ACA BRANCH NEW ZEALAND BRANCH

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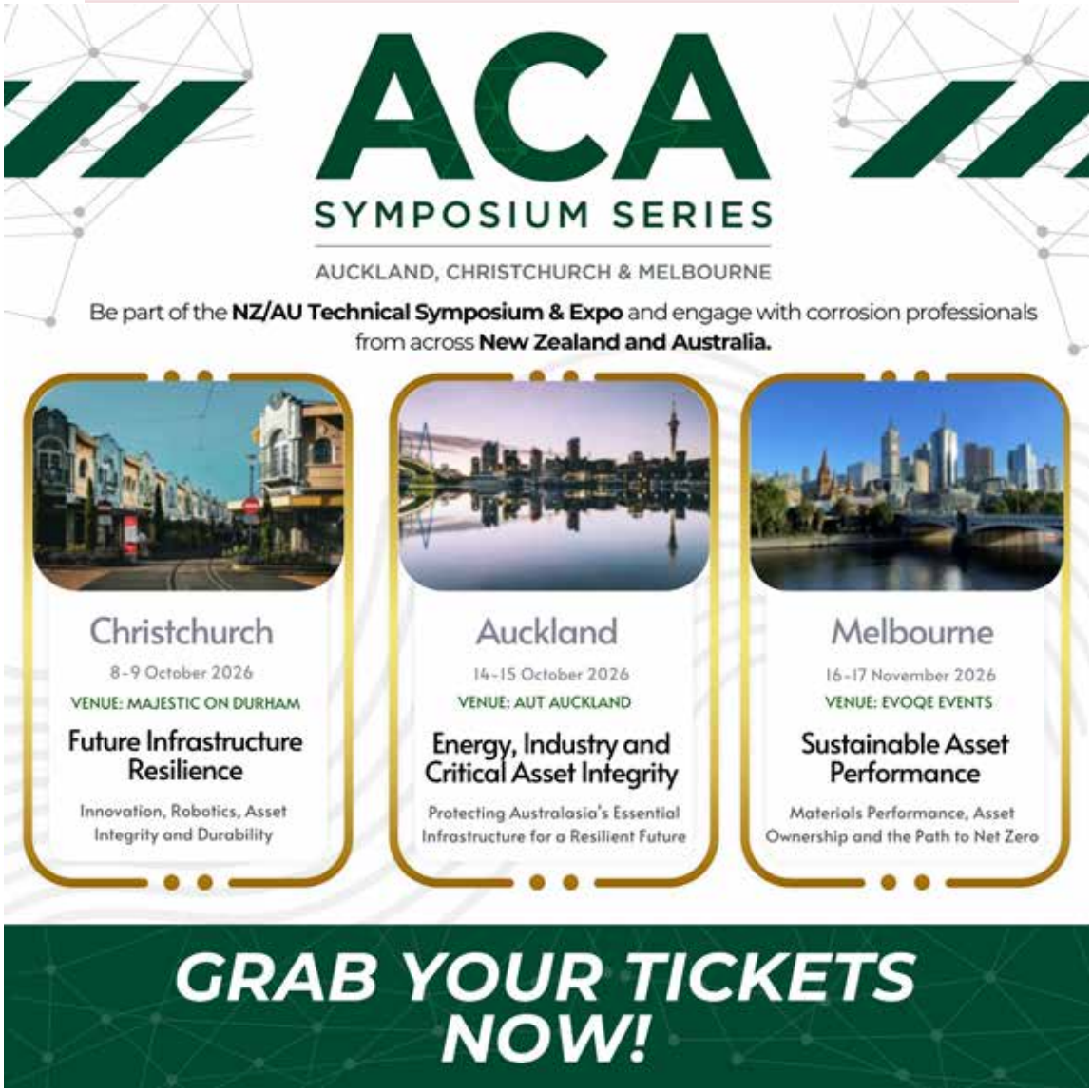


https://corrosion-prevention2026.eventsairsite.com/tickets

ACANZ would like to gratefully acknowledge this month's sponsor...

