



**The Indian Institute of Welding (Ind.I.W)** is a member of the **International Institute of Welding (IIW)** which was created in 1948 and now has 49 members. IIW have developed and administer a Unified International System for Education, Examination and Qualification of Welding Personnel, which is globally recognised and internationally accepted.

**The Indian Institute Of Welding** has been authorised by IIW as its only '**Authorised National Body**' (**ANB**) in India (To be referred to as **ANB-India**) to operate its above international scheme and award various International Welding Diplomas including the **International Welding Inspector Diplomas** to welding personnel at **Basic (IWI-B)**, **Standard (IWI-S)** and **Comprehensive (IWE-C)** level respectively of increasing knowledge, skill & responsibility.

## 1. Guideline

The guideline as per **IAB-041r3-08 July 2008** for the education of International Welding Inspection Personnel to be employed in the job function of Inspector has been devised by members of International Authorisation Board (IAB) of the International Institute of Welding (IIW). It is designed to provide core education in welding and inspection technology required by those responsible for performing inspection tasks at various levels.

It is possible that additional training and/or knowledge & experience may be required beyond core education to meet the requirements of specific application or job function.

## 2. Role of the Inspector

**The Inspector's role begins well before welding starts, continues during welding operation, involves action after welding is completed, and is finished only when the results are properly reported.**

- ✓ As a part of a quality system, inspection activities are defined in an inspection and test plan, which clearly describes what is required. The inspector is frequently responsible for producing documents that ensure traceability of the components and related fabricating action.
- ✓ Prior to welding, the inspector must be assured that the base materials and consumables are correct and the shop has approved welding procedures and appropriately qualified welders. Written procedures and competent operators are important to the production of a quality welded product, but the actual execution of the weld is also a critical point for the inspector.
- ✓ Once the inspector is satisfied that all is in order for welding to proceed, the task becomes one of witnessing and monitoring. There are two basic interests at this point, ensuring that written procedures are followed and of course, watching for any physical sign of non-conformance of the final product.
- ✓ The inspector must verify that the base material and consumables are correct and observe the fit-up and preparation for weld. Once the welding is completed a new series of inspection tasks begin according to an approved procedure, keeping track of the status of examination and testing and selecting specific welds for further NDT or mechanical testing.
- ✓ Heat treatment (such as preheating, post heating and post weld heat treatment) can be a critical parameter in a welding operation and the inspector is often required to ensure that it has been done according to an approved written procedure. The inspector must know enough about the technique, the equipment and the reports to instil confidence in the result.

## 3. Benefit

**3.1 Industry:** The IWIP qualification system, administered by ANB India will provide a pool of welding inspectors at all levels, trained to international standard for industry. This will also enable industry to fulfil the overall future requirements of **ISO 3834** (Quality Requirement for Welding) as well as **ISO 14731** (Welding Co-ordination Task and Responsibilities) and NDT inspectors requirement as per **ISO-9712** (Non Destructive Testing –Qualification & Certification of Personnel) and which will be particularly relevant for export-oriented industries.

**3.2 Career for Inspector:** Qualified personnel with knowledge of both welding technology and Welding Inspection are not readily available so far in India in the absence of any proper curriculum and recognised certification system satisfying the essence of both Welding Co-ordination under ISO-14371 & NDT under ISO-9712 respectively for following **ISO 17635→40** (Inspection/Testing after Welding etc), **ISO-13916** (testing during Welding) **etc.** The demand for such qualified persons will be felt increasingly with globalisation and scope to obtain overseas appointment at all levels. The **IWIP** qualification at various levels more than fulfils the requirements of all above & also **SNT-TC-1A & IS:13805** - for welding Inspection personnel.

#### 4.0 International Welding Inspection Personnel (Routes to Qualification)

**Standard Route:** Involves study and examination at an IIW-India ANB 'Approved Training Body' - ATB as per full syllabus and passes ANB conducted Examinations.

**Alternate Route:** Involves reduced hours of study as per prior proved qualification and examination as above.

**Transition Route:** For experienced candidates with approved qualification criteria and involves 6 day refresher course followed by written test and interview or professional interview. Facility available only for a limited period

#### 5.0 Standard Route is as per IAB Guideline IAB-041r3-08 July 2008

The Indian Institute of Welding appoints training Institutes in different parts of the country as **Approved Training Bodies ( ATBs )** to impart the practical and theoretical training programmes for the Standard Route. Prospective candidates are required to undergo training in these ATB's in the welding and Inspection course of their choice.

#### 6.0 International Welding Inspector (Standard Route Curriculum)

**For the International Welding Inspection course: International Welding Inspector Diplomas** are at three levels i.e. **Basic (IWI-B)**, **Standard (IWI-S)** and **Comprehensive (IWE-C)** respectively of increasing knowledge, skill & responsibility. The guideline divides the syllabus in two main modules as below with 3 levels of depth.

