Contractor's Inspection Responsibilities (AWS D1.1) and in accordance with the AISC 360-22 Chapter "N" by Lee Pielaet



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Definition of Contractor

•Definition:

• "Any company or individual representing a company, responsible for fabrication, erection, manufacturing, or welding in conformance with the provisions of this code."

•Key Responsibilities:

- Quality of work
- Compliance with contract documents
- Ensuring inspections are performed



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Section 1 - General Requirements

•1.5.2 Contractor's Responsibilities:

- Responsible for:
 - Welding Procedure Specifications (WPS)
 - Qualification of welding personnel
 - Inspection tasks
 - Performing work in compliance with the code



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Section 8 - Contractor's Inspection

•8.1.3.1 Contractor's Inspector:

• Acts on behalf of the contractor for inspection and quality matters.

•8.1.2.1 Contractor's Inspection:

- Includes:
 - Pre-assembly inspections
 - In-process inspections during welding
 - Post-welding inspections
- Ensures materials and workmanship meet contract requirements.



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Section 8 - Verification Inspection

8.1.2.2 Verification Inspection: Performed on behalf of the owner. Reports are provided to the owner and contractor to prevent delays. It can be waived or combined with the contractor's inspection as stipulated in the contract.



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Section 8 - Quality Responsibility

Quality of Work:

The contractor ensures that work meets contract requirements.

Access for Inspection:

Provide access and documentation for verification.

In-Process Inspections:

Monitor compliance during fabrication or erection.



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Inspection Categories •Visual Inspection:

- Verify weld quality during and after welding.
- Meet visual acceptance criteria.

•Non-Destructive Testing (NDT):

- Coordinate NDT when required.
- Performed by qualified personnel.



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Section 6 - Qualification

- •Welders and Operators:
 - Must be qualified per Section 6.

•Welding Procedure Specifications (WPS):

• Approved and followed for all welding activities.



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Table N5.4-1: Inspection Tasks Prior to Welding	QCI	QA-3RD Party
Welder qualification records and continuity records	Р	0
WPS available	Р	Р
Manufacturer certifications for welding consumables available	Р	Р
Material identification (type/grade)	0	0
Welder identification system:	0	0
The fabricator or erector shall maintain a system for welder identification.		
Die stamping of members subject to fatigue requires engineer approval.		
Fit-up of groove welds (joint geometry, cleanliness, tacking, backing, etc.)	0	0
Fit-up of CJP groove welds of HSS T-, Y-, and K-connections without backing	0	0
Configuration and finish of access holes	0	0
Fit-up of fillet welds (dimensions, cleanliness, tacking)	0	0
Check welding equipment	0	-

Table 5.4-2 Inspection Tasks During Welding		
Control and handling of welding consumables (packaging, exposure control)	0	0
No welding over cracked tack welds	0	0
Environmental conditions (wind speed, precipitation, temperature)	0	0
WPS followed (settings, travel speed, materials, gas flow, preheat, etc.)	0	0
Welding techniques (cleaning, pass profile, quality requirements)	0	0
Placement and installation of steel-headed stud anchors	Ρ	Ρ

Table N5.4-3: Inspection Tasks After Welding	QCI	QA-3RD PARTY
Welds cleaned	0	0
Size, length, and location of welds	Р	Р
Welds meet visual acceptance criteria (cracks, fusion, profile, size, etc.)	Ρ	Р

Table 8.1 Visual Inspections

1 Weld Base Metal Fusion

Complete fusion shall exist between adjacent layers of weld metal and between weld metal and base metal.



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Crack Prohibition

1 Unacceptable Cracks

Any crack, regardless of size or location, location, is considered unacceptable. unacceptable.

Weld Integrity

2

Cracks compromise the structural integrity of the weld, leading to potential failure.

Safety Concerns

3

Cracks can lead to unexpected and and dangerous failures, compromising compromising the safety of the



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Weld Base Metal Fusion

Complete fusion shall exist between adjacent layers of weld metal and between weld metal and base metal.



