SFIA

STEEL FRAMING INDUSTRY ASSOCIATION

Mastering Coil Selection: A Guide to Ensuring Quality and Efficiency in Steel Procurement

Presenter: Andrew Geisler

Date: March 28, 2024

Agenda

- Welcome & housekeeping
- A word about SFIA
- Speaker introduction
- Presentation
- Q&A

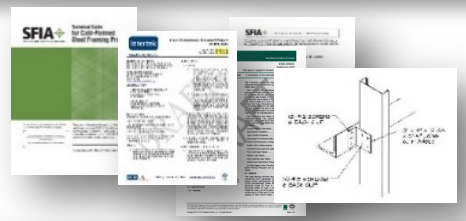
SFIA
STEEL FRAMING INDUSTRY ASSOCIATION

Welcome & Housekeeping

- Thank you for attending our webinar today!
- Mics are muted. Please ask any questions in the chat or Questions windows.
- A PDF of the presentation and a Certificate of Attendance will be available in your Steel Framing Learning Portal account after the webinar.
- Please submit your AIA number to Meredith Perez in the chat or email it to Meredith@steelframing.org if you wish to have your learning units recorded.
- If you are a group viewing the presentation from a single computer, please email Meredith for the **Group AIA attendance form** so we can report LUs for everyone who attended. Meredith@steelframing.org

Major Programs and Services: Tools, Information and Support

Technical Tools / Services



Marketing / Promotion

BuildSteel™
Powered by the Steel Framing Industry Association

Business Planning

Structural Tons Reported	Q1'19	Q2'19	Q3'19	Q4'19	Total 2019
East	51,100	52,368	-	-	103,468
North Central	18,368	20,529	-	-	38,897
South Central	27,605	28,445	-	-	56,050
West	34,441	35,854	-	-	70,295
Total					

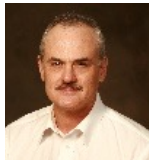
NonStructural Tons Reported	Q1'19	Q2'19	Q3'19	Q4'19	Total 2019
East	64,593	66,000	-	-	130,593
North Central	21,539	23,172	-	-	44,711
South Central	22,240	24,899	-	-	47,139
West	24,017	27,806	-	-	51,823
Total	132,389	141,877	0	0	274,266

SFIA Staff







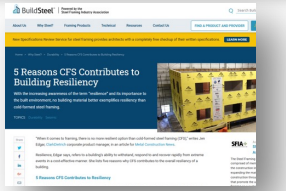



Architectural Services

Educational Programs

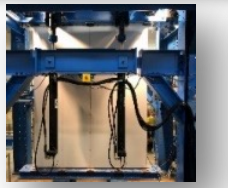
CONTINUING EDUCATION AIA

Sustainability



EPD VERIFIED

Research and Innovation




Advocacy

Certification

Introducing our Speaker!

Andrew Geisler, President Mainline Metals
Andrew started his career in the steel industry at the age of 19, when he was hired by Mainline Metals as a co-op student. Under Bob Dubin's tutelage, Andrew learned the art of cold-calling and how to find and sell surplus and excess steel. Once graduated from Drexel University with a degree in materials engineering, Andrew was hired by Mainline Metals.

Steel Purchasing Expertise

With my 36 years of experience in the steel industry, from my start as an intern to current ownership of Mainline Metals, we are a leading steel distributor of Prime, Excess and Secondary Steel

Andrew Geisler

Studied metallurgy and materials engineering at Drexel University.

Career History

1980
Started as an intern at Mainline Metals at age 19

1982
Promoted to sales representative

1995
Became Vice President of Sales

2018
Purchased Mainline Metals

2024
Mainline Metals has over 75 employees and 2 Brick and mortar locations

Mainline Metals

We process over 100,000 tons of steel annually

My Responsibilities

Responsible for 50% of sales

As CEO and owner, I personally handle over half of the company's transactions and negotiations.

Responsible for over 50% of purchasing

I directly source and purchase over 50% of the 100,000+ tons of steel we buy annually.

We buy 75% excess and secondary steel

The majority of steel I purchase is lower-cost excess or secondary steel to maximize profits.

With decades of hands-on sales and purchasing experience, I am intimately familiar with all aspects of procuring steel.

Sales Mix

80% Direct Sales to End Users

Over 90% Value Added Processing

20% of Sales to other Distributors

“Help everyone waste less money and make fewer mistakes in buying steel”

ANDREW GEISLER

Credentials

Metallurgical engineer

Studied metallurgy and materials engineering at Drexel University.

Mainline Metals intern to owner

Started as a 19-year-old intern at Mainline Metals and now own the company after 36 years.

$100 million in annual steel sales

Responsible for over 50% of sales and purchasing of over 100,000 tons of steel annually.

36 years of purchasing experience

Have purchased steel for Mainline Metals for my entire 36-year career.

Value-added processing

We value-add and process most of the steel products that we sell.

Extensive site visits

Have visited 10-15 steel plants per year over my 36-year career.

Understanding Secondary and Excess Steel

- An overview of secondary and excess steel, including production statistics, availability, utilization in construction, purchasing considerations, and opportunities in the spot market.

Secondary and excess steel refers to steel that is produced in excess of normal production volumes or contains defects that make it unsuitable for prime applications. This material makes up about 3% of total steel production in North America. Utilizing secondary and excess steel presents opportunities for cost savings in industries like construction that can tolerate small defects.

Excess and Secondary Steel

Definition

Steel produced in excess of what is required for an order is called excess.

Availability

Around 3 million tons of excess steel is available annually at discounted prices.

Reasons

Excess steel is produced due to mistakes in steelmaking, canceled orders, defects, or production stoppages.

Benefits

Excess steel can be purchased at lower cost than prime steel and provides opportunities for buyers.

Considerations

Buyers should evaluate quality, inspect material, and ask suppliers questions when purchasing excess steel.

Risks

Potential risks include uncertain quality, lack of guarantees, and hidden defects. Proper inspection is important.

Production Statistics

- Annual production in North America 100 to 120 million tons

- Breakdown of production in the United States 70 to 100 million tons

Coated Steel Products

Coated steel comprises 40% of steel market

Coated steel products make up a significant portion of the overall steel market

1.2 million tons of excess/secondary coated steel available

A large amount of discounted coated steel is available on the secondary market

The secondary steel market presents major opportunities for utilizing discounted coated steel products which comprise a large segment of the overall steel market.

Utilization in Construction Industry

- Coated steel suitable for structural and non-structural members
- Coated steel for trusses, and accessories
- Coated steel for floor and roof decking
- Coated steel for wall panels

Considerations When Buying

Ask about product origin

Confirm the original source and quality of the steel.

Inspect material condition

Look for any damage, rust or other defects.

Verify specifications

Make sure the product meets your requirements.

Carefully evaluating secondary and excess steel will help mitigate risks and ensure you get a quality product.

Why is this important?

You need protection when buying steel

Material quality inspection

Inspect materials thoroughly to ensure they meet specifications

Certified suppliers

Source materials only from certified and reputable suppliers

Proper documentation

Require and maintain documentation for material sourcing and quality

Implementing rigorous quality control and documentation processes when buying steel will minimize costly mistakes.

Meet specs and regulations

- You must meet specifications

  When supplying materials to the construction industry, you must meet all relevant specifications for the materials

- You must follow regulations

  There are regulations that govern supplying materials for construction. You must follow these regulations.

