

# 2019 CGR TECHNOLOGY SUMMARY

**CE Course:** Rebar / Sustainability / Core-1 / Core-2 / Parking / Power / Transportation / Tour / Bridge / Duplex  
**Subject:** Continuous Galvanized Rebar (CGR) Integration

## Continued Education Topics:

- CGR is a specialized pure zinc alloy coating for construction projects featuring exceptional formability that complies with ASTM A1094/A1094M – 16. Because CGR is processed prior to fabrication, rebar can be staged in stock lengths prior to being released by fabrication resulting in a reliable and consistent supply chain.
- Value Proposition that distinguishes CGR technology
  - Logistical improvements since the rebar protective coating is processed prior to fabrication
  - Design flexibility with the ability to bend after fabrication without cracking or peeling
  - Chloride Threshold Level is improved 2-5 (x) with a Pure Zinc Metallurgical Bonded Coating
  - Does NOT require special grades of steel, and utilizes readily available standard uncoated bar
  - Economic Advantage as cost comparisons are minimal and typically  $\leq 10\%$
  - Proven field performance utilizing protection methods dating back over 300 years
  - Fabricated by any rebar fabricator without special equipment or additional handling
  - Design freedom with minimal impact on structural design as the splice/lap connections are standardized
  - Widely available from established distribution throughout North America
  - Can be stored outside in the weather without concern of deterioration
- Industry impacts that improve the worlds infrastructure that the next generation will inherit
  - New infrastructure is being designed and developed to handle increased population demands
  - North America is seeking sustainable solutions to overhaul and rehabilitate the existing infrastructure
  - Modernized techniques with proven technology to deliver the durability of a 100+ year design life
- Sustainability Features:
  - The manufacturing process is factory controlled free of VOC pollutants and hazardous air emissions
  - The automated process reduces the facility carbon footprint with improved operational efficiencies
  - The transportation and logistical advantages contribute to decreasing the embodied energy impacts
  - Zinc is the 24<sup>th</sup> most abundant mineral on earth
  - 30% of Zinc is repurposed from recycled sources
  - 100% recyclability of galvanized steel is an unrivaled benefit to minimizing environmental impact
  - The initial cost is the Life Cycle Cost (LCC) and Environmental Product Declarations (EPD) are available
- Design and Specification Highlights (03 21 00 REINFORCEMENT BARS)
  - ASTM A1094
    - Coating minimum (50 um) 2 Mil
    - Fabrication is performed after galvanizing without cracking
    - Shipping & Handling - Nationwide, truckload quantities
  - ASTM A767 Class II
    - Coating minimum (86 um) 3.4 Mil
    - Fabrication is performed after galvanizing / minor cracking and flaking of the coating in bend areas
    - Shipping & Handling - Limited local supply
  - ASTM A767 Class I
    - Coating minimum (150 um) 5.9 Mil
    - Fabrication not recommended after galvanizing
    - Shipping & Handling - Fabricate rebar, ship to galvanizer, return to fabricator, repeat
  - ASTM A780/A780M
    - Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings