

InterregVI– A Italy - Austria

# EDU-CIRC

Cross-border Network for circular economy training and decarbonisation in manufacturing

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Interreg VI –A Italy - Austria  
Cooperation programme  
2021-2027

# MINIMUM ENVIRONMENTAL CRITERIA FOR CONSTRUCTION

STEP 3

Meetings at ESEV CPT Verona

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# AGENDA

- General indications for the contracting authority
- Structure of CAMs in general
- Structure of Construction CAM
- In-depth analysis of the Construction CAM Specific
- indications for materials and for the construction site

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# GENERAL ASPECTS AND CONCEPTS OF CAM FOR CONSTRUCTION

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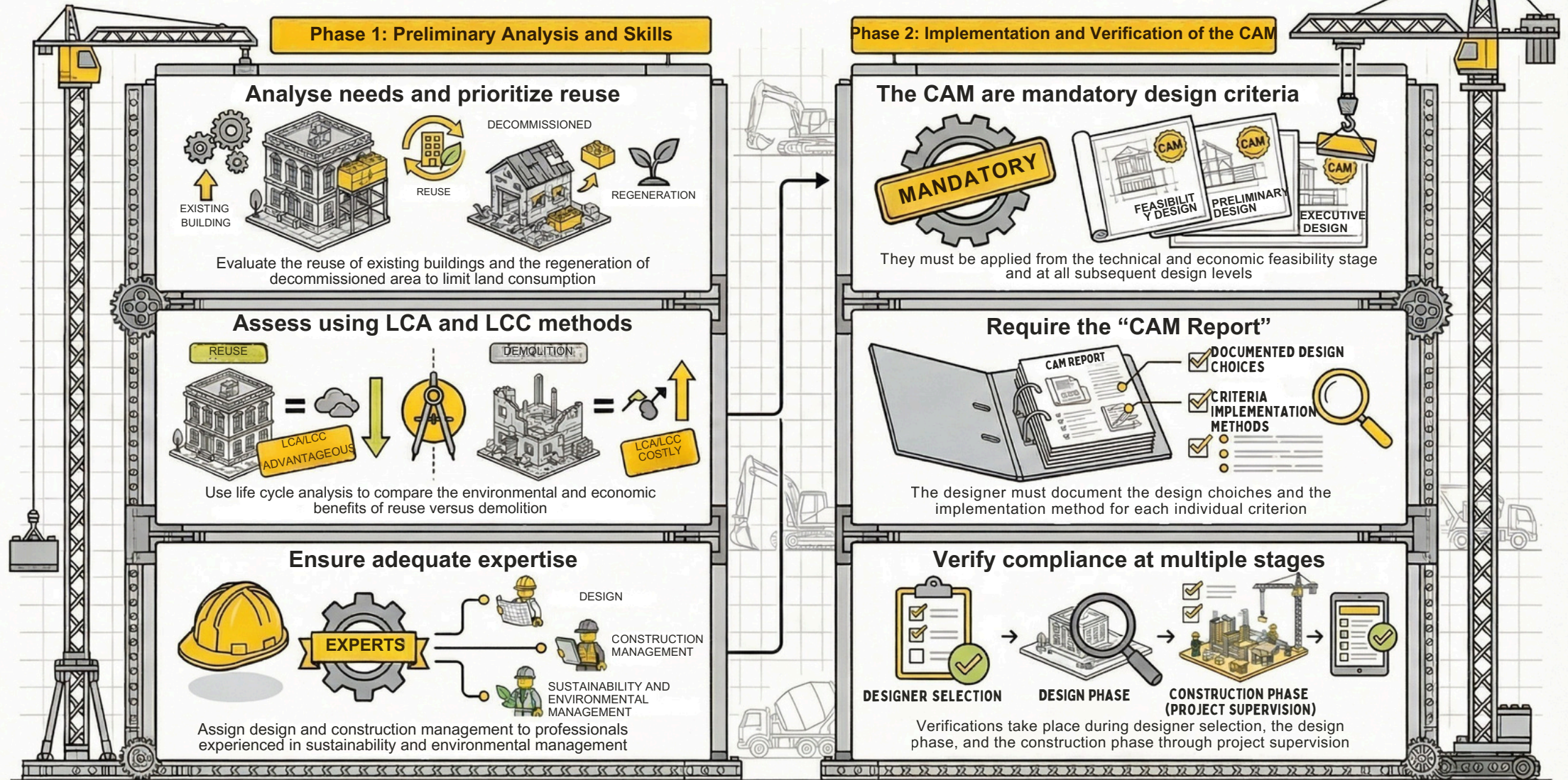
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# Sustainable Construction Procurement: a Guide for the Contracting Authority



