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**APPROVED U.S. MANUFACTURERS OF  
CONCRETE REINFORCING BARS**

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**AB STEEL MILL INC**

200 W. North Bend Road,  
Cincinnati, OH 45216  
Tel: 513.821.6400  
Fax 513.821.6915  
Web: [www.fredericksteel.com](http://www.fredericksteel.com)

**BAYOU STEEL CORP**

2404 Roane State Hwy  
Harriman, TN 37748  
Tel: (865) 882-5100  
Web: [www.bayousteel.com](http://www.bayousteel.com)

**CASCADE STEEL ROLLING MILLS, INC**

3200 Nt Highway 99W  
McMinnville, OR 97128  
Tel: 503-472-4181  
Fax: 503-434-5739  
Web: [www.csrml.com](http://www.csrml.com)

**CHICAGO HEIGHTS STEEL**

211 E. Main St  
Chicago Heights, IL 60411  
Tel: 708-756-5648  
Fax: 708-756-5628  
Web: [www.chs.com](http://www.chs.com)

**GERDAU AMERISTEEL – Charlotte, NC**

Charlotte Steel Mill Division  
6601 Lakeview Road  
Charlotte, NC 28269  
Tel: 704-596-0361  
Fax: 704-597-5031  
Web: [www.gerdauameristeel.com](http://www.gerdauameristeel.com)

**GERDAU AMERISTEEL – Baldwin, FL**

Jacksonville Steel Mill Division  
Highway 217 & Yellow Water Road  
Baldwin, FL 32234  
Tel: 904-266-4261  
Fax: 904-266-4244  
Web: [www.gerdauameristeel.com](http://www.gerdauameristeel.com)

**GERDAU AMERISTEEL – Knoxville, TN**

Knoxville Steel Mill Division  
1919 Tennessee Avenue NW  
Knoxville, TN 37921  
Tel: 865-546-5472  
Fax: 865-637-8293  
Web: [www.gerdauameristeel.com](http://www.gerdauameristeel.com)

**GERDAU AMERISTEEL – Jackson, FL**

West Tennessee Steel Mill Division  
801 Gerdau AmeriSteel Road  
Jackson, TN 38305  
Tel: 901-424-5600  
Fax: 901-422-4247  
Web: [www.gerdauameristeel.com](http://www.gerdauameristeel.com)

**GERDAU AMERISTEEL – St. Paul, MN**

St. Paul Mill  
1678 Red Rock Road  
St. Paul, MN 55119  
Tel: 651-731-5600  
Fax: 651-731-5699  
Web: [www.gerdauameristeel.com](http://www.gerdauameristeel.com)

**GERDAU AMERISTEEL – Beaumont, TX**

Beaumont Mill  
100 Old Highway 90 West  
Vidor, TX 77662  
Tel: 409-768-1211  
Fax: 409-769-1978  
Web: [www.gerdauameristeel.com](http://www.gerdauameristeel.com)

**GERDAU AMERISTEEL – Sand Springs, OK**

2300 South Highway 97  
Sand Springs, OK 74063  
Tel: 918-245-1335  
Fax: 918-245-9343  
Web: [www.gerdauameristeel.com](http://www.gerdauameristeel.com)

**GERDAU AMERISTEEL – Perth Amboy, NJ**

225 Elm Street  
Perth Amboy, NJ 08862  
Tel: 732-442-1600  
Fax: 732-442-3957  
Web: [www.gerdauameristeel.com](http://www.gerdauameristeel.com)

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**GERDAU AMERISTEEL – Wilton, IA**

1500-2500 West 3<sup>rd</sup> St  
Wilton, IA 52778  
Tel: 563-732-3231  
Fax: 563-732-4587  
Web: [www.gerdauameristeel.com](http://www.gerdauameristeel.com)

**GERDAU AMERISTEEL – Sayreville, NJ**

North Crossman Rd  
Sayreville, NJ 08872  
Tel: 732-721-6600  
Fax: 732-721-8784  
Web: [www.gerdauameristeel.com](http://www.gerdauameristeel.com)

**NUCOR STEEL BIRMINGHAM, INC.**

Alabama Steel Division  
2301 Shuttlesworth Drive  
Birmingham, AL 35234  
Fax: 205-250-7465  
Tel: 800-444-8777  
Web: [www.nucor.com](http://www.nucor.com)