- Read and understand codes

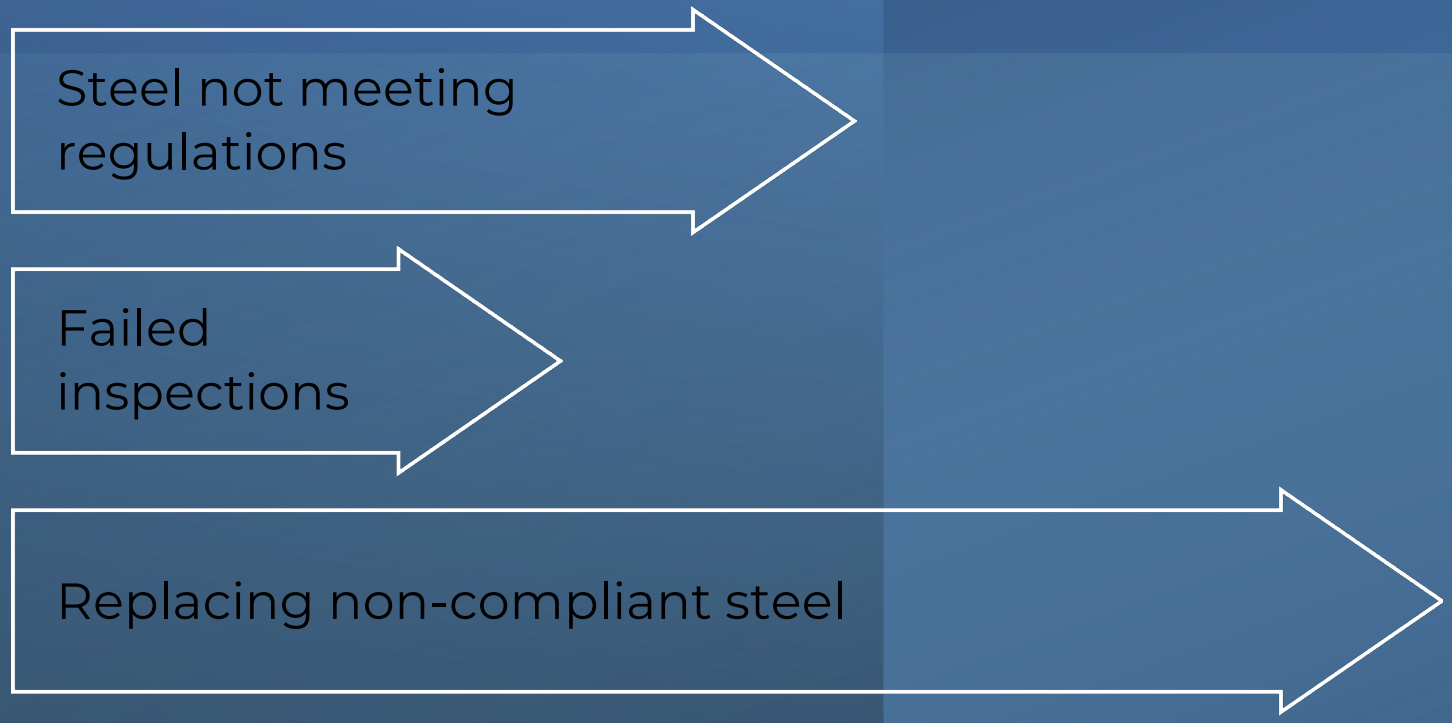
  It's important to read and understand codes like AISI and ASTM that cover specifications and regulations for materials.

Pass inspections

You must meet specifications and regulations to follow when supplying to the construction industry.

You have inspections by the authorities to pass when supplying steel to construction projects.

Avoid extra costs



Understand codes

AISI codes

You are assumed to have read and understand all relevant AISI codes provided by your association.

ASTM codes

You are assumed to have read and understand all relevant ASTM codes provided by your association.

Materials

AISI and ASTM codes provide specifications for allowed materials and applications.

Applications

AISI and ASTM codes specify what you can and cannot do for different applications.

Compliance

You must comply with AISI and ASTM codes to meet specifications and regulations.

Avoid mistakes

Following codes helps avoid costly mistakes with materials and applications.

Steps to lower your steel purchase costs.

Steps to Purchasing Steel

Pricing and Quantity

Steel is sold in 20-ton increments

Steel is normally purchased in full truckload quantities of 20 tons to get better pricing

Buying full truckloads gets better pricing

Purchasing full 20-ton truckloads allows buyers to get quantity discounts compared to smaller purchases

Purchasing steel in full truckload quantities can help buyers get better volume pricing discounts.

Mixing Sizes

Mixing multiple steel gauges on a single truckload typically costs more than purchasing a full truckload of a single gauge. This requires extra handling by the supplier to load different coils onto a slitter and process the material.

Buying Less Than Full Truckloads

- Buying less than 20 tons you will pay a premium
- Buying less than 10 tons from a service center you will pay a premium
- Buying multiple sizes on one truck you will pay a premium

Stocking Programs

Discuss Needs with Supplier	Establish Stocking Program	Place Orders Against Program
Communicate your typical order quantities and frequency to identify potential stocking programs.	Work with supplier to set up a stocking program that meets your needs.	Order quantities against the stocking program as needed to meet demand.

Buying Through Service Centers

Buy Smaller Quantities

Service centers allow buying smaller quantities from larger orders they already have.

Pay Premiums

Buying less than full truckloads or mixing sizes leads to premium charges.

Plan Ahead

Letting the service center know your future needs allows better pricing.

Buy with Partner Companies

Combining orders with partner companies leads to better pricing through larger quantities.

Consignment Programs

Buying a full quantity but only taking portions allows better pricing. Pick up material on your own trucks. Use back hauls if possible.

Combining Orders

Location Matters

Local Warehouse

Having inventory in a warehouse near customers reduces transportation costs.

Truck Delivery

Delivering from a local warehouse cuts down on mileage and fuel costs.

Happy Customer

Customers appreciate quick, low-cost deliveries from local warehouses.

Buying Steel Questions To Ask

Key questions to ask when purchasing steel

Gauge

Gauge is critical when ordering steel

Steel is ordered to ASTM A1003 standard which specifies minimum thickness

Be clear on minimum and maximum thickness

Specify acceptable min and max thickness for the price

Order to min thickness with coating included

Coils vary in thickness so rely on min with coating to ensure minimums are met

Understanding gauge and clearly specifying acceptable minimums and maximums is critical when ordering steel

Minimum vs Nominal Thickness

Always specify clearly in purchase orders if ordering to minimum vs nominal thickness.

Maximum Thickness

Clarify Maximum Acceptable Thickness

When ordering steel to a minimum thickness, be clear with the supplier on the maximum thickness you are willing to accept for the quoted price.

Consider Negotiating Maximum

The maximum acceptable thickness can be a negotiating point with your steel supplier.

Avoid Thickness Variation Risks

Base metal thickness varies across the coil width.

Avoid risks by specifying maximum thickness.

Protect Against Measurement Errors

Specifying a maximum thickness protects against measurement errors by plant floor workers.

Better Safe Than Sorry

Specifying both minimum and maximum thickness is better to be safe.

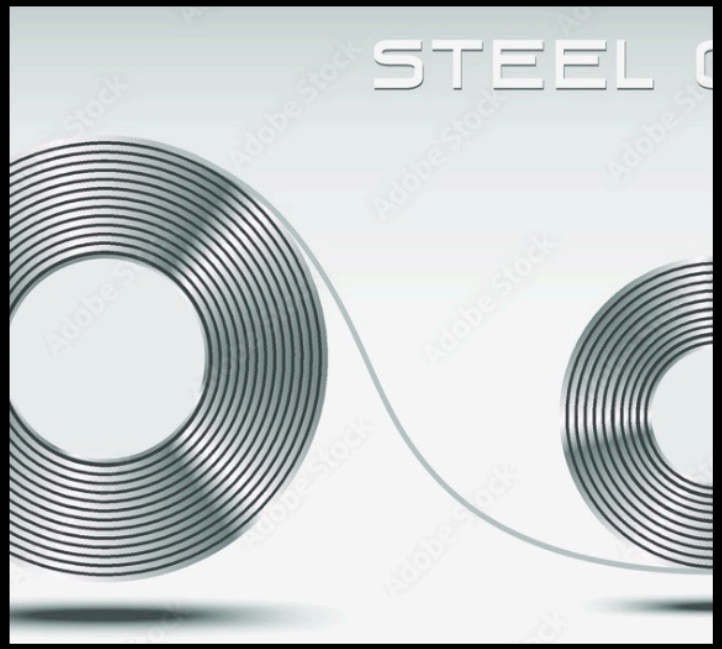
Linear Footage

Know The Maximum Thickness
The Vendor Will Provide

Clarify Maximum Thickness on Purchase Orders

Your profitability lives and dies by the Linear Footage

Base Metal Thickness



Process of making Steel Coils

Steel coils are often thicker in the middle and thinner at the edges.

