	N.A.

# References and resources

- *GRI 305: Emissions 2016* lists authoritative intergovernmental instruments and additional references relevant to reporting on this topic.
- The additional authoritative instruments and references used in developing this topic, as well as resources that may be helpful for reporting on air pollution by the construction materials sector are listed in the Bibliography.

# Topic 7. Soil pollution

Soil pollution is an impact area for the construction materials sector due to widespread sector activities. Activities such as cement and glass manufacturing, storage of raw materials, use of fuels and lubricants, and disposal of industrial by-products can lead to the release of alkaline compounds and heavy metals such as lead (Pb), cadmium (Cd), chromium (Cr), nickel (Ni), and zinc (Zn), which accumulate in soils surrounding cement plants [16], [17] These pollutants alter the physical and chemical properties of the soil, increasing alkalinity, electrical conductivity, and water retention while reducing natural fertility. Such soil contamination poses serious ecological risks while also entering the food chain through crops grown in polluted soil [16]. Heavy metals are non-biodegradable and persist in the environment, accumulating over time and posing long-term health hazards to humans. Chronic exposure to lead, cadmium, or chromium, for example, can cause neurotoxicity, kidney and liver damage, and cancer [16].



# Reporting on soil pollution

If the organization has determined soil pollution to be a <u>material topic</u>, this sub-section lists Disclosure 3-3 Management of material topics and Topic Standards identified as relevant for reporting on the topic.

STANDARD	DISCLOSURE		SECTOR STANDA RD REF. NO.
Manageme	nt of the topic		
GRI 3: Material Topics 2021	Disclosure 3-3 Management of material topics		XX.3.1
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### References and resources

The additional authoritative instruments and references used in developing this topic, as well as resources that may be helpful for reporting on soil pollution by the construction materials sector are listed in the Bibliography.

# **Topic 8. Noise pollution**

Noise is an impact area for the construction materials sector due to the continuous operation of heavy machinery, blasting, crushing, grinding, and transportation activities associated with the production of materials such as cement, stone, and glass. Activities such as quarry blasting, cement kiln operation, stone cutting, and the loading and transport of aggregates generate significant and often persistent noise levels.

Noise pollution from the cement industry arises from mechanical operations (grinding mills, crushers, and conveyors), electromagnetic sources from heavy electrical equipment, and gas dynamics during material processing. Noise levels in cement plants often exceed 100 dBA, well above the recommended safety threshold of 85 dBA for an eight-hour workday [16]. Prolonged exposure to such high noise levels can lead to noise-induced hearing loss (NIHL), tinnitus, headaches, irritability, and insomnia among workers. Local communities living near manufacturing sites are substantially affected by noise pollution as well. People living close to these facilities experience sleep disturbances, stress, fatigue, and reduced quality of life due to persistent noise levels. Beyond human health, noise also disrupts surrounding ecosystems; loud industrial sounds disturb wildlife communication, reproduction, and migration, contributing to biodiversity loss in nearby areas.

# Reporting on noise pollution

If the organization has determined noise pollution to be a <u>material topic</u>, this sub-section lists Disclosure 3-3 Management of material topics and Topic Standards identified as relevant for reporting on the topic.

STANDARD	DISCLOSURE	SECTOR STANDA RD REF. NO.
Management of the topic		



GRI 3: Material Topics 2021	Disclosure 3-3 Management of material topics	XX.3.1	
Topic Stan	Topic Standards		

### References and resources

The additional authoritative instruments and references used in developing this topic, as well as resources that may be helpful for reporting on noise pollution by the construction materials sector are listed in the <u>Bibliography</u>.

# **Topic 9. Biodiversity**

The construction materials sector creates biodiversity impacts due to the scale and nature of its activities. The sector's activities rely on the use of raw material resources such as water and minerals. Activities such as quarrying, sand extraction, limestone mining, and the production of cement, glass, and tiles involve large-scale land conversion, which requires clearing vegetation, removing topsoil, and blasting rock deposits. During processing and manufacturing, substantial amounts of water are required, which are withdrawn from surrounding seas and freshwater bodies. These activities result in habitat loss, soil degradation, and changes to local landforms and water systems.

The sector is also a major source of GHG emissions, particularly from cement production (see Topic 1. Climate change). By driving climate change, these emissions contribute to biodiversity loss through rising temperatures, shifting ecosystems, and increased frequency of extreme weather events, all of which threaten species survival and all ecosystems.

