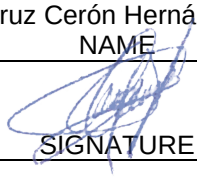
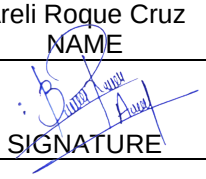
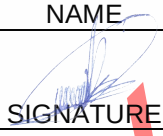
SIGNATURE CONTROL		
DEVELOPED	**REVISED**	**AUTHORIZED**
Cruz Cerón Hernández NAME	Areli Roque Cruz NAME	Diego Cruz Martínez NAME
 SIGNATURE	 SIGNATURE	 SIGNATURE
Quality Supervisor STAND	Quality Manager STAND	Directorate-General STAND

CHANGE CONTROL		
DESCRIPTION OF THE CHANGE	**REVISION**	**DATE**
Updated reference document edits as well as acceptance and rejection criteria in API 1104	04	05.OCT.23
The translation of this PCC-05 procedure is included in the SGI, the English version is integrated with the same control data as the Spanish document. Modification of associated formats for managing the English Spanish version.	03	06.MAR.23
Integration of the sections of Reference Documents, definitions and responsibilities.	02	13.AUG.22
Integration of the Welding Traceability format with the PCC-05/F2 code.	01	23.DEC.21
Creation of the Procedure.	00	28.JUN.21

PURPOSE OF THE PROCEDURE

Establish the methods to perform the correct application of the visual inspection during the construction process, as well as determine the acceptance and rejection criteria through a visual examination of welds.

SCOPE OF THE PROCEDURE

This procedure is applicable to determine the welds in joints and the condition of these in pipes, tanks, pressure vessels and structures, as well as the repair in case of rejectable discontinuities.

REFERENCE DOCUMENTS

- **ASME Code Section V**. Article 9 Visual Examination. ED. 2023.
- **API Code Standard 620** "Design and Construction of Large, Welded, Low-pressure. " Storage Tanks." ED. 2020
- **API code Standard 650**, "Welded Tanks for Oil Storage". ED. 2020.
- **API Standard 1104**, "Welding of Pipelines and Related Facilities". ED. 2021.

- **ASME Code Section VIII, División 1**, "Rules for Construction of Pressure Vessels". ED. 2021.
- **ASME Code, B31.1**, "Power Pipping". ED. 2022.
- **AWS Code D1.1**, "Structural Welding Code-Steel". ED. 2020.
- **ASME Code, B31.3**,"Process Piping". ED. 2022.
- **ASME Code, Section I**, "Rules for Construction of Power Boilers". ED. 2021.3

DEFINITIONS

Theoretical throat (G_T). It is the distance perpendicular from the root of the joint to the hypotenuse of the largest right triangle that can be inscribed within the cross section of the fillet weld.

Effective throat (G_E). It is the minimum distance, minus any convexity between the root of the weld and the face of the fillet weld.

Current throat (G_A). It is the shortest distance between the root of the weld and the face of the fillet weld. For a concave fillet weld the G_E and G_A are equal, since there is no convexity present.

Undermining: Groove that occurs in the base metal, adjacent to the edge of the weld and remains unfilled.

Weldability: It is the ease with which two materials can be joined by any of the common welding processes and produce a joint that meets the properties required for the service that will be used.

Qualified Welder: A qualified and certified person who meets the skill and requirements set forth in the reference welding procedure.

Butt welding: It is the weld that is deposited in the groove between two elements located in the same plane (butt) and whose edges are in contact. The edges may be rectangular, in "**V**" (single or double) or in **"U"** (single or double).

Fillet welding: It is any weld of approximately triangular section, deposited between two surfaces at right angles, in an overlapping joint, on tee or corner.

Welding: The filler metal that is deposited in the junction of two components produced by heat at an appropriate temperature, followed by solidification generated by an electric arc with or without pressure application and with or without filler metal, the filler metal must have a melting point equal to or greater than that of the base metal.