Q & A CORNER

Older ACA NZ members have probably seen a number of situations that may never have made it to a textbook.

If you have a question you'd like clarification on, email it to the Editor at lesboultonrust@gmail.com. We'll pose it to our panel of experts who will answer it in another Bulletin, so everyone can improve their knowledge.

Q: Why do metals stick together in space?

& A:

If you push two metal plates together on Earth, nothing happens. But if you press together the same two metal plates in the vacuum of space, they can fuse together into a single piece of metal. This phenomenon, called cold welding, has been a known hazard for spacecraft engineers for a long time.

So what is actually happening at the atomic level, and why does space make it much easier?

The answer comes down to a lack of oxygen in space. Metals are made of lattices - structures where atoms are bonded to one another. But atoms near the surface of a metal are not bonded to anything on the outward-facing side. If given the chance, they will "reach out" and share electrons with the surface of another piece of metal.

But on Earth, nearly every metal surface is coated in an oxide layer. The oxide layer is just a few atoms thick and forms when metals meet oxygen. Once the oxide layer is formed the metal cannot cold weld because the oxygen passivates the metal surface.

Cold welding in space has long been a problem. If there is cold welding, metallic things can become stuck in place. If you have a deployable structure and there is cold welding, a mechanism might freeze, or a door might become jammed-locked, or something might become immobilised, which the astronauts do not want.

To prevent components from accidentally fusing in orbit, space engineers rely on a few strategies.

One technique is anodising, a process that creates an artificial oxide layer on, for example, an aluminium alloy surface. Another method is to coat moving parts with dry lubricants, such as molybdenum disulphide, to physically keep metal surfaces from touching. A third strategy is to pair dissimilar metals - for instance, gold next to a metal like molybdenum - so the atomic structures do not mesh neatly together. The lattice packing order is not perfectly aligned, so there will be a much larger energy barrier to be overcome.

Before a space launch, hardware also gets shaken on vibration tables and cycled through extreme hot-and-cold swings inside vacuum chambers, simulating the stresses of liftoff and orbit, to detect any problems on the ground.

Source: Live Science, June 2026

Build your coating inspection skills with AMPP Coating Inspector Program (CIP) training in New Zealand

Looking to advance your coating inspection knowledge or take the next step in your corrosion career? Join us for the internationally recognised AMPP CIP courses coming to Christchurch and Auckland in September and October.

These courses are designed for professionals involved in coatings, corrosion management, asset integrity and quality assurance; CIP training provides practical knowledge and industry-recognised credentials that can help strengthen your expertise and confidence in the field.

Whether you're new to coating inspection or looking to further your professional development, we invite you to be part of these upcoming New Zealand courses. We look forward to welcoming you in Christchurch or Auckland.

- **Christchurch**

  * **AMPP Coating Inspector Program Level 1 |** NZ (CHC) | 28 Sep-03 Oct 2026

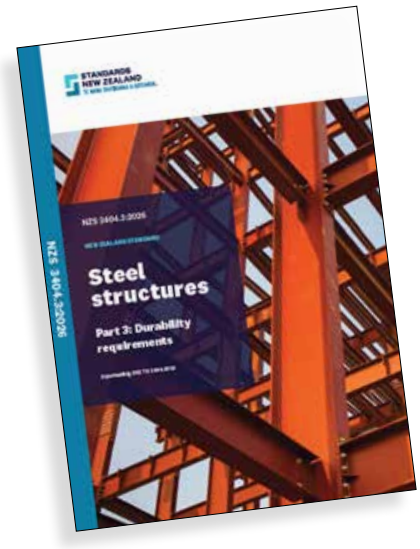
- **Auckland**

  * **AMPP Coating Inspector Program Level 1** | NZ (AUK) | 19-24 Oct 2026

  * **AMPP Coating Inspector Program Level 2** | NZ (AUK) | 26-30 Oct 2026

NZS 3404.3:2026 has been published

Steel Structures Part 3: Durability Requirements



This new Standard was published on 30 July 2026. It updates and supersedes SNZ TS 3404:2018 and was prepared by a committee mostly of volunteer ACANZ members chaired by Raed El Sarraf.

