



This master specification is intended for use in the preparation of a project specification section covering CEMCO Non- Structural Metal Framing. These products are manufactured by California Expanded Metal Products Company (CEMCO). Revise section number and titles below to suit project requirements, specification practices and section content.

SECTION 09 2216 NON-STRUCTURAL METAL FRAMING

PART 1- GENERAL

1.1 SUMMARY

- A. Section Includes: Non-Structural Cold-Formed Metal Framing for:
1. Interior non-load bearing steel studs for wall assemblies.
 2. ViperStud™ Drywall Framing System Products.
 3. Slotted Track assemblies (CST and FAS).
 4. Vertical slotted top track for use with nonstructural and structural steel stud framing.
 5. Interior ceiling joist framing.
 6. Area Separation and shaft wall framing products
 7. Furring Channel (Hat Channel).
 8. Z-Furring Channel.
 9. Angles and Flat Strap
 10. ProX Header

Coordinate the following paragraphs with other sections in the project manual.

- B. Related Sections: **** NOTE TO SPECIFIER **** *Delete references below not relevant to this project, add others as required.*

1. Division 01: Administrative, procedural, and temporary work requirements.
2. Section [05 4200 - Cold-Formed Metal Framing:] [__ ____ - ____:]; Steel stud, joist and track framing systems.
3. Section [05 5000 - Metal Fabrications:] [__ ____ - ____:]; Steel sheet for shear walls.
4. Section [06 1643 - Gypsum Sheathing:] [__ ____ - ____:]; Gypsum sheathing for shear walls.
5. Section [07 8400 – Fire Stopping:] [__ ____ - ____:]; Intumescent Fire-Resistive strips. Firestopping.
6. Section [09 2213 - Metal Furring:] [__ ____ - ____:]; Furring for interior [drywall] [and] [plaster].
7. Section [09 2216 - Non-Structural Metal Framing:] [__ ____ - ____:]; Non-load bearing interior partition framing.
8. Section [09 2300 - Gypsum Plastering:] [__ ____ - ____:]; Interior gypsum plastering.
9. Section [09 2900 - Gypsum Board:] [__ ____ - ____:]; Interior [gypsum board] [shaft walls] [and] [area separation walls].

1.2 REFERENCES

- A. American Iron and Steel Institute (AISI): (www.steelframing.org)
1. AISI S100-07 - North American Specification for the Design of Cold-Formed Steel Structural Members.
 2. AISI/S200 - AISI Standard / Standard for Cold-Formed Steel Framing - General Provisions, 2007 Edition with Commentary.
 3. AISI S201-07 - AISI Standard / North American Standard for Cold-Formed Steel Framing - Product Data, 2007 Edition.
 4. AISI/S212-07 - AISI Standard / Standard for Cold-Formed Steel Framing - Header Design, 2007 Edition with Commentary.
 5. AISI/S213-07 - AISI Standard / Standard for Cold-Formed Steel Framing - Design, 2007 Edition with Commentary.
 6. AISI/S211-07 - AISI Standard / Standard for Cold-Formed Steel Framing - Wall Stud Design, 2007 Edition with Commentary.
 7. AISI/COS 2007 - AISI Standard / Standard for Cold-Formed Steel Framing - Prescriptive Method for One and Two Family Dwellings, 2007 Edition.
- B. ASTM International (ASTM):
1. A653/A653M-09 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot-Dip Process.
 2. A780-01(2006) - Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.
 3. A 924/A924M- Standard Specification for General Requirements for steel sheet, Metallic-Coated by Hot-Dip Process.
 4. A 1003/A1003M – Standard Specification for Steel Sheet, Carbon, Metallic- and Nonmetallic-Coated for Cold-Formed Framing Members.
 5. C645 - Standard Specification for Nonstructural Steel Framing Members.
 6. C754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.
 7. C1002 – Standard Specification for Steel Self-Piercing Tapping Screw for the Application of Gypsum Panel products or Metal Plaster Bases to Wood Studs or Steel Studs.
 8. C1513 – Standard Specification for Steel Tapping Screws for Cold-Formed Steel Framing Connections.
 9. E119 – Standard Test Methods for Fire Tests of Building Construction Materials.
 10. E 1966 – Standard Test Method for Fire-Resistive Joint Systems.

