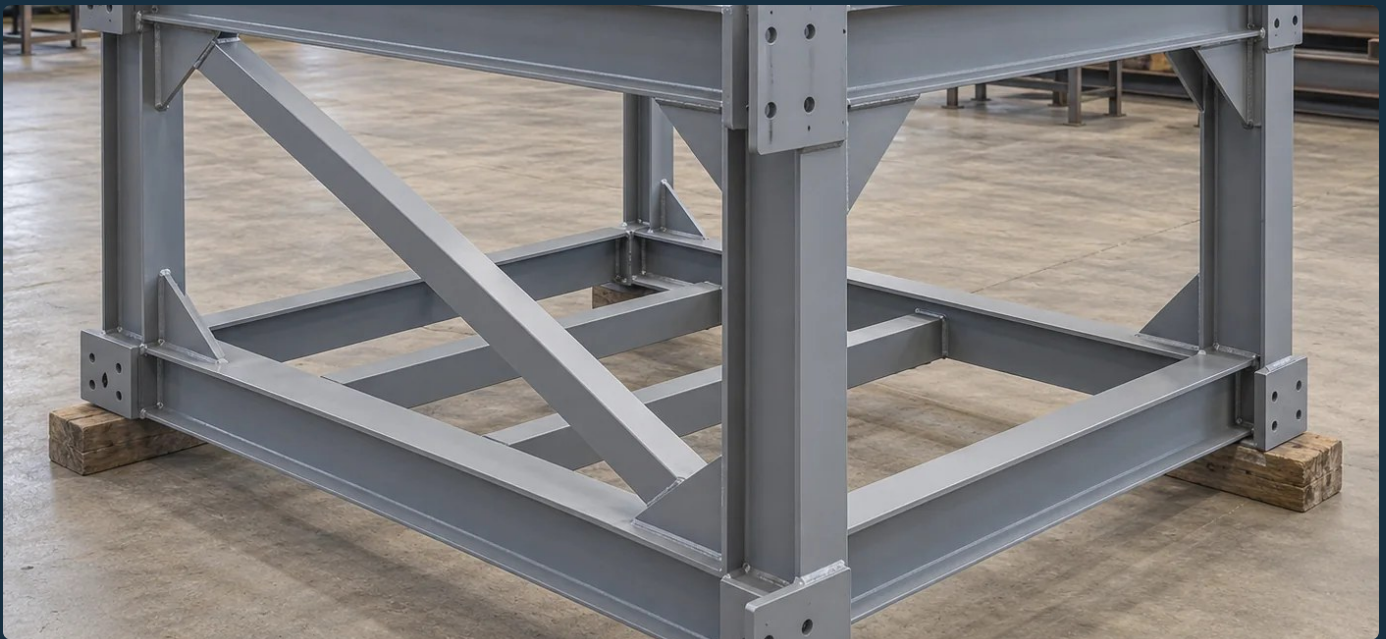


ILLUSTRATED TECHNICAL HANDBOOK 04

CONSTRUCTION STEEL, HSS & FABRICATED STEELWORK PROCUREMENT GUIDE

From material and mark schedules to controlled drawings, coordinated interfaces and documented delivery.



AI-generated product illustration; not a documentary factory or shipment photograph.

METDAX INDUSTRIAL SUPPLY

MDX-TP-04 | VERSION 1.0 | 13 OCTOBER 2026

53 pages / 3 teaching cases / 6 fillable worksheets

START HERE

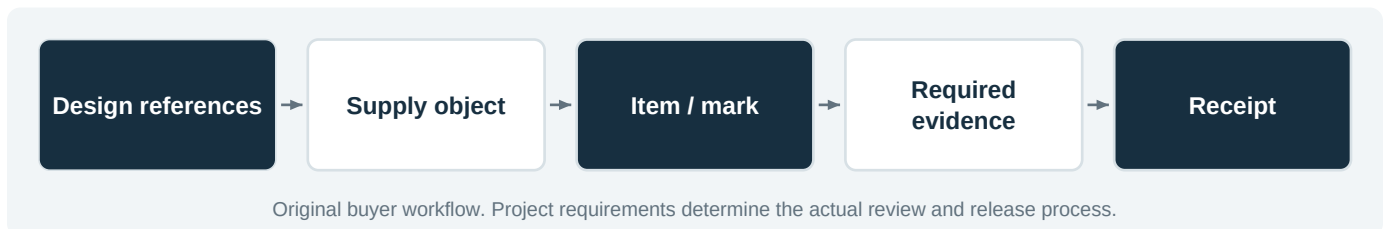
Buy the material, part or assembly you actually need

A practical guide to construction steel, hollow structural sections and fabricated steelwork.

Construction steel procurement has three different deliverables: stock material, prepared parts and completed assemblies. The same steel grade can appear in all three, but the quantities, drawings, inspection evidence and delivery identities differ. This handbook helps buyers translate approved engineering information into a defined supply package, compare offers and reconcile the delivered objects with the purchase order.

The material chapters cover HSS, rolled shapes and plate. The fabrication chapters connect drawing revisions, cutting, holes, welds, connection details and finishes to piece marks. Three two-page teaching cases demonstrate a cut-length HSS order, a marked frame package and a plate-versus-blank comparison. Six electronic worksheets support project scope, material lines, fabricated marks, interfaces, inspection and receipt.

All product pictures are AI-generated concepts from the existing METDAX asset library. Diagrams, identifiers and numerical cases are original teaching examples, not inspected products or completed projects. This publication supports procurement; structural design, connection capacities, erection methods and actual acceptance requirements remain in their governing project documents. The accepted quotation defines the current supplied products and services.



Reading routes

Material buyers: pages 7-13 and 35-38. Fabricated-steel buyers: pages 14-34. Worked cases: pages 39-44. Fillable worksheets: pages 45-50.

CONTENTS / READING PATHS

Find the material, mark or purchasing decision

Use the diagrams for orientation and the worksheets for your actual controlled project package.

Start Here	02
Scope, reading routes and the physical deliverable	
01 Buying Basis	04
Supply objects, responsibilities and controlled project inputs	
02 Materials And Geometry	07
HSS, rolled shapes, plate, wall bases and quantity units	
03 Drawings And Marks	14
Drawing roles, mark maps, datums, digital files and revisions	
04 Fabrication Scope	19
Cuts, holes, finished pieces, welding and assembled geometry	
05 Connection Interfaces	24
Hardware, base details, anchors and HSS mating features	
06 Finish And Protection	27
Defined finishes, galvanizing, coating handovers and repairs	
07 Quality And Delivery	31
ITP, material-to-mark traceability, records and receipt	
08 Rfq And Offer Review	35
Itemized enquiry, included work, comparison and order release	
09 Teaching Cases	39
HSS cut pieces, marked frame package and plate blanks	
10 Fillable Worksheets	45
Six project, material, mark, interface, evidence and receipt forms	
11 Quick Reference	51
Terms and quantity ambiguities to resolve before release	
12 References And Image Policy	52
Public sources, concept pictures, assumptions and version	
Metdax Next Step	53
Prepare a defined construction-steel enquiry	

01 / BUYING BASIS

Define the physical deliverable before the price

Stock material, processed parts and assembled steelwork carry different obligations.

A length of structural tubing is not the same deliverable as a drilled member or a welded frame. Start the enquiry with the object the buyer expects to receive. State whether the supplier provides raw stock, approved cut parts, marked members or completed assemblies, and whether loose connection material is included. A total tonnage cannot communicate those distinctions.

For stock material, the schedule emphasizes specification, grade, profile, dimensions and length arrangement. For parts, it adds the controlling drawing, preparation, dimensional requirements and mark. For assemblies, it adds component relationships, weld and connection references, finish boundaries and final geometry. Identify design, detailing and site work separately when any of those services are requested.

Ask the supplier to return the proposed supply object against each buyer line. Resolve wording such as complete structure by naming the assembly marks, loose parts and documentary deliverables. A useful quote describes what will be made and packed, allowing the buyer to identify omissions before commercial comparison.

STOCK MATERIAL

Specification / geometry
Lengths / sheets / counts

PREPARED PART

Material + drawing mark
Cuts / holes / ends

ASSEMBLY

Parts + joints + finish
Marks / evidence / packing

The actual accepted schedule defines which physical objects are purchased.

Define complete

List the included marks, loose accessories, processing, finish, records and delivery boundary. Use actual drawings rather than an illustration to define the assembly.

01 / BUYING BASIS

Preserve design and project responsibility boundaries

Name the decisions and their owners in the supplied scope.

Obtain the project design basis, structural documents and contractual allocation of responsibilities. AISC 303 provides a framework for structural-steel contracting, while AISC 360 addresses structural-steel design and construction. Their public descriptions help identify document roles. The project establishes applicability, editions, amendments, design responsibility and any additional contractual provisions.

If connection design, detailing or engineering review is part of the proposed supply, identify the exact service, inputs, deliverables and responsible party. A member schedule by itself does not describe the forces or design requirements for a connection. A shop-drawing review should have a recorded purpose and scope, so procurement does not misinterpret its status as approval of unrelated decisions.

Use a responsibility matrix to expose interfaces between engineering, procurement, the fabricator, coating provider and site team. For each task, distinguish who supplies information, who performs the work and who reviews the result. Keep unresolved responsibilities in the enquiry until the accepted scope assigns them explicitly.

Task / decision	Define in the purchase package
Structural / connection design	Responsible party, governing inputs and issued deliverables
Detailing / drawings	Required files, revision control and review route
Material / fabrication	Approved items, preparation and quality records
Finish / site interfaces	Treatment boundaries and responsible contractors
Delivery / erection	Purchased delivery scope and separately assigned site work

Edition check

Record the contract-required editions and applicable errata or amendments. Publication of a newer document does not itself change an existing order.

Source scope: C01, C13, C16 | Reference register: page 52

01 / BUYING BASIS

Build the project input and attachment register

A controlled enquiry begins with a defined document set.

Collect the released structural drawings, specifications, member schedules and connection details relevant to the supplied objects. Record units, drawing numbers, revisions and the intended issue purpose. Separate information for pricing from information released for fabrication. If a model is provided, identify its version, file type and authority relative to drawings and schedules.

Provide the project location, delivery destination and required sequence as purchasing inputs. Environmental or specialist requirements should appear through their approved material, fabrication and finish specifications. Do not turn a short phrase such as coastal project into an invented grade or coating requirement. Ask engineering to supply the missing technical selection and identify which items it affects.

Give every attachment a stable reference. When a drawing is replaced, state which revision is superseded and whether quantities or preparation change. The supplier should acknowledge the same document set used by the buyer. Preserve technical questions and assumptions alongside it; otherwise preliminary information can enter production without a visible decision.

