SECTION 05400
COLD FORMED METAL FRAMING

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Load bearing formed steel stud interior wall and other framing not for exterior walls or roof structures.
B. Formed steel joist, purlins, slotted channel and miscellaneous framing and bridging.

1.2 REFERENCES

A. AISI - American Iron and Steel Institute - Cold-Formed Steel Design Manual.
B. ASTM A123 - Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
C. ASTM A446 - Steel Sheet, Zinc-Coated (Galvanized) by Hot Dip Process, Physical (Structural) Quality
D. ASTM A525 - Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process
E. ASTM A570 - Hot-Rolled Carbon Steel Sheet and Strip (Structural Quality).
F. ASTM A611 - Steel, Cold-Rolled Sheet, Carbon, Structural
G. ASTM A645 - Steel Sheet, Pressure Vessel Plates, Five Percent Nickel Alloy Steel, Specially Heat Treated.
H. ASTM C955 - Load-Bearing (Transverse and Axial) Steel Studs, Runners (Track), and Bracing or Bridging for Screw Application of Gypsum Board and Metal Plaster Bases.
I. AWS D1.1 - Structural Welding Code
J. AWS D1.3 - Light Steel Welding Code
K. SSPC (Steel Structures Painting Council) - Steel Structures Painting Manual.
L. Florida Building Code.
M. MFMA (Metal Framing Manufactures Association) - Guidelines for the Use of Metal Framing.
N. ASCE 7-98 – Wind loads.

1.3 SYSTEM DESCRIPTION

A. Design wall system to provide for movement of components without damage, failure of joint seals, undue stress on fasteners, or other detrimental effects when subject to seasonal or cyclic day/night temperature ranges.
B. Design system to accommodate construction tolerances, deflection of building structural members, and clearances of intended openings.

1.4 SUBMITTALS

A. Submit under provisions of Section 01300.
B. Shop Drawings: Indicate component details, framed openings, bearing, anchorage, loading, welds, type and location of fasteners, and accessories or items required of related work. The same specialty engineer shall certify the erection and fabrication plan.
C. Indicate stud, floor joist, ceiling joist, roof joist, roof rafter, roof truss and layout.
D. Describe method for securing studs to tracks and for bolted or welded, screwed framing connections.
E. Provide calculations for loadings and stresses of specially fabricated framing and roof trusses under the Professional Structural Engineer's seal, licensed in Florida.

F. Product Data: Provide data on standard framing members; describe materials and finish, product criteria and limitations.
G. Manufacturer's Installation Instructions: Indicate special procedures, perimeter conditions requiring special attention.

1.5 REGULATORY REQUIREMENTS

A. Light gage metal framing shall be designed in accordance with the Florida Building Code, and AISI "Specifications for the Design of Cold-Formed Steel Structural Members."
B. Wind loads shall be in accordance with ASCE 7-98
C. Interior partitions shall be designed for a minimum of 5 PSF. No stress increase allowed.

1.6 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum five years documented experience.
B. Installer: Company specializing in performing the work of this section with minimum three years documented experience.
C. Design structural elements under direct supervision of a Professional Structural Engineer experienced in design of this Work and licensed in the State of Florida.

1.7 MOCKUP

A. Provide mockup of exterior framed wall including insulation, sheathing, window frame, doorframe, and interior and exterior finish specified in other sections, under provisions of Section 01400.
B. Mockup Size: 6' x 4' including corner condition.
C. Mockup may not remain as part of the Work.

1.8 FIELD MEASUREMENTS

A. Verify that field measurements are as indicated on shop drawings.

1.9 COORDINATION

A. Coordinate work under with other trades as necessary.
B. Coordinate with the placement of components within the stud framing system.

PART 2 PRODUCTS

2.1 ACCESSORIES

A. Bracing, Furring, Bridging: Formed sheet steel, thickness determined for conditions encountered.
B. Plates, Gussets, Clips: Formed sheet steel, thickness determined for conditions encountered.
C. Shop and Touch-up Primer: SSPC - Paint 15, Type 1, red oxide.
D. Touch-Up Primer for Galvanized Surfaces: SSPC - Paint 20 Type I Inorganic.

2.2 FASTENERS

A. Self-drilling, Self-tapping Screws, Bolts, Nuts and Washers: ASTM A123, hot dip galvanized to 1.25 oz/sq ft.
B. Anchorage Devices: Power-actuated, drilled expansion bolts and screws with sleeves.
C. Welding: In conformance with AWS D1.1 and AWS D1.3

2.3 FABRICATION

A. Fabricate assemblies of framed sections of sizes and profiles required; with framing members fitted, reinforced, and braced to suit design requirements.
B. Fit and assemble in largest practical sections for delivery to site, ready for installation.

2.4 FINISHES

A. Studs: Galvanize to G90 coating class. Prime paint.
B. Tracks and Headers: Galvanize to G90 coating class. Prime paint.
C. Joists and Purlins: Galvanize to G90 coating class. Prime paint.
D. Bracing, Furring, Bridging: Same finish as framing members. Prime paint.
E. Plates, Gussets, Clips: Same finish as framing members. Prime paint.
F. Plates, Gussets, Clips: Same finish as framing members. Prime paint.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify site conditions under provisions of Section 01040.
B. Verify that substrate surfaces and building framing components are ready to receive work.

3.2 ERECTION OF STUDDING

A. Install components in accordance with manufacturer's instructions.
B. Align floor and ceiling tracks; locate to partition layout. Secure in place with fasteners. Coordinate installation of sealant with floor and ceiling tracks.
C. Place studs not more than 2" from abutting walls and at each side of openings. Connect studs to tracks using fasteners.
D. Construct corners using minimum three studs. Double stud wall openings; door and window jambs.
E. Erect load bearing studs one-piece full length. Splicing of studs is not permitted.
F. Erect load-bearing studs, brace, and reinforce to develop full strength, to achieve design requirements.
G. Coordinate placement of insulation in multiple stud spaces made inaccessible after erection.
H. Install intermediate studs above and below openings to align with wall stud spacing.
I. Provide deflection allowance in stud track, directly below horizontal building framing at non-load bearing framing.
J. Attach cross studs and furring channels to studs for attachment of fixtures anchored to walls.
K. Install framing between studs for attachment of mechanical and electrical items, and to prevent stud rotation.
L. Touch-up field welds and damaged galvanized and primed surfaces with primer.

3.3 ERECTION OF JOISTS PURLINS

A. Install framing components in accordance with manufacturer's instructions.
B. Make provisions for erection stresses. Provide temporary alignment and bracing.
C. Place joists and purlins not more than 2" from abutting walls. Connect joists to supports using fastener method.
D. Set floor and ceiling joists parallel and level with lateral bracing and bridging.
E. Locate joist end bearing directly over load bearing studs or provide load-distributing member to top of stud track.
F. Provide web stiffeners at reaction points.
G. Touch-up field welds and damaged galvanized and primed surfaces with primer.

END OF SECTION