JOB HAZARD ANALYSIS (JHA)

Business name

Document: JHA-001 Rev 1
Prepared: Nov 9, 2026
Review by: Dec 9, 2026
Highest risk after controls: Medium

1. BUSINESS AND JOB DETAILS

Job	Commercial flat roof solar installation	**Start date**	Nov 9, 2026
Working hours	7:00 am to 3:30 pm	**Trade**	Solar

2. JOB STEPS, HAZARDS AND CONTROLS

#	Job step	Hazards	Risk before	Controls	Risk after	Responsible
1	Install edge protection and guard skylights	Falling from a roof edge Falling through a fragile roof or skylight Falling through a floor opening or void Rules: 29 CFR 1926 Subpart M	**Critical** **Likely / Fatality**	1.1 Do what you can from the ground or from a scaffold at the gutter line, for example pre-assemble parts on the ground. [Elimination] 1.2 Install edge protection or guardrails on all open roof edges before work starts. [Engineering (guarding)] 1.3 Use a perimeter scaffold with handrails and toe boards along the eaves where practical. [Engineering] 1.4 Where guardrails cannot be fitted, use fall restraint on certified roof anchors so workers cannot reach the edge. [Engineering] 1.5 Low-slope roofs: guardrails, safety nets, personal fall arrest, or a warning line combined with one of these or with a safety monitor (a safety monitor alone only on roofs 50 feet wide or less). Steep roofs: guardrails with toe boards, safety nets or personal fall arrest (29 CFR 1926.501(b)(10), (11)). [Administrative] 1.6 Use one safe, controlled access point and keep others off the roof. [Administrative] 1.7 Work from underneath or from an aerial lift so nobody stands on the fragile roof. [Elimination] 1.8 Cover every skylight with a fixed, marked cover that can hold at least twice the weight it may carry, or guard it with a guardrail. [Engineering (guarding)] 1.9 Use crawl boards or staging to spread the load on fragile or rotten decking, and cover or guard any hole left where decking is removed (29 CFR 1926.501(b)(4)). [Engineering] 1.10 Use fall arrest on rated anchors when working near fragile areas. [Engineering] 1.11 Treat all roof sheets as fragile until a competent person confirms they are not. Old fiber cement and plastic sheets are fragile. [Administrative] 1.12 Cover every hole with a secured cover marked "HOLE" or "COVER" that can hold twice the weight it may carry. [Engineering (guarding)] 1.13 Put guardrails with toe boards around stairwells,	**Medium** **Rare / Fatality**	Site supervisor

#	Job step	Hazards	Risk before	Controls	Risk after	Responsible
				elevator shafts, floor holes and open edges. [Engineering (guarding)] 1.14 Install stairs early and fit temporary handrails as soon as they go in. [Engineering] 1.15 Never remove a cover or guardrail without approval. Put it back straight away. [Administrative] 1.16 Inspect covers and barriers daily and after other trades have been through. [Administrative]		
2	Crane panels onto the roof with an exclusion zone below	Crane and lifting failure Falling tools and materials Public entering the work area Rules: 29 CFR 1926 Subpart CC; 29 CFR 1926.501(c)	**High Possible / Serious injury**	2.1 Barricade the lift zone and keep everyone out from under the load. [Engineering (guarding)] 2.2 Use a crane rated for the load at the radius, set up on firm ground with outrigger pads. [Engineering] 2.3 Check slings, chains, shackles and hooks before use. Remove anything damaged or not tagged. [Engineering] 2.4 Plan the lift: weight, radius, ground, path and landing area. Use a written lift plan for complex lifts. [Administrative] 2.5 Use a certified crane operator who has also been evaluated by the employer, with the evaluation documented on site (29 CFR 1926.1427), plus a qualified rigger (1926.1425) and a qualified signal person (1926.1428). [Administrative] 2.6 Barricade and sign the drop zone under overhead work so nobody walks beneath. [Engineering (guarding)] 2.7 Fit toe boards, kick plates and mesh screens on scaffolds and edges. [Engineering] 2.8 Use catch fans, debris netting or covered walkways where people pass below. [Engineering] 2.9 Tether hand tools when working at height. [Engineering] 2.10 Keep platforms tidy. Do not stack materials near edges or above toe board height. [Administrative] 2.11 Fence off the site with secure temporary fencing and lock the gates when you leave. [Engineering (guarding)] 2.12 Give pedestrians a safe, marked path around the work, with ramps for strollers and wheelchairs. [Engineering (guarding)] 2.13 Use hoarding, covered walkways or catch fans where work is above public areas. [Engineering] 2.14 Put signs at each entry: site name, contact number and "No unauthorized entry". [Administrative] 2.15 Make the site safe at the end of each day: cover holes, lower plant, remove ladders and lock tools away. [Administrative]	**Medium Unlikely / Serious injury**	Site supervisor
3	Spread loads so the roof is not overloaded	Structural collapse during alterations	**High Unlikely / Fatality**	3.1 Get an engineer to check before removing any wall, beam, post or bracing that may be load-bearing. [Elimination] 3.2 Keep everyone clear of the area under and next to the work. [Engineering (guarding)] 3.3 Install temporary props, needles or shoring as designed before removing any support. [Engineering]	**Medium Rare / Fatality**	Site supervisor