Register field	Example of a useful entry
Document identity	Number, title, sheet and attachment filename
Edition / revision	Current issue and superseded reference
Purpose / authority	Pricing, review or released production basis
Affected objects	Buyer items, part marks and assembly marks
Open input / owner	Question, accountable reviewer and decision reference

Submission package

Send the material or mark schedule with its controlling attachments. Name missing inputs and the decisions needed to complete the offer.

02 / MATERIALS AND GEOMETRY

Separate specification, grade and section identity

A product family name does not complete the material description.

The material description needs a product specification and edition, grade or specified material identity, section geometry, quantity and condition. A500 concerns structural tubing in rounds and shapes; A1085 concerns cold-formed welded HSS; A36, A572 and A992 identify different structural-steel specification families. A6 supplies general requirements for its covered rolled products. These scope labels do not authorize substitution between them.

An H-section picture does not establish an ordered shape designation, and a rectangular tube picture does not establish its grade or wall. Preserve the identity selected in the project documents. Where a supplier offers a different specification, dimensional series or grade, list the exact proposed change and the supporting evidence instead of calling it equivalent steel.

The family map is a procurement orientation. The actual standard and project requirements determine product applicability, dimensions, tests and records. State additional requirements explicitly and identify the controlling unit system. A mixed shipment can contain several specifications; keep them separated by buyer line and delivered identity.

Purchased family	Public scope orientation	Additional item identity
A500 / A1085	Structural tubing / HSS	Shape, grade if applicable, dimensions and condition
A36 / A572	Specified structural-steel products	Grade, product form and ordered geometry
A992	Structural steel shapes	Exact shape designation and length arrangement
A6	General requirements for covered rolled products	Applicable product specification and units

Material review

Compare the requested and offered specification, grade, product form, dimensions and supplementary requirements together.

Source scope: C02, C03, C04, C05, C06, C07 | Reference register: page 52

02 / MATERIALS AND GEOMETRY

Describe square, rectangular and round HSS clearly

Outside dimensions and nominal wall belong on every tubing line.

For square and rectangular HSS, record the two outside dimensions and nominal wall with the governing dimensional basis. For round HSS, record the physical outside diameter and wall rather than relying on a familiar pipe label. Preserve the specified grade, route where required, finish and length arrangement. The profile illustration below explains the family, not actual offered sizes or performance.

Orientation matters when a rectangular member is cut, drilled or joined. Identify which face carries a feature and how the drawing labels the major and minor dimensions. Corner geometry and the interior weld region can affect fitting parts, plugs and fabrication access. Supply the actual mating detail when a part must enter the section or bear against a particular surface.

A concise line can point to detailed attachments without losing identity: buyer item, specification, grade, outside dimensions, nominal wall, quantity, exact lengths and drawing revision. Keep purchased tolerances with their defining document. Ask the offer to state the real proposed section and any dimension or preparation differences.



AI-generated concept illustration; not a factory, inspection or shipment photograph.

WHAT TO CONFIRM

- 1 Shape and outside dimensions
- 2 Nominal wall / ordered basis
- 3 Feature face / orientation
- 4 Exact lengths and records

Avoid ambiguous tubing

A description such as rectangular tube for frames leaves material identity, orientation, wall and preparation unresolved.

02 / MATERIALS AND GEOMETRY

Review A500 and A1085 against the actual order

Shared HSS geometry does not establish identical specification compliance.

ASTM publicly identifies A500/A500M-23 as structural tubing in rounds and shapes and A1085/A1085M-22 as cold-formed welded carbon-steel HSS. Their scope descriptions identify related families, but a similar cross-section does not make the standards interchangeable. The responsible project requirement determines which product and edition to purchase.

Obtain the offered material identity, required grade information, dimensions, manufacturing condition and issued records. Compare the applicable ordered requirements, including any project additions. Do not use one nominal strength phrase as a substitute for the full review, or assume that a certificate naming one specification demonstrates the other. If dual compliance is required, ask for evidence covering both ordered bases.

For a proposed substitution, identify its affected marks and design-property references as well as the material records. The reviewer needs the actual requested and offered product descriptions. Keep the resulting decision with the schedule and drawings, so the receiving team does not have to infer acceptance from a general supplier assurance.



AI-generated concept illustration; not a factory, inspection or shipment photograph.

WHAT TO CONFIRM

- 1 Exact specification / edition
- 2 Required material identity
- 3 Offered section and condition
- 4 Issued compliance records

Specification difference

The illustration shows conceptual welded tubing. It is not proof of a grade, standard, qualification or test result.

Source scope: C02, C03 | Reference register: page 52

02 / MATERIALS AND GEOMETRY

Separate ordered wall, measured wall and design properties

Three different records can describe different thickness bases.

A nominal purchased wall is part of the product description. A measured wall is an observation at a specified location and stage. The wall basis used in design properties comes from the governing engineering reference. Keep those roles separate: a catalogue dimension, a measurement and a calculation input should not silently replace each other.

For HSS, corner shape, dimensional variation and the specified product basis affect how geometry is represented. Ask engineering to identify the property source used for design, and ask quality personnel to identify the required measurement and acceptance basis for delivery. Procurement can preserve both references without issuing its own load-capacity conclusion.

When an offered wall or section changes, record the new outside dimensions, wall basis, material identity and property source. Check whether mating plates, holes, plugs, connection details or finish procedures are also affected. A dimensional change is reviewable only when its consequences are linked to the actual members and interfaces.



B / H: ordered outside dimensions
 t: nominal wall basis
 Actual checks and design properties:
 use their defining documents.

Generic section sketch, not to scale. No dimensional tolerance or capacity is provided.

Thickness / geometry role	Record to preserve
Ordered nominal wall	Schedule and governing product requirements
Actual dimensional check	Method, location, result and acceptance reference
Design-property basis	Engineer-selected section and property source
Mating geometry	Controlled component drawing and interface requirement

Geometry sketch

The diagram is not to scale and gives no section properties, dimensional tolerances or design capacity.

02 / MATERIALS AND GEOMETRY

Order rolled beams by the exact shape designation

An H-beam or I-beam description alone leaves the dimensional series unresolved.

Rolled structural shapes need their exact designation, specification, grade where applicable, length arrangement and preparation. Identify the dimensional reference used by the project. Different national or manufacturer series can have similar overall appearances with different depths, flange widths, web thicknesses or fillets. An image cannot establish interchangeability.

ASTM A992 publicly describes structural-steel shapes; its name does not specify which section the supplier will deliver. Retain the project shape identity and request the offered dimensions or dimensional reference when a substitution is proposed. A metric conversion of a designation is not automatically a different recognized section series or an accepted alternative.

For prepared beams, carry the web and flange orientation into the shop detail. Identify cope geometry, end cuts, holes, stiffeners and attached plates by drawing reference. Confirm which ends are prepared and whether the quantity describes raw lengths or completed marks. The accepted schedule should preserve the connection and finish requirements affecting the member.



Wide-flange concept: order the exact designation and dimensional series.



I-section concept: confirm the actual flange, web and end geometry.

AI-generated product illustrations. No product approval or inspected-lot evidence is implied.

Complete beam item

Shape designation + material basis + length / count + drawing revision + processing + finish + records.

Source scope: C06 | Reference register: page 52

02 / MATERIALS AND GEOMETRY

Distinguish whole plate from prepared plate parts

Thickness, dimensions, edge condition and part identity define different purchases.

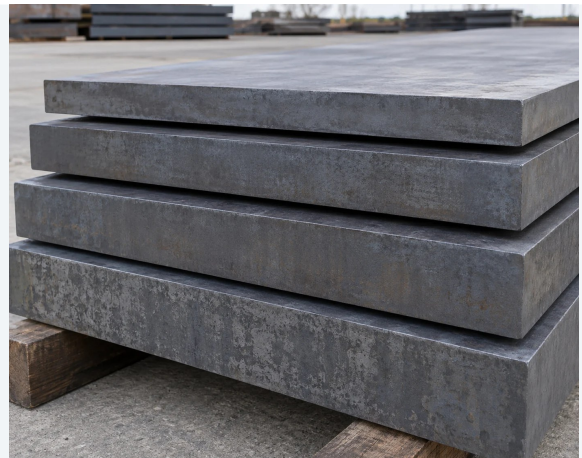
Whole-plate orders identify material specification, grade, thickness, width, length, quantity and condition. Prepared plate parts add their individual mark, drawing revision, profile, holes, edge preparation and inspection requirements. A plate stock list and a finished-part list should not share one undefined quantity field.

Record whether a dimension is the stock size, rough blank or finished part requirement. Identify the thickness basis and applicable tolerances from the ordered documents. Where material direction, special testing or delivery condition matters, retain its explicit reference. A grade name or broad plate photograph cannot settle those requirements.

For cutting services, ask the supplier to state the accepted part count and included processing. Commercial responsibility for scrap, remnants and extra stock should be visible. A price per tonne of input plate cannot be compared directly with a price per finished blank until the same deliverable, evidence and preparation are established.



Whole-plate concept: preserve stock dimensions, material and count.



Edge concept: define the ordered condition and any preparation.

AI-generated product illustrations. No product approval or inspected-lot evidence is implied.

Before comparing

Is the quoted unit a sheet, a mass of stock, a rough blank or a completed drawing-marked part?

Source scope: C04, C05, C07 | Reference register: page 52

02 / MATERIALS AND GEOMETRY

Reconcile physical quantities before using theoretical mass

Counts, exact lengths and drawing marks remain the receiving basis.

State whether a line is sold by piece, length, sheet, completed part, assembly or agreed mass. Keep the physical arrangement alongside any pricing quantity. A supplier can quote a mass basis while delivery still needs identifiable counts and lengths. Define theoretical-table or weighing conventions and identify which added products and packaging are included.

For simple whole plate, an ideal planning mass can be derived from length x width x thickness x assumed density. With dimensions in metres and density in kg/m³, the result is kilograms. This calculation excludes actual dimensional variation and any holes, processing, coatings or packing. For shaped sections, use the agreed product mass table or actual weighing basis rather than a simplified corner assumption.

NIST defines the international foot as exactly 0.3048 m. A converted length helps compare physical quantities, but it should not create a second conflicting acceptance value. Name the controlling units and retain the original requirement. Recalculate quantities when counts, lengths, thicknesses or purchased preparation change.

Ideal plate mass = L x W x t x rho

L, W and t in metres; assumed rho = 7,850 kg/m³; result in kilograms.

