REQUEST FOR PROPOSAL	**Town of Cathlamet** **375 2nd Street** **Cathlamet, WA 98612** **360-795-3203**

DATE POSTED: August 16, 2022

RFP Title: RFP for Butler Street Welcome Lot - Electrical

Requesting Dept.: Public Works

RFP Number: 2022-01

Due Date: September 1, 2022

Pre-Proposal Conference: A conference to discuss questions Related to this RFP shall be held at **10:30 a.m. on August 19, 2022** At the DeBraie Meeting Room, Cathlamet Fire Department, 255 2nd Street, Cathlamet, WA 98612	Sealed Proposals are hereby solicited and will **ONLY** be Received by: **Town of Cathlamet** **375 2nd St.** **Cathlamet, WA 98612**

SUBMITTERS MUST COMPLETE AND SIGN THE FORM BELOW

(Type or Print)

Company Name		
Address	City/State/Zip Code	
Signature	Authorized Representative/Title (Please Print)	
E-mail	Phone	Fax

RFP FOR BUTLER STREET WELCOME LOT - ELECTRICAL

Sealed proposals are hereby solicited and will be received only at the Cathlamet Town Hall, Cathlamet, Washington, 98612 no later than 3:30 p.m. on the 1st day of September, 2022, for Butler Street Welcome Lot – Electrical. These services shall be provided to the Town of Cathlamet in accordance with the following and the attached instructions, requirements, and specifications.

Submittal: The Town of Cathlamet requires the Proposer to sign and return this entire Request for Proposal (RFP) document. The Proposer shall provide one unbound original of the proposal response.

Pre-Proposal Conference: A conference to discuss questions related to this RFP shall be held at 10:30 a.m. on the 19th day of August, 2022, in the DeBriae Meeting Room, Cathlamet Fire Department Building.

Questions: After the Pre-Proposal Conference, Proposers will be required to submit any further questions in writing prior to the close of business on the 30th day of August, 2022, in order for staff to prepare any response required to be answered by Addendum. Questions are best received and most quickly responded to when sent via e-mail directly to the following Town of Cathlamet personnel: Primary – Sarah Clark, Town Clerk/Treasurer, sarahc@townofcathlamet.com.

SECTION 1 – GENERAL INFORMATION

A. The Town of Cathlamet is an Equal Opportunity Employer and does not discriminate against individuals or firms because of their race, color, creed, marital status, religion, age, sex, national origin, sexual orientation, or the presence of any mental, physical or sensory handicap in an otherwise qualified handicapped person.

B. All submitted proposals and evaluation materials become public information and may be reviewed by appointment by anyone requesting to do so at the conclusion of the evaluation, negotiation, and award process. This process is concluded when a signed contract is completed between the Town of Cathlamet and the selected Proposer. Please note that if an interested party requests copies of submitted documents or evaluation materials, a standard Town of Cathlamet copying charge per page must be received prior to processing the copies.

C. No other distribution of proposals will be made by the Proposers prior to any public disclosure regarding the RFP, the proposal or any subsequent awards without written approval by the Town of Cathlamet. For this RFP all proposals received by the Town of Cathlamet shall remain valid for twenty (20) days from the date of submittal. All proposals received in response to this RFP will be retained.

D. Proposals shall be prepared simply and economically, providing a straightforward and concise but complete and detailed description of the Proposer's abilities to meet the requirements of this RFP. Fancy bindings, colored displays and promotional materials are not desired. Emphasis shall be on completeness of content.

E. The Town of Cathlamet reserves the right to reject any or all proposals that are deemed not responsive to its needs.

F. In the event it becomes necessary to revise any part of this RFP, addenda shall be created and posted at the Town's website. Addenda will also be conveyed to those potential submitters providing an accurate e-mail address. If desired, a hard copy of any addenda may be provided upon request.

G. The Town of Cathlamet is not liable for any cost incurred by the Proposer prior to issuing the contract.

H. The Town of Cathlamet reserves the right to reject any and or all proposals submitted.

I. The contents of the proposal of the selected Proposer shall become contractual obligations if a contract ensues. Failure of the Proposer to accept these obligations may result in cancellation of their selection.

J. A contract between the Proposer and the Town of Cathlamet shall include all documents mutually entered into specifically including the contract instrument, the original RFP as issued by the Town of Cathlamet, and the response to the RFP. The contract must include, and be consistent with, the specifications and provisions stated in the RFP.

K. The acceptance of any proposal after the time and date specified on the Request for Proposal is prohibited. There shall be no exceptions to this requirement.

L. Washington State Public Records Act (RCW 42.56) requires public agencies in Washington to promptly make public records available for inspection and copying unless they fall within the specified exemptions contained in the Act, or are otherwise privileged.

M. Proposals submitted under this RFP shall be considered public documents and with limited exceptions proposals that are recommended for contract award will be available for inspection and copying by the public.

N. Bid/Proposal Identification Label: Please see the Identification Label on the Cover Sheet.

BUTLER STREET ELECTRICAL VEHICLE CHARGING STATION

PROPOSAL

Town of Cathlamet
375 2nd Street
Cathlamet, WA 98612

The undersigned has examined the work site(s), local conditions, the Contract, and all applicable laws and regulations covering the Work. The following unit and lump sum prices are tendered as an offer to perform the Work in accordance with all of the requirements set forth in the Contract and all applicable laws and regulations.

After the date and hour set for submitting the Proposals, no bidder may withdraw its Proposal, unless the Award of the contract is delayed for a period exceeding 20 consecutive calendar days.

The undersigned agrees that in the event it is Awarded the contract for the Work, it shall employ only Contractors and Subcontractors that are duly licensed by the State of Washington and remain so at all times they are in any way involved with the Work.

The undersigned agrees that the Owner reserves the right to reject any or all Proposals and to waive any minor irregularities and informalities in any Proposal.

Contractors must have a valid Washington State Business License
As required by State Law

The undersigned agrees that the Owner will Award the Contract to the lowest responsible, responsive proposer whose Proposal is in the best interest of the Owner. Material differences in proposed time for completion of the Work will be considered by the Town in determining the lowest responsible, responsive Proposal.

PROPOSAL

NO.	ITEM	QUANTITY	UNIT PRICE	AMOUNT
1.	Mobilization, cleanup, and demobilization	1 LS	$_____	$_____
2.	Electrical Distribution Panel, as specified in plans, installed	1 LS	$_____	$_____
3.	Conduit and electrical wiring provisions for EV Station, as specified in plans, installed	1 LS	$_____	$_____
4.	Concrete Pad for EV Station, as specified in plans	1 LS	$_____	$_____
5.	Install EV Charging Station, as specified in plans	1 LS	$_____	$_____
6.	Provide electrical provisions, as specified in plans, for future smart kiosk (by others)	1 LS	$_____	$_____
7.	Provide electrical provisions, as specified in plans, for future street clock (by others)	1 LS	$_____	$_____
8.	Provide electrical provisions, as specified in plans, for future parking lot lighting (by others)	1 LS	$_____	$_____
	Subtotal			$_____
	Washington State Sales Tax			$_____
	Total			$_____

All work shall be substantially completed within _____ working days of Contractor's receipt of Notice to Proceed.

Dated this ____ day of _____, 2022.

PROPOSAL OF: _____

ADDRESS: _____

DATE: _____

TO: _____

BUTLER STREET WELCOME LOT – ELECTRICAL

_____ has received, reviewed, and agrees

to Addendum (addenda's) _____, _____, and _____.

Contractor hereby agrees that by signing this signature sheet Contractor is deemed to have acknowledged all requirements contained in the Contract Documents.

The terms and conditions of this proposal are agreed to on this _____ day of _____, 2022.

BY:

_____
Sign Name

_____
Print Name/Title

_____
Phone Number

_____
E-Mail Address

TOWN OF CATHLAMET
375 2nd Street
CATHLAMET, WA 98612
CONTRACT NO.

PUBLIC WORKS CONTRACT

THIS AGREEMENT, made this ____ day of _____, 2022, by and between **THE TOWN OF CATHLAMET**, a municipal corporation of the State of Washington, hereinafter called **"TOWN"**, and _____, hereinafter called **"CONTRACTOR".**

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned:

1. The **CONTRACTOR** will commence and complete construction of Butler Street Welcome Lot – Electrical in Cathlamet, WA.

2. The **CONTRACTOR** will furnish all of the material, supplies, tools, equipment, labor and other services necessary for the construction and completion of the project described herein.

3. The **CONTRACTOR** will commence all work required by the contract documents within ten (10) calendar days after receipt of signed Contract and Notice to Proceed and will complete the same within _____ working days of commencement unless the period for completion is extended otherwise by the Contract Documents.

4. The **CONTRACTOR** agrees to perform all of the work described in the Contract Documents and to comply with the terms therein for the following lump sum: _____.

5. The **TOWN** and the **CONTRACTOR** recognize that time is of the essence and the **TOWN** will suffer financial loss if the Work is not completed within the time, plus any extensions thereof, allowed in accordance with the Contract. They also recognize the inconvenience, expense, and difficulties involved in a legal proceeding to prove the actual loss suffered by the **TOWN** if the Work is not completed within the time allowed in the Contract. Accordingly, the **TOWN** and the **CONTRACTOR** agree that as liquidated damages for delay, and not as a penalty, the **CONTRACTOR** shall pay the **TOWN** One Hundred Dollars ($100.00) per day for each calendar day beyond the Substantial Completion Date the **CONTRACTOR** achieves substantial completion of the Work.

6. The term "Contract Documents" means and includes the following:

   A. Proposal
   B. Public Works Contract
   C. General Conditions
   D. Special Conditions
   E. Specifications
   F. Drawings

   All of said Contract Documents are by this reference incorporated herein as though set forth at length.

7. **TOWN** will pay **CONTRACTOR** in the manner and at such times as set forth in the Contract Documents. Monthly progress payments will be made. Progress payments shall be subject to a five percent (5%) retainage.

8. This Agreement shall be binding upon all parties hereto and their respective heirs, executors, administrators, successors and assigns.

IN WITNESS WHEREOF, on the date first above written, the parties hereto have executed or caused to be executed by their duly authorized officials, this Agreement in duplicate, each of which shall be deemed an original.

TOWN OF CATHLAMET, WASHINGTON

BY: _____
Mayor

CONTRACTOR:

_____

BY: _____

Name: _____

Address: _____

_____

Contractor's License No. _____

SECTION I– GENERAL CONDITIONS

GENERAL CONDITIONS

1. All work shall be performed in strict conformity with all applicable laws and regulations including applicable building and electrical codes.

2. Unless modified by the Special Conditions, signed public works contract, specifications, or drawings, work will be governed by the current edition of the WSDOT Standard Specifications for Road, Bridge, and Municipal Construction.

SECTION II– SPECIAL CONDITIONS

SPECIAL CONDITIONS

1. Contractor acknowledges that funding for the Work is provided, in part, under Contract No. 21-92201-014 between Town of Cathlamet and Washington State Department of Commerce. Contractor agrees to comply with all applicable terms and conditions of said Contract.

    a. Every subcontract shall include a term that "COMMERCE and the State of Washington are not liable for claims or damages arising from a Subcontractor's performance of the subcontract."

    b. Every Subcontractor, in addition to the requirements set forth in the grant Contract, agrees to comply with RCW 27.44 regarding Indian Graves and Records; RCW 27.53 regarding Archaeological Sites and Resources; RCW 68.60 regarding Abandoned and Historic Cemeteries and Historic Graves; and WAC 25-48 regarding Archaeological Excavation and Removal Permits.

    c. Subcontractor understands that if historical or cultural artifacts or human remains are discovered during construction, construction must stop immediately and the Town.

    d. Subcontractors subject to Prevailing Wage requirements pursuant to Chapter 39.12 RCW, must provide the Town copies of all "Statement of Intent to Pay Prevailing Wages", "Affidavit of Wages Paid", and copies of Certified Payroll records no less than once a month.

2. Contractor certifies that Contractor is not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in this Contract by any federal department or agency. If requested by the Town or by the Department of Commerce, the Contractor shall complete a Certification Regarding Debarment, Suspension, Ineligibility, and Voluntary Exclusion Form. Any such form completed by Contractor for this Contract shall be incorporated into this Contract by reference.

3. EV Charging Station will be delivered to project site by Owner.

4. Contractor will coordinate installation of EV Charging Station with the Manufacturer's Representative, Vendor, General Pacific, Inc., whose representatives will be on site during installation.

5. Contractor will coordinate interconnection schedule with Wahkiakum P.U.D.

6. Town's civil engineering firm will stake the location and elevation for the concrete pad for the EV Charging Station.

7. Town's civil engineering firm will also provide staking for the electrical cabinet location to ensure that it is not too close to the parking stalls.

SECTION III – SPECIFICATIONS

Pad

The station can be installed on either a newly poured pad or an existing concrete surface. The mounting surface must be smooth and cannot exceed a slope of 6.35 mm per 304.8 mm (0.25 inches per foot).

The concrete pad must either be designed to be site-specific, or must meet these specifications:

- At least 305 mm (12 in) deep (or deep enough to be 305 mm (12 in) below the frost line)
- At least 1296 mm (51 in) on each side
- Contains #4 rebar or larger, top and bottom, 305 mm (12 in) on center
- Concrete 2500 PSI minimum

The above pad specifications are designed to meet these conditions:

- 170 mph wind speed
- Wind Risk Category I
- Wind Exposure D
- Seismic Importance Factor 1.0
- Hayward Fault with mapped spectral response accelerations Ss=2.45 S1=1.019
- Seismic Design Category E
- Foundation of Sandy Soil with allowable stress = 1500 psf, Cd = 1.33

In some extreme conditions, a larger pad would be required. For sites with less stringent seismic, soil, or wind conditions, a smaller pad might be possible.

If the existing pad does not meet the specifications above, it must be inspected and approved by a structural engineer for the Express 250's dimensions and weight. If needed, give these structural design specifications to the structural engineer for verification:

Product Weight	340 kg (750 lbs)
Product Height from Ground	2.230 m (7.317 ft)
Product Width	0.71 m (2.33 ft)
Product Frontal Area	Height * Width
CG Height	1.12 m (3.66 ft)
Number of Anchor Bolts	4
Bolt Pattern	See dimensioned images in this section
Anchor Bolt Size	M16 (5/8 in)
Anchor Bolt Embedment	229 mm (9 in)

ELECTRICAL SYMBOL LEGEND

ABBREVIATIONS

AFF, A.F.F.	ABOVE FINISHED FLOOR
ARCH.	ARCHITECT/ARCHITECTURAL
BLDG.	BUILDING
C	CONDUIT
CD	CANDELA
CKT	CIRCUIT
C.L.	COLUMN LINE
(E)	EXISTING
ELEC	ELECTRICAL
EMERG	EMERGENCY
FAM/FACP	FIRE ALARM MASTER / FIRE ALARM CONTROL PANEL
FT.	FEET
GFI/B	GROUND FAULT INTERRUPTER/BREAKER
GND, G	GROUND
HVAC	HEATING, VENTILATING, & AIR CONDITIONING
IDF	INTERMEDIATE DISTRIBUTION FRAME
LV	LOW VOLTAGE
MDF	MAIN DISTRIBUTION FRAME
MECH	MECHANICAL
N.L.	NIGHT LIGHT
PNL	PANEL
PROVIDE	FURNISH AND INSTALL
SD	SUB - DISTRIBUTION
TTB	TELEPHONE TERMINAL BOARD
TVSS / SPD	TRANSIENT VOLTAGE SURGE SUPPRESSION / SURGE PROTECTION DEVICE
TYP	TYPICAL
WP	WEATHER PROOF
"	INCH / INCHES
'	FOOT / FEET

GENERAL

- (2) KEYED NOTE
- EF 1 EQUIPMENT TAG (EXHAUST FAN 1 SHOWN)
- 1 / E0.00 CALLOUT (SHEET E0.00, DETAIL #1)
- # KITCHEN EQUIPMENT TAG
- ELECTRICAL EQUIPMENT AS IDENTIFIED ON DRAWINGS.
- UNDERGROUND/ UNDERFLOOR RACEWAY
- HOMERUN WITH 2 #12 CONDUCTORS (GROUND NOT SHOWN)
- #10 HOMERUN WITH 2 #10 CONDUCTORS (GROUND NOT SHOWN)
- #10 HOMERUN WITH 3 #10 CONDUCTORS (GROUND NOT SHOWN)
- CONCEALED RACEWAY AND CONDUCTORS. NUMBER OF SLASHES INDICATES NUMBER OF CONDUCTORS. PROVIDE GROUND CONDUCTOR NOT SHOWN. ZERO SLASHES = 2 CONDUCTORS WITH 3RD GROUND CONDUCTOR. PROVIDE #12 CONDUCTORS UNLESS OTHERWISE SHOWN.
- C LOW VOLTAGE CABLE/ HOMERUN C = CONTROL
- FLEX CONNECTION

POWER

- POWER PANEL - RECESSED
- POWER PANEL - SURFACE
- DUPLEX RECEPTACLE
- GROUND FAULT, WEATHERPROOF TYPE
- SPLIT WIRED WITH 1/2 SWITCHED, +44 A.F.F. UNO
- DOUBLE DUPLEX RECEPTACLE
- SPECIALTY RECEPTACLE, NEMA SIZE AS NOTED.
- FLOOR BOX, FLOOR BOX WITH DATA
- JUNCTION BOX
- MOTOR
- DISCONNECT (F=FUSED, "BLANK"=SWITCH ONLY)
- SPECIFIC RECEPTACLE, SEE PNL SCHED. AND MECH FOR CONFIGURATION. MATCH CONFIGURATION PER EQUIPMENT INSTALLED

ONE-LINE

- VSD VARIABLE SPEED DRIVE
- TVSS TVSS
- R RELAY
- BREAKER
- GFI BREAKER
- TRANSFORMER
- M UTILITY METER
- GROUND

LIGHTING

- SWITCH
- $a 3 SWITCH, a = LIGHTS CONTROLLED, 3 = THREE-WAY.
- $OC OCCUPANCY SENSING WALL SWITCH
- $LV LOW VOLTAGE WALL SWITCH
- $D DIMMABLE WALL SWITCH
- 2x2/2x4/LINEAR RECESSED LIGHT FIXTURE.
- 2x2/2x4/LINEAR SURFACE FIXTURE
- STRIP/WRAP FIXTURE
- PENDANT, SURFACE MOUNT FIXTURE
- RECESSED DOWN LIGHT FIXTURE.
- LINEAR FIXTURE IN 4', 8', AND 12' LENGTHS.
- WALL SCONCE
- WALL MOUNT LIGHT
- EXIT SIGN WITH DIRECTIONAL ARROWS.
- POLE MOUNTED LIGHTING
- A1 E A1 LIGHTING FIXTURE NOTATION A1 = FIXTURE TYPE "A1". E = EMERGENCY POWER.
- OC OCCUPANCY CENSOR
- P PHOTOCELL

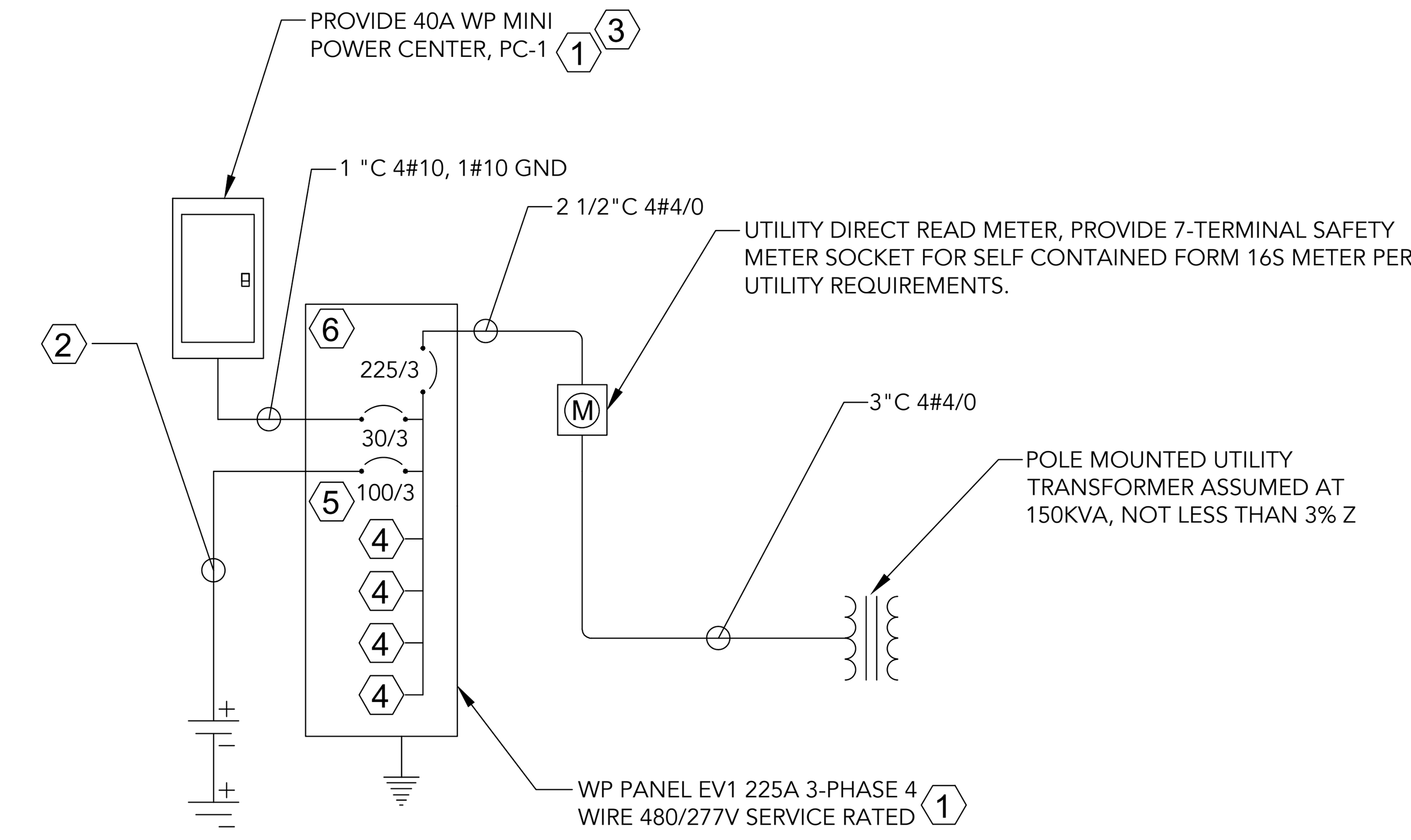
EV SERVICE LOAD CALCULATION

NEW INSTALLED FLA OF EV STATION x NUMBER OF STATIONS x DEMAND
100 x 1 x 1.00 = 100 AMPS

NEW + POWER CENTER
100 + 18 = 118 AMPS

118 x1.25 = 147.5 AMPS @ 480V 3-PHASE

480V:
147.5A < 225A
SERVICE LOAD NOT TO BE GREATER THAN 225A SERVICE SELECTED.



1 / E0.00 ELECTRICAL ONE-LINE
SCALE: NTS

GENERAL NOTES

A. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

B. VEHICLE STOPS SHALL NOT ENCROACH UPON ELECTRICAL SERVICE CLEARANCES PER CODE, AND EV CHARGER MANUFACTURER'S REQUIREMENTS. DISTANCE BETWEEN VEHICLE WHEEL STOPS AND CHARGER SHALL NOT BE LESS THAN 54 INCHES. SEE CIVIL.

C. PROVIDE REMOVABLE BOLLARDS IN FRONT OF CHARGER, BOLLARDS SHALL NOT BE LESS THAN 15 INCHES FROM THE BOLLARD CENTER PER EV CHARGER MANUFACTURER'S REQUIREMENTS. BOLLARD HEIGHT SHALL NOT EXCEED 36 INCHES. SEE CIVIL.

D. CONTRACTOR SHALL PROVIDE NEW 480/277V THREE PHASE UNDERGROUND SERVICE PER SERVING UTILITY'S REQUIREMENTS. SEE ONE-LINE.

