Introduction to
Cold Formed
Steel Framing
What is Steel Framing?

1. Steel Framing, also known as Cold Formed Metal Framing or CFS, is steel sheet that is roll formed into framing products including C shapes & U shapes.
2. Roll Forming is the automated process of shaping.
3. Steel Framing is an engineered product that is offered in a wide variety of sizes and mil/gauge thickness’s.
4. Its an excellent alternative building product to wood and masonry.
The Benefits of Steel Framing

- Consistent quality.
- Proven performance.
- Steel is non-combustible.
- It’s a green product that contains a minimum of 25% recycled steel and is 100% recyclable.
- Resistant to rot, mold, and insect infestation.
- Lighter than tradition framing products.
- Virtually no waste or jobsite cutting.
Steel Framing

- **Methods of building with Steel Framing**
  - Conventional “Stick” field framing
  - Off site pre-fabrication
  - Build wall sections on site

- **Methods of fastening Steel Framing**
  - Screws
  - Weld
  - Powder actuated fasteners
  - Crimping
Steel Framing

- **Steel Framing Products are offered in (2) categories**
  - **Structural** (available in 5 thickness’s)
    - Generic thickness’s: 33mils/20ga/, 43mils/18ga, 54mils/16ga, 68mils/14ga & 97mils/12ga.
  - **Non-structural** (available in 6 thickness’s)
    - Generic thickness’s: 18mils/25ga, 30mils/20ga, 33mils/20ga.
    - Proprietary thickness’s: 15mils/25gaEQ, 19mils/20gaEQ, 23mils/20gaEQ.
Steel Framing - Structural

- **Structural Framing Products**
  - Structural products can be used for vertical & horizontal applications and for bearing & non-bearing conditions.
  - They can be used for wall, floor, ceiling & roof framing.
  - Structural products can be used for exterior & interior applications.
  - Structural products are manufactured from steel in thicknesses of 33mils/20ga, 43mils/18ga, 54mils/16ga, 68mils/14ga & 97mils/12ga.
  - These products are manufactured in accordance with AISI S200 & ASTM C955.
  - CRACO structural products are ICC-ESR 3957P certified.
Non-Structural Framing Products

- Non-structural products are branded SmartFrame Drywall Framing System and comprised of SmartStud and SmartTrack.
- These products are used for interior non-bearing wall and ceiling framing.
- Non-structural products are manufactured from steel thickness’s of 15mils/25gaEQ, 18mils/25ga, 19mils/20gaEQ, 23mils/20gaEQ, 30mils/20ga & 33mils/20ga.
- These products are manufactured in accordance with AISI S220 & ASTM C645.
- SmartStud (proprietary) is brand listed in UL reports and meets or exceeds other generic UL, Intertek & Factory Mutual fire listings.
- CRACO non-structural products are ICC-ESR 3957P & ICC-ESR 3943P certified.
Steel Framing

- **“C” shapes for studs/joists, “U” shapes for tracks.**
  - Studs & joists are the main spanning members and can be used in vertical and horizontal applications.
  - Tracks act as closure members that are fastened to the ends of studs & joists.
  - Spanning members require bridging & bracing.
  - Attention must be given to vertical studs that are not designed for axial loads by installing products that accommodate the structures building deflection.
  - Please see CRACO’s SmartFrame Connector presentation for additional info for the above (2) bullet points.
Structural Stud

- Web sizes
  - 2-1/2”, 3-5/8”, 4”, 6”, 8”, 10”, 12”
- Flange sizes
  - 1-3/8”, 1-5/8”, 2”, 2-1/2”
- Mil/gauge thickness
  - 33/20, 43/18, 54/16, 68/14, 97/12

Non-Structural Stud

- Web sizes
  - 1-5/8”, 2-1/2”, 3-5/8” 4”, 6”
- Flange sizes
  - 1-1/4”
- Mil/gauge thickness
  - 15/25EQ, 18/25, 19/20EQ, 23/20EQ, 30/20, 33/20
Steel Framing – "U" Shapes

Structural Track
- Web sizes
  - 2-1/2", 3-5/8", 4", 6", 8", 10", 12"
- Leg sizes
  - 1-1/4", 2", Custom sizes available
- Mil/gauge thickness
  - 33/20, 43/18, 54/16, 68/14, 97/12

Non-Structural Track
- Web sizes
  - 1-5/8", 2-1/2", 3-5/8", 4", 6"
- Leg sizes
  - 1-1/4", 2" Custom sizes available
- Mil/gauge thickness
  - 15/25EQ, 18/25, 19/20EQ, 23/20EQ, 30/20, 33/20
Steel Framing

**Manufacturing Specifications & Code Requirements**

- The International Building Code (IBC), is the standard building code.
- AISI-General Provisions & AISI-NASPEC are for design & installation requirements.
- AISI S200 & ASTM C955 are the manufacturing specifications for Structural Framing.
- AISI S220 & ASTM C645 are the manufacturing specifications for non-structural framing.
Steel Framing Code Compliance

What makes Steel Studs Code Compliant?

- Materials manufactured & delivered to your project should be clearly marked with information as shown on the following slides.
- This includes the following information per AISI & ASTM standards.
  - Code compliant label & product marking
  - Ink jet or embossed markings on the web
  - Identifiable bundle labels
  - Color coded painted ends
    - 18Mils - None
    - 27Mils - Black
    - 30Mils - Pink
    - 33Mils - White
    - 43Mils - Yellow
    - 54Mils - Green
    - 68Mils - Orange
    - 97Mils - Red