Unit 202: Changing practices over time (tutor)

# Worksheet 1: Pre-1919 construction techniques

**Task 1**: Fill the blanks using the words provided below.

This case study considers the construction methods and materials used in traditional Welsh cottages built before 1919. Situated in rural areas of Wales, these cottages exemplify the distinct architectural features and construction techniques prevalent during that era. The primary building material for these cottages was locally sourced stone, typically slate, limestone or sandstone. These stones were abundant in the region and known for their durability, ensuring the longevity of the structures. Lime mortar, specifically fat lime or non-hydraulic lime, served as the primary binder for the stone masonry. Lime mortar offered excellent workability and self-healing properties, accommodating slight movements in the buildings without causing cracks.

Timber played a crucial role, serving as the main material for the roof structure, flooring, internal partitions and window and door frames. Oak and softwood were commonly used due to their availability and durability. Thatch, made from bundles of straw or reeds, served as the traditional roofing material, providing insulation and protection from the elements. The construction of traditional Welsh cottages involved specific methods and techniques tailored to the available materials and local craftsmanship. The stones were carefully selected and interlocked, creating stable and weather-resistant walls. Lime mortar pointing was employed to enhance the structural integrity and water resistance of the walls by filling the joints between the stones.

The cottages featured timber frame construction known as "post and beam". Vertical posts and horizontal beams formed the framework, providing structural support. The timber frame was filled with wattle and daub or stone, forming the internal walls. Wattle and daub involved weaving flexible branches or thin strips of timber (wattle) and applying a mixture of clay, straw, and water (daub) to fill the gaps. This technique resulted in sturdy yet lightweight partitions. For roofing, the cottages used a thatch system. Timber rafters and purlins formed the roof structure, supporting the layers of thatch. The thatch, made from carefully layered bundles of straw or reeds, was fixed to the roof structure using hazel or willow spars. The steep pitch of the roof facilitated water runoff and provided additional insulation.

Traditional Welsh cottages constructed before 1919 showcased the resourcefulness of local builders in utilising available materials and employing specific construction methods. The use of local stone, lime mortar, timber, and thatch reflected the rural environment and the desire for durable and sustainable structures. Dry stone walling, lime mortar pointing, timber framing, wattle and daub, and thatch roofing were the primary construction techniques employed. This case study offers insight into the historical building practices of pre-1919 Welsh cottages, highlighting the craftsmanship, architectural features, and material selection that contributed to the unique charm and longevity of these traditional structures.

**Task 2:** Answer the following questions based on the case study provided from Task 1.

1. What were the primary building materials used in the construction of traditional Welsh cottages before 1919?

The primary building materials were locally sourced stone, lime mortar, timber and thatch.

1. What was the purpose of lime mortar in the construction of traditional Welsh cottages?

Lime mortar serves as the primary binder for the stone masonry, providing workability and self-healing properties.

1. What is wattle and daub and how was it used in the construction of traditional Welsh cottages?

Wattle and daub is a construction technique involving weaving flexible branches or strips (wattle) and applying a mixture of clay, straw and water (daub) to fill gaps. It was used for internal wall partitions.

1. What type of roofing material did traditional Welsh cottages typically use?

Thatch, made from bundles of straw or reeds, was the typical roofing material.

**Task 3:** Read the following statements and decide whether they are true or false. **Circle** the correct option.

1. Lime mortar was primarily used as a roofing material in traditional Welsh cottages.

False: Lime mortar was used as a binder for stone masonry, not as a roofing material.

1. The walls of traditional Welsh cottages were constructed using the wattle and daub technique.

False: The wattle and daub technique was primarily used for internal wall partitions, not

exterior walls.

1. Dry stone walling involved stacking stones without the use of mortar.

True

1. Timber was only used for the roof structure in traditional Welsh cottages.

False: Timber was used for various components, including the roof structure, flooring, internal partitions, and window and door frames.

1. Thatch was commonly used as the roofing material for traditional Welsh cottages.

True

**Task 4:** Answer the multiple choice questions below. **Circle** the correct response for each question.

1. Which type of lime mortar provided workability, flexibility and self-healing properties?

a Hydraulic lime.

b Non-hydraulic lime.

c Lime putty.

d Cement mortar.

1. What were the primary building materials used in traditional Welsh terraced houses?

a Stone.

b Brick.

c Timber.

d All of the above.

1. What was the preferred roofing material for Welsh terraced houses?

a Thatch.

b Slate.

c Timber shingles.

d Clay tiles.

1. What influenced the choice between stone and brick in the construction of Welsh terraced houses?

a Architectural preference.

b Availability of local resources.

c Cost-effectiveness.

d Climate conditions.

1. Which material was commonly used for internal partitions in Welsh terraced houses?

a Brick.

b Stone.

c Timber frames.

d Lath and plaster.

1. What was the primary function of timber in pre-1919 Welsh terraced houses?

a External cladding.

b Roofing material.

c Interior flooring.

d Structural framework.

1. What was the primary binder used in mortar for pre-1919 Welsh terraced houses?

a Cement.

b Hydraulic lime.

c Fat lime.

d Clay.

1. What was the primary purpose of using stone in pre-1919 Welsh terraced houses?

a Roofing material.

b Flooring material.

c External wall construction.

d Internal partitions.

1. Which of the following materials were NOT used as a binder/mortar in pre-1919 construction?

a Synthetic mortar.

bFat lime.

c Cement mortar.

d Clay mortar.

1. Which of the following were a constraint in relation to, choice of materials available pre-1919 construction methods?

a Availability of local resources.

b Transport.

c Cost.

d All of the above.