Activity Hazard Analysis (AHA) — EM 385-1-1 (2024)

Activity/Work Task: Structural Steel Frame Erection	Overall Risk Assessment Code (RAC) (Use highest code)	H
Project Location: Sample Project, Anytown USA	**Risk Assessment Code (RAC) Matrix**	
Contract Number: W912XX-26-C-0001	**Severity** / **Probability**	
Date Prepared: 2026-11-17	Frequent / Likely / Occasional / Seldom / Unlikely	
Prepared by (Name/Title): A. Preparer / Site Safety Officer	Catastrophic: E / E / H / H / M	
	Critical: E / H / H / M / L	
Reviewed by (Name/Title): B. Reviewer / Project Manager	Marginal: H / M / M / L / L	
	Negligible: M / L / L / L / L	
Notes: (Field Notes, Review Comments, etc.)	Review each **"Hazard"** with identified safety **"Controls"** and determine RAC (See above)	
	"Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.	**RAC Chart**
	"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible	**E = Extremely High Risk**
		H = High Risk
	Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.	**M = Moderate Risk**
		L = Low Risk

Job Steps	Hazards	Controls	EM 385-1-1 (PAR REF)	RAC
1. Release the selected work method and area	Fall into openings or over unprotected edges  *Fall hazard*	Walk the complete staging, work and inspection route; verify protected edges and openings before carrying materials. Keep protection in place through cleanup; do not step onto loose covers or an unverified surface. Maintain complete guardrails or secured, marked and load-rated covers at exposed edges and holes. Where personal protection is selected, verify designed anchorage, compatibility, clearance and prompt rescue before exposure. Inspect protection as work changes; stop if the protected position cannot be maintained. This method does not substitute a warning line or generic fall-protection plan for required physical protection. This selected steel-erection method uses continuous fall protection at 6 feet or lower where required by the actual exposure; it does not use connector or controlled-decking-zone exceptions. The 6-foot selection is more protective than the general OSHA steel-erection threshold, not a claim that OSHA Subpart R universally requires 6 feet. EM steel erection requires fall protection at 6 feet; retain the accepted fall/rescue plan.	EM 385-1-1 § 21.8.a.1; EM 385-1-1 § 21.8.f.1; EM 385-1-1 § 21.7.b; EM 385-1-1 § 28.8.c	H
	Slips and trips on routes, hoses, scraps and residue	Keep designated walkways, exits and emergency equipment clear. Route hoses and cords outside walking paths or protect crossings; promptly collect spills and offcuts into suitable containers. Maintain footing without moving required edge protection. Stop conflicting access until the route is restored and brief the crew when routes	EM 385-1-1 § 14.8.b.7	M

		change.		
2. Brief site interfaces, emergency and environmental arrangements 	Injury worsened by delayed medical response, rescue or evacuation	Confirm prompt medical attention and test emergency communications before work; post the site location/access route, medical telephone numbers and a highly visible map of the best route to the nearest medical facility; arrange effective transport of injured workers for immediate care and keep emergency access open. For shifts with more than one employee, provide at least two employees certified in first aid and CPR. Make first-aid supplies accessible in a weatherproof container with individually sealed packages; check the kit before each job and replace used items. Before using fall arrest, have a Competent Rescuer develop the written Rescue Plan, with trained rescuers, equipment and confirmed response arrangements. Stop affected work if the required response is unavailable. Brief the site alarm/warning method, usable evacuation routes, muster point and person accounting for this crew. Keep routes clear. On an alarm, warn others and follow the event-specific evacuation or shelter instruction; stop and isolate equipment only if safe and without delaying protective action; when evacuation is directed, go to muster and report missing persons; do not re-enter until the site emergency lead releases the area. Before work, inform the intended medical facilities/personnel about the work and likely injuries or illnesses. Confirm facility arrangements in writing for any final High or Extremely High residual RAC, and obtain any formal agreement required by the KO/COR.	EM 385-1-1 § 3.8.a; EM 385-1-1 § 3.8.a.1; EM 385-1-1 § 3.8.b.1; EM 385-1-1 § 21.7.b	H
	Fire escalation or unavailable fire protection  *Fire or flammable material*	Before area release, confirm the site fire-prevention/protection program provides suitable accessible firefighting equipment for this work and staging area, with its required inspections and maintenance current; keep access unobstructed. This structural steel frame erection crew response is evacuation and notification. Only personnel designated and trained under the site plan may use firefighting equipment; stop affected work if the required fire protection or evacuation arrangement is unavailable. The responsible site employer must maintain the program and required equipment throughout all work phases, replace defective firefighting equipment immediately, and provide additional necessary equipment without delay as fire hazards arise. Before area release, attach or reference the site-specific Fire Prevention Plan developed for construction operations according to NFPA	EM 385-1-1 § 9.7.a; EM 385-1-1 § 9.8.a.1; EM 385-1-1 § 9.3.f; EM 385-1-1 § 9.3.f.1; EM 385-1-1 § 9.3.f.2; EM 385-1-1 § 9.3.f.3; EM 385-1-1 § 9.5.a; EM 385-1-1 § 9.3.c	H