Human Error

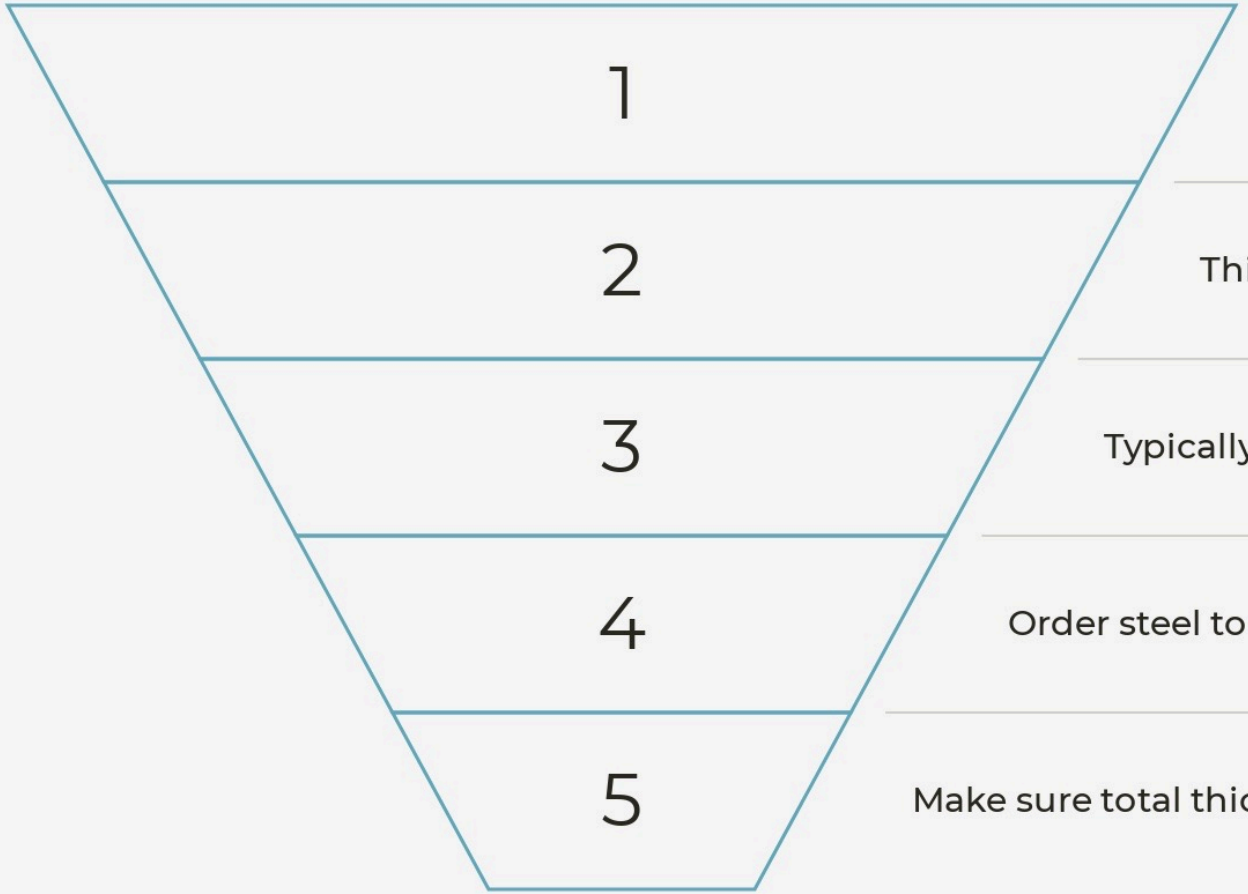
Measuring base metal thickness with a micrometer can lead to human error.

Total Both Sides		Per Side
oz/ft²	oz/ft²	mils
3.60	1.80	3.24
3.00	1.50	2.70
2.35	1.18	2.12
2.10	1.05	1.89
1.85	0.93	1.67
1.65	0.83	1.49
1.40	0.70	1.26
1.15	0.58	1.04
0.90	0.45	0.81
0.60	0.30	0.54
0.40	0.20	0.36
0.30	0.15	0.27
		no minimum

Coating weights Thickness

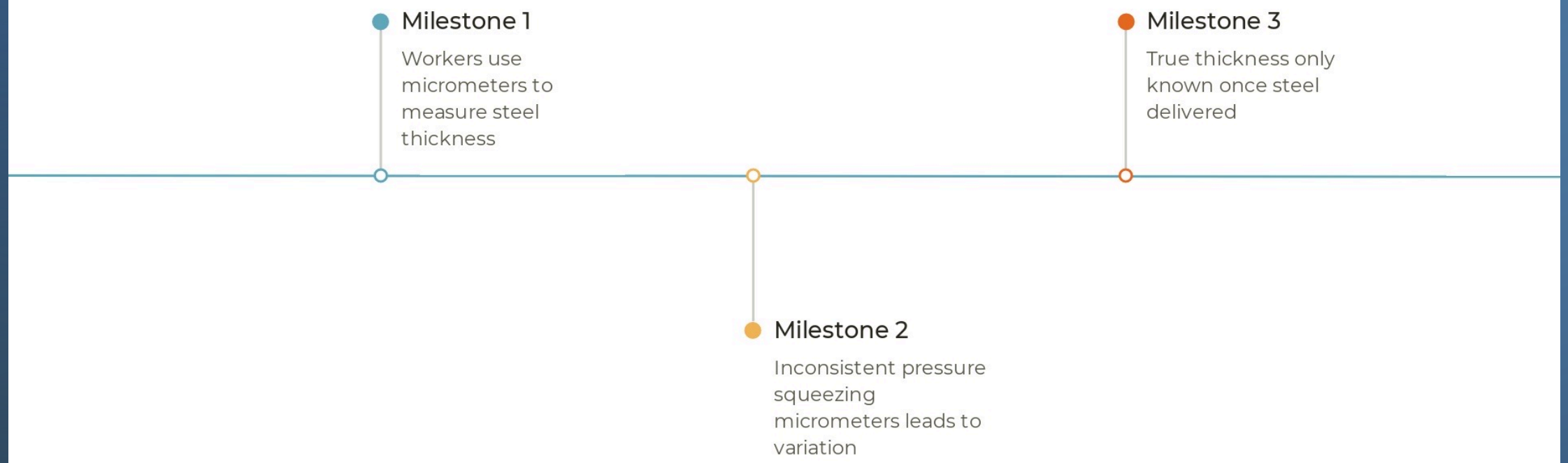
With many coating weight options, it's safer to order steel based on minimum thickness including coating.

Important Points



1. Coils are produced in widths from 36 to 84 inches wide
2. Thickness is not uniform across the coil width
3. Typically thicker in the middle and thinner at edges
4. Order steel to minimum thickness needed
5. Make sure total thickness with coating meets requirements

Measurement Variation



Coating Weights of Coated Steel Coils

Overview of coating weights for structural and non-structural cold formed framing members

Minimum Coating Weights for Structural and Non-Structural Members

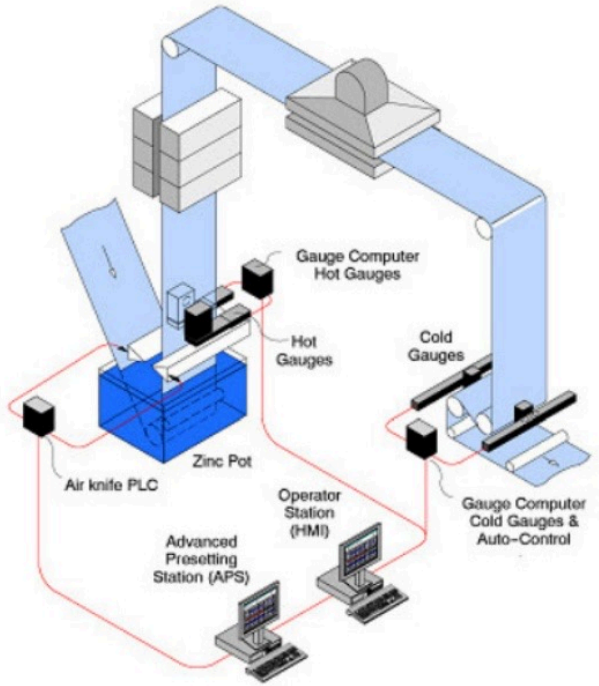
Structural members need to be G60

Structural members need to have a minimum G60 coating weight

Non-structural members need to be at least G40

Non-structural members need to have a minimum G40 coating weight

Structural and non-structural members have different minimum coating weight requirements to ensure durability.



