

DACUM Research Chart for Electrical Technician

DACUM Panel

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Duties		← Tasks				
A	Comply with all Federal and State Safety Regulations	A-1 Comply with NEC standards	A-2 Conduct pre-job briefing	A-3 Conduct pre-job safety check	A-4 Inspect equipment functionality	A-5 Inspect company vehicle
B	Coordinate Electrical Project	B-1 Acquire plans and specifications	B-2 Generate material take-off	B-3 Requisition material take-off items	B-4 Secure proper permits	B-5 Select proper tools
C	Install Electrical Systems	C-1 Install residential wiring	C-2 Install commercial and industrial wiring	C-3 Install ground, grounded, and grounding	C-4 Install devices and boxes	C-5 Install (bending) conduit
		C-13 Install generator/UPS system	C-14 Install transformers	C-15 Install spas and pools	C-16 Install breakers	C-17 Install renewable energy systems
		D-1 Measure system voltage	D-2 Measure component voltage	D-3 Measure system amperage	D-4 Measure component amperage	D-5 Check phase and rotation
D	Test Electrical Systems	D-12 Check AFCI systems	D-13 Check GFCI systems	D-14 Check emergency back-up systems/coordination study		D-15 Check sequence of operations
		E	Troubleshoot Electrical Systems	E-1 Verify system voltage	E-2 Verify component voltage	E-3 Verify system amperage
E-13 Verify GFCI systems	E-14 Verify emergency back-up systems			E-15 Verify sequence of operation		
F	Maintain Electrical Systems	F-1 Perform PM of motors	F-2 Perform PM of motor controls	F-3 Perform PM of transformers	F-4 Perform PM of generators	F-5 Perform PM of control panels
		F-13 Check sequence of operations				

B-6 Select proper installation equipment	B-7 Coordinate third party workforce (e.g., Miss Utility, EPA, power company)		B-8 Establish work schedule			
C-6 Install raceways and fittings	C-7 Install conductors and cables	C-8 Splice electrical wires	C-9 Install service and/or switch gear	C-10 Install lighting systems	C-11 Install motors and controllers	C-12 Install CATV systems
C-18 Install electrical heating systems						
D-6 Check motor rotation	D-7 Measure component resistance	D-8 Measure system resistance	D-9 Measure relay systems	D-10 Measure insulation resistance (e.g., conductors, motors, transformers)		D-11 Check ground fault systems
D-16 Check fault current information						
E-6 Verify motor rotation	E-7 Verify component resistance	E-8 Verify system resistance	E-9 Verify relay systems	E-10 Test insulation	E-11 Verify ground fault systems	E-12 Verify AFCI systems
F-6 Perform PM of emergency equipment	F-7 Perform PM using thermograph imaging	F-8 Perform PM of batteries	F-9 Perform PM of circuit breakers	F-10 Perform PM of regulators	F-11 Perform PM of protective relays	F-12 Verify electrical settings

General Knowledge and Skills

Ability to read blueprints & schematics
Ability to read wiring diagrams
Ability to use electrical test equipment
Basic construction math skills & roman numerals
Basic rigging skills
Climbing ability
Communication skills
Computer programming skills
Conflict resolution skills
Critical thinking skills
Distinguish colors
High school diploma or GED
Knowledge of basic electrical theory
Knowledge of crane operator hand signals
Knowledge of EEOC Harassment
Knowledge of fall protection
Knowledge of first aid & CPR
Knowledge of general construction
Knowledge of IBC
Knowledge of NEC
Knowledge of new technology
Knowledge of NFPA 70E
Knowledge of OSHA regulations
Knowledge of PPE
Knowledge of proper body mechanics
Knowledge of renewable energy
Knowledge of substance abuse
Knowledge of USBC
Mechanical ability
Organizational skills
Proficiency in measurements
Reading skills
Soldering skills
Time management skills
Understand environmental regulations
Valid driver's license

Worker Behaviors

Accepts correction
Conscientiousness
Democratic leader
Determination
Goal oriented
Good listener
Good personal hygiene
Good self-presentation
Good Values
Good work ethics
Honesty
Not fearful of heights
Open minded
Persistence
Polite
Positive attitude
Professionalism
Punctual
Quality leadership
Respect for electricity
Safety conscious
Tactfulness
Takes initiative
Team player
Trustworthy
Uses self-control
Vision

