



Steel Door and Frame Systems, Inc.

# DKS STEEL DOOR INSTALLATION INSTRUCTIONS

## Hollow Metal Doors - Field Installation Guide

**Document Purpose:** This guide provides practical installation requirements for DKS hollow metal doors. It is intended for distributors, installers, contractors, service personnel, and project teams installing steel doors into properly installed hollow metal frames.

Item	Guidance
Document Type	Installation instructions - steel doors
Applicable Products	Commercial hollow metal doors, flush doors, prepped doors, fire-rated doors when supplied with valid label
Primary References	ANSI/SDI A250.8, ANSI/SDI A250.11, SDI-122, NFPA 80 where applicable
Installer Responsibility	Verify opening, frame, hardware, clearances, code requirements, and project documents before installation

### 1. General Requirements

- Install steel doors only after the frame has been installed plumb, level, square, securely anchored, and inspected for proper opening size.
- Do not use the door to correct a frame that is twisted, racked, bowed, spread, or improperly anchored.
- Protect the door from moisture, jobsite damage, mortar, plaster, overspray, concrete wash, and corrosive construction materials.
- Confirm that the door, frame, and hardware schedule match the approved submittals and project requirements before hanging the door.
- For fire-rated openings, maintain the fire label, listed hardware, required clearances, and all NFPA 80 requirements.

### 2. Receiving, Handling, and Storage

- Inspect doors immediately upon receipt for freight damage, visible dents, warped edges, damaged hardware preps, missing labels, or incorrect sizes.
- Report freight damage immediately and retain packaging as required by the carrier.
- Store doors vertically on wood blocking or dunnage in a clean, dry, ventilated area. Do not store directly on concrete or in standing water.
- If doors must be stored temporarily at the jobsite, keep them covered while allowing air circulation. Do not wrap tightly in plastic if condensation may occur.
- Do not drag doors across floors or stack doors in a way that can deform edges, faces, louvers, glass kits, or hardware preparations.

Condition	Acceptable Practice	Do Not
Storage	Dry, ventilated area on blocking	Store flat on wet slabs
Handling	Lift and carry by trained personnel	Drag across concrete or gravel
Protection	Cover from overspray and construction debris	Seal in wet plastic wrap
Fire labels	Keep labels visible and intact	Paint over, remove, or obscure labels

### 3. Pre-Installation Verification Checklist

Check Item	Requirement
Door size	Width and height match frame opening and hardware schedule
Handing and swing	Door swing, bevel, hinge side, and lock side are correct
Frame condition	Frame is plumb, level, square, anchored, and not twisted
Frame opening width	Measure at top, middle, and bottom
Frame opening height	Measure at both jambs
Floor condition	Finished floor, threshold, carpet, tile, and undercut conditions are known
Hardware preps	Hinges, lock, closer, exit device, coordinator, flush bolts, and electric hardware match schedule
Labels	Fire labels are present when required and are not damaged or painted over



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## 4. Required Tools and Materials

- Tape measure, level, framing square, shims, screwdrivers, impact driver, drill bits, hinge screws, fasteners required by hardware manufacturer, and non-marring supports.
- Use only fasteners appropriate for the door reinforcement, frame reinforcement, hinge type, wall condition, and hardware manufacturer instructions.
- For field adjustments, use approved practices only. Do not drill, cut, weld, modify, or reinforce a fire-rated door unless permitted by the listing, code, and responsible authority.

## 5. Frame Condition Before Hanging the Door

A steel door will only perform as well as the frame it is hung in. Before door installation, inspect the frame and correct any condition that will prevent the door from operating properly.

Frame Condition	What to Verify	Effect if Incorrect
Plumb jambs	Both hinge and strike jambs plumb in both directions	Door may swing open/closed by itself or bind
Level head	Head is level across opening	Uneven top clearance
Square opening	Diagonal measurements are equal	Door rubs head or strike jamb
Correct width	Opening is consistent top, middle, bottom	Uneven reveals and latch issues
Anchors secure	Frame does not move under hinge load	Sagging, latch misalignment, loose hardware

## 6. Recommended Door Clearances

Location	Typical Clearance	Notes
Hinge jamb	Approximately 1/8 inch	Maintain consistent reveal from top to bottom
Strike jamb	Approximately 1/8 inch	Latch must engage without binding
Head	Approximately 1/8 inch	Verify closer and smoke seal requirements
Bottom - no threshold	Typically 3/4 inch maximum unless project requires otherwise	Coordinate with flooring and undercut
Bottom - with threshold	Coordinate with threshold, sweep, seal, and ADA requirements	Do not assume field conditions
Fire-rated openings	Must comply with NFPA 80 and listing requirements	Clearances may be inspected by AHJ

**Important:** Clearance requirements may vary by project specifications, smoke control requirements, thresholds, gasketing, flooring, fire rating, and local code. Always verify approved submittals and governing requirements.

