

# **GEP – DESIGN AND SPECIFICATION PRACTICES**

## **Introductory Notes:**

Design and specification practices encompass a very wide range of considerations and the GEP's which follow provide only a starting point to the obviously wider range that must be assessed. The GEP's which follow are thus of a very general nature and only serve to highlight some aspects to address. The need for a thorough upfront research/assessment of all aspects and elements is addressed below.

1. Prepare thorough research of properties, conditions and factors or elements – using systems, scope and information analyses prior to design work.
2. Review all materials in the component, equipment or plant under design to ensure long service life.
3. Avoid sharp corners, small sharp holes, sudden steps, sharp channels. Use generous radii in place of sharp changes.
4. Allow generous corrosion barriers (based on 20 years service minimum), when critical, as in acid storage tanks.
5. Also pay detailed design attention to small components or accessories on equipment (e.g. sight glasses or drains on a tank) to ensure failure-risk avoidance.
6. Ensure well balanced and properly grounded large machines with generous tie-down or bolt-down arrangements.
7. Apply generous safety factors in designs and specifications, with further levels added in known high risk applications.
8. Support tanks and vessels with adequate sound bases and ensure proper tie down and bolt down facilities. Detail in designs.
9. Use braces, ribs, gussets and spreader plates liberally in designs.
10. Use cleats, tie bars, stays and lugs for hold down of equipment, tanks and other process vessels liberally in designs.

All checklists, and other support documents supplied by E4A are supplied as general guidelines only and no warranty or guarantee is intended nor provided. All risks of use reside with the person or organization using these checklists or other documents.