Air pollutants (see Topic 6. Air pollution), dust, and noise pollution from processing and manufacturing operations can affect nearby species and ecosystems. Water discharges containing fine particles, alkaline substances, or heavy metals can harm aquatic life and reduce water quality.

# Reporting on biodiversity

If the organization has determined biodiversity to be a <u>material topic</u>, this sub-section lists Disclosure 3-3 Management of material topics and Topic Standards identified as relevant for reporting on the topic.

STANDARD	DISCLOSURE	SECTOR STANDA RD REF. NO.	
Manageme	nt of the topic		
GRI 3: Material Topics 2021	Disclosure 3-3 Management of material topics	XX.3.1	
<b>Topic Stan</b>	Topic Standards		
GRI 101: Biodiversity 2024	The organization needs to identify which disclosures from <i>GRI 101:</i> Biodiversity 2024 are relevant to its impacts in relation to this topic.	N.A.	

### References and resources



*GRI 101: Biodiversity 2024* lists authoritative intergovernmental instruments and additional references relevant to reporting on this topic.

The additional authoritative instruments and references used in developing this topic, as well as resources that may be helpful for reporting on biodiversity by the construction materials sector are listed in the <u>Bibliography</u>.

# Topic 10. Occupational health and safety

The construction materials sector presents high risks to worker health and safety due to the nature of its operations. These include raw material handling, heavy machinery use, operation of high-temperature kilns, and exposure to hazardous dust, chemicals, and noise. Various production elements of cement and concrete expose industrial workers to silica dust, toxic fumes, and other hazardous chemicals [18]. Activities such as cement production, concrete mixing, and asphalt manufacturing are associated with an above-average incidence of occupational injuries, chronic respiratory illness, musculoskeletal disorders, and fatal accidents [19], [20], [21]. Long-term adverse health outcomes from prolonged exposure to respirable crystalline silica and industrial dust include permanent disability or early mortality [16], [21]. The health impacts extend beyond the individual worker, with significant consequences for families, communities, and public health systems.

# Reporting on occupational health and safety

If the organization has determined occupational health and safety to be a <u>material topic</u>, this subsection lists Disclosure 3-3 Management of material topics and Topic Standards identified as relevant for reporting on the topic.

STANDARD	DISCLOSURE	SECTOR STANDA RD REF. NO.
Manageme	nt of the topic	
GRI 3: Material Topics 2021	Disclosure 3-3 Management of material topics	XX.3.1
Topic Stan	dards	
GRI 403: Occupation al Health and Safety 2018	The organization needs to identify which disclosures from <i>GRI 403:</i> Occupational Health and Safety 2018 are relevant to its impacts in relation to this topic.	N.A.

### References and resources

*GRI 403: Occupational Health and Safety 2018* lists authoritative intergovernmental instruments and additional references relevant to reporting on this topic.

The additional authoritative instruments and references used in developing this topic, as well as resources that may be helpful for reporting on occupational health and safety by the construction materials sector are listed in the <u>Bibliography</u>.

# **Topic 11. Employment**

Organizations in the construction materials sector contribute to job creation at local, national, and global levels. The sector supports a wide range of employment relationships across its value chain through production, storage, distribution, and related services. ILO estimates that around 1.6% of the global workforce works in the building materials industry, over 55 million people [21], [22].



Climate transition efforts within the sector may create both positive and negative employment impacts. Changes in production methods, the adoption of new technologies, and shifts in raw material sourcing can generate new job opportunities. However, they can also result in job displacement, skills mismatches, or challenges for small and medium-sized enterprises in adapting to emerging sector practices.

# **Reporting on Employment**

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If the organization has determined employment to be a <u>material topic</u>, this sub-section lists Disclosure 3-3 Management of material topics and Topic Standards identified as relevant for reporting on the topic.

