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**MAXIMUM ALLOWABLE LOAD FOR  
10 GAGE AND 12 GAGE WIRES**

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**IR 25-1**

Reference: California Building Code, Section 2501A.5

Issued 9-1-99  
Revised 4-21-05  
Supercedes IR M-2 (9-99)

This interpretation is intended for use by the plan review and field engineers of DSA to indicate an acceptable method for achieving compliance with applicable codes and regulations. Its purpose is to promote more uniform statewide criteria for use in plan review and supervision of construction of public schools, community colleges and essential services buildings. Other methods proposed by design professionals to solve a particular problem may be considered by DSA and reviewed for code and regulation compliance.

**Purpose:** The purpose of this IR is to provides allowable loads for mild steel wire.

**1. Description.** "Galvanized soft annealed mild steel wire," as defined in the CBC, Section 2501A.5, is the wire referred to in this IR.

**2. Basis of Design Strength.** Based on tests which the Division of the State Architect (DSA) has received to-date for this type of wire, an ultimate stress of 60,000 psi will be used for #10 gage and #12 gage wire.

**3. Design Value.** Basic stress will be the ultimate stress divided by 2.5, or 24,000 psi. Testing is not required when these values are used.

**4. Diameter of Wire.** #10 wire is 0.135 inches in diameter and a #12 wire is 0.1055 inches in diameter as shown by the U.S. Steel Wire Gage.

**5. Allowable Load.**

Wire Size	Basic Load
#10 wire	343 lbs.
#12 wire	209 lbs.

**6. Fabrication.** When using twists on wire to develop the maximum allowable load, use a minimum of 4 twists within 1½". Three twists may be used to develop not more than one half the above values.

**7. Limitations.**

**7.1** These values are for tension only. Tearing of thin metal by wire must be considered.

**7.2** If the specification requires a special wire such as a wire meeting Federal Specification FS-QQ-W-261g, Finish 5, Class 1, soft temper with an ultimate stress of 70,000 psi for #10 wire and 75,000 psi for #12 wire, a proportionately higher allowable value may be used.