Variables: They are changes established within a procedure, which are specified as essential variables that require a requalification of the procedure and non-essential variables that in accordance with the client can be modified without the procedure requiring a requalification, either as separate or combined values.

Radiographic Quality: A qualitative term used to describe the ability of an X-ray to show discontinuities in the area under examination.

Defect: Discontinuity or group of discontinuities, which exceed the established acceptance criteria.

Imperfection: A discontinuity or irregularity detected by inspection**.**

Burning: It is that portion of the anchoring cord where excessive penetration has caused the welding metal to be blown into the tube.

Arc burns: It is defined as a local portion of lack of material, caused by the ejection effect by generating an electric arc between the base material and the filler material in a welding process

RESPONSIBILITIES

Quality Control Manager:

- It shall be responsible for the implementation of this procedure.

Construction Supervisor:

- Give all facilities to the personnel who will carry out the inspection of the visual examination of the welds, before, during and after the welding process.

Quality Control Inspector:

- Verify that the work is carried out in accordance with this criterion and project specification.

DESCRIPTION OF THE PROCEDURE		
Responsible	**Activity**	**Records**
Quality Control	**1. WELDING INSPECTION PROCESSES** **A. METHODS OF EXAMINATION:** **1) Direct Visual Examination:** This examination will be performed when there is sufficient access to observe the surface to be examined at a distance of 61 cm (24") and the angle of view with respect to the surface is equal to or m am or 30°. Magnifying mirrors and magnifying glasses can be used to support the examination. **2) Remote Visual Examination:** This examination will be performed when direct visual examination cannot be performed. Mirrors, baroscopes, cameras or similar instruments may be used to perform the examination, and such instruments must have a resolution capacity at least equivalent to that of direct visual examination. **B. REVIEW PROCESS** **1) Cleaning of the Surface to Be Examined**: Before performing the visual examination, it will be verified that the surface is dry and free of dust, grease, slag or other foreign matter that may interfere with the examination, the preparation of the surface by spraying or machining may be necessary when surface irregularities confuse or mask discontinuities. Cleaning can be completed using detergent, organic solvents, paint removers, degreasing steam, etc.	
Welding Inspector / Quality Control	**2) Lighting Conditions:** The area or surface to be examined must be adequately illuminated by natural or artificial white light, must have at least a light level of 100 feet-candela (1000 lux). **3) Measuring instruments and equipment:** Bridge Cam, Fillet Weld Gages, Hi-Lo Welding, Mirror Telescope, Handheld lamp. **C. VISUAL EXAMINATION SEQUENCE** The Visual Examination is carried out with the following three stages:	
Inspector of Welding	**I. Before welding, the following shall be verified:** ✓ Base metal and filler metal compliance ✓ Appropriate and qualified welding procedure (WPS) ✓ Welder Rating ✓ Welding equipment conditions ✓ Portable oven in good condition ✓ Metal health ✓ Proper bevel preparation (bevel angle) and cleaning ✓ Root opening and internal bevel alignment within tolerance ✓ Preheating temperature (when required)	

II. During welding you will verify the following:

- ✓ Compliance with WPS parameters
- ✓ Distortion control.
- ✓ Temperature between laces, when required.
- ✓ Cleaning between laces

III. After welding it **will be verified:**

- ✓ Health and appearance of finished weld
- ✓ Weld size and dimensions
- ✓ Weld sizzle and undermined.
- ✓ Performing specified non-destructive examinations
- ✓ Monitor stress relief (PWHT) (when required).

2. ACCEPTANCE CRITERIA

Examination shall be performed on all finished weld to verify that the applicable acceptance criteria are met.

The acceptance criteria applicable according to the standard in which the inspection is being carried out are:

- **ASME 31. 1**.