## 7. Hinge Installation

- Confirm hinge size, weight, type, quantity, template, finish, and fasteners against the hardware schedule.
- Install hinges into the frame reinforcement first. Fasteners must seat flush and tight without stripping.
- Support the door safely during hanging. Do not allow the door weight to hang from one partially installed hinge.
- Attach the door leaf to hinges using the specified fasteners. Start all screws before final tightening.
- Check that hinge knuckles are aligned and that the door swings freely without hinge bind.
- If shimming is required, use proper hinge shims. Do not bend hinges to force alignment.

Common Hinge Issue	Likely Cause	Corrective Action
Door sags at strike side	Loose hinge screws, undersized fasteners, frame movement	Tighten/replace fasteners, inspect frame anchors
Door binds at hinge edge	Hinge backset or frame not square	Verify hinge prep and frame alignment
Uneven reveal at head	Frame not level or door sagging	Check frame, hinge screws, shims
Hinge screws strip	Wrong screw, damaged reinforcement, over-torque	Use correct screw and repair per approved method

## 8. Hanging the Door

- Place protective material under the door to prevent face and edge damage during handling.
- With the door supported, align hinge leaves and install hinge pins or screws as applicable.



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- Tighten all hinge fasteners evenly. Verify that screws are fully seated and not protruding.
- Open and close the door slowly through the full swing. Listen and feel for rubbing, hinge bind, or floor contact.
- Check reveals at the head, hinge jamb, and strike jamb. Adjust using frame correction or hinge shims only where appropriate.
- Do not plane, cut, grind, or otherwise alter labeled fire doors unless specifically permitted by the listing and project authority.

**9. Lock, Latch, and Strike Coordination**

- Install locksets, latches, exit devices, deadbolts, strikes, and other latching hardware per hardware manufacturer templates and instructions.
- Confirm latchbolt alignment with the strike before final tightening of hardware.
- Verify the latchbolt fully projects into the strike and that the door self-latches when released from the open position where a closer is required.
- If the latch does not align, inspect frame squareness, hinge condition, door sag, strike prep, and floor conditions before modifying components.
- For fire-rated doors, the door must self-close and self-latch unless the opening is specifically listed and approved for another configuration.

Problem	Do This First	Avoid
Latch misses strike	Check frame plumb/square and hinge sag	Filing strike excessively
Door must be lifted to latch	Check hinge screws and frame anchors	Forcing latch adjustment only
Latch drags on strike	Adjust reveal and strike location if permitted	Grinding labeled parts without approval
Electric strike does not align	Coordinate power, template, latch position, and preload	Assuming it is an electrical issue only

**10. Closers, Stops, Hold Opens, and Operators**

- Install surface closers, concealed closers, stops, holders, and automatic operators only after the door swings freely and latches correctly by hand.
- Closer body, arm, shoe, and fasteners must match the hardware template and reinforcement provided.
- Adjust sweep, latch speed, backcheck, delayed action, and spring power per hardware manufacturer instructions and accessibility requirements.
- Do not use a closer to pull a misaligned door into the frame. Correct door and frame alignment first.
- Verify that door closers on fire-rated openings close and latch the door from the full open position and from typical partially open positions.

**11. Exit Devices and Panic Hardware**

- Confirm door construction, reinforcement, stile clearances, strike location, device function, and fire rating compatibility before installation.
- Install vertical rod, surface vertical rod, concealed vertical rod, rim, and mortise devices according to the hardware template.
- Verify latch engagement at all points, including top and bottom rods where applicable.
- For pairs of doors, coordinate astragals, coordinators, flush bolts, carry bars, removable mullions, and closing sequence.
- For fire exit hardware, use only listed hardware and maintain label compliance.

**12. Glass Kits, Louvers, and Accessories**

- Install vision lite kits, glazing, glazing bead, louvers, armor plates, kick plates, mop plates, viewers, silencers, gasketing, door bottoms, and seals per approved submittals.
- Confirm cutout size, screw spacing, glazing type, fire rating, and safety glazing requirements before installation.
- Do not enlarge cutouts or add accessories to fire-rated doors unless permitted by the label service, listing, and authority having jurisdiction.
- Protect exposed glass and finishes during installation and final construction cleanup.