1.3 SYSTEM DESCRIPTION

- A. Design Requirements:
1. Design steel in accordance with AISI S100-07 unless otherwise indicated.
 2. Design loads: As indicated on the Drawings.
 - a. Interior wall partitions: 5 psf minimum design lateral load required by the building code.
 - b. Shaft wall framing minimum design lateral load of [5 psf.] [7.5 psf.] [10 psf.]
 3. Design framing systems to withstand design loads without maximum deflections [L/120.] [L/240.] [L360.]
 4. Provide for movement of framing members without damage or

overstressing, sheathing failure, connection failure, undue strain on fasteners and anchors, or other detrimental effects when subject to ambient temperature range of 120 degrees F.

5. Design framing system shall accommodate deflection of primary building structure and construction tolerances.
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- B. Fire-Test-Response Characteristics: For fire-resistance-rated assemblies that incorporate non-load-bearing steel framing, provide materials and construction identical to those tested in assembly indicated according to ASTM E119 by an independent testing laboratory. Products used in the assembly shall carry a classification label from the testing laboratory.
 - C. Sound Transmission Characteristics [STC]: For gypsum assemblies [wall/ceilings] with STC rated requirements, provide materials and construction methods that are identical to the requirements of either ASTM E 90, for laboratory tests, or ASTM E 336, for field tests. Testing or inspection agencies must be qualified independent organizations.

1.4 SUBMITTALS

- A. Submittals for Review:
 1. Product Data: Manufacturer's product literature and data sheets and installation recommendations for specified products.
 2. Shop Drawings:
 - a. Show:
 - 1) Locations of framing members, wall framing sections and opening elevations.
 - 2) Sizes and spacing of framing members.
 - 3) Methods of fastening framing members to each other and to supporting systems.
 - 4) Details of vertical deflection connections to structures.
 - 5) Locations and spacing of lateral bracing and structural bracing systems.
 - 6) Accessory products required for complete installation.
 - b. Bear seal and signature of Registered Professional Engineer licensed in State in which project is located.
- B. Quality Control Submittals:
 1. Structural Calculations:
 - a. Submit calculations bearing seal and signature of Registered Professional Engineer licensed in State in which project is located, with minimum 5 years experience in work of this Section.
 - b. Include:
 - 1) Description of design criteria.
 - 2) Engineering analysis depicting stress and deflection requirements for each framing application.
 - 3) Selection of framing components, accessories, fasteners, and welded connection requirements.
 2. Certificates of Compliance:
 - a. Manufacturers certification that product comply with referenced codes and standards, and in accordance with AISI S100-07.

C. Sustainable Design Submittals:

1. Recycled Content: Certify recycled content of Non-Structural steel

- Framing; indicate recycled content, percent and whether pre-consumer or post-consumer.
2. Regional Materials: Certify materials extracted, processed, and manufactured within 500 mile radius of Project site.

1.5 QUALITY ASSURANCE

- A. Perform work in accordance with:
 1. AISI/ S100- 07/S1 -10 NAS for Design CFS Structural Members
 2. AISI/ General Provisions, S200-07
 3. AISI/ Product Data, S201-07
 4. AISI/ Floor and Roof System Design, S210-07
 5. AISI/ Wall Stud Design, S211-07
 6. AISI/ Header Design, S212-07
 7. AISI/ Lateral Design, S13-07
 8. AISI/ Truss Design, S214-07
 9. AISI/ Prescriptive Method One and Two family Dwellings -S230 - 07
- B. Installer: Minimum [2] [___] years experience in performing work of this Section on similar projects.
- C. Manufacturer:
 1. Current member of ICC ES/CSSA Code Compliant Certification and Quality Assurance Program.
 2. Provide full time quality control over fabrication and erection complying with applicable codes, ordinances, rules and regulations of government agencies having jurisdiction.
- D. Welding:
 1. Comply with AWS D1.1 and AWS D1.3.
 2. Qualify welding processes and welding operators in accordance with AWS "Standard Qualification Procedure".
- E. Pre-Installation Conference:
 1. Convene at site [2] [___] weeks prior to beginning work of this Section.
 2. Attendance: [Owner,] [Architect,] [Contractor,] and framing system installer.
 3. Review and discuss: Project requirements, substrate conditions, and manufacturer's installation instructions.
- F. Contractor shall provide effective, full time quality control over all fabrication and erection complying with the pertinent codes and regulations of government agencies having jurisdiction.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Notify manufacturer of damaged materials received prior to installing.
- B. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
- C. Store materials protected from exposure to rain, snow or other harmful weather