The following indications shall be considered unacceptable:

a) Any cracks on the external surface.
b) Undermined at the surface greater than 1.0 mm (1/32") deep.
c) Lack of fusion on the surface.
d) Lack of penetration (Applies only when the inner surface is accessible).
e) Any other linear indication greater than 5.0 mm (3/16").
f) Surface porosity with rounded indications whose dimension is greater than 5.0 mm (3/16") or four or more rounded indications separated by 1.6 mm (1/16") or less from edge to edge in any direction. The rounded Indication are circular or elliptical, with their length less than 3 times their width.
g) Weld reinforcement greater than that indicated in Table No. 127.4.2 (ASME Section I)

Base metal thickness mm (in)	Maximum reinforcement thickness according to design temperature		
	Greater than 400° C (750°F) mm (in)	175°C to 400°C (350°-750°F) mm (in)	Less than 175°C (350°F) mm (in)
Up to 3.0 (1/8") inclusive	2.0 (1/6")	2.5 (3/32")	5.0 (3/16")
Greater than 3.0 to 5.0 (1/8"- 3/16")	2.0 (1/6")	3.0 (1/8")	5.0 (3/16")
Greater than 5.0 to 13.0 (3/16"-1/2")	2.0 (1/6")	4.0 (5/32")	5.0 (3/16")
Greater than 13.0 to 25.0 (1/2"- 1")	2.5 (3/32")	5.0 (3/16")	5.0 (3/16")
Greater than 25.0 to 50.0 (1"-2")	3.0 (1/8")	6.0 (1/4")	6.0 (1/4")
Greater than 5.0 (2")	4.0 (5/32")	Greater than: 6.0 mm (1/4") or 1/8 times the year of welding in mm (pul)	

- **General Criteria**
  a) For butt joints welded on both sides, the reinforcement limits shall apply separately to both joint surfaces.
  b) For single butt joints, the limits of reinforcement shall apply only to the outer surface of the joint.
  c) The thickness of the reinforcement shall be based on the thickness of the thinnest of the materials to be welded.
  d) The thickness of the reinforcement shall be determined from the thickest surface area.
  e) Reinforcement may be removed if desired.

NOTE: The acceptance criteria for visual welding inspection are in accordance with **figure 341.3.2** and **table 341.3.2** considering the values indicated in **ASME B 31.3** as shown below.