#	Job step	Hazards	Risk before	Controls	Risk after	Responsible
				3.4 Follow the engineer's sequence. Do not change it without approval. [Administrative] 3.5 Check props daily. Do not remove them until the permanent support is in and approved. [Administrative] 3.6 Wear a hard hat and safety boots. [PPE]		
4	Fit frames and panels	Lifting and carrying heavy loads Strong wind and storms Cuts from sharp edges	**High Likely / Recordable / lost time**	4.1 Plan to avoid carrying: have materials delivered, and old items picked up, as close as possible to where they are used. [Elimination] 4.2 Use lighter or smaller loads: order smaller bags and shorter lengths, and drain or break down old items before moving them. [Substitution] 4.3 Use trolleys, pallet jacks, hoists, vacuum lifters or plant instead of carrying by hand. [Engineering] 4.4 Use a two-person lift for anything heavy, long or awkward. Plan the route first and clear it. [Administrative] 4.5 Keep the load close, back straight and no twisting. Turn with your feet. [Administrative] 4.6 Check the forecast each morning and plan work at height and lifting around the weather. [Elimination] 4.7 Tie down or weigh down loose sheets, panels, boards and rubbish at the end of each shift. [Engineering] 4.8 Set wind limits for roof work, platforms and cranes, using the manufacturer's limits, and stop when they are reached. [Administrative] 4.9 Stop work and get down in lightning. Wait 30 minutes after the last thunder before going back up. [Administrative] 4.10 Check scaffold, fencing and edge protection after strong wind before anyone uses them. [Administrative] 4.11 Deburr or cover sharp edges, and fit edge protectors on exposed sheet metal. [Engineering] 4.12 Use knives with retractable or self-retracting blades. [Engineering] 4.13 Cut away from your body and keep your other hand clear. [Administrative] 4.14 Put used blades in a blade bin or sharps container. [Administrative] 4.15 Use two people to handle large sheets of metal or glass. [Administrative]	**Medium Unlikely / Recordable / lost time**	Site supervisor
5	Cable and connect, treating DC as live	Electric shock from live wiring Rules: 29 CFR 1926 Subpart K	**Critical Possible / Fatality**	5.1 Isolate the power before any work. Do not work live. [Elimination] 5.2 Lock out and tag the disconnecting means with your own personal lock and tag so the circuit cannot be energized (29 CFR 1926.417). [Engineering (guarding)] 5.3 Test before you touch: prove dead at the point of work with a tested voltage tester. [Engineering] 5.4 Only qualified persons work on or near exposed energized parts. [Administrative] 5.5 Check for back feeds from solar, batteries and generators	**Medium Rare / Fatality**	Site supervisor

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				that can keep a circuit live after the main switch is off. [Administrative] 5.6 If energized work cannot be avoided, use an energized work permit, a safety observer and insulated tools, following NFPA 70E. [Administrative] 5.7 Wear insulated gloves, arc-rated clothing and a face shield when testing or working near live parts. [PPE]		
6	Test, commission and clear the roof	Heat stress Poor housekeeping and waste Rules: OSH Act Section 5(a)(1) General Duty Clause; state heat rules where they apply (Cal/OSHA T8 3395, WA WAC 296-62-095, OR OAR 437-002-0156, MD COMAR 09.12.32)	**High Possible / Serious injury**	6.1 Schedule heavy work for the cooler part of the day. [Elimination] 6.2 Provide shade over work and rest areas, and fans or cooling in attics. [Engineering] 6.3 Supply cool drinking water close by and drink a cup every 15 to 20 minutes. [Administrative] 6.4 Take regular rest breaks in the shade, more often as it gets hotter. [Administrative] 6.5 Let new and returning workers build up to full work in the heat over about a week. [Administrative] 6.6 Watch each other for dizziness, headache, confusion or stopping sweating. Stop work, cool down and get help. [Administrative] 6.7 Have a hot weather plan, including when work stops. [Administrative] 6.8 In California, Washington, Oregon and Maryland, follow the state heat illness rule: written plan, shade, water, rest and high-heat procedures. [Administrative] 6.9 Wear light, loose, long-sleeved clothing, a hat or brim, and sunscreen. [PPE] 6.10 Order materials to size and send packaging back where you can. [Elimination] 6.11 Put dumpsters and waste chutes close to the work. [Engineering] 6.12 Clean as you go, and do a full clean up at the end of each day. [Administrative] 6.13 Keep exits, stairs and walkways clear at all times. [Administrative] 6.14 Stack materials neatly on level ground, away from edges. [Administrative] 6.15 Wear gloves when handling waste. [PPE]	**Medium Unlikely / Serious injury**	Site supervisor