conditions, at temperature and humidity conditions per the recommendations of ASTM C754 section 8.

- D. Handle products per AISI S100-07

PART 2- PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: CEMCO, City of Industry, CA 91744, (800)-775-2362; www.cemcosteel.com.
- B. Substitutions: [Under provisions of Division 01.] [Not permitted.]

2.2 MATERIALS

- A. Galvanized Steel:
 - 1. Meet or exceed requirements of ASTM A1003/A1003M or ASTM A653/A653M
 - 2. Coating class: Galvanized G40 (Z120) coating minimum or equivalent, complying with ASTM C645.
 - 3. Recycled content: Minimum [35] percent, with minimum [19.8] percent classified as post-consumer and minimum [14.4] percent classified as pre-consumer.
- B. Stud Punch-outs: minimum 10 inches between end of bearing point and near edge of web punch-out and 24 inches on center thereafter.

2.3 COMPONENTS

- A. Manufactured from prime mill certified steel; re-rolled steel without mil certificate not acceptable.
- B. Cold-Formed Nonstructural Studs (Viper Stud mil): Galvanized minimum G40 coating steel C-studs complying with ASTM A645 for conditions indicated below:
 - 1. Flange Length: [1 ¼ inch; 125 depth].
 - 2. Web depth: [1 5/8 inches; 162 depth] [2 ½ inches; 250 depth] [3 ½ inches; 350 depth] [3 5/8 inches; 362 depth] [4 inches; 400 depth] [5 ½ inches; 550 depth] [6 inches; 600 depth] [As indicated on Drawings].
 - 3. Return Lip: [1/4 inch]
 - 4. Minimum Material Thickness: [[18] [30] or [33] mils] [[25] [20] gauge] [As required by Design.]
 - 5. Minimum yield strength: [33 ksi.] [As required by Design.]
 - 6. Punch-outs: [24 inches] from base and every 48 inches thereafter.
- C. Viper Stud™: Cold-Formed galvanized steel studs minimum G40 coating complying with Section 9.2 of ASTM C645.
 - 1. Flange Length: [1 ¼ inches; 125 depth].
 - 2. Web depth: [1 5/8 inches; 162 depth] [2 ½ inches; 250 depth] [3 5/8 inches; 362 depth] [4 inches; 400 depth] [6 inches; 600 depth] [As indicated on Drawings].
 - 3. Return Lip: [1/4 inch]
 - 4. Minimum Material Thickness: [0.0147 inches; 0.0195 inches or 0.0209 inches] [[15] [20 or 21] mils] [As required by Design.]
 - 5. Minimum Yield Strength: [[50 ksi] for 15 mil [57 ksi] for 20 and 21 mil] [As