SHEET NOTES

A. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

KEYED NOTES

1. MOUNT ELECTRICAL EQUIPMENT ON UNISTRUT, SEE DETAILS.
2. PROVIDE 1 1/2"C 4#2, 1#8 GROUND FOR ELECTRIC VEHICLE CHARGER. SEE MANUFACTURER FOR ADDITIONAL REQUIREMENTS.
3. PROVIDE 480:208/120V 3 PHASE 15KVA TRANSFORMER WEATHER PROOF LOCKABLE MINI POWER CENTER WITH INTERNAL PRIMARY AND SECONDARY OVERCURRENT PROTECTION AND LOAD CENTER DISTRIBUTION WITH NEMA 3R DOOR AND BOX. EATON CUTLER-HAMMER P48G SERIES OR APPROVED.

   CIRCUIT 1: CONVENIENCE RECEPTACLE, 20/1 BREAKER, 1.5A
   CIRCUIT 2: FUTURE KIOSK, 20/1 BREAKER, 5A
   CIRCUIT 3: FUTURE PARKING LOT LIGHTING, 20/1 BREAKER, 5A
   CIRCUIT 4: FUTURE CLOCK, 20/1 BREAKER, 5A
   CIRCUIT 5: CONVENIENCE RECEPTACLE, 20/1 BREAKER, 1.5A
   CIRCUIT 6: SPARE, 20/1 BREAKER
   TOTAL LOAD: 18 AMPS
   RATED LOAD: 40 AMPS
4. PROVIDE 100A/3P SPACE.
5. PROVIDE SHUNT TRIP BREAKER, CONNECT TO CHARGING STATION PER MANUFACTURER.
6. PROVIDE INTEGRATED CUSTOMER METER, SPD, AND WEATHER PROOF VANDAL LOCKING COVER. INTEGRATED CUSTOMER METER SHALL NOT BE ACCESSIBLE TO PUBLIC.

Sales Order Number (SO#) ____________ chargepoint

Express 250 Construction Signoff Form

This form is required to ensure the site for your ChargePoint EV charging station(s) has been prepared as specified, by you or by your chosen contractor, before beginning your charging station installation. Submit this completed form, and the photos specified at the end, to installdispatch@chargepoint.com. The detailed data sheets, site design guides, and installation guides defining ChargePoint specifications are online at: chargepointuniversity.com.

IMPORTANT: All installations must comply with local and regional code. ChargePoint provides concrete pad guidance in the *Express 250 Site Design Guide* that is applicable for most sites; however, pad size for a given site might be smaller or larger due to site conditions. Ensure site drawings have been completed and approved by a structural engineer for this site.

Note: If the station installer arrives to install the charging station and finds these items incomplete, you will incur a separate re-dispatch fee.

Site Information	Contractor Information
Site address:	Company name:
	Site lead name:
Number of Express 250 stations to be installed:	Site lead job title:
Contact name:	Site lead email:
Contact phone:	Site lead phone:
Contact email:	Date work began:

Take the following photos throughout the site construction process.

Required Pictures

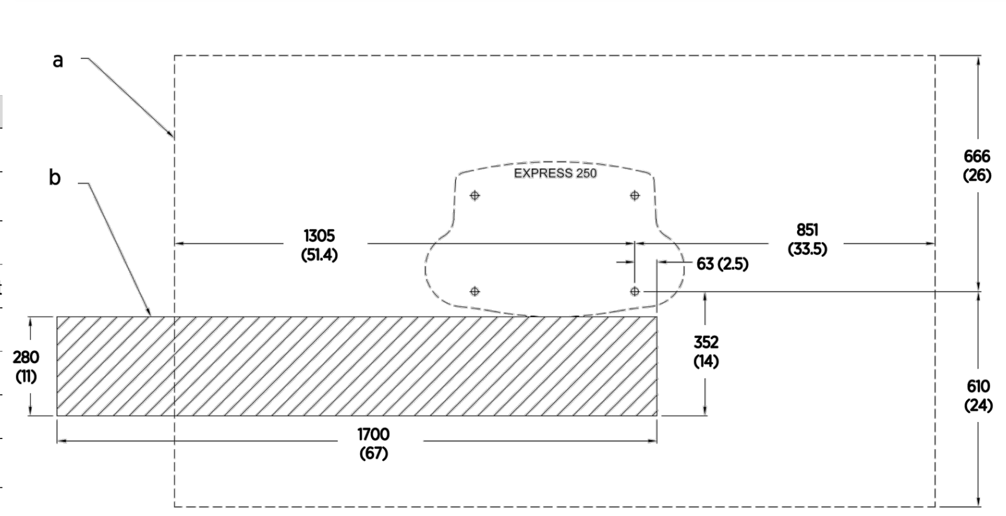
- ☐ 1. All trenching completed and conduit/ducting laid in place
- ☐ 2. The Concrete Mounting Template (CMT) in place with anchor bolts and conduit stub-ups correctly inserted, and the CMT held at the proper height to prevent movement during the concrete pour
- ☐ 3. Concrete pad completed, showing anchor bolts and conduit stub-ups in place for AC and shunt trip
- ☐ 4. **Paired only:** Conduit stub-ups (or provision for armored cable) in place for DC conductors and Ethernet
- ☐ 5. Overall space around the concrete pad, showing all service clearances are available
- ☐ 6. The electrical panel's specification label, to show total panel capacity
- ☐ 7. The open electrical panel with the dead front panel removed, showing terminations
- ☐ 8. The open electrical panel with the dead front panel on, showing breaker amperage ratings and labels for Express 250 connections
- ☐ 9. **Paired only:** The front of each AC disconnect (if applicable by region)
- ☐ 10. Charging station sites are positioned so that each station is centered on a parking space (unless curbside), with the front of the station facing the vehicle

NOT BY ENGINEER OF RECORD

Sales Order Number (SO#) ____________ chargepoint

Civil Work

- ☐ 1. The concrete pad was either designed and approved by a structural engineer for this specific site, OR conforms to these specifications:
  - At least 305 mm (12 in) deep (or deep enough to be 305 mm (12 in) below the frost line)
  - At least 1296 mm (51 in) on each side
  - Contains #4 rebar or larger, top and bottom, 305 mm (12 in) on center
  - Concrete 2500 PSI minimum
- ☐ 2. Walls, fences, or slopes do not prevent water from draining from the pad.
- ☐ 3. The concrete mounting template (CMT) is installed in the concrete pad, 50.8 mm (2 in) below the concrete surface, with anchor bolts in place in the CMT.
- ☐ 4. The AC conduit (max 50.8 mm/ 2 in trade size) and shunt trip conduit (max 19.1 mm/ ¾ in size) are positioned correctly in the CMT and cut down to 76.2 mm (3 in) above grade.
- ☐ 5. **Paired only:** The DC conduit (max 76.2 mm/ 3 in trade size) and Ethernet conduit (max 19.1 mm/ ¾ in size) are positioned correctly in the CMT and cut down to 76.2 mm (3 in) above grade.
- ☐ 6. The **service clearance** of open space (not necessarily at system grade) extends a minimum of 610 mm (24 in) beyond the station in front, 1276 mm (50 in) total front to back, 2156 mm (84.8 in) side to side centered on the station, and 305 mm (12 in) above the station (a).
- ☐ 7. The front of the station has 352 mm (14 in) of space **at grade** from the front right anchor, extending 1700 mm (67 in) to the left, without any permanent obstructions (bollards, wheel stops, etc) (b).
- ☐ 8. Charging station sites are positioned so that each station is centered on a parking space (unless curbside), with the front of the station facing the vehicle.
- ☐ 9. The charging station is at least 305 mm (12 in) from any wall as its rear clearance. Stations positioned back to back are no closer than 610 mm (24 in) shared clearance.
- ☐ 10. All signage, parking spot striping, and "EV" markings are completed per site drawings and local code.



NOT BY ENGINEER OF RECORD

Sales Order Number (SO#) ____________ chargepoint

Electrical Work

☐ 1. A correctly rated, dedicated breaker is installed for each station, per this table:

Nominal Voltage	Max AC Current	Breaker Size
400 V (EU)	96 A	125 A
480 V (NA)	80 A	100 A (125% continuous load required for N. America)

☐ 2. Breakers have shunt trip capability if the site drawing calls for shunt trip wiring.

☐ 3. All necessary electrical infrastructure has been completed per local codes and ChargePoint specifications for 3-phase power plus ground, with properly sized wire at the station. (Neutral is not required for system operation.)

Voltage Rating	Temp Rating	Maximum Conductor Size for Terminals
EU non-armored: 600/1000 V	90°C	35 mm²
EU armored: 600/1000 V	90°C	35 mm² multi-core
NA: 600 V	90°C	2 AWG

Record the AC conductor size and voltage rating: ____________

☐ 4. **Paired only:** All four DC copper conductors are installed between stations as follows:

Voltage Rating	Temp Rating	Maximum Conductor Size for Terminals	Insulation Type
EU non-armored: 600/1000 V	90°C	120 mm²	XLPE
EU armored: 600/1000 V	90°C	120 mm² 4-core	XLPE
NA: 1000 V	90°C	4/0 AWG	XHHW-2

Record the size, voltage rating, and insulation type for the DC conductors: ____________

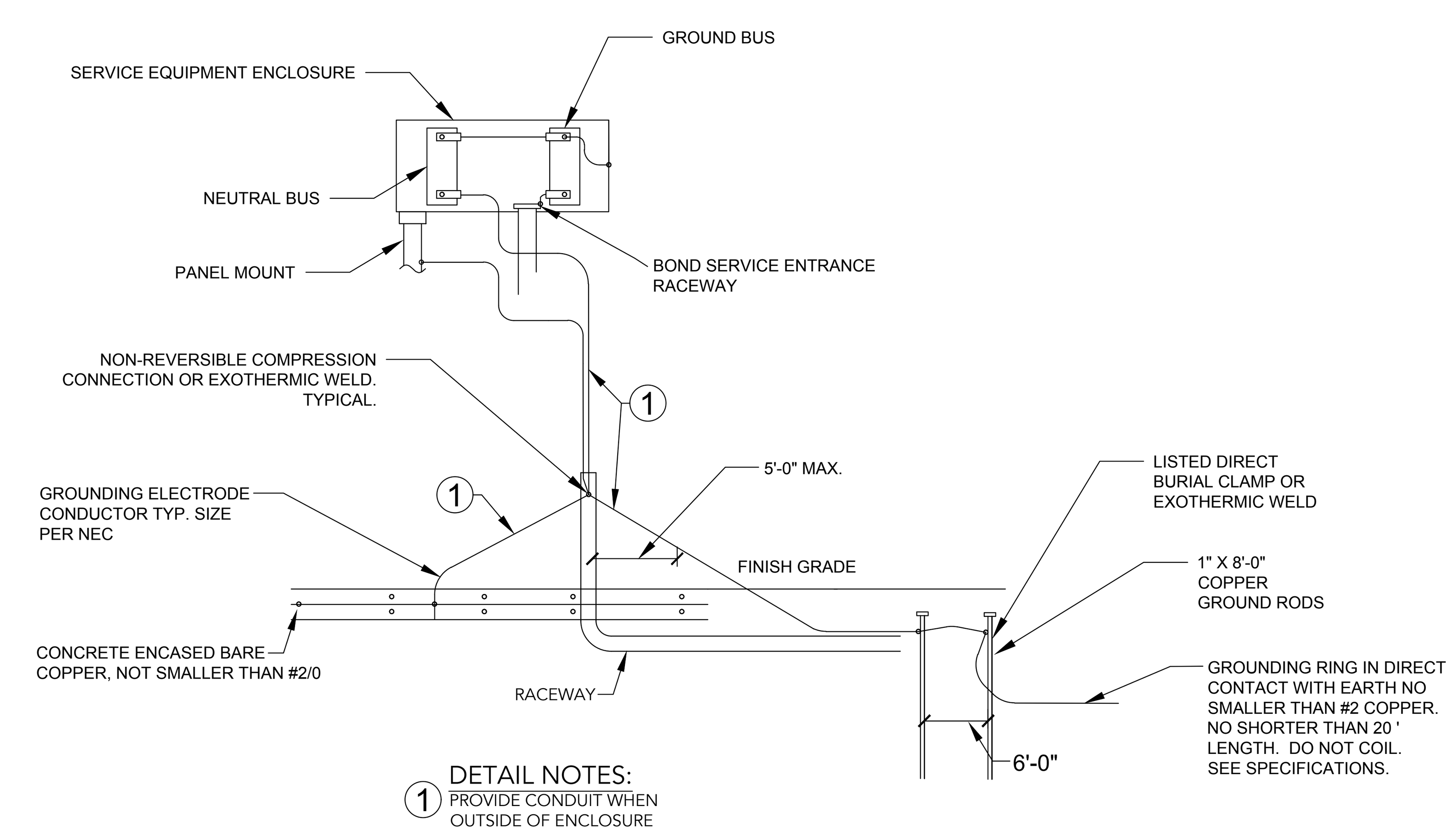
☐ 5. **Paired only:** Outdoor rated Ethernet Cat5e or Cat6 cable, without terminations, is pulled between the two stations with 3050 mm (10 ft) of service loop at each end.

☐ 6. The station location has been tested for 4G/LTE cellular and meets minimum -85 dBm RSRP or better.

I,____________, hereby certify that the scope of work in this form has been correctly completed.

Signature	Date

NOT BY ENGINEER OF RECORD



2 / E0.00 EXTERIOR SERVICE GROUND DETAIL
SCALE: NTS

SHEET INDEX

FLUENT ENGINEERING
STEWARDSHIP THROUGH DESIGN™
2110 STATE STREET
SALEM, OREGON 97301
503-447-5030
FLUENTENGINEERING.COM
NOT FOR CONSTRUCTION WHEN UNSIGNED

CATHLAMET ELECTRICAL CHARGING STATIONS - CHECK SET
20 BUTLER STREET, CATHLAMET, WASHINGTON 98612

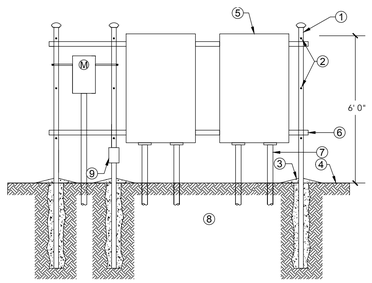
REVISIONS		
SYM.	DATE	DESIGN/CHECK

JOB#21158
DESIGN:MJC
DRAWN:BMJ
CHECKED:MJC

DEC. 12TH 2021

COVER SHEET & LEGEND

SHEET INDEX
E0.00

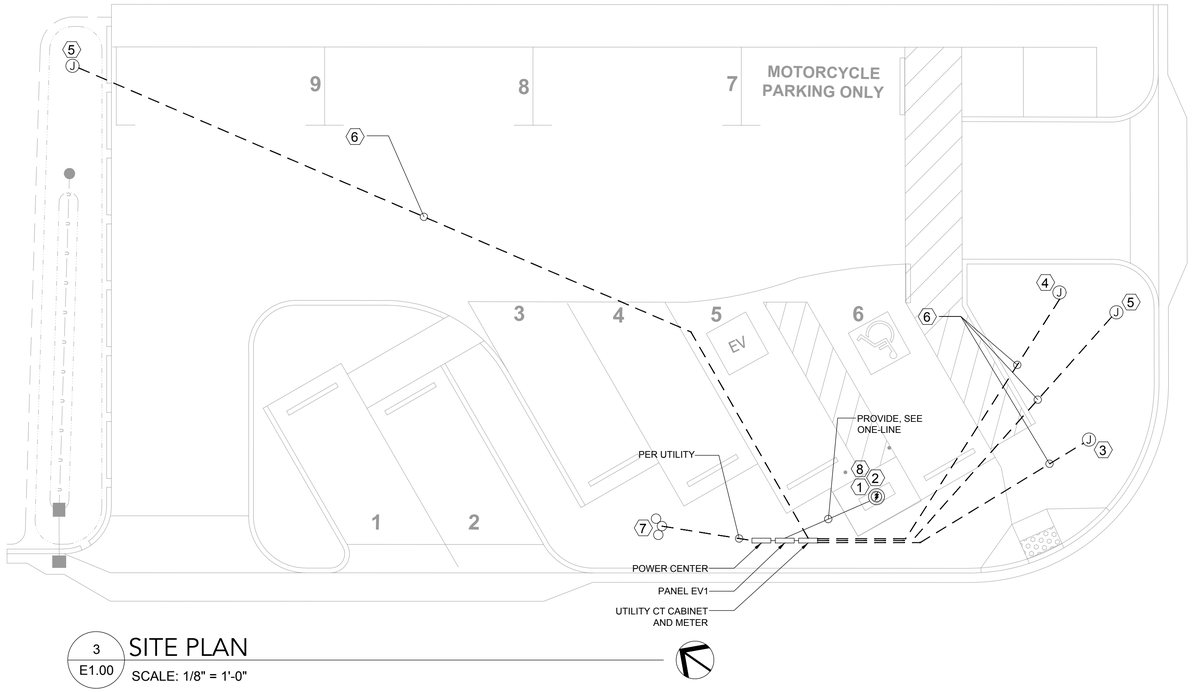


DETAIL NOTES:

1. 3" GALVANIZED STEEL PIPE. WITH GALVANIZED CAPS (TYP.)
2. THRU-BOLTED WITH GALVANIZED HARDWARE AT 6 PLACES (TYP.)
3. CONC. BASE, SLOPE AWAY FROM SUPPORT (TYP.)
4. FINISHED GRADE
5. WP LOCKING VANDAL RESISTANT PANEL.
6. UNISTRUT P1000 ACROSS BACK OF BACKBOARD (TYP. 2 PLACES) FILE AND SMOOTH ALL SHARP EDGES.
7. CONDUITS, SEE PLANS FOR QUANTITIES (TYP.). PROVIDE RIGID VERTICAL RISERS AND SWEEPS, SEE SPECIFICATIONS.
8. SEE CIVIL FOR SUPPORT MATERIALS, DEPTHS, DIAMETERS, AND ADDITIONAL REQUIREMENTS.
9. METAL WP LOCKING RECEPTACLE ENCLOSURE. CONNECT RECEPTACLE TO PC-1

2 / E1.00 PANEL MOUNTING DETAIL

SCALE: NTS



3 / E1.00 SITE PLAN

SCALE: 1/8" = 1'-0"

SHEET NOTES

A. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

KEYED NOTES

1. OWNER FURNISHED, CONTRACTOR INSTALLED CHARGE POINT EXPRESS 250 LEVEL 3 CHARGER WITH 480V, 3ϕ, 100A INPUT, DUAL HEAD. MANUFACTURER SHALL BE UTILIZED FOR INSTALLATION, COMMISSIONING, ETC AS REQUIRED BY GRANT REQUIREMENTS, AND OWNER. MOUNT ON CONCRETE PAD BASE PER MANUFACTURER, SEE CIVIL FOR ADDITIONAL REQUIREMENTS. SEE ONELINE.
2. PROVIDE WP 20A DUPLEX RECEPTACLE WITH LOCKING METAL IN-USE COVER. INDEPENDENTLY MOUNT AT BACK OF CHARGING STATION AND ON UNISTRUT. CONNECT TO PC-5.
3. PROVIDE ELECTRICAL PROVISIONS FOR FUTURE STREET CLOCK. PROVIDE TRAFFIC RATED JUNCTION BOX. PROVIDE 3/4"C WITH PULL STRING, AND ROUTE TO PC. SEE OWNER FOR EXACT LOCATION.
4. PROVIDE ELECTRICAL PROVISIONS FOR FUTURE SMART KIOSK. PROVIDE TRAFFIC RATED JUNCTION BOX. PROVIDE 3/4"C WITH PULL STRING, AND ROUTE TO PC. SEE OWNER FOR EXACT LOCATION.
5. PROVIDE ELECTRICAL PROVISIONS FOR FUTURE PARKING LOT LIGHT FIXTURE. PROVIDE TRAFFIC RATED JUNCTION BOX. PROVIDE 3/4"C WITH PULL STRING, AND ROUTE TO PC. SEE OWNER FOR EXACT LOCATION.
6. PROVIDE TRENCH AND BACK-FILL PER WDOT STANDARDS. ROUTE SHALL BE APPROVED BY OWNER. SEE CIVIL.
7. ASSUMED LOCATION FOR NEW UTILITY POLE. SEE OWNER FOR EXACT LOCATION.
8. LOCATE CHARGER, BOLLARDS, AND CONNECTIONS PER ADA REQUIREMENTS.SEE CIVIL FOR ADDITIONAL INFORMATION/REQUIREMENTS.

MATTHEW JOSEPH CASH
STATE OF WASHINGTON
45649
REGISTERED PROFESSIONAL ENGINEER

RENEWS: 05/18/2024

FLUENT ENGINEERING
STEWARDSHIP THROUGH DESIGN™
2110 STATE STREET
SALEM, OREGON 97301
503-447-5030
FLUENTENGINEERING.COM

CATHLAMET ELECTRICAL CHARGING STATIONS - CHECK SET

20 BUTLER STEET, CATHLAMET, WASHINGTON 98612

REVISIONS		
SYM.	DATE	DESIGN/CHECK

JOB#21158

DESIGN:MJC
DRAWN:BMJ
CHECKED:MJC

DEC. 12TH 2021

SITE PLAN

SHEET INDEX

E1.00

CATHLAMET EV DIVISION 26 TOC

SECTION 26 00 01
GENERAL ELECTRICAL PROVISIONS

THIS STAMP, ON THIS PROJECT APPLIES ONLY TO SECTIONS AUTHORED BY:
MATTHEW J. CASH, PE
FLUENT ENGINEERING, INC.
2110 STATE STREET
SALEM, OR 97301
503-447-5030

PART 1 GENERAL

Products under this contract must meet minimum specifications requirements in detail without exception unless specifically noted and approved as provided in these Specifications. Equipment submitted for review must clearly state on cover sheet any differences from specified product. Equipment substitution or submittal review does not relieve Contractor from meeting all requirements of specified item.

1.1 DEFINITIONS

A. Definitions herein are intended as advisory and shall not limit requirements within the Contract Documents. Where a conflict of definitions exists, the more stringent standard shall be used. Where a term is defined on a Drawing the Drawing definition shall be used for that drawing. Not all definitions are included. Trade standard terms are not defined.

1.2 CONTRACT DOCUMENTS

A. The Contract Documents are inclusive. All requirements of all Contract Documents shall be binding as if repeated herein and within this Division as required by any other Division or Contract Document.

B. This Division does not express or imply separation of the Contract Documents and shall not be considered as separation of the Work.

C. See Advertisement For Bids, Instructions to Bidders, Supplemental Instructions to Bidders, General Conditions, Supplemental General Conditions, Drawings and Specifications, and modifications incorporated in the documents before execution of the Agreement.

D. Conflicts: If any conflicts exist the more stringent is required.

1.3 SCOPE OF WORK

A. General: Provide complete and functional electrical systems as specified, as shown on Drawings, as required, and as intended. Work generally includes, inspections, electrical distribution, lighting, devices, wiring systems, Voice/Data cabling, raceways, and control systems.

B. Omissions: Contractor shall be responsible for additional labor, or additional material necessary for the proper execution of the Work. Omissions of expressed reference to any item shall not relieve the responsibly to conform to the Contract Documents

C. Scope of Electrical Work
   1. All materials and workmanship shall be furnished for complete, tested, and operating electrical systems as shown on the drawings and specified herein.
   2. Electrical work is to include the electrical service. Complete to the point of connection with the serving utility. Any changes of or work required by the serving utility, are part of this work and shall be fully included in the bid price.
   3. Work is also to include main distribution panel, feeder system, branch circuit panels, and EV charger. Complete branch circuit wiring. receptacles and similar items, wiring, and connections as required.

1.4 CONFORMANCE WITH REQUIREMENTS

A. General: All Work shall conform to the reasonable requirements of the project within the scope of the project and authorizations. All work shall conform to the methods and requirements of Code at the location of the Work.
   1. Access and inspection: All portions of the Work shall be accessible to inspections and review at all reasonable times during construction. Contractor is responsible for providing access for review and inspection of the Work. Contractor shall secure written inspection reports prior to concealing Work. Contractor is responsible for damages to properly review the Work due to lack of at least 7 Days advance written notification to the Architect, and Engineer that Work is ready for inspection.

B. Accounting: Provide general accounting information as to labor and equipment costs to assist in determination of modifications to the Contract. Provide accounting breakdown when required for securing Owner financing, or for analysis of equipment costs or equipment payback periods, as well as information for Owner incentives.

