THE INSTITUTE OF CARPENTERS ADVANCED CRAFT EXAMINATION

HANDBOOK

(Operative from 1996)



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FOREWORD

The Institute of Carpenters is the leading authority in all forms of woodworking, celebrating the Centenary of its formation in 1990.

Throughout many of those years, a prime function of its examinations has been to assess those seeking election to membership at all levels. They have also provided an excellent opportunity for participants to acquire the added value to be gained from holding a professional qualification, and allows successful candidates the satisfaction of having proven their technical and tool skills, to a very high standard and in a set period of time.

The Institute of Carpenters is the only organisation which offers nationally, timed wood craft related practical examinations aimed at ensuring the maintenance of craft skills which both industry and the public sector can ill afford to lose.

The Institute's revised examinations Syllabi are carefully phrased bearing in mind those candidates who may be undergoing a period of training with a view to achieving a Scottish or National Vocational Qualifications (S/N.V.Q.). The Pre-Vocational Certificate is aimed at students in their final years of compulsory education or in their early years of post school vocational education/training. The Intermediate is offered to candidates at an advanced stage in their training towards a Level II wood craft S/NVQ., and the Licentiate/Member to those at an advanced stage in their training towards a Level III wood craft S/NVQ. For the foreseeable future, the Institute's Fellowship examination will continue to be offered to candidates already achieving a Member grade of membership and is for those involved in Supervisory Management, or aspiring to administration qualifications (S/NVQ Levels III/IV).

With the exception of the Fellowship award, an open access is maintained to all examinations for anyone wishing to have their proven ability in wood based skills independently assessed. The Institute however, reserves the right to approve all applications for membership.

Further copies of this Syllabi and information regarding the Institute's full range of craft examinations, details of membership and all other matters related to the Institute are available upon application from Central Office. (The address is included at Annex 'B').

CONTENTS

		Page
1.	Purpose of IOC Examinations	1
	Why Register?	
	Registration Procedure	
	Cost of entering	
	Examination Format	
2.	The IOC Pre-Vocational Certificate	
	in Carpentry & Joinery	2
3.	Intermediate, Licentiate and Fellowship Examinations	3
4.	Membership Examination	4
	Practical Competence	5
	Associated Vocational Technology (AVT)	6

Annexes

Annex 'A'	Examination/Membership Structure
Annex 'B'	Information Sources

The Institute of Carpenters EXAMINATIONS HANDBOOK- 1996 ONWARD

The purpose of this handbook is to answer questions which may be asked by candidates wishing to register for any of the wide range of Institute of Carpenters wood craft examinations.

Q1. What will a candidate achieve by registering?

- **Ans.** Institute of Carpenters examinations were originally conceived to assess relevant designatory letters which apply as shown in the structure diagram at Annex 'A. An examiners report is published annually upon completion of each examinations series together with a list naming successful candidates. Following the publication of results, a Certificate of achievement is issued to candidates listing only those components in which they were successful and stating the grade(s) achieved, i.e. Fail,
- Pass, Credit or Distinction. All candidates are notified of their achievement towards the required standards in the components for which they are registered.

Q2. What is the procedure for registering an entry?

Ans. Candidates are requested to complete a simply worded registration card which may be obtained from (and when completed returned to) IOC Central Office (the address is included in Annex 'B').

Q3. What is the cost of registering an examination entry?

Ans. A schedule of registration fees is published annually and is included on publicity posters together with Examination dates and the closing dates for the receipt of entries. Information regarding current examination fees may be obtained by referring to the relevant publicity posters, or from Central Office (the address is included in Annex 'B').

Q4. What form does the examination take?

Q5. What range of knowledge does a candidate need to possess?

Ans. These final two questions are best answered by considering each examination in turn and looking at the requirements for each.

