



# Facilities Planning and Construction

## Design and Construction Standards



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minimum (uality re(uirements' esign Professionals are encouraged to identify and include e(uivalent #roducts and/or manufacturers o!!ering com#arable #roducts to !acilitate o#en bidding environments'

Pre#aration o! construction documents, design calculations, geotechnical investigations and other structural analysis are to be #er!ormed by, or under the su#ervision o! a (ualified Professional ,ngineer registered in the State o! Texas' The Structural ,ngineer o! .ecord must be legally (ualified to #ractice the engineering services re(uired !or the #roject'

Texas Tech )ill engage a (ualified inde#endent testing and ins#ecting agency to #er!orm tests and ins#ections on rein!orcement steel !or concrete !oundations and structural steel \$!ield1 )elded and bolted connections%' S#ecial testing may include but is not limited to visual, ultrasonic \$UT%, x!ray, or radiogra#hic' Third!#arty inde#endent testing and ins#ecting does not #reclude the Structural ,ngineer o! .ecord !rom !ulfilling their obligation to revie ) construction #rogress !or con!ormance to design re(uirements and acce#tance to (uality'

Steel !abrication is to be #er!ormed by a (ualified !abricator )ith a minimum o! live \$7% years o! documented ex#erience' Steel !abricators are re(uired to #artici#ate in the \*-SC 8uality Certification Program and is designated an \*-SC Certified Plant, Category ST ' ,xce#tions may be granted by Facilities Planning and Construction il the a )arded steel !abricator has a demonstrated history o! #er!ormance )ith Facilities Planning and Construction'

S#ecify steel erection to be #er!ormed by a (ualified erector )ith a minimum o! 7 years documented ex#erience' .elferences )ill be made available u#on re(uest'

8uality #rocedures and #ersonnel according to \* 9 S 1'10 1'1 " , Structural 9 elding Code 1 Steel, \* 9 S 1'60 1'6 " , Structural 9 elding Code 1 \*luminum, and \* 9 S 1': , Structural 9 elding Code 1 Stainless Steel, and \* 9 S 1'; Structural 9 elding Code < Sheet Steel'



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magnetic #article, or ultrasonic testing'

Structural Steel Fabricate and assemble in sho# to greatest extent #ossible' Fabricate according to \*-SC ;=;, Code o! Standard Practice !or Steel 2uildings and 2ridges, and to \*-SC ;:= S#ecification !or Structural Steel 2uildings' 8 uality !abricators and their #lant according to the re(uirements o! \*-SC 8 uality Certification Program and \*-SC1Certified Plants'

9 elding Procedure S#ecifications \$9 PSs% and Procedure 8 ualification . econds \$P8 . s% Provide according to \* 9 S 1'10 1'1 ", Structural 9 elding Code 1 Steel, !or each ) elded joint' 9 elder's certifications are re(uired to be submitted'

-! re(uired by the esign Professional, structural steel #rimer #aint is to be !abricator's standard lead and chromate !ree, non!as#haltic, rust!inhibiting red 4inc!oxide #rimer' The Construction " anager is re(uired to #er!orm #aint touch!u# in the !ield as re(uired' Paint com#atibility certificate are re(uired'

Balvani4e steel, masonry shel! angles and lintels as ex#osure dictates' \* ##ly 4inc coating by the hot!di# #rocess to structural and su##ort steel according to \* ST " \* 16;0\* 16; " ' Provide galvanizing re#air #aint to meet \* ST " \* DEA=' Shel! angles and lintels are not to be #ainted to avoid long term maintenance costs'

\* #reinstallation conference is re(uired to be #er!ormed #rior to start o! steel erection'

8 uality steel erectors according to the \*-SC 8 uality Certification Program' -nstallers must be a designated \*-SC1Certified , rector, or must be a##roved by Texas Tech, in advance, based on a #roven #er!ormance record to Texas Tech'

Brout to be nonmetallic, Shrin/age1 . esistant Brout! \* ST " C 11=D, !actory!#ac/aged, nonmetallic aggregate grout, noncorrosive and non!staining, mixed )ith ) ater to consistency suitable !or a##lication and a ;=1minute ) or/ing time' Brout strength to be s#ecified by esign Professional' Third!#arty strength testing is re(uired'

Per 3S+ \* 1A6: . egulations, steel erectors shall not erect steel unless it has received ) ritten notification that the concrete in the !ootings, #iers, and ) alls or the mortar in the masonry #iers

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and ) all has attained, on the basis of an appropriate "AST" standard test method of field-cured samples, either 75 percent of the intended minimum compressive design strength or sufficient strength, as dictated by the Structural Engineer of Record, to support the loads imposed during steel erection'

