

## Thinking About the Weld Flaws – Defining Acceptance Criteria beyond the Standard

- Room 2E East, September 13 2018, 9:00 am - 9:25 am

### Speakers



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Flaw acceptance criteria in welding standards are typically based on normally achievable workmanship criteria and are conservative, however, a weld may be able to tolerate defects in excess of those allowed for by the governing standard. The science of fracture mechanics allows for case-specific assessments (aka Fitness For Service-FFS, Fitness For Purpose-FFP, or Engineering Critical Assessments-ECA) on our structures based on readily available tools for advanced analysis rather than strict adherence to general workmanship criteria in codes. These mature tools can be applied to determine if a weld can tolerate a given defect, then be used to justify waive or repair decisions for unexpected flaws found in welded joints. Other uses include failure analysis, setting inspection acceptance criteria, extending the life of structures and justifying deviations from a design code. This paper presents the authors' experience when developing solutions to each of these scenarios. Our approach uses the most advanced computational methods available but is still based on a well-established methodology that is defined in the internationally accepted standard BS 7910: Guide to methods for assessing the acceptability of flaws in metallic structures. We have applied this approach to both spherical & linear defects i.e. cracks. The paper covers variety of applications ranging from marine, structural, fabrication, transportation, power, warranty, and integrity assessment on new & existing structures.