**NUCOR STEEL CONNECTICUT, INC.**

35 Toelles Road  
Wallingford, CN 06492  
Tel: 203-265-0615  
Fax: 203-284-8215  
Web: [www.nucor.com](http://www.nucor.com)

**NUCOR STEEL KANKAKEE, INC.**

Illinois Steel Division, Kankakee Plant  
One Nucor Way  
Bourbonnais, IL 69014  
Tel: 815-937-3131  
Fax: 815-939-5599  
Web: [www.nucor.com](http://www.nucor.com)

**NUCOR STEEL JACKSON, INC.**

Mississippi Steel Division  
3630 Fourth Street  
Flowood, MS 39232  
Tel: 601-939-1623  
Fax: 601-936-6202  
Web: [www.nucor.com](http://www.nucor.com)

**NUCOR STEEL SEATTLE, INC.**

2424 SW Andover  
Seattle, WA 98106  
Tel: 206-933-2222  
Fax: 206-933-2207  
Web: [www.nucor.com](http://www.nucor.com)

**NUCOR STEEL MARION, INC.**

912 Cheney Avenue  
Marion, OH 43302  
Tel: 740-383-4011  
Fax: 740-383-6429  
Web: [www.nucor.com](http://www.nucor.com)

**NUCOR STEEL DARLINGTON, INC**

300 Steel Mill Road  
Darlington, SC 29540  
Tel: 843-393-5841  
Fax: 843-395-8741  
Web: [www.nucor.com](http://www.nucor.com)

**NUCOR STEEL JEWETT, INC**

8812 Highway 79 West  
Jewett, TX 75846  
Tel: 903-626-4461  
Fax: 903-626-6290  
Web: [www.nucor.com](http://www.nucor.com)

**NUCOR STEEL PLYMOUTH, INC.**

West Cemetery Road  
Plymouth, UT 84330  
Tel: 435-458-2300  
Fax: 435-458-2309  
Web: [www.nucor.com](http://www.nucor.com)

**NUCOR STEEL AUBURN, INC.**

Auburn Division  
25 Quarry Road  
Auburn, NY 13021  
Tel: 315-253-4561  
Fax: 315-253-8441  
Web: [www.nucor.com](http://www.nucor.com)

**ROCKY MOUNTAIN STEEL MILL**

P.O. Box 1830  
Pueblo, CO 81002  
Tel: 719-561-7019  
Fax: 719-561-7256  
Web: [www.osm.com](http://www.osm.com)

**COMMERCIAL METALS COMPANY (CMC)**

Arkansas Mill  
PO Box 1147  
Magnolia, AR 71754  
Tel: 800-258-0022  
Fax: 800-235-9296  
Web: [www.commercialmetals.com](http://www.commercialmetals.com)

**COMMERCIAL METALS COMPANY (CMC)**

Texas Mill  
PO Box 911  
Seguin, TX 78156  
Tel: 830-372-8200  
Fax: 830-379-9873  
Web: [www.commercialmetals.com](http://www.commercialmetals.com)

**COMMERCIAL METALS COMPANY (CMC)**

South Carolina Mill  
310 New State Road  
Cayce, SC 29033  
Tel: 803-936-3700  
Fax: 803-936-3711  
Web: [www.commercialmetals.com](http://www.commercialmetals.com)

**TAMCO STEEL**

12459-B Arrow Highway  
Rancho Cucamonga, CA 91739  
Tel: 909-899-0660  
Fax: 909-899-1910  
Web: [www.tamcosteel.com](http://www.tamcosteel.com)

**CHAPARRAL STEEL**

300 Ward Road  
Midlothian, TX 76065  
Tel: 972-299-5212  
Web: [www.chaparralsteel.com](http://www.chaparralsteel.com)

**ASTM STANDARD REINFORCING BARS**

English Bar Size	Diameter (inches)	Metric Bar Size	Diameter (mm)
#3	0.375	#10	9.5
#4	0.500	#13	12.7
#5	0.625	#16	15.9
#6	0.750	#19	19.1
#7	0.875	#22	22.2
#8	1.000	#25	25.4
#9	1.128	#29	28.7
#10	1.270	#32	32.3
#11	1.410	#36	35.8
#14	1.693	#43	43.0
#18	2.257	#57	57.3