- ◆ **Welding Technology (WT) in three levels of I, II & III**
- ◆ **Welding Inspection (WI) in three levels of I, II & III**

*(Figures against the subject heads are minimum lesson hours)*

<b>6.1 Welding Technology Module</b>				
	<b>Subject Heading</b>	<b>WT - III</b>	<b>WT - II</b>	<b>WT - I</b>
1	Welding Process & Equipment	25	13	11
2	Materials & their behaviour during Welding	52	41	25
3	Construction & design	21	17	12
4	Fabrication, Application Engineering	24	23	17
<b>Total Recommended Hours for Technology Module</b>		<b>122</b>	<b>94</b>	<b>65</b>
<b>6.2 Welding Inspection Module</b>				
	<b>Subject Heading</b>	<b>WI - III</b>	<b>WI - II</b>	<b>WI - I</b>
1	General Introduction to Welding Inspection	3	3	2
2	Testing	1	1	1
3	Weld Imperfections	7	5	3
4	Testing Method	31	25	18
5	Quality Assurance	3	3	1
6	Management of Inspection Function	3	3	0
7	Practical Work	49	23	15
<b>Total Recommended Hours for Inspection Module</b>		<b>97</b>	<b>63</b>	<b>40</b>

**Exemptions allowed from attending some modules in case of 'prior learning' after ATB/ANB Check.**

**6.3 Theoretical education: Basic Technology "Module 0" (40 hrs)** may apply to certain *candidates without requisite education & industry metal working background* who want to engage in Standard level. The course comprises Introduction, Measurement Units, Technical Calculation, Technical Drawing, Basics of Electro-technology, Basic Chemistry, Basics of Materials, Metal Products, Machining of Materials, Technical Mechanics & Calculation of Strength.

#### 7.0 International Welding Inspector's Examination

An intermediate examination is mandatory, unless exempted and it is the responsibility of the ATB to ensure that those entering the next stage have acquired required level of knowledge.

The final examination to assess student performance, in accordance with the relevant IIW guideline and those rules is conducted by the Board of Examiners appointed by ANB-India. This examination is mandatory for both Standard & Alternative Route and is independent of any assessment procedure conducted by ATB.

## 8.0 Access Condition/Entry Qualification by Standard Route

### Basic

**Route 1:** Pass Secondary Exam+20 years age +Trade Certificate in Metal working/Welding + 3 Yrs experience or *National Welder Certificate* as per BIS 7310/ IPW (Int.Plate Welder)+ 2 yrs relevant job experience on Check by ANB

**Route 2:** Direct access by IWP to Inspection Module WI- I

### Standard

**Route 1:** Qualification to satisfy access condition for International Welding Specialist IWS (BSc with experience in Welding Inspection)

**Route 2:** Holder of IWIP- B Diploma + 2 Yrs Experience

**Route 3:** Pass Higher Secondary Exam Science+ 5 years relevant experience in General inspection or above with recognised certificate of Level II & Level III as per ISO:9712/SNT-TC-1A / IS:13805 NDT & relevant experience for 3 Years

**Route 4:** Holder of IWS diploma *directly* to Inspection Module II+ Exam

### Comprehensive

**Route 1:** Qualification to satisfy access condition for International Welding Technologist IWT ' Some exemptions for Level III certificate holders as per ISO: 9712/SNT-TC-1A/ IS:13805 NDT.

**Route 2:** Holder of IWI-S diploma holder + 2 years related experience

**Route 3:** Holder of IWT Diploma *directly* to Inspection module WI -III + Exam

- Prospective candidates following Standard route are advised to refer to ATB for details of course fees and other charges payable to ANB.
- The candidates may contact ANB - India for the list of Approved Training Bodies (ATBs)

## 9.0 Alternative routes for IWIP-B, IWIP-S & IWIP-C

This route is for qualified and experienced persons already engaged in responsible position and having relevant experience having **IWP, IWS or IWT** Diplomas respectively or qualification satisfying condition for access to same. On production of **evidence** and **ANB Check and professional + technical Interview by ANB**, may be entered at appropriate level.

## 10.0 International Welding Inspection Personnel : Diploma

Examination procedures are designed to simulate the different situations of a welding inspector active in industry. The examination will be in three parts,

**Part 1: Professional interview** to test the ability to understand standards, codes and quality documentation. This is conducted individually.

**Part 2: Theoretical Written Examination** covering both Welding technology and Inspection.

**Part 3: Practical Examination** is to test competence in undertaking a range of inspection tasks and will include both oral examination to assess comprehension and written reporting of test result.

**The appropriate Diploma as Basic (IWI-B), Standard (IWI-S) and Comprehensive (IWE-C) respectively is awarded after successful finish of all the required modules. The Diploma is valid lifelong.**

It may be noted that Certification does not form part of the Guideline and is normally the subject of an independent Certification Scheme.