1.5 COORDINATION OF TRADES

A. Check all other trade drawings to avert potential installation conflicts. Should major changes from the Drawings be required to resolve potential conflicts, notify the Architect and secure written approval and agreement on necessary adjustments prior to start of installation.

B. Check all equipment locations and connections on the site for coordination with other Divisions equipment and connections and structure and the like.

C. Contractor is responsible for scheduling trades to properly execute all the Work as intended.

1.6 STANDARD OF CARE AND QUALIFICATIONS

A. General: Contractor shall be experienced and knowledgeable to Provide Work. Owner is not responsible for improper operation, incompliance, or installation due to Contractor's lack of knowledge or experience. Upon request, and where requested herein the Contractor shall supply qualifications and experience. Drawings are presented with industry terms, statements, and trade practices and it is the responsibility of the Contractor to be familiar. Provide written notification prior to Bid to the Architect if any representation is not understood, or outside standard practice.

B. Like Materials and Quality Control: All systems provided shall be new and of like materials provided through manufacturer authorized distributors. Provide equipment of same system and type by same manufacturer. Items of the same by different manufacturers will be rejected. Equipment shall conform to all applicable Code and applicable listing criteria as of the date of the Contract Documents. Equipment determined to be manufactured under any other listing or Code prior to the date of the Contract is not acceptable, even if the equipment is new or has not been used. All equipment provided to project shall be listed by an approved listing organization.

1.7 EXAMINATION OF SITE

A. Examine Site of Work prior to making Bid. Ascertain all related physical conditions.

B. Verify at the Site of Work prior to Bid scale dimensions shown due to exact locations, distances, and levels will be governed by actual field conditions.

C. Owner will not be responsible for any loss or costs that may be incurred due to a Bidder's failure to fully inform themselves prior to Bid in regard to conditions pertaining to the Work and nature of the Work.

1.8 MINOR DEVIATIONS

A. Make minor changes in equipment locations and equipment connections as directed or required without extra cost.

1.9 RECORD DRAWINGS

A. Maintain a marked set of prints at job site at all times. Show all changes from the original drawing set whether visible or concealed. Include all addendums, field orders, change orders, clarifications, request for information drawn responses, and deviations. Dimension accurately from building lines, floor, or curb elevations. Show exact location, elevation, and size of conduit/raceway, access panels and doors, equipment, and all other information pertinent to the Work.

B. At project completion, submit marked set to Architect for review.

1.10 TRAINING

A. Provide training of Owner's selected staff for all electrical systems specified herein.

B. Notify and Coordinate with Owner for training and attendance not later than 15 Days prior to training.

C. Provide 2.5 hours of general system training in addition to training indicated below.
   1. EV Charging - 1 hour

D. Training shall be conducted by qualified individuals familiar with the Work, and with the equipment.

E. Instructor shall be familiar with programming and operation of equipment and shall provide instruction to do such.

F. Provide contact information to Owner for an additional 1 hours support for all electrical systems.

G. Training shall not occur prior to systems being fully inspected, operational, and complete.

H. Utilize necessary training materials, conduct training at project location including walk-through of equipment on-site.

I. Provide Owner with all required Operation, Maintenance, and Programming manuals provided by equipment manufacturer.

J. Owner shall determine attendee's at training, not the contractor. Contractor shall re-train if attendee's were not selected by the owner

1.11 WARRANTY

A. Warrant Work, materials, and equipment for not less than one year.

B. Provide additional warranty as required herein.

PART 2 PRODUCTS

THIS PART NOT USED

PART 3 EXECUTION

THIS PART NOT USED

END OF SECTION

SECTION 26 00 26
SUBMITTALS AND SHOP DRAWINGS

PART 1 GENERAL

1.1 REQUIREMENTS

A. Refer to Division 1

B. Organization

1. Provide 3-ring type hard cover notebook with 3-hole punch product data sheets.
2. Order submittals in logical form with tab dividers indicating specification section, and specification title
3. Equipment shown on schedules shall be in logical order as the equipment appears on the schedule (i.e. light fixture type A precedes light fixture type Z).
4. Submit 5 copies for review. Not all copies will be returned to Contractor.
5. Clearly readable electronic submittals are permitted provided they are printed by the Contractor with the O&M Manuals for Owner's hard-copy.
    a. Contractor is responsible to verify receipt of electronic submittals by Engineer.
    b. Electronic Submittals shall include the project title in the subject line with unique submittal number, and description of submittal.
    c. Submit to Email address: submittals@fluentengineering.com
        (i) Fluent Engineering has no limit on E-mail sizes; however, from time to time our email service provider may restrict incoming e-mails beyond our control.
        (ii) Contractor is responsible for any damage as a result of viruses or other malicious software or links to such contained with submittal
        (iii) Fluent Engineering will accept only PDF electronic files. ZIP files, links, images files, images within an email message, and Dropbox type services, etc. will not be opened/accepted.
        (iv) Open file sharing programs such as Dropbox are not permitted and are considered a compromise of project security / non-disclosure agreements.
        (v) Coordinate with Engineer if PDF E-mail is too large to be sent.
        (vi) Engineer may elect on a case by case basis to utilize the/a Contractor's online submittal system with Owner's approval.
        (vii) Otherwise, use hardcopy format.

C. Allow no less than 20 Days for review by Engineer.

D. Contractor is responsible to submit and verify receipt of comments for all submittals.

E. Resubmittals shall contain all items included in pervious submittals with changes clearly identified with a cover letter listing the changed items. Only revised items will be reviewed.

F. No item requiring review shall be delivered to the site or otherwise provided to the Project until submittals have been reviewed by the Engineer.

1.2 DEFINITIONS

A. Manufacturing Data: Information regarding the product(s) and equipment issued by the manufacturer as described below.

B. Manufacturer's Label: Manufacturer's label shall include a typewritten list of manufacturer's name, sizes and model or catalog numbers.

C. Manufacturer's Catalog Data: Manufacturer's catalog data shall include standard catalog information (Cut Sheets) marked to indicate specific equipment and options for complete and functional system. All components of the system shall be included. Include listing information. Include installation instructions.

D. Manufacturer's Technical and Engineering Data: Manufacturer's technical and engineering data shall include materials, dimensions, details, installation instructions, weights, capacities, illustrations, wiring diagrams, control diagrams, control schematics, piping diagrams, connection diagrams, performance data, trip curves, listings, mix design, test results, and any other information required for a complete evaluation of the equipment specified, and to verify compliance with the Contract Documents. All available details shall be included with any modifications to the equipment indicated. All manufacturers and associated model numbers used for complete system shall be indicated.

E. Shop Drawings: Shop drawings are Construction drawings of items manufactured specifically for this project. Shop drawings shall include dimensions, construction details, weights, and additional information to identify the physical features of the system or piece of equipment. Drawings shall be adequately sized and scaled for a complete review.

F. Samples: Samples include actual example of the equipment to be installed. Include actual color, finish, and functioning replica of equipment to be installed. Samples will be returned to the Contractor when submitted with pre-paid postage.

G. Certifications and Qualifications: Submit list of past projects with same systems. Submit information listing references, copies of certificates issued by manufacturer, school, and standards organizations. Submit information mandated in specific specification section.

1.3 SUBMITTALS REQUIRED

A. Product Evaluation Data. 5 copies of product literature. The submittal schedule for product evaluation data is as indicated below. Each item requiring a submittal is given the following code:

L	Manufacturer's Label
C	Manufacturer's catalog data (Cuts)
E	Manufacturer's technical and engineering data
S	Shop drawings
SA	Samples
CR	Certifications
Q	Qualifications

1.4 SUBMITTAL SCHEDULE

Division 26 - Electrical

Section 26 05 19- BUILDING WIRE AND CABLES……...C
Section 26 05 26- GROUNDING……...……C
Section 26 05 29- SUPPORTING DEVICES…….L
Section 26 05 33- RACEWAYS & FITTINGS.…….L
Section 26 05 33.16- OUTLET, JUNCTION, AND PULL BOXES…….C
Section 26 05 53- ELECTRICAL IDENTIFICATION……..L
Section 26 05 60- OVERCURRENT PROTECTIVE DEVICES……C,E,S
Section 26 05 83- WIRE CONNECTIONS……L
Section 26 24 16- PANELBOARDS……C,E,S
Section 26 24 18 SPD……...C,E,S
Section 26 27 26- WIRING DEVICES……C,E,S

PART 2 PRODUCTS

THIS PART NOT USED

PART 3 EXECUTION

THIS PART NOT USED

END OF SECTION

SECTION 26 05 19
BUILDING WIRE & CABLES

PART 1 GENERAL

1.1 WORK INCLUDED
A. Wires and Cables

1.2 REFERENCE STANDARDS
A. National Fire Protection Association (NFPA).
   1. NFPA 70 National Electrical Code.

1.3 DELIVERY, STORAGE AND HANDLING
A. Deliver new wire and new cable to site in new packaging with standard cable coils/reels. Packaging shall clearly show length, wire size, wire/cable type, and manufacturer.

B. Protect products from weather, moisture, and damage.

PART 2 PRODUCTS

2.1 MATERIALS
A. Building Wiring & Insulation: Copper, 98 percent conductivity, stranded. Solid may be used at contractor's option for wire smaller than #8 AWG. 600 volt insulation, Type THHN for dry interior and damp interior locations. Type THW, THWN or XHHW for wet locations, and exterior locations.

B. Conductor cable with conductors smaller than #12 AWG for branch circuits not permitted.

C. Exterior cables exposed to sunlight shall be listed "sunlight resistant."

D. Control panel wiring no smaller than #14 AWG stranded switchboard Type MTW unless otherwise specified on the Drawings or required by system manufacturer.

E. Motor control wires shall be no smaller than #14 AWG.

F. Wire for other areas as shown on the Drawings.

PART 3 EXECUTION

3.1 INSTALLATION
A. Parallel feeders shall have identical conductor length.

B. Use UL listed pulling lubricant for greater than equivalent #4 AWG wire diameter.

C. Use UL listed pulling lubricant for pulls greater than 75 feet.

D. Remove moisture from raceway prior to wire pull.

E. Provide copper grounding conductors. Provide a ground wire through conduits. Utilize the ground wire as the equipment grounding conductor no smaller than #12 AWG otherwise sized as shown and per NEC.

F. Do not splice feeders, or services. Splices only permitted in accessible junction or outlet boxes where circuit routes deviate. Do not splice or tap branch circuits terminating in a single outlet.

G. Color code conductors per NEC to designate neutral, phase, and ground as follows:

CONDUCTOR	120/208
Phase A	Black, or per (E) facility standard
Phase B	Red, or per (E) facility standard
Phase C	Blue, or per (E) facility standard
Neutral	White
Ground	Green
Travelers	Pink, or per (E) facility standard

CONDUCTOR	480/277
Phase A	Brown, or per (E) facility standard
Phase B	Purple, or per (E) facility standard
Phase C	Yellow, or per (E) facility standard
Neutral	White
Ground	Green
Travelers	Pink, or per (E) facility standard

H. Wires shall be factory color coded. Coloring shall be integral to the insulation. Plastic tape permitted on #6 AWG and larger where insulation coloring is not available or practical. Apply tape in spiral half-lap over exposed portions of cable at all locations that cable is accessible.

I. All conductors shall be identified with circuit number where conductors are accessible such as at terminals, outlets, switches, circuit breakers, motor control centers, etc. Identify the ends of a given conductor circuit the same.

J. Do not install wires of different voltage systems in same raceway, box, or other enclosure. Control voltage is permitted in same enclosure only where specific

equipment is listed for multiple voltage use, and a listed voltage barrier is provided.

K. Radius of cable bends shall not be less than 10 times the outer diameter of the cable.

L. Do not install cable within conduit per NEC.

END OF SECTION

SECTION 26 05 26
GROUNDING

PART 1 GENERAL

1.1 WORK INCLUDED
A. Electrical systems grounding.

B. Signal systems grounding.

1.2 APPLICABLE STANDARDS
A. Underwriters Laboratories (UL)
   1. UL 467 Standard for Grounding and Bonding Equipment

B. Institute of Electrical and Electronic Engineers (IEEE)
   1. IEEE 81 Guide for Measuring Earth Resistively, Ground Impedance, and Earth Surface Potentials of a Ground System Part 1: Normal Measurements
   2. IEEE 142 Recommended Practice for Grounding of Industrial and Commercial Power Systems

1.3 APPLICABLE REGULATIONS
A. National Fire Protection Association (NFPA)
   1. NFPA 70 National Electrical Code (NEC)

B. NEC references below are based on the 2005 edition. Contractor shall meet current NEC requirements.

1.4 TESTS
A. Measure ground grid resistance with earth test megger and provide additional listed and approved earth grounding devices and conductors as required until resistance to ground complies with Code.

PART 2 PRODUCTS

2.1 GROUNDING ELECTRODES
A. Encased Electrode: NEC 250.52(A). One, no smaller than #4 bare solid copper conductor. Install in concrete foundation or footing near contact with earth. Connect to steel reinforcing bars, where available, not less than two times.

B. Ground Rods: 5/8" diameter, 8' long, copper, with approved clamp near surface. Listed as ground rod for direct contact with earth.

C. Grounding Electrode: NEC 250.52(A).

2.2 GROUNDING CONDUCTORS, AND JUMPERS
A. Size: Per NEC 250.

B. Material: Copper.

C. Protection: Conductors not in raceway or concealed shall be insulated. Provide raceway where shown or required for physical protection.

PART 3 EXECUTION

3.1 INSTALLATION

A. Regardless of TESTS results above, Provide not less than the following:
   1. Underground Metal Cold Water Pipe electrode; If underground Metal Cold Water Pipe is not available Provide Ground Ring.
   2. Encased Electrode.
   3. Two (2) Ground Rods or Ground Rods as shown.
   4. Connection to building steel when present.

B. Grounding Electrodes: Bond all electrodes together. Do not provide other type of electrode than shown without written approval. Provide additional quantity of electrodes as required by 1.03 above.

C. Provide access to all grounding electrode conductor connections.

D. Electrically bypass water meters when required by utility with use of full-size bonding jumper rated for location installed and with pipe clamps routed around and clear of meter.

3.2 POWER AND SIGNAL SYSTEM GROUNDING

A. All equipment grounding conductors shall be routed through same equipment conductor raceway from beginning to end (distribution source to load).

B. Metallic raceways are not approved as equipment grounds.

C. Circuit Grounding: Install grounding bushings, studs, and jumpers at distribution centers, pullboxes, motor control centers, panelboards, and junction boxes.

D. Ground Connections: Clean surfaces thoroughly before applying ground lugs or clamps. If surface is coated, the coating must be removed down to the conductive material. After the coating has been removed, apply a listed and approved noncorrosive compound to cleaned surface and connections. Where galvanizing is removed from metal, it shall be re-applied or painted.

E. Bonding Jumpers: Provide with green insulation and size not smaller than per NEC and larger where shown. Connection to neutral only at service neutral bar. Bonding jumpers shall be contiguous without break, joint, or splice.

F. Service Panel:
   1. Connect the various feeder green grounding conductors to the ground bus in the enclosure with suitable pressure connectors.
   2. Connect the grounding electrode conductor to the ground bus.
   3. Connect the neutral to the ground bus as the main bonding jumper.
   4. Connect metallic conduits, which terminate without mechanical conductive connection to the enclosure, by grounding bushings and ground wire to the ground bus.

G. Feeders and Branch Circuits: Install green grounding conductors with feeders and branch circuits. Additional locations and systems as shown.

H. Raceway Systems:
1. Ground all metallic enclosed raceway systems.
2. All enclosed raceway connecting to equipment shall contain a grounding conductor.
3. Conduit systems shall contain a grounding conductor.
4. Bond grounding conductor at beginning and end of raceway provided for mechanical protection containing only a grounding conductor.

I. Boxes, Cabinets, Enclosures, and Panelboards:
1. Bond the grounding wires to each pullbox, junction box, outlet box, cabinets, and other enclosures through which the ground conductors pass.
2. Provide lugs in each box and enclosure for ground wire termination.
3. Provide ground bars in panelboards, bolted to the housing, with sufficient lugs for terminating the ground wires.

J. Receptacles - Refer to Section 16140.

K. Ground lighting fixtures to the equipment grounding conductor of the wiring system.

L. Fixed electrical equipment shall have a ground lug installed for termination of the equipment ground conductor.

M. Control and Signaling Equipment: Ground metallic enclosures and raceways, terminate shields and drain wires to building ground system. Provide additional grounding as required by equipment manufacturer.

3.3 TESTING

A. Test per IEEE 81.

B. Grounding Electrode Conductor:
1. Measure resistance between switchboard ground bus and each grounding electrode, using a Megger and a single length of additional wire.
2. Measure resistance between both ends of the additional wire used.
3. Grounding Electrode Conductor resistance is the difference between 1 and 2.
4. Correct any inadequate connections as indicated.

END OF SECTION

SECTION 26 05 29
SUPPORTING DEVICES

PART 1 GENERAL

1.1 WORK INCLUDED

A. Raceway Supports.

B. Cable supports.

C. Provide all hardware and materials to support, as required, a complete and congruent raceway system.

1.2 APPLICABLE STANDARDS

A. National Fire Protection Association (NFPA)
   1. NFPA 70 National Electrical Code

B. Underwrites Laboratories (UL)
   1. UL 2239 Hardware for the Support of Conduit, Tubing, and Cable

C. National Electrical Contractors Association (NECA)
   1. ECA 101 Standard for Installing Steel Conduit

PART 2 PRODUCTS

2.1 RACEWAY SUPPORTS

A. Single Runs: Steel rod hangers, galvanized single hole conduit straps, or ring bolt type hangers with spring clips. Adhesives, tape, staples, or "J-nails" not acceptable.

B. Multiple Runs: Rack with 25 percent spare capacity. Maximum width per manufacturer's recommendations.

C. Vertical Runs: U-channel support with conduit fittings.

D. All hardware such as inserts, straps, bolts, nuts, screws and washers shall be galvanized or plated steel.

E. PVC coated galvanized steel in exterior and wet locations.

F. Channel manufacturers: Kindorf, Unistrut, or approved.

PART 3 EXECUTION

3.1 INSTALLATION

A. Supporting devices shall be listed for the location installed. Supports shall be of like material of raceway and be rated for location installed.

B. Layout to maintain headroom, neat mechanical appearance, and to support equipment loads required.

C. Exact location and spacing between supports per manufacturer's recommendations and NEC requirements.

D. Provide adequate spacing to prevent moisture build-up. All runs of conduit shall be arranged so as to be devoid of traps wherever possible.

E. Cable “Sag” greater than 3-Inches from valley to peak of run, not acceptable.

END OF SECTION

SECTION 26 05 33
RACEWAY & FITTINGS

PART 1 GENERAL

1.1 WORK INCLUDED

A. Conduit, Fittings, and Tubing.

B. Flexible Conduit.

1.2 REFERENCE STANDARDS

A. National Fire Protection Association (NFPA).
   1. NFPA 70 National Electrical Code--Chapter 3.
   2. Underwriters Laboratories (UL) 6,
   3. UL797
   4. UL1990

PART 2 PRODUCTS

2.1 MATERIALS AND COMPONENTS

A. General: No smaller than ¾-inch unless otherwise shown or indicated herein.

B. Conduit and Tubing: Electrical metallic tubing, galvanized rigid steel threaded conduit, Schedule 40 PVC.

C. Flexible Conduit: Flexible plastic jacketed type with liquidtight connectors and steel wrap armor (liquidtight flexible metallic conduit).

D. Fittings:
   1. General: Listed and approved for purpose. Water, gas, concrete tight where required.
   2. Electrical Metallic Tubing (EMT): Connectors to be steel. All connectors shall have factory insulated throats. Couplers and connectors shall be compression, setscrew type.
   3. Galvanized Rigid Steel Conduit (GRC): Threaded. Do not use pressure type. Provide factory insulated throats on bushings.
   4. Liquidtight Flexible Metallic Conduit: Continuous copper ground in core; approved watertight.

E. Expansion Joints: Offset or sliding type with bending straps and clamps. Listed for purpose.

F. Underground Marking Tape: 6-inches wide, yellow, low density polyethylene 4 mil thickness. Imprinted: "CAUTION: STOP DIGGING - BURIED ELECTRIC LINE BELOW" and current date. Tape for telephone line similar, except green.

2.2 TYPE

A. Utilize GRC in concrete with concrete-tight connectors.

B. Utilize GRC for exterior with watertight connectors.

C. Utilize electrical metallic tubing concealed in finished interior spaces.

D. Utilize electrical metallic tubing exposed in unfinished spaces, where not subject to physical damage.

E. For underground conduit, utilize Schedule 40 PVC or GRC. Provide GRC elbows and GRC risers through penetrations where PVC is used.

F. Utilize surface metal raceways for exposed runs in finished areas. Paint to match wall finish. Use only where shown on Drawings or where approved.

G. Connections to motors, vibrating equipment, and movable equipment shall be with flexible metallic conduit or liquidtight flexible metallic conduit. Use liquidtight type in damp locations. No smaller than 1/2-inch for motor connections. Use 3/8-inch only for light fixture wiring where provided by light fixture manufacturer. Provide sufficient length of flexible conduit to stop vibration into connecting support. Sizes not noted on the Drawings shall be as required by the NEC and no smaller then upstream connection conduit size.

H. Flexible metallic conduit not to exceed 6-feet at any one location unless request is affected by engineer in writing.

PART 3 EXECUTION

3.1 INSTALLATION

A. Install raceway concealed in all areas where required concealment not required in mechanical and electrical rooms, connections to motors, above suspended ceilings, and underfloor spaces.

B. Coordinate installation of conduit in masonry, cabinetry, and building slab work.

C. Underground Raceways: Watertight, including fittings, slope 3 inches per 100 feet downward from building. Install underground marking tape. Bury 6 inches to 8 inches below grade directly above raceway. Seal exterior junction boxes or provide with drainage.

D. Galvanized rigid steel conduit installed in contact with earth shall be wrapped with 2-half laps of 10 mil, all weather, corrosion protection tape.

E. Route all conduits parallel or perpendicular to building lines.

F. Vertical Runs: Straight and plumb.

G. Raceways Running in Groups: Run at same elevation, properly spaced and supported.

H. Install conduit in concrete slab with minimum 2-inch cover. Do not install conduit larger than one inch maximum in concrete slabs unless approved.

I. Do not interfere with placement of concrete re-bar. Place raceway between re-bar layers. Space at least 8-inches on center. Space as far as possible where terminating at same area. Secure raceway, boxes, inserts, etc. by mechanical means prior to pour.

J. Install conduit free with no dents or bruises. Cap ends to prevent entry of foreign materials and moisture.

K. Clean raceway before installation of conductor.

L. Alter conduit routing to avoid obstructions, minimizing crossovers. Avoid use of bends and offsets where possible. Only bend raceway with an approved conduit bending machine or approved hand (hickey) bender.

M. Provide listed expansion complete fittings with grounding jumpers where conduits intersect building expansion joints and for longer runs where conduit expansion may be excessive.

N. Allow minimum of 6 inches clearance at flues, steam pipes, and heat sources.

O. Dissimilar Metals: Avoid contact with pipe or duct runs of other systems.

P. Lengths and Bends: Maximum number of bends in any run shall be the equivalent of four quarter bends (360 degrees total). Maximum length of any run shall be 300 feet, less 50 feet for each equivalent quarter bend. Provide Junction and pull boxes to meet these limits.

Q. Provide entrance seal for all exterior wall, underground, and exterior slab raceway penetrations.

R. All empty raceways shall be provided with pull string or #12 conductor. Provide #12 conductor for exterior empty PVC raceways.

S. Flexible connections lengths shall not be excessive as deemed by EOR.

END OF SECTION

SECTION 26 05 33.16
OUTLET, JUNCTION, AND PULLBOXES

PART 1 GENERAL

1.1 DESCRIPTION OF WORK

A. Provide electrical boxes and fittings as required for a complete, protected, and operable system.

B. Comply with local Codes and NEC as required for Providing electrical boxes and fittings.

1.2 REFERENCE STANDARDS

A. American National Standards Institute (ANSI).
   1. C73 Series Dimensions of Attachment Plugs and Recepta¬cles

B. National Electrical Manufacturers Association (NEMA)
   1. OS 1 Sheet-Steel Outlets Boxes, Device Boxes, Covers, and Box Supports
   2. FB 1 Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable

1.3 APPLICABLE REGULATIONS

A. American National Standards Institute (ANSI).
   1. C2 National Electrical Safety Code (ANSI/IEEE C2)

B. National Fire Protection Association (NFPA).
   1. NFPA 70 National Electrical Code.

C. Underwriters' Laboratories (UL).
   1. UL50 Cabinets and Boxes (ANSI/UL50).
   2. UL514 Outlet Boxes and Fittings (ANSI/UL514).