		241. Verify that employees are trained on the plan, including site fire hazards, exposed materials and processes, evacuation procedures and preferred emergency-reporting methods; use the plan to brief emergency first responders. Inspect portable extinguishers at least monthly and maintain them according to NFPA 10. Keep a permanent tag, checklist or electronic inspection record with the inspection date and inspector initials. For extinguishers not requiring an annual internal examination, designate a person to perform the annual maintenance check; deficiencies requiring release of pressure or emptying the agent must be corrected by a certified fire-extinguisher technician under NFPA 10. Where extinguishers are provided for employee use, verify initial and at least annual training for employees responsible for their use on general operating principles and incipient-stage fire hazards; the structural steel frame erection crew retains its evacuation and notification role unless separately designated and trained.		
	Heat or cold stress under actual outdoor or interior conditions	Where thermal exposure is possible, implement the written Thermal Stress Management Plan, identifying the monitoring method, applicable standard and responsible monitor, symptoms/first aid and preventive controls. Before deliveries and work in unconditioned spaces, assess heat/cold exposure considering weather, workload, clothing and worker factors; monitor changing conditions throughout all phases. Train workers to recognize thermal illness/injury, prevention and first-aid response. Provide readily available potable water, recovery breaks and shade/cooling or warm dry shelter as appropriate; adjust workload/schedule and allow acclimatization. Use a buddy system to watch for symptoms. Stop affected work, move an ill worker to safety and summon first-aid/emergency assistance; do not leave the worker alone. Resume only after exposure controls and safe staffing are restored.	EM 385-1-1 § 6-3.c; EM 385-1-1 § 6.8.m; EM 385-1-1 § 6.7.g.4; EM 385-1-1 § 6.8.m.1; EM 385-1-1 § 6.8.m.2; EM 385-1-1 § 6.8.m.3; EM 385-1-1 § 6.8.m.4	H
	Electric shock or damaged portable task lighting  *Electrical hazard*	Use the verified site lighting or inspected, suitable plug-in task lights. Before connection and each use, check lamps, guards, plugs and cords; remove damaged equipment. Use grounded or manufacturer-marked double-insulated lights and GFCI-protected supplies under this work method; test GFCIs according to their instructions. Keep connections dry and leads clear of traffic, sharp edges and water or spilled material. Guard lamps against accidental contact or breakage, ground metal-case sockets, and do not hang lights by cords unless designed for it. Use lighting circuits separately from tool circuits; qualified electrical personnel arrange and verify the supply and connections. Isolate power before servicing or changing lamps; the structural steel frame erection crew does not install or alter temporary wiring. For EM work, the electrical trade must verify the	EM 385-1-1 § 11.8.l.4; EM 385-1-1 § 11-8.l(9); EM 385-1-1 § 11.8.m.2; EM 385-1-1 § 11-8.m(10)(c); EM 385-1-1 § 11-8.m(7)(b); EM 385-1-1 § 11-8.m(7)(c)	M

		temporary system polarity, ground continuity and ground resistance before initial use and after modification; test GFCIs monthly and portable GFCIs before each use. For temporary installations using nonmetallic-sheathed or service-entrance cables, verify the dedicated receptacle circuits are labeled LIGHTS ONLY or TOOLS ONLY.		
3. Survey, lay out and release the actual work area	Injury from an unsuitable work area or unresolved installation interface	Release the site-specific erection sequence and temporary stability design, crane access/ground and landing zones. Obtain controlling-contractor written concrete-strength and anchor-rod modification notices before erection. Under EM retain the signed/dated qualified-person steel erection plan and accepted fall/rescue arrangements. Stop if the specified support, separation or method cannot be maintained; the responsible supervisor must resolve the change and brief the crew before restarting.	EM 385-1-1 § 2.6.a.5; EM 385-1-1 § 28.8.m.2.b	M
	Fall or overturn from unsuitable elevated access  *Fall hazard; Fall arrest harness*	Select an already erected and released supported scaffold or manufacturer-approved electric MEWP for the actual task, floor capacity, material mass and reach. Verify scaffold inspection before each shift and after events affecting integrity, protected access and full platform protection. Authorized MEWP operators complete actual-model checks, use the required fall arrangement and arrange trained ground assistance for emergency lowering. On scissor lifts use a manufacturer-compatible restraint system with lanyards short enough to prevent climbing out or ejection; on boom lifts anchor to the basket per the manufacturer. Do not stand on rails, overreach or transfer at height. Before raising, lowering or repositioning a MEWP, check the movement envelope for overhead and side trapping points and nearby energized lines; keep occupants and carried materials clear and stop movement if clearance or visibility is lost. Move a scaffold only under the competent person's direction, using trained workers that person selects. This method does not use ladders for forceful or two-handed material handling and does not authorize scaffold erection. Stop when reach, loading, support or rescue cannot be maintained.	EM 385-1-1 § 22.5.a; EM 385-1-1 § 22.8.m.2; EM 385-1-1 § 21.8.a.1; EM 385-1-1 § 21.8.n.3	H
	Platform or carried material contacts adjacent energized services  *Electrical hazard*	Survey the complete platform, tool and material movement envelope. Have the qualified electrical lead establish and record either safe separation or isolation of conflicting services before positioning. Where a service stays energized, mark the boundary across the envelope, post warning signs and brief the crew on its location and hazard. Stop for an unknown boundary. Before the installation release, the qualified electrical lead completes and records shock and arc-flash risk assessments and, where isolation is	EM 385-1-1 § 11.8.b; EM 385-1-1 § 11.8.d.1; EM 385-1-1 § 11.8.d.2; EM 385-1-1 § 11.8.d.3; EM 385-1-1 §	H

