



TITLE VISUAL INSPECTION TECHNIQUE PROCEDURE
 STANDARD TECHNIQUE

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APPROVED						BY	DATE
	Engr	Corp Weld	Corp QA	Const	Mfg		
						PREPARED	RWK 6-20-88
						REVISED	
						AUTHORIZED	CNS 6-21-88
						REFERENCED	
						STANDARD	REV. NO.

1.0 SCOPE

This general visual inspection technique procedure is to be used with the procedure for the applicable referencing Code or Standard.

2.0 PERSONNEL:

Experienced personnel shall perform the inspections outlined in this procedure.

3.0 EQUIPMENT

- 3.1 Fillet weld gauges, weld reinforcement gauges and measuring tapes.
- 3.2 Two cell (C or D) flashlight or brighter light source.
- 3.3 Wire Brushes and/or Grinding Wheels - For stainless steel and nickel base alloy material, use wheels and 300 Series stainless brushes that have not been previously used on carbon or low alloy steels.
- 3.4 If necessary, cleaning agents such as iso-propyl alcohol, Tri-sodium phosphate, Dubl-Chek DR-60 or equal.

NOTE: When examining nickel base alloys or austenitic stainless steels, cleaning agents shall be analyzed individually for residual total sulfur, chlorine and fluorine content in accordance with Section V, Article 6, paragraph T-625. For nickel base alloys, the residual total sulfur content shall not exceed one (1) percent by weight. For austenitic stainless steels, the residual total chlorine and fluorine content shall not exceed one (1) percent by weight. CBI shall obtain certification of test results for each material, including batch number, if applicable. Cleaning agents purchased with known chemical composition do not require analysis.

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3.5 If necessary, visual aids, such as mirrors, magnifying lenses, etc.

4.0 PROCEDURE

4.1 Prepare and clean the weld surface to be inspected.

4.1.1 Remove weld spatter, slag and flux with descaling tools, wire brushes, grinding wheels or other suitable means. Use stainless wire brushes when brushing austenitic or nickel base alloy material.

4.1.2 As necessary, clean welds of dirt, oil, grease or other substances that might interfere with the examination using a cleaning agent as listed in paragraph 3.4.

4.2 While performing the inspection, natural or artificial lighting shall be adequate to illuminate the surface being examined to a minimum of fifty (50) footcandles. Illumination from any one of the following light sources or a brighter light source is adequate:

Light Source	2D Cell Flashlight	60 Watt Bulb	75 Watt Bulb	100 Watt Bulb
Maximum Source to Object Distance in inches (mm)	10(254)	10(254)	15(381)	18(457)

4.3 If possible, the surface being inspected shall be viewed without visual aids. However, visual aids such as mirrors, magnifying lenses, etc. may be used if access to the surface being examined is not easily achieved.

4.4 Personnel performing direct visual inspections shall have access sufficient to place the eye within 24 inches (610mm) of the surface to be inspected and at an angle not less than 30 degrees to the surface to be inspected. If the use of visual aids is required, the resolution capability shall be at least equivalent to that obtainable by direct visual observation.



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4.4 (continued)

This may be demonstrated by the inspector being able to see a fine line, 1/32 inch (1.0mm) wide or less, or other artificial flaw on the surface (or a surface similar to that being examined) in the least discernible (viewable) location of the area being examined.

- 4.5 If required by the applicable Code or Standard, inspect joints after fit-up, but before welding, for correct weld edge prep, gap and alignment.
- 4.6 After welding, inspect welds for surface indications and appearance and measure at representative locations for adequacy of size, concavity, convexity (if applicable), reinforcement and length using gauges and measuring tapes.
- 4.7 Where readily accessible for viewing without visual aids, inspect the root surface of single sided welds to determine the amount of penetration (protrusion) or concavity (suck up).