Structural Performance Provide special joists and connections capable of withstanding design loads as designed and indicated by the Structural Engineer of Record'

Quality Assurance Steel joist framing manufacturers must be certified by the Steel Joist Institute (SJI) to manufacture joists complying with applicable standard specifications and load tables in SJI's Specifications, Standard Specification for Composite Steel Joists, C1 Series, and/or Standard Specifications for Composite Steel Joists, 9th Edition Tables and Bridging Tables, Code of Standard Practice, as applicable. Manufacturer's responsibilities include providing professional engineering services for designing special joists to comply with performance requirements'

Quality field welding procedures and personnel according to AWS D1.1, Structural Welding Code for Steel'

Deliver, store, and handle joists as recommended in SJI's Specifications. Protect joists from corrosion, deformation, and other damage during delivery, storage, and handling'

Installation A pre-installation conference is required to be performed prior to start of installation of the joists'

Examine supporting substrates, embedded bearing plates, and abutting structural framing for compliance with requirements for installation tolerances and other conditions affecting performance of the joists. Proceed with installation only after unsatisfactory conditions have been corrected'





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Installation \* Reinstallation conference is required to be performed prior to start of installation of the 9 or/1 Cold-formed metal framing may be shop or field fabricated for installation, or it may be field assembled'

, examine supporting substrates, embedded bearing plates, and abutting structural framing for compliance with requirements for installation tolerances and other conditions affecting performance of the 9 or/1 Proceed with installation only after unsatisfactory conditions have been corrected' Install cold-formed metal framing according to AISI's Standard for Cold-Formed Steel Framing, General Provisions, and to manufacturer's written instructions unless more stringent requirements are indicated'





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Quality Assurance Testing Agency (qualified according to ASTM A 6A for testing indicated)

Provide mill certificates or data from a qualified independent testing agency indicating steel

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This section encompasses metal fabrications related to elevator hoist beams, steel framing and supports for miscellaneous construction toilet partitions, operable partitions, overhead and coiling doors, counters, partial height partitions, mechanical/electrical equipment, shell angles, lintels, elevator pit ladders, safety ladders, alternating tread devices, stairs ladders, elevator pit sum covers, abrasive stair nosings, miscellaneous steel trims and guard, steel bollards, metal grates, and other metal fabricated specialties'

Performance Requirements, engage a qualified professional engineer or delegated design ladders and alternating tread devices'

\* aluminum ladders, including landings, shall withstand the effects of loads and stresses within limits and under conditions specified in \*FS- 1>';'

Quality Assurance Quality welding procedures and personnel according to \* 9S 1'10 1'1 ", Structural Welding Code < Steel \* 9S 1'60 1'6 ", Structural Welding Code < \*aluminum \* 9S 1':0 1': ", Structural Welding Code 1 Stainless Steel'

Provide materials with smooth, flat surfaces unless otherwise indicated' For metal fabrications exposed to view in the completed work, provide materials without seam marks, roller marks, rolled trade names, or blemishes'

\* Allow for thermal movements from ambient and surface temperature changes acting on exterior metal fabrications by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects'

Preassemble items in the shop to greatest extent possible' disassemble units only as necessary for shipping and handling limitations' Use connections that maintain structural value of joined pieces' Clearly mark units for reassembly and coordinated installation'

Unless otherwise indicated, fasteners, bolts, and bolting hardware shall be of the same metal material as the fabricated metal component'

\* void specifying dissimilar metals that must be in contact with one another to prevent galvanic

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<http://scoo.com>

Installation \* #reinstallation conference is re(quired to be #er!ormed #rior to start o! installation o! the 9 or/'

Per!orm cutting, drilling, and !itting re(quired !or installing metal !abrications' Set metal !abrications accurately in location, alignment, and elevation# ) ith edges and sur!aces level, #lumb, true, and !ree o! rac/# and measured !rom established lines and levels'

Fit ex#osed connections accurately together to !orm hairline !oints' 9 eld connections that are not to be le!t as ex#osed !oints but cannot be sho# ) elded because o! shi##ing si4e limitations' o not ) eld, cut, or abrade sur!aces o! exterior units that have been hot di# galvani4ed alter !abrication and are !or bolted or scre ) ed !ield connections'

Coat concealed sur!aces o! aluminum that come into contact ) ith grout, concrete, masonry, ) ood, or dissimilar metals ) ith bituminous #aint \$cast aluminum% or t ) o coats o! clear lac(uer \$extruded aluminum%'





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