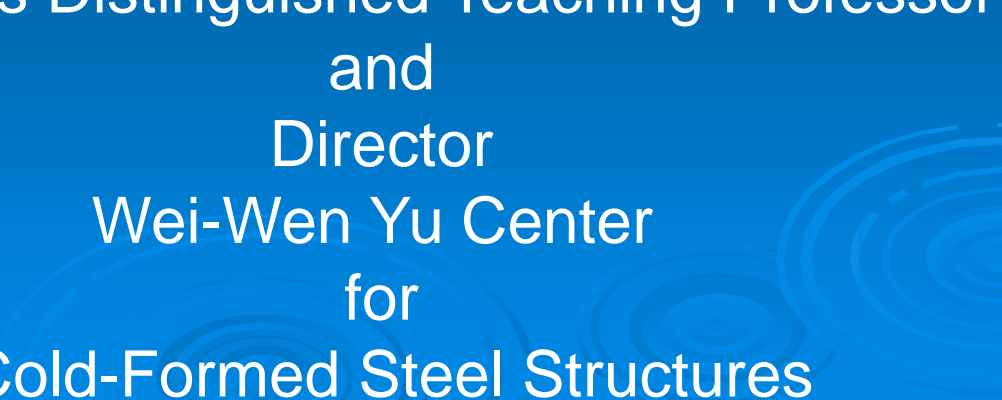


# COLD-FORMED STEEL APPLICATIONS

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Cold-Formed Steel Structures



# Goal of This Presentation

Provide overview of cold-formed steel applications in the construction industry.



# Steel, The Material



Steel is 100% recyclable :  
Recyclable and recycled

- ~ Is recyclable, using old cars, buildings, bridges, steel cans, etc.
- ~ Steel is the world's most versatile material to recycle
- ~ Yearly, steelmakers recycle about a million tons of steel world-wide
- ~ It takes 6 old cars to produce enough steel to frame a basic residential dwelling
- ~ Recognized Green Building Material


# The Environment

# Steel


an environmentally friendly material

- ~ The average landfill consists of approximately 60%
- ~ Less than 6% of landfill debris is steel - such as staples, nails in wood and steel rebar inside concrete chunks
- ~ Every ton of steel recycled conserves 2,500 pounds of iron ore, 1,400 pounds of coal and 120 pounds of limestone.
- ~ Debris from a typical wood-framed home accounts for 50 ft<sup>3</sup> of landfill waste, compared to only 2 ft<sup>3</sup> from a steel-framed house

# Advantages of Steel

- ~ Consistent Material Quality
  - ~ Superior Seismic Performance
  - ~ Non-Combustible Material
  - ~ Dimensionally Stable in any climate
  - ~ Insect Resistance
  - ~ Steel will not Rot
- 

# Advantages of Cold-Formed Steel

- ~ High Strength-to-Weight Ratio
  - ~ Ease of Handling and Transportation
  - ~ Ease of Fabrication and Mass Production
  - ~ Speed of Erection
  - ~ Flexibility in Design
  - ~ Harmonizes with other materials
- 

# Common Uses of Cold-Formed Steel Studs as Framing Members

- Non-load bearing interior partition walls
  - Residential
  - Commercial
- Exterior curtain wall systems  
(wind and seismic loads only)
- Residential load bearing wall studs
  - Single Family
  - Multi-Family (e.g., condos)
- Commercial load bearing wall studs
  - Single Story
  - Multi-Story (e.g., hotels)

# Residential- Load Bearing – Single Family



# Load Bearing Multi-Family



# Commercial Load Bearing



# Exterior Curtain Wall

Studs are clipped to the floor and roof levels with vertical slip clips to isolate the wall system from floor level gravity loads to prevent cracking the exterior finish system.

