Unit 318 Fabricating post and beam components in the workplace

Level: 3

Value for TQT: 300

Unit aim:
The aim is to provide you with the necessary skills and knowledge to:

- interpreting information
- adopting safe and healthy working practices
- selecting materials, tools and equipment
- preparing and fabricating post and beam components for heavy structural timber frames

*PER – Portfolio evidence reference SO – Site observation OQ – Oral question WQ – Written question WT – Witness testimony
PS – Product supplementary PD – Professional discussion

Assessment criteria that are practical activities are highlighted in bold.

1. Interpret the given information relating to the work and resources when fabricating post and beam components.							
You must be able to:	*PER	SO	OQ	WQ	WT	PS	PD
1.1 **interpret and extract relevant information from:**							
a. **drawings**							
b. **specifications**							
c. **schedules**							
d. **method statements**							

e. **risk assessments**							
f. **manufacturers' information**							
1.2 **comply with information and/or instructions derived from risk assessments and method statements**							
1.3 describe the organisational procedures developed to report and rectify inappropriate information and unsuitable resources and how they are implemented.							
1.4 describe different types of information, their source and how they are interpreted in relation to:							
a. drawings							
b. specifications							
c. schedules							
d. method statements							
e. risk assessments							
f. manufacturers' information							
g. oral and written instructions							
h. sketches							
i. electronic data							
j. official guidance							
k. current building regulations associated with fabricating post and beam components							

2. Know how to comply with relevant legislation and official guidance when fabricating post and beam components.							
You must be able to:	*PER	SO	OQ	WQ	WT	PS	PD
2.1 describe your responsibilities regarding potential accidents health hazards and environment whilst working:							
a. in the workplace							

b. below ground level							
c. in confined spaces							
d. at height							
e. with tools and equipment							
f. with materials and substances							
g. with movement and storage of materials by manual handling and mechanical lifting							
2.2 describe the organisational security procedures for tools, equipment and personal belongings in relation to:							
a. site							
b. workplace							
c. company							
d. operative							
e. vehicles							
2.3 explain what the accident reporting procedures are and who is responsible for making reports							
2.4 describe the types of fire extinguishers available when fabricating post and beam components and describe how and when they are used.							

3. Maintain safe and healthy working practices when fabricating post and beam components.							
You must be able to:	*PER	SO	OQ	WQ	WT	PS	PD
3.1 **use health and safety control equipment safely and comply with the methods of work to carry out the activity in accordance with current legislation and organisational requirements when fabricating post and beam components.**							
3.2 Demonstrate compliance with given information and relevant legislation when fabricating post and beam components for two of the following:							

a. safe use of access equipment							
b. safe use of storage and handling of materials							
c. tools							
d. equipment							
e. specific risks to health							
3.3 explain why and when health and safety control equipment identified by the principles of prevention, should be used, relating to fabricating post and beam components, and the types, purpose and limitations of each type, the work situation and general work environment, in relation to:							
a. collective protective measures							
b. Personal Protective Equipment (PPE)							
c. Respiratory Protective Equipment (RPE)							
d. Local Exhaust Ventilation (LEV)							
3.4 describe how the relevant health and safety control equipment should be used in accordance with the given instructions							
3.5 describe how emergencies should be responded to in accordance with organisational authorisation and personal skills when involved with:							
a. fires							
b. spillages							
c. injuries							
d. other task-related hazards.							
4. Select the required quantity and quality of resources for the methods of work to fabricate post and beam components.							
You must be able to:	*PER	SO	OQ	WQ	WT	PS	PD
4.1 **select resources associated with own work in relation to:**							

a. **materials**							
b. **components**							
c. **fixings**							
d. **tools and equipment**							
4.2 describe the characteristics, quality, uses, sustainability, limitations and defects associated with the resources in relation to:							
a. measuring and marking equipment							
b. draw pins or podgers, wedges, clamps and trestles							
c. lifting equipment and ancillaries							
d. fittings and fixings							
e. hand and power tools							
4.3 Describe how to confirm that the resources and materials conform to the specification including suitability, moisture and durability.							
4.4 describe how the resources should be used correctly and how problems associated with the resources are reported							
4.5 explain why the organisational procedures have been developed and how they are used for the selection of required resources							
4.6 describe any potential hazards associated with the resources and method of work							
4.7 describe how to calculate:							
a. quantity							
b. length							
c. area							
d. wastage associated with the method/procedure to fabricating post and beam components							