- required by Design]
6. Punch-outs: [$\frac{3}{4}$ " x $1\frac{3}{4}$ "] for $1\frac{5}{8}$ " studs and [$1\frac{1}{2}$ " x $2\frac{1}{2}$ "] for $2\frac{1}{2}$ ", $3\frac{5}{8}$ ", 4 " and 6 ".
- D. Viper Track: Cold-Formed galvanized steel tracks minimum G40 coating complying with ASTM C645.
1. Flange Length: [$1\frac{1}{4}$ inches; 125 depth] [$1\frac{1}{2}$ inches; 150 depth].
 2. Web depth: [$1\frac{5}{8}$ inches; 162 depth] [$2\frac{1}{2}$ inches; 250 depth] [$3\frac{5}{8}$ inches; 362 depth] [4 inches; 400 depth] [6 inches; 600 depth] [As indicated on Drawings].
 3. Minimum Material Thickness: [0.0147 inches; 0.0195 inches or 0.0209 inches] [[15] [20 or 21] mils] [As required by Design.]
 4. Minimum Yield Strength: [50 ksi] [As required by Design.]
 5. Punch-outs: [$\frac{3}{4}$ " x $1\frac{3}{4}$ "] for $1\frac{5}{8}$ " studs and [$1\frac{1}{2}$ " x $2\frac{1}{2}$ "] for $2\frac{1}{2}$ ", $3\frac{5}{8}$ ", 4 " and 6 ".
- E. Nonstructural Track: Cold-Formed galvanized steel runner tracks minimum G40 coating complying with ASTM C645.
1. Flange Length: [$1\frac{1}{4}$ inches; T125 flange].
 2. Web depth: [$1\frac{5}{8}$ inches; 162 depth] [$2\frac{1}{2}$ inches; 250 depth] [$3\frac{1}{2}$ inches; 350 depth] [$3\frac{5}{8}$ inches; 362 depth] [4 inches; 400 depth] [$5\frac{1}{2}$ inches; 550 depth] [6 inches; 600 depth] [Track web size to match stud web size].
 3. Minimum Material Thickness: [[18] [30][33] mils] [[25] [20] gage] [As required by Design] [Track thickness to match wall stud thickness].
 4. Minimum yield strength: [33ksi] [As required by Design].
- F. Deflection Track: Cold-Formed Deep Leg Runner Slip Track:
1. Leg Length: [2 inches; T200 flange] [$2\frac{1}{2}$ inches; T250 flange] [3 inches; T300 flange] [$3\frac{1}{2}$ inches; T350 flange] [As required by Design]
 2. Web depth: Design to accommodate stud width for single track or interior track width for double track system.
 3. Minimum Material Thickness: [[18] [33] [43] [54] [68] or [97] mils] [[25] [20] [18] [16] [14] or [12] gage] [As required by Design].
 4. Minimum Yield Strength: [33ksi] [50ksi] [As required by Design].
- G. Slotted Track: Cold-Formed Slotted Track - CST
1. Leg length; 2-1/2 inches; T250 flange.
 2. Vertical slot: 1-1/2 inches long by 1/4 inch wide.
 3. Web depth: [3-5/8 inches; 362 depth] [4 inches; 400 depth] [6 inches; 600 depth] [8 inches; 800 depth] [As indicated on Drawings].
 4. Minimum material thickness: [[33] [43] [54] or [68] mils] [[20] [18] [16] or [14] gage] [As required by Design].
 5. Minimum yield strength: [33 ksi] [50 ksi] [As required by Design].
- H. FAS Track 1000:
1. Leg length: 2-3/4 inches; T275 flange.
 2. Vertical slot: 1-1/4 inches long by $\frac{1}{4}$ inch wide.
 3. Web depth: [2-1/2 inches; 250 depth] [$3\frac{5}{8}$ inches; 362 depth] [4 inches; 400 depth] [6 inches; 600 depth] [8 inches; 800 depth] [As indicated on Drawings].
 4. Fire proofing: $\frac{1}{2}$ inch thick factory adhered intumescent strip to track web.
 5. Minimum material thickness: [[33] [43] or [54] mils] [[20] [18] or [16] gage] [As required by Design].
 6. Minimum yield strength: [33 ksi] [50 ksi] [As required by Design].

