

Insulating Concrete Formwork Systems

Specialist Apprenticeship Programme

&

Training Specification

August 2009

Contents

Section 1:	Introduction & Sector Background	Page 4
Section 2:	Overview of the Specialist Apprenticeship Framework	Page 7
Section 3:	NVQ Level 2: Insulating Concrete Formwork & NVQ 3 Occupational Work Supervision	Page 8
Section 4:	Scheme of Work	Page 9
Section 5:	Training Modules	
Module 1:	Overview & Background covering the development of ICF Systems	Page 12
Module 2:	Induction to the Course	Page 13
Module 3:	Health & Safety Awareness Training	Page 13
Module 4:	First Aid Appointed Persons	Page 14
Module 5:	Manual & Mechanical Handling	Page 14
Module 6:	Employment Rights & Responsibilities	Page 14
Module 7:	Abrasive Wheels Training	Page 15
Module 8:	Access Equipment	Page 15
Module 9:	Handling & Storage of Polystyrene Forms & Equipment	Page 16
Module 10:	Safe Use of Hand & Power Tools	Page 17
Module 11:	Setting Out & Foundations	Page 18
Module 12:	Waterproofing Barriers	Page 19
Module 13:	Block & Panel Installation	Page 20
Module 14:	Intersecting Walls	Page 20
Module 15:	Forming Openings	Page 21
Module 16:	Bracing	Page 23
Module 17:	Flooring Systems & First Floor & Wall Plate Height Details	Page 23
Module 18:	Curved & Feature Wall Installations	Page 25
Module 19:	Concrete & Concreting	Page 26
Module 20:	Interaction with Secondary Trades	Page 28
	continued /	

Contents

Module 21:	Exterior Finishes	Page 30
Section 6:	Appendices	Page 32
Appendix A:	Re-Bar Types & Schedules	Page 33
Appendix B:	Standard Induction Format	Page 35
Appendix C:	Acknowledgements	Page 37

Section 1

Introduction & Sector Background

Insulating concrete formwork (ICF), otherwise known as permanently insulated formwork (PIF), is an insulated concrete system of building that is quick to construct and offers levels of performance significantly better than available from slower, more traditional approaches to building. Popular in Germany where it was born in the 50's, it has grown rapidly in North America starting as a basement construction and now has approximately 8% of the low rise housing market in Canada and the USA.

It has been growing in the UK self-build sector for some years with a performance far in excess of the Building Regulations but, with the recent increases in performance demanded by Building Regulations, Eco-homes and now the Code for Sustainable Homes, it is broadening into mainstream and is currently on trial with a number of UK housing associations and regional house builders. It is one of just four approved walling systems for domestic basements. It is recognised as an MMC system (Modern Method of Construction) by BRE (Building Research Establishment, Partnerships and Communities England).

Insulated Concrete Formwork building systems consist of an inner and outer skin of EPS (Expanded Polystyrene) tied together using either plastic, steel or an integral web of polystyrene. The core is then poured with concrete leaving the polystyrene in place to become the internal and external insulation of a structure. Nationally, there are around ten manufacturers of ICF producing either a complete block system with integrated tie or a panel system consisting of flat pack panel and loose ties.

Fresh concrete is poured into forms built up to 3 metre high as a complete wall. This is normally done by pump. Once the green concrete wall is set, it becomes a high strength concrete frame structure with the formwork remaining in place as thermal insulation, providing u-values ranging from the standard 0.30 w/m²k as required by the current Building Regulations down to 0.11 w/m²k – ideal for zero energy buildings Star Level 6 in the Code for Sustainable Homes.

Creative design (without compromising performance) is encouraged by the availability of a comprehensive range of components, further enhanced by the option to incorporate reinforcement for basements or multi-storey projects. The highly insulated structure may be clad internally and externally with a wide range of finishes, including plaster, masonry, curtain walling and renders. Most of the systems are marked on the outer faces of the forms to indicate where positive screw fixing can be made with self-tapping screws into plastic or metallic webs.

Because of the insulation properties and speed of the building process of ICF systems, the number of building projects utilising ICF systems has increased significantly over recent years with projects for the Public and Private sectors using ICF as the system of choice. Projects include schools, hospitals, retail developments, social housing and self-build projects. ICF has also been used for extensions to existing traditional buildings and swimming pools in addition to a range of other everyday structures. The versatility of ICF also allows for both innovative and traditional design features to be incorporated into ICF buildings.

The Insulating Concrete Formwork Association (ICFA)

The Insulating Concrete Formwork Association has grown continuously since it was formed to promote the use of insulating concrete formwork in the UK construction industry and has regular meetings at venues around the country. Within the membership there is expertise

from the concrete, plastic and chemical industries, which has proven to be a great asset to the membership and their customers. The ICFA in the UK has close working relationships with the US-based ICFA.

The main aim for the ICFA is to promote a greater understanding of the many uses of ICF systems and the additional benefits that include its sustainability, energy saving properties and development of the carbon neutral home. The ICFA also has strong links with the Concrete Centre, The Concrete Society, and Concrete Industry Platform and Expanded Polystyrene Association (EPS). The ICFA's Mission Statement is quoted below: -

The ICFA's mission is to grow the market share for this Efficient Modern Method of Construction in the UK to reach a minimum 10% market share of above ground external walls of domestic residences by 2016 when Carbon Neutral, Code Star level 6 Homes will be required for all new Homes in the UK. In addition, ICF homes, including those with basements, should be seen as the market leading house construction for building on flood plains. It is expected that by 2010 a number of Robust Details will be in position to assist performance to gain the extra points available to properties, including flats, giving the required extra sound insulation performance to gain the extra points available in the Code for Sustainable Homes ... enhanced acoustics section.

Quality Assurance

The ICF market share is currently around 0.5% and the sector has set a target of 10% market share to be achieved over the next ten years. With the cooperation between manufacturers and representation of the Sector and ICF products by the ICFA over recent years the systems seen as providing a number of solutions in relation to carbon emission objectives and code 4 reached already in relation to energy efficient homes. In addition ICF brings solutions to flood and security defence systems. The application of ICF technology is also seen as a solution to shortages in traditional building skills and providing improvements in contract completion times.

Evidence of cooperation to improve standards and acceptance of ICF across a range of manufacturers is a significant factor. The ICFA engage in a number of activities some of which are initiated by member companies, including research carried out on behalf of the sector by the BRE and the National Physical Laboratory. ICF Manufacturer and Installers also link with schemes such as NHBC guarantees, Audit Schemes such as Lloyds Register, and Design standards such as BS8110, or more appropriately European Standards such as EC2.

While initial observations of ICF systems appear relatively simple, the design, management and supervision of contracts are a complex issue. Bearing this in mind the opportunity to develop nationally recognised training standards for both operatives and installers would add to quality assurance profile of the system generally.

Current Training Provision

Generally if a new contractor/builder who is engaged to construct an ICF project by a manufacturer or Client has no previous experience, the ICF manufacturer will provide off-site training and on-site support. This training, for example in the building of a residential property, surrounds the practical objectives of ensuring the ICF walling and ancillary components are installed and supported correctly using both proprietary support systems and traditional form-working methods where appropriate.

Currently there are thought to be approximately 5 Main Contractors nationally working in association with the ICF/Manufacturers (and other non ICFA member manufacturers). There

are also an unknown number of smaller builders using ICF systems along with self-build clients. Additional research will need to take place to determine the number of small builders who are using ICF systems.