PART 2 PRODUCTS

2.1 OUTLET BOXES:

A. No smaller than 4-inch, 1-1/2-inches deep box. Provide raised covers where required for surface mounted outlets, plaster rings on flush outlets. Provide tile rings where flush outlets installed in tile. Concrete type where installed in concrete.

B. Receptacle Outlets and Flush Switch: 4-inch square box, 1-1/2-inches deep, with single or two-gang plaster ring.

C. Match one piece gang boxes to number of devices, install one device per gang. Devices requiring more than one-gang shall be installed in individual boxes matched to device size. Do not exceed 5-gang configuration per row of devices at same location.

D. Provide galvanized steel interior dry location outlet wiring boxes for emt raceway shaped and sized, to conform to each individual location and installation. Provide with factory knockouts in back and sides, and with threaded holes with screws for securing box covers or devices.

E. Provide outlet box accessories as required. Accessories include mounting brackets, wallboard hangers, extension rings, fixture studs, cable clamps and metal straps for supporting outlet boxes. Choice of accessories is Contractor's option.

F. Outlet Box Covers:
1. Flush Mounting: Bevelled, white nylon plastic, match device installed or full cover where no device installed.
2. Surface Mounting: Bevelled, steel, pressure formed, match device installed or full cover where no device installed.

2.2 WEATHERPROOF / WET LOCATION OUTLET BOXES:

A. Provide corrosion-resistant cast metal weatherproof outlet wiring boxes, shaped and sized, to conform to each individual location and installation. Provide with threaded conduit ends, suitably configured for each application, including face plate gasket and corrosion proof fasteners.

B. Weatherproof boxes shall have smooth sides, gray finish.

C. Boxes used in contact with earth shall be cast iron alloy with gasketed screw cover and water-tight hubs.

D. Weatherproof Plates: Cast metal, gasketed for switches provide spring loaded sealed door(s).

E. Weatherproof Receptacle Outlet Cover: Cast metal, NEMA 3R, In-Use type, with locking tab. Match device configuration. 3 ¼ -inches internal depth. T&B CK series, or approved

2.3 WEATHERPROOF JUNCTION AND PULL BOXES:

A. Provide galvanized sheet steel junction and pull boxes, with screw-on covers; of the type, shape and size, to suit each respective location and installation; with welded seams and equipped with stainless steel nuts, bolts, screws and washers.

2.4 KNOCKOUT CLOSURES:

A. Provide punched-steel knockout closures for steel boxes.

2.5 PULLBOXES

A. Provide sheet metal in interior dry locations for EMT raceway. Provide cast metal in exterior, or damp locations. Type and material shall conform to National Electrical Code, with screw-on cover.

B. Flush Mounted Pullboxes: Provide overlapping covers with flush head screws, finished in light gray enamel.

C. Box volumes shall meet NEC for size and number of entering conduits and cables.

2.6 UNDERGOUND PULLBOXES

A. Underground Pull Boxes: Cast concrete with suitable concrete cover to withhold loads in location installed. Provide heavy-duty traffic cover where installed with vehicle traffic. Cover and box shall not deform and be rated for location installed. Provide drainage and

no less than 4 feet compacted gravel below installation. Size, and configuration to match installation. Provide where required, and shown on Drawings.

PART 3 EXECUTION

3.1 INSTALLATION

A. Match one piece gang boxes to number of devices, install one device per gang. Do not exceed 4-gang configurations per row of devices at same location.

B. Locate outlet boxes flush other than in mechanical rooms, electrical rooms, and above suspended ceilings. Provide insulation behind box to prevent condensation for boxes mounted in exterior walls.

C. Provide insulation behind box for walls with insulation for sound reduction.

D. Coordinate location and mounting heights with built-in units and cabinetry. Outlet mounting height shall be at same level required for equipment served.

E. When mounting receptacle, or voice/voice outlet boxes above bench or counter, mount box to the side (horizontally) for finished receptacle grounding pole at left.

F. Locate pullboxes and junction boxes concealed above suspended ceilings or in electrical rooms, mechanical rooms, or unfinished areas.

G. Support: Provide adequate support of all outlet boxes. Secure boxes independent raceway, by attaching directly to building structure by approved means.

H. Identify each junction and pullbox with system description including branch circuit numbers of enclosed circuits, and voltage.

I. Secure all raceway to entering boxes with approved bushings, and locknuts.

J. Do not mount boxes back-to-back. Boxes on opposite sides of wall shall be separated by at least 3 inches.

K. Maintain sound transmission and fire properties of surface installed. Provide appropriate fire stop and sound stop materials as required to maintain these properties.

L. Provide separate boxes where two voltage systems have equipment at same location. Provide separate boxes for equipment on emergency power system.

END OF SECTION

SECTION 26 05 53
ELECTRICAL IDENTIFICATION

PART 1 GENERAL

1.1 WORK INCLUDED

A. Permanent Identification of system components.

1.2 APPLICABLE REGULATIONS

A. National Fire Protection Association (NFPA)
   1. NFPA 70: National Electrical Code.

PART 2 PRODUCTS

2.1 MATERIALS

A. Phenolic Nameplate:
   1. Three layer, white front and back with black core.
   2. Neatly engraved through outer layer to show white characters on black background.
   3. Beveled edges, print lettering.
   4. Other colors as specified or shown. Use red for fire alarm, or fire sprinkler only.

B. Stenciling and Silk Screening: Printed lettering with enamel or lacquer paints. Legends contrasting with the background on which applied

C. Panelboard Directory Card: Fiberboard typed. Laminate or place in protective cover.

D. Concealed Box Labels: Permanent black ink such as “Sharpie” pen with neat and legible writing. Red permanent ink for fire alarm.

E. Concealed Conductor Labels: Listed white tape wrapped around individual conductor or cable, with permanent black ink with printed lettering

PART 3 EXECUTION

3.1 EQUIPMENT TO BE IDENTIFIED

A. Motor starters, panels, lighting panels and the disconnecting devices contained therein.

B. Disconnects.

C. Control panels, starters, pushbutton stations, pilot lights and other control devices.

D. Transformers.

E. Conductors at both device and terminal strip terminations for control and instrumentation cables and conductors.

F. Other items as specified, required by NEC, or noted on Drawings

G. Devices in lighting panels and power panels shall be identified on the panelboard directory card.

H. Receptacles and Switches.

3.2 PHENOLIC NAMEPLATES

A. Power panels shall be labeled on the door of the interior with a nameplate. Letters for panels shall be printed and no less than 1/2 inch high.

B. Provide nameplate on switchboard

C. Provide nameplates where specified and as shown.

3.3 APPLYING IDENTIFICATION

A. Stenciled letters shall be applied by brush or by spraying.

B. Nameplates shall be attached with either adhesive or screws. If adhesive is used, it shall adequately adhere to the surface installed.

3.4 IDENTIFICATION REQUIREMENTS

A. Indicate Voltage for all concealed labels, and for Disconnects, panelboard and switchboard identification.

B. Identification for disconnecting devices contained in panels and motor control centers shall show the equipment name and location by floor, area, and direction to adequately indicate location of load. Do not include Voltage when the Voltage is the same as for the panel or motor control center.

C. Nameplates on disconnect devices located in the area but not part of a panel or motor control center shall have the equipment name, power source identification, and voltage designation. Nameplates for disconnect devices located remotely from the equipment shall also show the equipment location by floor, area, and direction to adequately indicate location of load.

D. All indicators and controls for control panels, starters, and the like shall be labeled, such as (Start, Stop, On, Off, Reset, Fault, etc.).

E. Panelboard directory cards shall list the circuit numbers and show the equipment name and location supplied by the circuits. Equipment locations shall be shown by floor, area and direction, or by room numbers.

F. Device covers to include serving circuit and panelboard name, include at receptacles, switches, outlets, system furniture connections, floor boxes, etc.

G. Apply clear/ translucent adhesive tape with typed black lettering not more than 1/4” in height via use of label maker.

END OF SECTION

SECTION 26 05 60
OVERCURRENT PROTECTIVE DEVICES

PART 1 GENERAL

1.1 WORK INCLUDED
A. Circuit Breakers.

B. Fuses.

1.2 REFERENCE STANDARDS
A. American National Standards Institute (ANSI).
1. C37.16 Preferred Ratings, Related Requirements, and Application Recommendations for Low Voltage Power Circuit Breakers and AC Power Circuit Protectors.
2. C37.17 Trip Devices for AC and General-Purpose DC Low-Voltage Power Circuit Breakers.
3. C37.50 Test Procedure for Low-Voltage AC Power Circuit Breakers Used in Enclosures - Test Procedures.
4. C97.1 Low Voltage Cartridge Fuses 600 Volts or Less.

B. Institute of Electrical and Electronic Engineers, Inc. (IEEE).
1. 20-73 Low Voltage AC Power Circuit Breakers Used in Enclosures: ANSI C37.13.

C. National Electrical Manufacturer's Association (NEMA).
1. FU-1 Low Voltage Cartridge Fuses.

1.3 APPLICABLE REGULATIONS
A. Underwriters' Laboratories (UL).
1. UL 489-72 Molded Case Circuit Breakers and Circuit Breaker Enclosures.
2. UL 198 E Class R Fuses.
3. UL 869 Service Disconnects
4. UL 1066 Standard for Low-Voltage AC and DC Power Circuit Breakers Used in Enclosures

B. National Fire Protection Association (NFPA).
1. NFPA 70 National Electrical Code.

1.4 QUALITY CONTROL
A. Breakers shall be selectively coordinated with feeder breakers.

B. Breakers shall be of the same manufacturer as the switchboard and the panelboards.

PART 2 PRODUCTS

2.1 CIRCUIT BREAKERS
A. Construction
1. Bolt-on connection to bus.

2. Thermal-magnetic, molded case, with inverse time current overload and instantaneous magnetic tripping.
3. Quick-make, quick-break, with tripped indication clearly shown by breaker handle taking a position between ON and OFF.
4. Multiple phase breakers shall have a common internal trip. Do not use handle ties between single pole breakers.
5. Breaker shall be switch (T) rated.
6. Where used as service disconnects, breakers shall be listed for use as service entrance equipment and include locking handle.
7. Building normal power service main breaker shall include power monitoring with LCD display on breaker.

    a. Voltage- each phase L-L, L-N

    b. Amps- each phase

    c. kW/KVA

8. Fully rated at fault current of panel or switchboard.
9. Selectively coordinated by manufacturer with upstream protection device.

2.2 GFI BRANCH CIRCUIT BREAKERS

A. Meet construction requirements herein.

B. Ground fault protection with integral push-to-test button.

C. Class 1.

D. Adjustable setting pickup from 0.03 to 30 Amps.

E. Adjustable time delay from instantaneous to 2.0 seconds.

2.3 TESTING

A. By Manufacturer at factory. Timed thermal trip test and timed magnetic trip test.

B. As required by local authority.

C. Submit test results to Engineer upon request.

2.4 FUSES

A. Feeder, Branch Circuit and Service Entrance Fuses: 600 amperes and below, UL Class J or RK1 current limiting type, 600 volt 200,000 ampere interrupting capacity.

B. Motor and Inductive Circuit Fuses: UL class RK5 time delay current limiting type, 600 volt, 200,000 ampere interrupting capacity.

C. Control Circuit Fuses: UL Class J or R current, limiting type, 600V.

D. Manufacturer: Bussmann, or approved

PART 3 EXECUTION

3.1 CIRCUIT BREAKER INSTALLATION

A. Label each breaker located in switchboard or separate enclosure to indicate load served.

B. Adjust settings on breakers to operate properly under actual field conditions and to provide selective system coordination.

C. Torque breakers to bus per manufacturer's requirements and installation procedures.

3.2 FUSE INSTALLATION

A. Label each switch to indicate type and rating of fuse installed.

B. All fuses shall be selected to provide selective system coordination.

C. Provide the greater of 10%, or not less than 3 spare fuses of each size, and rating used.

END OF SECTION

SECTION 26 05 83
WIRE CONNECTIONS

PART 1 GENERAL

1.1 WORK INCLUDED
A. Wires Connectors

1.2 REFERENCE STANDARDS
A. National Fire Protection Association (NFPA).
   1. NFPA 70 National Electrical Code.

B. Underwriters' Laboratories, Inc (UL
   1. UL 486A through UL 486E

C. American National Standards Institute (ANSI)
   1. ANSI/UL 467

PART 2 PRODUCTS

2.1 TWIST-ON CONNECTOR
A. Pressure-type wound spring twist on connector.

B. Solderless pressure connectors.

C. Shell rating of 105 degrees C.

D. "Push-On" or "punch" type connectors not permitted.

2.2 COMPRESSION ADAPTER
A. Dual rated for use with both aluminum and copper cable conductors.

B. Diameter and ampacity as current carrying equivalent copper wire.

C. Pre-filled with approved joint compound

D. Connectors shall be clearly marked with Catalog Number, wire size and color-coded die index number.

E. Burndy "Hyplug" type AYP or equal by T&B, or approved.

2.3 TERMINAL, CRIMP TYPE
A. Flat; fork tongue, or flat circular matched to terminal size.

B. Color coded to wire size.

C. T&B "Sta-Kon", or approved.

2.4 WP COATING

A. Liquid

B. For use as an outer seal on vinyl tape splice, fast- drying, suitable for use for direct burial and moisture protection.

C. 3M Scotchkote Electrical Coating FD, or approved

PART 3 EXECUTION

3.1 INSTALLATION

A. Provide Twist-On Connectors at taps and splices for conductors no larger than #10 AWG. Provide only in approved junction and outlet boxes.

B. Provide Compression Adapters for terminating a single conductor into mechanical connectors such as a circuit breaker or set screw lugs. Provide only where required for AL/CU transitions or where lugs require adapters.

C. Provide Crimp terminal at all Control voltage terminal blocks, unless otherwise recommended by manufacturer.

D. Do not nick conductor when stripping insulation. No “ringing”

E. Conductor and cable shall not be reduced at the terminal for connections.

F. Connectors shall be approved and listed for the purpose used.

G. Wrap all twist-on connectors with listed tape to maintain equivalent insulation of wire.

1. Exterior, Underground, and WP connections shall include 2-coats of WP Coating.

H. Remove any obstructions on connection to maintain continuity prior to installation of connectors, such as paint, dirt, and construction materials.

I. Copper conductors can be terminated in approved compression or mechanical connector, including set screws.

J. Provide slack at equipment to allow for a neat termination, access to conductors, and ability to repair or replace equipment.

END OF SECTION

SECTION 26 24 17
PANELBOARDS

PART 1 GENERAL

1.1 WORK INCLUDED

A. Provide panelboards incorporating equipment of the number, rating and type specified herein and shown in Panel Schedules.

1.2 REFERENCE STANDARDS

A. American National Standards Institute (ANSI).
   1. ANSI C37 Standard for Metal-Enclosed Low-Voltage Power Circuit Breaker Switchgear

B. Institute of Electrical and Electronics Engineers (IEEE).
   1. Std. 241-74 Electric Systems for Commercial Buildings.

C. National Fire Protection Association (NFPA).
   1. NFPA 70 National Electrical Code.

D. Underwriters' Laboratory (UL).
   1. UL 67 Standard for Panelboards.
   2. UL 869A Reference Standard for Service Equipment

E. National Electrical Contractors Associations (NECA)
   1. NECA 407 Standard for Maintaining and Installing Panelboards

F. National Electrical Manufacturer’s Association (NEMA)
   1. NEMA PB 1.1 General Instructions for Proper Installation, Operation, and Maintenance of Panelboards Rated 600 Volts or Less.

1.3 QUALITY ASSURANCE

A. Panelboard breakers shall be selectively coordinated with feeder breakers.

B. Acceptable Manufacturers: Square D, Siemens (ITE), or approved.

PART 2 PRODUCTS

2.1 CONSTRUCTION

A. General:
   1. Mounting hardware shall be captive type, and shall not pose a danger of dropping onto exposed parts if trim is opened, or removed.
   2. Provide Arc-Flash Protection label per NEC.

B. Box:
   1. Galvanized code gauge steel.
   2. 20-inch minimum width; 4-inch minimum gutter space on all sides. Larger as required by manufacturer and NEC.
   3. Minimum 4 interior mounting studs.

4. Individual knockouts by manufacturer or field-cut per manufacturer requirements. Concentric knockouts are not permitted.
5. All exterior and interior steel surfaces of panelboard door and trim shall be cleaned and finished with industry standard gray baked enamel paint over a rust-inhibiting phosphatized primer coating approved by the paint manufacturer. Panelboards exposed in finished spaces shall have factory finish to match adjacent surfaces.

C. Bussing:
1. Copper- All phases, ground, and neutral.
2. Fully Rated. No reductions.
3. Bolt-on breaker Lugs
4. Tap Arrangement shall be phase sequence type, permitting any breaker configuration mounted at any location.
5. Short Circuit Bracing: Fully rated.
6. Neutral Bussing:
   a. Full size, unless otherwise noted.
   b. Properly sized lug for each outgoing neutral connection.
7. All bolts used to connect current-carrying parts together shall be accessible for tightening from the front of the panel.
8. Wiring terminals: Compression or setscrew type for copper conductors; bolted to bus.
9. Secured not less than at 6 separate locations to the enclosure. Bus movement in any direction in excess of 1/8-inch. is not acceptable.

D. Trim:
1. Code gauge steel.
2. Flush panels shall include trim overlap around box not more than 1.5-inchs.
3. Surface Panels: Same width and height as box.
4. Mountable by screwdriver, no special tools.
5. Tamper-proof: Trim shall not be removable with door closed.
6. Include separate trim door and access door. Door-in-Door type construction.
7. Doors:
   a. Shall conceal all breakers unless otherwise noted.
   b. Provide internal concealed access door hinges. Exterior door hinge is not required to be concealed, but shall be painted to match exterior color of panel.
   c. Over 48-inches in Height: Shall have auxiliary fasteners at top and bottom of door in addition to flush latch (3-point).
   d. Latches:
      i. Spring-Type, flush, number as required by manufacturer
8. Where more than one latch is installed, access door shall be operable by only one person. Three simultaneously operated latches is not acceptable.
9. Equip latches with flush locks keyed alike. All panelboards shall be keyed alike.

E. Not less than NEMA 1 unless otherwise noted or otherwise required for location installed.

2.2 CIRCUIT BREAKERS

A. Main Breaker:
   1. Provide where required and noted. Mount separate from branch breakers.
   2. Covered by a metal plate, except for the operating handle, trip flag (if applicable), and trip button (if applicable).
   3. Connection to breaker load side shall be contiguous bus bar. Connection by separate conductors is not acceptable.
   4. Panel and breaker shall be listed as service disconnect where used in such applications, including alternate power service such as from an emergency generator.

B. Branch Breakers:
   1. Bolt-on connection to bus snap-on permitted as per Section 16180. Securely mounted; Deflection of breaker with force applied in any direction greater than ¼-inch is not acceptable.
   2. Additional requirements are noted elsewhere in these Specifications, shown on Drawings, and as per Code.

PART 3 EXECUTION

3.1 INSTALLATION

A. Provide mounting brackets, busbar drillings, and fillers for unused spaces.

B. Maintain fire properties of surface installed. Provide appropriate fire stop materials to maintain these properties.

C. Prepare and affix typed directory to inside cover of panelboard indicating loads and location of loads controlled by each circuit.

D. Provide panelboards flush in all finished areas. Unfinished areas include mechanical rooms and electrical rooms.

E. Securely mount raceway to panelboards with appropriate bushings. Bushings shall be insulated, and threaded through panelboard with locknut securing to box. Coordinate raceway size and locations entering box for neat a professional installation, as well as for appropriate routing.

F. For flush panels, Provide (1) 2-inch spare, (2) 1-inch spares, and (2) ¾-inch spares raceways stubbed to accessible ceiling space.

G. Combine all keys on one key ring and furnish to Owner at time of substantial completion.

END OF SECTION

SECTION 26 24 18
SURGE PROTECTION DEVICE (SPD) EQUIPMENT

PART 1 GENERAL

1.1 DESCRIPTION

A. Provide surge suppression device (SPD) (previously known as TVSS- Transient Voltage Surge Suppression) equipment for the electrical distribution system.

1.2 REFERENCE STANDARDS

A. Underwriters Laboratories (UL)
   1. UL 1449 Standard for Transient Voltage Surge Suppressers
   2. UL 1283 Standard for Safety for Electromagnetic Interference Filters

B. American National Standards Institute (ANSI)
   1. C62.41 IEEE Recommended Practice for Surge Voltages in Low-Voltage AC Power Circuits

PART 2 PRODUCTS

2.1 INTEGRAL PANELBOARD SURGE SUPPRESSOR

A. Provide in every Panelboard.

B. Unit shall be rated for Category B location per ANSI/IEEE C62.41-1991.

C. Unit shall be factory integrated into panelboard.

D. Each unit module shall be fused with a surge rated fuse and incorporate a thermal cutout device.

E. Minimum surge current capability shall be 80,000 amperes per phase, measured between L-N & L-G.

F. Unit diagnostics, mounted in door of distribution equipment, shall include the following:
   1. Operational LEDs to indicate loss of protection and circuit fully operational for each protection status.

G. The internal design of the unit shall have a minimum EMI/RFI filtering of –50 dB from 100kHz to 100MHz

H. The UL 1449 Listed and Recognized Component Suppression Voltage ratings shall not exceed:
   1. 330 Volts for 120/208 or 240 voltage configurations.
   2. 700 Volts for 480 voltage configurations.

I. All required “burn-in” tests shall be conducted at factory, prior to shipment.

J. Rated for not less than 200,000 AIC.

K. Installation shall not decrease available over-current protection device spaces including main breaker.

L. Acceptable manufacturer: Advanced Protection Technologies, by panelboard manufacturer, or approved.

PART 3 EXECUTION

3.1 INSTALLATION

A. System shall be complete.

B. Comply with applicable Sections of this Division.

3.2 WARRANTY

A. Full five year warranty by manufacturer and includes unlimited replacement of all components.

END OF SECTION

SECTION 26 27 26
WIRING DEVICES

PART 1 GENERAL

1.1 WORK INCLUDED
A. Wall Switches.

B. Receptacles.

C. Ground Fault Receptacles.

1.2 REFERENCE STANDARDS
A. American National Standards Institute (ANSI).
1. C73 Series Dimensions of Attachment Plugs and Receptacles.

B. National Electrical Manufacturer's Association (NEMA).
1. WD 6 Wiring Devices- Dimensional Requirements
2. WD 1 General Color Requirements for Wiring Devices.

C. National Fire Protection Association (NFPA).
1. NFPA 70 National Electrical Code.

D. Underwriters' Laboratory (UL).
1. UL-20 Standard for Snap Switches.
2. UL 498 Attachment Plugs and Receptacles
3. UL 467 Grounding and Bonding Equipment
4. UL 514D Cover Plates for Flush-Mounted Wiring Devices
5. 2006 UL 943 Safety for Ground-Fault Circuit-Interrupters

1.3 QUALITY ASSURANCE
A. Provide type 5362 receptacles.

B. Acceptable Manufacturers: Hubbell, Pass and Seymour, Arrow-Hart, Leviton, or approved

PART 2 PRODUCTS

2.1 MATERIALS
A. Switches: 120/277 Volt. AC Quiet, slow make, slow break design, toggle style handle, with totally enclosed case, 20 Ampere, specification grade. Provide matching two-pole, three-way and four-way switches.

B. Receptacles: 20 Ampere (unless otherwise indicated), 125 Volts (unless otherwise shown), duplex, polarized, full gang size, specification grade, separate ground terminal, 20 Amp. break-off tab for split circuit wiring.

C. Ground Fault (GFI) Receptacles: 20 Ampere, specification grade duplex receptacle with integral ground fault circuit interrupter. LED operation indicator. Test and reset buttons.

End of life protection- GFI component failure results in no power delivered to equipment (2006 UL 943).