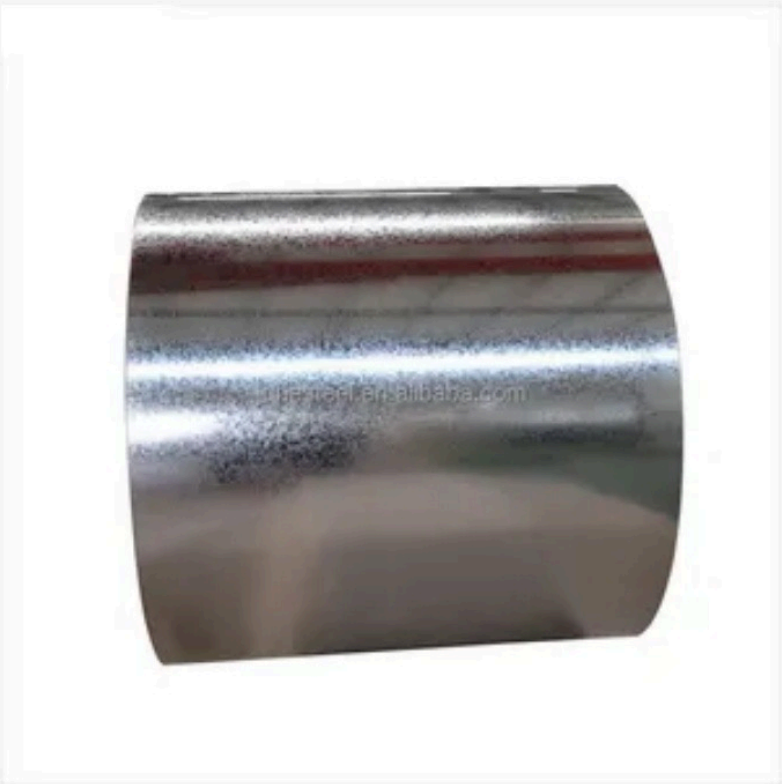
Hot Dip Galvanizing (HDG)Line with Cold Gauge and Hot Gauge Measurements

How Coating Weight is Measured

Coating weight is measured in either ounces per square foot (oz/ft2) or grams per square meter (g/m2). Refer to the US Steel sheet for specific coating weight values. A common coating weight is G40, which is 0.40 oz/ft2 total for both sides of the sheet.

Types of Coated Steel

- **Galvannealed**
  A zinc coated steel product with a dull finish, make sure coating meets specifications
- **Galvalume**
  A zinc and aluminum alloy coated steel, ask if it has an acrylic coating to prevent black staining
- **HD Galv**
  A heavy zinc coated steel that can heal scratches, and edges after slitting
- **Electro Galv**
  An electroplated zinc coating with consistent coating weight, typically very light coating weight
- **Aluminized**
  An aluminum coated steel that does not heal scratches, or edges
- **Galfan**
  A zinc and aluminum alloy coated steel



Heavy Galvanized Coatings

Heavy galvanized coatings like G235, with zinc coatings up to 2.35 ounces per square foot, are commonly used for outdoor applications like culverts and swimming pools that require extra corrosion resistance. The heavy zinc coating protects the steel from corrosion even in harsh outdoor environments.

Galvannealed

Coating Weight

Ensure galvannealed coating weight meets specification requirements

Appearance

Galvannealed has a dull, matte finish. Verify appearance is acceptable to customer.

Corrosion Resistance

Galvannealed coating provides corrosion resistance comparable to galvanized steel.

Formability

Galvannealed has good formability and can be bent or shaped without coating damage.

Weldability

Galvannealed has excellent weldability compared to galvanized steel.

Applications

Galvannealed is often used for automotive panels, appliances, and construction.

Galvalume and Acrylic Coating

Galvalume is susceptible to black staining when coils are tightly wrapped and stored without oxygen. Asking if Galvalume has an acrylic coating can help prevent black staining during storage and transit before parts are formed.

Acceptable Coating Defects

Avoid Peeling and Flaking

Peeling and flaking defects on coated steel coils are unacceptable and material should be returned.

White Rust May Be Acceptable

White rust on coated steel coils may be acceptable depending on customer requirements.

Saltwater Rust Not Acceptable

Avoid buying coated steel coils with saltwater rust as it can accelerate rusting.

Healing Properties

HD Galv and Galvannealed coatings have self-healing properties if scratched.

Inspect Material

Inspect coated steel coils upon receipt for unacceptable defects like peeling and flaking.

Communicate with Customer

Discuss white rust and other coating issues with customer to determine acceptability.

Testing Coated Samples

Insert certified G40 sample and alternative coating sample into B117 test chamber.

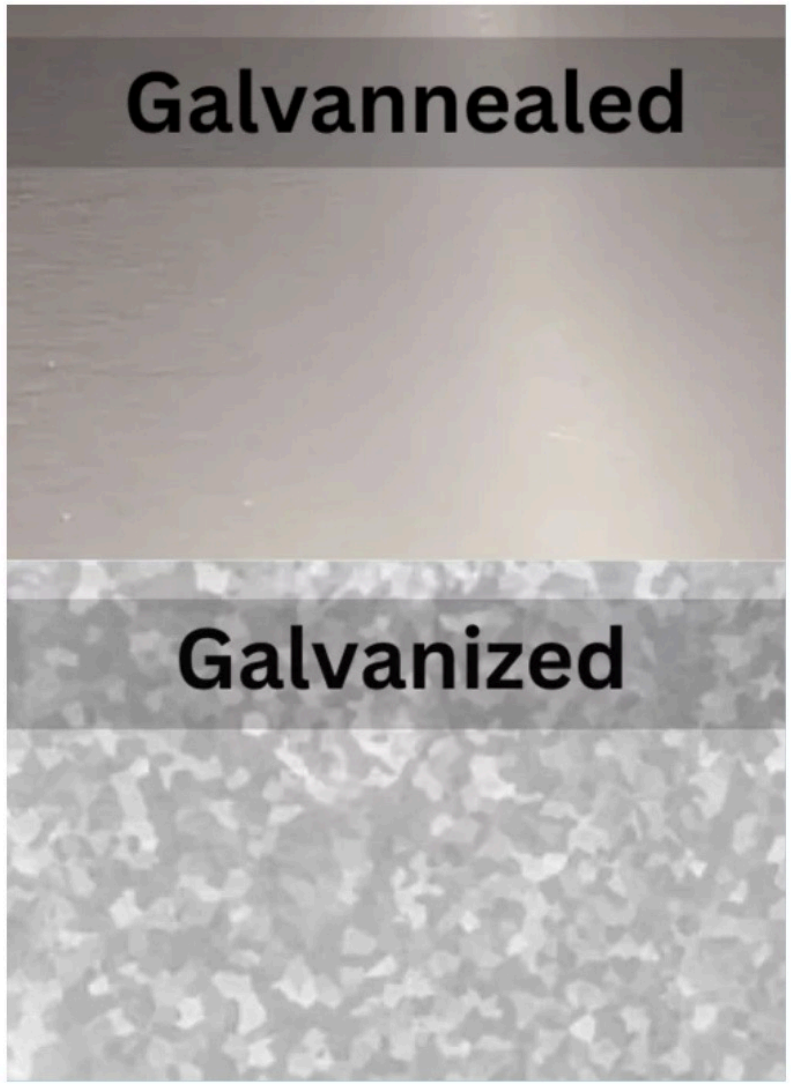
Scribe both certified G40 sample and alternative coating sample prior to testing.

Run test for 72 hours, then check for rust every 12 hours until certified G40 sample has 10% rust or test reaches 144 hours.