Although there are clearly differences in the types and profiles of manufactured ICF systems, the principles of construction are similar and this is reflected in the design guide produced and available from the ICFA. It is proposed that ICF Specialist Apprenticeship Scheme will represent a nationally recognised training programme that reflects the common principles of ICF construction processes that will also include an awareness of the range of specific systems that are available.

During 2009 ICFA representatives have worked in partnership with ConstructionSkills to develop a nationally recognised Specialist Apprenticeship Scheme that consists of standard training programmes that follow the content of the current NVQ and manufacturer systems.

NVQ Level 2 Assessment Provision

Evidence suggests to there being little or no take up of or use of these qualifications for CSCS or any other purposes. The ICFA has, in partnership with CAA, developed the NVQ questions and answers for Unit VR319 Erect Insulating Concrete Formwork in association with the Awarding Body (CAA). The current NVQ Level 2 is considered as fit for purpose by the Sector but may require amendment in light of recent technological advances. There are currently two people being trained as NVQ Assessors.

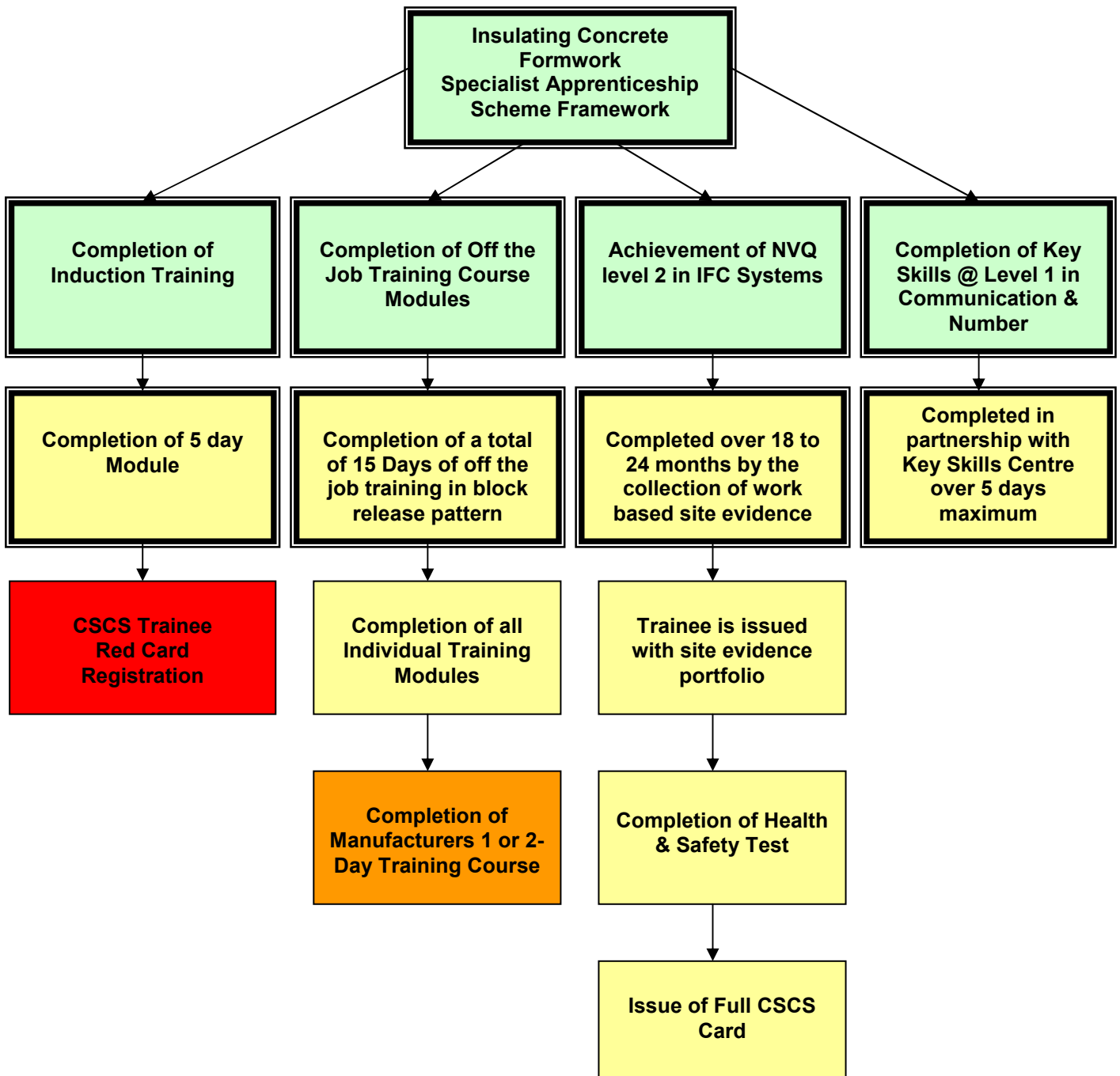
Progression Routes for Supervisory Training and NVQ Level 3 Qualifications

There is clearly a case for the development of a formal training course for Site Supervisor in addition to enable Operatives to progress to Supervisory/Management role. The NVQ Level 3 in Occupational Work Supervision (OWS) is a flexible qualification that can fit in with individual manufacturer systems and allows on site work activities to be aligned with the individual OWS NVQ units. The use of the OWS Level 3 should not preclude access to the NVQ Level 3 in Civil Engineering Site Supervision or the NVQ Level 4 in Civil Engineering Site Management as progression routes.

Details of the NVQ Units for the Occupation Work Supervision Level 3 are shown in Section 3.

Section 2

Overview of the Insulating Concrete Formwork Specialist Apprenticeship Framework



Total Off the Job Training Days = 25 days

Section 3

N/SVQ Level Qualification Structure: QUC706

Mandatory Units

- **VR01** Conform to General Workplace Safety
- **VR02** Conform to Efficient Work Practices
- **VR03** Move and Handle Resources
- **VR0225B** Place and Compact Concrete
- **VR319B** Erect Insulating Concrete Formwork

The following two Units are Additional Units, but are not compulsory: -

- **VR250B** Erect and Dismantle Access/Working Platforms
- **VR400B** Operate Specialised Powered Tools and Equipments

Note: Health & Safety Test is required for the NVQ Level 2 to be awarded

The Occupational Progression Route will be the NVQ Level 3 in Occupational Work Supervision

NVQ Level 3 Occupational Work Supervision Structure

Mandatory Units

- **VR209** Confirm Work Activities and resources for the Work
- **VR210** Develop and Maintain Good Working Relationships
- **VR211** Confirm the Occupational Method of Work
- **VR212** Implement and Maintain Health, Safety & Welfare
- **VR213** Co-ordinate and Organise Work Operations

Plus two units from the following Optional Units: -

- **VR214** Allocate and Monitor the use of Plant & Equipment
- **VR215** Monitor and Progress Against Work Schedules
- **VR216** Confirm Meets Quality Standards
- **VR217** Implement Procedures to Support Teams Performance
- **VR218** Co-ordinate and Confirm the Dimensional Requirements of the Work
- **VR219** Contribute to the Circulation of Information