Teaching input / result	Ideal planning value
One plate: 2.000 x 1.000 x 0.006 m	Volume = 0.012000 m ³
Assumed density	7,850 kg/m ³
One ideal plate	94.20 kg before holes / treatment / packing
Twelve identical ideal plates	1,130.40 kg; 24.000 m ² of plan area

Calculation boundary

These are independently calculated teaching dimensions and assumptions, not a catalogue item, shipment weight or structural-capacity calculation.

Source scope: C14 | Reference register: page 52

03 / DRAWINGS AND MARKS

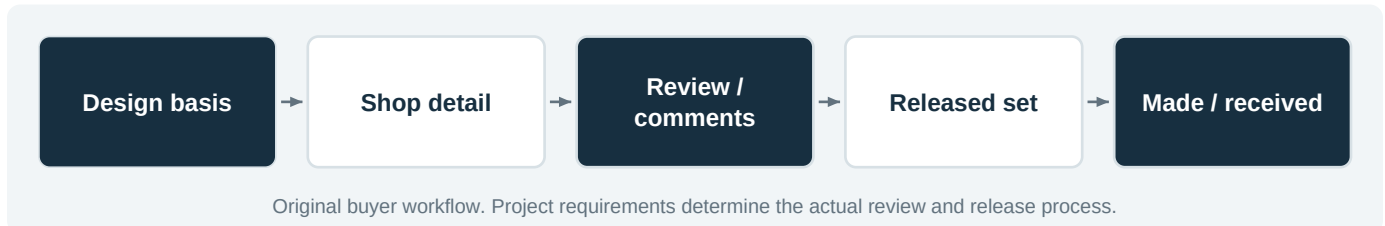
Control the drawing used for the purchased object

Design documents, shop details and assembly references have distinct purposes.

Identify the structural documents that define the requirement and the shop details that describe the proposed fabrication. The enquiry should name the required drawing deliverables, file formats, review process and production release basis. A screenshot or catalogue image is insufficient when dimensions, connection features and part relationships must be manufactured.

Use a drawing register that includes number, sheet, revision, issue purpose, affected marks and current status. Keep review comments and their dispositions associated with the submitted version. A drawing may be accepted with conditions that still affect material ordering or fabrication; record those conditions explicitly rather than treating a returned file as an unconditional release.

If drawings and schedules conflict, describe the discrepancy with the affected marks and request a controlled answer. Do not resolve it by choosing whichever file gives the lowest cost. Preserve the accepted decision in the current production set and make the corresponding quantity or evidence change visible in the purchasing schedule.



Document type	Purchasing use
Design drawing	Member and connection requirements and interfaces
Shop detail	Manufactured geometry, parts, welds and marks
Assembly / location reference	Relationships and intended installation identity
Release register	Current files, conditions and decision references

File authority

State which drawings or model information control production, and who can issue an accepted revision.

Source scope: C01 | Reference register: page 52

03 / DRAWINGS AND MARKS

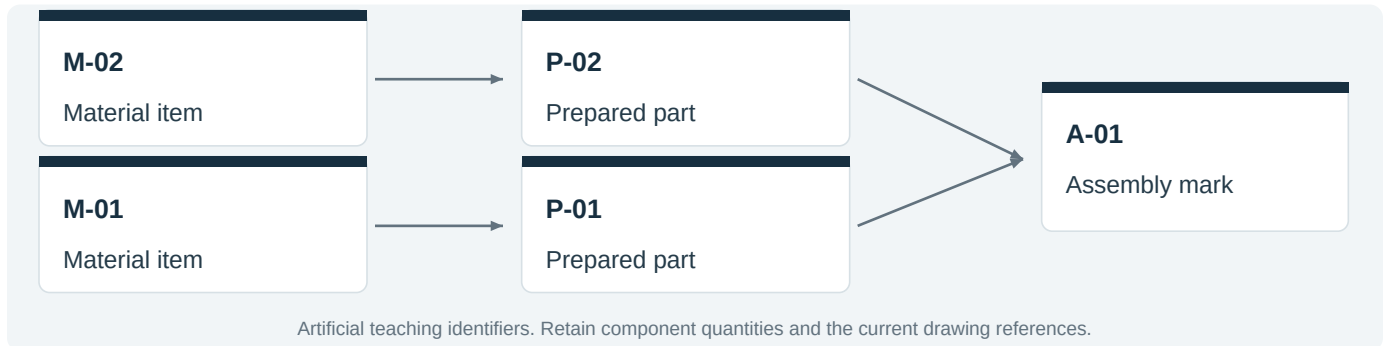
Translate drawings into a material and mark hierarchy

One assembly can contain several material items and part marks.

Begin with the assembly or member marks the buyer expects to receive. Link each mark to its component parts, and link each part to the required material identity. The material schedule organizes procurement of stock; the part schedule organizes processing; the assembly schedule organizes the completed supply. Keep those levels visible even when one supplier provides them all.

A simple hierarchy can use an assembly reference, part mark, material item, quantity and controlling drawing revision. Keep repeated parts under their common part identity while preserving where they are used. State whether the quantity is per assembly or for the complete order. A multiplier error can remain hidden when a schedule mixes those bases.

Use stable buyer references when the supplier introduces internal stock or production identifiers. Map the internal records to the purchased marks rather than replacing the buyer schedule. This allows inspection, packing and receiving teams to locate the same object without knowing how the shop originally organized its work.



Hierarchy level	What it identifies
Assembly A-01	Purchased combination and overall drawing
Part P-01 / P-02	Individual prepared pieces and required quantities
Material M-01 / M-02	Specification, grade and stock geometry
Evidence / packing	Records and shipment identity linked to the object

Teaching map

A-01, P-01 and M-01 are artificial identifiers. They illustrate the relationship, not a real METDAX production record.

03 / DRAWINGS AND MARKS

Define faces, datums and handed components

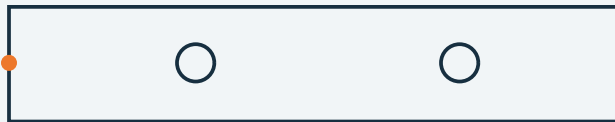
A dimension is useful only when its reference and orientation are clear.

Record the datum and orientation used for each manufactured feature. A hole offset from one end is not the same requirement as the same offset from the opposite end. A rectangular section has different faces; a beam has a web and two flange faces. Mark the reference end and feature face on the controlling drawing instead of describing them only in an email.

Left- and right-hand parts may have the same material and overall length but different holes, cuts or attached plates. Keep distinct part marks where the geometry differs. Identify whether an assembly has a designated top, front, start end or installation orientation. The supplier can then quote and check the actual parts rather than assume every repeated-looking member is identical.

If the mating object is supplied by another contractor, obtain its controlled dimensions or drawing reference. Compare datum conventions and revisions before release. Record which party confirms the interface and how a field discrepancy will be reported. Photographs can illustrate a problem, but the dimensional requirement should remain in a traceable document.

REFERENCE END A



Datum-to-feature reference

Original feature-location concept only, not a fabrication or connection detail.

Identify the processed face, orientation, handed mark and current drawing.
No hole sizes are assigned.

Drawing fields

Reference end / face + datum + feature location + units + tolerance reference + handed mark + drawing revision.

03 / DRAWINGS AND MARKS

Make model and machine files part of document control

A digital file is a production input with its own identity and revision.

A three-dimensional model, DXF profile or machine file can help communicate geometry, but its role should be agreed. Identify the source drawing, revision, units, format and intended use. State whether the file is controlling geometry, reference information or a supplier-generated production aid. Avoid a silent assumption that the newest filename is the released requirement.

Compare a received file with its associated drawing and part schedule. Check mark names, orientation, feature types and quantity mapping. A converted file can omit a note, change units or lose a material requirement even when its outline appears correct. Record the review and retain the issued source rather than relying only on a processed export.

When a change affects production files, identify the replaced versions and the parts already processed. Require the supplier to state how the current drawing and file set were reconciled. Keep the actual production-release decision with the purchase record. A file transfer is a document event; it does not by itself establish technical acceptance.

Digital-input check	Record required
Authority / purpose	Controlling, reference or shop-generated use
Source / revision	Drawing number, model version and issue date
Units / orientation	Unit system, datum and feature-face convention
Mapping	Buyer mark, part count and file identity
Conversion / release	Verification, changes and accepted production basis

Practical request

Return a file-and-mark register showing the current drawing source and the accepted revision for every supplied machine file.

03 / DRAWINGS AND MARKS

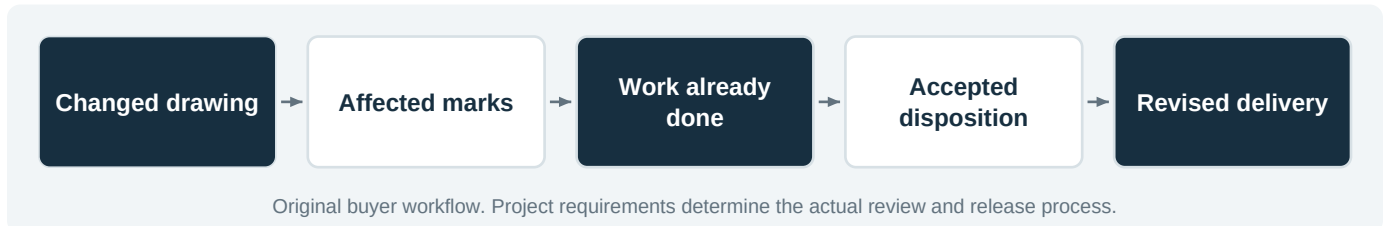
Carry revisions into quantities, work and delivery

A revised drawing can affect more than the changed dimension.

List every affected material item, part mark and assembly when a drawing changes. The impact can include purchased length, hole preparation, weld access, connection accessories, finish masking, inspection records and packing order. Review the complete chain, so the current schedule does not describe one revision while the supplier fabricates another.

Identify what has already been ordered, cut, drilled, welded or coated. Request a proposed disposition for that work and record the responsible technical and commercial decisions. Keep the original observation and proposal with the accepted outcome. Revised counts should show additions, removed items and balances separately when the shipment is already split.

Issue a controlled change package with the superseded references, new drawings, revised item schedule and accepted conditions. Ask the supplier to acknowledge it by affected mark. Receiving should have the same current basis, including any accepted earlier-revision parts, so those parts are not confused with unresolved nonconforming work.



Change group	Consequence to review
Geometry / material	Parts, stock lengths, interfaces and property references
Processing / finish	Prepared features, coating boundaries and rework
Documents / shipment	Evidence, mark maps, packing and remaining quantities

Change record

Requirement + requested change + affected marks + work status + evidence + responsible decision + order / drawing updates.