Alternative sample must have same or less percentage of rust compared to new ratioed percentage for certified G40 sample to pass.

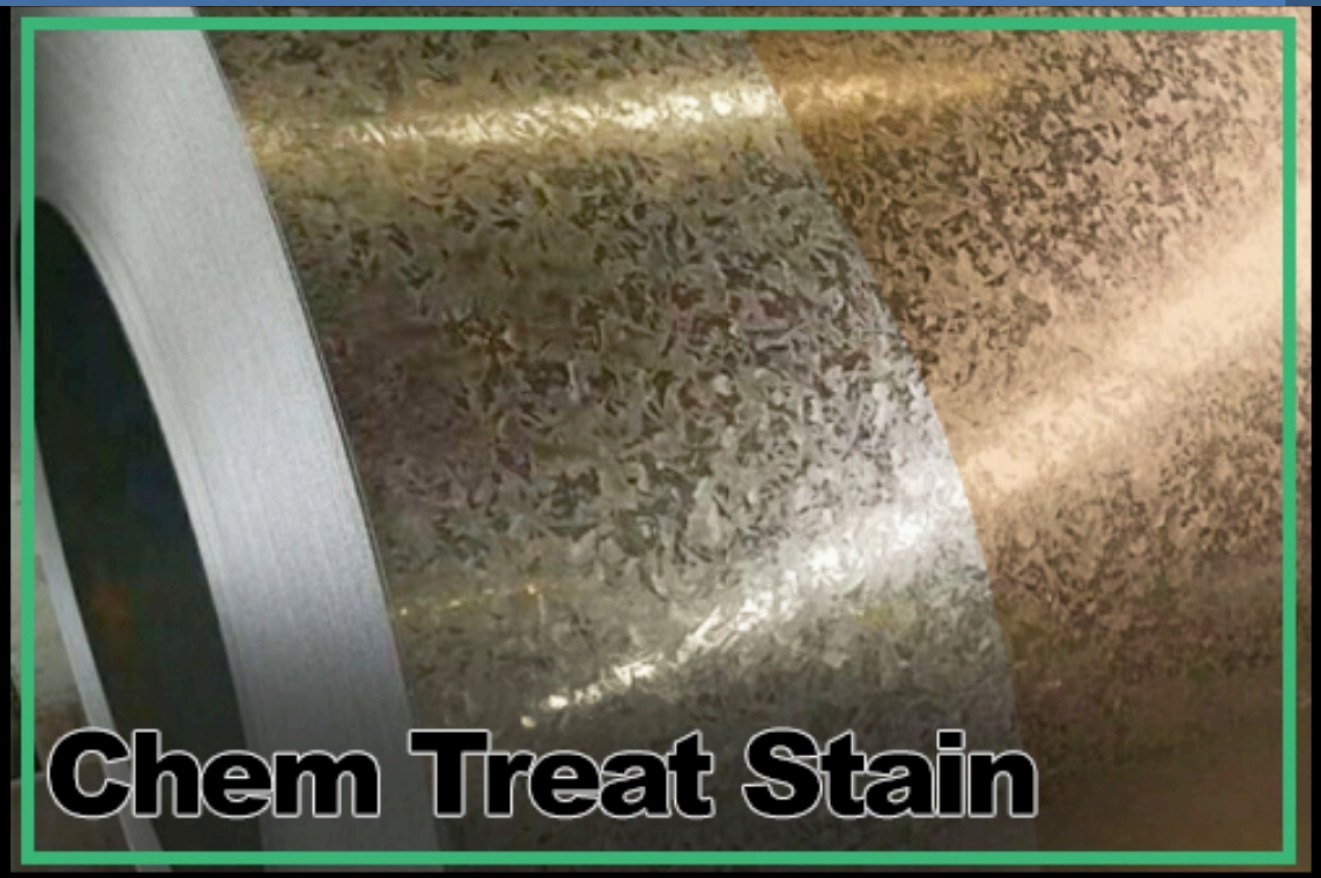
Buying Foreign vs. Domestic

When buying foreign steel, inquire if the material has any rust, especially saltwater rust. Saltwater rust accelerates the rusting process on steel.



HD Galv and Gneal Heal Themselves

Galvanized and Galvannealed steel coatings have self-healing properties that allow scratches and defects in the coating to repair themselves over time. The zinc in the coating oxidizes when exposed to air, forming a protective layer that seals any gaps or imperfections.



Corrosion protection treatments for steel coils

Comparing NCT and Chem Treat as corrosion protection treatments for steel coils

Overview

Chem Treat provides corrosion protection

Chem Treat forms a protective dry coating on the steel coil surface

Non Chem Treat - Oil provides corrosion protection

The oil coats the coil providing a protective layer

NCT Dry has higher corrosion risk

Without oil coating the coil surface is more vulnerable to rust

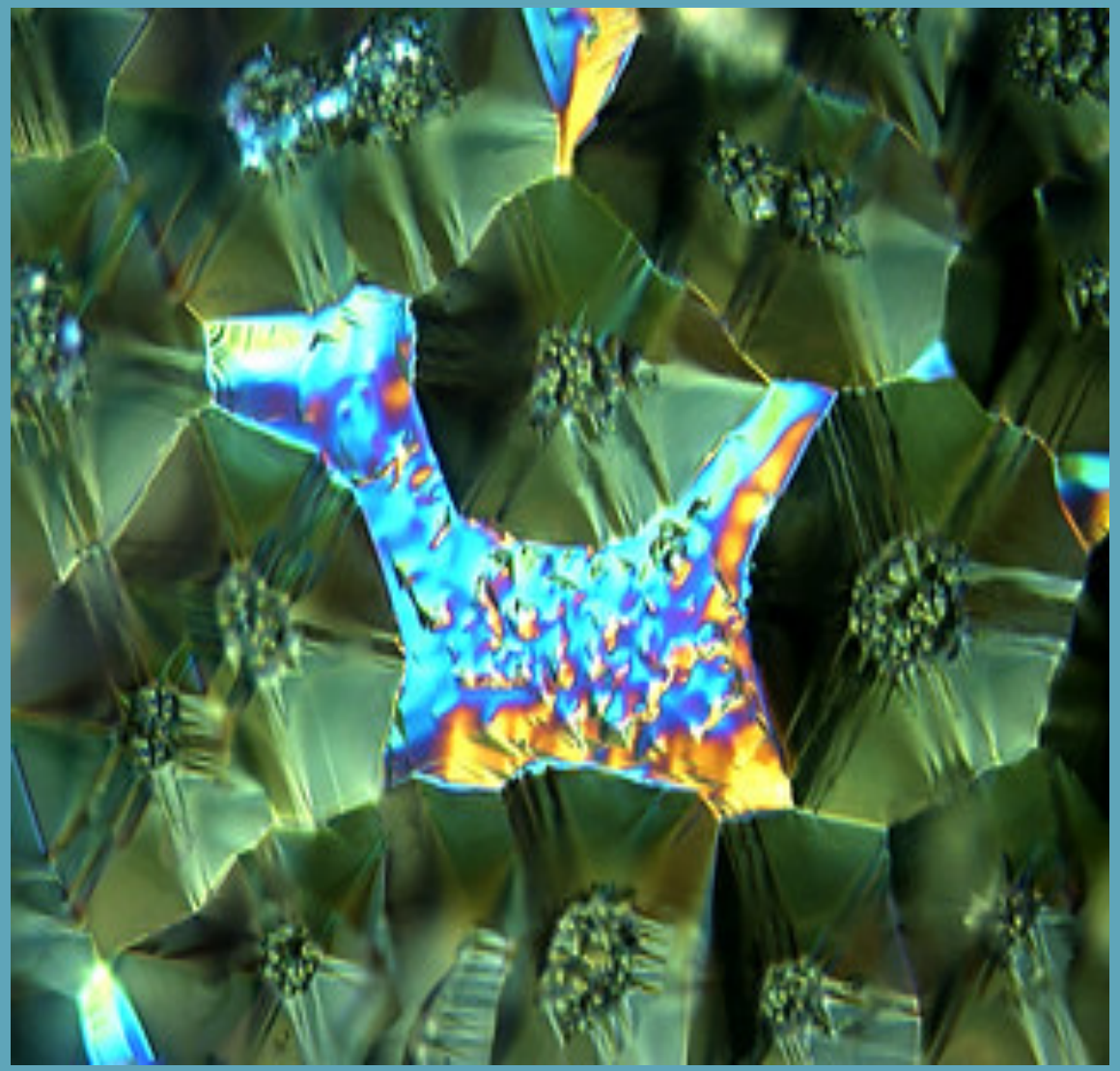
Chem Treat and NCT Oil provide good corrosion protection, NCT Dry has higher risk

NCT Oil

Steel coils treated with NCT Oil have a layer of oil on the surface that acts as a corrosion protector. The oil coating provides safe and effective protection against corrosion.