D. Wall Plates: 302 Stainless Steel, Match device configuration.

E. Colors:
1. Gray Receptacles, Gray Switches: In areas that are not dark brown in color.
2. Brown Receptacles, Brown Switches & Brown Nylon Wall Plate: In all finished areas with dark brown or dark wood finish.

PART 3 EXECUTION

3.1 INSTALLATION

A. Do not use back wiring wells, terminate conductors on mechanical screw terminals.

B. Do not use GFI-Feed through function, GFI receptacles with test, reset, etc. required at each location where GFI is required.

C. Provide wiring devices as shown.

D. Install devices plumb and consistent with building lines. Wall Plates shall make contact on four corners and shall fit flush with device.

E. Devices to include same configuration outlet box, cover, wall plate and other necessary installation materials for a complete operating circuit.

F. Mount switches 42 inches (to center line of faceplate) above floor except as otherwise noted on the Drawings.

G. Coordinate mounting locations with architectural details.

H. Mount receptacles vertically at 15 inches (to bottom of faceplate) above finished floor, with grounding pole at bottom.

I. Coordinate receptacle height with benches and counters.

J. When mounting receptacle above bench or counter, mount receptacle to the side with grounding pole at left.

K. Provide split switched GFI receptacle (or GFI via Breaker) for receptacles mounted under sinks. Provide switch for ½ duplex receptacle in approved ADA location such as under sink within counter, or above counter if ADA accessible. Delete switch if air-switch or other control device is specified.

L. Where automatic control is required (At least 50% of all 125 V, 15 and 20 amp receptacles in all private offices, conference rooms, rooms used primarily for printing and/or copying functions, break rooms, classrooms, and individual workstations), utilize dual relay occupancy sensors for this function. Refer to automatic lighting control requirements. Label automatically switched outlet per Energy Code.

M. Grounding: Install a separate bare conductor between the receptacle strap grounding (green) screw and a screw into the outlet box. Self-grounding strap not approved as grounding means.

END OF SECTION

Express 250

DC Fast Charging Station

Site Design Guide

for Standalone and Paired Stations

IMPORTANT SAFETY INSTRUCTIONS: SAVE THESE INSTRUCTIONS

WARNING:

1. Read and follow all warnings and instructions before installing and operating the ChargePoint® Charging Station. Install and operate only as instructed. Failure to do so may lead to death, injury, or property damage, and will void the Limited Warranty.

2. Only use licensed professionals to install your ChargePoint charging station and adhere to all national and local building codes and standards. Before installing the ChargePoint® charging station, consult with a licensed contractor, such as a licensed electrician, and use a trained installation expert to ensure compliance with local building and electrical codes and standards, climate conditions, safety standards, and all applicable codes and ordinances. Inspect the charging station for proper installation before use.

3. Always ground the ChargePoint charging station. Failure to ground the charging station can lead to risk of electrocution or fire. The charging station must be connected to a grounded, metal, permanent wiring system, or an equipment grounding conductor shall be run with circuit conductors and connected to the equipment grounding terminal or lead on the Electric Vehicle Supply Equipment (EVSE). Connections to the EVSE shall comply with all applicable codes and ordinances.

4. Install the ChargePoint charging station on a concrete pad using a ChargePoint approved method. Failure to install on a surface that can support the full weight of the charging station can result in death, personal injury, or property damage. Inspect the charging station for proper installation before use.

5. This charging station is not suitable for use in or around hazardous locations, such as near flammable, explosive, or combustible materials.

6. Do not use this product if the enclosure, EV cable, or the EV connector is broken, cracked, open, or shows any other indication of damage.

7. Do not put fingers into the electric vehicle connector.

Important: Under no circumstances will compliance with the information in this manual relieve the user of his/her responsibility to comply with all applicable codes or safety standards. This document describes the most commonly-used installation and mounting scenarios. If situations arise in which it is not possible to perform an installation following the procedures provided in this document, contact ChargePoint, Inc. **ChargePoint, Inc. is not responsible for any damages that may result from custom installations that are not described in this document or for any failure to adhere to installation recommendations.**

Product Disposal

To comply with Directive 2012/19/EU of the European Parliament and of the Council of 4 July 2012 on waste electrical and electronic equipment (WEEE), devices marked with this symbol may not be disposed of as part of unsorted domestic waste inside the European Union. Enquire with local authorities regarding proper disposal. Product materials are recyclable as marked.

No Accuracy Guarantee

Commercially reasonable efforts were made to ensure that the specifications and other information in this manual are accurate and complete at the time of its publication. However, the specifications and other information in this manual are subject to change at any time without prior notice.

Symbols Used in This Document

This guide and product use the following symbols:

DANGER: Risk of electric shock.

WARNING: Risk of personal harm or death.

CAUTION: Risk of equipment or property damage.

Important: Crucial step for installation success.

Read the manual for instructions.

Ground/protective earth.

Contents

Site Design Guidelines 1

This document describes how to design an installation site for the ChargePoint® Express 250 DC fast charging station, and install the Concrete Mounting Template, before station installation.

The Express 250 is a DC fast charging station for electric vehicles. Each charging station communicates with ChargePoint using a cellular network. This connectivity is required for diagnostics and reporting, as well as communication with the online dashboard that allows the station owner to control its settings and commands. See the section Cellular Connectivity (page 26) for detailed information.

Important: Always follow all applicable local and national codes and requirements. A site drawing should be engineered for your specific site to reduce installation costs and ensure compliance with local codes. Local authorities might not allow a unit to operate if it is not installed to code.

Access ChargePoint documents online at chargepoint.com/guides or chargepoint.com/eu/guides for each phase of the project:

Document	Content	Audiences
Express 250 Data Sheet	Full station specifications	Site designer, installer, and station owner
This document	**Civil, mechanical, and electrical guidelines to scope and construct the site**	**Site designer or engineer of record**
Concrete Mounting Template Guide	Onsite instructions for installing the CMT with anchor bolts and conduit placement	Site construction contractor
Express 250 Installation Guide	Anchoring, wiring, and powering on	Installer
Express 250 Operations and Maintenance Guide	Operation and preventative maintenance	Station owner or facility manager
Full set of Field Replacement Guides	Component replacement procedures	Station owner or third party servicer

Installing the Express 250 requires two people and takes approximately 3-4 hours. This time estimate does not include the time needed to pull DC and Ethernet cable for a Paired installation if it is not already done. Paired installation might also require contacting a ChargePoint support technician to perform any required software updates and configuration if a station is being

retrofitted from Standalone to Paired.

Important: All installers must be licensed electricians and complete an online training course to become a ChargePoint certified installer. Installers who do not complete installation training cannot access the ChargePoint Network to complete pinpointing and station setup.To complete online training and become a certified installer, refer to ChargePoint University at: chargepoint.com/installers or chargepoint.com/eu/installers

Pairing Two Express 250s

The Express 250 can be installed either as a standalone system, or paired with another Express 250 using a DC connection to more flexibly share load. The two Power Modules in the base of each charging station can be shared in any combination according to charging need. This allows high power output in sites with space constraints.

To pair two Express 250 charging stations, all of the following are required:

- Additional conduit, ducting, or armored cable (according to region) correctly installed between the two charging stations for DC conductors and Ethernet wiring
- Both Express 250s must have 62.5 kW power enabled (not allowed on stations only enabled for 50 kW)
- Both Express 250s must be provisioned for full power back to the panel (not allowed on “power select” stations)

Initial Site Guidelines

An onsite evaluation is needed to determine conduit and wiring requirements from the panel to the proposed parking spaces, as well as to measure cellular signal levels and identify suitable locations for any necessary cellular signal booster equipment.

If you have pre-existing infrastructure or are using your own preferred electrical contractor to prepare your site, a completed Construction Signoff Form is required to certify compliance with electrical specification requirements, and to ensure everything was prepared to ChargePoint specifications.

Important: Always check local codes or consult an engineer to ensure the site is prepared in compliance with all applicable regulations. Local authorities might not allow a unit to operate if it is not installed to code.

Plan for Future Charging Capacity

ChargePoint recommends that you plan to install charging stations for 5-10% of parking spaces, or

10-15% for high EV adoption areas like California. Designing electrical infrastructure to support current and future needs for EV charging helps avoid costly upgrades later as demand for EV charging grows.

Consider these methods to prepare a site for future charging stations in a later phase of work:

- Add extra capacity if electrical panels are being upgraded now
- Use sub-panels as a way to shorten electrical paths
- Oversize the conduit between the main electrical panel and future stations
- Install pull or junction boxes at the end of an existing row of charging stations, to ease cable pulls for future stations
- If a junction box or disconnect will be installed between rows of stations, oversize the wiring between the main panel and the junction box to prevent needing to re-pull wire later

Charging Station Placement

To help minimize costs, choose station locations that are as close as possible to the available electrical infrastructure. Selecting these types of locations helps minimize long conduit and wire runs, as well as any trenching work.

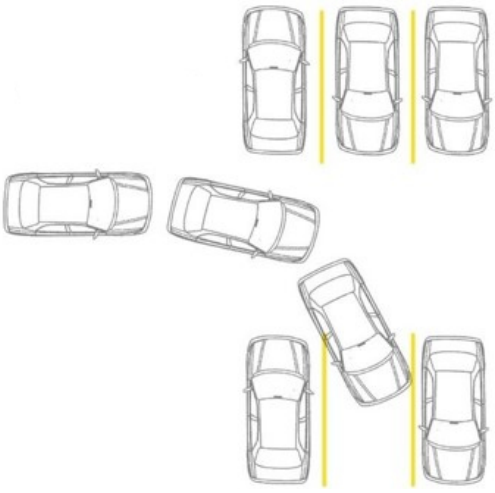
WARNING: The ChargePoint charging station must be installed on a level concrete base. Asphalt cannot support the full weight of the charging station. Failure to install the ChargePoint charging station on a level concrete base may cause the charging station to tip over, resulting in death, personal injury, or property damage.

Layout considerations:

- Determine appropriate ground anchoring locations where concrete exists or can be installed (no asphalt surfaces).
- Consider locations where it will be easy to add future stations.
- Determine optimum conduit layout to minimize linear conduit costs to multiple parking spaces. If possible, avoid or minimize trenching requirements, especially more costly trenching to run conduit under asphalt surfaces.
- Evaluate existing electrical infrastructure to determine if the existing utility service and electrical panel capacity is sufficient. Identify costs for any necessary upgrades and/or a new dedicated electrical panel. ChargePoint recommends using a certified electrician to evaluate available capacity and identify any upgrades that may be required.
- If a dedicated EV electrical panel is required, choose a panel location in close proximity to the existing electrical supply.
- Measure cellular signal levels to ensure adequate cellular coverage at the station installation location. To ensure adequate signal strength in underground or enclosed parking structures, cellular repeaters may be required. For more information, see Cellular Connectivity (page 26).
- ChargePoint recommends to avoid locations under trees where sap, pollen, or leaves would fall on the charging station and increase the station owner's site upkeep workload.

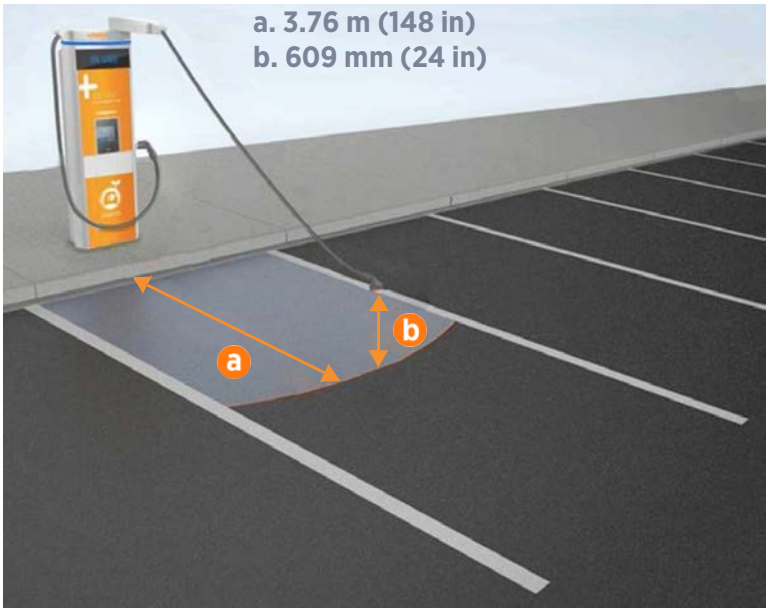
- For stall parking, ChargePoint recommends using perpendicular parking stalls that allow a vehicle to enter either front-first or rear-first, to better accommodate the varied charge port locations on different EVs. Diagonal stall parking is not advised.

  Note: While ChargePoint tests charging stations with a majority of upcoming vehicles, ChargePoint cannot guarantee the port locations of future vehicles and cannot warrant the configurations proposed will work for all vehicles.

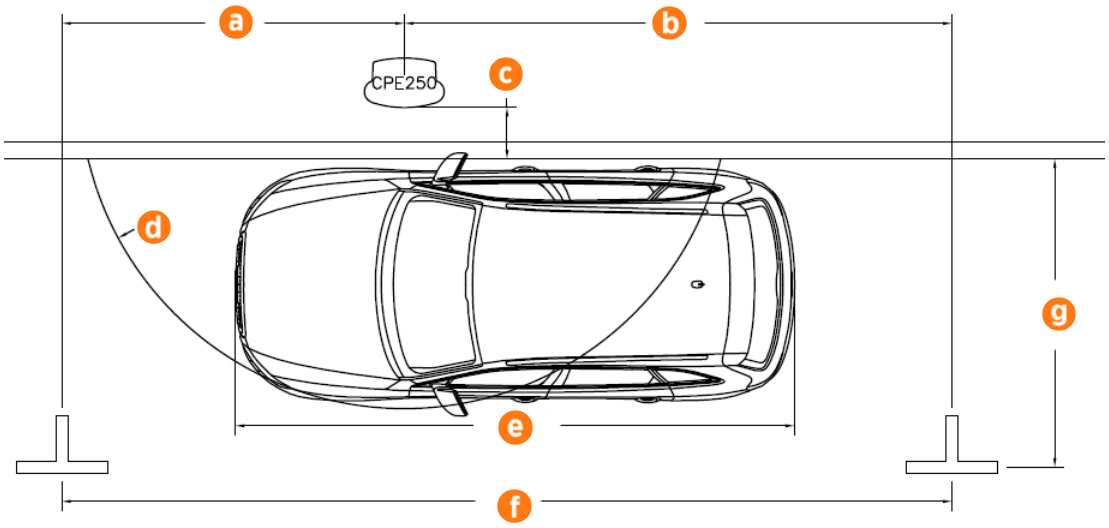


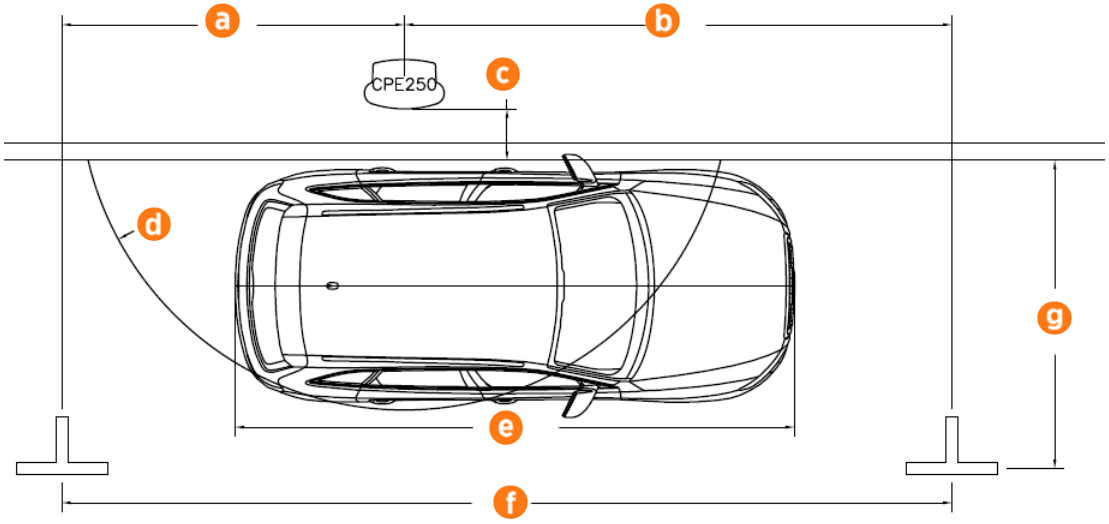
- Choose adjacent parking spaces in an area with adequate lighting.
- Consider how easily drivers can find the stations they need to access.
- Check local requirements for accessibility and pathway width, sometimes called "path of travel", to ensure station placement does not restrict sidewalk use.
- Building a pad into the head of a parking space (instead of on the sidewalk) is allowed if a) local code allows it compared to the minimum parking space length, and b) the pad meets all pad requirements listed in this document.
- Note that the Express 250's two charge cables are different types of connectors to maximize usability across EV models. The cables cannot both be used at the same time. Therefore, do not position an Express 250 to share two parking spots.

Important: Place each charging station centered at the head of its parking space, with the touchscreen facing the vehicle. This placement maximizes cable reach for the varied charge port locations on different EVs.



- Pull-through parking (gas station model) is not recommended. If pull-through parking is used, ChargePoint recommends placing at least one charging station on each side of the island. This avoids situations where the charging station is on the opposite side of the vehicle from the charge port. Guidance for station placement in island or curbside parking is shown below.





a. Distance from left space marking: 3048 mm (120 in) maximum
b. Distance from right space marking: 4876.8 mm (192 in)
c. Distance from curb: 457.2 mm (18 in)
d. Cable reach radius: 3.76 m (148 in)
e. Example EV length: 4978.4 mm (196 in)
f. Recommended parking space length: 7924.8 mm (312 in)
g. Recommended parking space width: 2743.2 mm (108 in)

Civil and Mechanical Design 2

Use the guidance below to design the civil and mechanical aspects of the site.

Component Dimensions and Weights

The Express 250 is a vertical enclosure with the dimensions shown here.

Component	Weight
Each Power Module	44 kg (97 lb)
Crated Power Module as shipped	49.9 kg (110 lbs)
Express 250 with two Power Modules, installed	339 kg (746 lb)
Crated Express 250 as shipped	494 kg (1089 lb)

Pad

The station can be installed on either a newly poured pad or an existing concrete surface. The mounting surface must be smooth and cannot exceed a slope of 6.35 mm per 304.8 mm (0.25 inches per foot).

The concrete pad must either be designed to be site-specific, or must meet these specifications:

- At least 305 mm (12 in) deep (or deep enough to be 305 mm (12 in) below the frost line)
- At least 1296 mm (51 in) on each side
- Contains #4 rebar or larger, top and bottom, 305 mm (12 in) on center
- Concrete 2500 PSI minimum

The above pad specifications are designed to meet these conditions:

- 170 mph wind speed
- Wind Risk Category I
- Wind Exposure D
- Seismic Importance Factor 1.0
- Hayward Fault with mapped spectral response accelerations Ss=2.45 S1=1.019
- Seismic Design Category E
- Foundation of Sandy Soil with allowable stress = 1500 psf, Cd = 1.33

In some extreme conditions, a larger pad would be required. For sites with less stringent seismic, soil, or wind conditions, a smaller pad might be possible.

If the existing pad does not meet the specifications above, it must be inspected and approved by a structural engineer for the Express 250's dimensions and weight. If needed, give these structural design specifications to the structural engineer for verification:

Product Weight	340 kg (750 lbs)
Product Height from Ground	2.230 m (7.317 ft)
Product Width	0.71 m (2.33 ft)
Product Frontal Area	Height * Width
CG Height	1.12 m (3.66 ft)
Number of Anchor Bolts	4
Bolt Pattern	See dimensioned images in this section
Anchor Bolt Size	M16 (5/8 in)
Anchor Bolt Embedment	229 mm (9 in)

WARNING: If not installed correctly, the ChargePoint® charging station may pose a fall hazard, leading to death, personal injury, or property damage. Always use the provided Concrete Mounting Template or a ChargePoint-approved surface mounting solution to install the ChargePoint® charging station and install in accordance with applicable codes and standards using licensed professionals. Non-approved installation methods are performed at the risk of the contractor and void the Limited Warranty.

Drainage

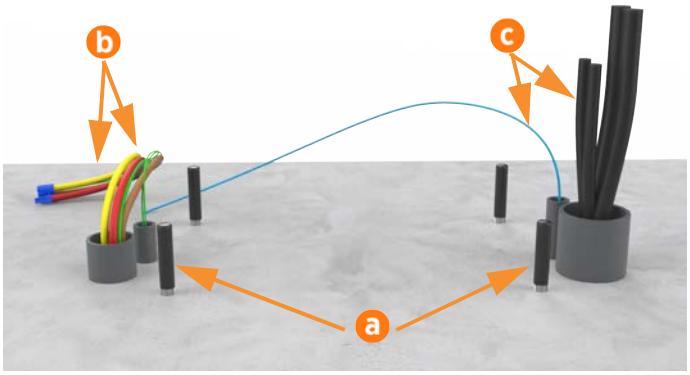
Ensure any site slopes, walls, or fencing do not trap water around the charging station installation site. The system is only built to withstand 457.2 mm (18 in) of standing water.

WARNING: Exposing the ChargePoint® charging station to over 18 inches (457 mm) of standing water could create an electrocution, shock, or fire hazard. Cut power to the charging station if it has been exposed to standing water and contact ChargePoint before the charging station is powered on.

Mounting Specifications

The Express 250 is installed on a concrete pad. Details on how to prepare this pad are described later in this guide.

All installations require four anchor bolts (a). Standalone installations only require the two conduit stub-ups on the left side, for AC wiring and shunt trip wiring (b). Paired installations also require the wiring shown on the right: DC wiring and Ethernet communication (c). For more detail, see Conduit (page 21).



Important: Although the Concrete Mounting Template was originally designed for six anchor bolts, only the four corner anchor bolts are required for station stability. Newer charging stations are designed to only use the four corner anchor bolts. If older sites were already designed with six anchor bolts, removing the middle bolts is not required.

WARNING: If not installed correctly, the ChargePoint® charging station may pose a fall hazard, leading to death, personal injury, or property damage. Always use the provided Concrete Mounting Template shown pre-installed in the Introduction, or a ChargePoint-approved surface mounting solution, to install the ChargePoint® charging station. Always install in accordance with applicable codes and standards using licensed professionals. Non-approved installation methods are performed at the risk of the contractor and void the Limited One-Year Parts Exchange Warranty.

Clearances

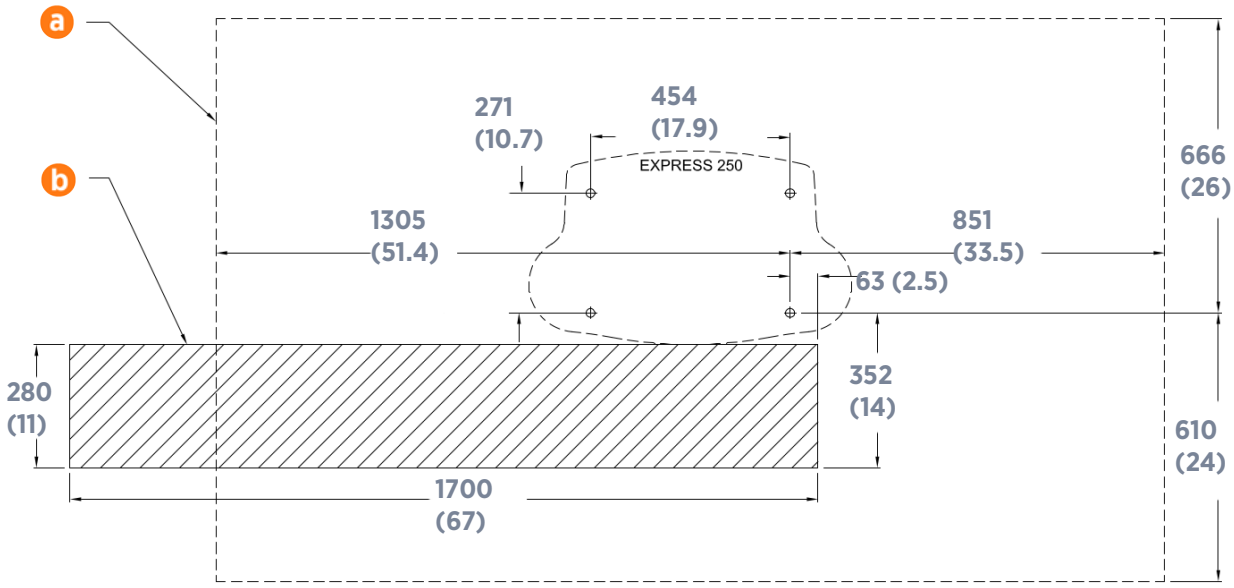
The Express 250 requires minimum functional and service clearances as listed in the table below.