5. Minimise the risk of damage to the work and surrounding area when fabricating post and beam components.							
You must be able to:	*PER	SO	OQ	WQ	WT	PS	PD
5.1 **protect the work and its surrounding area from damage in accordance with safe working practices and organisational procedures**							
5.2 maintain a **clear and tidy** work space							
5.3 **dispose of waste in accordance with legislation**							
5.4 describe how to protect work from damage and the purpose of protection in relation to:							
a. general workplace activities							
b. other occupations							
c. adverse weather conditions							
5.5 explain why the disposal of waste should be carried out safely in accordance with:							
a. environmental responsibilities							
b. organisational procedures							
c. manufacturers' information							
d. statutory regulations and official guidance.							

6. Complete the work within the allocated time when fabricating post and beam components.							
You must be able to:	*PER	SO	OQ	WQ	WT	PS	PD
6.1 **demonstrate completion of the work within the allocated time**							
6.2 describe the purpose of the work programme and explain why deadlines should be kept in relation to:							
a. types of productivity targets and time scales							
b. how times are estimated							

c. organisational procedures for reporting circumstances which will affect the work programme.							

7. Comply with the given contract information to fabricate post and beam components to the required specification.							
You must be able to:	*PER	SO	OQ	WQ	WT	PS	PD
7.1 **demonstrate the following work skills when fabricating post and beam components:**							
a. **levelling**							
b. **plumbing**							
c. **measuring**							
d. **marking out**							
e. **cutting**							
f. **shaping**							
g. **fitting**							
h. **finishing**							
i. **positioning**							
j. **securing**							
7.2 **Use and maintain hand and power tools.**							
7.3 **fabricate and carpenter mark post and beam components for the following assemblies to given working instructions:**							
a. **wall frame with soleplate, post or jowl post, stud, rail, wall braces and top plate**							
b. **tied or closed truss to include: king post truss with tie beam, king post, king struts and principal rafters or heavy tied truss with tie beam, principle rafters and curved internal members (collar or queen struts)**							

c. **hip and valley construction to include hip beam or rafter, dragon beam, dragon tie, valley beam or rafter and jack rafters.**							
7.4 **fabricate and carpenter mark post and beam components for trusses with at least two of the following to given working instructions:**							
a. **interrupted tie**							
b. **curved sling brace**							
c. **hammer beams and braces**							
d. **collar and arched braces**							
e. **scissor braces**							
f. **curved tension braces**							
g. **cruck blades**							
7.5 **fabricate and carpenter mark post and beam components for roof construction to include wind bracing and at least two of the following to given working instructions:**							
a. **purlins scarfed**							
b. **purlins trenched and cogged**							
c. **purlins secured with free and/or slip tenons or splines**							
d. **clasped purlins**							
e. **crown plate and/or collar purlins**							
7.6 describe how to apply safe work practices, follow procedures, report problems and establish the authority needed to rectify them, to:							
a. lay out frames							
b. mark out components for fabrication, plumb scribe, square rule and mapping							
c. apply the theorem of Pythagoras							

d. determine geometrical angles							
e. determine graded timber tree anatomy and growth rates, shrinkage and defects							
f. fabricate post and beam components for roof, wall, cross and floor frames							
g. form specialist joints associated with heavy structural timber framework							
h. identify principle structural components and load paths							
i. work with lifting and hoisting equipment (an awareness of the necessity for user certification)							
j. recognise and determine when specialist skills and knowledge are required and report accordingly							
k. determine specific requirements for structures of special interest, traditional build (pre 1919) and historical significance							
l. identify and follow the installation quality requirements							
m. work with, around and in close proximity to plant and machinery							
n. use hand and power tools							
o. work at height							
p. use access equipment							
7.7 describe the needs of other occupations and how to effectively communicate within a team when fabricating post and beam components							
7.8 describe how to maintain the tools and equipment used when fabricating post and beam components.							

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Declaration

I confirm that the evidence supplied for the above unit is authentic and a true representation of my own work. The work logged is my own work carried out during my normal work duties.

Candidate name:	
Candidate signature:	
Date:	

I confirm that this candidate has achieved all the requirements of this unit with the evidence listed. Assessment was conducted under the specified conditions and context, and is valid, authentic, reliable, current and sufficient.

Assessor name:	
Assessor signature:	
Date:	

IQA name:	
IQA signature:	
Date:	