

# Specifying HRC 555 Headed Reinforcing Bars

V4 7/7/20



## **Introduction:**

This document has been prepared to address questions related to specifying HRC 555 headed bars in design documents, namely structural drawings and project specifications.

## **Project Specifications - Generic:**

In cases where HRC 555 headed reinforcing bars are desired over other products, but cannot be specifically identified by product/manufacturer, the following language can be considered for use in project specifications. This language would typically be found in section 03200 – Concrete Reinforcement. [Sample specifications are provided on page 2.](#)

- Headed reinforcing bars are deformed steel bars with a head attached to one or both ends. They may be used as a mechanical anchorage to develop reinforcing bars in tension as an alternate to standard hooks or development lengths of straight deformed reinforcement.
- Headed bar reinforcement must comply with ACI 318-11 section 3.5.9 and 12.6 / ACI 318-14 section 20.2.1.6 / 25.4.4.
- Headed bar reinforcement must comply with ASTM A970 and shall meet/exceed mechanical requirements of Class A and meet/exceed head bearing area requirements of Class HA and shall be capable of developing 100% of the specified tensile strength of the reinforcing bar.
- Heads bars shall be produced by integrally hot forging the head from the bar.
- Heads bars shall not be produced using a process that reduces the cross-sectional area of the bar.
- Head thickness shall not exceed the bar diameter.
- Head shall be permanently fixed to the bar.

**\*\*Note\*\*** The bar quality is as important as the headed product, and may affect the head-to-bar connection. Although HRC 555 headed bars can be used with A615 reinforcing bar, we recommend that A706 is specified for critical locations or areas of potential inelasticity.

**\*\*Note\*\*** Both the IBC and ACI 318 require headed bars to meet the Class HA head requirements of ASTM A970. Not all headed bars in the market today meet these requirements.

## **Project Specifications - Specific:**

In cases where HRC 555 headed reinforcing bars are desired over other products, and can be specifically identified by product/manufacturer, the following language can be considered for use in project specifications. This language would typically be found in section 03200 – Concrete Reinforcement. [Sample specifications are provided on page 2.](#)

- Headed reinforcing bars shall conform to requirements of ACI 318 and ASTM A970 as manufactured by Headed Reinforcement Corp.
- HRC 555 Series T-Head reinforcing bars manufactured by Headed Reinforcement Corp (HRC).

# Specifying HRC 555 Headed Reinforcing Bars

V4 7/7/20



## Sample Product Specifications

DIVISION: 03 00 00 – CONCRETE

SECTION: 03 21 00 – REINFORCING STEEL

### 1. General

#### 1.1 Summary

A. This section includes

a. Headed reinforcing bar systems for reinforcing bars

#### 1.2 Related Sections

A. The following sections are related to this section

a. Section 03 20 00 – Concrete Reinforcing

b. Section 03 30 00 – Cast-in-Place Concrete

#### 1.3 References

A. American Concrete Institute (ACI)

a. ACI 318: Building Code Requirements for Structural Concrete

B. American Society of Testing and Materials (ASTM)

a. ASTM A970: Standard Specification for Headed Steel Bars for Concrete Reinforcement

C. International Building Code (IBC)

a. 2006, 2009, 2012, 2015, 2018 International Building Code

D. International Code Council Evaluation Services (ICC-ES)

a. ESR-2935

E. Uniform Evaluation Services (IAPMO UES)

a. UES ER-177

### 2. Products

#### 2.1 Manufacturers

A. Acceptable manufacturers

a. Headed Reinforcement Corporation (HRC)

11200 Condor Ave, Fountain Valley, CA 92708

(714) 557-1455

[www.hrc-usa.com](http://www.hrc-usa.com)

[engineer@hrc-usa.com](mailto:engineer@hrc-usa.com)

B. Acceptable fabricators (HRC 555 headed bars)

a. HRC Approved Fabricators as certified and identified by HRC. Inquire with HRC for name, location, contact information of Approved Fabricators.

# Specifying HRC 555 Headed Reinforcing Bars

V4 7/7/20



## 2.2 Headed Reinforcing Bar Systems

### A. Forged Head

- a. HRC product: HRC 555 Headed Bars
- b. <https://www.hrc-usa.com/hrc-555-headed-rebar/>
- b. Reference IAPMO-UES ER-177 section 3.1 for detailed description

## 3. Installation

### 3.1 General

- A. Follow all manufacturer's recommendations and written instructions when installing reinforcing bar and/or headed reinforcing bars systems.