		selected, implements the equipment-specific HIP and applicable personal/group isolation, verifies every source, visually confirms open disconnects or withdrawn breakers wherever possible, and tests for absence of voltage using a suitably rated instrument with function verification before and after the test. Discharge stored energy and install required grounds. Keep isolation and shift protection effective; stop on unknown or changed sources. Switching and establishing the safe condition remain under the separate energy-control analysis; no energized work is authorized here.	11.8.d.4; EM 385-1-1 § 11.8.d.5; EM 385-1-1 § 11.8.d.6	
4. Receive, inspect and stage columns, beams, erection bolts and engineered temporary bracing	Runover or crushing at delivery and handling interfaces  *Crush or pinch point; Moving vehicles or equipment*	This crew receives material only after the delivery/plant crew has set it down, stopped and released the area. Stay outside reversing, fork and suspended-load zones. Agree one clear transfer signal; never steady a moving load by hand or enter until the operator acknowledges the stop. Crane/forklift unloading and vehicle transport need their separate methods. Before entering the receiving area, confirm with the site logistics lead that its traffic signs and devices are in place.	EM 385-1-1 § 2.6.a.5; EM 385-1-1 § 8.8.e.4	H
	Strain, cuts and pinches while handling columns, beams, erection bolts and engineered temporary bracing  *Hard hat; Eye protection; Gloves; Protective footwear*	Inspect packaging and actual weights; separate damaged items and remove bands from a stable position outside their recoil path. Use carts and supported transfers; do not climb a stack. Confirm weights and grip points before lifting; use a cart or coordinated team handling for parts that cannot be controlled by one person. Keep hands and feet outside pinch zones, maintain a clear route and stop before fatigue or loss of grip. Wear task-selected handling gloves, impact eye protection, head protection and protective footwear. Gloves do not make it safe to touch moving equipment. The competent person evaluates the physical demands against worker capability and documents the selected task changes and aids in the AHA. Move columns, beams and other heavy members only with the separately released crane or telehandler and a qualified rigger; manually handle only controllable small connection material and brace hardware.	EM 385-1-1 § 5.8.b; EM 385-1-1 § 5.8.c; EM 385-1-1 § 5.8.h; EM 385-1-1 § 5.8.i; EM 385-1-1 § 6.8.n.1; EM 385-1-1 § 6.8.n.2	H

	Crushing from unstable stored materials  *Crush or pinch point*	Store columns, beams, erection bolts and engineered temporary bracing on a level released support within floor/load limits. Block or restrain rolling/tipping items, keep stacks stable and aisles open, and withdraw material without destabilizing the remainder. Do not lean tall items unsecured against a wall. Inspect after disturbance and stop access if movement appears.	EM 385-1-1 § 14.5.a	H
5. Accept foundations and anchor rods	Column base failure causes fatal collapse	Obtain written notice that concrete has reached at least 75 percent of intended minimum compressive design strength or sufficient strength to support erection loads. Verify each column has at least four anchor rods and the designed base support. Repairs/replacements/modifications need project structural engineer approval and notice to the erector; do not bend or field-cut a rod to fit. Stop if the specified support, separation or method cannot be maintained; the responsible supervisor must resolve the change and brief the crew before restarting.	EM 385-1-1 § 28.8.b; EM 385-1-1 § 28.8.m; EM 385-1-1 § 28.8.b.1; EM 385-1-1 § 28.8.m.2.a	H
	Fall from foundation edges or into unprotected openings while inspecting column bases and anchor rods  *Fall hazard*	Retain temporary edge and opening protection throughout this step. Installed work is not a guard until the responsible person accepts it. Maintain complete guardrails or secured, marked and load-rated covers at exposed edges and holes. Where personal protection is selected, verify designed anchorage, compatibility, clearance and prompt rescue before exposure. Inspect protection as work changes; stop if the protected position cannot be maintained. This method does not substitute a warning line or generic fall-protection plan for required physical protection. This selected steel-erection method uses continuous fall protection at 6 feet or lower where required by the actual exposure; it does not use connector or controlled-decking-zone exceptions. The 6-foot selection is more protective than the general OSHA steel-erection threshold, not a claim that OSHA Subpart R universally requires 6 feet. EM steel erection requires fall protection at 6 feet; retain the accepted fall/rescue plan.	EM 385-1-1 § 21.8.a.1; EM 385-1-1 § 21.8.f.1; EM 385-1-1 § 21.7.b; EM 385-1-1 § 28.8.c	H
	Noise exposure from equipment, component handling and adjacent trades  *Noise; Hearing protection*	Evaluate combined noise exposure from this crew and nearby trades before selecting equipment and hearing protection; take noise measurements initially and regularly, after changes, on worker complaints, when hazardous noise is suspected or speech is difficult at less than 3 feet. Use personnel qualified for the assessment; ER 385-1-89 evaluator training applies to USACE personnel. Assess	EM 385-1-1 § 5.8.d; EM 385-1-1 § 5.8.d.1; EM 385-1-1 § 5.8.d.4; EM 385-1-1 § 5-	M