1. Foundation Certificate in Carpentry and Joinery:

The Institute of Carpenters Foundation Certificate in Carpentry and Joinery remains accredited by the new School Curriculum and Assessment Authority (SCAA), which succeeded SEAC on October 1st 1993. In preparation for future development of General National Vocational Qualifications (GNVQs)/General Scottish Vocational Qualification (GSVQ) and their possible emphasis on the practical aspects of Manufacturing, the Board considers the Foundation Certificate an important facet of its provision. The Pre-Vocational Certificate is not allied specifically to Institute membership but requires candidates to achieve a suitable standard of competence in both wood based practical activities and associated technology. This is assessed with the aid of two papers provided by the Institute:

a) Paper One: Practical -

A Practical test piece, set by the Institute, and which is to be completed in a continuous period of time not exceeding **three hours** duration. Marking of the completed test piece is to be undertaken by the Examination Centre with the aid of a marking schedule devised by the Board.

b) Paper Two: Theory -

A written paper to be attempted in a continuous period of time not exceeding one and a half hours duration. The paper is composed of 40 questions. Answers to all questions carry equal marks, be submitted on the question paper provided and be short in nature (sketched, written, calculated, etc.). The paper will be set and marking of the completed scripts undertaken by the Institute . A third element requires 3 practical assignments set by the institute and marked by the centre.

Following the publication of results, a Certificate of achievement will be issued to each successful candidate stating the overall grade achieved (Pass, Credit, Distinction).

Further information regarding the Institute of Carpenters Pre-Vocational Certificate in Carpentry and Joinery may be obtained from Central Office (for address see Annex 'B').

Intermediate:

The Intermediate award is aimed at candidates completing the gathering of competence evidence towards gaining a Level II Scottish or National Vocational Qualification (SVQ/NVQ), and will require success in two papers. Candidates should be aware that a study of additional material may be required. More information is available from Central Office (Annex B).

Licentiate:

Candidates wishing only to attempt the Practical component of the Member examination will be registered as Licentiate entries. The conduct of the examination involving only Licentiate entries shall be the same as that for the Member Practical component. Competence requirements are the same as those which apply to the Member examination. Candidates registered as Licentiate entries and attaining the required standard to achieve a pass may be offered Licentiate membership of the Institute. More information is available from Central Office (Annex B).

Fellowship:

The Institute's Fellowship examinations are offered to candidates already in IOC membership or may be eligible to do so, and shall comprise TWO papers, set and marked by the Institute, each to be attempted in a continuous time period not to exceed three hours : -

- a) Paper ONE: Organisation and Supervision;
- b) Paper TWO: Carpentry Practice,

OR

Joinery Practice.

The Board will consider the acceptance of a range of competence achievement evidence from those seeking Fellowship accreditation. Details of the supporting knowledge evidence requirements for those members seeking Fellowship accreditation is available on a separate leaflet and may be obtained from Central Office (for address see Annex 'B').

Advanced Craft leading to Membership of the I.O.C.

This award is aimed at candidates completing the gathering of competence evidence towards gaining a Level 111 Scottish or National Vocational Qualification (SVQ/NVQ) and will require success in two papers. Candidates should be aware that a study of additional material may be required:

i) Paper ONE: Craft Skills Competence -

A practical test piece set by the Institute to be completed in a period of time not exceeding **seven hours** duration within a single day. Marking of the completed test piece is to be undertaken by the Examination Centre or an External Examiner with the aid of a marking schedule devised by the Board.

ii) Paper TWO:

A General and Specialist Technology element which comprises a Single Associated Vocational Technology (AVT) Paper set and marked by the Institute and comprising two parts to be attempted in a total continuous time period not to exceed **three hours**.

Part A: A compulsory section to include 18 questions to be attempted in a recommended time of **one hour.** All answers shall carry equal marks, be submitted on the question paper provided and be short in nature (sketched, written, calculated, etc.) This Section shall attract up to 40% of the marks allocated to the AVT component of this examination.

Part B: Comprises 8 questions, only 4 of which are to be attempted in a recommended time of **two hours.** All questions shall carry equal marks, be submitted singly on the IOC headed stationery provided and require in-depth answers (sketched, drawn to scale, written, calculated, etc.) This Section shall attract up to 60% of the marks allocated to the AVT component of this examination.

Following the publication of results, a certificate of achievement will be issued to candidates listing only those components in which they were successful. All candidates will be notified of their achievement towards the required standard in the components for which they are registered and may be offered Member membership of the Institute. Any candidate registered for the Member examinations and whose mark in the Associated Vocational Technology component falls short of that required to achieve a pass grade, may, if achieving the required standard in the Practical component, be offered Licentiate membership of the Institute.

Candidates registering for the Member examinations shall be capable of displaying practical competences related to the wood craft topic areas listed in the individual Associated Vocational Technology sections which follow.