Front Clearance	330.2 mm (13 in) at grade; 609.6mm (24 in) minimum open space
Side Clearance*	711.2 mm (28 in) required; 863.6 mm (34 in) recommended**
Rear Clearance	304.8 mm (12 in) required; 609.6 mm (24 in) recommended
Top Clearance	304.8 mm (12 in)

** Side clearance is measured from extrusion to extrusion.*

*** Side clearance can be shared between two charging stations. However, if the charge handles of both stations are facing each other, add an extra 254 mm (10 in).*

Measurements are provided in millimeters (inches).



a. Service clearance of open space (not necessarily at system grade)

b. Power Module service clearance at grade from the front right anchor, extending 1700 mm (67 in) to the left, without any permanent obstructions (fencing, bollards, wheel stops, etc.)

Note: Listed side clearances are the minimum required for operation and service. For paired charging stations, the bend radius of the DC cable and conduit might require spacing them further apart.

Rear clearance, and the front and side clearance for Power Module service, must be at grade level +/- 25 mm (1 in).

Refer to the “Ventilation” section, and check local and regional code, for any additional clearance requirements.

Ventilation

Ensure that any installation, especially an indoor installation, has adequate airflow to dissipate the charging station's heat at maximum operation. Each Express 250 charging station emits approximately 3.3 kW of waste heat at maximum operation.

The charging station location must allow fresh ambient airflow. Restriction of airflow might result in reduced maximum performance. Do not install a station where it is exposed to air that is heated above ambient temperatures.

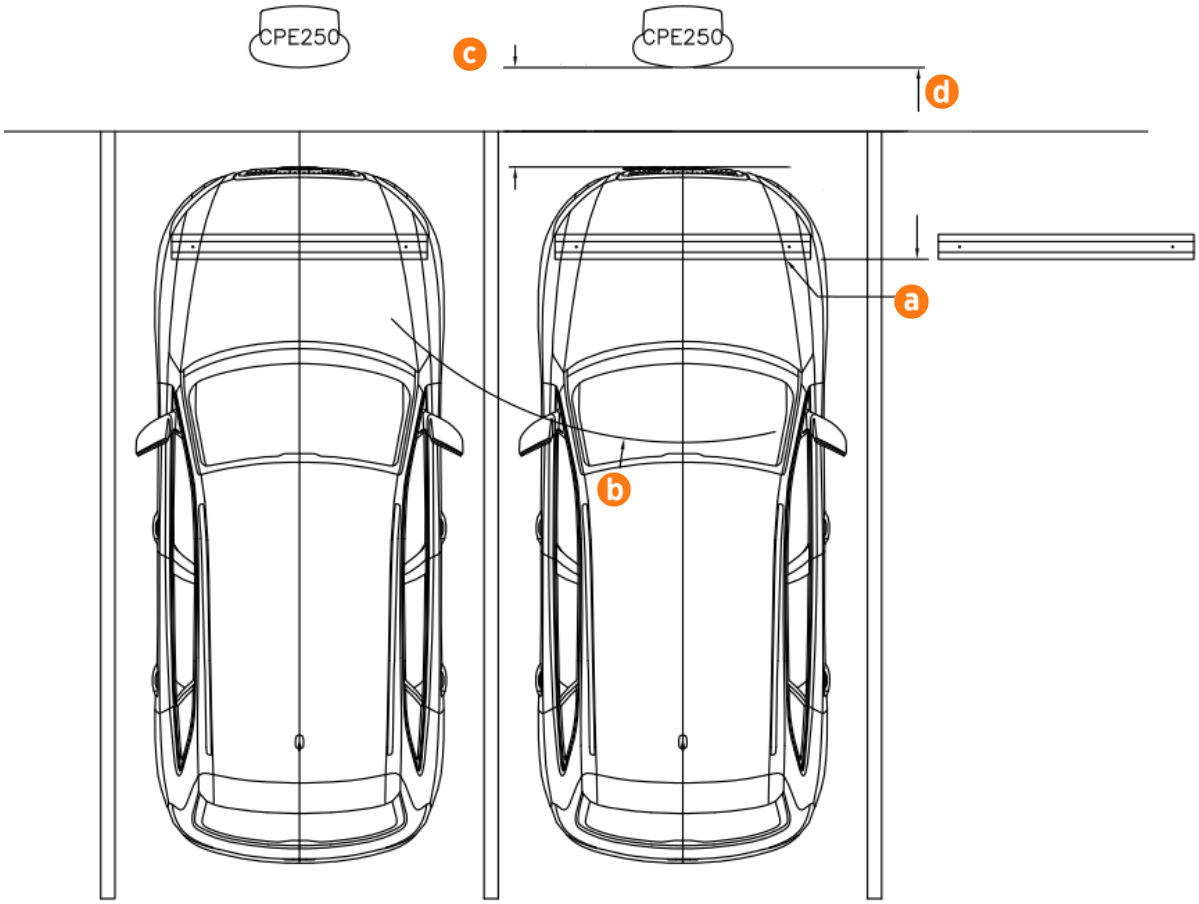
In addition to the service clearances listed in the "Clearances" section, consider these figures for site layout:

- If a charging station will have a wall directly behind it, minimum rear clearance is 305 mm (12 in).
- If two Express 250 charging stations will be positioned back to back, increase the rear clearance to a shared 610 mm (24 in) for both stations to reduce exhaust recirculation.

Wheel Stops

Bollards and wheel stops are not explicitly required by ChargePoint. However, ChargePoint recommends these best practices and considerations when designing the site:

- Permanent bollards or wheel stops must not encroach upon the Power Module clearance listed in the clearance diagram above. Removable bollards are allowed if service personnel have the ability to move them as needed.
- Where permitted by code, wheel stops are preferred over bollards for head-in or back-in spaces.
- When using wheel stops, consider the average vehicle overhang distance from tire to bumper (passenger, bus, etc.), as well as leaving space for the driver to walk up and access the touchscreen. General recommended distances are shown in the wheel stop image below.
- Position wheel stops to actively block at least one wheel, without presenting a trip hazard to pedestrians walking between vehicles.



a. Wheel stop, positioned to actively block at least one wheel

b. Cable reach radius: 3.76 m (148 in)

c. Recommended distance for walk-up access: 609 mm (24 in)

d. Recommended distance between wheel stop and Express 250: 1371 mm (54 in) for passenger vehicles

CAUTION: Shorter wheel stops that are installed in the center of a parking spot can fit between the wheels of a larger vehicle and not prevent forward motion.

Note: For fleet or commercial use, measure the rear or front overhang of the largest vehicle in use, depending on charge port location.

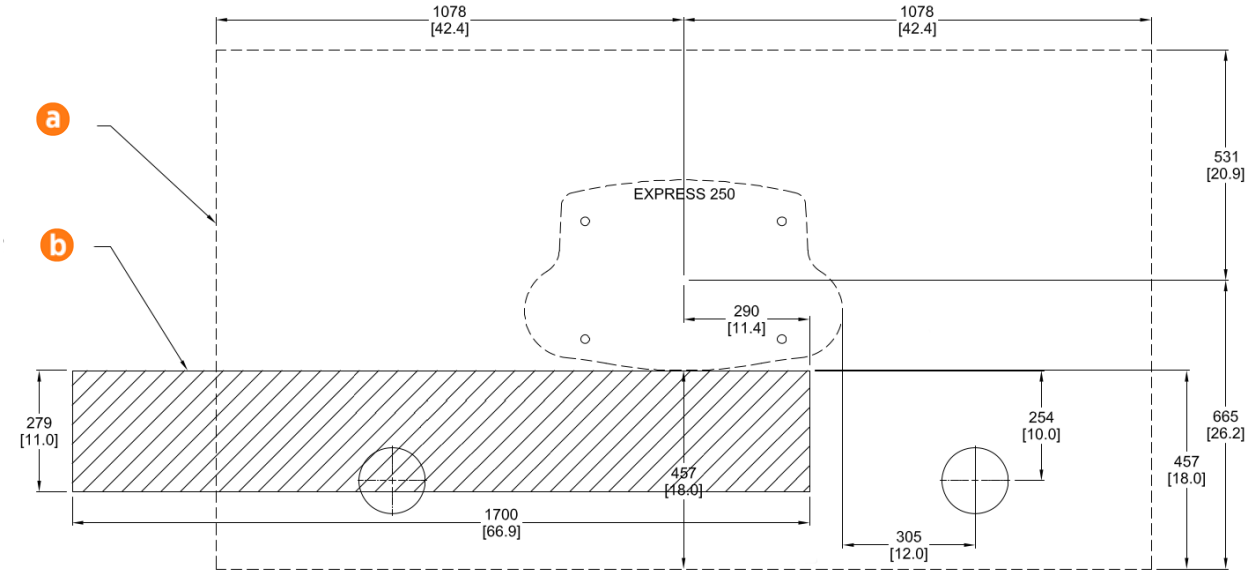
Bollards

Bollards and wheel stops are not explicitly required by ChargePoint. However, ChargePoint recommends these best practices and considerations when designing the site:

- Permanent bollards or wheel stops must not encroach upon the Power Module clearance listed in the clearance diagram above. Removable bollards are allowed if service personnel have the ability to move them as needed.

- Where permitted by code, wheel stops are preferred over bollards for head-in or back-in spaces.
- When bollards are required by code, needed for snowy areas, or needed for curbside spaces, ensure bollard placement does not interfere with removing and replacing charge cables in the station's side holsters. General recommended distances are shown in the bollard images below.
- Try to minimize bollard interference with the movement of charge cables between the station and the vehicle. Bollards are recommended to be no taller than 914 mm (36 in) where needed.
- No bollard can be placed within 457 mm (18 in) of the station, as measured on-center.

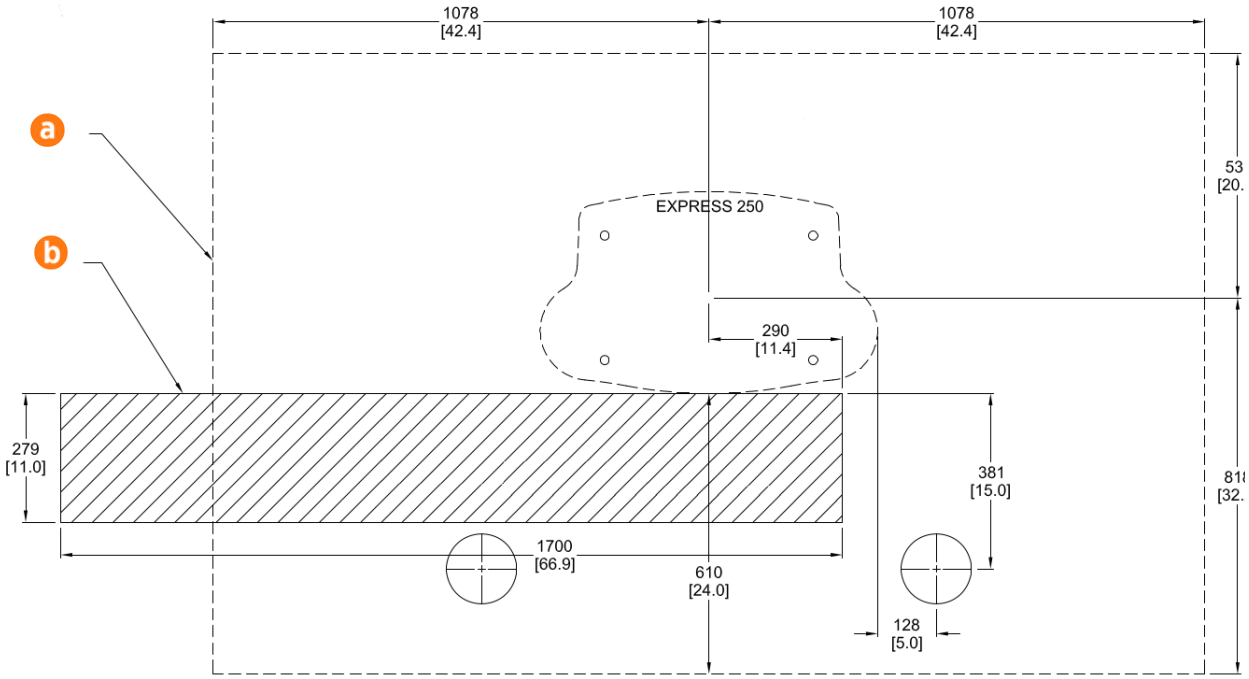
Curbside bollard installation:



a. Use and service clearance of open space (not necessarily at grade)

b. Unobstructed front service clearance at grade

Head-in or back-in space bollard installation:



Pairing Previously Installed Charging Stations

If all site construction for paired charging is completed in advance, Express 250 stations can be initially installed as Standalone and paired at a later date. In that case, follow these additional steps:

- During initial site construction, install DC and communication conduit or ducting (as applicable by region) in advance.
- Extend side clearance at both DC conduit stub-up locations to 1.2 m (4 ft) to allow space for cable pulling equipment.
- Run a pull rope through the larger DC conduit before landing the charging stations. Do not pull DC cable in advance, as it is too thick to hide inside the cover panels without risking damage or unwanted electrical contact.
- Install a fishing tape in the smaller communication conduit to assist with routing the Ethernet cable later. If Ethernet is pulled in advance, leave 317.5 cm (125 in) of wire above grade at each end.
- Use duct seal compound to seal the ends of the DC and communications conduit stub-ups. Seal the ends of the fishing tape to hang outside the conduit.
- Install the cover panels and extrusions on the Express 250 stations over the stub-ups as normal.

By only connecting AC wiring (and shunt trip if applicable), each Express 250 can perform as a Standalone station until the station owner is ready to pair them. At a later time, the stations can be paired by installing DC conductors, connecting Ethernet communication, and performing a firmware update if required. Refer to the *Express 250 Installation Guide* for further details.

Once two Express 250s are correctly paired, operation of both stations is inhibited if Ethernet

connectivity is lost or one station loses power. This is a safety feature to prevent one Paired station from accidentally powering the other during maintenance.

WARNING: Do not connect DC power between the charging stations until both stations are ready to complete the full pairing configuration. Station firmware updates are required to enable full Paired behavior. Connecting power before the charging station is properly configured can create a safety risk or can damage equipment.

Accessibility

The Express 250 touchscreen and charging cables are accessible at a height of less than 1219 mm (48 in) from the ground. This complies with American Disability Act (ADA) requirements, if the station is installed at grade. If your installation must comply with ADA standards, or the disability access regulations for other regions, consider this when designing the height of the pad.

Also consider site design factors such as placement of bollards, wheel stops, or other vehicle obstacles when planning charging station access for disabled parking stalls. Check disability access regulations for guidance on the clearances needed for wheelchair access to charging cables and user interfaces.

Signage

Refer to local and regional code to design the following elements for the site:

- Any required re-striping of parking spaces
- EV or Accessible EV signs
- EV or Accessible EV paint markings on and around the parking spaces

Electrical Design 3

The default Express 250 installation requires service wiring to be installed underground. (If a site requires surface mounting, contact ChargePoint before beginning work, to obtain an approved surface installation method.) Conduit and wire size are determined based on the length of runs from the electrical panel to the station location. Service wiring must be run through conduit or ducting, or use armored cable, as required to comply with local electrical codes. Consult national and local codes or a project engineer to determine the grade, quality, and size of the conduit or cable. The ChargePoint Concrete Mounting Template (CPE250-CMT) accommodates service wiring through the flare, conduit, or locally appropriate wiring method.

Note: All wiring and conduit is supplied by the contractor unless otherwise indicated.

Note: It is possible to pre-install Express 250 charging stations as Standalone initially and pair them at a later date, if desired. In this case, install the DC and Ethernet conduit per Pairing Previously Installed Charging Stations (page 14), and run a pull rope through the conduit before landing the charging stations. Contact ChargePoint for instructions to pair two charging stations when ready.

Upstream Components

Charging stations are considered continuous load devices (EVs draw maximum load for long durations). Therefore, electrical branch circuits to EV chargers must be sized at 125% of the load on each leg of a 3-phase panel for North America installations, in accordance with National Electric Code requirements. For other regions, refer to local code.

When planning multiple EV charging stations, it is best practice to segment non-continuous and continuous loads, with all branch circuits for EV charging on a dedicated electrical panel assembly with adequate circuit breakers. When sizing new electrical panels dedicated for EV charging, all branch circuits must support continuous load.

Each Express 250 requires a service panel breaker as follows:

Nominal Voltage	Max AC Current	Circuit Breaker Size
400 VAC (EU)	96 A	125 A
480 VAC (NA)	80 A	100 A (125% continuous load required for N. America)

The Express 250 does not contain an internal breaker. Therefore, its KAIC rating (KiloAmps

Interrupt) is related to the station's upstream breaker.

CAUTION: The Express 250 charging station is tested to IEC 61000-4-5, Level 5 (6 kV @ 3000 A) standards. In geographic areas that experience frequent thunderstorms, supplemental surge protection must be installed at the service panel to guard against product damage.

Transformer Configuration

Refer to the following tables to configure electrical service.

	North America	Europe
Input Rating	480 VAC, 3-phase, 80 A, 60 Hz	400 VAC, 3-phase, 96 A, 50 Hz
Electrical Service Configuration	277/480 4 wire WYE*	230/400 Y, L1, L2, L3, N, Ground
Product Connection	3-phase 480 plus ground (neutral not required)	3-phase 400 plus protective earth (neutral not required)

**Delta (floating or grounded) is not supported*

AC Disconnect Switch

A local AC disconnect switch, separate from the shunt trip wiring, is recommended to be installed between each charging station and the electrical panel. This is especially important if the main electrical panel or utility room is distant, out of line of sight, or has restricted access. For North America installations, refer to disconnect switch requirements per NEC Article 625, "Electric Vehicle Charging and Supply Equipment Systems".

WARNING: If service is performed on either Paired charging station, both stations must be powered off at their AC disconnect switch(es) and locked out/tagged out for safety.

Do not install a DC disconnect between Paired charging stations.

RCD Use

The use of an RCD is not recommended. RCD use can create nuisance tripping, especially during transient conditions such as power restoration, line surge, line dips, or phase loss.

To reduce the risk of shock, the Express 250 provides:

- Galvanic (reinforced) isolation between the AC input and DC output. Current does not flow to earth ground, even in cases such as charge cable damage.
- An output isolation monitor interrupter (IMI).

If the isolation level is compromised, charging is halted or prevented from starting, and the output

de-energized. The isolation monitor operates continuously during charging to ensure the output is always galvanically isolated. UL 2231-1 requires that an isolation monitor interrupter (IMI) is provided in the product and evaluated during operation as part of certification testing.

Although RCD/GFCI use is required in mode 1,2,3 AC charger installations, neither UL nor IEC mandate an RCD for a permanently installed mode 4 isolated output DC charger.

RCD Settings

For Standalone Express 250 installations where the use of an RCD (RCCB or RCBO) cannot be avoided, use the following settings to minimize nuisance trips:

- Type: A, F or B (type B and F preferred)
- Trip threshold: 500 mA
- Trip delay: 150 ms

If an RCD must be employed for a Paired installation, contact ChargePoint.

Region Specific Notes: UK

When discussing DC charging station installations with a UK DNO (utility), include these two considerations:

- Where possible, request TN-S earthing from the DNO (distribution network operator)
- The Express 250 represents a Class I construction, balanced 3-phase load greater than 500 W

Either statement allows UK DNOs to provide a PME earth terminal and avoids the requirement for a TT earthing arrangement and associated (300 mA) RCD. The second statement meets the clause in the IET Code of Practice for EV Charging Equipment Installation, 3rd Edition that allows the DNO to provide a PME connection for “on the street equipment”.

Installations at petrol stations are a special case that requires additional site planning. Contact ChargePoint for more information.

Grounding/Earthing Requirements

- The Express 250 must be connected to a grounded, metal, permanent wiring system.
  - North America: A grounded service neutral conductor must be run with circuit conductors and connected to an equipment-grounding terminal on the Express 250.
  - Europe: Use TN-S or TN-C-S configurations. (TT is not recommended because it requires RCDs.)
- Ensure a grounding conductor that complies with local codes is properly grounded to earth at the service equipment or, when supplied by a separate system, at the supply transformer.

Shunt Trip Wiring

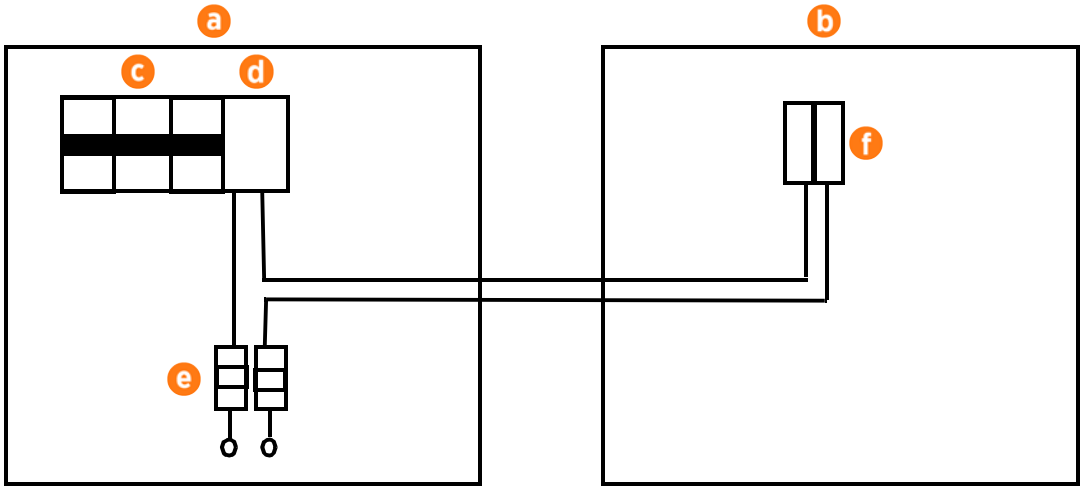
ChargePoint advises against installing an emergency stop (E-stop) button on charging stations. Drivers can unintentionally trip the emergency shutoff, causing inconvenience and downtime to site hosts. However, wiring to enable a remote shunt trip is standard on each Express 250. This shunt trip wiring is activated when unsafe conditions are detected, such as a missing cover panel or a severe impact. All shunt trip behavior is already hard-coded into the charging station and has no programmable variables.

The Express 250 provides a set of unpowered (dry pair) contacts near the AC input terminals, to connect to a shunt trip device. These contacts are rated to 440 VAC and 5 ARMS.

When a shunt trip is used, select a breaker with a shunt trip that is within the contact rating of the Express 250 shunt trip contacts. Common ratings available for shunt trips are 12, 24, or 48 VDC, or 110-240, 400 VAC depending on the installation region. 480 VAC rated shunt trips may not be used.

Follow the installation guide provided by the breaker or shunt trip vendor. Control power is derived at the electrical panel.

Note: For Paired charging stations, wire the connections so that a shunt trip activation on either station trips the breakers of both Paired stations.