Chem Treat

Steel coils treated with Chem Treat have a protective coating applied during processing. This coating protects against corrosion even if the coils are dry after processing.



NCT Dry

Steel coils treated with NCT Dry have a higher risk of developing rust due to the lack of oil coating. However, reputable suppliers can mitigate this risk by adding a light oil coating and protective layer during processing. These coils are readily available and are acceptable for use in cold formed steel members.

A1003 Spec

A1003 spec does not require corrosive protective coatings

The A1003 specification for steel coils does not mandate any coatings or treatments on the surface

Coatings optional for corrosion protection

While not required, coatings like oil or chem treat provide corrosion protection if applied

The A1003 spec gives flexibility on surface coatings for steel coils

Summary

- NCT Oil provides the safest corrosion protection

NCT steel coils with oil coating provide the best protection against corrosion as the oil acts as a barrier.

- Chem Treat also protects against corrosion

Chemical treatments applied to steel coils also act as corrosion inhibitors.

- NCT Dry has higher risk but can be mitigated

Dry NCT coils have higher corrosion risk but suppliers can apply light oil or other coatings to mitigate this.

Different surface treatments for steel coils provide varying levels of corrosion protection, with oil and Chemical treatment coatings being the most effective.

Mill Certifications for Steel Coils

Mill test certificates provided by mills for prime and non-prime steel coils, and how to obtain physical test data when unavailable

ASTM A1003 Steel Certification Requirements

ASTM A1003 only requires chemistry mill certification

ASTM A1003 steel does not require mills to provide physical property certification, only chemistry certification.

No physical property certification

For ASTM A1003 steel, mills are not obligated to provide certification of tensile strength, yield strength, elongation or other physical properties.

ASTM A1003 steel purchased from mills will come with chemistry certification but no physical property certification.

Mill Certification for Non-Structural Steel

Non-structural steel made to ASTM A1003 standards only requires mills to meet a minimum Grade 33 standard. The mills are not required to provide physical properties for this type of steel.

Mill Certification for Structural Steel

Only Prime Material

Mills will only provide full mill certifications for Prime grade structural steel.

Physicals Not Standard

Physical properties may not be included unless the buyer specifically requests them.

Each Heat Tested

For Prime orders, the mill must test each heat number and provide results.

Extra Charges Apply

The mill charges extra for testing multiple thicknesses within a heat.

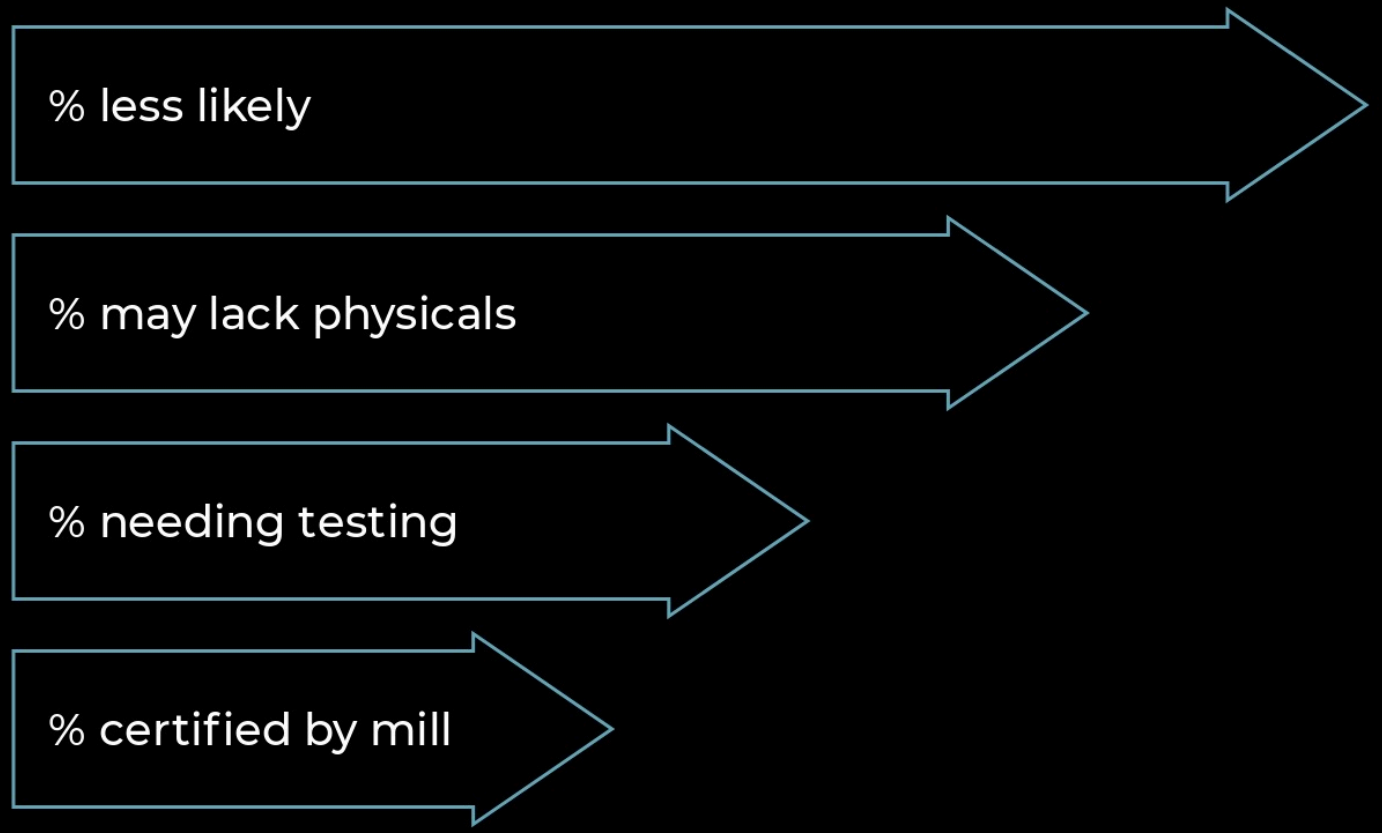
Verify with Supplier

Verify with your supplier that certs include physical properties.

Requesting Physical Properties for Prime Steel

- **Contract Terms**
  Include requesting chemical and physical properties in your contract terms.
- **Verify at Delivery**
  Verify mill certificates with chemical and physical properties are provided at delivery.
- **Sample Testing**
  Arrange third-party sample testing if mill certificates are unavailable.

Certification for Excess and Secondary Steel



Physical Property Testing Options

Third-Party Testing

If mill certifications are unavailable, physical properties can be verified through third-party testing prior to processing.

Sample Testing

Samples can be sent prior to processing into slit coil to verify material meets required specs.

Tensile Testing

A third-party testing lab can be contracted to tensile test the material if the vendor does not have the physicals.

Structural vs Non-Structural

For structural steel, mills must provide certs with physicals. For non-structural per ASTM A1003, only chemistries are required.