- I. FAS Track 1000 DL: Cold-Formed Track
1. Leg length: 2 inches; T200 flange.
 2. NO Vertical slots.
 3. Web depth: [2-1/2 inches; 250 depth] [3-5/8 inches; 362 depth] [4 inches; 400 depth] [6 inches; 600 depth] [8 inches; 800 depth] [As indicated on Drawings].
 4. Minimum material thickness: [[33] [43] or [54] mils] [[20] [18] or [16] gage] [As required by Design].
 6. Minimum yield strength: [33 ksi] [50 ksi] [As required by Design].
- J. FAS J-Track:
1. Leg length; 1-1/2 inches short leg, 2-1/2 inches long leg.
 2. No Vertical slots.
 3. Web depth: [2-1/2 inches; 250 depth] [4 inches; 400 depth] [6 inches; 600 depth] [As indicated on Drawings].
 4. Fire proofing: 1/2 inches thick factory adhered intumescent strip to track web.
 5. Minimum material thickness: [[33]mil] [[20] gage]] [As required by Design].
 6. Minimum yield strength: [33 ksi] [As required by Design].
- K. FAS Track BT 1000:
1. Leg length; 1-1/4 inches; T125 flange.
 2. NO Vertical slots
 3. Web depth: [2-1/2 inches; 250 depth] [3-5/8 inches; 362 depth] [4 inches; 400 depth] [6 inches; 600 depth] [As indicated on Drawings].
 4. Minimum material thickness: [[18] or [33]mils] [[25] or [20] gage]] [As required by Design].
 6. Minimum yield strength: [33 ksi] [As required by Design].
- L. Deflection Drift Angle (DDA):
1. Leg lengths: 2-1/2 inches by 3/4 inches
 2. No Vertical slots
 3. Fire proofing: 1/2" factory adhered intumescent strip to inside of long leg.
 5. Minimum material thickness: [[18] mils] [[25] gage] [As required by Design].
 6. Minimum yield strength: [33 ksi] [As required by Design].
- M. U-Channel: CRC Cold Rolled Channel:
1. Size: [150U50-54; 1 1/2 inches] [075U50-54; 3/4 inches] [As required by Design].
 2. Minimum material thickness: [[16] gage] [[54] mil] [As required by Design].
- N. Furring Channel: Furring existing walls and suspended ceiling Applications:
 Size: [087F125-18; 7/8 inches] [087F125-27; 7/8 inches] [087F125-30; 7/8 inches] [087F125-33; 7/8 inches] [087F125-43; 7/8 inches] [087F125-54; 7/8 inches] [150F125-18; 1 1/2 inches] [150F125-27; 1 1/2 inches] [150F125-30; 1 1/2 inches] [150F125-33; 1 1/2 inches] [150F125-43; 1 1/2 inches] [150F125-54; 1 1/2 inches] [As required by design].
- O. Resilient Channel: Cold-Formed Resilient Channel System to decrease sound transmissions.