NotebookLM

# Structure of the Assignment of Construction Works



## Assignment of the Design Service

Criteria for selecting designers for construction projects



## Assignment of the Construction Works

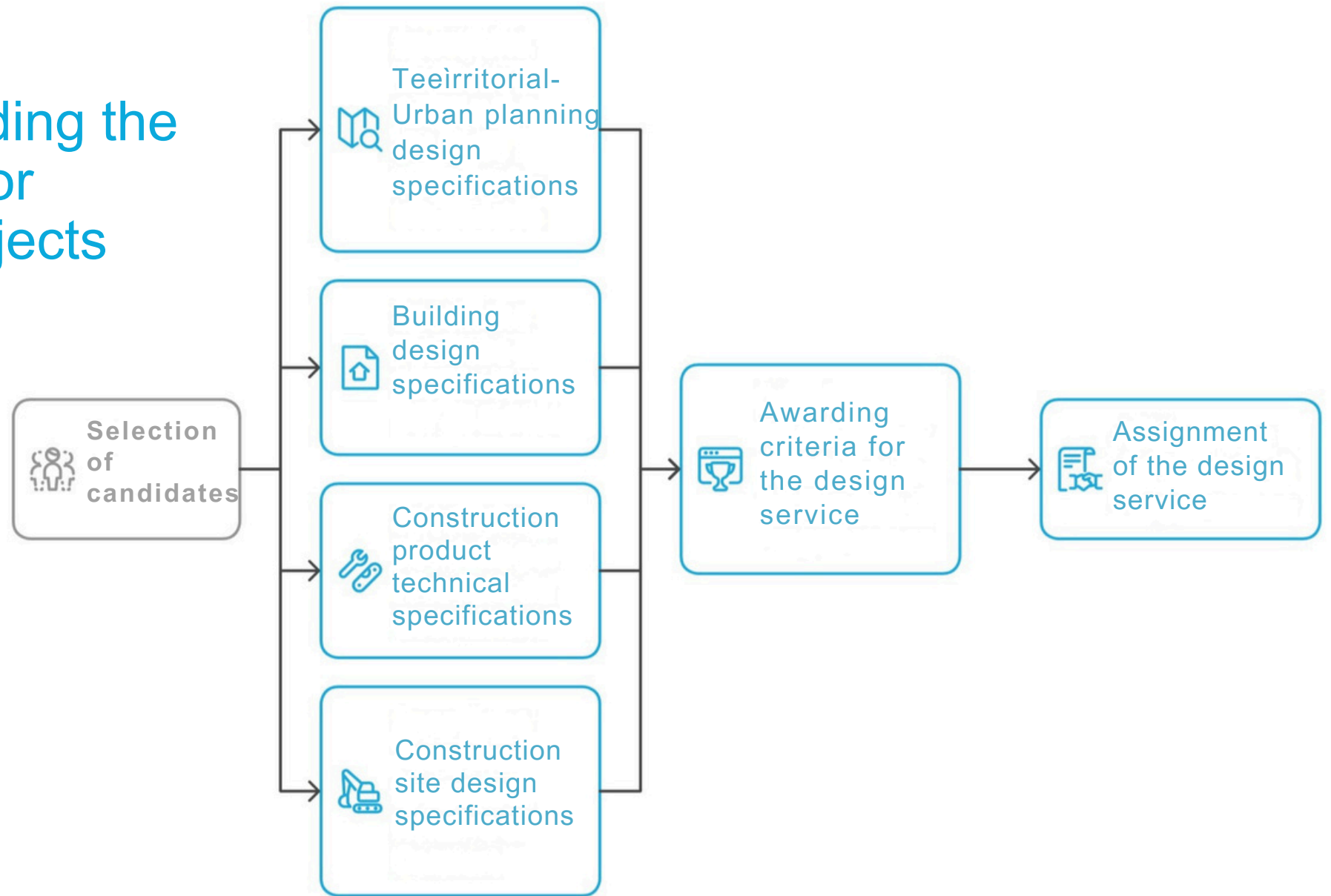
Criteria for selecting contractors for construction projects



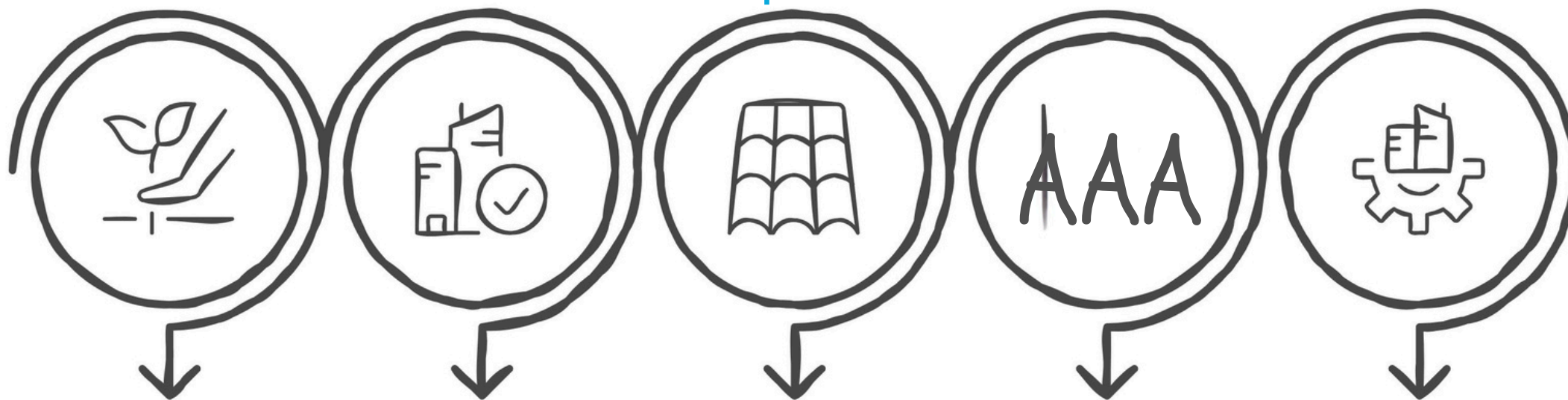
## Joint Assignment of Design and Construction

Criteria for selecting suppliers who provide both design and construction services