04 / FABRICATION SCOPE

Define cuts, ends and edge preparation by mark

The purchased operation should end with a measurable part requirement.

State whether a cut is a stock separation, a finished square end, an angled end or a profiled connection feature. Identify the controlling drawing, length basis and required edge condition. Record which ends are processed and whether a measurement refers to the overall dimension or a datum-to-feature location. A cutting-service label alone leaves the delivered geometry undefined.

For plate parts, distinguish a rough blank from the final outline. For beams, identify copes and end preparation. For HSS, identify miter orientation and any feature-face reference. Requirements for deburring, edge preparation or additional machining should be visible in the accepted scope, with the governing workmanship or inspection reference.

Ask the supplier to quote the defined part count and processing rather than assume a stock length produces a guaranteed number of acceptable pieces. The usable arrangement depends on the real cutting method, allowances and end condition. Keep remnants and scrap responsibility in the commercial agreement while receiving against the agreed finished pieces.



Beam-piece concept: distinguish raw stock from finished marked members.



Plate-blank concept: define the outline, edge condition and remaining work.

AI-generated product illustrations. No product approval or inspected-lot evidence is implied.

Prepared-part identity

Part mark + material item + exact drawing revision + end / edge requirement + piece count + inspection record.

04 / FABRICATION SCOPE

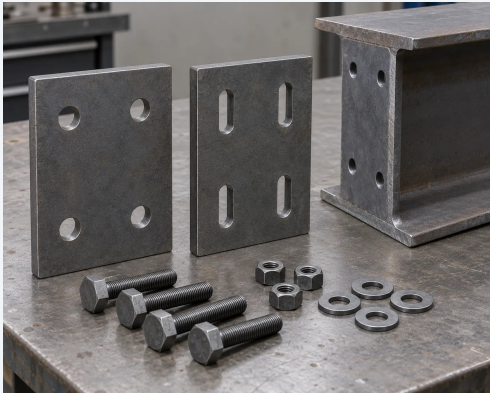
Specify holes, slots and mating feature geometry

Feature type, datum and finish condition must remain coordinated.

A hole schedule should identify the part, feature type, size, location, orientation and applicable tolerance reference. Keep standard round holes, slots and other project-defined features distinct. Do not replace the engineered detail with a supplier default, or infer a required hole size from a bolt photograph. The actual connection documents define the requirement.

Record the datum used to locate the hole pattern and identify which face is processed. For slots, preserve their direction as well as the defined geometry. Consider the specified finish and interface treatment when the project detail requires masking or post-treatment checks. Any change to a hole, slot or coating boundary should remain associated with the mating component.

Request the actual proposed preparation and inspection method where the order requires it. If a pattern does not match the released mating detail, keep the difference as a technical question or deviation. Field enlargement or relocation is a separate reviewed change; it should not enter the accepted supply as an unrecorded assumption.



AI-generated concept illustration; not a factory, inspection or shipment photograph.

WHAT TO CONFIRM

- 1 Feature type and dimensions
- 2 Datum / face / orientation
- 3 Mating drawing revision
- 4 Finish and inspection basis

Photo boundary

This AI concept illustrates parts and loose hardware. It supplies no hole dimensions, bolt specification or connection capacity.

04 / FABRICATION SCOPE

Turn stock lengths into a defined cut schedule

Input stock, finished pieces and cutting allowances need separate quantities.

A cut schedule links each finished piece to its material identity, mark, length and end detail. State the required piece count and exact geometry. If the order also includes raw stock, separate that input line from the completed-piece line. A combined length total is useful for arithmetic, but it does not explain the physical arrangement or processing scope.

The fabricator determines a workable cutting plan using the purchased requirements and actual process. Include the treatment of saw kerf, end trimming, remnant length and orientation constraints in the quoted basis where relevant. A simple division of stock length by finished length can overstate usable quantity, particularly when the final geometry needs allowances or prepared ends.

Keep the final receiving schedule organized by finished mark and piece count. If commercial pricing uses input stock or theoretical mass, preserve that basis separately. Record any accepted surplus lengths or remnants so they are not mistaken for incomplete finished pieces. The teaching case on pages 39-40 shows the distinction numerically.



AI-generated concept illustration; not a factory, inspection or shipment photograph.

WHAT TO CONFIRM

- 1 Finished marks and counts
- 2 Exact length / end geometry
- 3 Input-stock pricing basis
- 4 Allowance and remnant scope

Quote clarification

Identify the completed cut-piece deliverable, the stock basis used for pricing, and who owns or receives any agreed remnants.

04 / FABRICATION SCOPE

Specify welding documents and the inspection interface

The project basis governs procedures, qualifications and acceptance.

The AWS public D1.1 information describes requirements for structural-steel welding, qualification and inspection. The reviewed landing page identifies D1.1/D1.1M:2025-AMD1. Record the edition and applicable amendments required by the project; different structural applications can invoke other welding requirements. The handbook does not select a welding code from the appearance of a frame.

Keep the approved weld detail, required procedure references, qualification evidence and inspection requirements linked to the manufactured marks. A drawing symbol does not by itself describe every qualification or reporting obligation. Ask the supplier to state the proposed welding-document package and how the applicable records are mapped to the purchased assemblies.

Define inspection stages early enough to see features before later processing or coating hides them. Separate the required examination from its acceptance reference, extent and issued record. If repairs occur, preserve the original finding, authorized repair basis and required re-examination. Receiving should be able to locate the relevant records without assuming a smooth finish proves weld compliance.



AI-generated concept illustration; not a factory, inspection or shipment photograph.

WHAT TO CONFIRM

- 1 Released weld / assembly detail
- 2 Procedure and qualification basis
- 3 Required examination and extent
- 4 Mark-linked issued records

Document purpose

WPS describes the applicable welding procedure. Supporting procedure or personnel qualifications and inspection records perform different checks; request each required record explicitly.

Source scope: C08 | Reference register: page 52

04 / FABRICATION SCOPE

Make assembled geometry and shop-fit checks reviewable

Part accuracy and completed-assembly fit are related but separate checks.

Completed assemblies need their defined overall geometry and interface features, not only compliant individual materials. State the required dimensions, reference datums, orientation and tolerance basis from the approved drawing set. Identify any required shop-fit, trial-assembly or mating-component checks and the records that will document them.

A shop-fit request should explain which objects are presented, what interfaces are checked, whether the actual mating parts are available and which party reviews the results. Do not assume a generic trial-fit photograph proves every field interface. Record the actual setup and measured or observed features relevant to the purchased requirement.

Where an assembly is split for shipping, preserve how the pieces reconnect by mark and drawing reference. Define included loose parts and any required match marking. Keep erection and temporary support responsibilities with their assigned parties; a procurement drawing or concept image does not establish a site assembly method.

PART	ASSEMBLY	MATING OBJECT
Material / prepared features	Overall geometry / mark	Controlled interface reference
Define the actual checks, acceptance basis and issued records in the order.		

Review object	Agreed check / record
Individual parts	Prepared dimensions and identity against shop details
Completed assembly	Overall geometry and connection features
Mating interface	Actual drawing / component and checked features
Shipping split	Marks, loose parts and reconnection references

Useful question

Which finished features must be verified before coating, and which complete-assembly checks are included before release?

05 / CONNECTION INTERFACES

Purchase the complete engineered bolted interface

Hardware, holes and contact surfaces belong to the same reviewed connection.

Identify the connection detail and its required fastener assembly, hole arrangement and contact-surface condition. Record the actual bolt, nut, washer and finish requirements selected by the project. A general phrase such as high-strength bolts does not identify a complete compatible assembly, and a hardware image cannot establish its grade, qualification or intended joint use.

The RCSC public documents index lists its Specification for Structural Joints Using High-Strength Bolts dated 5 June 2025. Preserve the edition required by the project and the applicable joint and surface requirements. Procurement should obtain the specified products and records; it should not invent tightening values, installation steps or connection capacity from a catalogue.

Define whether hardware is supplied installed, loose, by connection set or by individual component count. State what one set contains and how it maps to the connection marks. Keep substitution, finish and surface-condition differences visible for review. A combined bolt quantity does not prove that every mark has the required nuts, washers and accompanying records.

GEOMETRY

Released holes / orientation
 Mating connection detail

HARDWARE

Actual named assembly
 Defined complete-set count

SURFACE

Specified condition / finish
 Records / responsible party

Document map, not a bolting procedure or structural-capacity statement.

Interface element	Requirement to retain
Connection / joint basis	Approved detail, category and edition references
Fastener assembly	Actual bolt, nut, washer and finish identity
Holes / contact surfaces	Geometry and specified surface-treatment basis
Supply unit / records	Defined set contents, mark map and issued evidence

Set completeness

Count the named components in each specified set. Do not infer missing hardware from a total mass or a general packing description.

Source scope: C09 | Reference register: page 52

05 / CONNECTION INTERFACES

Define base plates and anchor interfaces separately

The steelwork order and the foundation interface need matching references.

A base connection can involve the column, base plate, holes or slots, anchors, nuts, washers, leveling arrangements and foundation information. List the actual components included in the supplier scope. The base-plate drawing and the foundation or anchor layout should use coordinated datums and revisions rather than a shared approximate column location.

Ask which party provides anchor items, templates and setting information when those are required by the project. Identify who confirms the mating foundation geometry and reviews any change. A fabricated base plate does not establish the adequacy of anchor embedment, concrete or site installation; preserve those decisions in their assigned engineering and construction documents.

For receipt, keep the steelwork mark, base detail and included loose components visible. Record any required checks before finish treatment and any protected or masked surfaces. If delivered hole geometry differs from the current anchor reference, report the affected marks and dimensions through the agreed change process instead of assuming a field adjustment is accepted.

STEELWORK	FOUNDATION	SUPPLY SCOPE
Column / plate / prepared features	Anchor / datum / issued reference	Included components / assigned parties
The current project details define the actual interface and supply responsibilities.		

Question	Document or scope answer
What mates?	Current base detail and anchor / foundation reference
Who supplies it?	Named steelwork and anchor / accessory scope
What is checked?	Geometry, identity and acceptance references
What changed?	Affected marks and accepted revision / disposition

Interface release

Confirm the actual mating documents and supplying parties before the base connection enters production.

05 / CONNECTION INTERFACES

Coordinate HSS interiors and attached-component geometry

Internal fit and access can differ even where outside dimensions match.

Connections to HSS can involve plates, inserts, caps, sleeves and other project-defined components. Identify the actual assembly detail and its required access, feature locations and material identities. Do not assume the ideal inside width from outside dimensions and nominal wall is a guaranteed usable envelope for a mating part.