Practical Competence:

As appropriate to Carpentry, Joiney, Bench Joinery and Shopfitting, practical competences shall include skills related to: Setting Out Marking Out Tool Usage and Maintenance Jointing Techniques Methods of Assembly Preparation for Applied Finishes Fitting Fixing Hanging & Security Safety and Safe Methods of Working.

Associated Vocational Technology:

Practical expertise shall be complimented and supported by associated knowledge of :

The Construction Industry - History, Development & Operation Materials Craft Related Drawing - Geometrical & Sketching Techniques Timber Related Science Adhesives - Types, Application Methods & Uses Preservatives - Types, Application Methods & Uses Surface Finishes - Types and Methods of Application Wood Related Calculation Techniques Technical Report Writing Jointing Techniques - Hand & Machine Methods Machine Operation & Maintenance - Fixed and Portable Machinery Fixing Devices - Correct and safe Usage Computers in Construction Operations Relevant Safety Techniques & Legislation.

Advanced Craft

Associated Vocational Technology

Topic Areas and Ranges

1. Materials:

- a) Describe the identification characteristics of softwoods to include: Douglas Fir, Hemlock, Norway Spruce, Parana Pine, Scots Pine, (European Redwood), Western Red Cedar;
- b) Describe the identification characteristics of hardwoods to include: Afrormosia, Ash, Beech, Elm, Iroko, Mahogany, Oak, Ramin, Sapele, Teak, and Utile;
- c) Explain the growth, structure, properties, uses and identification characteristics of the softwoods and hardwoods listed at (a) and (b) above;
- d) Describe and illustrate basic methods of timber conversion;
- e) Describe and illustrate the composition and state the uses of manufactured Boards/Sheets to include :-Plywood, Chipboard, Blockboard, Laminboard, Hardboard, Medium Density Fibre Board (MDF), Wafer Board, Plasterboard, laminated Plastic, Orientated Strand Board, Cement Fibre Sheets;
- f) The candidate shall be able to describe the composition and use or Manufactured Boards/Sheets to include light gauge metal.

2. Craft Related Drawing:

The candidate shall be able to

- a) Display a knowledge Or British Standard recommendations for Building Drawing Practice B.S.
- b) Use a scale rule to produce construction drawings;
- c) Identify types of construction drawings to include Location, Component and Assembly;
- d) Produce drawings using projection types to include Orthographic and Pictorial;
- e) Prepare setting out rods;
- f) Demonstrate the geometrical construction of plane figures;
- g) Demonstrate the geometrical construction of flat, segmental semi-circular, elliptical and pseudo elliptical arch shapes;
- h) Geometrically develop true lengths and bevels for square on plan and not square on plan equal and unequal pitched hip roofs to include dormer roofs;
- i) Geometrically develop moulding profiles;
- j) Geometrically develop the
 - i) outer and cut surfaces of Prisms, Cylinders, Pyramids, and Cones,
 - ii) the outer surface and rib shapes to polygonal and circular on plan domes,
 - iii) surfaces and intersections for hoppers and splayed linings;
- k) Geometrically develop raking moulding profiles;
- 1) Determine the geometrical development to handrails rake to rake and rake to level;
- m) Demonstrate applications of the metric roofing square.

3. Timber Related Science:

- a) State the reasons for seasoning timber;
- b) Describe the process of air and kiln seasoning of timber to achieve a required moisture content;
- c) Determine the moisture content of timber;
- d) Describe the terms 'Equilibrium Moisture Content" and "Fibre Saturation Point;
- e) Identify timber defects/degrade resulting from seasoning;
- f) Identify timber growth defects and state their effects on usage;
- g) State the types of timber preservatives suitable for interior and exterior use and describe methods of application;

- h) Explain the application, properties and uses, including storage requirements, for Animal, Polyvinyl Acetate (PVA), Contact & Synthetic Resin adhesive types, Hot Melts.
- i) Explain the principles of Low Voltage and Radio Frequency Heating;
- j) Outline the causes, effects and methods of treatment related to Wet and Dry Rot;
- k) Outline the causes and effects of damage by the following insects : -Furniture, Powder Post, Death-Watch and House Longhorn;
- 1) Describe the types, function and use of materials designed to increase thermal and sound insulation to include sheet, quilt and granular;
- m) State the causes, effects and methods of preventing condensation;
- n) State the effects on timber component manufacture of capillary attraction and surface tension;
- o) Describe the types, function and use of flexible and non flexible sealants;
- p) Explain the basic principles of bracing and triangulation;
- q) Define the types of stress in structural members;
- r) Explain the reasons for and methods of stress grading of timber;
- s) Describe and illustrate the function and use of moisture and vapour barriers;
- t) Describe the function, properties and application of surface treatments to prevent spread of flame.