# Criteria for Awarding the Design Service for Construction Projects



# Technical and Professional Competence



## CAM Projects

Projects that integrate the Minimum Environmental Criteria

## Certified Projects

Projects submitted for energy and environmental sustainability certification

## nZEB Projects

Projects compliant with Nearly ZERo Energy Building standards

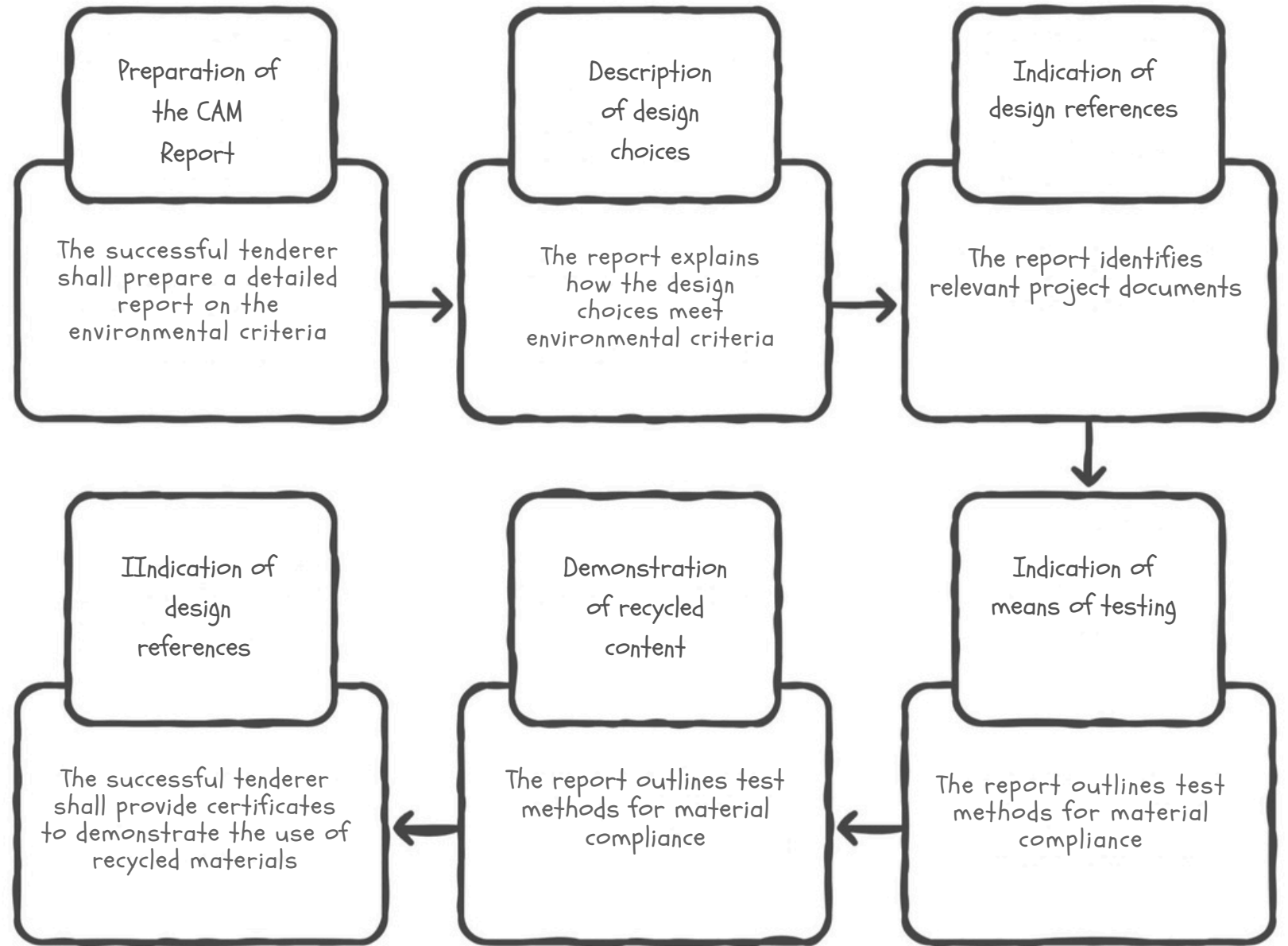
## LCA Projects

Projects using low environmental impact materials, verified through Life Cycle Assessment (LCA)

## Commissioning Projects

Projects subjected to Commissioning to optimize the design process

# Contents of the CAM Report



# The CAM Report: a guide to environmental compliance in Building Projects

## The 4 pillars of the CAM Report

### What is the CAM Report?

It is a mandatory technical document where the designer describes in detail how each Minimum Environmental Criterion is met in the project.

### 2. Indicate the reference processors

Specify in which project documents (graphics, coels, diagrams) evidence of compliance with the criteria is found

### 1. Describe the design choices

For each criterion, illustrate the technical solutions, materials and technologies adopted to ensure compliance.

### 2. Indicate the reference papers



Specify project documents (graphical tables, calculations, diagrams) and find evidence of compliance with the criteria

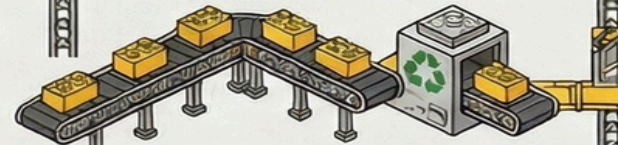
List the environmental characteristics required for construction products, in accordance with CAM

### Specify the means of testing

Identify the certifications, test reports and documents to be submitted by the undertaking to the construction manager for site verifications

## Demonstrate the recycled material content

**How to try the percentage of recycled**  
Compliance with the requirements on the content of recycled, recovered or by-product material shall be demonstrated with one of the following certificates



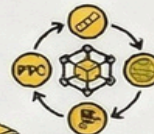
**Environmental Product Statement (EPB):**  
Complies with UNI EN 13804 and UNI EN 160 14035, which specifies the percentage



**RoMade in Italy Certification:**  
With indication on the label of the percentage of recycled or by-product material



**"Second-Life Plastic" brand:**  
With indication of the percentage of recycled on the certificate



**Specific certifications:**  
For the PFC, the "VinyiPlus Product Label", for other materials, product certifications based on traceability

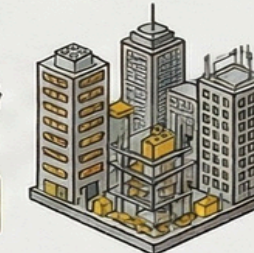
## Handling exceptions: when a criterion is not applicable

### Justify non-application

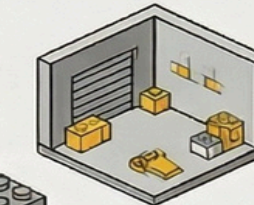
The report shall contain a detailed description of the technical reasons which led to the partial or non-application of a criterion



**Case 1: Produced or Nos Material Expected**  
The criterion is rooted in a component or material which is not used in the specific project.



**Case 2: Conditions Specifications from the Site**  
In particular context (e.g., reduced surface area in an urban area consolidated) impediace the full application of a criteria



**Case 3: Particular use destinations**  
Some criteria (e.g. energy presentation) are not congruent with rooms with occasional use