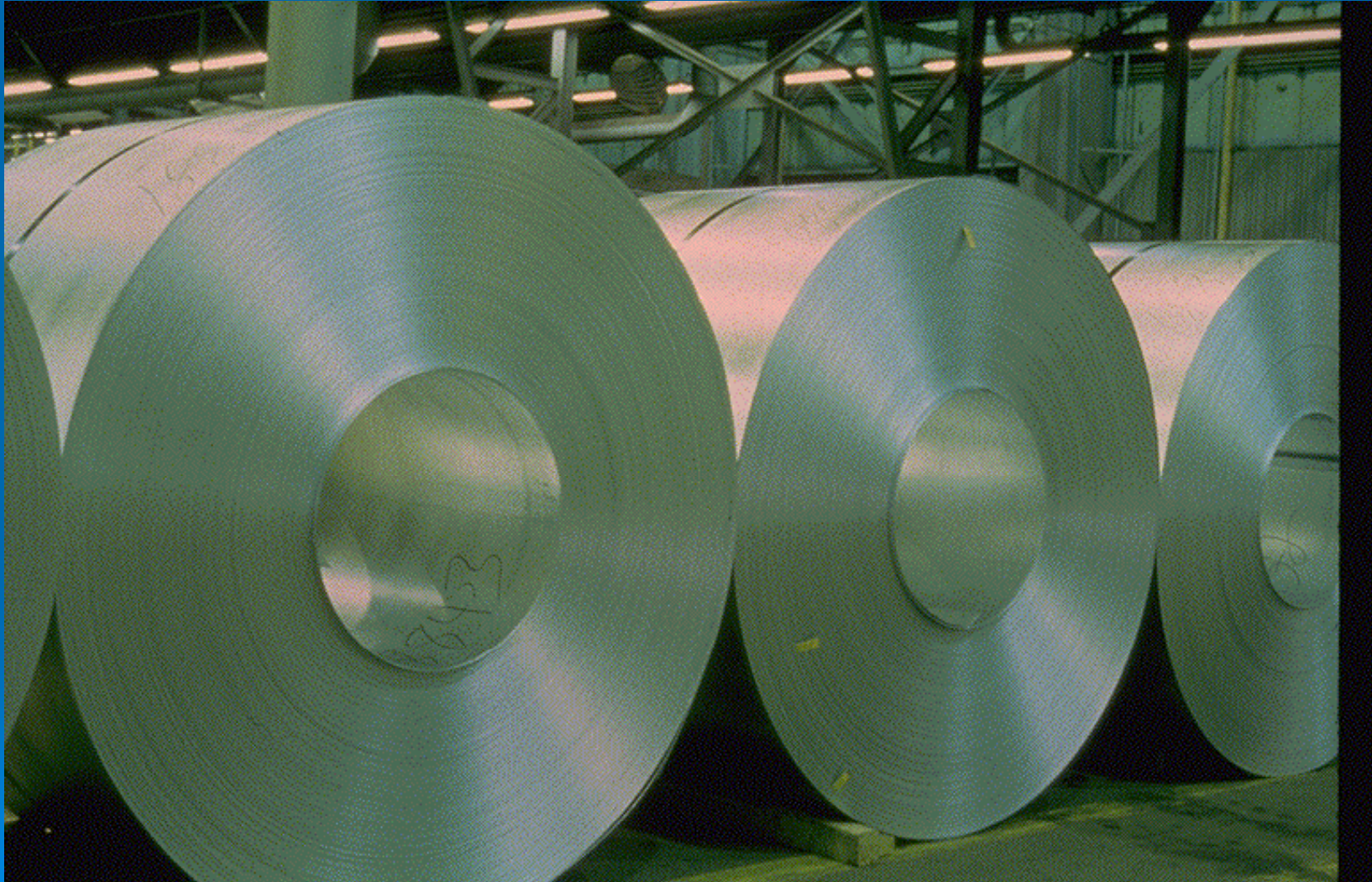


# What is Light Gauge, or more accurately, “Cold-Formed” Steel?




Cold Forming is a process where steel members are manufactured by rolling or shaping the steel after it is cold.