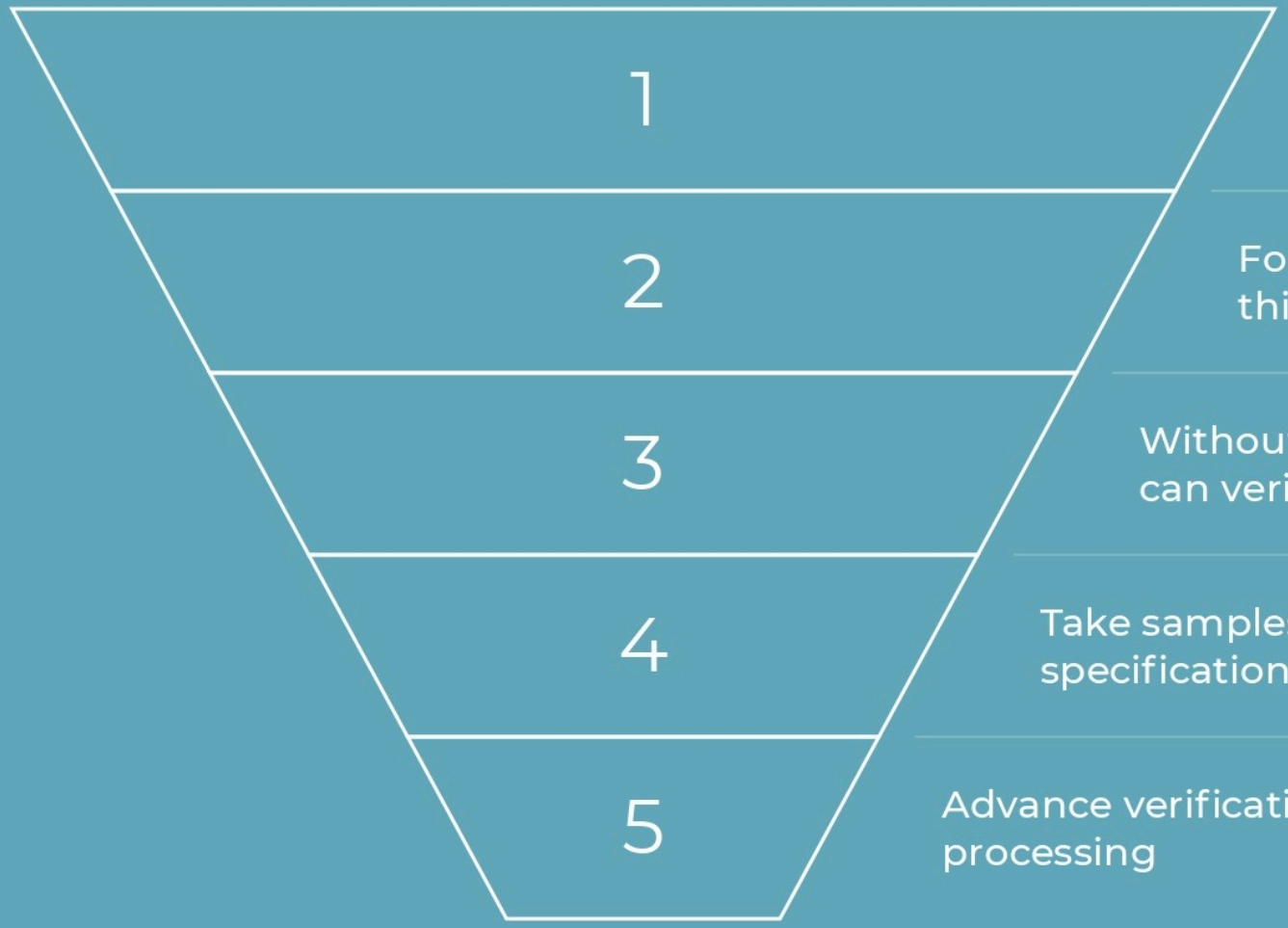
Prime vs Secondary/Excess

Physicals are less likely available for secondary/excess steel. Prime steel ordered with request will have physicals.

In-House Lab Testing

Some service centers have in-house labs that can provide physical property testing.

Importance of Advance Verification



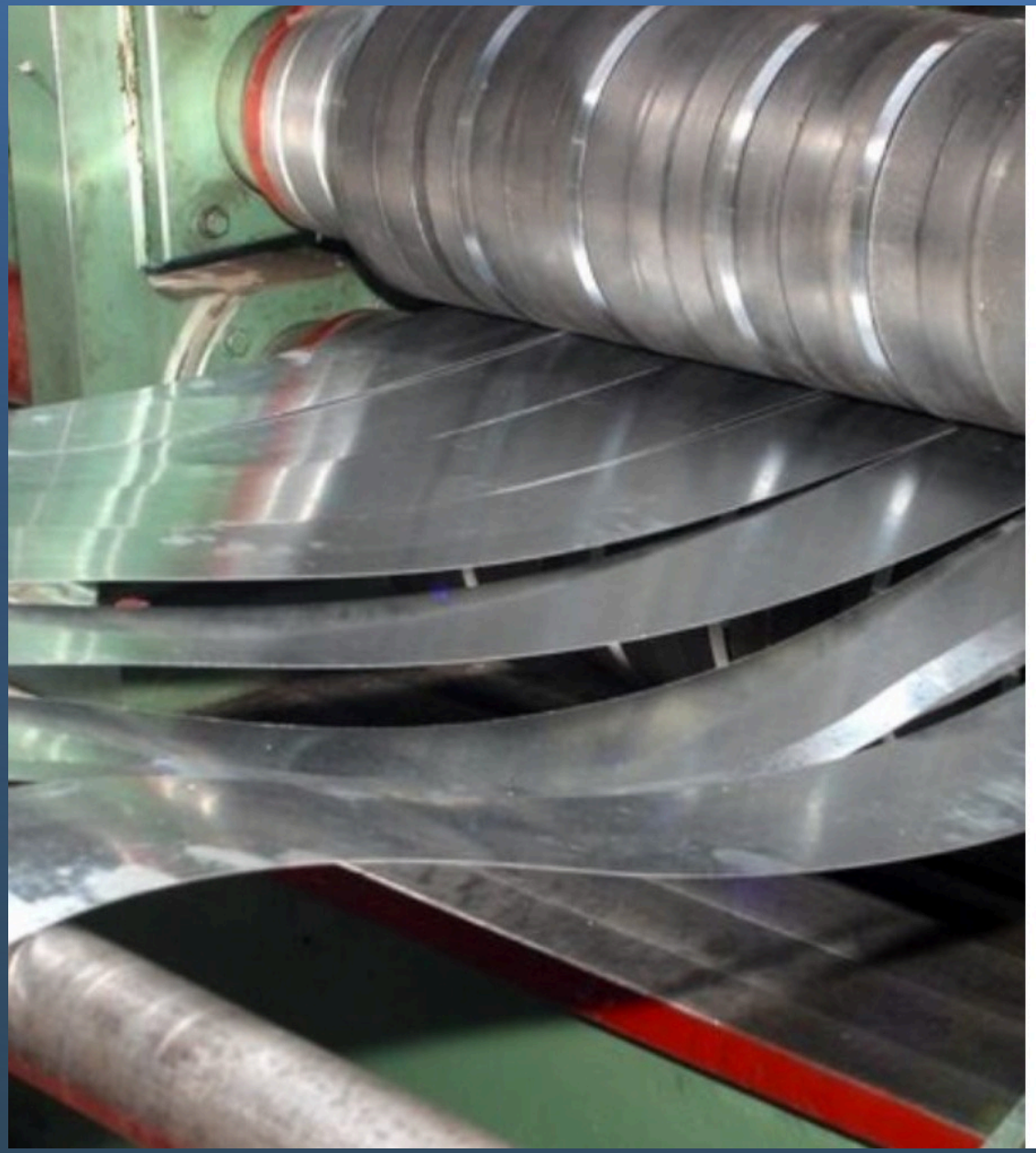
Request mill certs with physicals when buying prime steel, for structural members

For secondary steel, physicals likely need third party testing

Without physicals, tensile testing by third party can verify properties

Take samples before processing to ensure specifications are met

Advance verification ensures material properties before processing



Pros and Cons of Buying Master Steel Coil versus Slit Steel Coil

Pros and cons of purchasing master steel coils versus pre-slit steel coils.