Section 4

Scheme of Work in Sequential Order of Module Delivery

Duration	Training Objectives	Training Module	Relationship to Manufacturers Products Specification & Key Points	NVQ Reference
1.0 Day	<p>Induction week training objectives covering:</p> <ul style="list-style-type: none"> • Overview of the Course Programme & Apprenticeship Framework • Introduction to the NVQ & Collection of Site Evidence • Overview/Explanation of Key Skills • Completion of ILRs and ILPs • Introduction and Registration for CSCS Cards • Completion of Initial Assessments, i.e. BSA 	Module 2		
1.0 Day	<p>Health & Safety Awareness Training</p> <ul style="list-style-type: none"> • HSAWA • Role of the HSE • Introduction to Risk Assessment • PPE • Working at Heights • COSSH • RIDDOR • Safety Signs • Asbestos • Fire & Extinguishers • Noise • CSCS Practice Tests • Small Tools • Manual Handling 	Module 3		

Duration	Training Objectives	Training Module	Relationship to Manufacturers Products Specification & Key Points	NVQ Reference
0.5 Day	Completion of First Aid Appointed Persons	Module 4	N/A	
0.5 Day	Manual & Mechanical Handling	Module 5		
0.5 Day	Completion of Abrasive Wheels Training	Module 7		
0.5 Day	Completion of Employment Rights & Responsibilities Training/Assessment	Module 6		
2.0 Hours	Access Equipment	Module 8		
2.0 Days	Overview & Background covering the Development of ICF Systems	Module 1		
0.5 Day	Handling & Storage of Polystyrene forms & Equipment	Module 9		
1.0 Day	Safe use of Hand & Power Tools	Module 10		
1.5 Days	Setting Out & Foundations	Module 11		
0.5 Days	Waterproofing Barriers	Module 12		

Duration	Training Objectives	Training Module	Relationship to Manufacturers Products Specification & Key Points	NVQ Reference
0.5 Days	Block & Panel Installation	Module 13		
0.5 Days	Intersecting Walls	Module 14		
0.5 Days	Forming Openings	Module 15		
3 hours	Bracing	Module 16		
0.5 Day	Flooring Systems & First Floor Wall & Plate Details	Module 17		
1.0 Day	Curved & Feature Walls	Module 18		
1.5 Days	Concrete & Concreting	Module 19		
1.0 Day	Interaction with Secondary Trades	Module 20		
1.0 Day	Exterior Finishes	Module 21		

Section 5

Training Modules

Module 1: Overview and background covering the development of ICF Systems	
Duration: 2 Days	
Practical	Theory
<p><i>The trainee will carry out and complete the following tasks and demonstrate their competence and understanding.</i></p> <ul style="list-style-type: none"> • At the end of the two-day modules trainees will undertake a written assessment • Trainees will review the types of ICF systems available • Trainees will complete scale drawing exercises 	<p><i>At the end of the training the trainee will have knowledge and understanding of the following subjects: -</i></p> <ol style="list-style-type: none"> 1. The history & development of ICF Systems <ul style="list-style-type: none"> • Understand how the use of ICF systems supports the need for more sustainable construction and how sustainable buildings will benefit those who use them • Understand what is meant by Modern Methods of Construction (MMC) and how ICF fits into the MMC framework • Carbon neutral issues 2. The Features & Benefits of ICF Systems including: - <ul style="list-style-type: none"> • Rapid Construction • Light Weight & Ease to Use • Design Flexibility • High Insulation and Sound Proofing Properties • Air Tightness & Fire Proofing • Energy Saving Efficiencies • Thermal Mass to Regulate Wall Temperature • Reduced Carbon Footprint 3. One half-day will be provided for the completion of Training & Understanding covering the detailed issues regarding the subject of Sustainability issues. 4. Trainees will demonstrate and understand the roles and responsibilities of the following: - <ul style="list-style-type: none"> • The Design Process & Role of the Architect and Clients • The Role of Building Control • Third Party Certification EG • Building Research Establishment (BRE) • The British Board of Agreement (BBA) • The Loss Prevention Standard • CDM 5. Trainees also will cover an introduction to ICF Schematics & understanding drawings and drawing to scale.

Module 2: Induction to the Course Duration: 1 Day	
Practical	Theory
<i>The Trainee will carry out and complete the following tasks and demonstrate their competence and understanding</i>	<p><i>At the end of the training the trainee will have knowledge and understanding of the following subjects: -</i></p> <ul style="list-style-type: none"> • Overview of the Course Programme & Apprenticeship Framework • Introduction to the NVQ and collection of work based evidence • The role of Work Based Recorders • Overview/Explanation of Key Skills • Completion of ILRs and ILPs • Introduction and Registration for CSCS Card • Completion of Initial Assessments, i.e. BSA
Module 3: Health & Safety Duration: 1 Day	
Practical	Theory
<p><i>The trainee will carry out and complete the following tasks and demonstrate their competence and understanding.</i></p> <p>Trainees will complete various types of Risk Assessments.</p>	<p><i>At the end of the training the trainee will have knowledge and understanding of the following subjects: -</i></p> <p>1. Trainees will complete a prescribed H&S course and complete and end assessment based on the CSCS Touch Screen Test</p> <ul style="list-style-type: none"> • Health & Safety at Work Act • Duty of Care • Employer/employee Responsibilities • The Role of HSE • Risk Assessments, Safe Systems at Work, Permits to Work • PPE • Working at Heights • Scaffolding Systems • ICF Proprietary Scaffold Systems • Fall Arrest Systems including Air Bags • COSHH • RIDDOR • Safety Signs • Asbestos • ICF Fire Causes & Prevention • Fire Extinguishers • Noise Prevention Controls • Mechanical & Hand tools • Manual Handling

Module 4: First-Aid Appointed Persons Duration: 0.5 Day	
Practical	Theory
<i>The Trainee will carry out and complete the following tasks and demonstrate their competence and understanding.</i>	<i>At the end of the training the trainees will have understanding of the following subjects: -</i>
<p>Completion of the Theory and Practical training associated with First Aid Appointed Persons training to be provided approved and Registered First Aid Training Provider. This module must be completed within six months from the start date of the course with Certification copied to the employer and a copy held in the trainee logbook. Copy also to be placed within the NVQ evidence portfolio.</p>	
Module 5: Manual & Mechanical Handling Duration: 0.5 Day	
Practical	Theory
<i>The trainee will carry out and complete the following tasks and demonstrate their competence and understanding.</i>	<i>At the end of the training the trainee will have knowledge and understanding of the following subjects: -</i>
<p>1. A half-day course will be provided and will be delivered by an approved trainer covering the current mechanical lifting regulations as well as manual handling and kinetic lifting techniques.</p> <p>2. Specific guidance will be provided for handling and vehicle off loading relevant to the installation of Insulating Concrete Formwork Systems.</p> <p>3. Site Access for delivery vehicles will be covered.</p>	<p>1. At the end of the training candidates will have an awareness and basic understanding of:</p> <ul style="list-style-type: none"> • Mechanical Handling Techniques & Options • The Lifting Regulations • Manual Handling Techniques • Kinetic Lifting • Team Lifting • Avoiding Injuries/Types of Injuries • Pre-planning • Risk Assessment • PPE • The role of qualified banks men • Vehicle movements on site
Module 6: Employment Rights & Responsibilities Training (ERR) Duration: 0.5 Day	
Practical	Theory
<i>The trainee will carry out and complete the following tasks and demonstrate their competence and understanding.</i>	<i>At the end of the training the trainee will have knowledge and understanding of the following subjects: -</i>
<p>All Trainees must complete the prescribed Employment Rights & Responsibilities Training / Assessments as provided by ConstructionSkills. Trainees will receive the Cskills Publication on ERR which must be provided free of charge.</p>	