4. Wood Trades Calculations:

- a) Solve simple decimal problems of addition, subtraction, multiplication and division;
- b) Compile material specifications and cutting lists;
- c) Estimate quantities of materials including percentages for waste;
- d) Evaluate simple costings with allowances for waste;
- e) Determine area and perimeter of plane figures;
- f) Calculate quantities in linear, superficial and cubic measurement;
- g) Determine the number and lengths of joists and rafters;
- h) Demonstrate the use of pocket calculators;
- i) Solve simple problems related to the loading of simply supported and cantilevered beams;
- j) Describe and illustrate the application of roofing tables.

5. Safety:

 Range: R.I.D.D.O.R. 1996, Construction (Design and Management) Regulations 1994, Codes of Practice, Management of Health and Safety at work Regulations 1992, Noise at Work Act 1989, Workplace (Health, Safety, and Welfare) Regulations 1992, Health and Safety (Display Screen Equipment) Regulations 1992, Manual Handling Operations Regulations 1992, Personal Protection Equipment 1992, Provision and Use of Work Equipment 1992, Health and Safety at Work Act (H.S.A.W.A.) 1974, C.O.S.H.H., Factories Act 1961, Control of Pollution Act 1971, Fire Precautions Act 1971, Office Shops and Railway Premises Act 1963, Abrasive Wheels Regulations 1970, Eye Protection Regulations, Electricity Regulations.PUWER.

Competence requirements:

With regard to safety, health and welfare on the site and in the workshop, the candidate shall be able to.

- a) Define the requirements of current legislation;
- b) Define the duties of employers/employees;
- c) Define and explain safe methods of working.

6. Protection, Storage and Safe Handling:

Range: Timber and Associated Sheet Materials, Timber Components, Hardware, Ironmongery, Site Hoarding.

- a) State the factors affecting the handling and storage of materials and components on-site and in the workshop;
- b) Describe and illustrate safe methods of handling materials and components during manufacture and on completion :
 - i) on-site and in the workshop;
 - ii) during transit;
- c) Describe and illustrate methods of providing care and safe storage for materials and components :
 - i) on-site and in the workshop;
 - ii) during transit;
- d) State the statutory requirements for the care and protection of the general public.

7. Hand Tools:

Range: Measuring, Setting/Marking-Out, Sawing, Planing, Chiselling and Paring, Drilling/Boring, Impelling, Levering, Levelling and Lining-In.

Competence Requirements:

The candidate shall be able to

- a) Name and state the function of hand tools;
- b) Correctly select tools for specific purpose;
- c) Describe the care use and maintenance of hand tools;
- d) Explain precautions to be taken when storing/guarding tools not in use.

8. Timber Jointing:

Range: Joints used in Framing, Carcassing, Widening and Lengthening of Timber Elements and Components.

Competence requirements: The candidate shall be able to

- a) Recognise and illustrate methods of jointing timber elements and components;
- b) State the factors affecting choice of jointing method;
- c) Describe safe, economical hand and machine techniques used in manufacture.

9. Fixings:

Range:Proprietary Fixings (to include those used in cartridge operated
fixing tools) to Wood, Metal, Plastic, Manufactured Sheet
Materials, Blockwork Concrete and Stone.

Competence requirements:

- a) Explain the factors effecting item choice;
- b) Recognise and correctly specific items;
- c) Describe and illustrate the function and correct use of items.
- 10

10. Hardware and Ironmongery:

Range:Doors and Door Frames to include Fire Resisting Doors and Frames.
Sliding, Folding Doors and Partitions, Swing and Up & Over Doors.
Casement Windows to include Bow, Bay, Pivot and Sliding
Sash Windows.
Floors, Roofs, Partitions.
Domestic & Shop Fitments.
Formwork.