Figure 341.3.2 Typical Weld Imperfections

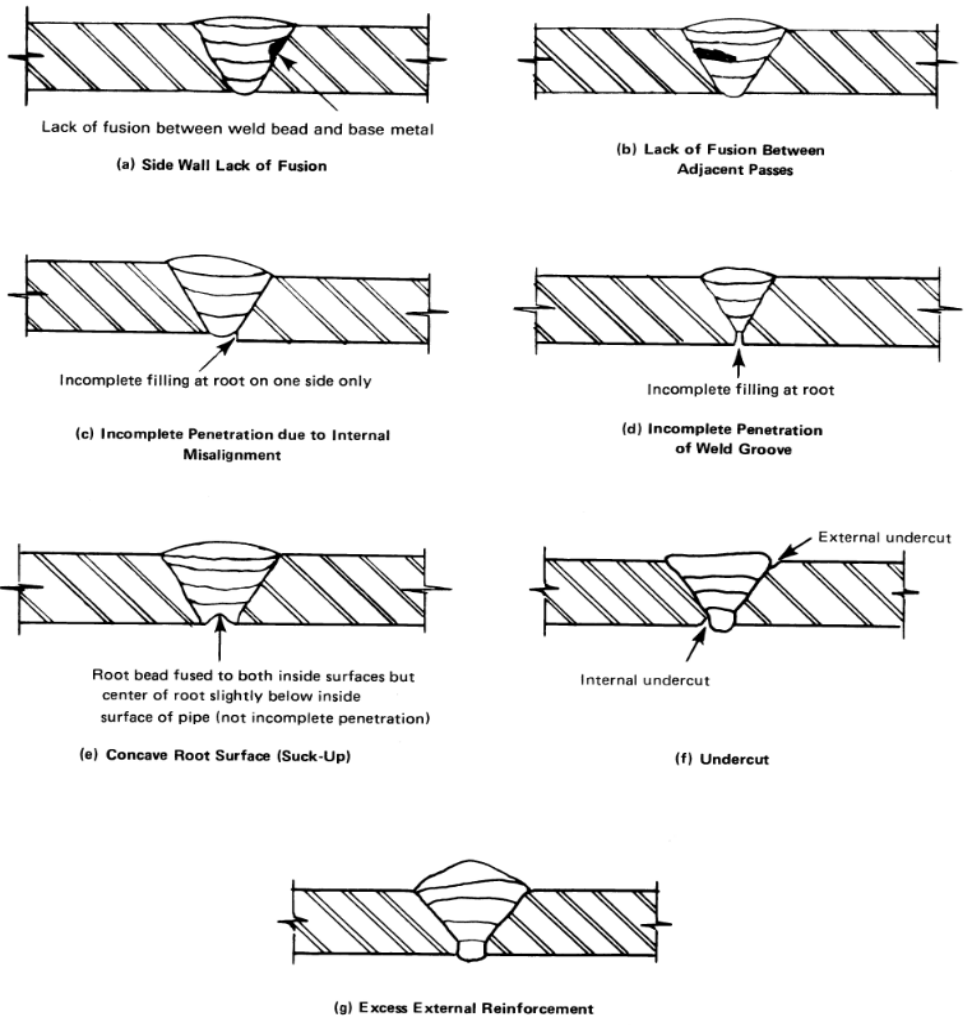


Table 341.3.2 Acceptance Criteria for Welds — Visual and Radiographic Examination

Criteria (A to M) for Types of Welds and for Service Conditions [Note (1)]											
Normal and Category M Fluid Service			Severe Cyclic Conditions			Category D Fluid Service					Examination Methods
Girth, Miter Groove, and Branch Connection Welds [Note (2)]	Longitudinal Groove Weld [Note (3)]	Fillet Weld [Note (4)]	Girth, Miter Groove, and Branch Connection Welds [Note (2)]	Longitudinal Groove Weld [Note (3)]	Fillet Weld [Note (4)]	Girth and Miter Groove Welds	Longitudinal Groove Weld [Note (3)]	Fillet Weld [Note (4)]	Branch Connection Weld [Note (2)]	Weld Imperfection	Visual	Radiography
A	A	A	A	A	A	A	A	A	A	Crack	✓	✓
A	A	A	A	A	A	C	A	N/A	A	Lack of fusion	✓	✓
B	A	N/A	A	A	N/A	C	A	N/A	B	Incomplete penetration	✓	✓
E	E	N/A	D	D	N/A	N/A	N/A	N/A	N/A	Rounded Indications	...	✓
G	G	N/A	F	F	N/A	N/A	N/A	N/A	N/A	Linear indications	...	✓
H	A	H	A	A	A	I	A	H	H	Undercutting	✓	✓
A	A	A	A	A	A	A	A	A	A	Surface porosity or exposed slag inclusion [Note (5)]	✓	...
N/A	N/A	N/A	J	J	J	N/A	N/A	N/A	N/A	Surface finish	✓	...
K	K	N/A	K	K	N/A	K	K	N/A	K	Concave surface, concave root, or burn-through	✓	✓
L	L	L	L	L	L	M	M	M	M	Weld reinforcement or internal protrusion	✓	...

GENERAL NOTES:

(a) Weld imperfections are evaluated by one or more of the types of examination methods given, as specified in paras. 341.4.1, 341.4.2, 341.4.3, and M341.4, or by the engineering design.
(b) "N/A" indicates the Code does not establish acceptance criteria or does not require evaluation of this kind of imperfection for this type of weld.
(c) Check (✓) indicates examination method generally used for evaluating this kind of weld imperfection.
(d) Ellipsis (...) indicates examination method not generally used for evaluating this kind of weld imperfection.

