

The definitions listed below should be added to CIII, Chapter 1.

These definitions were compared with those contained within the following specifications:

- 1) AWS A3.0:2010 Standard Welding Terms and Definitions,
- 2) ASME IX:2015 Welding, Brazing and Fusing Qualifications. and;
- 3) AWS B2.1 Specification for Welding Procedure and Performance Qualification.

The specific document that each definition was referenced against is noted below.

- **Butt Joint** *(verified against AWS A3.0:2010 - Standard Welding Terms & Definitions)*
 - Current Definition –
 - Vacant
 - Proposed Definition –
 - A joint type in which the butting ends of one or more workpieces are aligned in approximately the same plane.
- **Butt Joint, Single-Welded**
 - Current Definition –
 - A butt weld with filler metal added from one side only.
 - Proposed Definition –
 - A butt joint with filler metal added from one side only.
- **Butt Weld** *(verified against AWS A3.0:2010 - Standard Welding Terms & Definitions)*
 - Current Definition –
 - A nonstandard term for a weld in a butt joint. It may be either single or double welded.
 - Proposed Definition –
 - delete this definition as it is non-standard slang (use Groove Weld instead)
- **Control Zone (CZ)**
 - Proposed Definition – as of 9/27/17
 - A Control Zone (CZ) consists of a grouping of one or more heating elements which are controlled (turned on and off) based upon input from a single controlling thermocouple.
- **Control Thermocouple (CT)**
 - Proposed Definition – as of 9/27/17
- A Control Thermocouple (CT) is a single thermocouple utilized to control (turn on and off) the heating element(s) of a Control Zone (CZ). The location of a control thermocouple should be based upon the nature of the heat source, location(s) of heating element(s), and the area being heated. In general, control thermocouples should be located at the point of highest expected temperature for the control zone, which is typically the geometric center of the heating element(s).
- **Essential Variables, Welding** *(verified against ASME IX:2015; §QG-105.1)*
 - Current Definition –
 - Those variables in which a change, as described in the specific variables, is considered to affect the mechanical properties of the weldment, and shall require requalification of the WPS.
 - Proposed Definition –
 - Those variables in which a change, as described in the specific variables, is considered to affect the mechanical properties (other than notch toughness) of the joint, and shall require requalification of the WPS.
- **Fillet Weld** *(verified against AWS A3.0:2010 - Standard Welding Terms & Definitions)*
 - Current Definition –
 - A weld of approximately triangular cross-section joining two surfaces approximately at right angles to each other, in a lap, tee or corner joint.
 - Proposed Definition –
 - A weld of approximately triangular cross-section joining two surfaces approximately at right angles to each other in a lap joint, T-joint or corner joint.
- **Monitor Thermocouple (CT)**
 - Proposed Definition – as of 9/27/17

- Monitor Thermocouples (MT) are single or multiple thermocouples utilized with a Control Zone (CZ) to ensure that the Local Post Weld Heat Treatment temperature parameters specified are being adhered to. Typically monitor thermocouples are located within the Soak Band (SB) area to ensure that specified minimum temperatures are achieved and maximum temperatures are not exceeded
- **Size (fillet)** change to **Fillet Weld Size** *(verified against AWS A3.0:2010 - Standard Welding Terms & Definitions)*
 -
- **Throat (fillet)** change to **Fillet Weld Theoretical Throat***(verified against AWS A3.0:2010 - Standard Welding Terms & Definitions)*
 - Current Definition –
 - Theoretical throat. The distance from the beginning of the joint root perpendicular to the hypotenuse of the largest right triangle that can be inscribed within the cross-section of a fillet weld.
 - Proposed Definition –
 - The distance from the beginning of the joint root perpendicular to the hypotenuse of the largest right triangle that can be inscribed within the cross section of a fillet weld. This dimension is based on the assumption that the root opening is equal to zero.
- **Forge Welding**
 - Current Definition –
 - A welding process wherein coalescence is produced by heating in a forge or other furnace and by applying pressure or blows.
 - Proposed Definition –
 - delete this definition, not used in Appendix W. Only referenced in Chapter 1 as Forge-Welded Tanks
- **Groove Weld**
 - Current Definition –
 - A weld made in the groove between two members to be joined.
 - Proposed Definition – *(as from AWS A3.0:2010 - Standard Welding Terms & Definitions)*
 - A weld in a weld groove on a workpiece surface, between workpiece edges, between workpiece surfaces, or between workpiece edges and surfaces.
- **Heated Band (HB)**
 -
 - Proposed Definition – as of 9/27/17
- The heated band (HB) consists of the surface area over which the heater element(s) are applied to achieve the required temperature in the soak band. As a minimum, the heated band area shall contain the soak band plus 4T on each side or end of the soak band. The term “T” is defined as the nominal thickness of the heat treated material. The heated band must be wider than the required soak band to compensate for conductive heat losses into adjacent unheated sections of the work piece, and convective and radiant heat losses into the workpiece surroundings
- **Heat Treatment** *(currently not in AWS A3.1; B2.1 or ASME IX)*
 - Current Definition –
 - Heating and cooling a metal or alloy in such a way as to obtain desired conditions or properties. Heating for the sole purpose of hot working is excluded from the meaning of this definition.
 - Proposed Definition –
 - Controlled heating and cooling a metal or alloy in such a way as to obtain desired conditions or properties. Heating for the sole purpose of hot working is excluded from the meaning of this definition.
- **Lap Joint** *(verified against AWS A3.0:2010 - Standard Welding Terms & Definitions)*
 - Current Definition –
 - A joint between two overlapping members in parallel planes.
 - Proposed Definition –
 - A joint type in which the nonbutting ends of one or more workpieces overlap approximately parallel to one another.
- **Non-Essential Variable, Welding** *(verified against ASME IX:2015; §QG-105.4)*
 - Current Definition –
 - Vacant