Competence requirements:

The candidate shall be able to

- a) Explain the factors effecting item choice;
- b) Recognise and correctly specify items;
- c) Describe and illustrate the function and correct use of items.

11. Portable Powered Tools:

Range:Electrically Powered Circular Saw, Chop Saw, Jig Saw, Planer,
Router, Orbital and Belt Sander, Screwdriver and Drill.
Electrical Power Supplies - Reduced Voltage.
Cartridge Operated (Ballistic) Fixing Tools .

Competence Requirements:

- a) Correctly select tools for specific purpose;
- b) Describe functions, capacities and limitations;
- c) Explain maintenance and safe use;
- d) Explain the construction and use of simple jigs;
- e) Explain the function and use of transformers.;
- f) Describe the characteristics, uses and limitations of abrasives with regard to :
 - i) Grades;
 - ii) Coatings;
 - iii) Belts/Sheets.

12. Woodworking Machinery:

Range:Circular Cross Cutting Saw, Circular Rip Saw, Surface Planing
Machine, Thicknesser, Chain/Chisel Morticer, Narrow Band
Sawing Machine, Belt Sander, Vertical Spindle Moulding
Machine and Single Ended Tennoning Machine.

Competence requirements:

For each machine in the range, the candidate shall be able to

- a) Explain the requirements of related current safety legislation;
- b) Describe operational use;
- c) Name the component parts and explain their function;
- d) Identify appropriate tooling;
- e) Describe and illustrate the function and use of appropriate tooling;
- f) Describe procedures for maintenance, setting up and safe operation;
- g) Explain the holding, clamping and feeding of materials during machining processes;
- h) Describe and illustrate the construction and function of jigs and safety aids for use during machining processes;
- i) State the factors affecting the surface finish of timber during machine operations.

N.B. The requirements for this Section do NOT include practical usage.

13. Doors:

Range: Domestic, Side hung - Battened, Framed, Panelled, Glazed and Flush to include heads which are flat and in single curvature.
Fire Resisting.
Domestic & Industrial Sliding - Framed with Straight and Curved Track. Sliding and Folding.
Single and Double Action Swing.
Up & Over.

Competence requirements:

The candidate shall be able to

- a) Identify elements and components;
- b) Describe methods of construction and sequence of manufacture;
- c) Explain methods of fitting, hanging and finishing.

14. Door Frames & Linings:

Range:Plain and Rebated Linings - Storey Height to include Transom
and Borrowed Lights. Framed Linings.
Moulded and Rebated Door Frames with heads which are flat
and in single curvature to include Transoms and Fanlights.

Competence requirements:

- a) Identify elements and components;
- b) Describe methods of construction, sequence of manufacture and methods of fixing;
- c) Describe the procedures for positioning and alignment.

15. Casement Windows:

Range:Single and Multiple Light Traditional and Stormproof
Casements and Frames with Heads Which are Flat and in
Single curvature and Opening Lights - Side, Top or Bottom
Hung, Vertical and Horizontal Pivot, Tilt & Turn, Sliding Sash.
Bay and Bow with Horizontal Heads.
Shop Fronts and Entrances (straight and splayed).

Competence requirements:

The candidate shall be able to

- a) Identify elements and components;
- b) Describe methods of construction, sequence of manufacture and methods of fixing;
- c) Describe and illustrate the constructional requirements for single and double glazing;
- d) Describe the purpose and function of secondary and triple glazing systems.

16. Fitments:

Range:Free Standing and In-Situ, Purpose-Made and Proprietary Wall,
Floor and Seating Units to Domestic Premises, Shops, Offices, Public
and Ecclesiastic Buildings.
Proprietary and Purpose-Made Shelving Units.
Proprietary and Purpose-Made Work Surfaces.

Competence requirements:

- a) Identify elements and components;
- b) Describe and illustrate :
 - i) procedures for assembly, fitting, fixing and finishing;
 - ii) methods of manufacture, assembly, fitting, fixing and finishing;
 - iii) provisions for services.

17. Stairs:

Range: Straight Flight, Dog-Leg, Open Newel and Geometrical with Closed and Cut Strings to include Handrails and Balustrades. Tapered and Shaped Steps.