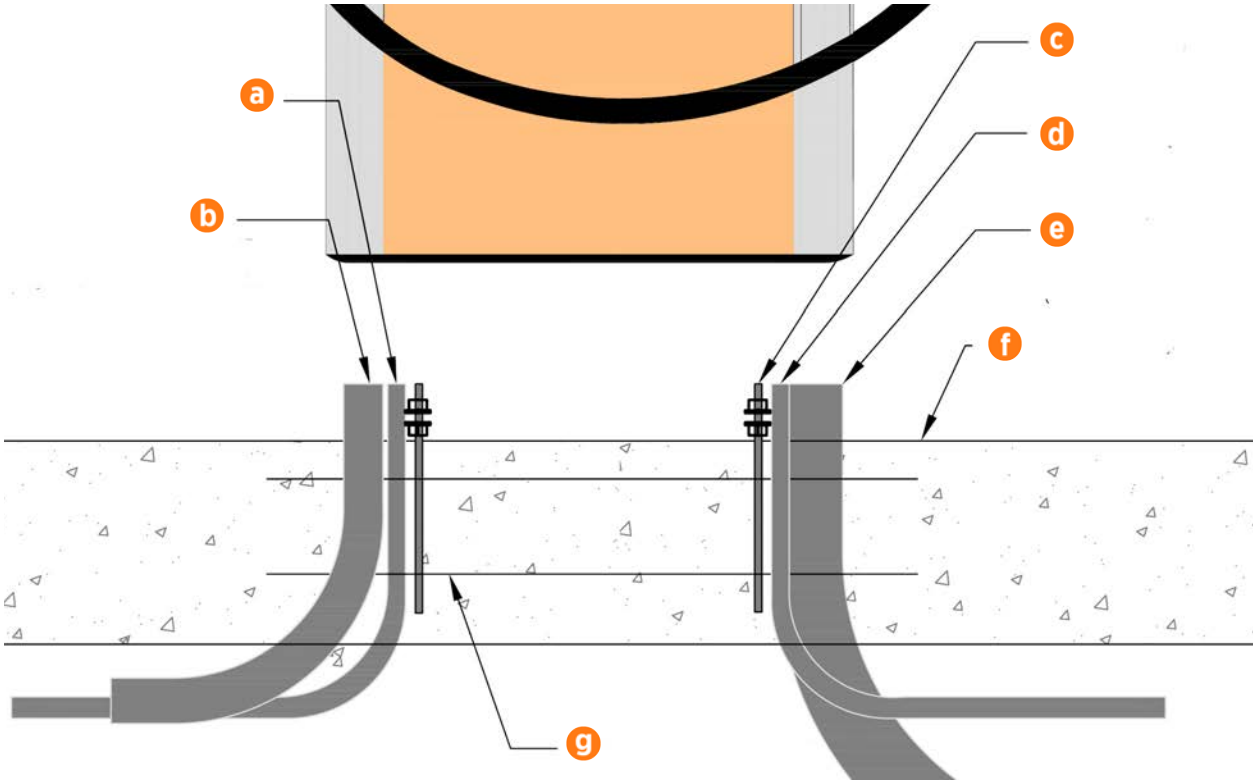


a. Electrical panel
b. Express 250
c. Circuit breakers
d. Shunt trip
e. Control power (fused)
f. Express 250 shunt trip terminal block (near AC terminals)

Conduit

The outer diameter of conduit or armored cable must not exceed the sizes called out in the conduit layout drawing below. Conduit stub-ups cannot extend higher than 76.2 mm (3 in) above the surface of the concrete pad.

In regions that do not use conduit, armored cable may be laid in the same configuration to conform to the wire placement as shown in the section, "The Express 250 Concrete Mounting Template (page 27)". Ensure a length of at least 61 cm (2 ft) is left free above grade at each end to allow the wiring to reach the charging station AC terminals.



a. Shunt trip conduit: 19.1 mm (3/4 in trade size)
b. AC conduit: 50.8 mm (2 in trade size)
c. Anchor bolts
d. Paired installations only: Ethernet conduit: 19.1 mm (3/4 in trade size)
e. Paired installations only: DC conduit: 76.2 mm (3 in trade size)
f. Concrete surface
g. Concrete Mounting Template (embedded in concrete)

Note: Ensure no bell ends are left on any conduit after all wires are pulled. Bell ends can interfere with station placement.

Note: Depth of conduit or armored cable may vary by site. The image above does not dictate conduit depth, as long as the stub-ups are vertical and placed correctly.

Wiring Requirements for Standalone Stations

Important: The AC terminal blocks on the Express 250 accept a maximum wire size of 35 mm^2 (2 AWG) solid or stranded wires. If using a larger gauge wire to accommodate a long run, reduce the wire size at the local external disconnect.

For full product specifications, refer to the *Express 250 Data Sheet*. Using that data, ensure that the installation location is equipped with service wiring that supports the Express 250's power requirements:

- Neutral conductor as required by region (a Neutral connection is not required for equipment operation and the terminal is provided for convenience only)
- Shunt trip wiring: size 0.08 to 2.5 mm^2 (28 to 14 AWG), fine stranded or solid
- AC conductors (L1, L2, L3) and ground per the following specifications:

Voltage Rating	Temperature Rating	Maximum Conductor Size for Terminals
EU non-armored: 600/1000 V	90°C	35 mm^2
EU armored: 600/1000 V	90°C	35 mm^2 multi-core
NA: 600 V	90°C	2 AWG

Additional Wiring Requirements for Paired Stations

Important: The DC terminal blocks on the Express 250 can accept a maximum wire size of 120 mm^2 (4/0 AWG). Check site plans and local code for site-specific requirements.

For stations that will be installed as Paired, follow all AC wiring requirements above as well as the following additional wiring.

Note: Be sure to acquire, or alert the installer to acquire, lugs in advance of the site visit. Contact ChargePoint in advance if help is required to obtain lugs.

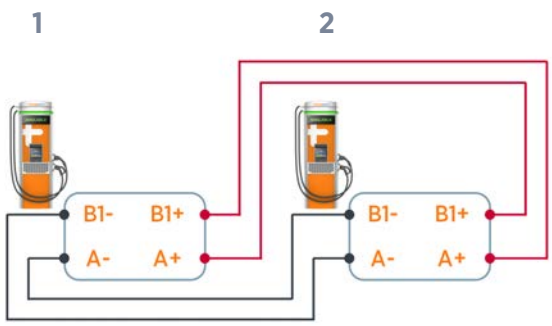
- Ethernet wiring for DC:
  - Minimum of CAT5e or better
  - Outdoor or plenum rated wiring
  - Maximum run length of 100 m (328 ft)
  - Leave 3.2 m (10.5 ft) of wire above grade at each end
  - Field crimp using straight-through pattern 568B

- DC conductors (x4):

Voltage Rating	Temperature Rating	Maximum Conductor Size for Terminals	Insulation Type
EU non-armored: 600/1000 V	90°C	120 mm^2	XLPE
EU armored: 600/1000 V	90°C	120 mm^2 4-core and cable gland sized to local code (such as Cablecraft CCG-CW50 or similar)	XLPE
NA: 1000 V	90°C	4/0 AWG	XHHW-2

  - **NOTE:** 95 mm^2 (3/0 AWG) is sufficient for most sites unless ambient temperatures are >= 40°C per regional code (ASHRAE Table D101 Summer Dry Bulb Temperature for North America or IEC 60364-5-54 in Europe)
  - 2 positive and 2 negative conductors; 1 positive and 1 negative in each direction
  - USA/Canada: Copper only, minimum current carrying capacity 160 A
  - EU/UK: Rated at 1000 V conductor to conductor (+/-500 V conductor to ground, LV), copper only, minimum current carrying capacity 160 A
  - DC cable run must be continuous, with no joints or splices
  - Consult site drawings for site-specific conductor size and length (Appendix A provides conductor size calculation examples for reference)
  - Leave 61 cm (2 ft) of each conductor above grade at each end
- DC lugs (x4):
  - Silver plated copper compression lug (2-hole specified for North America); tin plated is acceptable if used with dielectric grease
  - Holes for an M6 (1/4 in) stud at 19 mm (3/4 in) stud hole spacing
  - Maximum width 30 mm (1.18 in)
  - **NOTE:** 95 mm^2 (3/0 AWG) is sufficient for most sites unless ambient temperatures are >= 40°C per regional code (ASHRAE Table D101 Summer Dry Bulb Temperature for North America or IEC 60364-5-54 in Europe)
  - North America lug size: 3/0 or 4/0 AWG
  - Example UK/EU lugs for average conductor size are Weidmuller 1494410000 120 mm^2 or similar (always review the lug manufacturer's instructions for crimper tool and die compatibility)
  - Contact ChargePoint if the installer requires lugs for 3/0 (kit 99-002644) or 4/0 (kit 99-002645) conductors

When DC conductors are pulled through conduit, label each end of each DC conductor to aid installation as follows:



- “Station 1 A+” on one end and “Station 2 B1+” on the other end
- “Station 1 A-” on one end and “Station 2 B1-” on the other end
- “Station 1 B1+” on one end and “Station 2 A+” on the other end
- “Station 1 B1-” on one end and “Station 2 A-” on the other end

CAUTION: Be sure to connect positive to positive, and negative to negative, on the same wire. Do not reverse the polarity.

Wiring Diagram

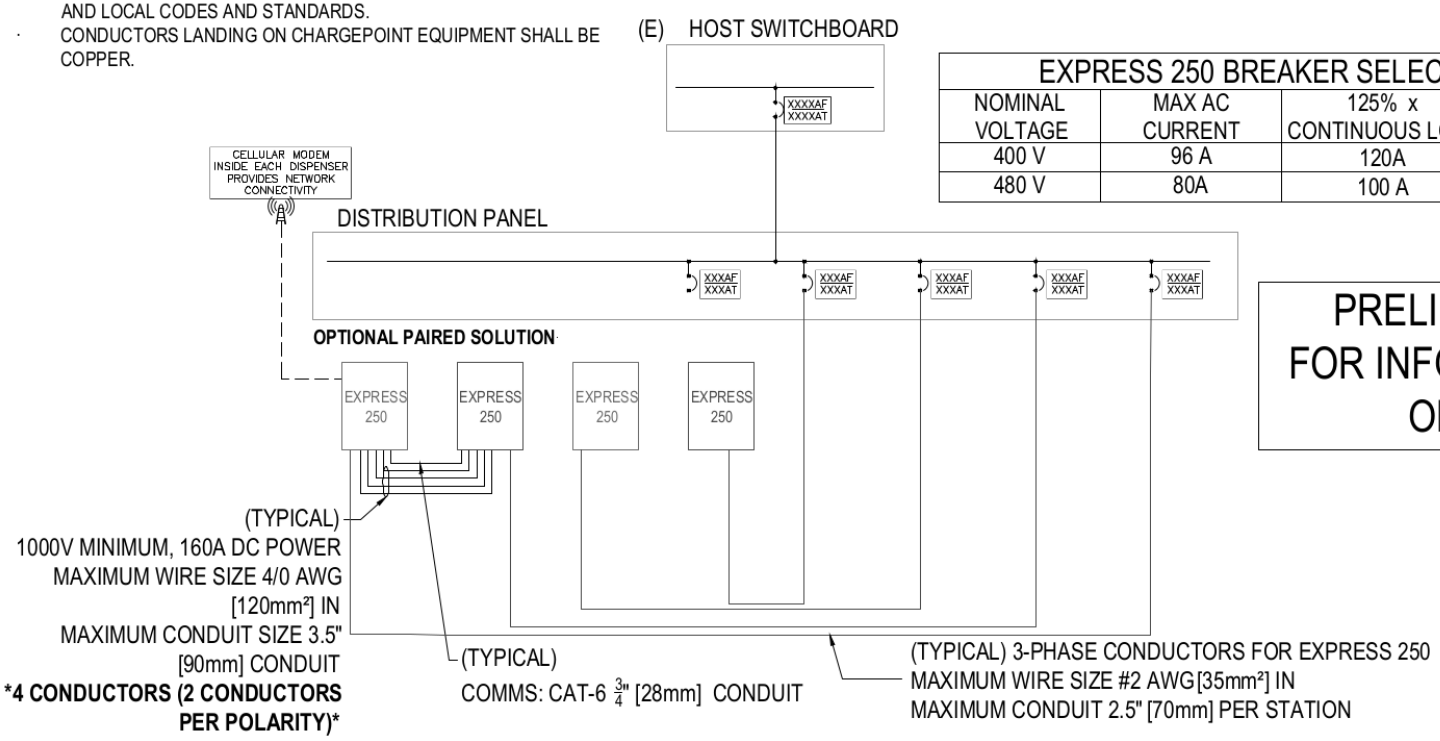
GENERAL NOTES:

- ALL OCPDS, CONDUCTOR AND CONDUIT SIZES STATED HERE ARE PROVIDED BY CHARGEPOINT FOR REFERENCE ONLY. SITE SPECIFIC WIRE SIZING SHALL BE PERFORMED BY THE INSTALLATION CONTRACTOR TAKING INTO ACCOUNT SITE SPECIFIC CONDITIONS AND LOCAL CODES AND STANDARDS.
- CONDUCTORS LANDING ON CHARGEPOINT EQUIPMENT SHALL BE COPPER.

NOTES: EXPRESS 250

- 1 SET OF PAIRED EXPRESS 250'S, EACH CONTAINING (2) 31.25KW POWER MODULES
- 2 x EXPRESS 250 EACH CONTAINING (2) 31.25KW POWER MODULES

EXPRESS 250 BREAKER SELECTION			
NOMINAL VOLTAGE	MAX AC CURRENT	125% x CONTINUOUS LOAD	BREAKER SIZE
400 V	96 A	120A	125 A
480 V	80A	100 A	100 A



PRELIMINARY
FOR INFORMATION
ONLY

Cellular Connectivity

A consistently strong cellular signal is needed before installers can activate the station. Do not rely on cell phone applications to measure cellular signals when conducting site surveys. Ensure the signal at the installation site is consistently strong. If RSRQ is measured at -10 dB or better, then RSRP can be -90 dBm or better. If RSRQ cannot be measured or is not adequate, RSRP must be -85 dBm or better.

Note that these numbers are all negative, so -70 dBm is stronger than -85 dBm, and -90 dBm is weaker. Use a cellular signal detection device (such as a Snyper, Octopus, or equivalent) to take signal strength readings at the exact proposed charging station locations.

If the signal is below -85 dBm, take cellular readings at the location where a cellular signal booster antennas will be installed, to ensure enough signal exists to be boosted. Install repeaters to boost the strength of the cellular signals. Repeaters are often required when installing charging stations in an underground garage or enclosed parking structure.

When repeaters are needed to boost signal, ChargePoint strongly recommends installing multi-carrier and multi-band units where allowed by local code. Weak or sporadic signal can affect crucial aspects of the charging station, including: accuracy in reporting, ability for drivers to use their mobile app, ability for customer support to troubleshoot problems, and support for advanced features such as Power Management or Waitlist. Strong signal is also required for the Assure maintenance and management program.

Note: Do not use microcells or femtocells, as they are inadequate for this use case.

In the US, the Express 250 supports AT&T 4G/LTE. There must be viable AT&T signal on one or more of the supported bands listed below. For other regions, contact your ChargePoint representative for more detail on carrier support.

- LTE 1900 (B2)
- LTE 1700 (B4)
- LTE 850 (B5)
- LTE 700 (B17)
- LTE 700 (B13)

4 The Express 250 Concrete Mounting Template

The Express 250 is a DC fast charging station for electric vehicles. The default Express 250 installation requires service wiring to be installed underground and run to a concrete pad. (If a site requires surface mounting, contact ChargePoint before beginning work, to obtain an approved surface installation method.) The ChargePoint Express 250 Concrete Mounting Template (CPE250-CMT) correctly aligns anchor bolts and conduit openings to ensure the Express 250 can be easily installed and connected.

WARNING: Use of a ChargePoint approved mounting method, such as the CPE250-CMT, is required for safe installation of the Express 250. Failure to use an approved mounting method may result in a risk of tip-over, which can cause death, personal injury, or property damage, and will void the Limited One-Year Parts Exchange Warranty.

The CPE250-CMT, available from ChargePoint, includes:

- 16 mm (5/8 in)-11 thread, 305 mm (12 in) long threaded mounting bolts with plastic caps on one end
- 16 mm (5/8 in) nuts
- 16 mm (5/8 in) washers
- Printed specification detailing how to position an assembled CPE250-CMT in the concrete

Note: You must order the CPE250-CMT separately, with sufficient lead time before the site preparation. This kit is not included with the ChargePoint Express 250 charging station.

Bring Tools and Materials

In addition to the CPE250-CMT kit, the site construction team needs:

- Digging tools (shovel, spade, etc.)
- Materials to prepare the form for pouring concrete
- Concrete as specified by site drawings
- Rebar as specified by site drawings
- 24 mm (15/16 in) wrench (x2)
- Pliers to adjust the guide fingers on the CMT conduit openings (if needed)
- Level
- Cut-resistant gloves
- Conduit, ducting, or armored cable in the amounts and types specified by site drawings, that complies with local code (see the rest of this document for conduit sizes and routing)

CPE250-CMT Overview

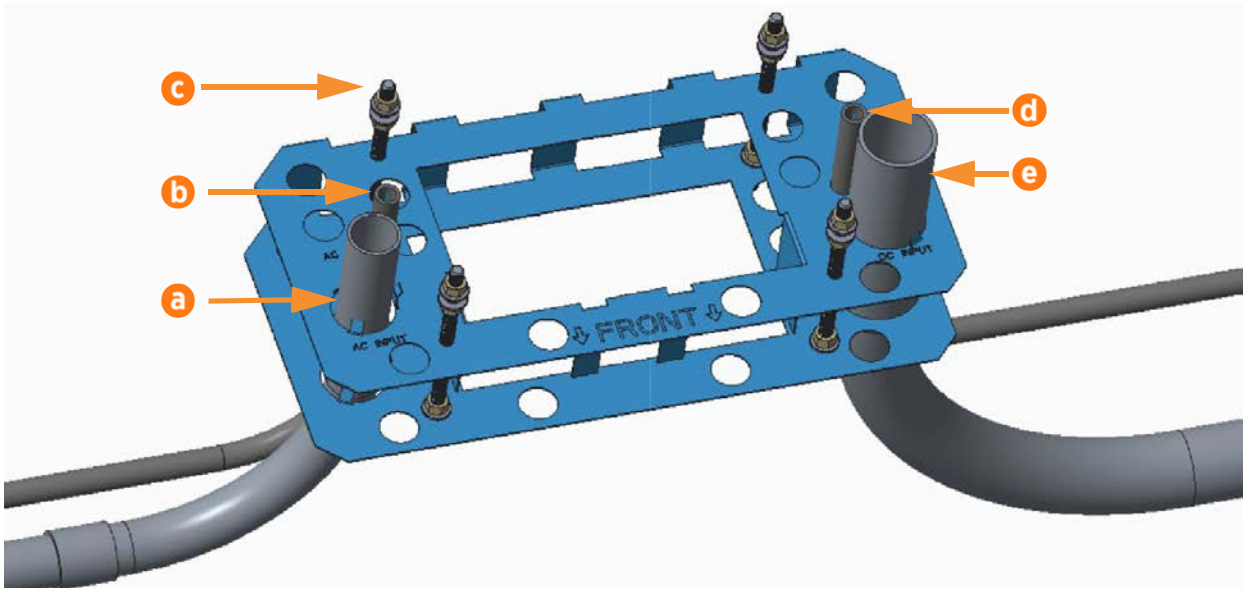
The Express 250 is a DC fast charging station for electric vehicles. It converts three-phase power from its associated building (callout a in the image below) to DC power to charge the vehicle. A ground conductor also runs in conduit a. Shunt trip wiring (b, optional) is run from the station to the breaker panel to automatically shut down the station if a fault or hazard is detected, such as a damaged cover panel or impact from a vehicle.

If two Express 250 stations are “paired”, they share DC power to allow faster (higher amperage) charging to a vehicle as needed. In this case, DC conductors (d) are run between the stations, as is an Ethernet wire (c) for communication.

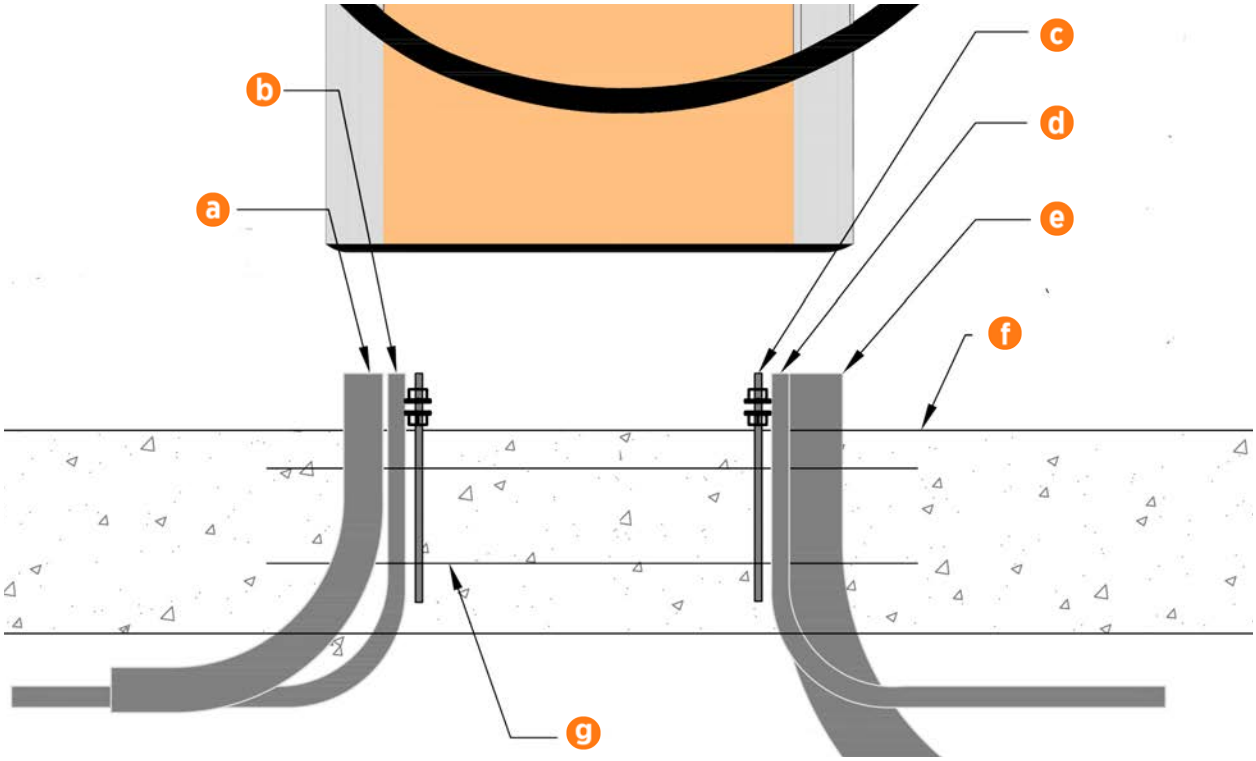
Note: Each Express 250 communicates with ChargePoint using a cellular network. No communication wiring is needed between the station and the building.

An assembled CPE250-CMT template is shown below with the positions of all conduit and anchor bolts.

Note: A separate CPE250-CMT is required for each charging station (two per Paired installation).



a. AC conduit
b. Shunt trip conduit
c. Anchor bolts (x4)
d. Ethernet conduit (Paired installations only)
e. DC conduit (Paired installations only)



a. AC conduit from the left side of each station to the breaker panel (possibly with an AC disconnect switch in the circuit): 50.8 mm (2 in trade size)

b. Shunt trip conduit from the left side of each station to the breaker panel: 19.1 mm (3/4 in trade size)

c. Anchor bolts (x4)

d. **Paired installations only:** Ethernet conduit between the two stations to be paired, right side to right side: 19.1 mm (3/4 in trade size)

e. **Paired installations only:** DC conduit between the two stations to be paired, right side to right side: 76.2 mm (3 in trade size)

f. Concrete surface

g. Concrete Mounting Template (embedded in concrete)

Note: Ensure no bell ends are left on any conduit after all wires are pulled. Bell ends can interfere with station placement.

Note: Depth of conduit or armored cable may vary by site. The image above does not dictate conduit depth, as long as the stub-ups are vertical and placed correctly.

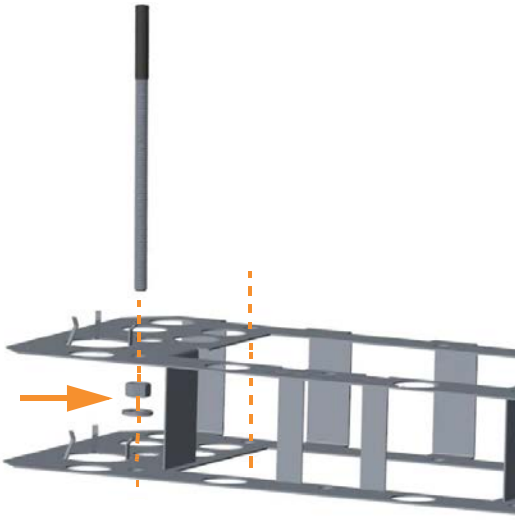
Assemble the CPE250-CMT

CAUTION: The CPE250-CMT can have sharp edges. Wear cut-resistant gloves.