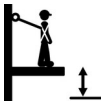
		contractor exposures using EM Table 5-4 (85 dBA for 8 hours, 3 dB exchange rate); consider combined mixed-level exposure. Where the work produces impact or impulse noise, assess peak levels separately; do not expose personnel above 140 dBC without effective hearing protection. Do not expose personnel to continuous noise above 85 dBA without effective hearing protection. Use quieter equipment, maintain it, separate noisy work and limit exposure through effective engineering and administrative measures. Provide and enforce suitable hearing protection when those measures cannot meet applicable limits, and develop/implement the written site-specific Hearing Conservation Program when hazardous noise or exposure to ototoxic chemicals is known or expected. Ensure workers can still receive warnings through the agreed communication method. Apply throughout noisy preparation, fastening, handling and cleanup; include exposure from adjacent trades.	8.d(3); EM 385-1-1 § 5.7.a; EM 385-1-1 § 5.8.d.3.b	
6. Rig and set the first column 	Dropped column or unstable base crushes crew  *Crush or pinch point*	Coordinate with the separately released crane/lift analysis: verify actual mass and center of gravity, approved lifting points, rigging capacity/angles, crane configuration/radius, ground and outrigger support, overhead-line clearance, wind limit and landing sequence. Qualified riggers inspect rigging each shift and as needed; use a designated signaler, test lift, controlled tag lines and an unoccupied load path. Stop on lost communication, instability or an intruding person. Never use hands beneath a suspended load. Land on the designed level leveling nuts/plates or shim packs capable of supporting loads. A competent person determines column guying/bracing needs; install it before release. Check anchor assembly erection-load design, not just bolt count. And shim packs are used, a named qualified person directs their use and verifies the arrangement before the column is landed and released. Stop if the specified support, separation or method cannot be maintained; the responsible supervisor must resolve the change and brief the crew before restarting.	EM 385-1-1 § 28.8.m; EM 385-1-1 § 16.8.a; EM 385-1-1 § 28.8.m.1.d	H
	Fall from MEWP or scaffold platform while guiding, landing and unhooking the first column  *Fall hazard*	Perform elevated installation from the inspected, guardrailed scaffold or MEWP selected for this work; use its designated access. Keep feet on the platform floor; reposition to stay within reach. Do not use stilts, stand on pails, rails or makeshift platforms, climb while carrying materials, or remove edge protection to gain reach. Use the specified boom-lift restraint or fall-arrest system attached to the manufacturer-specified basket/platform anchorage; do not anchor to the boom. Keep floor-hole covers and building-edge protection in place. Stop if protection or access is interrupted and notify the supervisor. The responsible scaffold or fall-protection competent person must arrange correction, inspect the restored protection and	EM 385-1-1 § 21.8.a.1; EM 385-1-1 § 21.8.n.3; EM 385-1-1 § 21.8.o.1; EM 385-1-1 § 24.8.a.1; EM 385-1-1 § 28.8.c	M