## 11.0 Transition Route

Open to suitably qualified and experienced candidates only as per Transition Criteria overleaf subject to their passing a professional interview in option 1. For other options the candidate is to attend a short 6 day Refresher Course & pass a written examination & interview to be conducted by IIW-India ANB at various places in India, without having to go through a formal training or examination. **This golden opportunity is open to existing professionals for a period of three years up-to December 2012.**

### Fees & Charges Payable by the Candidates to ANB for Transition Route ₹ (In Rupees)

Sl. No.	Description	IWIP - C	IWIP - S	IWIP - B
1.	Application Fee	1,000.00	1,000.00	1,000.00
2.	Registration Fee (For All Routes)	1,000.00	1,000.00	1,000.00
3.	Refresher Course, Exam & Interview	10,000.00	10,000.00	10,000.00
4.	Fees for Certification	13,000.00	11,000.00	8,000.00
5.	<b>Total</b>	<b>25,000.00</b>	<b>23,000.00</b>	<b>20,000.00</b>

- The above Fees are payable by DD to The Indian Institute of Welding-ANB **for transition only**
- Candidates fulfilling the entry requirement of Route 1 for Comprehensive, Standard & Basic Welding Inspection qualification are not required to attend a 6 day refresher course and will be eligible for reduction of fees under item 3 by Rs.5,000 for each levels

## Transition Criteria

### Comprehensive

#### Option 1

For candidates already having IWT qualification and Proved experience of 5 years out of total 7 years and qualification in NDT/ Senior Welding Inspector AWS-CWI / TWI-CSWIP 3.2 . For Further details the candidate may refer to IIW-ANB or visit our Website

#### Option 2

- Satisfies access conditions for IWT diploma
- Candidate holding Certificate as Senior Welding Inspector AWS-CWI / TWI-CSWIP 3.2  
**Or** Holder of at least 3 valid NDT Level II as per ISO: 9712 / SNT –TC – 1A / IS: 13805. Two of which shall be for RT and UT and another shall be either MT or PT or VT.
- Minimum 5 years of work experience in welding and inspection out of 7 years of experience
- To attend a 6-day refresher course conducted by ANB India followed by a Test and Interview based on IWIP- Comprehensive curriculum, successfully conducted by ANB - India

### Standard

#### Option: 1

For candidates already having IWS qualification and Proved experience of 5 years out of total 7 years and qualification in NDT/ Welding Inspector AWS-CWI / TWI-CSWIP 3-1. For Further details the candidate may refer to IIW-ANB or visit our Website

#### Option: 2

- Candidate who has an AMI IW degree of The Indian Institute of Welding
- Candidate holding Certificate as Welding Inspector AWS-CWI / TWI-CSWIP 3-1  
**Or** Holder of at least 2 valid NDT Level II certificates as per ISO: 9712 / SNT –TC – 1A / IS: 13805. One of which shall be either RT or UT and another shall be either RT or UT or MT or PT
- Minimum 5 years of work experience in welding and inspection out of 7 years of experience
- Having passed an assessment professional interview as per IWIP – S content, successfully, conducted by ANB - India.
- To attend a 6-day refresher course conducted by ANB India followed by a Test and Interview based on IWIP- Standard curriculum, successfully conducted by ANB - India

#### Option 3

- Satisfies access conditions for IWS
- Candidate holding Certificate as Welding Inspector AWS-CWI / TWI-CSWIP 3.1  
**Or** Holder of at least 3 valid NDT Level II certificates as per ISO: 9712 / SNT –TC – 1A / IS: 13805. Two of which shall be for RT and UT and another shall be either MT or PT or VT.
- Minimum 5 years of work experience in welding and inspection out of 7 years of experience
- To attend a 6-day refresher course conducted by ANB India followed by a Test and Interview based on IWIP- Standard curriculum, successfully conducted by ANB - India

### Basic

#### Option: 1

For candidates already having IWP qualification and Proved experience of 5 years out of total 7 years and qualification in NDT/ Associated Welding Inspector AWS-CAWI / TWI-CSWIP 3.0. For Further details the candidate may refer to IIW-ANB or visit our Website

#### Option: 2

- Satisfies access conditions for IWP
- Candidate holding Certificate as Associated Welding Inspector AWS-CAWI / TWI-CSWIP 3.0  
**Or** Holder of at least 2 valid certificates one of which should be Level II and another of Level I as per ISO: 9712 / SNT – TC – 1A, IS 13805 one of which shall be either RT or UT and another shall be MT or PT.
- Minimum 4 years of work experience in welding and inspection out of 6 years of experience  
To attend a 6-day refresher course conducted by ANB India followed by a Test and Interview based on IWIP- Basic curriculum, successfully conducted by ANB - India

## 12.0 Procedure for Enrolment for Transition & Registration

- ✓ Option 1 have only Professional Interview. For Other options to attend a 6-day refresher course conducted by ANB India followed by a Test and Interview based on IWIP- relevant curriculum, successfully conducted by ANB - India.
- ✓ Intending Candidates for Transition may verify his eligibility from the Transition Criteria and apply in the prescribed Form (May be downloaded from our Website) along with Application Fees, all Testimonials and Certificates duly attested. Candidates may directly contact us at the mail address given below for any clarification.



## The Indian Institute of Welding -ANB

Authorised National Body of the International Institute of Welding in India

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