NOTES:

(1) Criteria given are for required examination. More-stringent criteria may be specified in the engineering design. See also paras. 341.5 and 341.5.3.
(2) Branch connection weld includes pressure containing welds in branches and fabricated laps.
(3) Longitudinal groove weld includes straight and spiral (helical) seam. Criteria are not intended to apply to welds made in accordance with a standard listed in Table A-1, Table A-1M, or Table 326.1. Alternative Leak Test requires examination of these welds; see para. 345.9.
(4) Fillet weld includes socket and seal welds, and attachment welds for slip-on flanges, branch reinforcement, and supports.
(5) These imperfections are evaluated only for welds ≤5 mm ($^3/_{16}$ in.) in nominal thickness.

Criterion Value Notes for Table 341.3.2

Criterion Symbol	Criterion Measure	Acceptable Value Limits [Note (1)]	
A	Extent of imperfection	Zero (no evident imperfection)	
B	Cumulative length of incomplete penetration	≤38 mm (1.5 in.) in any 150 mm (6 in.) weld length or 25% of total weld length, whichever is less	
C	Cumulative length of lack of fusion and incomplete penetration	≤38 mm (1.5 in.) in any 150 mm (6 in.) weld length or 25% of total weld length, whichever is less	
D	Size and distribution of rounded indications	See ASME BPVC, Section VIII, Division 1, Appendix 4 [Note (2)]	
E	Size and distribution of rounded indications	For T_w ≤ 6 mm ($^1/_4$ in.), limit is same as D [Note (2)] For T_w > 6 mm ($^1/_4$ in.), limit is 1.5 × D [Note (2)]	
F	Linear indications		
	Individual length	$\leq T_w/3$	
	Individual width	≤2.5 mm ($^3/_{32}$ in.) and $\leq T_w/3$	
	Cumulative length	$\leq T_w$ in any 12 T_w weld length [Note (2)]	
G	Linear indications		
	Individual length	$\leq 2T_w$	
	Individual width	≤3 mm ($^1/_8$ in.) and $\leq T_w/2$	
	Cumulative length	$\leq 4T_w$ in any 150 mm (6 in.) weld length [Note (2)]	
H	Depth of undercut	≤1 mm ($^1/_{32}$ in.) and $\leq T_w/4$	
	Cumulative length of internal and external undercut	≤38 mm (1.5 in.) in any 150 mm (6 in.) weld length or 25% of total weld length, whichever is less	
I	Depth of undercut	≤1.5 mm ($^1/_{16}$ in.) and ≤[$T_w/4$ or 1 mm ($^1/_{32}$ in.)]	
	Cumulative length of internal and external undercut	≤38 mm (1.5 in.) in any 150 mm (6 in.) weld length or 25% of total weld length, whichever is less	
J	Surface roughness	≤12.5 μm (500 μin.) R_a in accordance with ASME B46.1	
K	Depth of surface concavity, root concavity, or burn-through	Total joint thickness, including weld reinforcement, $\geq T_w$ [Notes (3) and (4)]	
L	Height of reinforcement or internal protrusion [Note (5)] in any plane through the weld shall be within limits of the applicable height value in the tabulation at right, except as provided in Note (6). Weld metal shall merge smoothly into the component surfaces.	For T_w, mm (in.)	Height, mm (in.)
		≤6 ($^1/_4$)	≤1.5 ($^1/_{16}$)
		>6 ($^1/_4$), ≤13 ($^1/_2$)	≤3 ($^1/_8$)
		>13 ($^1/_2$), ≤25 (1)	≤4 ($^5/_{32}$)
		>25 (1)	≤5 ($^3/_{16}$)
M	Height of reinforcement or internal protrusion [Note (5)] as described in L. Note (6) does not apply.	Limit is twice the value applicable for L above	

NOTES:

(1) Where two limiting values are separated by "and," the lesser of the values determines acceptance. Where two sets of values are separated by "or," the larger value is acceptable. T_w is the nominal wall thickness of the thinner of two components joined by a butt weld.

