

Unit 17B

The Circular Economy in the Construction Sector

Sustainable Materials in the Construction Sector

1 Introduction

Unit 17B provides resources for vocational trainers seeking to incorporate the circular economy into their courses in the Construction sector, focusing on building material types and how sustainable is their use. This unit explores the importance of understanding various materials used in construction and learning what low carbon materials are available.

2 Learning Outcomes

Knowledge	To understand the relationship between sustainability and materials.
Skills	To be able to choose between carbon intensive and low carbon intensive materials.
Competencies	To express the relationship between embodied energy/carbon and materials.
EQF Level	This material is mainly suited to EQF level 4.

3 Lesson Plan

Method	Description	Suggested duration in minutes (total minutes)
Brainstorming session	Brainstorming where you as a trainer write down definitions, notions and connotations ought to be used for future discussions and references. You can continue the	15



	<p>brainstorming session with the following questions if needed:</p> <ul style="list-style-type: none"> Discuss the role that different construction materials can have in sustainability. Talk about a building's embodied and operational energy of construction material choices. Learn various ways how to reduce a building's embodied energy. 	
Presentation by trainer using PPT	Overview	30
	Unit Learning Objectives	
	Measuring Embodied Energy	
	Straw Bale Construction	
	Case Study: LILAC	
	Cob Construction	
	Adobe Construction	
	Case Study	
	Clay Plaster	
	Case Study: Clayworks	
	Hydraulic Lime Plaster	
	Discussion Points	
Assessment	Quiz	15

4 Quiz

1. **What is cob construction?**

Answer: Building free from with a mixture of clay, sand, and straw

2. **What is adobe construction?**

Answer: Building with earthen brick

3. **What is embodied energy in the context of construction?**

Answer: The energy used in the construction of a building, including sourcing materials