Module 7: Abrasive Wheels Duration: 0.5 Day	
Practical	Theory
<p><i>The trainee will carry out and complete the following tasks and demonstrate their competence and understanding.</i></p> <p>Trainees will complete an approved half-day training programme covering the theoretical and practical use of abrasive wheels in cutting, grinding and drilling equipment used in the installation of ICF Systems.</p>	<p><i>At the end of the training the trainee will have knowledge and understanding of the following subjects: -</i></p> <ul style="list-style-type: none"> • All regulations associated with the use of Abrasive Wheels • Use of the appropriate PPE • The selection and use of the correct Abrasive Wheel for the work • The limitations of equipment and Abrasive Wheels • The importance of proper maintenance • Setting up of the work area for use of Abrasive Wheels • The requirements under the Young Persons Health Regulations to conduct risk assessments
Module 8: Access Equipment Duration: 2 Hours	
Practical	Theory
<p><i>The trainee will carry out and complete the following tasks and demonstrate their competence and understanding.</i></p> <p>1. Trainees will complete fault-finding exercises.</p> <p>2. In the course of their work candidates will take part in the planning process and the use of scaffolding erected by specialists, and they should understand enough to enable them to participate in planning discussions, make recommendations or identify potential problems when being asked to work from scaffold platforms erected for other purposes or shared use.</p>	<p><i>At the end of the training the trainee will have knowledge and understanding of the following subjects: -</i></p> <p>1. At the end of this module trainees will have a basic understanding of the following: -</p> <ul style="list-style-type: none"> • Selection and use of appropriate ladders and basic access equipment such as hop ups, etc • The types of scaffolding systems available, i.e. Independent Scaffolds and Proprietary Scaffolds • Understand the use of MEWPs • Demonstrate a basic understanding of scaffolding principles and requirements for specified ICF work • Candidates must understand the planning process and use of scaffolding erected by Specialists scaffolding platforms erected for other purposes or shared use

Module 9: Handling & On/Off Storage of Polystyrene forms & Equipment**Duration: 0.5 Day**

Practical	Theory
<p data-bbox="188 353 695 448"><i>The trainee will carry out and complete the following tasks and demonstrate their competence and understanding.</i></p> <p data-bbox="188 1547 475 1576">5. Materials Schedules</p> <ul data-bbox="188 1615 762 1765" style="list-style-type: none">• Practical Exercise in planning consecutive deliveries• Produce schedule of deliveries in sequential order• Estimate costs	<p data-bbox="810 353 1356 448"><i>At the end of the training the trainee will have knowledge and understanding of the following subjects: -</i></p> <ol data-bbox="810 479 1385 1518" style="list-style-type: none">1. Degradation of Polystyrene<ul data-bbox="810 510 1311 636" style="list-style-type: none">• Affects of UV light• Oxidation• Prevention• Surface Preparation prior to rendering2. Site Cleanliness<ul data-bbox="810 703 1356 851" style="list-style-type: none">• Keeping the site clean• Disposal of recyclable and non-recyclable material• Company & Local Authority Rules & Regulations3. Site Planning & Organisation<ul data-bbox="810 918 1385 1232" style="list-style-type: none">• Site access for large vehicles (40 foot long articulated lorries, concrete pump trucks, cement wagons)• Pump Truck Reach & Access• Overhead obstructions re pump truck boom, electricity wires and site services• Trenches & Protection of Excavations• Bracing Systems• The location of storage area in proximity to flammable store4. Bundle packaging<ul data-bbox="810 1299 1385 1518" style="list-style-type: none">• Palletisation of ICF Systems• Storage of ICF components• Handling & Storage of Proprietary Bracing Systems• The manner of how to store components in accordance with manufacturers instructions• The effects of wind load on storing material <p data-bbox="810 1547 1082 1576">5. Materials Schedules</p> <ul data-bbox="810 1585 1385 1832" style="list-style-type: none">• Understanding Logistics regarding the delivery of materials• Understand 'Lead Time' for consecutive deliveries• Understand cost implications of multiple deliveries• Understanding in relationship to overall building processes such as first floor beams

Module 10: Safe Use of Hand & Power tools**Duration: 1.0 Day**

Practical	Theory
<p><i>The trainee will carry out and complete the following tasks and demonstrate their competence and understanding.</i></p> <p>Safe use of Abrasive Wheels: Accredited Training Course.</p> <ul style="list-style-type: none"> • Safely run and operate powered and hand tools and equipment • Trainees to demonstrate their understanding of the type of equipment they may be required to use • Identify the correct equipment for the specified application • Select and use the appropriate PPE for the work • Practical Exercise in cutting in Polystyrene • Complete and Health & Safety Test <p>Under Items 1 & 2 Operate selected relevant Tools & Equipment</p>	<p><i>At the end of the training the trainee will have knowledge and understanding of the following subjects: -</i></p> <p>1. Understanding the practical and safe use of the different types of hand and power tools: -</p> <p>Power Tools & Equipment</p> <ul style="list-style-type: none"> • Abrasive Wheels • Reciprocating saw • Table saw • Hot wire • Angle grinders • Petrol driven cutting wheels • Angle grinders (the affect of using angle grinders in the close proximity to ICF) • Drills/Hole Cutters: Cordless & 100 volt drills • Generators • Circular Saws • Chain Saws <p>???Hand Tools</p> <ul style="list-style-type: none"> • Panel Saw • Keyhole Saw • Stanley Type Knives • Tin Snips • Shears (Pruning) <p>2. Foam Application Guns</p> <ul style="list-style-type: none"> • Types of foam • Use of foams • How to clean expanding foam guns • The affects of cleaning agents in polystyrene <p>3. Selection & Use of PPE</p> <ul style="list-style-type: none"> • Goggles • Footwear • Gloves <p>4. COSHH & Risk Assessments</p> <ul style="list-style-type: none"> • Burns • Chemicals on skin

Module 11: Setting Out & Foundations**Duration: 1.5 Days**

Practical	Theory
<p><i>The trainee will carry out and complete the following tasks and demonstrate their competence and understanding.</i></p> <ol style="list-style-type: none">1. Assess condition of slab and carry out remedial work if necessary.2. Setting out of initial formwork (Trainees will demonstrate this)3 & 4. Trainees will complete technical drawing exercises.5. Trainees will recognise and carry out various methods of constructing corners and junctions.	<p><i>At the end of the training the trainee will have knowledge and understanding of the following subjects: -</i></p> <ol style="list-style-type: none">1. The trainee will be able to assess the condition of the slab and the requirement of any remedial work to be carried out prior to the erection of the formwork, in order to overcome level fluctuations on the slab that might have an effect on the formwork's line and plumb. In order to assess the state of the slab and that it has been built following the specification, the trainee should be able to understand basic drawing and be familiar with the use of levelling techniques such as laser levels, spirit level, etc.2. Remedial work might include: -<ul style="list-style-type: none">• Cutting/filling bottom of 1st block or panel bottom. Use of expanding foam.• Use of channel/kicker for 1st course of block/panel3. The trainee will be able to read the designer's drawings and to build the basic footprint of the structure according to such drawings keeping the formwork lined and plumbed using the correct equipment, i.e. laser level, spirit level, etc.4. Will be able to identify by interpreting the drawings the requirement, methods and location of the systems used to prevent the penetration of moisture the build up of hazardous gases, i.e. radon, within the structure. Methods to prevent moisture and gas penetration are enumerated in Module 13.5. The trainee will be able to identify the position of the different corners and junctions on the footprint and to use the appropriate components/techniques to build them depending on the ICF system used: -<ul style="list-style-type: none">• Pre-built corner units• Overlapped/staggered standard units• Use of EPS end-pieces• Mitred standard units• Use of corner clips6. The trainee should have the appropriate skills to secure the first courses of formwork once these have been checked for layout, line and level to the slab using different techniques such as timber kickers and uprights, channels or by using proprietary ICF support system if provided.