### 3.2 Installation

- A. HRC 555 Headed Bars
  - a. Reference IAPMO-UES ER-177 section 4.2

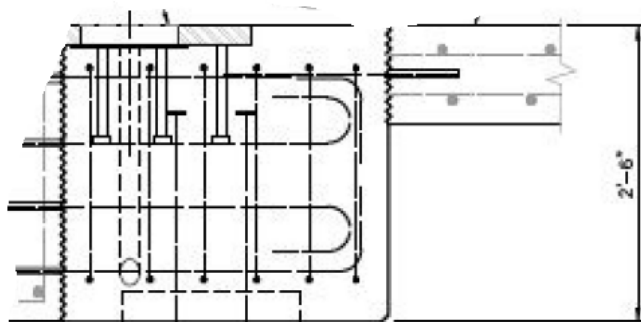
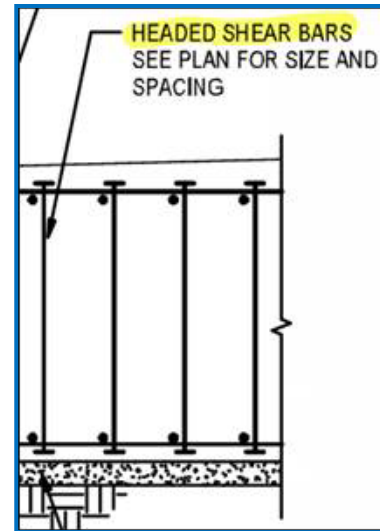
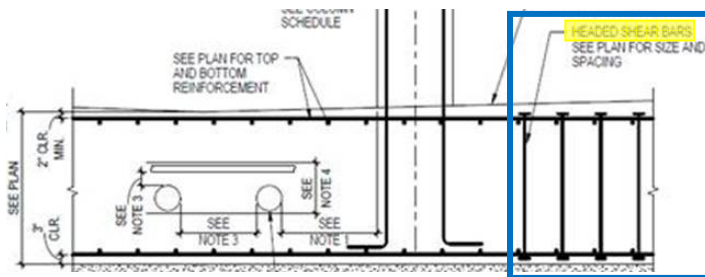
# Specifying HRC 555 Headed Reinforcing Bars



V4 7/7/20

## Structural Drawings - Generic:

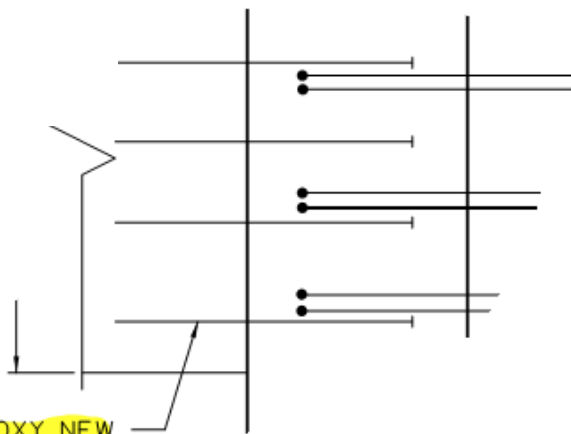
In cases where HRC 555 headed reinforcing bars are desired over other products, but cannot be specifically identified by product/manufacturer, the following details depict examples of how headed bars can be shown & called out on structural drawings.



NEW CONC PILE

#10 DOWELS  
EXTEND INTO PILE CAP  
1'-9" MIN., TERMINATE  
WITH HEAD

DRILLED & EPOXY NEW  
802 HEADED REBARS  
INTO EXIST. CAP



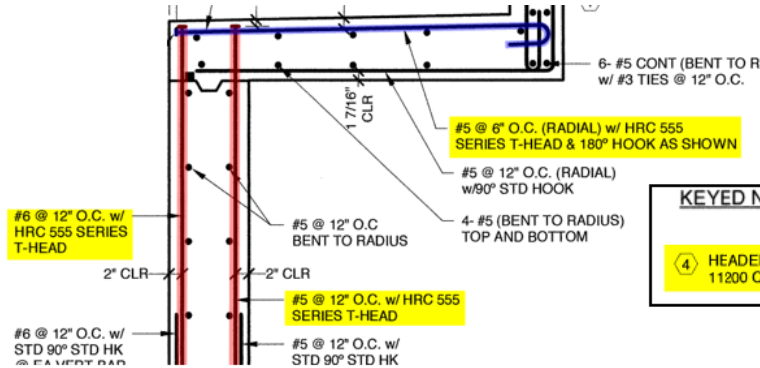
# Specifying HRC 555 Headed Reinforcing Bars