		authorize resumption. Maintain the released scaffold or MEWP, safe reach and rescue throughout this step. Reposition instead of leaning outside protection; do not climb installed work or stand on materials. This selected steel-erection method uses continuous fall protection at 6 feet or lower where required by the actual exposure; it does not use connector or controlled-decking-zone exceptions. The 6-foot selection is more protective than the general OSHA steel-erection threshold, not a claim that OSHA Subpart R universally requires 6 feet. EM steel erection requires fall protection at 6 feet; retain the accepted fall/rescue plan.		
	Struck by tools, bolts or column parts dropped from height while setting the first column  *Fall hazard; Hard hat*	Support each component against falling or tipping before releasing the handling aid. Keep parts in secured trays and retain the lower exclusion through the operation to rig and set the first column. Establish a physical exclusion zone covering the full possible fall path; secure tools in suitable holders/tethers and contain small parts. Never stand below unsecured material or try to catch a falling component. Coordinate overhead work and stop if exclusion or restraint is lost. Keep potential falling objects far enough from the edge that accidental displacement cannot take them over it. Head protection supplements these controls. When using a scaffold, provide the selected toeboards, screens, guardrails or other designed containment to protect employees on it from falling small objects. Secure objects too large to contain away from the edge and keep the barricaded area below unoccupied.	EM 385-1-1 § 13.8.a.3; EM 385-1-1 § 5.8.b; EM 385-1-1 § 2.6.a.5	H
7. Connect beams and retain hoist support 	Beam rolls or drops at an incomplete connection	Keep the hoisting line engaged until each connection has at least two bolts of the specified size/strength drawn snug-tight or tightened as specified by the project structural engineer; the competent person requires more where needed for stability, including cantilevers. Make connections from protected MEWPs without standing on unsupported steel. Stop for fit-up force or unstable bearings. Stop if the specified support, separation or method cannot be maintained; the responsible supervisor must resolve the change and brief the crew before restarting.	EM 385-1-1 § 28.8.n; EM 385-1-1 § 28.8.n.1	H
	Fall from MEWP or scaffold platform while making beam-to-column connections at height  *Fall hazard*	Perform elevated installation from the inspected, guardrailed scaffold or MEWP selected for this work; use its designated access. Keep feet on the platform floor; reposition to stay within reach. Do not use stilts, stand on pails, rails or makeshift platforms, climb while carrying materials, or remove edge protection to gain reach. Use the specified boom-lift restraint or fall-arrest system attached to the manufacturer-specified basket/platform anchorage; do not anchor to the boom. Keep floor-hole covers and	EM 385-1-1 § 21.8.a.1; EM 385-1-1 § 21.8.n.3; EM 385-1-1 § 21.8.o.1; EM 385-1-1 § 24.8.a.1; EM 385-1-1 §	M

		building-edge protection in place. Stop if protection or access is interrupted and notify the supervisor. The responsible scaffold or fall-protection competent person must arrange correction, inspect the restored protection and authorize resumption. Maintain the released scaffold or MEWP, safe reach and rescue throughout this step. Reposition instead of leaning outside protection; do not climb installed work or stand on materials. This selected steel-erection method uses continuous fall protection at 6 feet or lower where required by the actual exposure; it does not use connector or controlled-decking-zone exceptions. The 6-foot selection is more protective than the general OSHA steel-erection threshold, not a claim that OSHA Subpart R universally requires 6 feet. EM steel erection requires fall protection at 6 feet; retain the accepted fall/rescue plan.	28.8.c	
	Struck by bolts, tools or connection parts dropped from height while connecting beams  *Fall hazard; Hard hat*	Support each component against falling or tipping before releasing the handling aid. Keep parts in secured trays and retain the lower exclusion through the operation to connect beams and retain hoist support. Establish a physical exclusion zone covering the full possible fall path; secure tools in suitable holders/tethers and contain small parts. Never stand below unsecured material or try to catch a falling component. Coordinate overhead work and stop if exclusion or restraint is lost. Keep potential falling objects far enough from the edge that accidental displacement cannot take them over it. Head protection supplements these controls. When using a scaffold, provide the selected toeboards, screens, guardrails or other designed containment to protect employees on it from falling small objects. Secure objects too large to contain away from the edge and keep the barricaded area below unoccupied.	EM 385-1-1 § 13.8.a.3; EM 385-1-1 § 5.8.b; EM 385-1-1 § 2.6.a.5	H
8. Complete double connections and erection bracing	Shared-bolt removal releases the first member	Keep at least one snug-tight or tightened as specified by the project structural engineer bolt securing the first member when fitting a double connection, unless a designed seat or device able to support the connection load is attached to both the supporting member and the first member before the shared nuts are removed. Without one of these, do not remove the first member connection to insert the second; use only preinstalled or bolted seat devices, with no field welding. Install and anchor temporary bracing in the engineered sequence and maintain stability at every intermediate stage. Stop if the specified support, separation or method cannot be maintained; the responsible supervisor must resolve the change and brief the crew before restarting.	EM 385-1-1 § 28.8.p; EM 385-1-1 § 28.8.i; EM 385-1-1 § 28.8.p.1	H
	Fall from MEWP or scaffold platform while fitting double connections and installing erection bracing	Perform elevated installation from the inspected, guardrailed scaffold or MEWP selected for this work; use its designated access. Keep feet on the platform floor; reposition to stay within reach. Do not use stilts, stand on	EM 385-1-1 § 21.8.a.1; EM 385-1-1 § 21.8.n.3; EM	M