Module 11: Setting Out & Foundations – continued	
Duration: 1.5 Days	
Practical	Theory
<p><i>The trainee will carry out and complete the following tasks and demonstrate their competence and understanding.</i></p> <p>6. Identify the requirement and position of reinforcement.</p> <p>7. Trainees will demonstrate the interpretation of re-bar charts and selection of the appropriate re-bar.</p>	<p><i>At the end of the training the trainee will have knowledge and understanding of the following subjects: -</i></p> <p>7. Will be able to read both re-bar schedules and re-bar layout drawings, in order to identify the correct reinforcement item, its location and distribution requirements.</p> <p>See Appendix A.</p>
Module 12: Waterproofing/Damp Proofing Barriers	
Duration: 0.5 Day	
Practical	Theory
<p><i>The trainee will carry out and complete the following tasks and demonstrate their competence and understanding.</i></p> <p>1. Identify Types of Barriers.</p>	<p><i>At the end of the training the trainee will have knowledge and understanding of the following subjects: -</i></p> <p>1. Damp Proof Barriers</p> <ul style="list-style-type: none"> • Understand Basement Construction • Have an understanding or understand the cause of rising damp • The EPS foam can be classed as a vapour barrier and will not allow moisture to travel up the wall, however the concrete will not • The structural requirements of the joint between the walls at the point where the DPM is required will affect the choice of system used • When using sheet systems care must be taken to ensure that water running down the wall cannot track across the membrane back into the building. For this reason the membrane does not normally penetrate the exterior leaf of EPS • The ICF wall can sit in contact with the soil without adverse effect, and does not require additional protection below ground when used as a foundation wall. <p>2. Trainees should have an understanding of the different types of DPM, including: -</p> <ul style="list-style-type: none"> • Sheet, Liquid and waterproof concrete, and how each one can be integrated into an ICF wall • Understand the structural requirements of the joint between the walls at the point where the DPM is required and how this will affect the choice of system used. <p>3. Waterproofing Basement Walls</p> <ul style="list-style-type: none"> • Understand the difference between external and internal tanking • The types of tanking materials used and there compatibility with EPS • The use of land drains in conjunction with external tanking

Module 13: Block & Panel Installation Duration: 0.5 Day	
Practical	Theory
<p><i>The trainee will carry out and complete the following tasks and demonstrate their competence and understanding.</i></p> <ol style="list-style-type: none"> 1. Provide “hands on” demonstration of installation Techniques of various types of systems. 2. Review of relevant the practical information from modules <ul style="list-style-type: none"> • Safe working at height • Scaffolding systems • Manual handling 	<p><i>At the end of the training the trainee will have knowledge and understanding of the following subjects: -</i></p> <ol style="list-style-type: none"> 1. Understand the design differences of block and panel ICFs. <ul style="list-style-type: none"> • Types of Blocks • Types of Systems 2. Understand the generic ICF installation Method addressing the following: - <ul style="list-style-type: none"> • Alignment Methods • Installation of Furring strips, Corner pieces and clips • Alignment of subsequent floors • Working at Height • Manual Handling • Access Platforms • Proprietary and Independent Scaffolds 3. Provide and present ICFA approved installation PowerPoint presentation.
Module 14: Intersecting Walls Duration: 0.5 Day	
Practical	Theory
<p><i>The trainee will carry out and complete the following tasks and demonstrate their competence and understanding.</i></p> <ol style="list-style-type: none"> 1. Provision and “hands on” demonstration of intersecting wall installation techniques. 2. Trainees to practice placing and securing panels, and forming intersecting walls, party walls, T junctions and installation of re-bar. 	<p><i>At the end of the training the trainee will have knowledge and understanding of the following subjects: -</i></p> <ol style="list-style-type: none"> 1. Understand how to create intersecting ICF party and internal walls with particular attention to the following: - <ul style="list-style-type: none"> • Installation techniques • Use of re-bar at T junctions • Ensuring concrete flow

Module 15: Forming Openings**Duration: 0.5 Day**

Practical	Theory
<p><i>The trainee will carry out and complete the following tasks and demonstrate their competence and understanding.</i></p> <p>1. Trainees will carry out exercises covering: -</p> <ul style="list-style-type: none">• Forming window openings• Methods of lining of window openings• Supporting of openings during placement• Reinforcement of openings• Installation of lintels• The use of various forms of support options	<p><i>At the end of the training the trainee will have knowledge and understanding of the following subjects: -</i></p> <p>1. Window Openings</p> <ul style="list-style-type: none">• Window openings should be formed and supported prior to the placement of concrete• At an opening the vertical sides of the window/door the top of the opening head and must be prepared to ensure the concrete does not leak during placement and that the window opening retains its planned shape and size <p>2. Methods of lining openings</p> <ul style="list-style-type: none">• Using timber to seal around the opening• If using timber to form the closure pieces it should be pressure treated to ensure maximum durability• Fixings used to secure the timber in place, i.e. to the concrete, should be positioned prior to placing the concrete• The timber used to close the blocks will (in all but the smallest cases) require additional support to withstand the forces exerted by the wet concrete• Using insulation to seal around the opening. If using rigid insulation to seal the opening it will require support during concrete replacement• Using V-buck to seal around the opening• Follow the installation instructions and support during placement <p>3. Understand the supporting of openings during concrete placement and the aim of the additional support in relationship to: -</p> <ul style="list-style-type: none">• Openings that will require additional support to withstand the pressure exerted during filling• Support to lintels to prevent sagging• Prevention of the lining material used the seal vertical slides of the opening from being dislodged and moving inwards• Prevention of concrete flowing up through the bottom of the window• Prevention of the opening becoming distorted during placement. (This is more of a problem as the openings become larger)• Provision of Supports used with acro props, proprietary supports the use of timber

Module 15: Forming Openings – continued**Duration: 0.5 Day**

Practical	Theory
<p><i>The trainee will carry out and complete the following tasks and demonstrate their competence and understanding.</i></p>	<p><i>At the end of the training the trainee will have knowledge and understanding of the following subjects: -</i></p> <ol style="list-style-type: none">1. Understand how to form openings and end stops.2. Methods of lining window openings, sills opening.<ul style="list-style-type: none">• Understand the lining at sill level in order to concrete flow compaction• Understand how and when to use secondary bracing• Types of secondary bracing, including acro props, proprietary supports and timber• Types of linings used, including timber (intern lining), Timber (external lining), manufacturer specific polystyrene lining and V-Buck linings• Types of fixings used to keep linings in place during concrete pour3. Supporting openings during placement.<ul style="list-style-type: none">• Understand the process involved in the reinforcement of openings• Understand the objective of the reinforcement is to increase the tensile strength of the concrete and thereby support the concrete above opening4. Understand the types of reinforcements available, including: -<ul style="list-style-type: none">• Steel, although other materials, including<ul style="list-style-type: none">○ Stainless steel○ Epoxy coated steel○ Reinforced polymers▪ The durability of other types of reinforcement to be considered▪ Understand the effect of cement on reinforcement and required cover of the steel, size of the aggregate used.▪ The correct procedures to be adopted to ensure that adequate cover is maintained to the steel