Criterion Value Notes for Table 341.3.2 (Cont'd)

NOTES: (Cont'd)

(2) Porosity and inclusions such as slag or tungsten are defined as rounded indications where the maximum length is three times the width or less. These indications may be circular, elliptical, or irregular in shape; may have tails; and may vary in density. Indications where the length is greater than three times the width are defined as linear indications and may also be slag, porosity, or tungsten.

(3) For circumferential groove welded joints in pipe, tube, and headers made entirely without the addition of filler metal, external concavity shall not exceed the lesser of 1 mm ($^1/_{32}$ in.) or 10% of the joint nominal thickness. The contour of the concavity shall blend smoothly with the base metal. The total joint thickness, including any reinforcement, shall not be less than the minimum wall thickness, t_m.

(4) For radiography, acceptability may be determined by comparing the density of the image through the affected area to the density through the adjacent base metal (T_w). If digital radiography is used, brightness comparison may be utilized. A density or brightness darker than the adjacent base metal is cause for rejection.

(5) For groove welds, height is the lesser of the measurements made from the surfaces of the adjacent components; both reinforcement and internal protrusion are permitted in a weld. For fillet welds, height is measured from the theoretical throat, Figure 328.5.2A; internal protrusion does not apply.

(6) For welds in aluminum alloy only, internal protrusion shall not exceed the following values:

(a) 1.5 mm ($^1/_{16}$ in.) for thickness ≤2 mm ($^5/_{64}$ in.)

(b) 2.5 mm ($^3/_{32}$ in.) for thickness >2 mm and ≤6 mm ($^1/_4$ in.)

For external reinforcement and for greater thicknesses, see the tabulation for symbol L.

Weld reinforcement and internal protrusion (excessive penetration) are acceptable as indicated in table 341.3.2 (L)

I. API-620.

The Visual Examination must meet the following criteria:

a) The weld should not have crater cracks or any other surface cracks.
b) The surface porosity shall not exceed one group of pores (one or more pores) in each 101.6 mm (4") length and the maximum diameter of each group or pore shall not exceed 2.4 cm (3/32").
c) Undermining shall not exceed: 0.4 mm (1/64") for longitudinal or meridional butt joints and for welds of nozzles, man-inputs or registers. 0.8 mm (1/32") circumferential or longitudinal butt joints.
d) No lack of fusion or penetration.
e) The reinforcement of the weld (internal or external), where RT is not required, must comply with the following Table:

Plate thickness (in)	Maximum stress thickness (in)	
	Vertical joints	Horizontal joints
<= 12.7 mm (1/2")	2.38 mm (3/32")	3.2 mm (1/8")
> 12.7 mm (1/2") up to 25.4 mm (1")	3.2 mm (1/8")	4.76 mm (3/16")
> 25.4 mm (1")	4.76 mm (3/16")	6.35 mm (1/4")

Standard for accepting examinations performed on components within the scope of the code, API-650. The following indications are unacceptable:

a) Any cracks, lack of melting and lack of penetration

b) Undermines exceeding 0.4 mm (1/64") for vertical welds and nozzle, man-inlet and permanent attachment welds.
c) Undercut exceeding 0.8 mm (1/32") for horizontal welds.
d) More than one group of pores (one or more pores) in 100 mm (4") weld length
e) If the pore group diameter exceeds 2.4 mm (3/32")
f) Welding reinforcement that exceeds what is indicated in the Table.

Plate thickness (in)	Maximum stress thickness (in)	
	Vertical joints	Horizontal joints
<= 13 mm (1/2")	2.5 mm (3/32")	3 mm (1/8")
> 13 mm (1/2") up to 25 mm (1")	3 mm (1/8")	5 mm (3/16")
> 25 mm (1")	5 mm (3/16")	6 mm (1/4")

II. API-1104.

The acceptance and rejection criteria for radiographic inspection, by ultrasound, magnetic particles and penetrating liquids may apply for Visual Examination in accordance with paragraph 9.7.