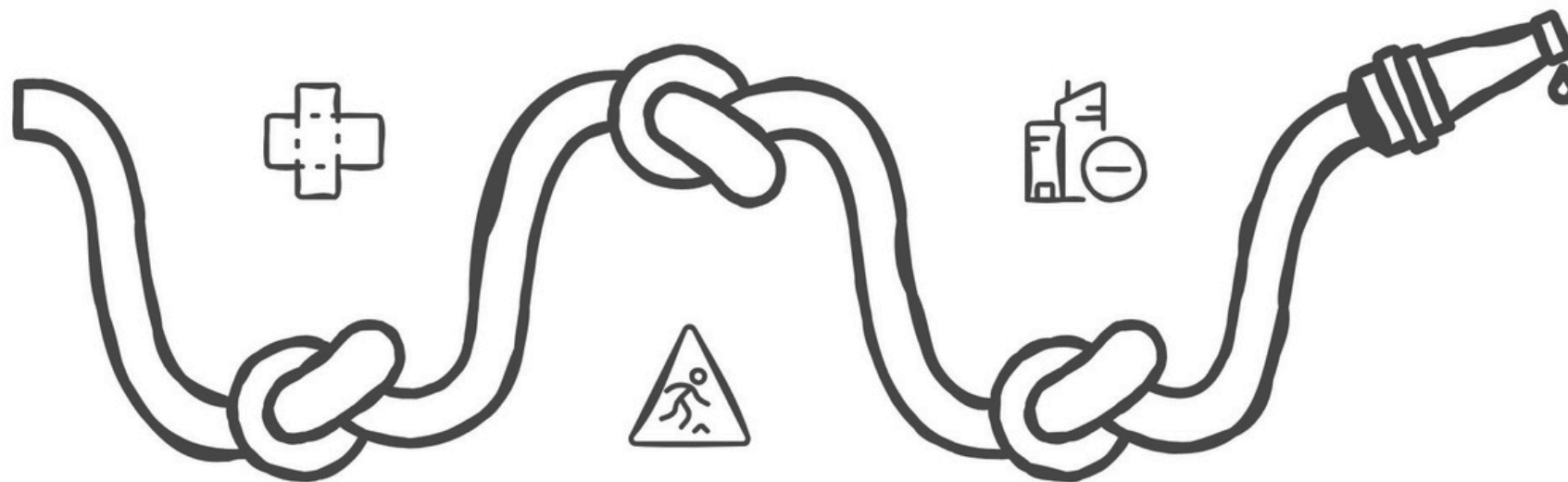
# Project specifications

- 2.3-Technical design specifications of territorial-urban planning level
- 2.4-Technical design specifications for buildings
- 2.5-Technical specifications for construction products
- 2.6-Technical design specifications relating to the construction site

# Obstacles to the application of CAM

Materials not foreseen  
Product not foreseen in the project

Intended uses  
Specifications not congruent for use

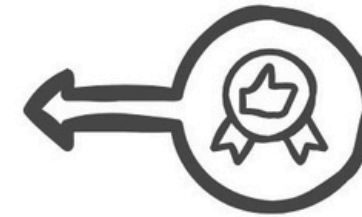
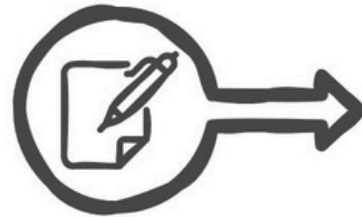


Site conditions

They prevent full application of CAM

# Criteria for awarding construction work

Contractual clauses  
Terms and conditions  
governing the agreement



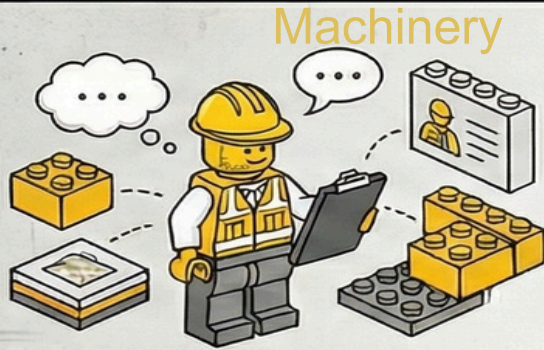
Rewarding criteria  
Factors that improve  
the likelihood of winning  
the job

Made with  Napkin

# CAM Contractual Clauses: environmental requirements for construction work

The goal is to reduce the impact of construction activities, focusing on personnel, machinery, and lubricants.