As stated in its preface, "this Standard has been prepared for use by asset owners, designers (engineers and architects), contractors, specifiers of corrosion protection systems, and the surface coating industry to meet the requirements of the New Zealand Building Code Clause B2 (Durability), and is intended as a means to achieving a compliance pathway, whether in the form of an acceptable solution, verification method and/or alternative solution. It covers the corrosion protection of structural steelwork exposed to both the New Zealand atmospheric and non-atmospheric environments.

For road, rail, and pedestrian bridges and associated structures it will satisfy the requirements of the Bridge Manual (2022) and is compatible with NZS 3404 parts 1 and 2."

Thanks to sponsorship by MBIE, it is available as a free single user download via https://www.standards.govt.nz/shop/NZS-3404-32026

Submitted by Willie Mandeno

Omaha Beach in France is still bleeding metal after 82 years

It's over 80 years since Allied forces landed on the beaches of Normandy, but the physical marks left from D-Day have not entirely vanished - they have simply become less visible. Visitors to Omaha Beach know the site's wartime history, but a scientific study has found microscopic remnants of the Omaha Beach assault in the beach sand.

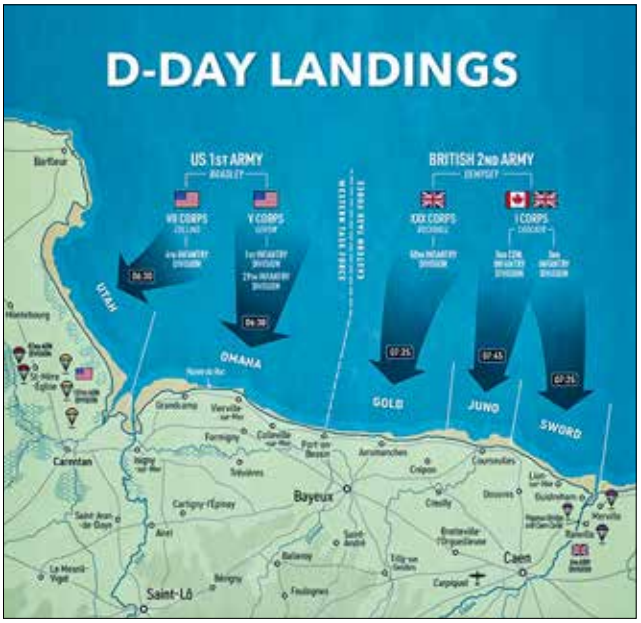
According to a 2011 study around four percent of one analysed sand sample from Omaha Beach consisted of tiny iron particles interpreted as wartime metal shrapnel fragments. A larger follow-up study recently published (2026) later estimated that metallic grains account for an average of about 0.4 percent of beach sediments across all five D-Day landing beaches.

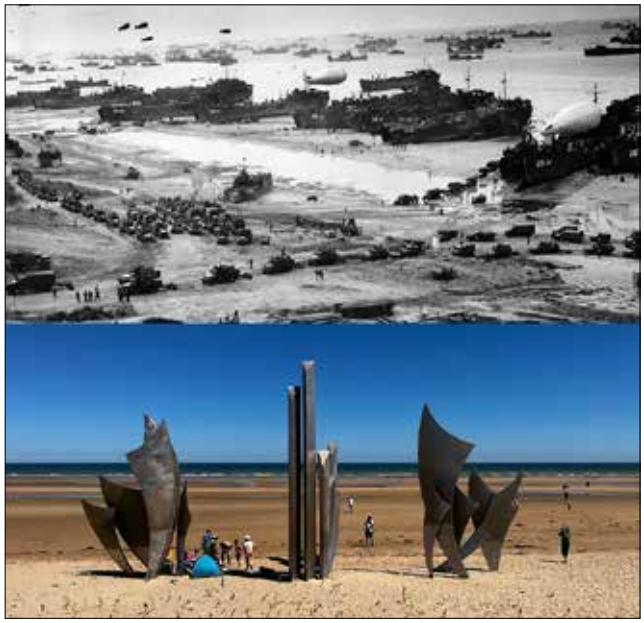
The discovery was not made by military scientists working intentionally on the site.