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Crater Cross Section

Acceptable Craters

Craters are allowed at the ends of intermittent fillet welds, but only outside their effective length. This ensures that the weld meets the specified size.

Crater Filling

For all other craters, they must be filled completely to provide the the specified weld size. This ensures proper strength and integrity of the integrity of the weld.



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Weld Profiles

Weld profiles must adhere to the standards outlined in section 7.23 of the American American Welding Society D1.1.

Conformance

Visual Inspection

The weld profile should be consistent consistent with the specified dimensions dimensions and requirements.

Inspectors visually verify that the weld profile meets the criteria outlined in section 7.23.

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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.



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Undercut

Pionee	er Steel Services. Inc.	AWS American Welding Society	INSPECTION EXPO & CONFERENCE
	Fillet welds	1/16" [1.6 mm]	
	Groove welds	1/16" [1.6 mm]	
	Undercut Description	Acceptable Limit	

Undercut

Material Thickness

For material less than 1 in (25 mm) thick, undercut should not exceed 1/32 in (1 mm). For material 1 in (25 mm) or thicker, undercut should not exceed 1/16 in (2 mm).

Exceptions

Undercut can exceed 1/32 in (1 mm) up to 1/16 in (2 mm) for accumulated lengths up to 2 in (50 mm) within any 12 in (300 mm) section. This applies only for material less than 1 in (25 mm) thick.

Primary Members

In primary members, undercut should not exceed 0.01 in (0.25 mm) when the weld is transverse to tensile stress under design load conditions. For other cases, undercut should not exceed 1/32 in (1 mm).



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Piping Porosity

CJP Groove Welds

Butt joints transverse to the direction of computed tensile stress shall have no visible visible piping porosity. For all other groove groove welds and fillet welds, the sum of of visible piping porosity 1/32 in [1 mm] or or greater in diameter shall not exceed 3/8 in 3/8 in [10 mm] in any linear inch of weld and and shall not exceed 3/4 in [20 mm] in any 12 any 12 in [300 mm] length of weld.



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Fillet Welds

The frequency of piping porosity in fillet welds welds shall not exceed one in each 4 in [100 [100 mm] of weld length and the maximum maximum diameter shall not exceed 3/32 in 3/32 in [2.5 mm]. For fillet welds connecting connecting stiffeners to the web, the sum of sum of the diameters of piping porosity shall shall not exceed 3/8 in [10 mm] in any linear linear inch of weld and shall not exceed 3/4 in 3/4 in [20 mm] in any 12 in [300 mm] length length of weld.



The frequency of piping porosity shall not not exceed one in 4 in [100 mm] of length length and the maximum diameter shall not shall not exceed 3/32 in [2.5 mm].





Table N5.4-3: Inspection Tasks After Welding	QCI	QA-3RD PARTY
Welds cleaned	0	0
Size, length, and location of welds	Ρ	Р
Welds meet visual acceptance criteria (cracks, fusion, profile, size, etc.)	Р	Р
Arc strikes	Р	Р
k-area (inspect within 3 in. of weld for cracks)	Р	Р
Weld access holes in rolled/built-up heavy shapes	Р	Р
Backing and weld tabs removed (if required)	Р	Р
Repair activities	Р	Р
Document acceptance or rejection of welded joint/member	Р	Р
No prohibited welds added without engineer approval	0	0

Discrepancy Resolution (Section 8.2.6)

•Address welding defects identified during inspections.

•Perform repairs or rework to meet acceptance criteria.



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Summary and Q&A

•Summary:

- Contractors are central to inspection and quality assurance.
- Must meet AWS D1.1 requirements for all welding activities.
- Collaboration with inspectors and owners ensures compliance.

Questions?







End of Presentation



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This American Welding Society educational session was created by Lee A. Pielaet, President/CEO of Pioneer Steel Services, Inc. Exclusively for the 2025 Inspection, Expo, and Conference held in Saint Louis, MO.





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