Corner geometry, the weld region, tolerance and processing condition can matter where a component enters the section. Provide the controlled fit requirement and ask the supplier to identify its proposed check. If an interior seam location or finish is a purchased constraint, specify it explicitly and obtain confirmation; a generic HSS description does not communicate it.

Attached plates or caps may also interact with welding, coating access and galvanizing preparation. Keep those requirements coordinated with the approved detail. A supplier alternative should explain the affected geometry and process, with a responsible review before fabrication. The enquiry should show how the accepted detail and inspection record will identify the finished assembly.

OUTSIDE GEOMETRY

Ordered section and prepared features

INTERNAL INTERFACE

Actual fit / access requirements

ASSEMBLY PROCESS

Weld / treatment / inspection basis

The current project details define the actual interface and supply responsibilities.

Specific input

Attach the component drawing that defines required fit, access and orientation. Preserve its revision with the HSS part mark.

06 / FINISH AND PROTECTION

Write a finish schedule for the actual marks

Treatment system, boundaries and acceptance should be explicit.

A finish description should identify the required system, substrate preparation, areas treated, excluded or masked surfaces, inspection basis and repair responsibility. Use the project-selected coating or galvanizing requirements. A generic phrase such as painted steel does not specify a coating system, while a color name does not define preparation or protection performance.

Map finishes to material items, parts or assemblies. Identify whether welding and other fabrication occur before treatment and what remaining site work affects the protected surface. Keep connection contact surfaces, threads, enclosed areas and mating features associated with their actual specified requirements. Resolve conflicts between finish notes and connection details before production.

Ask the quotation to state the actual included treatment and required records. If several providers share the work, identify handover condition, acceptance and responsibility for damage or repair at each boundary. A product illustration may communicate appearance, but the controlled finish specification and issued inspection records establish the purchased result.

SYSTEM

Actual selected treatment
Required preparation

BOUNDARY

Treated / masked areas
Mating and site features

RECORD

Method / acceptance basis
Repair and handover

A finish name or color alone does not describe the complete purchased result.

Finish field	What a complete schedule identifies
System / reference	Selected process or coating system and document revision
Preparation / sequence	Required substrate condition and processing stage
Boundaries / interfaces	Treated, masked and site-work areas
Check / repair	Method, acceptance reference, records and responsible party

Avoid shorthand

Specify the finish and its interfaces by mark. Keep color or aesthetic requirements separate from the required protection and inspection basis.

06 / FINISH AND PROTECTION

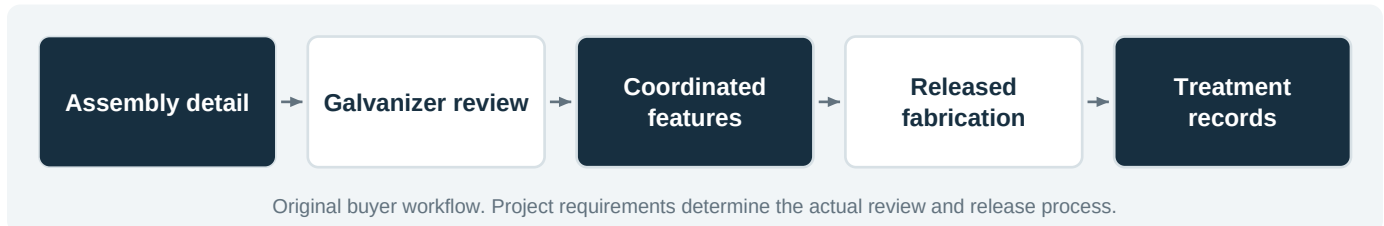
Plan hot-dip galvanizing before fabrication release

The fabricated geometry and galvanizer interface need early coordination.

The American Galvanizers Association identifies ASTM A123 as the specification for its covered steel products galvanized after fabrication. Select the applicable product and hardware requirements through the actual project basis. A pregalvanized input section and a completed assembly galvanized after fabrication represent different processing scopes; state which result is required.

AGA guidance explains that fabricated articles need appropriate venting and drainage for cleaning, immersion and withdrawal. Provide the actual assembly geometry to the galvanizer and responsible engineering team before release. Vent and drain features must be coordinated with structural and appearance requirements, then incorporated into the controlled shop details rather than added informally to finished work.

Ask the galvanizer and fabricator to confirm the agreed sequence, handling limitations, geometry concerns, treatment boundaries and inspection records. Keep any proposed fabrication changes in the review register. The diagram is a planning workflow only; it gives no vent-hole sizes, locations or galvanizing procedure.



Early coordination	Purchasing record
Geometry / processing	Actual article and proposed treatment sequence
Venting / drainage	Reviewed drawing references and responsible parties
Finish / mating features	Masking, fit and required post-treatment checks
Evidence / handover	Applicable lot, inspection and repair records

No inferred approval

A bright metallic appearance does not establish the required galvanizing specification or accepted coating result.

Source scope: C10, C11 | Reference register: page 52

06 / FINISH AND PROTECTION

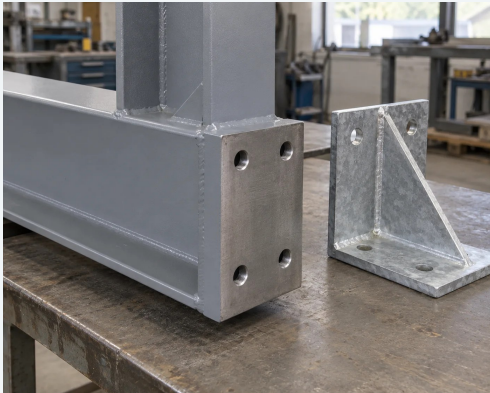
Coordinate paint, powder and duplex-system handovers

The coating provider needs the actual substrate and compatibility basis.

Paint and powder-coating orders need the selected product system, required preparation, treated areas and acceptance references. A duplex system combines hot-dip galvanizing with paint or powder coating. AGA public guidance emphasizes substrate preparation and system compatibility. Procurement should request the defined system and provider instructions rather than assume any topcoat suits every galvanized surface.

Record the condition handed over between fabricator, galvanizer and coating provider. Identify relevant pretreatment, repairs, storage and other surface conditions that the actual system documents require the next provider to review. Confirm who performs the preparation and which records demonstrate the accepted handover. A finish description can otherwise conceal a gap between two separately quoted services.

Keep specified color and appearance requirements alongside the protection system. Where required, define a review sample or reference and its role in acceptance. Avoid presenting a generic service-life number as a promise for every environment. The order should preserve the project-selected requirements, applicable provider information and actual inspected finish records.



AI-generated concept illustration; not a factory, inspection or shipment photograph.

WHAT TO CONFIRM

- 1 Selected system / substrate
- 2 Preparation and provider handover
- 3 Specified finish boundaries
- 4 Inspection / repair records

Illustration use

The AI finish concept shows appearance and interfaces. It provides no coating thickness, surface-preparation result or service-life evidence.

Source scope: C12 | Reference register: page 52

06 / FINISH AND PROTECTION

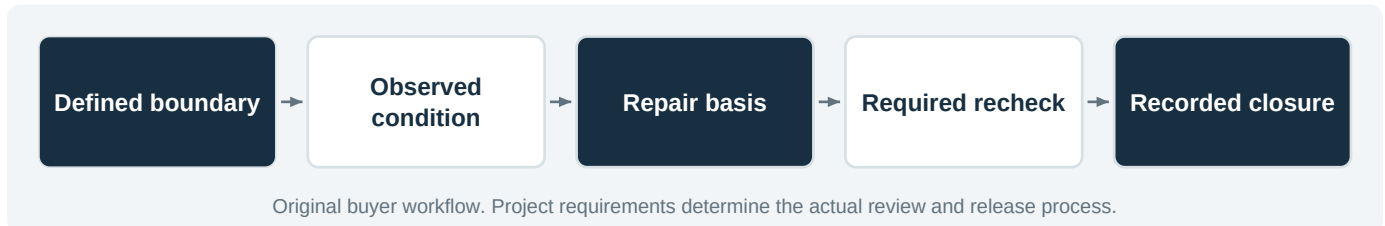
Carry masking, damage and repair into the delivery scope

A completed finish still has connection, transport and site interfaces.

Identify surfaces that must remain in a specified condition for connections or mating parts. Masking, threaded features, contact surfaces and field-work areas should be linked to the controlling details. Record the preparation and inspection required before those features become inaccessible. The finish provider should acknowledge the same boundary set used by fabrication and the buyer.

For observed damage or an incomplete area, record the affected mark, location, extent and relevant requirement. Obtain the applicable repair basis and responsible decision. Retain the repair record and any required subsequent checks. A photograph of a repaired area can support an observation, but it cannot by itself establish compliance with an unspecified process or acceptance criterion.

Agree packing contact points, separation and storage protection for the actual finished objects. Identify who handles touch-up after transport or site work when it is part of the project scope. Receiving should distinguish visible condition, documentary completeness and the final disposition; a delivery note should not silently close an unresolved coating issue.



Protection interface	Keep explicit
Mating / connection surfaces	Specified condition and accepted masking detail
Packing / storage	Contact protection and handling information
Damage / repairs	Affected marks, method and acceptance reference
Site work / closeout	Responsible party, remaining work and closure evidence

Repair trail

Original observation + affected identity + accepted action + required recheck + final disposition.

07 / QUALITY AND DELIVERY

Build an ITP around purchased features and stages

Every check needs a requirement, method, extent and record.

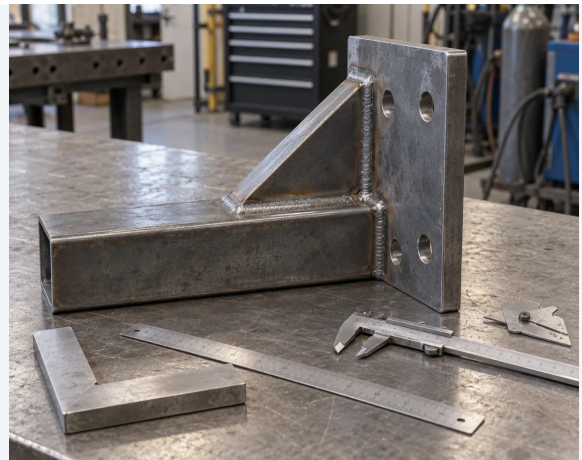
The inspection and test plan connects material receipt, cutting, feature preparation, welding, assembly and treatment to the purchased requirements. State the applicable method and acceptance reference for each required check. Identify sampling or extent, responsible participants, notice conditions and the issued record. A list of test names without that context is incomplete.