STANDARD	DISCLOSURE	SECTOR STANDA RD REF. NO.
Manageme	nt of the topic	1
GRI 3: Material Topics 2021	Disclosure 3-3 Management of material topics	XX.3.1
Topic Stan	dards	
GRI 401: Employmen t 2016	The organization needs to identify which disclosures from <i>GRI 401:</i> Employment 2016 are relevant to its impacts in relation to this topic.	N.A.
GRI 404: Training and Education 2016	The organization needs to identify which disclosures from <i>GRI 404:</i> Training and Education 2016 are relevant to its impacts in relation to this topic.	N.A.
GRI 102: Climate Change 2025	The organization needs to identify which disclosures from <i>GRI 102:</i> Climate Change 2025 are relevant to its impacts in relation to this topic.	N.A

### References and resources

- 447 GRI 401: Employment 2016, GRI 404: Training and Education 2016, GRI 102: Climate Change 2025
- lists authoritative intergovernmental instruments and additional references relevant to reporting on this topic.
- The additional authoritative instruments and references used in developing this topic, as well as
- resources that may be helpful for reporting on employment by the construction materials sector are listed in the Bibliography.

# **Topic 12. Corruption**

- Organizations in the construction materials sector participate in a broader ecosystem of actors involved in the delivery of major infrastructure projects, including roads, bridges, airports, and public housing. These projects are often financed by governments through multi-year contracts that require complex coordination across procurement, permitting, inspection, and financing processes. Within this ecosystem, the sector's position as a key supplier of essential building materials places it at critical
- ecosystem, the sector's position as a key supplier of essential building materials places it at critical
- junctures where corruption-related risks can emerge.
- The layered networks of contractors, subcontractors, and suppliers characteristic of large
- infrastructure projects create vulnerabilities to bribery, extortion, and collusion at various stages of



project delivery. During construction, the sequential nature of work, in which earlier stages are often concealed beneath subsequent layers, can obscure verification of material quality or quantity. This lack of transparency can be exploited to inflate material costs, falsify documentation, or conceal substandard work, sometimes in collusion with public officials responsible for oversight. Such practices can lead to the misallocation of public funds, compromise the quality and safety of infrastructure, and undermine public trust in both government institutions and organizations in the sector.

# Reporting on corruption

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If the organization has determined corruption to be a <u>material topic</u>, this sub-section lists Disclosure 3-3 Management of material topics and Topic Standards identified as relevant for reporting on the topic.

STANDARD	DISCLOSURE	SECTOR STANDA RD REF. NO.
Manageme	nt of the topic	
GRI 3: Material Topics 2021	Disclosure 3-3 Management of material topics	XX.3.1
Topic Standards		
GRI 205: Anti- corruption 2016	The organization needs to identify which disclosures from <i>GRI 205:</i> Anti-corruption 2016 are relevant to its impacts in relation to this topic.	N.A.

### References and resources

- 474 GRI 205: Anti-corruption 2016 lists authoritative intergovernmental instruments and additional
- 475 references relevant to reporting on this topic.
- The additional authoritative instruments and references used in developing this topic, as well as
- 477 resources that may be helpful for reporting on corruption by the construction materials sector are
- 478 listed in the Bibliography.

# Topic 13. Anti-competitive behavior

- 480 The construction materials sector has a high risk of anti-competitive practices. The sector is
- dominated by a small number of large corporations, many of which have significant control over
- regional markets. High capital intensity, large infrastructure investments, and logistical constraints tied
- 483 to the bulk and weight of materials often lead to regional concentration and limited competition. These
- 484 dynamics leave the sector vulnerable to anti-competitive practices. Documented cases have
- 485 highlighted practices such as strategic acquisitions aimed at eliminating competitors, pricing
- 486 strategies that suppress smaller market participants, and cartel-like collusion to fix prices or divide
- 487 markets geographically [23].

# Reporting on Anti-competitive behavior

- 489 If the organization has determined anti-competitive behavior to be a material topic, this sub-section
- 490 lists Disclosure 3-3 Management of material topics and Topic Standards identified as relevant for
- reporting on the topic.

STANDARD	DISCLOSURE	SECTOR
		STANDA



		RD REF. NO.
Manageme	nt of the topic	
GRI 3: Material Topics 2021	Disclosure 3-3 Management of material topics	XX.3.1
Topic Standards		
GRI 206: Anti- competitive Behavior 2016	The organization needs to identify which disclosures from <i>GRI 206:</i> Anti-competitive Behavior 2016 are relevant to its impacts in relation to this topic.	N.A.