	 *Fall hazard*	pails, rails or makeshift platforms, climb while carrying materials, or remove edge protection to gain reach. Use the specified boom-lift restraint or fall-arrest system attached to the manufacturer-specified basket/platform anchorage; do not anchor to the boom. Keep floor-hole covers and building-edge protection in place. Stop if protection or access is interrupted and notify the supervisor. The responsible scaffold or fall-protection competent person must arrange correction, inspect the restored protection and authorize resumption. Maintain the released scaffold or MEWP, safe reach and rescue throughout this step. Reposition instead of leaning outside protection; do not climb installed work or stand on materials. This selected steel-erection method uses continuous fall protection at 6 feet or lower where required by the actual exposure; it does not use connector or controlled-decking-zone exceptions. The 6-foot selection is more protective than the general OSHA steel-erection threshold, not a claim that OSHA Subpart R universally requires 6 feet. EM steel erection requires fall protection at 6 feet; retain the accepted fall/rescue plan.	385-1-1 § 21.8.o.1; EM 385-1-1 § 24.8.a.1; EM 385-1-1 § 28.8.c	
	Struck by bolts, tools or brace hardware dropped from height during double-connection and bracing work  *Fall hazard; Hard hat*	Support each component against falling or tipping before releasing the handling aid. Keep parts in secured trays and retain the lower exclusion through the operation to complete double connections and erection bracing. Establish a physical exclusion zone covering the full possible fall path; secure tools in suitable holders/tethers and contain small parts. Never stand below unsecured material or try to catch a falling component. Coordinate overhead work and stop if exclusion or restraint is lost. Keep potential falling objects far enough from the edge that accidental displacement cannot take them over it. Head protection supplements these controls. When using a scaffold, provide the selected toeboards, screens, guardrails or other designed containment to protect employees on it from falling small objects. Secure objects too large to contain away from the edge and keep the barricaded area below unoccupied.	EM 385-1-1 § 13.8.a.3; EM 385-1-1 § 5.8.b; EM 385-1-1 § 2.6.a.5	H
9. Plumb and complete bolted connections	Unbalanced loading or premature brace release collapses frame	Use the specified bolt installation/inspection method and approved plumb-up sequence with supports retained. No stockpiling or new construction load until the qualified lead releases the secured frame capacity. Stop for movement, loose anchor rods or mismatched members; no forced field alteration. Remove plumbing-up equipment only with competent-person approval and any required design authorization. Stop if the specified support, separation or method cannot be maintained; the responsible supervisor must resolve the change and brief the crew before restarting.	EM 385-1-1 § 28.8.d; EM 385-1-1 § 28.8.i; EM 385-1-1 § 28.8.n	H

	Fall from MEWP or scaffold platform while plumbing the frame and tightening connection bolts  *Fall hazard*	Perform elevated installation from the inspected, guardrailed scaffold or MEWP selected for this work; use its designated access. Keep feet on the platform floor; reposition to stay within reach. Do not use stilts, stand on pails, rails or makeshift platforms, climb while carrying materials, or remove edge protection to gain reach. Use the specified boom-lift restraint or fall-arrest system attached to the manufacturer-specified basket/platform anchorage; do not anchor to the boom. Keep floor-hole covers and building-edge protection in place. Stop if protection or access is interrupted and notify the supervisor. The responsible scaffold or fall-protection competent person must arrange correction, inspect the restored protection and authorize resumption. Maintain the released scaffold or MEWP, safe reach and rescue throughout this step. Reposition instead of leaning outside protection; do not climb installed work or stand on materials. This selected steel-erection method uses continuous fall protection at 6 feet or lower where required by the actual exposure; it does not use connector or controlled-decking-zone exceptions. The 6-foot selection is more protective than the general OSHA steel-erection threshold, not a claim that OSHA Subpart R universally requires 6 feet. EM steel erection requires fall protection at 6 feet; retain the accepted fall/rescue plan. Before raising, lowering or repositioning a MEWP near fixed or moving steel, check clearance for the platform and occupants through the whole movement and keep bodies out of closing gaps; stop if clearance or visibility cannot be maintained.	EM 385-1-1 § 21.8.a.1; EM 385-1-1 § 21.8.n.3; EM 385-1-1 § 21.8.o.1; EM 385-1-1 § 24.8.a.1; EM 385-1-1 § 28.8.c	M
	Electrocution from damaged or wet electrical equipment  *Electrical hazard*	Inspect the actual tool, connections and cords before use and throughout wet or abrasive work. Use approved grounded or double-insulated equipment with the selected GFCI-protected supply; test the GFCI before use. Keep connections dry and outside water, cutting and traffic paths. Stop for damaged leads, wet electrical parts or tripping protection; isolate and have qualified personnel resolve the fault. Disconnect before adjustments; never repeatedly reset a trip. If supply is lost or protection trips, switch the tool off and release any lock-on before power is restored; where an automatic restart could injure the operator, use a tool or supply that prevents it.	EM 385-1-1 § 13.8.c.2; EM 385-1-1 § 13.8.c.3; EM 385-1-1 § 11.8.m.2; EM 385-1-1 § 11.7.b.2.b	H
	Struck by bolts, wrenches or tools dropped from height while plumbing and bolting connections  *Fall hazard; Hard hat*	Support each component against falling or tipping before releasing the handling aid. Keep parts in secured trays and retain the lower exclusion through the operation to plumb and complete bolted connections. Establish a physical exclusion zone covering the full possible fall path; secure tools in suitable holders/tethers and contain small parts. Never stand below unsecured material or try to catch a	EM 385-1-1 § 13.8.a.3; EM 385-1-1 § 5.8.b; EM 385-1-1 § 2.6.a.5	H

