

# DACUM Research Chart for Solar Thermal Installation Technician/Lead

## DACUM Panel

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Duties		← Tasks →				
<b>A</b>	<b>Coordinate Solar Job Site Work</b>	A-1 Post job permits*	A-2 Perform site safety analysis*	A-3 Clear work area	A-4 Secure materials storage area*	A-5 Advise customer of work schedule
		A-11 Verify supply & return routes*	A-12 Set-up tools & equipment (e.g., safety lines, ladders)	A-13 Confirm type of roof	A-14 Assign tasks & priorities	A-15 Coordinate with on-site contractors*
<b>B</b>	<b>Install Solar Collectors on Roof</b>	B-1 Layout roof mounting*	B-2 Install mounting system feet	B-3 Attach racking to feet	B-4 Prep flatplate collector	B-5 Prep evacuated tube collector
<b>C</b>	<b>Install Ground Mounted Solar Collectors</b>	C-1 Confirm completion of utility locates	C-2 Clear site for ground mounting*	C-3 Layout ground mounting*	C-4 Auger holes for support piers	C-5 Dig trench for supply & return piping
<b>D</b>	<b>Install Solar Mechanical Room Components</b>	D-1 Assemble storage tank	D-2 Install storage tank	D-3 Build accumulator/drainback tank platform	D-4 Install solar supply & return lines & sensor wire	D-5 Install DHW piping & components
<b>E</b>	<b>Conduct Initial Solar Thermal System Testing</b>	E-1 Verify all joints have been sweated (soldered)	E-2 Conduct water pressure test on DHW	E-3 Conduct air pressure test on solar loop	E-4 Call for rough mechanical inspection*	E-5 Insulate piping (e.g., mechanical room, supply & return lines)
<b>F</b>	<b>Commission Solar Thermal System</b>	F-1 Verify installed components via checklist*	F-2 Flush solar loop	F-3 Charge solar loop	F-4 Verify system operation*	F-5 Conduct final site clean-up
<b>G</b>	<b>Participate in Professional Development Activities</b>	G-1 Obtain COSEIA certification	G-2 Obtain NABCEP certification	G-3 Read professional publications & books	G-4 Participate in professional workshops (e.g., ASES, CRES, COSEIA)	

\* Tasks performed by the solar thermal installation technician/lead

## Acronyms

ASES	American Solar Energy Society
COSEIA	Colorado Solar Energy Industries Association
CRES	Colorado Renewable Energy Society
DHW	Domestic Hot Water
DTC	Differential Temperature Controller
GEO	(Colorado) Governor's Energy Office
NABCEP	North American Board of Certified Energy Practitioners
PPE	Personal Protective Equipment
SEI	Solar Energy International

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A-6 Advise customer of utility shut-offs (e.g., water, gas, electricity)		A-7 Coordinate work with suppliers (e.g., tanks, panels, piping)		A-8 Verify job materials delivery*	A-9 Confirm job site access*	A-10 Locate power, water, and drain sources
A-16 Update project manager on job status						
B-6 Prep concentrating collector	B-7 Pre-fab collector array	B-8 Hoist collectors to roof	B-9 Mount collectors to racking (e.g., roof, ground)	B-10 Assemble collector array (e.g., roof, ground)		
C-6 Pour concrete piers	C-7 Install collector racking					
D-6 Assemble pump station	D-7 Mount pump station	D-8 Install space heating interface	D-9 Install heat dump unit	D-10 Install DTC & sensors	D-11 Program DTC	
E-6 Install metal wrap	E-7 Perform Ohms test on sensor wire run					
F-6 Call for final inspection*	F-7 Post schematics (e.g., electrical, mechanical)*	F-8 Review operations manual with customer*	F-9 Conduct system walk thru with customer*			
G-5 Participate in continuing education classes						

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## General Knowledge and Skills

Basic electrical knowledge  
Basic piping knowledge  
Basic sheet metal knowledge  
Basic solar knowledge  
Climbing skills  
OSHA knowledge  
Customer relations skills  
Time management skills  
Basic rigging skills  
Basic construction knowledge  
Schematic/blueprint reading skills  
Interpersonal skills  
Communication skills (written, verbal, listening)  
Math skills  
HVAC knowledge  
Organizational skills  
Knowledge of solar controls  
Hydronics knowledge  
Blueprint reading

## Tools, Equipment, Supplies and Materials

Basic hand tools	Insulation
Soldering equipment	Ropes
Basic power tools	Path Finder
Safety equipment:	Protractor
• Roof kit	Panels
• Climbing harness	Copper Pipe
• First aid kit	Pumps
• PPE	Valves
Ladders	Fittings
Fire extinguisher	Tanks
Digital multi-meter	Controllers
Refractometer	Sensor Wire
Charging pump	Electrical Components
Buckets and rags	Propylene Glycol
Racking	

## Worker Behaviors

Resourceful	Punctual
Versatile	Drug-free
Adaptable	Responsible
Safety oriented	Assertive
Detail oriented	Social
Positive attitude	Loyal
Problem solver	Hard worker
Passion for industry	Trustworthy
Dependable	Quality conscious
Truthful	Determined
Self-starter	Willingness to take directions

## Future Trends and Concerns

Need for continued emphasis on quality of workmanship  
Dealing with an under-educated client relative to solar technology  
Rising energy prices will increase demand for solar energy  
Need for innovation to reduce costs  
Need for financing options for customers  
Need for defined career paths for solar thermal installation techs  
Need for more educational opportunities for solar installation techs  
Need for solar thermal installation licensing  
Need for energy conservation and education  
Availability of energy improvements to lower income users  
Concern for governmental overregulation and under support