Future Trends and Concerns

Changing technology
Distributive control systems
Economy
Electrician evolving with technology
Energy efficiency
Environmental restrictions
Flood zone elevations
Generations XY
Government regulations
Language barriers
Lighting changes
Limited technical support
NEC code updates
Programmable logic controls
Renewable energy
Variable frequency drives

Acronyms

AFCI – Arc Fault Circuit Interrupter
AHJ – Authority Having Jurisdiction
CATV – Community Antenna Television
CDL – Commercial Driver’s License
CFOT – Certified Fiber Optic Technician
COL – Commercial Driver’s license
CPR – Cardio Pulmonary Resuscitation
EEOC – Equal Employment Opportunity Commission
GFCI – Ground Fault Circuit Interrupter
IAEI – International Association of Electrical
Inspectors
IBC – International Building Code
IBEW – International Brotherhood of Electrical
Workers
IMSA – International Municipal Signal Association
MSDS – Material Safety Data Sheet
NEC – National Electrical Code
NFPA – National Fire Protection Agency
OSHA – Occupational Safety and Health Association
PFAS – Personal Fall Arrest System
PLC – Programmable Logic Controller
PM – Preventive Maintenance
PPE – Personal Protective Equipment
UPS – Uninterrupted Power Supply
USBC – Uniform Statewide Building Code

Certifications and Licenses

Aerial Certification
Cable Splicing Certification
CDL Class A / Class B
CFOT Certification
Confined Space
CPR
Crane Certification
Driver’s License
First Aid
Forklift Certification
Journeyman
Master Electrician
OSHA 10
OSHA 30
Powder Actuated Fastening Certification
Signaler’s Certification
US Citizen or Green Card

Professional Organizations

IAEI – International Association of Electrical
Inspectors
IBEW – International Brotherhood of Electrical
Workers
NCSCB – National Cable Splicing Certification Board
Skills USA

Tools, Equipment, Supplies and Materials

10" slip joint locks	Fire extinguisher	Pry bar
12" hack saw	First aid kit	Pulling string
2' level	Fish tape	Punch set
4' – 6' ladder	Flashlight	PVC bender
8" diagonal pliers	Folding torx bit kit	Reamer set
8" needle nose pliers	Folding hex key kit	Reciprocating saw
9" side cutter pliers	Fuse puller	Right angle drill
Adjustable wrenches	Hammer	Rivet gun
Air compressor and accessories	Hammer drill	Saber saw
Anchor kit	Hand-off auto stop	Saws
Angle/cut off grinder	Hard hat	Screw extractors (easy out) set
Arbor drill press	Holding screw driver (flat/phillip)	Screwdriver set
Arc flash gear	Hollow wall anchor tool	Ship/Wood Auger
Awl	Hydraulic knock out set	Shovel/picks
Ball peen hammer	Hydrometer	Sliding T Bevel
Battery tester	Inspection mirrors	Socket set
Bench brush	Job box	Soldering gun
Bench grinder	Knock out set	Speed bits
Benders – regular, EMT, IMC & rigid	Leather palm rubber gloves	Star drill
Brick chisel	Lockout/tagout center	Storage racks
Cable cutter	Magnet	Tap and die set
Cable jack	Mandrel (hole saw) set	Thermal imaging device
C-clamps	Masonry bit	Tic tracer
Chain hoist	Matlock	Tin snips
Chisel set	Measuring rules –folding wood	Toe shields
Circular saw	Mechanical conduit bender	Togger/Rope
Clamp on meter	Megger	Tool pouch
Claw hammer	Metal scaffolding set	Torpedo level
Code book	Motor control	Torque wrench
Confined space meter	Motor control device	Tri stand/pipe vice
Cordless drill	Nail puller	Twist drill bits
Crimper set	Nut driver set	Unibit drill bits
Die Grinder	Nut splitter set	Vacuum Cleaner (shop vac)
Digital multimeter	Oiler for threaders	Vise
Drawing divider	Paddle drill bits	Water cooler 5-gal
Drill bit set	Personal protection equipment	Wheel dresser (grinding wheel)
Drop light	Pick	Wire strippers
Dry wall saw	Pipe wrenches	Wrench set (open/combination)
Electric heat gun	Plier set	
Electric motor	Plum-bob	
Electric Pipe threader - (porta-pony)	Porta band	
Electrical drill 3/8 & 1/2	Portable generator	
Electrical meters	Portable torch set	
Electrician/utility knife	Powder activated driver set	
Face safety shield	Power Block (electrical extension)	
Fall arrest system	Power fishing system blower	
File set	Protractor	