		falling component. Coordinate overhead work and stop if exclusion or restraint is lost. Keep potential falling objects far enough from the edge that accidental displacement cannot take them over it. Head protection supplements these controls. When using a scaffold, provide the selected toeboards, screens, guardrails or other designed containment to protect employees on it from falling small objects. Secure objects too large to contain away from the edge and keep the barricaded area below unoccupied.		
10. Secure loose material and transfer fall protection 	Falling tools or gaps expose follow-on trades   *Overhead or falling load; Hard hat*	Secure loose bolts/tools and keep other work out from below erection unless the required overhead protection is provided. Before other trades work in the area using fall protection the erector leaves in place, record the controlling contractor's or authorized representative's direction to leave it and that party's inspection and acceptance of control and responsibility; keep temporary bracing until design-authorized removal. Stop if the specified support, separation or method cannot be maintained; the responsible supervisor must resolve the change and brief the crew before restarting.	EM 385-1-1 § 28.8.c; EM 385-1-1 § 28.8.i	H
	Fall from MEWP or scaffold platform while securing loose material and transferring fall protection  *Fall hazard*	Perform elevated installation from the inspected, guardrailed scaffold or MEWP selected for this work; use its designated access. Keep feet on the platform floor; reposition to stay within reach. Do not use stilts, stand on pails, rails or makeshift platforms, climb while carrying materials, or remove edge protection to gain reach. Use the specified boom-lift restraint or fall-arrest system attached to the manufacturer-specified basket/platform anchorage; do not anchor to the boom. Keep floor-hole covers and building-edge protection in place. Stop if protection or access is interrupted and notify the supervisor. The responsible scaffold or fall-protection competent person must arrange correction, inspect the restored protection and authorize resumption. Maintain the released scaffold or MEWP, safe reach and rescue throughout this step. Reposition instead of leaning outside protection; do not climb installed work or stand on materials. This selected steel-erection method uses continuous fall protection at 6 feet or lower where required by the actual exposure; it does not use connector or controlled-decking-zone exceptions. The 6-foot selection is more protective than the general OSHA steel-erection threshold, not a claim that OSHA Subpart R universally requires 6 feet. EM steel erection requires fall protection at 6 feet; retain the accepted fall/rescue plan.	EM 385-1-1 § 21.8.a.1; EM 385-1-1 § 21.8.n.3; EM 385-1-1 § 21.8.o.1; EM 385-1-1 § 24.8.a.1; EM 385-1-1 § 28.8.c	M
	Struck by loose bolts, tools or material dropped from height while securing the erected frame	Support each component against falling or tipping before releasing the handling aid. Keep parts in secured trays and retain the lower exclusion through the operation to secure	EM 385-1-1 § 13.8.a.3; EM 385-1-1 §	H

	 *Fall hazard; Hard hat*	loose material and transfer fall protection. Establish a physical exclusion zone covering the full possible fall path; secure tools in suitable holders/tethers and contain small parts. Never stand below unsecured material or try to catch a falling component. Coordinate overhead work and stop if exclusion or restraint is lost. Keep potential falling objects far enough from the edge that accidental displacement cannot take them over it. Head protection supplements these controls. When using a scaffold, provide the selected toeboards, screens, guardrails or other designed containment to protect employees on it from falling small objects. Secure objects too large to contain away from the edge and keep the barricaded area below unoccupied.	5.8.b; EM 385-1-1 § 2.6.a.5	
11. Inspect completed work and retain restrictions 	Fall during inspection and final adjustment  *Fall hazard*	Perform elevated installation from the inspected, guardrailed scaffold or MEWP selected for this work; use its designated access. Keep feet on the platform floor; reposition to stay within reach. Do not use stilts, stand on pails, rails or makeshift platforms, climb while carrying materials, or remove edge protection to gain reach. Use the specified boom-lift restraint or fall-arrest system attached to the manufacturer-specified basket/platform anchorage; do not anchor to the boom. Keep floor-hole covers and building-edge protection in place. Stop if protection or access is interrupted and notify the supervisor. The responsible scaffold or fall-protection competent person must arrange correction, inspect the restored protection and authorize resumption. Maintain the released scaffold or MEWP, safe reach and rescue throughout inspection and final adjustment. Reposition instead of leaning outside protection; do not climb installed work or stand on materials. This selected steel-erection method uses continuous fall protection at 6 feet or lower where required by the actual exposure; it does not use connector or controlled-decking-zone exceptions. The 6-foot selection is more protective than the general OSHA steel-erection threshold, not a claim that OSHA Subpart R universally requires 6 feet. EM steel erection requires fall protection at 6 feet; retain the accepted fall/rescue plan.	EM 385-1-1 § 21.8.a.1; EM 385-1-1 § 21.8.n.3; EM 385-1-1 § 21.8.o.1; EM 385-1-1 § 24.8.a.1; EM 385-1-1 § 28.8.c	M
12. Isolate tools and collect residue and sharp waste	Laceration or puncture during sharp-waste collection  *Eye protection; Gloves*	Wear cut- and puncture-resistant gloves and safety glasses with side protection. Pick up blades, screws, metal offcuts and nailed scrap with tongs, a magnet or a scoop instead of by hand; do not reach blind into bags or piles and do not compact waste with hands or feet. Place used blades in a rigid sharps container and other sharp scrap in a puncture-resistant bin; bend over or remove protruding nails. Carry containers by their handles and keep them closed when moving them. Stop and report any puncture or laceration; do not catch falling material or a dropped knife.	EM 385-1-1 § 13.8.a.1; EM 385-1-1 § 13.8.a.2; EM 385-1-1 § 5.8.c; EM 385-1-1 § 5.8.h	M