Purchasing Master Coils Can Save Money But Has Risks

Save on Cost

Buying a master coil can cost less than buying slit coil

Inventory Risk

The buyer must manage the inventory and storage of the full master coil

Quality Risk

The buyer takes on the risk of quality issues or not meeting specifications

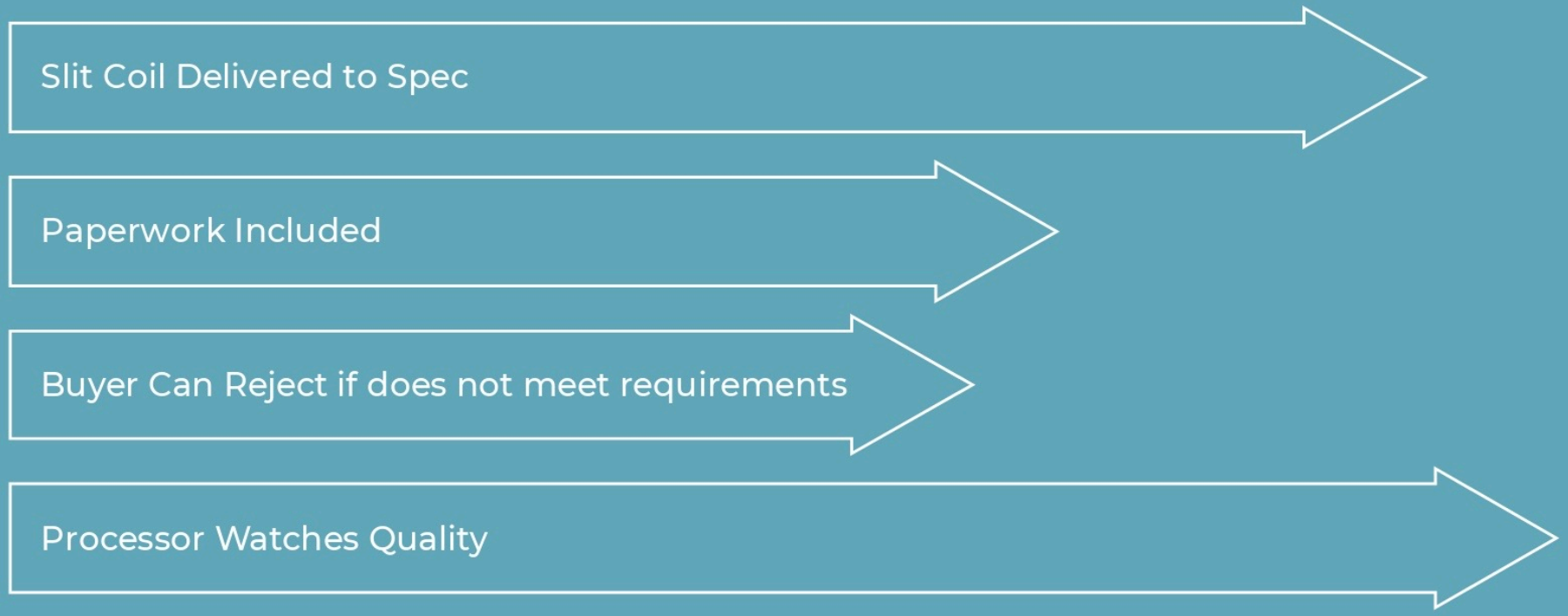
Processing Time

The buyer must arrange slitting and processing time before using the steel

Tied Up Cash

Buying coil ties up cash until it can be processed and sold

The Processor Provides Convenience and Mitigates Risk



The Processor Can Slit a Master Coil for You

If the buyer purchases a master coil, the processor can still slit it and provide the same quality control and service as if the buyer had purchased slit coil. The processor has the equipment to slit a master coil and the expertise to ensure the slit coils meet the buyer's specifications.

Tying Up Cash and Impacting Cash Flow

Buying Master Coil Ties Up Cash

Buying a master coil requires large cash outlay upfront that is tied up until coil is processed and turned into finished goods.

Tied Up Cash Impacts Cash Flow

With cash tied up in raw material, less cash is available for other operating expenses, impacting cash flow.

Buying Slit Coil Improves Cash Flow

Buying preprocessed slit coil reduces upfront cash required, freeing up cash for other expenses and improving cash flow.

Limited Cash Reserves

For buyers with limited cash reserves, buying slit coil is better for cash flow than tying up cash in master coil inventory.

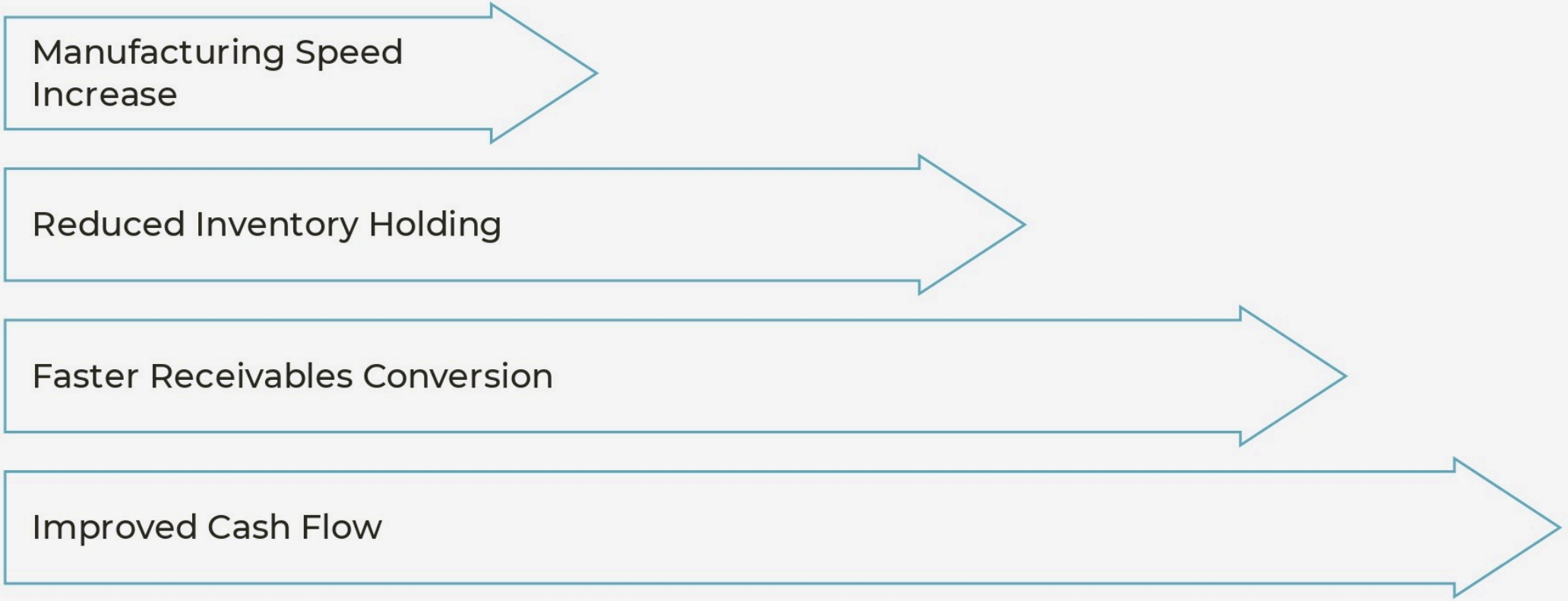
Turnaround Time Important

Faster turnaround to finished goods with slit coil improves cash conversion cycle and cash flow.

Bank Lines and Inventory Investment

- **Limit buying master coil with bank line**
  If buyer has a bank line, buying master coil ties up those funds in inventory rather than using for operations
- **Master coil is inventory investment**
  Funds used to buy master coil are invested in raw material inventory rather than operations
- **Better uses for bank line**
  Bank line could be better utilized for operational expenses rather than inventory

Production Speed and Cash Flow



Conclusion

Buying master coil can save money

Purchasing large quantities directly from mill has lower cost per pound

But has risks

Quality issues, inventory costs, processing delays

Using processor mitigates risks

Handles quality control, inventory, processing

Improves convenience, cash flow

Delivered when needed, pay on delivery

Buying master coil can save on cost but requires managing risks and operations. Using processor reduces risks and overhead.