Maximum dimension of Undermining	
Depth	**Longitude**
> 1/32 in. (0.8mm) or > 12.5% of pipe thickness, whichever is less.	Nor Acceptable
>0.016 in. (0.4mm) but <= 0.031 in. (0.8 mm) or > 6% weight <= 12.5% of pipe thickness, whichever is less.	2", (50 mm) in continuous weld 12" (300 mm) in length or one-sixth of the weld length, whichever is less.
<= 0.016 in (0.4 mm) or <= 6% of pipe thickness, whichever is less.	Acceptable, no matter the length

III. ASME Section I and Section VIII Division I.

The following indications are unacceptable:

a) Cracks, lack of fusion, or lack of penetration.
b) Welding areas with insufficient filling or below the outer surface of the pipe.
c) Surface finishing is permitted, as and remains after welding, the surface of the welds must be sufficiently free of coarse ripples, notches, overlaps, abrupt ridges and valleys, to allow the proper interpretation of the NDT.

Visual Welding Examination Record (PCC-05/F-01)

Non-compliant outputs (PSGI-03)

Welding Application and Repair (PIP-03)

Visual Welding Examination R (PCC-05/F-01).

Weld Traceability (PCC-05/F-02)

d) Weld reinforcement of each face of the weld that exceeds the values indicated in the following tables:

Customary Units

Material Nominal Thickness, in.	Maximum Reinforcement, in. Category B and C Butt Welds	Other Welds
Less than 3/32	3/32	1/32
3/32 to 3/16, incl.	1/8	1/16
Over 3/16 to 1/2, incl.	5/32	3/32
Over 1/2 to 1, incl.	3/16	3/32
Over 1 to 2, incl.	1/4	1/8
Over 2 to 3, incl.	1/4	5/32
Over 3 to 4, incl.	1/4	7/32
Over 4 to 5, incl.	1/4	1/4
Over 5	5/16	5/16

SI Units

Material Nominal Thickness, mm	Maximum Reinforcement, mm Category B and C Butt Welds	Other Welds
Less than 2.4	2.5	0.8
2.4 to 4.8, incl.	3	1.5
Over 4.8 to 13, incl.	4	2.5
Over 13 to 25, incl.	5	2.5
Over 25 to 51, incl.	6	3
Over 51 to 76, incl.	6	4
Over 76 to 102, incl.	6	5.5
Over 102 to 127, incl.	6	6
Over 127	8	8

IV. AWS D. 1. 1.

The acceptance and rejection criteria for the visual inspection of welded joints in structures will be under 8. Inspection, 8.9 Visual Inspection, Table 8.1 Visual Inspection Acceptance Criteria (see 8.9)

Table 8.1
Visual Inspection Acceptance Criteria (see 8.9)