# Coil of Sheet Steel



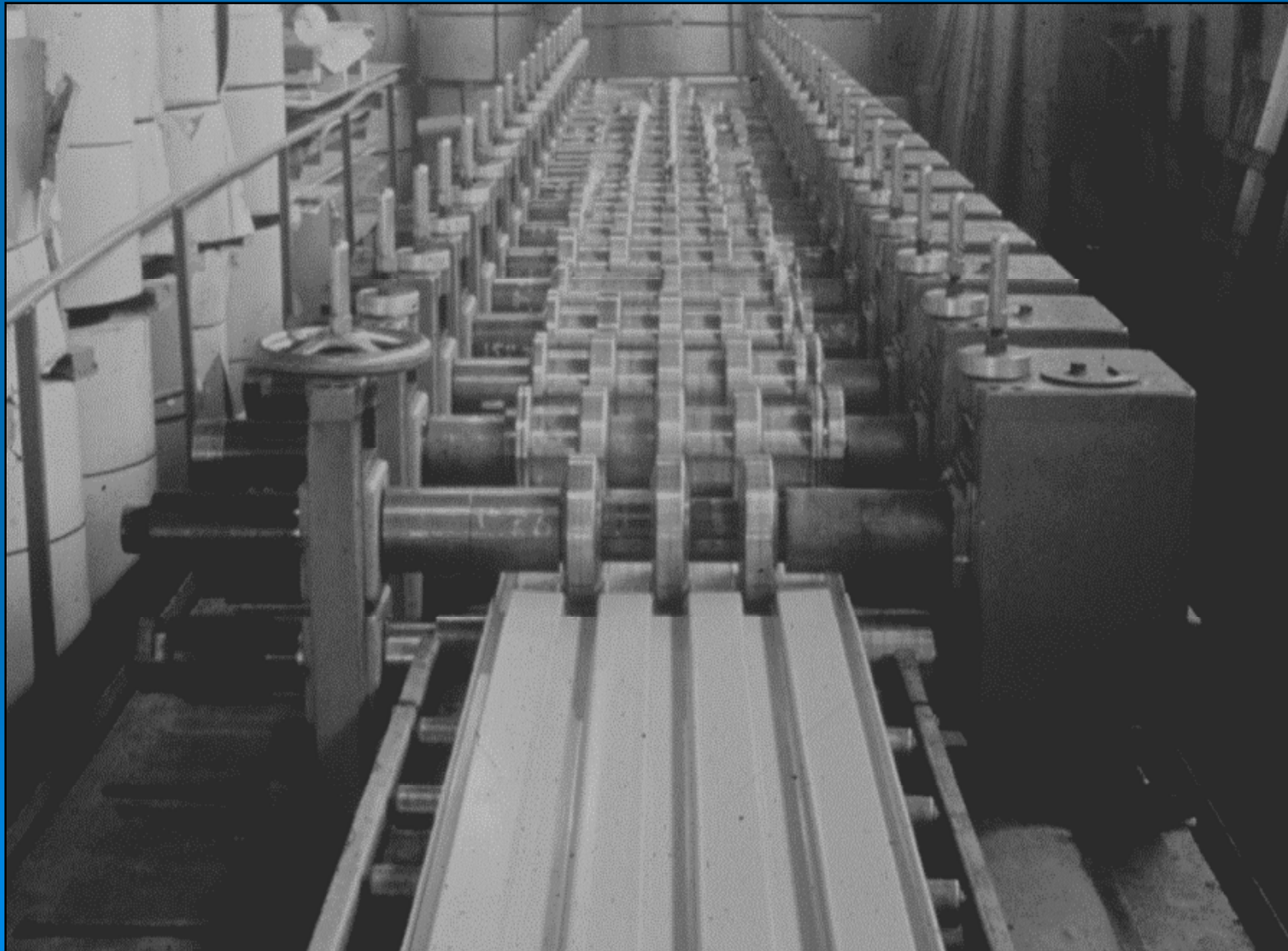
# Manufacturing Of Cold-Formed Products

- ~ Press or Break Forming
  - ~ Roll Forming (most common method for mass production)
  - ~ Stamping (more common in the automotive industry)
- 

# BRAKE PRESS



# ROLL FORMING



# SOME TYPICAL COLD-FORMED SHAPE CROSS SECTIONS

## ➤ Studs, Joists, Purlins



## ➤ Other Shapes



# SOME TYPICAL COLD-FORMED PANEL CROSS SECTIONS

**Roof Decks**



**Long-Span Decks**



**Floor Decks**



**Wall Panels**



**Ribbed Panels**



**Corrugated  
Sheets**

