

The 2019 ACI building code revision has been under review and in development with committees including engineers, designers, industry producers, users, contractors and academics for over five years and is expected to be put into place in late June. This marks the most comprehensive change to rebar specifications in the last three decades.

The changes that have been proposed and approved come in response to requests from the industry for higher strength rebar grades allowing for the freedom to design using more modern reinforcing products, and simultaneous requests for fewer grades to simplify building codes so they are easier to use. By aligning both these requirements, the new code ensures that higher grades always meet lower grade specifications, so the code is simplified by building on the requirements from the base up.

### Why the change?

The purpose of these revisions is to make it easier to complete construction projects using reinforced concrete while at the same time increasing construction options by allowing new, modern materials into the building code and improving public safety.

Fundamental changes to the ACI Building Code have not been adopted since the update in 1973. For the 2019 update, the entire building code has been evaluated to modernize and recalibrate current standards to include direction on designing with higher strength rebar, updated seismic criteria and to correct longstanding legacy issues with existing specifications. The new ACI building code allows the use of ASTM A615 Grade 100 and ASTM A1035 Grade 100 in all gravity load applications.

Two primary drivers of the change are the needed addition of Grade 80 & Grade 100 rebar into seismic design, and addressing the reduced need for weldability, due to modern mechanical couplers.

The new supplemental testing requirements at these levels result in a highly engineered material that necessitates more alloys, more testing and stricter requirements to meet.

**ASTM A615 Specification Changes** – A615 rebar is now an engineered product instead of a byproduct material, and the code changes are designed to support this shift:

- Going forward, there will be four grades – 40, 60, 80, 100.
- The specification for minimum tensile requirement on Grade 60 is being lowered to 80,000. The impact of this effectively means that all A706 bars will automatically qualify as a dual grade for A615 (even though the bar mark may not identify it as such).
- A minimum of 1.1 tensile to yield (T/Y) ratio is being added to the specification.

*Note:* In the past, fabricators could use A615 in place of A706 if it met all A706 mechanical requirements; going forward, due to the changes to testing requirements of A706, A615 Gr 80 and 100 will not be permissible to be used in place of A706.

When ordering ASTM A615 rebar, there will be no change in your material request. While the specification requirements of A615 are changing, the properties of the material are not changing.

**ASTM A706 Specification Changes** – with the increased use of mechanical couplers in the field, the need to weld this material has reduced greatly and the seismic qualities are now the primary property required.

- Going forward there will be two types of A706:
  - A706 Type D (for ductility) meets mechanical only requirements and will be available in Gr 80 and Gr 100
  - A706 Type W (for weldability) meets both chemical and mechanical requirements and will be available in Gr 60 and Gr 80 (*Note: A706 Gr 60W automatically meets requirements for A706 Gr 60D*)

**ASTM A1035 Specification** – No changes to the existing A1035 specification were required. All three types, CS, CM and CL Grade 100, will be allowed for use in all gravity load applications. For additional design safety factors, the A1035 specifications maintain a minimum of 1.25 tensile to yield (T/Y) ratio.

Also, there may be confusion in the field as building inspectors become familiar with the new codes. You may need to consult with your customer to get clarification from the project's engineer of record to ensure there are no delays if inspectors have questions.

Lastly, AASHTO has indicated that they intend to adopt the changes into their M31 specification, however they will not officially make the changes until after ASTM publishes their specifications. There will be an overlap period where specifications may vary until the changes are adopted by both AASHTO and ASTM. Once AASHTO adopts the changes, we will have universal bar specifications for the entire United States.

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