Competence requirements:

The candidate shall be able to

- a) Identify elements and components;
- b) Design, for a given situation, to comply with recognised criteria and relevant legislation;
- c) Describe and illustrate :
 - i) the requirements of current legislation with regard to construction and guarding;
 - ii) construction, assembly and fixing;
 - iii) the construction of landings;
 - iv) the finishings to well openings.

18. Floors:

Range:Hollow Ground and Single Span Upper Floors in Timber.Double with Timber and Steel Binders.Timber Floors on a Solid Base.

Competence requirements:

- a) Identify elements and components;
- b) Describe and illustrate :
 - i) methods of construction;
 - ii) methods of trimming floors to hearths, openings and stairwells;
 - iii) the laying, jointing and fixing of all types of timber flooring and sheet materials on joists, battens and fillets;
 - iv) the positioning of notches and holes in joists for services to comply with current legislation;
 - v) the function and purpose, also the fitting and fixing, of strutting to upper floors;
 - vi) methods of constructing and securing access traps;
 - vii) methods of fitting and fixing timber sections to steel and concrete;
 - viii) methods of enclosing steel and concrete beams.

19. Wall Panelling:

Range: Framed and Flush Dado, Three Quarter and Full Height Wall Panelling in Timber to include Decorative Coverings and Plastic Facings.

Competence requirements:

The candidate shall be able to

- a) Identify elements and components;
- b) Describe and illustrate :
 - i) construction, fitting, fixing (to include secret fixing) and finishing to include internal and external corners and door/window openings;
 - ii) construction, fitting, fixing and finishing to pilasters and cornices,
 - iii) different panel forms;
 - iv) the construction, lining-in and fixing of individual battens and framed grounds.

20. Finishings:

Range: Door & Windows Openings, Skirting Boards, Dado and Picture Rails. Encasing Services.

Competence requirements:

- a) Identify related elements and components;
- b) Explain methods of cutting and fixing vertical and horizontal mouldings to include forming scribes, mitres and header joints;
- c) Describe the function, procedures for fitting and methods fixing, plinth blocks, window boards and linings;
- d) Methods of construction and fixing pipe casings and bath panels; Provision of access traps.

21. Partitions and Screens:

Range:Timber Stud, Glazed Timber and Proprietary Systems - In-Situ
& Pre-Fabricated. Sliding and Folding - Top Hung and Bottom
Roller. Bar-Top Roller Shutters.

Competence requirements:

The candidate shall be able to

- a) Identify elements and components;
- b) Describe and illustrate :
 - i) procedures for construction, assembly, erection and fixing;
 - ii) methods of forming and finishing openings;
 - iii) provisions made for fittings and services.

22. Roofs:

Range: Domestic and Industrial. Single and Double Pitched Roofs up to 12 Metres Span with Hipped or Gable Ends, Over Right-Angled and Irregular Shaped Plans, with Equal and Unequal Pitches. Monopitched. Traditional, Framed and Mansard Construction to include Trussed Rafters and Trusses. Turrets, Spires and Domes - Square, Polygonal and Circular On Plan. Laminated Beams, Columns and Portal Frames. Flat.
 Dormer Windows with Flat, Pitched and Single Curvature Roofs.

Competence requirements:

- a) Identify elements and components;
- b) Describe and illustrate methods of :
 - i) construction and erection to comply with current legislation,
 - ii) providing trimming and weathering to openings;
 - iii) constructing, storing, handling and erecting trussed rafters;
 - iv) construction to provide for services;
 - v) construction and finishing at verges, eaves and abutments;
 - vi) construction and finishing access traps to loft spaces;
 - vii) providing adequate ventilation to roof spaces to comply with current legislation.

23. Formwork:

Range:Foundations - Strip, Raft and Pad.
Lintels, Cills, Posts, Columns, Beams, Suspended Floor Slabs,
Walls to include Retaining (up to 3 lifts).
Straight Flight and Dog-leg Stairs to include Landings.
Materials to include - Timber and Timber Sheet, Steel, Glass
Reinforced Plastics (GRP).
Service Ducts.

Competence requirements:

The candidate shall be able to

- a) Identify elements and components;
- b) Explain the types, function and methods of application of release agents;
- c) Explain the influence of fluid pressure on design;
- d) Describe and illustrate :
 - i) design and construction for concrete which is to be cast in-situ;
 - ii) design and construction for concrete which is to be pre-cast;
 - iii) methods of erection, support, easing and striking for single and multi-use formwork;
 - iv) Proprietary tie fixing systems and cast-in fixings.