	Slips and trips on routes, hoses, scraps and residue	Keep the exclusion in place until waste is removed; Keep designated walkways, exits and emergency equipment clear. Route hoses and cords outside walking paths or protect crossings; promptly collect spills and offcuts into suitable containers. Maintain footing without moving required edge protection. Stop conflicting access until the route is restored and brief the crew when routes change.	EM 385-1-1 § 14.8.b.7	M
	Fall during elevated tool and waste removal  *Fall hazard*	Perform elevated installation from the inspected, guardrailed scaffold or MEWP selected for this work; use its designated access. Keep feet on the platform floor; reposition to stay within reach. Do not use stilts, stand on pails, rails or makeshift platforms, climb while carrying materials, or remove edge protection to gain reach. Use the specified boom-lift restraint or fall-arrest system attached to the manufacturer-specified basket/platform anchorage; do not anchor to the boom. Keep floor-hole covers and building-edge protection in place. Stop if protection or access is interrupted and notify the supervisor. The responsible scaffold or fall-protection competent person must arrange correction, inspect the restored protection and authorize resumption. Maintain the released scaffold or MEWP, safe reach and rescue throughout elevated tool and waste removal. Reposition instead of leaning outside protection; do not climb installed work or stand on materials. This selected steel-erection method uses continuous fall protection at 6 feet or lower where required by the actual exposure; it does not use connector or controlled-decking-zone exceptions. The 6-foot selection is more protective than the general OSHA steel-erection threshold, not a claim that OSHA Subpart R universally requires 6 feet. EM steel erection requires fall protection at 6 feet; retain the accepted fall/rescue plan.	EM 385-1-1 § 21.8.a.1; EM 385-1-1 § 21.8.n.3; EM 385-1-1 § 21.8.o.1; EM 385-1-1 § 24.8.a.1; EM 385-1-1 § 28.8.c	H
	Electrocution from damaged or wet electrical equipment  *Electrical hazard*	Inspect the actual tool, connections and cords before use and throughout wet or abrasive work. Use approved grounded or double-insulated equipment with the selected GFCI-protected supply; test the GFCI before use. Keep connections dry and outside water, cutting and traffic paths. Stop for damaged leads, wet electrical parts or tripping protection; isolate and have qualified personnel resolve the fault. Disconnect before adjustments; never repeatedly reset a trip. If supply is lost or protection trips, switch the tool off and release any lock-on before power is restored; where an automatic restart could injure the operator, use a tool or	EM 385-1-1 § 13.8.c.2; EM 385-1-1 § 13.8.c.3; EM 385-1-1 § 11.8.m.2	H

		supply that prevents it.		
13. Inspect and hand over remaining restrictions 	Vehicle or plant strike during removal and final inspection  *High-visibility clothing*	Have the site traffic lead release a physically separated work pocket and pedestrian route before removal and final inspection. Close or suspend conflicting plant movements with operator acknowledgment; maintain signs, visible barriers and task-selected high-visibility apparel. Do not turn away from an uncontrolled live lane to work or rely on a vest to stop traffic. Stop when separation or communication fails. Public-road traffic control, flagging and installation/removal of devices in live traffic require the separately approved traffic plan and trained crew. Keep that protection until this crew and materials are clear.	EM 385-1-1 § 8.8.e; EM 385-1-1 § 8.8.e.1; EM 385-1-1 § 8.8.e.2; EM 385-1-1 § 8.8.e.4; EM 385-1-1 § 5.8.f	H

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
Mobile crane, rigging, MEWPs, hand and power tools	Qualified rigger; signal person; competent person for fall protection	Daily crane, rigging and MEWP inspection

The AHA shall be reviewed and modified as necessary to address changing site conditions, operations, or change of competent/qualified persons

EM 385-1-1 (2024)