**ASTM STANDARD REINFORCING CONVERSION BAR SIZE & GRADE CHARTS**

<u>SIZE</u>			<u>GRADE</u>	
<u>English</u>	=	<u>Metric</u>	<u>English</u>	<u>Metric</u>
#3	=	#10	Grade 40	300 MPa
#4	=	#13	Grade 60	420 MPa
#5	=	#16	Grade 75	520 MPa
#6	=	#19		
#7	=	#22		
#8	=	#25		
#9	=	#29		
#10	=	#32		
#11	=	#36		
#14	=	#43		
#18	=	#57		

**Material Specifications for Reinforcing Bars**

**Mechanical Requirements for Standard ASTM deformed reinforcing bars**

ASTM	Bar No. Range	Grade	Min. Yield Strength Kpsi	Min. Tensile Strength Kpsi	Chemical Composition, Element Max % per heat	Chemical Composition, Element Max % per Verification	Chemical Analysis of Elements	Notes
A615	3-6	40	40	60	Phosphorus 0.06	Phosphorus 0.075	Carbon, Manganese, Phosphorus, Sulfur	
	3-11, 14, 18	60	60	90				
	6-11, 14, 18	75	75	100				
A706	3-11, 14, 18	60	60	80	Carbon 0.30 Manganese 1.50 Phosphorus 0.035 Sulfur 0.045 Silicon 0.50	Carbon 0.33 Manganese 1.56 Phosphorus 0.043 Sulfur 0.053 Silicon 0.55	Carbon, Manganese, Sulfur, Phosphorus, Silicon, Copper, Nickel, Chromium, Molybdenum	*Tensile strength shall not be less than 1.25 times the actual Yield strength. *Maximum Yield Strength 78,000 psi

ASTM	Grade	Bar No. Range	% Elongation in 8 inches	Cold Bend Test Pin diameter. D = nominal diameter of test specimen
A615	40	No 3	11	3.5D
		No 4, No 5, No 6	12	3.5D, 3.5D, 5D
	60	No 3, No 4, No 5, No 6	9	3.5D, 3.5D, 3.5D, 5D
		No 7, No 8	8	5D, 5D
		No 9, No 10, No 11, No 14, No 18	7	7D, 7D, 7D, 9D, 9D
	75	No 6, No 7, No 8	7	
		No 9, No 10, No 11, No 14, No 18	6	
A706	60	No 3, No 4, No 5, No 6	14	3D, 3D, 3D, 4D
		No 7, No 8, No 9, No 10, No 11	12	4D, 4D, 6D, 6D, 6D
		No 14, No 18	10	8D, 8D

### Bar Deformation Requirements

Bar No. US [Metric]*	Max Ave. Spacing	Min. Ave. Height	Max Gap (Chord of 12.5 % of Nominal Perimeter)
3 [10]	0.262 [ 6.7]	0.015 [0.38]	0.143 [ 3.6]
4 [13]	0.350 [ 8.9]	0.020 [0.51]	0.191 [ 4.9]
5 [16]	0.437 [11.1]	0.028 [0.71]	0.239 [ 6.1]
6 [19]	0.525 [13.3]	0.038 [0.97]	0.286 [ 7.3]
7 [22]	0.612 [15.5]	0.044 [1.12]	0.334 [ 8.5]
8 [25]	0.700 [17.8]	0.050 [1.27]	0.383 [ 9.7]
9 [29]	0.790 [20.1]	0.056 [1.42]	0.431 [10.9]
10 [32]	0.889 [22.6]	0.064 [1.63]	0.487 [12.4]
11 [36]	0.987 [25.1]	0.071 [1.80]	0.540 [13.7]
14 [43]	1.185 [30.1]	0.085 [2.16]	0.648 [16.5]
18 [57]	1.58 [40.1]	0.102 [2.59]	0.864 [21.9]

\*Bar numbers are based on the number of eighths of an inch included in the nominal diameter of the bars [bar numbers approximate the number of millimetres of the nominal diameter of the bar].