1. Size: One Leg: [½ inch x 2¼ inch].
 2. Size: Two Leg [½ inch x 1¼ inch].
- P. Shaft Wall System: Coordinate materials found in this section with applications and materials found in Section 092900. Complies with ASTM C 754 for the conditions indicated. Non-Load bearing gypsum wall assemblies for use in the following areas:
1. Shaft Wall Application: Elevator Shafts, Stairwells, Mechanical Shafts, Unlined Air Shafts, Other: _____.
 2. Shaft Wall Width; CH-Stud & E-Stud with J-Runner: [2 ½ inches] [4 inches] [6 inches].
 3. Shaft Wall Material Thickness: [25 gauge] [20 gauge]
 4. Shaft Wall Deflection: [L/120] [L/240] [L/360].
- Q. Area Separation Wall System: Lightweight non-load-bearing gypsum panel assembly designed to provide fire resistive protection at common walls. Complies with ASTM C 754 for the conditions indicated. Coordinate materials found in this section with applications and materials found in Section 092900.
1. Area Separation Wall System: H Stud with C-Runner, [2 inch wide].
 2. Material Thickness: [25 gauge].
- R. Drywall Corner Beads: Cold-Formed galvanized steel beads
1. 103 Corner Bead: [1 1/4inchx1 1/4 inch].
 2. Bull Nose Drywall Corner Bead with 3/4 inches Radius.
- S. Drywall Trims: Cold-Formed galvanized steel trims.
1. L-Trim (Mudable) Size: [1/2 inches] [5/8 inches] [1/2 inches].
 2. U-Trim (Mudable) Size: [5/8 inches].
 5. J-Trim (Reveal) Size: [1/2 inches] [5/8 inches].
- T. FAS STRAP:
1. Length: 120 inches.
 2. Width: 10 ½ inches.
 3. Minimum material thickness: [[20] gage] [As required by Design].
 4. Minimum yield strength: [33 ksi] [As required by design].
 5. Fire Proofing: Factory applied 2mm thick, 1" wide intumescent strip along length of both sides.
- U. ProX Header
1. Outer Member: ProX Outer
 - a. Flange Length: [4 ¼ inches; X425 flange].
 - b. Web Depth: [3 5/8 inches; 362 depth] [4 inches; 400 depth] [6 inches; 600 depth] [8 inches; 800 depth].
 - c. Minimum Material Thickness: [[33] [43][54][68] mils] [[20][18][16][14]gage] [As required by Design]
 - d. Minimum yield strength: [33 ksi] [50ksi] [As required by Design]
 2. Inset Member: ProX Insert
 - a. Flange Length: [1 5/8 inches; XT162 flange].
 - b. Web Depth: [3 5/8 inches; 362 depth] [4 inches; 400 depth] [6 inches; 600 depth] [8 inches; 800 depth].
 - c. Minimum Material Thickness: [[33] [43][54][68] mils] [[20][18][16][14]gage] [As required by Design]
 - d. Minimum yield strength: [33 ksi] [50ksi] [As required by Design]

2.4 ACCESSORIES

- A. Framing Accessories: Accessories required in this project.
1. Flat Strap for Backing Strip.

2. Flat Strap and bridging for lateral bracing.
 3. L-Angles.
 4. Custom Clip for Fixed Connection Angles.
 5. Slid Clip.
 6. Internal Clip: ProX Clip Series
 - A. Thickness: 16 gauge (54 mils).
 - B. width: [3-5/8 inches (92 mm)] [4 inches (152 mm)] [8 inches (203 mm)].
- B. Fasteners: Self-drilling, self-tapping screws; complying with ASTM C 1513.
- C. Touch-Up Paint: Complying with ASTM A 780.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Inspect supporting substrates and structures for proper conditions for installation and performance of cold-formed structural framing.
- B. Verify that attachment surfaces are plumb, level, and in proper alignment to accept cold-formed structural framing.

3.2 PREPARATION

Prepare attachment surfaces so that they are plumb, level, and in proper alignment for accepting the cold-formed structural framing.

3.3 FABRICATION

- A. Prior to fabrication of framing, submit product submittal sheets to the architect or engineer to obtain approval.
- B. Framing components may be preassembled into panels prior to erecting. Prefabricate panels so they are square, with components attached in a manner which prevents racking and minimizes distortion during lifting and transport.
- C. Cut all framing components square for attachment to perpendicular members or as required for an angular fit against abutting members.
- D. Plumb, align and securely attach studs to flanges of both upper and lower runners, except that in the case of interior, non-load bearing walls where studs need not be attached to upper or lower runners.
- E. Splices in members other than top and bottom runner track are not permitted.
- F. Provide temporary bracing where required, until erection is complete.

3.4 INSTALLATION - NON-AXIAL LOAD-BEARING CURTAIN WALLS

- A. Runners shall be securely anchored to the supporting structure as shown on the drawings.
- B. Jack studs or cripples shall be installed below window sills, above window and door heads, and elsewhere to furnish supports.
- C. Lateral bracing shall be provided by use of gypsum board and gypsum sheathing or by horizontal straps or cold-rolled channels. Bracing shall conform to Section D3 of the AISI North American Specification (NAS).
- D. Provisions for structure vertical movement shall be provided where indicated on the drawings prepared by the engineer of record.
- E. Handling and lifting of prefabricated panels shall be done in a manner so as not to cause distortion in any member.