Select stages that preserve access to the required features. Material identity may be checked before cutting, connection geometry before assembly, and weld or finish requirements at their specified stages. Record required hold or witness conditions and how release is authorized. Keep the ITP revision aligned with drawing and scope changes.

The pictures below are conceptual inspection scenes with no real readings. Actual records should identify the affected products, method, relevant results, requirement reference, reviewer and disposition. Use the ITP to request evidence that can be followed through to the supplied marks, rather than treating a generic inspection photo as a shipment record.



HSS-check concept: identify the real feature, method and acceptance basis.



Fabricated-part concept: keep checks mapped to the actual drawing marks.

AI-generated product illustrations. No product approval or inspected-lot evidence is implied.

ITP row

Object / stage / requirement / method / extent / participants / issued record / status / release decision.

07 / QUALITY AND DELIVERY

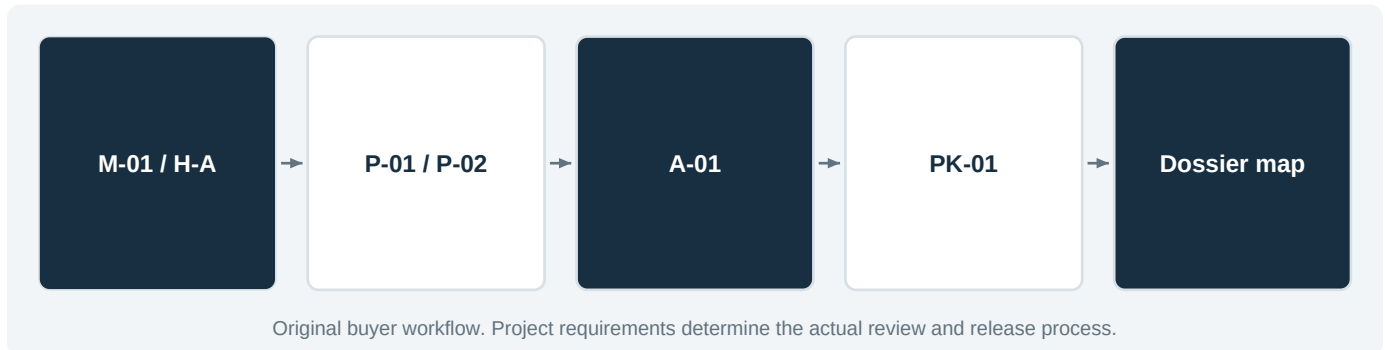
Preserve material identity through cutting and assembly

Stock references, part marks and assembly marks form a traceability chain.

Define the required traceability before material is processed. The starting material reference should map to prepared parts, and the part records should map to completed assemblies. A heat number, stock identifier, part mark and shipping label can each identify a different level. Do not assume one number describes every stage.

For mixed lots or repeated parts, keep a mapping that preserves the actual material and drawing identities used. Agree how marks are transferred or restored when cutting, cleaning or treatment removes them. Where the order requires a particular identification method, record it in the accepted scope. Labels should distinguish materially different items even when their external shapes are similar.

If identity is missing at receipt, request a supported reconciliation through the agreed quality process. A verbal claim that every piece is the same material cannot substitute for the required mapping. Retain issued material records, processing and inspection references, assembly marks and packing entries as a connected delivery file.



Artificial teaching identifier	Relationship being explained
M-01 / H-A	Purchased material line and source material reference
P-01 / P-02	Prepared parts mapped to their material and drawing
A-01	Assembly containing the identified parts
PK-01	Packing unit referencing the completed assembly

Teaching chain

The diagram and identifiers are not manufacturer certificates or actual METDAX production records. They explain the map a buyer should request.

07 / QUALITY AND DELIVERY

Review records by issuer, identity and requirement

Material evidence, shop records and facility qualifications serve different purposes.

Begin with the required document type and issuer, then establish what product and check it covers. Material records should match the requested specification, grade or material identity, relevant lot and delivered items. Fabrication records should identify the actual marks and applicable requirements. A high reported value or attractive certificate layout does not resolve an identity mismatch.

When a facility qualification is required, verify the actual organization, location, program scope and current status through the responsible official scheme. AISC provides public searches for certified companies, including separate international participants. This guide makes no claim that METDAX or any offered factory holds a particular certification. Facility qualification and order-specific inspection evidence remain separate checks.

Index the delivery dossier by material items and fabricated marks. Include current drawings, required inspection and treatment records, accepted deviations and shipment maps. Record unresolved items and release conditions explicitly. A document collection is usable when the reviewer can locate which delivered objects it covers and what requirement each record demonstrates.

Record group	Review purpose	Match to
Material record	Ordered material identity and required results	Material item / source lot
Fabrication / weld record	Required shop work and applicable checks	Part / assembly marks
Treatment record	Defined finish and relevant inspection	Treated articles / lots
Facility qualification	Required program scope and current status	Actual organization / facility
Drawing / deviation	Accepted production and change basis	Affected items / revisions

Document question

Who issued it, what requirement does it demonstrate, and which delivered material or mark does it cover?

Source scope: C15 | Reference register: page 52

07 / QUALITY AND DELIVERY

Pack and receive by material item and fabricated mark

The packing list should explain the actual shipment and remaining balance.

Organize material bundles by their purchased identity and length arrangement. For fabricated steelwork, preserve assembly and part marks, loose-component sets and accepted shipping splits. Record counts and the relevant physical quantities with packing-unit references. A shipment mass alone does not reconcile the order.

Protect the actual ends, features and finishes, and obtain confirmed packing dimensions and shipment weights before logistics commitments. Required handling or lifting information should come from the responsible project and product documents. A concept picture is not a lifting plan, loading arrangement or evidence of a completed METDAX shipment.

Receiving should compare the current order, drawings, packing list and document index. Record quantities, identity, visible condition, required dimensional checks and missing records separately. For split deliveries, preserve the remaining balance by item or mark. Report issues with affected quantities and evidence, then retain the agreed action and final closure.



Material-bundle concept: retain specification, dimensions, lengths and counts.



Assembly-packing concept: map marks and loose parts to packing units.

AI-generated product illustrations. No product approval or inspected-lot evidence is implied.

Receipt result

Delivered quantities + identity match + recorded condition / checks + document status + accountable disposition.

08 / RFQ AND OFFER REVIEW

Issue material lines that a supplier can quote

Use one defined line for each distinct material and physical arrangement.

A material schedule should preserve buyer item, application or drawing reference, product specification and edition, grade or required identity, exact section or dimensions, quantity, length arrangement and condition. Add purchased processing and required evidence. Keep different material or geometry requirements on separate lines even when they will share a shipment.

Use the controlling unit system and show physical counts alongside total length or pricing mass. For mixed fixed lengths, list the distribution instead of an average. For plate, distinguish whole sheets from completed blanks. For shapes and HSS, distinguish raw lengths from marked parts. Reference any dimensional, testing or finish additions through controlled attachments.

Ask the supplier to return the offered identity and included scope against the same buyer items. Require assumptions and deviations to be explicit. If information is preliminary, identify it and the question that must be resolved before production. The complete line is a bridge between the engineering selection and the actual quote.

RFQ field	Complete with
Buyer item / basis	Drawing, material schedule and relevant revision
Material / geometry	Specification, grade and exact shape / dimensions
Quantity / units	Count, lengths / sheets and separate pricing basis
Preparation / finish	Required work, boundaries and attachment references
Evidence / delivery	Issued records, marking, packing and destination

Supplier response

Please state the actual offered material, physical arrangement, included processing and documents for each buyer line.

08 / RFQ AND OFFER REVIEW

Quote fabricated steelwork by marks and included work

A general tonnage price does not establish a complete assembly package.

Provide the part and assembly schedule with the current drawing register. Identify the completed marks, repeated quantities, loose parts and accepted shipping splits. State the requested fabrication, finish, inspection and document scope. Where the supplier also buys raw material, retain the material requirements associated with each part.

Ask for a clear inclusion schedule: detailing or design services where requested, cutting, holes, edge preparation, welding, trial fit, treatment, marking, records and packing. If an item is excluded, state who supplies it and how its interface is coordinated. An excluded gasket, bolt set, anchor or site finish can matter even when it is a small share of the total price.

Preserve the quote assumptions and drawing basis as attachments to the commercial comparison. Ask which costs or timing depend on unresolved engineering inputs. The accepted scope should describe the actual completed objects and records; commercial unit prices can then be compared without losing the physical deliverable.

MATERIAL / PARTS

Exact identities and counts

WORK / INTERFACES

Made features and loose sets

DELIVERY / EVIDENCE

Finish, marks and records

Use one inclusion schedule to describe the actual offered steelwork package.

Scope layer	Define for the offered package
Material / parts	Required identities and prepared part counts
Assemblies / accessories	Completed marks and named loose-component sets
Processing / finish	Actual included work and treatment boundaries
Documents / packing	Required issued records and mark-linked shipment

Scope clarity

A quote for fabrication from supplied steel differs from a quote that includes material, finishing, inspection and export packing.

08 / RFQ AND OFFER REVIEW

Normalize offers before comparing the unit prices

First compare the same accepted object, preparation and evidence.

Check whether the offers describe identical material standards, grades, section identities and physical quantities. Confirm drawing revisions, finished marks and included accessories. A low price for raw plate is not directly comparable with a completed drilled blank, and an assembly price with excluded finish is not the same scope as a treated and documented package.

Review the accepted technical basis before evaluating commercial differences. Compare supplied counts, length arrangement, processing, required records, packing, delivery boundaries and remaining open items. If pricing uses theoretical mass, obtain its defined basis; if it uses actual weight, retain the weighing convention. Record the physical quantity in either case.

Use a short comparison matrix to expose differences and their proposed resolution. Request a revised itemized offer when an omitted operation or changed material affects the package. The final evaluation should retain accepted scope, deviations, conditions and commercial assumptions, allowing later order changes to be assessed against a visible starting point.

Compare	Question to resolve
Material / geometry	Same standard, grade, section and dimensions?
Counts / marks	Same finished pieces, assemblies and loose sets?
Work / finish	Same preparation and treatment boundaries?
Evidence / acceptance	Same required records and review conditions?
Delivery / commercial basis	Same packing, destination and pricing quantity?

Decision record

Retain the final offered identities, accepted scope, unresolved actions and conditions of selection.