Discontinuity Category and Inspection Criteria	Statically Loaded Nontubular Connections	Cyclically Loaded Nontubular Connections
(1) Crack Prohibition Any crack shall be unacceptable, regardless of size or location.	X	X
(2) Weld/Base Metal Fusion Complete fusion shall exist between adjacent layers of weld metal and between weld metal and base metal.	X	X
(3) Crater Cross Section All craters shall be filled to provide the specified weld size, except for the ends of intermittent fillet welds outside of their effective length.	X	X
(4) Weld Profiles Weld profiles shall be in conformance with 7.23.	X	X
(5) Time of Inspection Visual inspection of welds in all steels may begin immediately after the completed welds have cooled to ambient temperature. Acceptance criteria for ASTM A514, A517, and A709 Grade HPS 100W [HPS 690W] steels shall be based on visual inspection performed not less than 48 hours after completion of the weld.	X	X
(6) Undersized Welds The size of a fillet weld in any continuous weld may be less than the specified nominal size (L) without correction by the following amounts (U): L, specified nominal weld size, in [mm] — U, allowable decrease from L, in [mm] ≤ 3/16 [5] — ≤ 1/16 [2] 1/4 [6] — ≤ 3/32 [2.5] ≥ 5/16 [8] — ≤ 1/8 [3] In all cases, the undersize portion of the weld shall not exceed 10% of the weld length. On web-to-flange welds on girders, underrun shall be prohibited at the ends for a length equal to twice the width of the flange.	X	X
(7) Undercut (A) For material less than 1 in [25 mm] thick, undercut shall not exceed 1/32 in [1 mm], with the following exception: undercut shall not exceed 1/16 in [2 mm] for any accumulated length up to 2 in [50 mm] in any 12 in [300 mm]. For material equal to or greater than 1 in [25 mm] thick, undercut shall not exceed 1/16 in [2 mm] for any length of weld.	X	
(B) In primary members, undercut shall be no more than 0.01 in [0.25 mm] deep when the weld is transverse to tensile stress under any design loading condition. Undercut shall be no more than 1/32 in [1 mm] deep for all other cases.		X
(8) Porosity (A) CJP groove welds in butt joints transverse to the direction of computed tensile stress shall have no visible piping porosity. For all other groove welds and for fillet welds, the sum of the visible piping porosity 1/32 in [1 mm] or greater in diameter shall not exceed 3/8 in [10 mm] in any linear inch of weld and shall not exceed 3/4 in [20 mm] in any 12 in [300 mm] length of weld.	X	
(B) The frequency of piping porosity in fillet welds shall not exceed one in each 4 in [100 mm] of weld length and the maximum diameter shall not exceed 3/32 in [2.5 mm]. Exception: for fillet welds connecting stiffeners to web, the sum of the diameters of piping porosity shall not exceed 3/8 in [10 mm] in any linear inch of weld and shall not exceed 3/4 in [20 mm] in any 12 in [300 mm] length of weld.		X
(C) CJP groove welds in butt joints transverse to the direction of computed tensile stress shall have no piping porosity. For all other groove welds, the frequency of piping porosity shall not exceed one in 4 in [100 mm] of length and the maximum diameter shall not exceed 3/32 in [2.5 mm].		X

Note: An "X" indicates applicability for the connection type; a shaded area indicates non-applicability.

The acceptance and rejection criteria for Magnetic Particle inspection of welded joints in structures will be under Clause 8, Part C Acceptance Criteria, 8.14.4 MT.

***NOTE:** Visual inspection for welds on all steels can be performed once they have cooled to room temperature.*

*For ASTM **A 514, A517** and **A709 Gr 100 and 100W** steels, visual inspection should be performed at least 48 hours after the welds have been made.*

All welds shall be visually inspected in accordance with the acceptance criteria.

3. IDENTIFICATION OF WELDING OUTSIDE ACCEPTANCE CRITERIA

When the Welding Inspector identifies welding outside the acceptance criteria, once it is registered in the *Visual Welding Examination R* (*PCC-05/F-01*), the Quality Control department must initiate the *Nonconforming Outputs procedure (PSGI-03),* to initiate the weld repair process outside acceptance criteria, as established by the Welding *Application and Repair procedure (PIP-03).*

4. DOCUMENTATION

a) The examinations performed and the corresponding information must be documented by completing the *Register* of *Visual Welding Examination (PCC-05/F-01*) format (it is only applicable or required in case of a major repair) and already contractually required.
b) All welding activities must be recorded within the *Weld Traceability* format (*PCC-05/F-02*), which contains the VT (visual inspection), PT (liquid penetrant), RT/GT (Radiographic inspection/scintigraphy) record.
c) Quality Control personnel will maintain visual inspection and weld traceability records
d) Personnel conducting the inspection must comply with required accreditation documentation and visual acuity examinations.

FORMATS ASSOCIATED WITH THE PROCEDURE

CODE	REGISTRATION	REVIEW LEVEL	RETENTION TIME
PCC-05/F-01	*Visual Welding Examination Record*	**01**	1 year in physical / Digital without expiration
PCC-05/F-02	*Weld Traceability*	**01**	1 year in physical / Digital without expiration