24. Scaffolding:

Range: Proprietary Systems, Trestle, Hop-Ups, Putlog and Independent. Ladders and Stepladders .

Competence requirements:

- a) Recognise and state the function of commonly used components;
- b) Describe and illustrate :
 - i) the requirements of current legislation related to the erection; dismantling and safe use;
 - ii) types indicated in the range;
 - iii) procedures for the safe erection and dismantling;
- c) Describe and illustrate for Putlog and Independent scaffolding :
 - i) the requirements of current legislation related to the safe use;
 - ii) types indicated in the range;
- d) Describe the storage, safe usage and inspection procedures.

25. Shoring:

Range: Dead, Raking and Flying - Timber & Steel for buildings up to Four Storeys.

Competence requirements:

The candidate shall be able to

Describe and illustrate :-

- a) the components used;
- b) measurement, design, erection, safe use and dismantling procedures.

26. Centering:

Range:Timber and Sheet Materials for Flat, Segmental, Semi-Circular,
Pseudo and Semi Elliptical Centres to Brickwork and Stonework,
Maximum 3 metres span and up to 450 millimetres thick.

Competence requirements:

- a) Identify elements and components;
- b) Describe and illustrate :
 - i) the joints used and methods of construction;
 - ii) methods of propping, easing and striking;
 - iii) procedures for levelling and lining-in;
 - vi) the types and function of laggings.

27. Setting Out and Levelling:

Range:Straight Edge, Spirit Level, Plumb Rule and Bob, Water Level.
'Cowley' Optical Level and Staff Optical Square, Laser Level,
Quickset, Tapes, Pegs,
Boning Rods and Profiles.

Competence Requirements:

The candidate shall be able to

- a) Explain the reasons for and methods of transferring levels;
- b) Explain the use a datum line;
- c) Describe and illustrate methods of :
 - i) taking and recording measurements on site;
 - ii) plumbing, levelling and lining-in;
 - iii) setting out and checking right angles.

28. Repairs and Maintenance:

Range: Removing and Replacing Architraves and Skirtings, Frames and Linings, Doors, Ironmongery, Joists, Rafters, Sash Cording.

Competence Requirements.

- a) Identify related elements and components;
- b) Describe and illustrate methods of :
 - i) removal and replacement of defective components;
 - ii) treatments of replacement components;
 - iii) safe removal and disposal of defective components;
- c) Splicing structural members, frames and linings.

29. Laminated and Built-Up Structural Members:

Range:Curved and Straight Work.Beams, Portal Frames, Stressed Skin Panels.

Competence Requirements:

The candidate shall be able to

- a) Identify elements and components;
- b) Define constructional principles involved;
- c) Describe and illustrate procedures for fitting, fixing and finishing.

30. Timber Framed Buildings:

Range:Platform up to 2 Storey.
Cladding in Strip and Sheet to include Timber, Metal and Plastic.Competence Requirements:

- a) Identify elements and components;
- b) Describe and illustrate :
 - i) methods of construction, fixing and finishing;
 - ii) sequences of erection;
 - iii) types of internal and external cladding to include methods of fixing and finishing;
 - iv) the application of fire precautions to comply with current legislation.

31. Planning and Organisation:

Range:Activity Documents, Contract Documents and Current
Legislation - Workshop and Site. Door and Window Schedules.

Competence Requirements:

The candidate shall be able to

a) Define

- i) the legal responsibilities of employer and employee;
- ii) the factors affecting job planning and costing;
- iii) methods of analysing, recording and storing information;
- iv) the factors affecting the allocation of resources;
- vi) methods of assessing and measuring individual and team performance;
- vii) procedures for assessing and maintaining quality;

b) Explain

- i) the content, function and purpose of contract documents;
- ii) the legal requirements for record keeping;
- iii) methods and procedures for monitoring operational activities;
- iv) purpose and use of door and window schedules;
- c) Formulate and evaluate work programmes.

32. Record and Maintain Information.

Range: Doors, Door Frames, Linings, Casements, Window Frames, Wall and Floor Units, Stairs.

Competence Requirements:

- a) Take site measurements and record;
- b) Record location and condition of components;
- c) Identify potential health hazards