08 / RFQ AND OFFER REVIEW

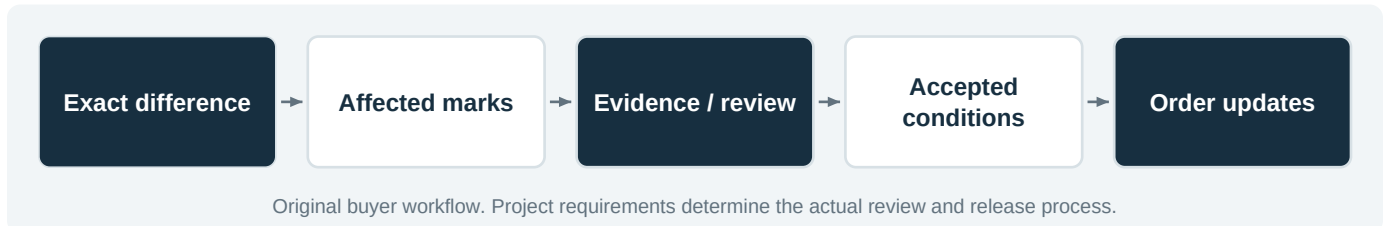
Close deviations and release a controlled order package

A supplier proposal needs an item-specific decision and document updates.

Record each proposed difference as requested versus offered, with affected items, marks and revisions. Include the reason, supporting information and consequences for geometry, interfaces, work, finish, evidence or quantities. A statement such as equivalent material or standard shop practice is insufficient when it conceals the actual proposed change.

The responsible reviewer assesses the technical proposal; procurement records the commercial result and the supplier acknowledgement. Keep any conditions and remaining actions visible. An accepted change for one mark should not become a blanket substitution across a mixed steel package. If work is already completed, retain its separately agreed disposition.

Release an order set containing the current schedules, attachments, accepted deviations, inspection and document requirements, delivery arrangement and responsibility boundaries. Check that the supplier acknowledges the same set. Give receiving the current basis and any accepted exceptions, so the final shipment can be evaluated against the actual agreement.



Release check	Record to reconcile
Current identity	Materials, parts, assemblies and quantities
Controlled basis	Drawings, files, specifications and revisions
Accepted differences	Decision references and remaining conditions
Delivery / evidence	Inspection, mark maps, packing and dossier

Close the loop

Requirement + proposal + technical decision + commercial agreement + supplier acknowledgement + controlled updates.

09 / TEACHING CASES

Case 1: turn an HSS request into finished-piece lines

Teaching example - the same material can support different physical deliverables.

The exercise starts with a request for 36 HSS lengths, each 6.000 m. A later released part schedule instead requires 72 finished pieces, each 2.850 m, with the end preparation and identification shown on artificial drawing H-101 revision B. The material selection and section geometry are assumed to come from that engineering document; the example makes no product-availability or load-capacity claim.

The buyer must decide whether it wants the 36 raw lengths, the 72 completed cut pieces, or a separately defined material-plus-cutting service. Those are distinct supply scopes. Input stock totals 216.000 m, while the requested finished straight-piece length totals 205.200 m. Receiving 36 raw lengths does not complete an order for 72 drawing-marked finished pieces.

Before accepting the processing offer, request the actual cutting plan and allowances, approved end requirements, piece-count basis and remnant responsibility. Keep the engineering material identity and required records with the finished marks. The arithmetic shows the quantities to reconcile, not a guaranteed cutting yield or a machine setup.

Teaching purchase line	Physical arrangement	Total straight length
Initial raw-stock request	36 pieces x 6.000 m	216.000 m
Required completed pieces	72 pieces x 2.850 m	205.200 m
Difference in stated totals	Input minus finished straight lengths	10.800 m
Controlling attachment	H-101 revision B	End geometry and part identity

Case boundary

The drawing identifiers and quantities are fictional. Actual material, dimensions, tolerances and cutting feasibility require the controlled order and fabricator confirmation.

09 / TEACHING CASES

Case 1: compare the two offers on one cut-piece basis

Teaching example - a length ratio does not prove acceptable processing yield.

Offer A describes 36 raw lengths without processing. Offer B describes 72 finished cut pieces to H-101 revision B, with the agreed identification and records. The buyer should first compare their deliverables and request any missing processing scope, rather than divide both prices by the same stock tonnage and call them equivalent.

Two 2.850 m straight pieces total 5.700 m against a 6.000 m input. The nominal difference is 0.300 m per input length and 10.800 m over 36 lengths. Finished straight-length total divided by stated input length is 95.0%. That ratio excludes the actual arrangement of kerf, trim and remnants; it is not a guaranteed physical yield, scrap allowance or process specification.

The accepted schedule should identify 72 completed pieces and the end-detail revision, with the quoted stock or mass pricing basis recorded separately. If delivery is split into 40 pieces and 32 pieces, the straight-length totals are 114.000 m and 91.200 m. The packing record retains those piece counts, material mappings, records and the remaining balance.

INPUT: 36 x 6.000 m

216.000 m of stock

FINISHED: 72 x 2.850 m

205.200 m of straight pieces

Teaching ratio: 95.0%. Cutting feasibility and actual allowances are separate checks.

Teaching reconciliation	Quantity
Finished straight-length ratio	$205.200 / 216.000 = 95.0\%$
First delivery	$40 \text{ pieces} \times 2.850 \text{ m} = 114.000 \text{ m}$
Balance delivery	$32 \text{ pieces} \times 2.850 \text{ m} = 91.200 \text{ m}$
Complete finished order	$72 \text{ pieces} / 205.200 \text{ m}$

Case lesson

Keep the accepted finished-piece count, input pricing basis and confirmed processing arrangement in separate fields.

09 / TEACHING CASES

Case 2: expand a frame package into marks and loose sets

Teaching example - total frame count does not describe every included component.

The exercise assumes a released component schedule for eight fabricated frames F-01 through F-08. Each frame uses four column parts, four top-member parts, four brace parts and four base plates. It also requires 24 loose connection sets per frame. Those counts are educational inputs, not a structural arrangement or capacity recommendation.

The schedule defines one loose teaching set as one specified bolt, one specified nut and two specified washers, all with their actual identities supplied by the governing connection detail. The complete order therefore requires 192 sets: 192 bolts, 192 nuts and 384 washers. The set definition must accompany the count; a crate of 192 bolts does not complete the named loose-set scope.

Each frame is shipped as two defined modules, giving 16 shipping modules. Keep frame and module marks linked to the component schedule and loose-set packing entries. Part counts describe assembly contents and should not be added again to the frame count as separate finished frames. Material, welding, finish and inspection requirements remain attached to the actual marks.

Teaching component / unit	Per frame	Complete order
Column parts	4	32
Top-member parts	4	32
Brace parts	4	32
Base plates	4	32
Defined loose connection sets	24	192
Shipping modules	2	16 for 8 frames

Case scope

No section sizes, bolt sizes, joint capacities or erection method are supplied. The exercise teaches schedule multipliers and set completeness.

09 / TEACHING CASES

Case 2: carry a base-interface revision through the order

Teaching example - an unchanged frame count can conceal changed components.

Artificial drawing F-201 revision D changes the base-plate hole arrangement for frames F-05 and F-06. Four base plates belong to each affected frame, so eight plate parts require review. The order still contains eight frames. A purchase update that changes only the overall frame count would miss the affected geometry and the foundation interface.

The fictional work-status report says four of the eight affected plates have already been drilled, while four have not entered that operation. Record those groups separately. The responsible reviewer assesses the required disposition for completed work and the revised detail for remaining work. The teaching example does not prescribe rework, enlarged holes or acceptance of the earlier pattern.

Issue the accepted drawing change with affected frame and plate marks, updated machine-file references, required checks and packing identities. Confirm any hardware or finish consequences rather than assuming they are unchanged. The supplier acknowledgement and receiving file should identify the same accepted revisions and any explicitly accepted earlier work.

2 FRAMES F-05 and F-06 affected	8 PLATE PARTS 4 drilled / 4 not drilled	CONTROLLED RESULT Accepted detail and disposition
---	---	---

Teaching work-status map. The complete order still contains eight frames.

Teaching review group	Quantity / record
Affected frames	F-05 and F-06: 2 frames
Affected base-plate parts	2 x 4 = 8 plate parts
Already drilled / not yet drilled	4 / 4; separate disposition and release
Complete order count	8 frames; current mark / revision map required

Case lesson

A drawing change must reach part geometry, work disposition, inspection and delivery identity even when the assembly count stays the same.

09 / TEACHING CASES

Case 3: compare whole plate with a completed blank order

Teaching example - stock area and finished-part area are different quantities.

A teaching enquiry contains 12 whole plates, each 2.000 x 1.000 x 0.006 m, and a separate request for 96 rectangular blanks, each 0.250 x 0.500 x 0.006 m. The buyer should identify whether these are alternatives or two purchased deliverables. The material requirement and edge condition are assumed to be defined by artificial part drawing PL-101 revision A.

Whole-plate plan area is 24.000 m². The 96 ideal blank outlines total 12.000 m². Using the stated ideal density of 7,850 kg/m³, the whole-plate planning mass is 1,130.40 kg, while the blank-outline planning mass is 565.20 kg. The figures exclude actual variation, processing and packing; neither is a confirmed shipment weight.

The area ratio is 50.0%, but it does not establish a cutting yield or prove that the supplier needs exactly those 12 sheets. Obtain the actual nesting and allowance basis where it affects the commercial scope. The final part requirement must preserve count, drawing, material identity, edge treatment, required records and remnant ownership.

12 WHOLE PLATES

24.000 m² / ideal 1,130.40 kg

96 BLANK OUTLINES

12.000 m² / ideal 565.20 kg

Teaching area ratio: 50.0%. No actual nesting or cutting yield is established.

Teaching arrangement	Plan area	Ideal bare mass
12 whole plates	24.000 m ²	1,130.40 kg
96 finished outlines	12.000 m ²	565.20 kg
Finished / stock ratio	50.0% of stated area	Not a guaranteed yield

Numerical boundary

Mass = volume x assumed density. No dimensional-tolerance, hole-removal, process-loss, coating or packaging correction is applied.

09 / TEACHING CASES

Case 3: reconcile blank counts, edges and remnants

Teaching example - receive the accepted physical objects and evidence.

An offer priced per input tonne includes plate supply and rough cutting but excludes finished-edge preparation. A second offer priced per blank includes the defined final outline and required edge condition. Compare both with the same PL-101 revision A requirement and request explicit additions or deviations. Their commercial units alone cannot determine which offer meets the requested part scope.

The completed teaching order is split into 60 blanks and 36 blanks. Their outline areas are 7.500 m² and 4.500 m², which reconcile to 12.000 m² and 96 parts. Preserve counts and mark identity even where packing records also show mass. Any separately purchased remnants need their own identity and acceptance basis; they should not replace missing finished blanks.