Module 16: Bracing Duration: 3 Hours	
Practical	Theory
<p><i>The trainee will carry out and complete the following tasks and demonstrate their competence and understanding.</i></p> <p>1. Install and use Bracing Systems.</p> <ul style="list-style-type: none"> • Identify correct set up procedure • Install bracing in accordance with manufacturers instructions and in a safe and controlled manner 	<p><i>At the end of the training the trainee will have knowledge and understanding of the following subjects: -</i></p> <p>1. Proprietary Bracing Systems.</p> <ul style="list-style-type: none"> • Overview of the Bracing systems • Innovative bracing systems, e.g. Reach Craft systems • Securing and fastening Bracing systems • Restrictions in the use of scaffolding systems and Bracing techniques • Bracing of over height walls <p>2. Understand principals of wall and corner bracing systems.</p> <ul style="list-style-type: none"> • Understanding the principle of internal and external Bracing systems • Wall and corner Bracing systems • Secondary bracing of cuts of irregular dimension joints – see Module 18 • Understanding improvised Bracing techniques • Ensuring accuracy and straightness of walls
Module 17: Flooring Systems – First Floor and Wall Plate Height Details Duration: 0.5 Day	
Practical	Theory
<p><i>The trainee will carry out and complete the following tasks and demonstrate their competence and understanding.</i></p> <p>1. Practical Training/Demonstrations to include: -</p> <ul style="list-style-type: none"> • Understanding of the processes involved in the installation of processes involved in the theoretical lessons shown opposite 	<p><i>At the end of the training the trainee will have knowledge and understanding of the following subjects: -</i></p> <p>1. Flooring systems and understand how to tie-in the following into an ICF wall: -</p> <ul style="list-style-type: none"> • Ledger plate • Timber joist (direct pocketing) • Beam pocketing (steel, i.e. RSJ) • Block and Beam • Pre-cast concrete slabs • Proprietary floor connections, i.e. ICF joist hangers • Cast in place concrete floors • Finish of ICF components to finished wall height <p>2. Gable Ends</p> <ul style="list-style-type: none"> • Installing gable ends • Pocketing of ridge beam

Module 17: Flooring Systems – First Floor and Wall Plate Height Details - continued
Duration: 0.5 Day

Practical	Theory
<p><i>The trainee will carry out and complete the following tasks and demonstrate their competence and understanding.</i></p>	<p><i>At the end of the training the trainee will have knowledge and understanding of the following subjects: -</i></p> <p>3. Top of Wall</p> <ul style="list-style-type: none"> • Finishing ICF wall at top of ICF panel • Use of proprietary ICF top of wall Components • Finishing of ICF wall within height of panel • Connecting wall plate to top of wall using the following: - <ul style="list-style-type: none"> ○ Cast-in place J-Bolts ○ Straps ○ Cast-in place threaded bar ○ Post drilled anchor bolts <p>4. Balconies and Cantilevers</p> <ul style="list-style-type: none"> • The options for creating balconies • Basic Timber Formwork • Avoidance of Cold Bridging • Understanding the construction principals of Balconies and Cantilevers

Module 18: Curved & Feature Walls Installations**Duration: 1 Day**

Practical	Theory
<p><i>The trainee will carry out and complete the following tasks and demonstrate their competence and understanding.</i></p> <ol style="list-style-type: none">1. Interpret drawings and identify the requirement for any special features on the wall structure.2. Set out footprint and elevations according to the drawings.	<p><i>At the end of the training the trainee will have knowledge and understanding of the following subjects: -</i></p> <ol style="list-style-type: none">1. The trainee should be able to read and understand the plans and identify the need for any particular characteristics on the build such as: -<ul style="list-style-type: none">• Oblique corners• Curved corners and walls• Changes on the thickness of the ICF core, e.g. horizontal/vertical• (Pilaster)• Corbel details• Secondary bracing of cuts of irregular dimension joints2. The operative should have the sufficient knowledge to be able to construct the structure and recreate any atypical features as specified on the drawings using a range of setting out techniques, equipment and materials.3. Will have the knowledge about the ICF system used in order to identify from the manufacturers schedules the correct system component that needs to be used to achieve the specified feature or detail, and have the knowledge of how to assemble such components in a safe way, including: -<ul style="list-style-type: none">• Identify pre-formed oblique and curved corner units, including quantify, location and orientation depending on the insulation position• Identify pre-formed curved blocks, including radii, quantify and method of assembly a connection to straight block if necessary• Identify Corbel units and the method connection to the standard block• Identify different specification of blocks regarding concrete thicknesses, their location and particular assembly requirements if any4. If the detail is achieved by altering standard components on site the trainee will have the knowledge to follow the manufacturers instructions and be able to use appropriate setting out techniques and hand/power tools, and to use the appropriate PPE in order to avoid injuries while using equipment such as: -<ul style="list-style-type: none">• Hand and Circular saws• Table saw• Mitre saws and hot wire cutters

Module 18: Curved & Feature Walls Installations - continued	
Duration: 1 Day	
Practical	Theory
<p><i>The trainee will carry out and complete the following tasks and demonstrate their competence and understanding.</i></p> <p>Identify and assemble other parts of the build supplied by the ICF manufacturer.</p>	<p><i>At the end of the training the trainee will have knowledge and understanding of the following subjects: -</i></p> <p>5. The trainee should be able to identify from the manufacturers schedule those materials provided by the ICF supplier that are not direct part of the wall structure.</p> <p>6. Following the designers drawings and the manufacturers instructions the trainee will be able to assemble the materials and to connect them properly to the wall structure, if applicable. Other parts of the build provided by the ICF manufacturer might include: -</p> <ul style="list-style-type: none"> • Ground slab formwork • Intermediate floors/flat roof construction • Pitched roof construction • Stair construction
Module 19: Concrete & Concreting	
Duration: 1.5 Days	
Practical	Theory
<p><i>The trainee will carry out and complete the following tasks and demonstrate their competence and understanding.</i></p> <p>1. Observe and understand Concrete Slump Test.</p> <p>2. Operative Concrete Placing Powered Tools.</p> <p>3. Carryout repairs to Blow Outs.</p>	<p><i>At the end of the training the trainee will have knowledge and understanding of the following subjects: -</i></p> <p>1. Understand the H&S implications of placing concrete</p> <ul style="list-style-type: none"> • Chemical Burns • Eye Protection <p>2. Confirmed delivered material complies with specification</p> <ul style="list-style-type: none"> • Understand a concrete delivery ticket • Perform a slump test, and produce a concrete test cube <p>3. Understand the effect of different mix design on concrete placement</p> <ul style="list-style-type: none"> • Effect of cement replacement materials on workability • Influence of weather conditions on workability • Effect on aggregate size on concrete cover • Effect of slump (ease of placement v formwork pressure) • Effect of water/cement ratios • The role of additives, fibres retardants, etc • Special mixes