## Construction Site Personnel and Machinery

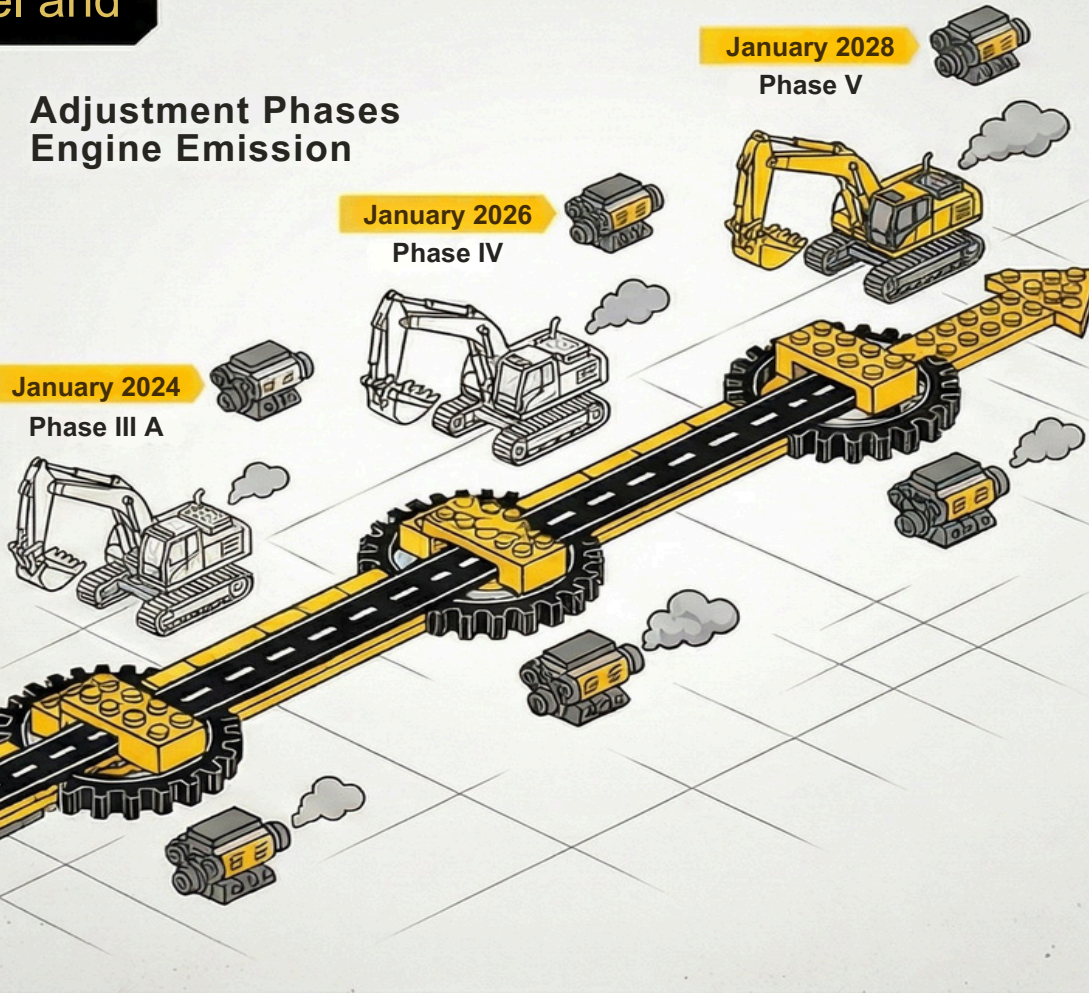


### Adjustment Phases Engine Emission

January 2024  
Phase III A

January 2026  
Phase IV

January 2028  
Phase V



### Environmental training for supervisors

Foremen and site managers must be trained in waste management, wastewater discharge management, and dust control.

## Lubricating Fats and Oils



Mineral oil



Eco-friendly

### Priority to Eco-friendly Lubricants

Obligation to use biodegradable or based oils regenerated, if compatible with the vehicle.

### Minimum Basic Content Regenerated



Exchange (30%)



Engine (40%)



Plumbers (80%)



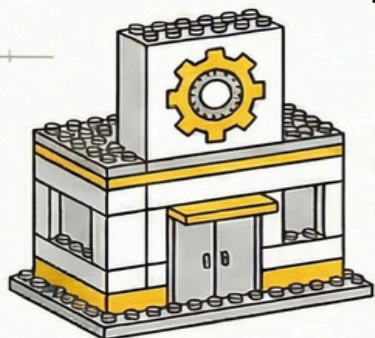
### Packaging in Plastic Sustainable

The primary packaging of the oils shall contain at least 25% of recycled plastic.

# Reward Criteria for Sustainable Construction Contracts

They encourage companies to propose solutions and practices that go beyond minimum environmental standards, promoting excellence in sustainable construction.

## Corporate and Process Excellence



### Certified Environmental Management

Earn points with EMAS registration or certification according to the UNI EN ISO 14001 standard.

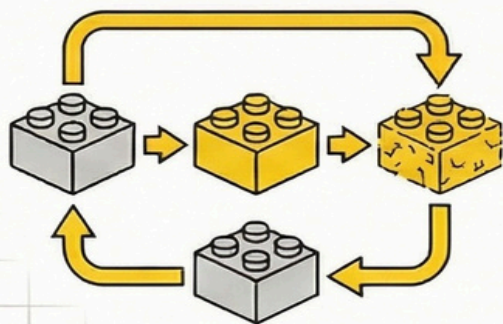
### ESG Risk Assessment

A score rewards companies that conduct an assessment of non-financial risks (Environmental, Social, and Governance).



### Life Cycle Optimization

Propose improvements based on Life Cycle Assessment (LCA) and Life Cycle Costing (LCC) analysis.



## Excellence in Materials and On-Site Operations

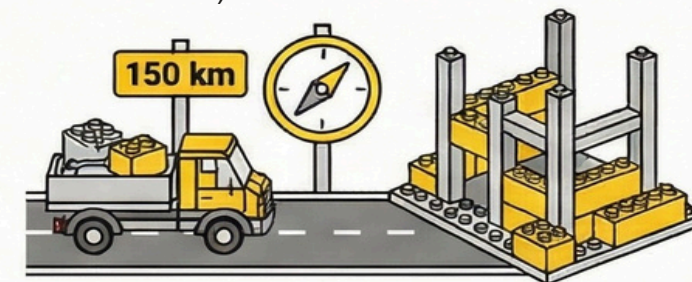


### Enhanced Performance Products

Use products with higher recycled content or with environmental labels (e.g., EU Ecolabel).

### Short Supply Chain Procurement

Prioritize supplies for at least 60% by weight sourced within 150 km of the construction site.



### Technical Capacity of Installers

Employ installers with specific certifications and professional qualifications for the materials to be installed.



### Superior Indoor Air Quality

Use materials with pollutant emissions (VOC, formaldehyde) even lower than the minimum limits.

# Criteria for the Joint Award of Design and Construction Works for Building Projects

## Contractual Clauses

Sets the legal conditions and the responsibilities of the parties.

## Design Technical Specifications

Outlines the technical requirements for project implementation.

## Reward Criteria

Defines the parameters for evaluating the project's performance and quality.



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# SPECIFIC GUIDELINES FOR MATERIALS AND ON-SITE OPERATIONS

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# CAM CONSTRUCTION: ENVIRONMENTAL REQUIREMENTS FOR BUILDING PRODUCTS

## KEY REQUIREMENTS AND VERIFICATIONS



### STATUTORY MANDATORY CRITERIA

CAM requirements are not optional, but mandatory for public procurement.



### HOW TO DEMONSTRATE COMPLIANCE

Proof of recycled content requires specific certifications such as EPD, ReMade in Italy®, or others.



### SUBMISSION TIMELINES

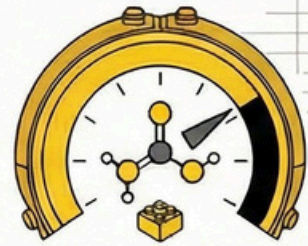
Compliance documentation must be submitted before the acceptance of materials on site.

## INDOOR AIR QUALITY: EMISSION LIMITS



Total COV  
**< 1500 µg/m³**

28-Day Emission Limit for Total Volatile Organic Compounds (VOCs).



Formaldehyde  
**< 60 µg/m³**

Specific Limit for Formaldehyde, One of the Most Common and Harmful Substances.