Risk key: risk = likelihood x consequence on a 5 x 5 matrix. Low, Medium, High, Critical. Work must not start while the risk after controls is high or above. Controls are listed in order of the hierarchy of controls: Elimination, Substitution, Engineering (guarding), Engineering, Administrative, PPE.

3. PPE AND PERMITS

Required PPE	Permits and plans
Safety-toe boots (ASTM F2413) Personal fall arrest system (harness)	Written fall protection plan (only where guardrails, nets or personal fall arrest are not feasible, 1926.502(k))

Required PPE	Permits and plans
Hard hat (ANSI Z89.1) High-visibility safety apparel, ANSI/ISEA 107 Class 2 or 3 (Type R near roadways) Cut-resistant gloves Sun protection (sunscreen, hat, long sleeves) Work gloves Safety glasses (ANSI Z87.1) Rubber insulating gloves Arc flash PPE (NFPA 70E)	Critical lift plan Lockout/tagout (1926.417)

4. PLANT AND EQUIPMENT

Plant / equipment	License or training needed	Inspection needed	Rego / ID	Last inspected	Certificate / report
Mobile crane	Operator certified by an accredited body or audited employer program (29 CFR 1926.1427) and evaluated by the employer, with a signed evaluation on site (1926.1427(f)); qualified rigger (1926.1425) and qualified signal person (1926.1428)	Shift inspection by a competent person (29 CFR 1926.1412(d)), documented monthly inspection (1926.1412(e)) and annual inspection by a qualified person (1926.1412(f))			
Material hoist					
Power drill		Visual check of cord, plug and guards before each day's use; if you run an assured equipment grounding program instead of GFCIs, test every 3 months (29 CFR 1926.404(b)(1))			
Electrical test meter		Rated for the voltage and category (CAT III or IV), inspected before each use, and checked on a known source before and after testing (NFPA 70E)			
Hand tools					

5. TRAINING REQUIRED FOR THIS WORK

- Fall protection training by a competent person, with a written certification record (29 CFR 1926.503)
- Crane operator certification plus documented employer evaluation (29 CFR 1926.1427); qualified rigger (1926.1425); qualified signal person (1926.1428)
- Qualified person training for work on or near exposed energized parts (29 CFR 1926.416, NFPA 70E)

6. CREW TRAINING AND CERTIFICATIONS

Crew listed at sign-on below, with ticket and licence numbers.

7. EMERGENCY ARRANGEMENTS

Emergency number	911	**First aid kit**	In the work vehicle
Fire extinguisher	In the work vehicle	**Alarm and evacuation**	Shout for help and stop work. Make the area safe and go to the

			assembly point. Call the emergency number and send someone to meet the ambulance.
Reporting incidents	Report a fatality to OSHA within 8 hours, and an in-patient hospitalization, amputation or eye loss within 24 hours.		

8. MONITORING, REVIEW AND LEGAL BASIS

A competent person inspects the job site, materials and equipment before work each day and as conditions change (29 CFR 1926.20(b)(2)). Any time this JHA is revised, the affected crew is re-briefed and signs again.

Legal basis: OSH Act Section 5(a)(1) and 29 CFR 1926, Safety and Health Regulations for Construction (incl. 1926.20 and 1926.21). OSHA requires employers to find and fix hazards and to train workers on them. A JHA breaks the job into steps, lists the hazards in each step and the controls that protect the crew. General contractors often require one before you start.

Keep this JHA on site during the job, and keep it with the training and inspection records for at least 1 year after the job (longer if your state plan or general contractor requires it). OSHA does not set a retention period for JHAs themselves.

9. REVISION HISTORY

Rev	Date	By	What changed
1	Nov 9, 2026		First issue

10. SIGN-OFF

	Name	Signature	Date	
Prepared by				
Supervisor				
General contractor review				Accepted for use: Yes / No

By signing below, each crew member confirms they were trained on the hazards and controls in this JHA before work started, and will follow it. Stop work and tell the supervisor if conditions change.

Name	Role / company	Tickets / licences	Signature	Date

Name	Role / company	Tickets / licences	Signature	Date