

Unit 26: Developing Advanced Skills in Complex Structural Carcassing

Unit code: A/503/5767

QCF Level: 3

Credit value: 20

Guided learning hours: 200

Unit aim

This unit enables learners to understand the tools, equipment and working techniques used to perform structural timber carcass operations to complex shapes. It gives learners the opportunity to develop skills used in producing structural site carpentry where a high degree of accuracy and quality is required.

Learning outcomes and assessment criteria

In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes	Assessment criteria
1 Understand the preparation required to form complex timber carcass	<p>1.1 Describe the setting out procedure for floor carcass from a project plan and specification</p> <p>1.2 Calculate the quantity of resources required to construct a purlined roof with roof trusses from given project drawings</p> <p>1.3 Explain how to set out a valley gutter to a traditional roof construction from given plans and specification</p> <p>1.4 Describe the method of constructing a flat roof carcass with cross falls, complying with site protocol</p> <p>1.5 Prepare a method statement for constructing a timber framed party wall to satisfy 1 hour fire resistance requirements from given floor plans</p>

	<p>1.6 Explain site quality control procedure for stress graded floor and partition timbers</p>
<p>2 Be able to construct floor and roof carcass timber safely to complex layout</p>	<p>2.1 Construct a double floor carcass to a given layout and incorporating a quarter turn stair opening, complying with current legislation</p> <p>2.2 Erect purlined roof incorporating a roof light to given working drawings, complying with current legislation</p> <p>2.2 Construct the projecting verge to a box eaves from sketch details and a project specification</p> <p>2.3 Construct a dormer roof with a window frame, sheathing and valleys, so that it is ready for roof tiling</p>
<p>3 Be able to erect prefabricated floor and roof carcass safely to complex layouts</p>	<p>3.1 Explain how to set out a hipped end using trussed rafters to a specified accuracy from given project information</p> <p>3.2 Construct infill timbers to a trussed rafter roof to form a valley given roof plan, complying with current legislation</p> <p>3.3 Construct a gable ladder with barge board, vented soffit board and fire-stop wall cavity to a specified accuracy and given specification</p> <p>3.4 Erect timber bracing to a gang nailed roof truss construction, complying with current legislation</p> <p>3.5 Construct a tank stand in a roof carcass to a given specification</p>
<p>4 Be able to construct a traditional cut roof safely with hips and valleys</p>	<p>4.1 Describe the setting out procedure for a cut roof carcass given project drawings and a specification</p> <p>4.2 Select the construction details for trimming around a roof light for a given sketched roof layout</p> <p>4.3 Calculate the quantity of resources required to construct a purlined roof with roof trusses from given project drawings</p> <p>4.4 Explain how to set out a valley gutter to a traditional roof construction from a given plan and</p>

	<p>specification</p> <p>4.5 Explain how to comply with site protocol for a given carcassing task based on a site layout plan and specification</p> <p>4.6 Calculate the lengths of cut required when constructing a traditional roof with hips and valleys according to a given plan and specification</p>
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THIS IS AN ACCREDITED SPECIFICATION AND CAN BE USED FOR TEACHING AND ASSESSMENT

Unit content

1 Understand the preparation required to form complex timber carcass

Carcass: floors (joists, nogins, metalwork, board, sheet, prefabricated beams, stressed skin (single, double), openings); walls (load bearing stud, non-loadbearing stud, party wall, framed unit); roofs (pitched, flat, prefabricated trussed rafter roof (fan, fink, king post, attic); bracing (gable, diagonal, longitudinal, chevron); purlined; truss and purlin hips; valleys; diminishing trusses; ridge; gable ladder; soffits; verge; wall plate; straps; bracing

Setting out: location; shape; size; curved; graphical (scaled drawings, plans, elevations, detailed sections, sketches); template; temporary support

Construction details: project drawings (plans, elevations, sections, architect's specification); sketches; scaled drawings; contract documents (drawings, layout, assembly, component, coordinated project information, bill of quantities, specifications); product information

Quantity of resources: timber (softwood, hardwood, engineered); manufactured sheet material; metalwork (fixing, anchors, framing, straps); tools (hand, portable power); access equipment (ladders, hop-ups, stepladders, lightweight tower scaffolds, trestles and staging); material handling (manual, mechanical); number of portable power tools (cutting, forming, shaping, site electrical, portable); personal protective clothing; safety barriers and guards

Site protocol: safety signs (advisory, prohibitive, mandatory, warning); first aid (emergency, trained first-aider, first aid box requirements, medical hazards, drugs, alcohol); risk control mechanism; work methods; site logistics; hazardous materials; material movement; storage; mechanical plant and equipment (lifting, transporting, fixing, forming cutting and fixing); scaffold; power access equipment; welfare facilities; component protection (site storage, in-place protection); traffic routes and walkways for site personnel; waste (licences, consent); temporary site utilities (water, electricity, drainage, telecommunications)

Quality control: contract documents (drawings, specification, bill of quantities); architect; clerk of works; resident engineer; building control; British Standards Specifications; Codes of Practice; Eurocodes

2 Be able to construct floor and roof carcass timber safely to complex layouts

Carcass: floor (single, double, openings, trimmings, framing, noggins, board, sheet); metalwork; roofs (pitched, flat, prefabricated trussed rafter roof (fan, fink, king post; attic); bracing (gable, diagonal, longitudinal, chevron); purlined; truss and purlin hips; valleys; diminishing trusses; ridge; gable ladder; soffits; verge; wall plate; straps; bracing

Site logistics: material movement, storage, mechanical plant and equipment (lifting, transporting, fixing, forming cutting and fixing); site electricity (local lighting, power); working at height legislation; COSHH; manual handling; site safety inspections and control; permits to work; risk assessment (hazards, control and rating)

3 Be able to erect prefabricated floor and roof carcass safely to complex layouts

Project information: working drawings (layout, component, assembly); contract documents (drawings, specification; bill of quantities); architect's instructions (written, verbal); product data sheets; British Standards, Eurocodes

Legislation: housekeeping; hazards; risk assessment; welfare facilities requirements; noise (health effects, thresholds, monitoring of noise, control mechanisms); Control of Substances Hazardous to Health (COSHH); manual handling regulations; electricity (site installation, precautions; dangers; different voltages, colour-coded wiring, correct colour coding for different voltages, storing electrical equipment); PPE (enforcement, site, Health and Safety Executive (HSE))

4 Be able to construct a traditional cut roof safely with hips and valleys

Roof carcass: rafters; purlins; trusses; hips; valleys; ridge; gable ladder; soffits; verge; wall plate; straps; purlins; lay boards; valley rafters; hip rafters; fascias; bargeboards; metalwork

Lengths of cut: cuts required when constructing a traditional roof with hips and valleys; common jack; cripple; hip and valley rafters; purlins; angles; common rafter plumb cut; common rafter seat cut; hip plumb cut; seat cut; backing bevel; edge cut; cripple rafter; edge cut jack rafter; purlin edge; side cut

Construct openings: roof lights; dormers; chimney stack; loft hatch

Project drawings: working drawings (architect's, structural engineer's, consulting engineer's) scaled working; sketches; British Standards design codes; Eurocodes (design codes and standards); Timber Research and Development Association (TRADA) guides (material specifications, construction); structural engineer's details; (structural stability, material specification); site instructions (architect's working drawings, sketches, oral instructions, variations, amendments, specification, contract, bill of quantities)

Legislation: PPE (glove, footwear, visibility, goggles, masks); fire (spread, fire evacuation, alarms, fire prevention, fire extinguishers); Building Regulations (notices, inspections, Part A Structural, Part B Fire safety)