## References and resources

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- 494 *GRI 206: Anti-competitive Behavior 2016* lists authoritative intergovernmental instruments [and additional references] relevant to reporting on this topic.
- The additional authoritative instruments and references used in developing this topic, as well as resources that may be helpful for reporting on anti-competitive behavior by the construction materials sector are listed in the Bibliography.

# **Topic 14. Supplier social impacts**

- Organizations in the construction materials sector rely heavily on raw materials such as limestone, gypsum, clay, aggregates, and other mineral inputs. While many organizations in this sector operate their own quarrying operations, many others rely on suppliers. The supply chains commonly seen in this sector involve high-risk sectors and locations where worker protections may be weak or nonexistent.
- Social impacts linked to suppliers are material for the sector due to the prevalence of hazardous working conditions, informal employment, and insufficient access to labor rights protections, especially in small-scale mining operations or third-party logistics and construction support services. Risks such as child labor, excessive working hours, wage violations, and a lack of occupational health and safety standards are more likely in complex subcontracting arrangements and among migrant, temporary, or low-skilled workers.

# 511 Reporting on supplier social impacts

If the organization has determined supplier social impacts to be a <u>material topic</u>, this sub-section lists Disclosure 3-3 Management of material topics and Topic Standards identified as relevant for reporting on the topic.

STANDARD	DISCLOSURE	SECTOR STANDA RD REF. NO.	
Manageme	Management of the topic		
GRI 3: Material Topics 2021	Disclosure 3-3 Management of material topics	XX.3.1	
Topic Standards			



GRI 414: Supplier	The organization needs to identify which disclosures from <i>GRI 414:</i> Supplier Social Assessment 2016 are relevant to its impacts in relation	N.A.
Social	to this topic.	
Assessmen		
t 2016		

### References and resources

- *GRI 414: Supplier Social Assessment 2016* lists authoritative intergovernmental instruments and additional references relevant to reporting on this topic.
- The additional authoritative instruments and references used in developing this topic, as well as resources that may be helpful for reporting on supplier social impacts by the construction materials sector are listed in the Bibliography.

# **Topic 15. Supplier environmental impacts**

Organizations in the construction materials sector rely heavily on raw materials such as limestone, gypsum, clay, aggregates, and other mineral inputs. While many organizations in this sector operate their own quarrying operations, many others rely on suppliers. The upstream environmental impacts are often beyond the immediate control of construction materials organizations but are nonetheless a material consequence of their procurement practices. For example, the environmental performance of a supplier's quarrying operation, such as how it manages water withdrawals, waste generation, or biodiversity impacts, can contribute to the overall environmental footprint of a construction materials organization.

# Reporting on supplier environmental impacts

If the organization has determined supplier environmental impacts to be a <u>material topic</u>, this subsection lists Disclosure 3-3 Management of material topics and Topic Standards identified as relevant for reporting on the topic.

STANDARD	DISCLOSURE	SECTOR STANDAR D REF. NO.
Managemen	t of the topic	
GRI 3: Material Topics 2021	Disclosure 3-3 Management of material topics	XX.3.1
Topic Stand	ards	
GRI 308: Supplier Environment al Assessment 2016	The organization needs to identify which disclosures from <i>GRI 308:</i> Supplier Environmental Assessment 2016 are relevant to its impacts in relation to this topic.	N.A.

### References and resources

- *GRI 308:* Supplier Environmental Assessment 2016 lists authoritative intergovernmental instruments and additional references relevant to reporting on this topic.
- The additional authoritative instruments and references used in developing this topic, as well as resources that may be helpful for reporting on supplier environmental impacts by the construction materials sector are listed in the <u>Bibliography</u>.



# **Topic 16. Local communities**

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- Organizations in the construction materials sector often operate in close proximity to local communities. Their operations can generate significant environmental and social impacts, including land use change, dust and noise pollution, increased traffic, and pressure on shared resources like water and land. In some cases, communities may also face displacement or lose access to livelihoods due to the expansion of manufacturing sites.
- Community voices and concerns can be disregarded, especially in contexts where land rights, cultural heritage, or environmental concerns are not adequately addressed or where communities may lack
- the means to voice concerns or participate meaningfully in decision-making.

# Reporting on local communities

If the organization has determined local communities to be a <u>material topic</u>, this sub-section lists Disclosure 3-3 Management of material topics and Topic Standards identified as relevant for reporting on the topic.