Carcinogenic substances  
**< 1 µg/m³**

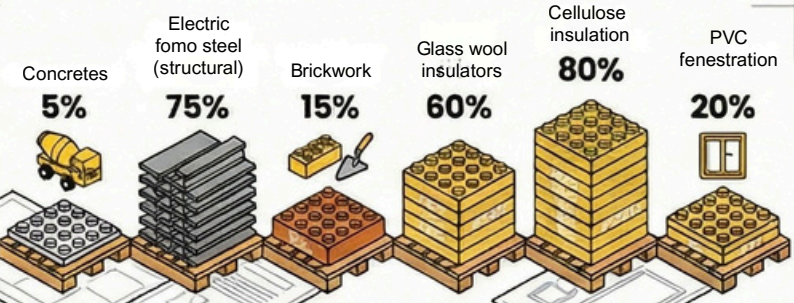
Extremely Restrictive Limit for Each Substance Classified as Carcinogenic.

## MINIMUM CONTENT OF RECYCLED MATERIAL



### Mandatory Recycled/Recovered Content

Many products must contain a minimum percentage of material sourced from recycling or recovery.



# CAM Construction: Environmental Requirements for Building Products

## Fundamental Rules



### Mandatory of the Criteria

CAM requirements are legally mandatory in public procurement.



### Test of the Content Recycled

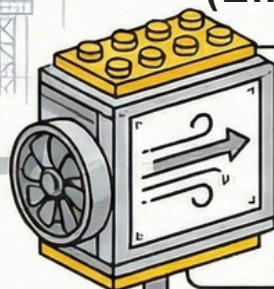
The percentage of recycled material must be demonstrated with specific certifications



### Timing of Verification

The documentation of compliance must be presented before acceptance of the candied materials.

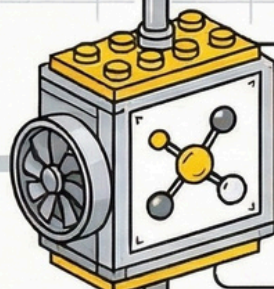
## Indoor Air Quality (Emissions)



### Total COV limit

**< 1500  $\mu\text{g}/\text{m}^3$**

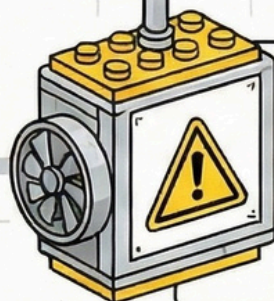
Maximum emission of compounds volatile organic at 28 jomes from the product.



### Formaldehyde limit

**< 60  $\mu\text{g}/\text{m}^3$**

Key requirement for health and comfort in neighbouring environments



### Limit carcinogenic substances

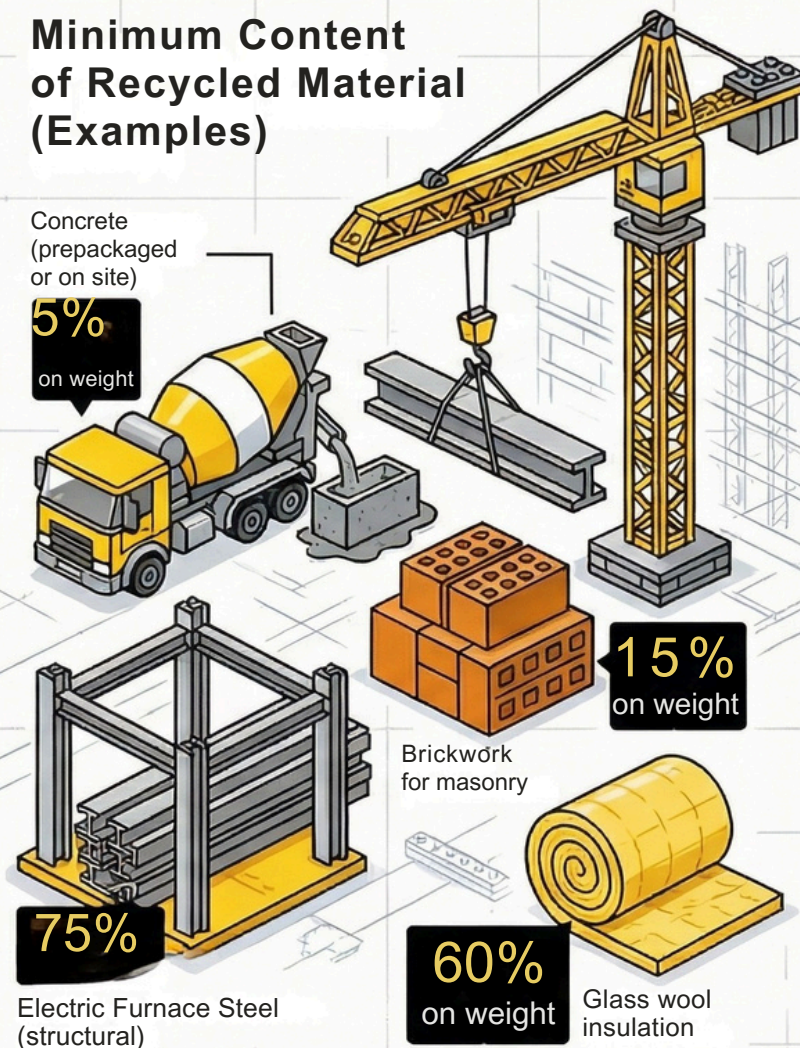
**< 1  $\mu\text{g}/\text{m}^3$**

Maximum value for individual dangerous substance such as benzene

## Minimum Content of Recycled Material (Examples)

Concrete (prepackaged or on site)

**5%**  
on weight



**75%**

Electric Furnace Steel (structural)