**13. Electrified Hardware and Raceways**

- Coordinate electrified locks, electric hinges, power transfers, door position switches, request-to-exit devices, card readers, power supplies, and access control wiring before hanging the door.



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- Confirm factory raceway locations, wire pulls, and access points. Install pull wires where required to allow field connection.
- Do not drill uncontrolled field raceways through labeled fire doors unless approved by the listing agency and project authority.
- Electrical work must be performed by qualified personnel and coordinated with project access control requirements.

## 14. Thresholds, Door Bottoms, Sweeps, and Gasketing

- Coordinate bottom clearance with finished floor, threshold height, weatherstrip, smoke seal, sound seal, and ADA requirements.
- Install thresholds level, securely fastened, and properly sealed where weather exposure is present.
- Door bottoms and sweeps must not prevent the door from closing and latching.
- Smoke gasketing must contact properly without creating excessive closing force.

## 15. Fire-Rated Door Requirements

- Fire-rated doors, frames, and hardware are part of a listed assembly. All components must be compatible with the rating and listing requirements.
- Labels must remain attached, visible, and legible. Do not paint over or remove fire labels.
- Rated doors generally must be self-closing and self-latching unless the listed assembly and governing code permit otherwise.
- Field modifications to labeled doors are restricted. Coordinate any modification with the listing agency, label service, manufacturer, and AHJ before performing work.
- Inspect clearances, latching, closing, gasketing, glazing, holes, breaks, missing fasteners, damaged labels, and auxiliary hardware before turnover.

NFPA 80 Style Inspection Item	Verify
Labels	Door and frame labels are present and legible
Clearances	Clearances comply with rated opening requirements
Operation	Door closes and latches without assistance
Hardware	Listed hardware is installed and secured
Glazing/louvers	Rated components match listing
No open holes	No unfilled holes or field damage
Gasketing/seals	Installed where required by listing or code

## 16. Field Touch-Up, Cleaning, and Protection

- Clean doors with mild, non-abrasive methods. Remove construction contaminants promptly.
- Touch up scratches or damaged primer as required before finish painting. Follow paint manufacturer requirements for surface preparation and compatibility.
- Do not allow harsh chemicals, masonry cleaners, acids, solvents, or standing water to remain on door surfaces.
- Protect doors after installation until final project turnover, especially in high-traffic construction areas.

## 17. Final Operational Test

Test	Acceptance Criteria
Open/close swing	Door swings freely through full travel without rubbing or binding
Self-closing	Door closes from full open and partially open positions where closer is installed
Self-latching	Latch engages positively without manual assistance
Clearances	Head, jamb, and bottom clearances are within project/code requirements
Hardware	All fasteners are tight and hardware functions as intended
Seals	Gasketing and sweeps contact properly without excessive resistance
Finish	Door is clean, protected, and ready for finish paint or final turnover

## 18. Troubleshooting Guide

Symptom	Likely Cause	Recommended Check
Door rubs head	Frame out of square, hinge sag, floor issue	Measure diagonals and check hinge screws
Door rubs strike jamb	Frame too narrow, door sag, strike misalignment	Check opening width top/mid/bottom
Door will not latch	Strike not aligned, closer pressure, frame rack	Test without closer arm, verify latch projection



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Door drags floor	Undercut/floor issue, frame set too low	Verify finished floor and bottom clearance
Door pops open	Latch not fully engaging, silencers/gasketing preload	Inspect strike, gasket compression, closer latch speed
Door slams	Closer not adjusted or wrong closer power	Adjust closer per manufacturer instructions
Hardware screws loosen	Wrong screws, stripped prep, high traffic	Use correct fasteners and inspect reinforcement

## 19. Installer Sign-Off Checklist

- Door size, handing, and hardware preps verified.
- Frame was inspected before hanging door.
- Hinges installed with correct fasteners and tightened.
- Door swings freely with consistent reveals.
- Latch/strike alignment verified.
- Closer and other hardware adjusted and operating properly.
- Fire label and fire-rated assembly requirements verified where applicable.
- Door cleaned, protected, and ready for turnover.

## 20. Disclaimer and Project Coordination

- These instructions are general installation guidelines for DKS steel doors. Project specifications, approved submittals, local building codes, fire codes, accessibility requirements, and hardware manufacturer instructions take precedence when more restrictive.
- DKS is not responsible for improper installation, improper field modifications, jobsite damage, incompatible hardware, incorrect frames, or failure to follow applicable codes and standards.
- Questions regarding fire-rated openings, field labeling, field modifications, or inspection requirements should be coordinated with the project authority having jurisdiction and the applicable listing agency before work proceeds.

Sincerely,

DKS Steel Door and Frame Systems, Inc.