STANDARD	DISCLOSURE	SECTOR STANDA RD REF. NO.
Manageme	nt of the topic	
GRI 3: Material Topics 2021	Disclosure 3-3 Management of material topics	XX.3.1
Topic Standards		
GRI 413: Local Communiti es 2016	The organization needs to identify which disclosures from <i>GRI 413:</i> Local Communities 2016 are relevant to its impacts in relation to this topic.	N.A.

# References and resources

557 *GRI 413: Local Communities 2016* lists authoritative intergovernmental instruments and additional references relevant to reporting on this topic.

The additional authoritative instruments and references used in developing this topic, as well as resources that may be helpful for reporting on local communities by the construction materials sector are listed in the Bibliography.



### **Glossary** 563 This glossary provides definitions for terms used in this Standard. The organization is required to apply these definitions when using the GRI Standards. 564 565 The definitions included in this glossary may contain terms that are further defined in the complete GRI Standards Glossary. All defined terms are underlined. If a term is not defined in this glossary or in 566 the complete GRI Standards Glossary, definitions that are commonly used and understood apply. 567 568 569 anti-competitive behavior 570 action of the organization or employees that can result in collusion with potential competitors, 571 with the purpose of limiting the effects of market competition 572 business relationships 573 relationships that the organization has with business partners, with entities in its value chain including those beyond the first tier, and with any other entities directly linked to its 574 575 operations, products, or services 576 corruption 'abuse of entrusted power for private gain', which can be instigated by individuals or 577 578 organizations direct (Scope 1) GHG emissions 579 greenhouse gas (GHG) emissions from sources that are owned or controlled by the 580 581 organization 582 disposal 583 any operation which is not recovery, even where the operation has as a secondary 584 consequence the recovery of energy effluent 585 treated or untreated wastewater that is discharged 586 energy indirect (Scope 2) GHG emissions 587 588 greenhouse gas (GHG) emissions that result from the generation of purchased or acquired 589 electricity, heating, cooling, and steam consumed by the organization 590 greenhouse gas (GHG) 591 gas that contributed to the greenhouse effect by absorbing infrared radiation 592 groundwater water that is being held in, and that can be recovered from, and underground formation 593 594 hazardous waste 595 waste that possesses any of the characteristics contained in Annex III of the Basel 596 Convention, or that is considered to be hazardous by national legislation 597 human rights 598 rights inherent to all human beings, which include, at a minimum, the rights set out in the 599 United Nations (UN) International Bill of Human Rights and the principles concerning 600 fundamental rights set out in the International Labour Organization (ILO) Declaration on 601 Fundamental Principles and Rights at Work



602	impact
603 604 605	effect the organization has or could have on the economy, environment, and people, including on their human rights, which in turn can indicate its contribution (negative or positive) to sustainable development
606	local community
607 608	individuals or groups of individuals living or working in areas that are affected or that could be affected by the organization's activities
609	material topics
610 611	topics that represent the organization's most significant impacts on the economy, environment, and people, including impacts on their human rights
612	supplier
613 614 615	entity upstream from the organization (i.e., in the organization's supply chain), which provides a product or service that is used in the development of the organization's own products or services
616	supply chain
617 618 619	range of activities carried out by entities upstream from the organization, which provide products or services that are used in the development of the organization's own products or services
620	surface water
621 622	water that occurs naturally on the Earth's surface in ice sheets, ice caps, glaciers, icebergs, bogs, ponds, lakes, rivers, and streams
623	sustainable development/sustainability
624 625	development that meets the needs of the present without compromising the ability of future generations to meet their own needs
626	value chain
627 628 629	range of activities carried out by the organization, and by entities upstream and downstream from the organization, to bring the organization's products or services from their conception to their end use
630	waste
631	anything that the holder discards, intends to discard, or is required to discard
632	water discharge
633 634 635	sum of effluents, used water, and unused water released to surface water, groundwater, seawater, or a third party, for which the organization has no further use, over the course of the reporting period
636	water stress
637	ability, or lack thereof, to meet the human and ecological demand for water
638	water withdrawal
639 640	sum of all water drawn from surface water, groundwater, seawater or a third party for any use over the course of the reporting period
641	worker
642	person that performs work for the organization



# **Bibliography**

- This section lists authoritative intergovernmental instruments and additional references used in
- developing this Standard, as well as resources that the organization can consult.

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