- Proposed Definition –
 - Condition in which a change, as described in the specific variables, is not considered to affect the mechanical properties of the joint.
- **Pits (grouped)**
 - Current Definition –
 - Adjacent pits that are separated by a distance less than two times their average diameter.
 - Proposed Definition –
 - delete definition as grouped pits are no longer referenced in Appendix R (removed on 6/2014 revision of Appendix R)
- **Pits (random)**
 - Current Definition –
 - Adjacent pits that are separated by a distance greater than six times the material thickness.
 - Proposed Definition –
 - delete definition as grouped pits are no longer referenced in Appendix R (removed on 6/2014 revision of Appendix R)
- **Procedure Qualification** Change to: **Procedure Qualification Record (PQR), Welding**
(verified against AWS A3.0:2010 - Standard Welding Terms & Definitions)
 - Current Definition –
 - A document providing the actual welding variables used to produce an acceptable procedure qualification test and the results of the tests conducted on the weld.
 - Proposed Definition –
 - A record of the welding variables used to produce an acceptable test weldment and the results of the tests conducted on that weldment to qualify a welding procedure specification.
- **Procedure Qualification Variable** *(verified against AWS B.2.1 Spec. for Welding Procedure & Performance Qualification)*
 - Current Definition –
 - Vacant
 - Proposed Definition –
 - One of a set of elements that define the qualification limits of a Welding Procedure Specification (WPS).
- **Performance Qualification Variable** *(verified against AWS B.2.1 Spec. for Welding Procedure & Performance Qualification)*
 - Current Definition –
 - Vacant
 - Proposed Definition –
 - One of a set of elements that define the qualification limits of welders and welding operators.
- **Qualification, Welder Performance** *(verified against AWS A3.0:2010 - Standard Welding Terms & Definitions)*
 - Current Definition –
 - The demonstration of a welder's or welding operator's ability to produce welds meeting prescribed standards.
 - Proposed Definition –
 - Just change title to "Welder Performance Qualification"
- **Qualification, Welder Procedure** *(verified against AWS A3.0:2010 - Standard Welding Terms & Definitions)*
 - Current Definition –
 - A record of the welding variables used to produce an acceptable test weldment and the results of the tests conducted on that weldment to qualify a welding procedure specification.
 - Proposed Definition –
 - delete definition - already covered in definition 'Procedure Qualification Record (PQR)'
- **Reinforced Tank Shell Butt Weld (butt joint, groove weld)** *(currently not in AWS A3.1; B2.1 or ASME IX)*
 - Current Definition –
 - A nonstandard term for a weld in a butt joint; the portion of a butt weld (butt joint, groove weld) covered by a reinforcing pad.
 - Proposed Definition –

- A nonstandard term for that portion of a groove weld covered by a reinforcing pad.

- **Soak Band (SB)** (currently not in AWS A3.1; B2.1 or ASME IX) - See new Proposal for LPWHT
 - Current Definition –
 - Vacant
 - Proposed Definition –
 - The volume of metal required to meet the PWHT temperatures and hold times specified in W16.0. As a minimum, the soak band shall contain the weld, heat affected zone, and a portion of the base metal adjacent to the weld being heat treated. The minimum width of this volume is the widest width of the weld plus 1T on each side or end of the weld. The term “T” is the nominal thickness of the heat treated material.

- **Spare Thermocouple (ST)**
 - Proposed Definition – as of 9/27/17
- Spare Thermocouples (ST) are additional thermocouples placed at near Control Thermocouple (CT) and Monitor Thermocouple (MT) locations. They are used as a means to address thermocouple failures that may occur during the heating cycle. A failure of a Control or Monitoring thermocouple can be remedied by disconnecting the lead from the failed thermocouple and connecting the lead from the applicable Spare Thermocouple.