3.5 INSTALLATION - SHAFTWALL FRAMING: RUNNERS, STUDS AND LINER BOARDS

- A. Attach J-Runners plumb with one another, long leg on shaft side, at floor and structure overhead using power-driven fasteners located 2 inches (51mm) from each end and 24 inches (610mm) o.c. between. Cut jamb J-Runners or E-Studs not less than 3/8 inch (10mm) nor more than 1/2 inch (13mm) less than distance from floor to structure above. Position J-Runners or E-Studs at wall structural jambs. Do not attach to floor or overhead J-Runners.
- B. With steel frame construction attach J-Runners to beams and J-Runners or E-Studs to columns prior to fireproofing application. Where fireproofing is more than 1 in. thick, position Z-Clips at jambs no more than 4 inches (102mm) from floor and structure above and no more than 24 inches (610mm) o.c. between. Attach Z-Clips to steel frame with power-driven fasteners. Attach J-Runners and E-Studs to Z-Clips with two (2) 1/2 inch (13mm) type S-12 screws.
- C. Remove excess fireproofing from insides of J-Runners and E-Studs before installing liner boards.
- D. Cut liner boards 1 inch (25mm) less than distance from floor to structure above; erect vertically into floor and overhead J-Runners, and into jamb J-Runner or E-Stud. Where wall height exceeds maximum length of liner board, position board end joints within upper and lower 1/3 of height from floor to structure above; stagger joints in adjacent boards. Achieve tight fit at mating board ends.
- E. Cut C-H Studs not less than 3/8 inches (10mm) nor more than 1/2 inch (13mm) less than distance from floor to structure above. Fit first C-H Stud over leading edge of first liner board. Install remaining liner boards and C-H Studs. Do not attach C-H Studs to J-Runners.
- F. Do not splice C-H Studs or E-Studs. For wall heights exceeding 16 feet (4877mm) attach C-H studs, E-Studs, or jamb J-runners to floor and overhead J-Runners with two (2) 1/2 inch (13mm) Type S-12 screws on shaft side and one (1) on floor side. Always fit liner boards tightly into studs or jamb runners. Always fit studs or jamb runners tightly over liner boards.
- G. Corners and intersections: Position jamb J-Runners or E-Studs at corners and T-intersections.
- H. Door openings: Install E-Studs plumb at each jamb of swinging doors. Install jamb struts plumb with long legs on shaft side at each jamb of elevator doors. Attach jamb strut studs to floor and overhead J-Runners with two (2) 3/8 in (10mm) Type S-12 screws pan head on shaft side and one (1) on floor side. Attach strut studs to door jamb anchors with two (2) 1/2 inch (13mm) Type S-12 pan head screws per anchor.
- I. For walls above doors miter-cut J-Runners legs and position J-Runner horizontally to fit tightly between strut studs to serve as opening head. At each jamb extend J-Runner upward into overhead J-Runner. Attach J-Runner webs to strut stud webs with 3/8 inch (10mm) Type S-12 screws spaced not more than 12 inch (305mm) on center, 2 inches (51mm) above opening head, and not more than 4 inches (102mm) from overhead J-Runner, using not less than 3 screws per jamb. Install C-H Studs horizontally at not less than 24 inches (610mm) on center; attach to each mitered jamb J-Runner one (1) 3/8 inch (10mm) Type S-12 screw shaft side and one (1) floor side.
- J. Provide additional liner boards, gypsum shims and fillers at elevator door frames as necessary to maintain fire integrity of the tested labeled frame construction. Construct opening in conformance with frame manufacturer's fire test report; secure copy of fire test report from frame manufacturer and maintain on site for elevator inspector.
- K. Small openings: Frame openings with E-Studs or J-Runners at jambs; frame heads and sills with J-Runners. Attach head and sill J-Runners to jambs with two (2) 3/8 inch (10mm) Type S-12 screws on shaft side and one (1) on floor side.
- L. Do not exceed allowable stresses in C-H Studs, E-studs or J-Runners.

3.6 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before substantial completion of final installation.

END OF SECTION