**15%**  
on weight

Brickwork for masonry

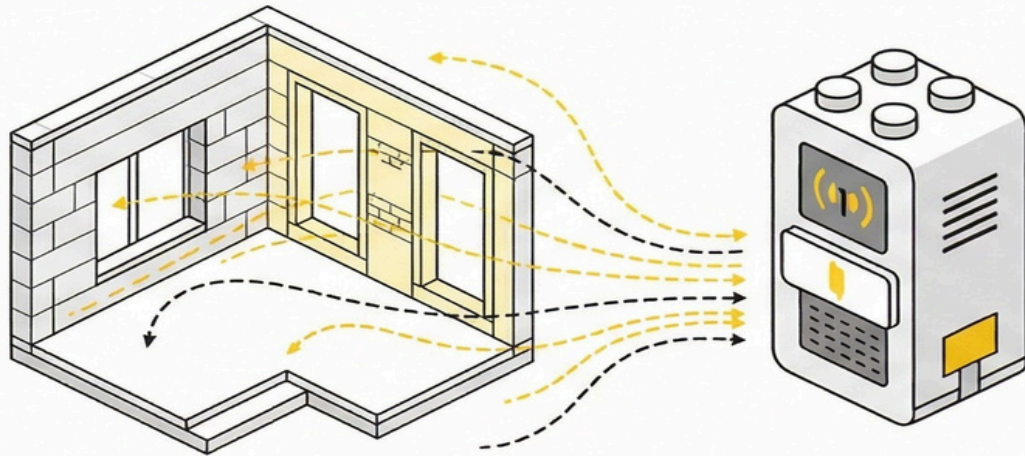
**60%**  
on weight

Glass wool insulation

# CAM Construction: Technical Specifications for Construction Products

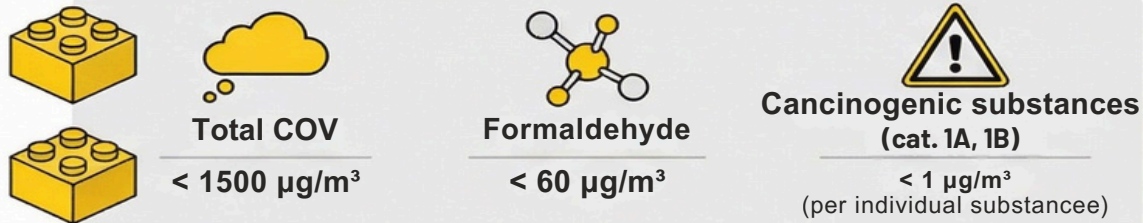
This infographic summarises the Minimum Environmental Criteria (CAM) required for construction products in Italy. The criteria focus on two key aspects: limiting chemical emissions to ensure quality of indoor air and the obligation to use recycled or recovered materials.

## Indoor Air Quality: Emission Limits



### Indoor Emission Control

Interior materials must meet 28-day maximum limits for healthy air.

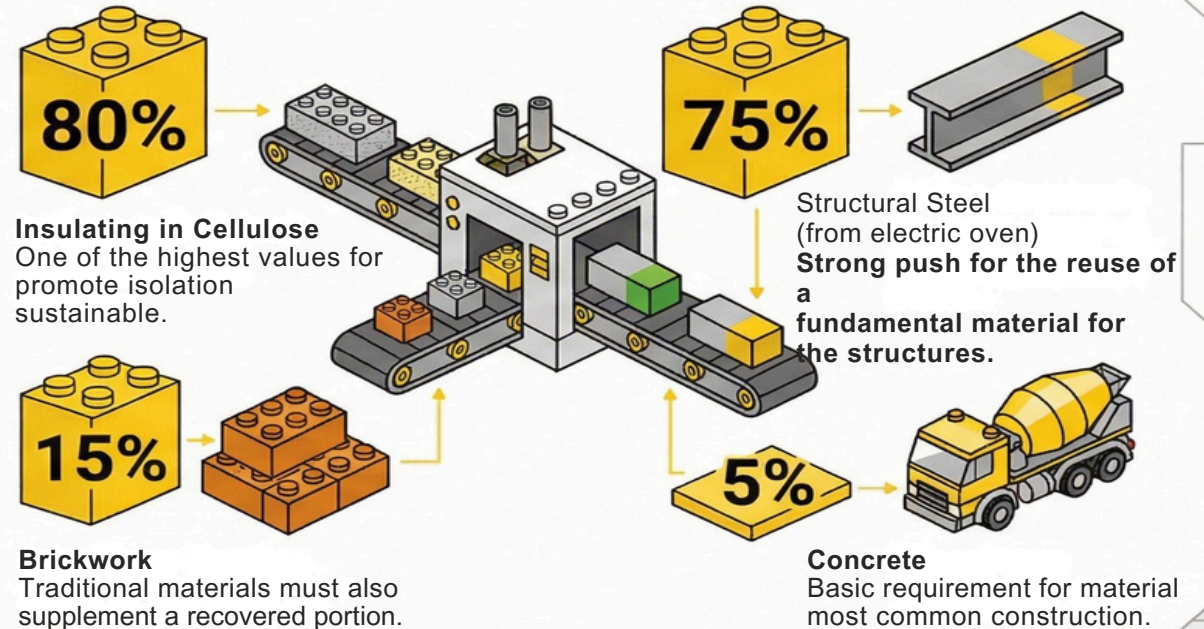


## Recycled Content Requirement

### Minimum Mandatory Percentages

CAMs shall establish the minimum content of recycled/recovered matter for each product.

### Examples of Recycled Content Minimum Required



# CAM Edilizia

## CAM Construction: Recycled Content Minimum per Product

Provide a quick visual reference on minimum recycled/recovered content requirements for major products from construction, as established by the Minimum Environmental Criteria (CAM) for construction.

### Structural and Masonry Materials

**5%**

**for Concrete**  
Minimum requirement for packaged concrete in the pipeline, pre-packaged and prefabricated

Until

**75%**

**for Steel from Electric Oven**  
The requirement drops to the 12% for steel produced by cycle whole wheat

Until

**15%**

**for Brickwork**  
Applies to items for masonry and floors; the requirement is lower for covers and floors

### Insulators and Dry Systems

**High requirements for Insulators**  
It ranges from 15% per wool of rock and fine polystyrene to 80% for cellulose

**10%**

**for dry systems**  
For partitions, counter walls and suspended ceilings (5% for gypsum products)

**100%**

**Recovery for stone walls**  
The exclusive use of neutralised or recovered material is required

### Components, Flooring and Wood

**20%**

**for PVC Components**  
Valid requirement for windows and doors, blackouts, PVC pipes and polypropylene

**10-20%**

**for Resilient Flooring**  
20% for floors in materials plastics and 10% for those in eraser

**Only Wood from Sustainable Forests**  
FSC or PEFC certification is mandatory for structural wood products

# Minimum Environmental Criteria (CAM):

## Requirements for Special Products

This infographic illustrates the specific environmental criteria that certain construction products must comply with, as established by Chapter 4 of the 'Technical Specifications for Products from Construction' of CAMs. These requirements are in addition to the general requirements on material content.