Module 19: Concrete & Concreting – continued**Duration: 1.5 Days**

Practical	Theory
<p><i>The trainee will carry out and complete the following tasks and demonstrate their competence and understanding.</i></p>	<p><i>At the end of the training the trainee will have knowledge and understanding of the following subjects: -</i></p> <ol style="list-style-type: none">4. What to specify when ordering concrete<ul style="list-style-type: none">• Translating and engineering specification into material spec• How to estimate the amount of material required• Estimated rate of placement• Understand the options for placing concrete and the pros and cons of each solution5. Hand Placing<ul style="list-style-type: none">• Labour Intensive• Ease of Access• Lifting requirements• Suitability for large projects6. Line Pump<ul style="list-style-type: none">• Difficulties in Lifting and positioning of pump• Speed of concrete placement• Pumping distance from lorry to site7. Boom Pump<ul style="list-style-type: none">• Increased rate of filling• Increases formwork pressure• Area for wash out required• Hire costs8. Skip & Crane<ul style="list-style-type: none">• Hire costs• Increased rate of filling increases formwork• Pressure9. Understand the correct procedure for placing and compacting concrete<ul style="list-style-type: none">• Health & Safety requirements for placing concrete• Dealing with pump priming materials• Method of placing in layers• Selecting the best place to start• Determining when to place the next layer and when not to• Options for compacting the concrete• Correct use of mechanical compaction equipment10. Areas requiring particular attention<ul style="list-style-type: none">• Areas of the wall that require additional attention during a concrete pour11. Repairs to blowouts<ul style="list-style-type: none">• Tools required• Methods to repair the failure• If using a pump how to keep the work working• Determining when it is safe to continue

Module 20: Interaction with Secondary Trades**Duration: 1.5 Days**

Practical	Theory
<p><i>The trainee will carry out and complete the following tasks and demonstrate their competence and understanding.</i></p> <p>Practical Objectives</p> <p>Set out a range of practical exercises relative to the activities shown opposite</p>	<p><i>At the end of the training the trainee will have knowledge and understanding of the following subjects: -</i></p> <p>Prior to concrete placement</p> <p>1st fix</p> <ol style="list-style-type: none">1. Installing Electrics into ICF Systems<ul style="list-style-type: none">• Understand how to install first fix electrics into an ICF wall both pre and post-pour• Understand how to cut channels into ICF post-pour• Understand the need for conduit, or alternatives to PVC covered cable2. Installing Plumbing systems<ul style="list-style-type: none">• Understand how to install plumbing into an ICF wall• Understand how to cut channels into ICF post-pour3. Services through walls<ul style="list-style-type: none">• Understand how to run service pipes through ICF walls both pre and post-pour4. Internal (concrete) block walls<ul style="list-style-type: none">• Understand how to tie in concrete block internal wall into ICF wall, bracing and non-bracing• Understand how to tie in stud wall into ICF wall5. Internal linings<ul style="list-style-type: none">• Understand the correlation between internal lining and fire rating structure• Understand the different materials available for internal lining, including wet plaster, plasterboard, cement board and alternative board, e.g. Fermacell• Understand how to attach internal lining: -<ul style="list-style-type: none">○ Direct to the polystyrene○ To the furring strips6. Bracing walls<ul style="list-style-type: none">• Internal masonry or concrete walls that are being used to brace the exterior ICF wall must be joined directly to the concrete in the ICF wall. The internal EPS foam must be removed completely and the wall starter kit fixed to the concrete core7. Installing Windows and Doors<ul style="list-style-type: none">• Window/Door frames should be aligned in the opening shims to ensure correct positioning and to prevent distortion of the frame during fixing• If the frame is positioned level with the concrete core in the ICF, the frame can be directly screwed back to the concrete core

Module 20: Interaction with Secondary Trades - continued**Duration: 1.5 Days**

Practical	Theory
<p><i>The trainee will carry out and complete the following tasks and demonstrate their competence and understanding.</i></p>	<p><i>At the end of the training the trainee will have knowledge and understanding of the following subjects: -</i></p> <p>7. Installing Windows and Doors – continued</p> <ul style="list-style-type: none">• If the frame is positioned over the EPS part of the ICF, brackets should be used; one end fixed to the frame, the other to the concrete core• Care must be taken to foam around the opening to seal any gaps <p>2nd Fix</p> <p>1. Internal Linings</p> <ul style="list-style-type: none">• Plasterboard is the most common internal lining. It can be fixed with dot and dab adhesive, or mechanically fixed to the webs into the ICF• Boards fixed directly in contact with EPS foam do <u>not</u> need to finish on a web, as they are fully supported by the foam• Other boards (Farmacell, cement composite boards, etc.) can be fixed in the same way• Wet plaster may be applied with a suitable bonding agent <p>2. Hanging heavy items – there are a number of different ways to hang items from an ICF wall depending on the weight of the item</p> <ul style="list-style-type: none">• Fix into the plasterboard using drywall fixing. The type of fixing and the type of board used will affect the weight that can be supported• Fix into the web in the ICF, the pull out strength will vary according to system• EIFS (external wall insulation system) fixings. These fix into the EPS foam like an over grown dry wall screw and accept a wood screw• Install a timber batten, fixed to the concrete prior to installing the plasterboard in high load areas (kitchen wall)• Fix back into the concrete. Depending on the loading a packer may be required, e.g. remove a section of EPS and insert a piece of timber. Secure the item by screwing through the timber back into the concrete. This will prevent the load from bending to the fixing over time.• Care should be taken when fixing items externally to repair any penetration of the waterproof layer, e.g. silicon around a screw through the render coat• Include installation of balconies

Module 20: Interaction with Secondary Trades - continued	
Duration: 1.5 Days	
Practical	Theory
<p><i>The trainee will carry out and complete the following tasks and demonstrate their competence and understanding.</i></p>	<p><i>At the end of the training the trainee will have knowledge and understanding of the following subjects: -</i></p> <p>3. Fire Places</p> <ul style="list-style-type: none"> • The EPS foam must be removed and replaced with a non-combustible insulation at any point where a chimney flue comes into contact with the ICF wall (as detailing in Part B of the building regs) • Use of proprietary Flue systems Fire Places <p>4. Penetrations through the wall</p> <p>Pipes and duct, which have to pass through the wall, are best installed in ducts and sealed with a flexible sealant. The duct can be installed prior to placing the concrete.</p>
Module 21: Exterior Finishes	
Duration: 1 Day	
Practical	Theory
<p><i>The trainee will carry out and complete the following tasks and demonstrate their competence and understanding.</i></p> <p>Practical exercise to be devised using various external finishes using: -</p> <ul style="list-style-type: none"> • Brick Slips and Fixing Systems • Terracotta Tiles • Vernacular materials • Rendered Finishes 	<p><i>At the end of the training the trainee will have knowledge and understanding of the following subjects: -</i></p> <p>1. Understand the installation processes of external finishes and the impact of the building process and critical path</p> <ul style="list-style-type: none"> • Understand the effects of water penetrations EPS as a vapour barrier • Understand 'u' values and basic 'u' value calculations • The importance of protection of EPS from ultraviolet light <p>2. Preparation</p> <ul style="list-style-type: none"> • Corrections to misalignments or bumps and the use of appropriate tools • Repairs to damaged areas of EPS surfaces • Care to be taken to ensure the wall is clean and free from EPS dust before starting. (For this reason the earlier the base coat is applied the better)