V4 7/7/20



## Structural Drawings - Specific:

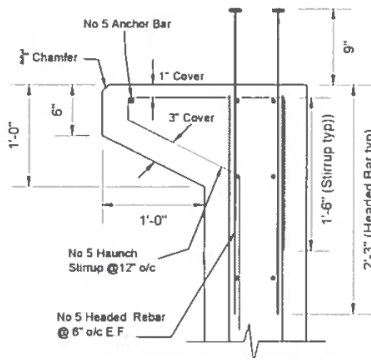
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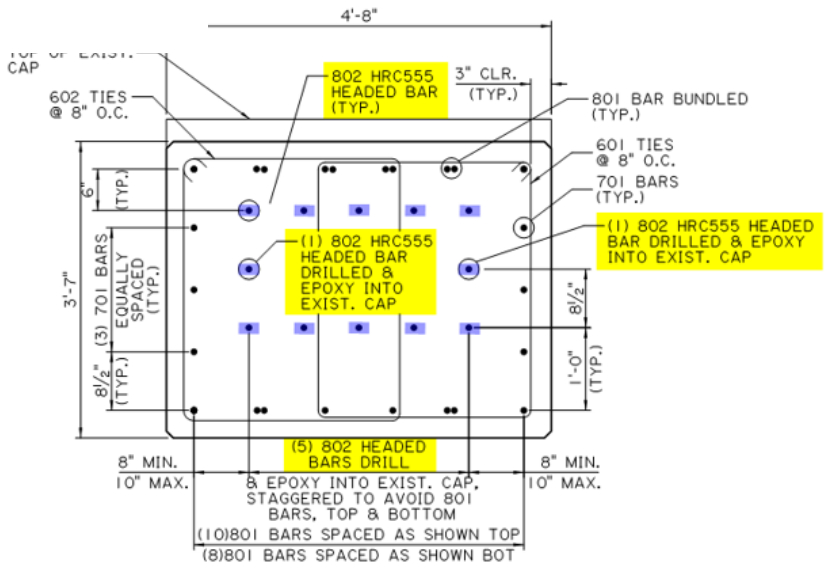
**KEYED NOTES:**

④ HEADED REINFORCEMENT BARS BY HEADED REINFORCEMENT CORP (HRC)  
11200 CONDOR AVE, FOUNTAIN VALLEY, CA 92708 (714)557-1455

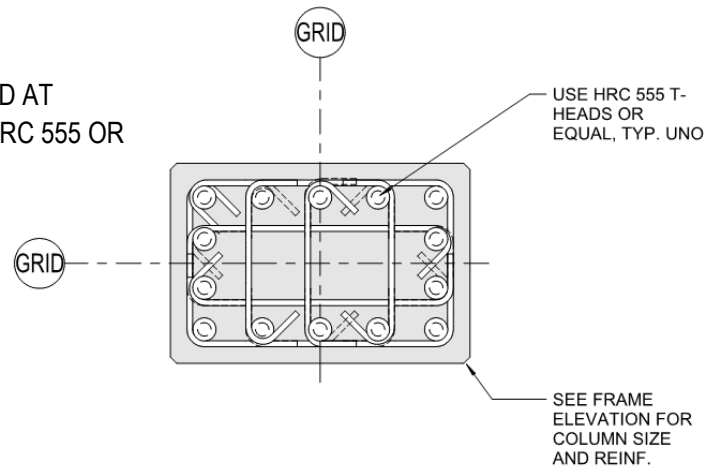
CORBEL DETAIL  
 $\frac{3}{4} = 1'-0"$



- Materials:**
- Concrete  $f'_c = 4,000$  psi
  - Reinforcing Steel Gr 60
  - Headed rebar - HRCC 555 No5 & No7 Bars
  - P52 Anchor (4 ton x 4- $\frac{1}{4}$ " )



5. STANDARD HOOKS OR T-HEADS MAY BE USED AT CONTRACTOR'S OPTION. UNO, T-HEADS ARE HRC 555 OR APPROVED EQUAL. SEE DETAIL (8/S6.2)



**Warning:**

HRC products are designed to meet and exceed the standards referenced in this document, but individual project specifications and quality control requirements apply. HRC destructively tensile tests finished products daily as part of our quality control, but cannot be responsible for material furnished by local fabricators and/or contractors using HRC related equipment or components. Aspects of structural design, evaluation of product fitness for use, suitability or similar attributes are the responsibility of others.