During a field trip to France in 1988, several American University sedimentary geologists came to Omaha Beach and collected sand samples without any expectations. Years later, when analysing the sand grains under a scanning electron microscope (SEM) they found that the sand sample contained many metallic particles amongst the quartz sand. The sample contained about 78 percent quartz, nine percent feldspar, four percent carbonates, three percent heavy minerals, two percent rock fragments and four percent iron. There were steel particles measuring 0.06mm to 1.0mm, with sharp irregular edges worn down by years of wave action. The tiny steel particles also had layers of rust, an indication of their prolonged exposure to seawater.

The scientists concluded that the iron particles were undoubtedly created during the Normandy landings of June 6 1944, when the Allied troops attacked the Germans stationed in Nazi-controlled France, with Operation Overlord.

According to the researchers the shrapnel fragments cannot be preserved forever. Corrosion acts quickly in seawater and it breaks the particles of steel down. Thus, one of the last pieces of evidence of this important WW2 battle is slowly being washed away by natural processes, not by any man-made means. The existence of microscopic rusty shrapnel particles gives us another view of that period of military history. It means that nature has managed to preserve the piece of history that happened at the Normandy beaches, although other evidence is being erased slowly from the site.





Source: The Times of India, June 2026

SYNTECH and GRACO The perfect partnership

Advertorial

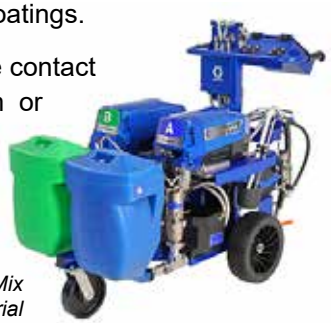
With the cost of coatings today, it is more important than ever to ensure you have the right spraying equipment.

The choice of spraying equipment has a significant impact on both the quality of the coating and the efficiency of the application process. Here are a few key factors to consider when selecting the right spraying equipment:

1. Type of Coating: Different coatings (e.g., paints, primers, stains, specialized coatings) may require specific types of sprayers, such as airless, HVLP (high volume low pressure), or conventional spray guns.
2. Application Area: The size and complexity of the area to be coated can influence your choice. For large surfaces, airless sprayers are often more efficient, while smaller jobs might be suited for handheld HVLP sprayers.
3. Material Viscosity: Thicker coatings may require more powerful sprayers that can handle higher pressure, whereas thinner materials can be sprayed with less powerful equipment.
4. Finish Quality: If a smooth finish is crucial, choosing an HVLP sprayer can help reduce overspray and improve control over the application.
5. User Skill Level: More complicated equipment may require a higher skill level to operate effectively. It's essential to choose equipment that matches the experience level of the operator.
6. Cost Efficiency: Investing in quality equipment can lead to savings in materials and time. Quality sprayers can reduce overspray and waste, making them more cost-effective in the long run.
7. Maintenance: Consider the maintenance requirements of the equipment. Some sprayers may require more frequent cleaning and parts replacement than others.
8. Environmental Considerations: If working in areas with strict environmental regulations, it may be necessary to choose equipment that minimizes VOC (volatile organic compounds) emissions.

Ultimately, the right spraying equipment can optimise the application process, minimize waste, and produce high-quality results, making it a critical consideration for any project involving coatings.

For sales / Service or Hire contact us: sales@syntechnz.com or 0800-SYNTECH



The new Graco Electric E-Mix available now for trial

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