### THERMAL AND ACOUSTIC INSULATORS

**Basic Requirements**  
They must have CE marking and comply with Notes Q or R (Reg. CLP) if in mineral wool.

**Chemical Restrictions**  
They must not contain SVRC substances (+8, TX) or ozone-depleting agents (e.g. HCFC).

**NOTE Q/R (Reg. CLP)**

**SVRC >0,1% ESPAN-OZONE**

### HARD FLOORING (CERAMICS)

**Compliance with EU Ecolabel**  
They must comply with the ecological criteria laid down in Decision 2009/607/EC (or later).

**DECISIONE 2009/607/CE**

**Ecological Criteria Included**  
They concern raw material extremes, limits on heavy metals, consumption and waste recovery.

**EXTRACTION**

**CONSUMPTION**

**WASTE RECOVERY**

**HEAVY METALS**

### PAINTS AND VARNISHED

**Privileging the EU Ecolabel**  
The project must provide for the use of EU Ecolabel certified products.

**Alternative requirements**  
In the absence of Ecolabel, they shall not contain specific heavy metals or substances hazardous to the aquatic environment.

**HEAVY METALS**

**DANGEROUS SUBSTANCES**

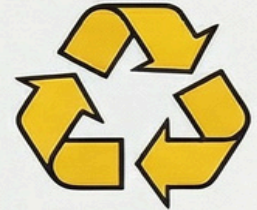
**ACQUATIC ENVIRONMENT**

**CERTIFICATIVO**

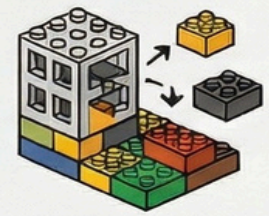
**UE**

# Sustainable Management of the Shipyard: The Minimum Environmental Criteria (CAM)

## Waste Management and Demolition



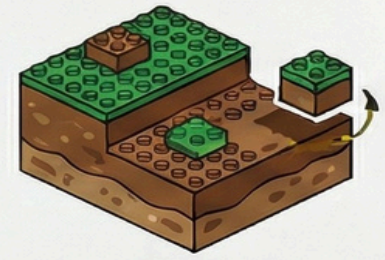
**Mandatory 70% Recovery**  
At least 70% by weight of non-hazardous waste must be recovered.



**Selective Demolition**  
The project must include material separation to maximize reuse.



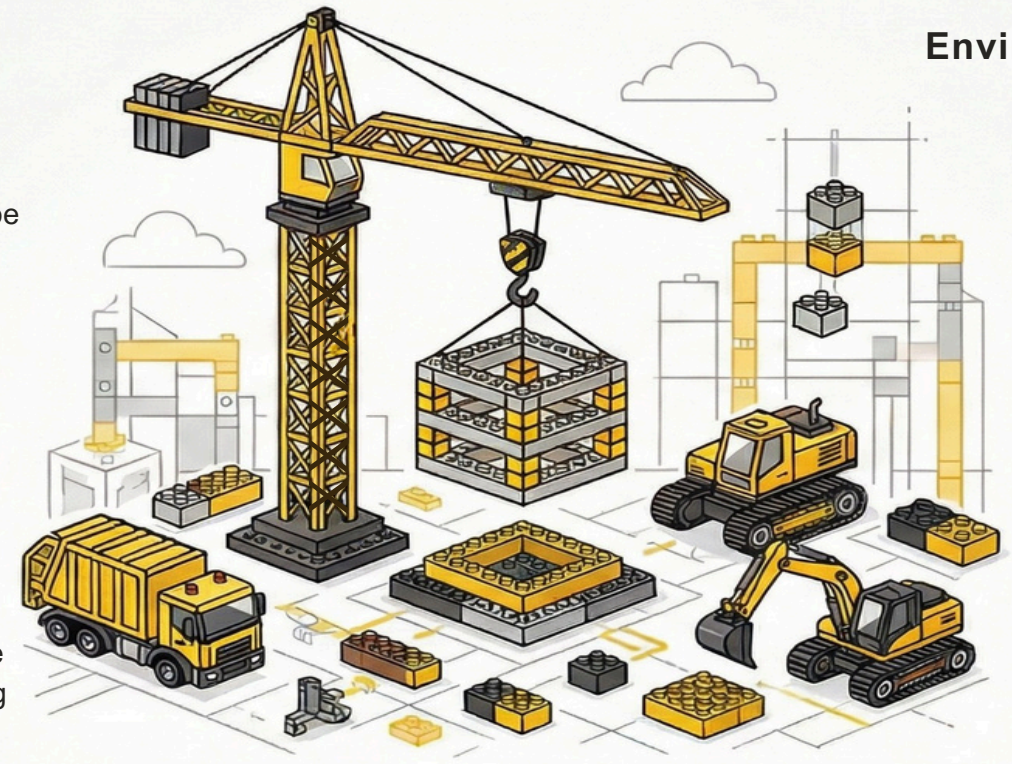
**On-Site Waste Sorting**  
Provide dedicated areas for the separate collection of packaging and hazardous waste.



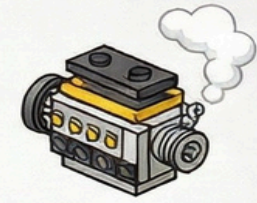
**Topsoil Conservation**  
The surface layer of soil must be removed, preserved, and reused.



**Recycled Material Reuse**  
Mandatory use of recycled material from demolition for backfilling and site reuse (up to 70%).



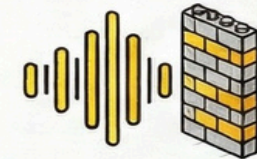
## Environmental and Operational Performance



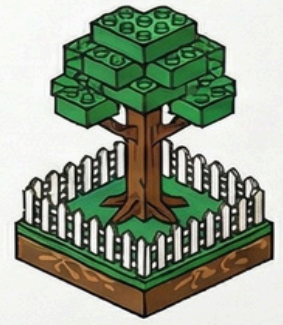
**Equipment Emission Control**  
Engines must meet progressive emission standards (Stage V from 2025).



**Energy and Water Efficiency**  
Prioritize low-impact technologies and measures for water conservation.



**Noise and Dust Reduction**  
Implement measures such as noise barriers and water spraying.



**Habitat and Species Protection**  
Protect native vegetation and remove invasive species.