Module 21: Exterior Finishes – continued
Duration: 1 Day

Practical	Theory
<p><i>The trainee will carry out and complete the following tasks and demonstrate their competence and understanding.</i></p>	<p><i>At the end of the training the trainee will have knowledge and understanding of the following subjects: -</i></p> <p>3. Finishes bonded to the wall</p> <ul style="list-style-type: none"> • This group includes renders and some brick systems • Suitable polymer modified renders can be bonded directly to the wall • Sand and cement renders will not adhere directly to the EPS and require an EML mesh to be secured mechanically to the wall first <p>4. Finishes Mechanically fixed to the wall</p> <ul style="list-style-type: none"> • These include proprietary cladding systems and rain screens, as well as timber cladding • These can either be secured to the web in the ICF or the concrete core depending on the weight of the system • Care to be taken to ensure that any moisture that penetrates the cladding is not allowed to enter the building at openings <p>5. Self-supporting finishes</p> <ul style="list-style-type: none"> • Brick and stonewalls can be built alongside an ICF wall. Standard practises regarding the maintenance of cavities and securing the skin the main part of the wall still apply

Section 6

Appendices


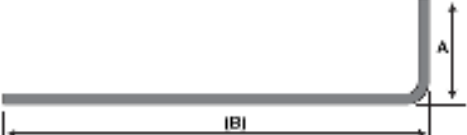
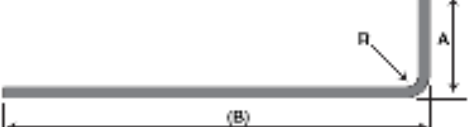
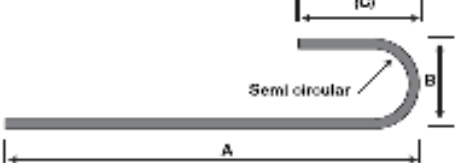
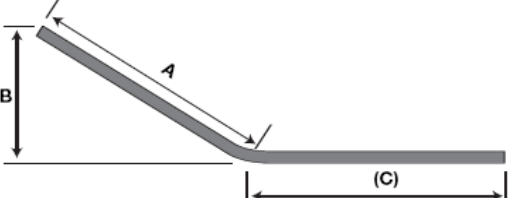

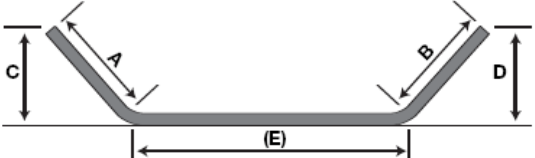

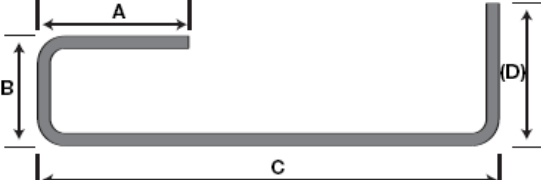
Appendix A: Re-bar Types and Schedules

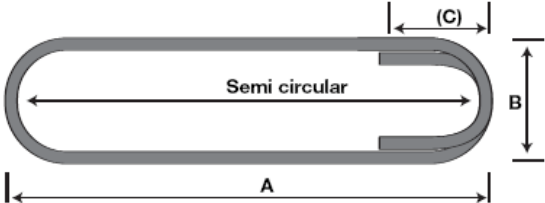
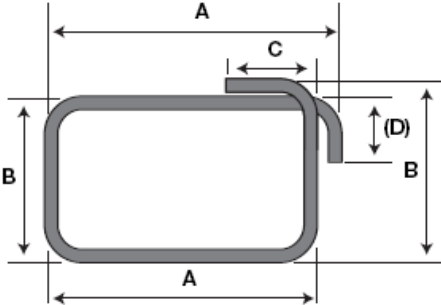
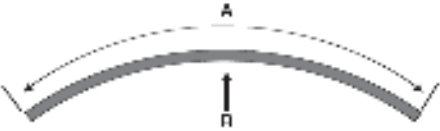
Appendix B: Standard Induction Programme Format

Appendix C: Acknowledgements

Appendix (A): Common re-bar shapes - Re-bar schedule

- Common re-bar shapes used in ICF structures*

Shape code	SHAPE SKETCH
00	
11	
12	
13	
15	
21	
25	
26	
31	

33	
51	
67	

* For more re-bar shapes refer to **BS 8666 'Specification for scheduling, dimensioning, bending and cutting of steel reinforcement for concrete'**

- Re-bar schedule

A reinforced bar schedule is usually provided in conjunction with any structural drawings. The document should include basic details about the Company and the engineer that carried out the calculations as well as project reference and details. It will also contain the following information:

Location	Bar Mark	Type and size	No of Bars	Total Length mm	Shape Code mm	A mm	B mm	C mm	D mm	E/R mm
Indicates the location of the item in the structure	Nomenclature of the item as per designer's drawings	Type of steel used (T: High yield or R: Mild steel) and size / diameter of bar used	Indicates the number of bars used on the stated location	Total length of each bar before bending	These columns will indicate the shape code used, as per BS 8666 and the dimensions of each side, as specified by the designer.					

Appendix B

Standard Induction Programme Format



National Specialist Accredited Centre (NSAC)
Specialist Apprenticeship Programmes 2009
ICF Apprenticeship Scheme Induction Week



Day	Training Objectives	Trainer/Instructor	Resources/Equipment
Monday	<p>Introduction to the Drylining Programme</p> <ul style="list-style-type: none"> • ConstructionSkills <p>Completion of ILRs and ILPs</p> <ul style="list-style-type: none"> • Overview of the ICF Programme and Framework • NVQ Level 2 • CSCS Cards • ERR • Overview/Explanation of Key Skills 		<p>PowerPoint Projector</p> <p>ILRs and completion up to date instructions</p> <p>ILPs</p> <p>Apprentice Start Up Packs</p> <p>Apprentices CSCS Card applications</p> <p>ERR booklets and quiz papers</p>
Tuesday	<p>Health & Safety Awareness Training HSAWA</p> <ul style="list-style-type: none"> • Role of the HSE • Introduction to Risk Assessments • PPE • Working at Heights • COSHH • RIDDOR • Safety Signs • Asbestos • Fire & Extinguishers • Noise • CSCS Practice Tests • Small Tools 		<p>PowerPoint Projector</p> <p>Video Player</p> <p>CD Rom Player</p> <p>(Loud Speakers)</p> <p>H&S Booklets for Trainees</p> <p>H&S Practice Test CD</p> <p>H&S Videos</p>

Day	Training Objectives	Trainer/Instructor	Resources/Equipment
Wednesday	PASMA Mobile Towers Training	Approved PASMA Trainers/Company	Class Room One Tower Scaffold as specification
Thursday	NVQ Registrations Introduction to On-Site Assessment Issue of Training Record Books Evidence Collection of Training		CQS001 NVQ Record Books Issue of Training Centre Based Training Record Systems Portfolios/Logs
Friday	Completion of BSA Diagnostic Assessment		BSA & Diagnostic Tools
Notes:			

Appendix C

Acknowledgements

This document was produced in cooperation with the Insulating Concrete Formwork Association.

The National Specialist Office of ConstructionSkills acknowledges the expertise and time given by the people listed below, who have contributed to the development of the Scheme Booklet and the development of a national training programme for the sector: -

Clive Austin	Polysteel & Clive Austin Consultants
Jonathan Barnett	Logix
Steve Lenehan	Carbon Logix
Jean Marc Bouvier ...	Nudura
Paul Thomas	Quadlock
Miguel Jaen	Beco
Robin Miller	Beco