At receipt, check the current drawing reference, part count, material mapping, ordered outline and edge condition, packing protection and required records. Report any rough blanks supplied against a finished-part line as a defined scope difference. Keep the observation, supplier response and agreed disposition until closure rather than accepting a correct total mass as proof of completion.



AI-generated concept illustration; not a factory, inspection or shipment photograph.

WHAT TO CONFIRM

- 1 Finished outline / edge basis
- 2 96 completed parts and marks
- 3 Material / inspection mapping
- 4 Separate remnant scope

Case lesson

Delivery 1: 60 parts / 7.500 m². Delivery 2: 36 parts / 4.500 m². Accept against the finished-part requirement, not an undefined input-tonnage total.

10 / FILLABLE WORKSHEETS

Worksheet A: project and supply boundaries

Define the purchased object and current document basis.

Record the project, application and physical deliverable. Identify whether the order covers material, prepared parts or completed assemblies. Preserve the actual engineering and contractual references and the responsible parties for design, detailing and site interfaces.

Attach the current drawing and specification register. Identify preliminary inputs and unresolved scope questions. Carry the accepted answers into the material and mark schedules before production release.

Project / enquiry reference

Company / contact

Application / project location

Material / part / assembly scope

Governing project / code references

Design / detailing responsibility

Current drawings / model basis

Controlling units / quantity basis

Finish / site-work boundary

Delivery destination / sequence

Current attachment register and revisions

Open technical / scope questions and owners

Before enquiry

Confirm the supplied object, attachment set and responsible owners of the open technical and scope decisions.

10 / FILLABLE WORKSHEETS

Worksheet B: one complete material line

Use a separate line for each distinct material and physical arrangement.

Enter the actual specification, edition, grade or required material identity and section geometry. State controlling units, piece or sheet counts, exact lengths and any separate pricing mass basis. Reference purchased preparation, finish and required records.

Ask the supplier to state the offered identity and exceptions against this buyer item. Keep raw stock, prepared pieces and assemblies in their defined quantity units.

Buyer item / material reference

Product specification / edition

Grade / required material identity

Exact section / dimensional series

Outside dimensions / nominal wall

Pieces / sheets / length distribution

Controlling units / pricing mass basis

Purchased preparation / drawing

Finish / condition / boundaries

Required issued records / marking

Current attachments and supplementary requirements

Actual offered identity, scope and deviations

Material completeness

The material line should identify the product, physical quantity, preparation, finish and evidence a receiving team must reconcile.

10 / FILLABLE WORKSHEETS

Worksheet C: fabricated part or assembly mark

Link the manufactured object to its drawing, contents and required work.

Record the buyer mark, quantity and current drawing revision. Identify the material and component references and the defined completed object. Preserve feature orientation, fabrication, finish and inspection requirements through their controlled attachments.

List included loose components and shipping splits explicitly. Record the actual offered scope, open differences and accepted production-release conditions. Use additional copies where marks have different requirements.

Buyer part / assembly mark

Completed object / ordered count

Drawing number / sheet / revision

Material / component references

Datum / face / handed orientation

Cuts / holes / edge preparation

Weld / procedure requirement refs

Finish / masking / repair basis

Required checks / evidence

Shipping split / included loose sets

Component quantities and current attachment references

Offered work, remaining questions and release conditions

Mark hierarchy

Keep material items, prepared part marks, completed assemblies and shipping modules linked without mixing their quantity bases.

10 / FILLABLE WORKSHEETS

Worksheet D: connection and finish interfaces

Complete one reviewable record for a defined mating or treatment boundary.

Identify the actual mating components, controlling details and current revisions. Preserve the engineered geometry, hardware, surface-condition or finish requirements and name the responsible supplying and checking parties.

Record the proposed interface and its supporting documents. Keep unresolved differences visible, with the reviewer decision and any accepted conditions. A common nominal size or similar photograph does not complete this review.

Interface / connection reference

Affected material / assembly marks

Controlling detail / revision

Mating component / datum reference

Geometry / hole / feature basis

Defined fastener / accessory set

Contact surface / finish boundary

Supplying / checking parties

Proposed detail / supporting file

Reviewer / decision reference

Actual interface requirements and provider handovers

Differences, accepted conditions and controlled updates

Interface decision

Match the actual geometry, products, treatment boundaries and responsible parties to the current project detail.

10 / FILLABLE WORKSHEETS

Worksheet E: inspection, evidence and disposition

Map the purchased check to an issued record and accountable result.

Enter the affected item or mark, requirement, inspection stage, method, extent and acceptance reference. Identify participants, required records and the actual evidence received. Preserve the product mapping and review status.

Describe a discrepancy or proposed deviation precisely. Retain the evidence, responsible review, accepted action and closure or release conditions. Use another record for a different check or affected group.

Affected item / part / assembly mark

Requirement / drawing revision

Inspection / processing stage

Method / procedure reference

Extent / sampling reference

Acceptance criterion reference

Participants / notice / release owner

Required record / actual evidence

Review status / discrepancy ref

Reviewer / disposition reference

Identity mapping, relevant results and observed differences

Accepted actions, changes and closure / release conditions

Evidence chain

Object + requirement + method / stage / extent + issued record + responsible decision + closure or release basis.

10 / FILLABLE WORKSHEETS

Worksheet F: shipment and receiving reconciliation

Record counts, identity, condition, documents and the remaining balance.

Compare the current order and drawings with the packing list and delivered objects. Preserve material item, part or assembly marks, packing references, finished quantities, loose-set completeness and required document status.

For a discrepancy, identify the affected quantity, requirement and observed evidence. Retain the supplier response and agreed action with the responsible disposition. Keep split-delivery balances separate from unresolved quality issues.

Order / shipment / packing unit

Buyer material / part / assembly ref

Received count / lengths / sheets

Remaining delivery balance

Identity / drawing-revision match

Loose-set completeness

Condition / required geometry checks

Issued records received / missing

Reviewer / date

Disposition / closure reference

Observation, affected quantity and supporting evidence

Agreed action, responsible party and final closure

Receipt closure

Order and mark references + quantity + requirement + observation + evidence + agreed action + final accountable closure.

11 / QUICK REFERENCE

Terms and quantity ambiguities to resolve

Use the defining document whenever a shorthand label conceals a requirement.

This quick reference supplies working explanations for procurement. Actual obligations, dimensional limits and acceptance criteria remain in the governing project and order. Keep each label associated with its material identity, drawing, unit and documentary purpose.

Before release, ask whether the schedule identifies stock, a prepared part or an assembly, and whether its quantity applies per assembly or to the complete order. Most avoidable omissions begin with an undefined object, unit, interface or document status.

Term / label	What to resolve
HSS	Hollow structural section; specify shape, material and geometry
Shape designation	Exact ordered section series and dimensional reference
Nominal / measured wall	Ordered dimension versus the defined observation
Part mark / assembly mark	Individual manufactured piece versus combined deliverable
Datum / handed part	Reference geometry and required orientation
Stock / cut schedule	Input lengths versus completed marked pieces
Connection set	Explicit contents and number of complete sets
WPS / qualification record	Procedure description versus its required supporting evidence
ITP	Required inspection stages, checks, records and release
Duplex system	Galvanizing plus paint / powder with coordinated preparation
Theoretical / shipment mass	Defined estimate or pricing basis versus actual shipment data
Revision / disposition	Current requirement and accepted treatment of affected work

Final schedule question

Can the supplier quote each object and can receiving identify it using the same current schedule and attachments?

12 / REFERENCES AND IMAGE POLICY

Sources, illustrations and calculation basis

Public references locate the requirement; the accepted project basis governs the order.

Public publisher information was reviewed on 13 October 2026. Reference editions identify the reviewed pages, not the required edition for every future order. Public scopes, document roles and limited facts are summarized; complete standards, acceptance tables and proprietary drawings are not reproduced. Check the actual adopted requirements, amendments and errata for each purchase.

All product images are AI-generated concepts from the METDAX library. Original diagrams, fictional identifiers and three teaching cases explain procurement. Calculations use the stated dimensions and ideal density, with full precision before rounding; ratios are arithmetic comparisons, not confirmed process yields. No illustration or case establishes structural capacity, certification or completed-project performance.

C01 AISC - 303-22: structural-steel contracting framework

C02 ASTM International - A500 / A500M-23: public structural-tubing scope

C03 ASTM International - A1085 / A1085M-22: public welded-HSS scope

C04 ASTM International - A36 / A36M-19: carbon structural-steel scope

C05 ASTM International - A572 / A572M-25: structural-steel scope

C06 ASTM International - A992 / A992M-22: structural-shape scope

C07 ASTM International - A6 / A6M-26A: rolled-product general requirements

C08 AWS - D1.1 / D1.1M:2025-AMD1: public welding-code information

C09 RCSC - Official index: high-strength bolted-joint specification, 2025

C10 American Galvanizers Association - A123 and measurement-method roles, 16 September 2026

C11 American Galvanizers Association - Venting and drainage coordination guidance

C12 American Galvanizers Association - Duplex-system preparation and compatibility

C13 AISC - 360-22: structural-steel design and construction scope

C14 NIST - International foot: exact 0.3048 m relationship

C15 AISC - Find a Certified Company: official program search

C16 AISC - Official revisions and errata register

Version record

MDX-TP-04 / version 1.0 / 13 October 2026. First illustrated edition. Record future source, case, diagram and worksheet revisions.

METDAX / NEXT STEP

Send a defined construction-steel enquiry

HSS, structural shapes, plate and drawing-based fabricated steelwork.

METDAX Industrial Supply includes structural tubing, rolled steel products, plate and fabricated-steelwork families in its website range. Send the actual application, material or mark schedule, quantities, controlled drawings, requested finish, required evidence and delivery destination. State whether you need stock material, prepared parts or completed assemblies.

Use the project and material worksheets, then add the mark and interface records for fabricated work. Preserve drawing revisions and buyer references. Ask the quotation to identify the actual offered products, included processing, loose components and exceptions. Current availability, configurations, documents and commercial responsibilities are established in the accepted offer and order.

For questions after delivery, retain order and mark references and supply relevant records, photographs or measurements of the affected objects. This guide helps organize a complete enquiry and review file. The governing design, production and acceptance documents remain associated with their actual responsible parties.



Defined HSS material lines



Exact structural-shape identity



Controlled fabricated marks

AI-generated product illustrations. No product approval or inspected-lot evidence is implied.

Contact METDAX

Email: ruofan1901@gmail.com | Handbook reference: MDX-TP-04. Include buyer items, current drawing revisions and the required physical supply scope.

Send your material schedule to METDAX