Important: Although the CPE250-CMT was originally designed for six anchor bolts, only the four corner anchor bolts are required for station stability. Newer charging stations are designed to only use the four corner anchor bolts.

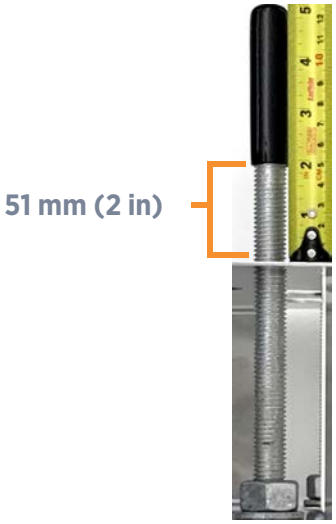
Before pouring concrete, assemble the CPE250-CMT with its anchor bolts, washers, and nuts.

1. Holding a mounting bolt by its plastic cap, insert the bare end into a corner bolt hole in the top plate of the template.
2. Before inserting the bolt through the bottom plate of the template, thread a nut onto the bolt and add a washer as shown.
3. Ensure the plastic cap is pressed fully down on the bolt.

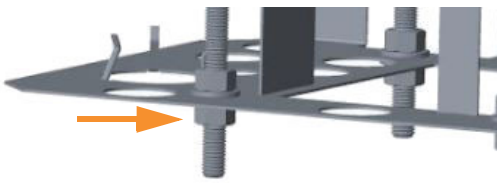


4. Holding the bottom nut and washer flush against the top surface of the bottom plate, thread the bolt onto the nut until the distance between the bottom of the plastic cap and the surface of the top plate is 51 mm (2 in).
5. Repeat Steps 1 to 4 for the remaining three corner bolts.

   Note: Do not insert bolts into the center two holes. Only the four corner bolts are required for system stability.



6. Secure a second washer and nut onto the bottom of each bolt until it is flush with the bottom surface of the bottom plate. Torque each nut to 5.6 Nm (50 in-lb).



Install the CPE250-CMT

WARNING: Failure to install the ChargePoint® charging station in accordance with these instructions and all local building practices, climate conditions, safety standards, and all applicable codes and ordinances may lead to risk of death, injury, or property damage, and will void the Limited One-Year Parts Exchange Warranty.

1. Trench and excavate an opening to accommodate the wiring conduit and the concrete mounting pad that meets local codes and requirements, per site drawings.
2. Run conduit to each station as needed. If the stations will be Paired, run DC and Ethernet conduit between stations as well.
3. Build the form and lay rebar for the foundation.

Important: It is critical that the conduits are positioned properly and plumb. The tolerance where the conduits enter the station is 2 mm (1/16 in).

4. On the CPE250-CMT, locate the “FRONT” marking and the conduit guide fingers. Position the conduit guide fingers facing up.
5. Place the assembled CPE250-CMT so that the “FRONT” marking aligns with the specified front of the station.
6. Slide the CPE250-CMT over the conduit stub-ups until the top surface of the template is positioned 50.8 mm (2 in) below where the top surface of the concrete will be when poured. The surface of the concrete must align with the bottom of the plastic caps.
   - Carefully press the CPE250-CMT down onto the conduit to avoid flexing it.
   - Ensure the conduits are plumb.
   - Use a level to check that the CPE250-CMT is level from front to back and from side to side.
7. Tie or shim the CPE250-CMT to the rebar to prevent movement during concrete pouring.

Important: Before pouring concrete, the CPE250-CMT and the conduit must be secured in place to prevent them from rising or floating out of position while the concrete is poured and curing.

8. Pour the concrete.

   Note: Make sure the concrete surface between the conduits is completely level and free of any irregularities.

9. Complete the *Construction Signoff Form* provided by ChargePoint to verify that the site is correctly completed and ready for product installation.

Examples of Express 250 Paired Wire Sizing

A

The required DC wire gauge varies based on the specific site. Use these example scenarios to help you determine the correct wire gauge for your site.

Important: These scenarios are only examples, and are not intended to replace an assessment by a local electrician. Always follow all applicable local and national codes and requirements. A site drawing should be engineered for your specific site to reduce installation costs and ensure compliance with local codes.

DC Interconnection, Example Calculation: Newark, NJ

Assumptions:

- Breaker and equipment terminal rating minimum 75°C
- Electric Vehicle Charging Equipment rated for continuous duty per Article 625.41
- Maximum 50°C ambient rating
- Installation location: Newark, NJ, USA
- 90°C rated wire required
- Maximum station DC output/input current: 160 A
- Four conductors in conduit, only two current carrying conductors

The continuous duty derating per 625.41 is 160 x 1.25, or 200 A.

From the Appendix D ASHRAE, the table summer design temperature is 91°F for Newark, NJ.

Temperature derating from 2017 NEC Table 310.15(B)(2)(a) based on 30°C the derating factor for 91°F and 90°C rated wire is 0.96 (87-95˚F row).

From the 90°C column of NEC Table 310.15(B)(16), a 3/0 copper conductor has an ampacity of 225 A.

Applying the temperature derating factor, 225*0.96 = 216 A

200 A is the minimum rated ampacity this conductor must have per the NEC to prevent potential insulation damage and provide the ability of the conductor to dissipate heat caused by the current flow. After the temperature derating calculation, the resulting 216 A is greater than the 200 A required.

A 3/0 copper conductor has an ampacity of 200 A at 75°C, which is the ampacity column required for equipment rated 100 A or greater per NEC 110.14(C)(1)(b). If, following the derating from the 90°C column, the resultant ampacity of the 3/0, 90°C wire is equal to or greater than the ampacity rating of the same size conductor in the 75°C, the conductor is permitted.

From NEC table 310.15(B)(16) in 90°C column, after the derating, the 3/0 conductor ampacity is 216 A which is greater than the minimum required 200 A. Thus the permitted copper conductor size is 3/0.

The permission to use the 90°C ampacity for ambient temperature adjustment comes from the general requirement in 110.14(C); Conductors with temperature ratings higher than specified for terminations shall be permitted to be used for ampacity adjustment, correction, or both.

AC Mains Input Wiring, Example Calculation: Phoenix, AZ

Assumptions:

- Breaker and equipment terminal rating minimum 75°C
- Continuous duty equipment
- Maximum 50°C ambient rating
- Installation location: Phoenix, AZ, USA
- 90°C rated wire required
- 480 VAC Input, 3 phase, no neutral
- Maximum station AC input rating: 80 A
- Three current carrying conductors in conduit

The continuous duty derating per 625.41 is 80 x 1.25, or 100 A.

From the Appendix D ASHRAE table, the summer design temperature is 107°F for Phoenix, AZ.

Temperature derating from 2017 NEC Table 310.15(B)(2)(a) based on 30°C the derating factor for 107°F and 90°C wire is 0.87 (from the 105-113°F row).

The allowable ampacity for a #3 AWG 90°C copper conductor per NEC Table 310.15(B)(16) is 115.

Applying the temperature derating factor from Table 310.15(B)(2)(a), 115 X .87 = 100.05 A.

100 is the minimum ampacity this conductor must have per the NEC to prevent potential insulation damage and provide the ability of the conductor to dissipate heat caused by the current flow. After the derating is applied, the resulting ampacity of 100.05 A is greater than the 100 A required.

A #3 AWG copper conductor is rated at 100 A at 75°C, which is the ampacity column required for equipment rated 100 A or greater per NEC 110.14(C)(1)(b). However in this case, the equipment is only rated to 80 A. Since the equipment is listed and identified with a 75°C termination rating, we can use NEC Section 110.14(C)(1)(a)(3). As long as after derating from the 90°C column of table 310.15(B)(16) the resultant ampacity is equal to or greater than the ampacity rating of the conductor in the 75°C column, the #3 AWG conductor is permitted.

From NEC table 310.15(B)(16) in 90°C column, after the derating, the conductor ampacity is

100.05 A, which is greater than the minimum required 100 A. Thus the permitted conductor size is 3 AWG.

The permission to use the 90°C ampacity for ambient temperature comes from the general requirement in 110.14(C); Conductors with temperature ratings higher than specified for terminations shall be permitted to be used for ampacity adjustment, correction, or both.

Limited Warranty Information and Disclaimer

The Limited Warranty you received with your Charging Station is subject to certain exceptions and exclusions. For example, your use of, installation of, or modification to, the ChargePoint® Charging Station in a manner in which the ChargePoint® Charging Station is not intended to be used or modified will void the limited warranty. You should review your limited warranty and become familiar with the terms thereof. Other than any such limited warranty, the ChargePoint products are provided "AS IS," and ChargePoint, Inc. and its distributors expressly disclaim all implied warranties, including any warranty of design, merchantability, fitness for a particular purposes and non-infringement, to the maximum extent permitted by law.

Limitation of Liability

CHARGEPOINT IS NOT LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, PUNITIVE OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION LOST PROFITS, LOST BUSINESS, LOST DATA, LOSS OF USE, OR COST OF COVER INCURRED BY YOU ARISING OUT OF OR RELATED TO YOUR PURCHASE OR USE OF, OR INABILITY TO USE, THE CHARGING STATION, UNDER ANY THEORY OF LIABILITY, WHETHER IN AN ACTION IN CONTRACT, STRICT LIABILITY, TORT (INCLUDING NEGLIGENCE) OR OTHER LEGAL OR EQUITABLE THEORY, EVEN IF CHARGEPOINT KNEW OR SHOULD HAVE KNOWN OF THE POSSIBILITY OF SUCH DAMAGES. IN ANY EVENT, THE CUMULATIVE LIABILITY OF CHARGEPOINT FOR ALL CLAIMS WHATSOEVER RELATED TO THE CHARGING STATION WILL NOT EXCEED THE PRICE YOU PAID FOR THE CHARGING STATION. THE LIMITATIONS SET FORTH HEREIN ARE INTENDED TO LIMIT THE LIABILITY OF CHARGEPOINT AND SHALL APPLY NOTWITHSTANDING ANY FAILURE OF ESSENTIAL PURPOSE OF ANY LIMITED REMEDY.

FCC Compliance Statement

This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the manufacturer's instruction manual, may cause harmful interference with radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case, you will be required to correct the interference at your own expense.
Important: Changes or modifications to this product not authorized by ChargePoint, Inc., could affect the EMC compliance and revoke your authority to operate this product.
Exposure to Radio Frequency Energy: The radiated power output of the 802.11 b/g/n radio and cellular modem (optional) in this device is below the FCC radio frequency exposure limits for uncontrolled equipment. The antenna of this product, used under normal conditions, is at least 20 cm away from the body of the user. This device must not be co-located or operated with any other antenna or transmitter by the manufacturer, subject to the conditions of the FCC Grant.

Industry Canada

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.
Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

FCC/IC Compliance Labels

Visit chargepoint.com/labels/

Sales Order Number (SO#)
_____

Express 250 Construction Signoff Form

This form is required to ensure the site for your ChargePoint EV charging station(s) has been prepared as specified, by you or by your chosen contractor, before beginning your charging station installation. Submit this completed form, and the photos specified at the end, to **installdispatch@chargepoint.com.** The detailed data sheets, site design guides, and installation guides defining ChargePoint specifications are online at: chargepointuniversity.com.

IMPORTANT: All installations must comply with local and regional code. ChargePoint provides concrete pad guidance in the *Express 250 Site Design Guide* that is applicable for most sites; however, pad size for a given site might be smaller or larger due to site conditions. Ensure site drawings have been completed and approved by a structural engineer for this site.

Note: If the station installer arrives to install the charging station and finds these items incomplete, you will incur a separate re-dispatch fee.

Site Information	Contractor Information
Site address:	Company name:
	Site lead name:
Number of Express 250 stations to be installed:	Site lead job title:
Contact name:	Site lead email:
Contact phone:	Site lead phone:
Contact email:	Date work began:

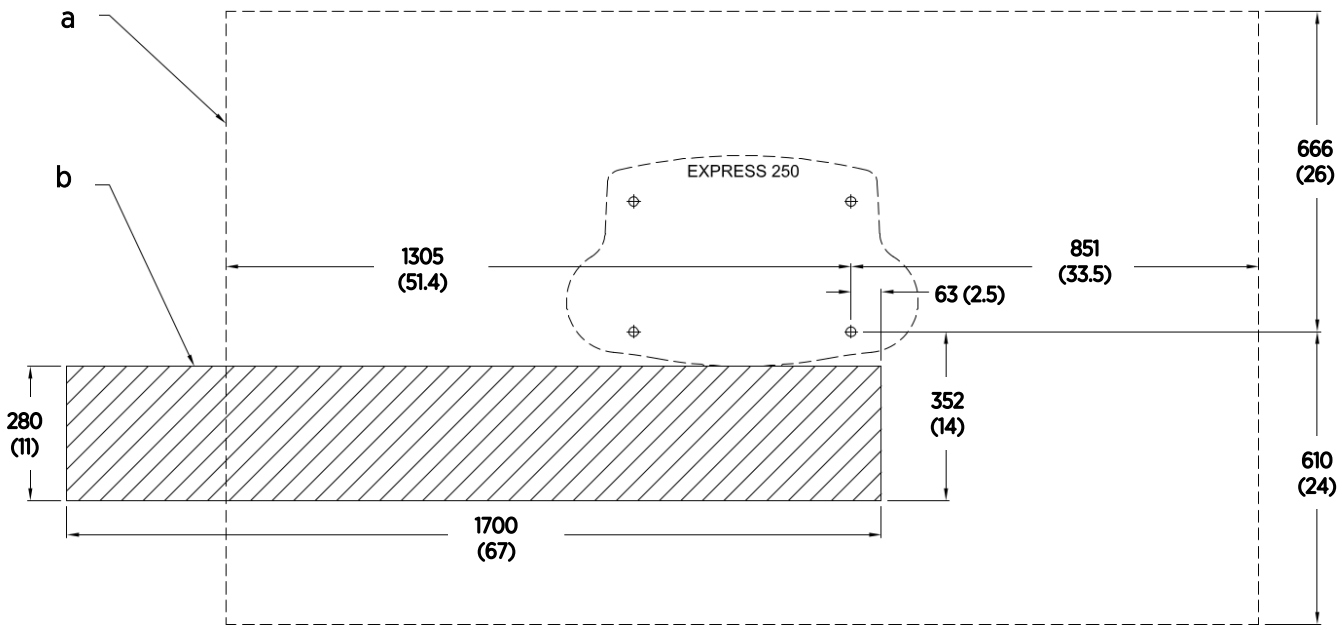
Take the following photos throughout the site construction process.

	Required Pictures
☐	1. All trenching completed and conduit/ducting laid in place
☐	2. The Concrete Mounting Template (CMT) in place with anchor bolts and conduit stub-ups correctly inserted, and the CMT held at the proper height to prevent movement during the concrete pour
☐	3. Concrete pad completed, showing anchor bolts and conduit stub-ups in place for AC and shunt trip
☐	4. **Paired only:** Conduit stub-ups (or provision for armored cable) in place for DC conductors and Ethernet
☐	5. Overall space around the concrete pad, showing all service clearances are available
☐	6. The electrical panel's specification label, to show total panel capacity
☐	7. The open electrical panel with the dead front panel removed, showing terminations
☐	8. The open electrical panel with the dead front panel on, showing breaker amperage ratings and labels for Express 250 connections
☐	9. **Paired only:** The front of each AC disconnect (if applicable by region)
☐	10. Charging station sites are positioned so that each station is centered on a parking space (unless curbside), with the front of the station facing the vehicle

Sales Order Number (SO#)
_____

Civil Work

☐	1. The concrete pad was either designed and approved by a structural engineer for this specific site, OR conforms to these specifications: • At least 305 mm (12 in) deep (or deep enough to be 305 mm (12 in) below the frost line) • At least 1296 mm (51 in) on each side • Contains #4 rebar or larger, top and bottom, 305 mm (12 in) on center • Concrete 2500 PSI minimum
☐	2. Walls, fences, or slopes do not prevent water from draining from the pad.
☐	3. The concrete mounting template (CMT) is installed in the concrete pad, 50.8 mm (2 in) below the concrete surface, with anchor bolts in place in the CMT.
☐	4. The AC conduit (max 50.8 mm/ 2 in trade size) and shunt trip conduit (max 19.1 mm/ ¾ in size) are positioned correctly in the CMT and cut down to 76.2 mm (3 in) above grade.
☐	5. **Paired only:** The DC conduit (max 76.2 mm/ 3 in trade size) and Ethernet conduit (max 19.1 mm/ ¾ in size) are positioned correctly in the CMT and cut down to 76.2 mm (3 in) above grade.
☐	6. The **service clearance** of open space (not necessarily at system grade) extends a minimum of 610 mm (24 in) beyond the station in front, 1276 mm (50 in) total front to back, 2156 mm (84.8 in) side to side centered on the station, and 305 mm (12 in) above the station (a).
☐	7. The front of the station has 352 mm (14 in) of space **at grade** from the front right anchor, extending 1700 mm (67 in) to the left, without any permanent obstructions (bollards, wheel stops, etc) (b).
☐	8. Charging station sites are positioned so that each station is centered on a parking space (unless curbside), with the front of the station facing the vehicle.
☐	9. The charging station is at least 305 mm (12 in) from any wall as its rear clearance. Stations positioned back to back are no closer than 610 mm (24 in) shared clearance.
☐	10. All signage, parking spot striping, and “EV” markings are completed per site drawings and local code.



Sales Order Number (SO#)
_____

Electrical Work

☐ 1. A correctly rated, dedicated breaker is installed for each station, per this table:

Nominal Voltage	Max AC Current	Breaker Size
400 V (EU)	96 A	125 A
480 V (NA)	80 A	100 A (125% continuous load required for N. America)

☐ 2. Breakers have shunt trip capability if the site drawing calls for shunt trip wiring.

☐ 3. All necessary electrical infrastructure has been completed per local codes and ChargePoint specifications for 3-phase power plus ground, with properly sized wire at the station. (Neutral is not required for system operation.)

Voltage Rating	Temp Rating	Maximum Conductor Size for Terminals
EU non-armored: 600/1000 V	90°C	35 mm^2
EU armored: 600/1000 V	90°C	35 mm^2 multi-core
NA: 600 V	90°C	2 AWG

Record the AC conductor size and voltage rating: _____

☐ 4. **Paired only:** All four DC copper conductors are installed between stations as follows:

Voltage Rating	Temp Rating	Maximum Conductor Size for Terminals	Insulation Type
EU non-armored: 600/1000 V	90°C	120 mm^2	XLPE
EU armored: 600/1000 V	90°C	120 mm^2 4-core	XLPE
NA: 1000 V	90°C	4/0 AWG	XHHW-2

Record the size, voltage rating, and insulation type for the DC conductors: _____

☐ 5. **Paired only:** Outdoor rated Ethernet Cat5e or Cat6 cable, without terminations, is pulled between the two stations with 3050 mm (10 ft) of service loop at each end.

☐ 6. The station location has been tested for 4G/LTE cellular and meets minimum -85 dBm RSRP or better.

I,_____, hereby certify that the scope of work in this form has been correctly completed.

Signature	***Date***

SECTION VII – PREVAILING WAGE RATES

PREVAILING WAGES

A. Contractor shall pay the prevailing rate of wages to all workers, laborers, or mechanics employed in the performance of any part of the Work in accordance with RCW 39.12 and the rules and regulations of the Department of Labor and Industries. The schedule of prevailing wage rates for the locality or localities of the Work, is determined by the Industrial Statistician of the Department of Labor and Industries. It is the Contractor's responsibility to verify the applicable prevailing wage rate.

B. Before commencing the Work, Contractor shall file a statement under oath with Owner and with the Director of Labor and Industries certifying the rate of hourly wage paid and to be paid each classification or laborers, workers, or mechanics employed upon the Work by Contractor and Subcontractors. Such rates of hourly wage shall not be less than the prevailing wage rate.

C. Disputes regarding prevailing wage rates shall be referred for arbitration to the Director of the Department of Labor and Industries. The arbitration decision shall be final and conclusive and binding on all parties involved in the dispute as provided for by RCW 39.12.060.

D. Each Application for Payment submitted by Contractor shall state that prevailing wages have been paid in accordance with the pre-filed statement(s) of intent, as approved. Copies of the approved intent statement(s) shall be posted on the job site with the address and telephone number of the Industrial Statistician of the Department of Labor and Industries where a complaint or inquiry concerning prevailing wages may be made.

E. In compliance with chapter 296-127 WAC, Contractor shall pay to the Department of Labor and Industries the currently established fee(s) for each statement of intent and/or affidavit of wages paid submitted to the Department of Labor and Industries for certification.

F. Attached is the list of prevailing wage rates for Wahkiakum County as most recently published by the Department of Labor and Industries.

State of Washington
Department of Labor & Industries
Prevailing Wage Section - Telephone 360-902-5335
PO Box 44540, Olympia, WA 98504-4540

Washington State Prevailing Wage

The PREVAILING WAGES listed here include both the hourly wage rate and the hourly rate of fringe benefits. On public works projects, worker's wage and benefit rates must add to not less than this total. A brief description of overtime calculation requirements are provided on the Benefit Code Key.

Journey Level Prevailing Wage Rates for the Effective Date: 11/18/2021

County	Trade	Job Classification	Wage	Holiday	Overtime	Note	*Risk Class
Wahkiakum	Asbestos Abatement Workers	Journey Level	$51.38	6Z	1M		View
Wahkiakum	Boilermakers	Journey Level	$70.79	5N	1C		View
Wahkiakum	Brick Mason	Brick Finisher	$42.68	5A	1B		View
Wahkiakum	Brick Mason	Caulker-Pointer-Cleaner	$65.89	5A	1B		View
Wahkiakum	Brick Mason	Journey Level	$65.89	5A	1B		View
Wahkiakum	Building Service Employees	Janitor	$13.69		1		View
Wahkiakum	Building Service Employees	Shampooer	$13.69		1		View
Wahkiakum	Building Service Employees	Waxer	$13.69		1		View
Wahkiakum	Building Service Employees	Window Cleaner	$13.69		1		View
Wahkiakum	Cabinet Makers (In Shop)	Journey Level	$13.69		1		View
Wahkiakum	Carpenters	Acoustical Worker	$62.36	5A	1B		View
Wahkiakum	Carpenters	Bridge, Dock & Wharf Carpenters	$62.94	5A	1B		View
Wahkiakum	Carpenters	Carpenter	$62.36	5A	1B		View
Wahkiakum	Carpenters	Floor Layer And Floor Finishers	$62.53	5A	1B		View
Wahkiakum	Carpenters	Scaffold/Shoring Erecting & Dismantling	$62.36	7E	4X	8N	View
Wahkiakum	Carpenters	Stationary Power Saw	$62.53	5A	1B		View
Wahkiakum	Cement Masons	Application of all Composition Mastic	$67.41	7A	4U		View
Wahkiakum	Cement Masons	Application of all Epoxy Material	$66.91	7A	4U		View
Wahkiakum	Cement Masons	Application of all Plastic Material	$67.41	7A	4U		View
Wahkiakum	Cement Masons	Application of Sealing Compound	$66.91	7A	4U		View
Wahkiakum	Cement Masons	Application of Underlayment	$67.41	7A	4U		View
Wahkiakum	Cement Masons	Building General	$66.91	7A	4U		View
Wahkiakum	Cement Masons	Composition or Kalman Floors	$67.41	7A	4U		View
Wahkiakum	Cement Masons	Concrete Paving	$66.91	7A	4U		View

Wahkiakum	Cement Masons	Curb & Gutter Machine	$67.41	7A	4U		View
Wahkiakum	Cement Masons	Curb & Gutter, Sidewalks	$66.91	7A	4U		View
Wahkiakum	Cement Masons	Curing Concrete	$66.91	7A	4U		View
Wahkiakum	Cement Masons	Finish Colored Concrete	$67.41	7A	4U		View
Wahkiakum	Cement Masons	Floor Grinding	$67.41	7A	4U		View
Wahkiakum	Cement Masons	Floor Grinding/Polisher	$66.91	7A	4U		View
Wahkiakum	Cement Masons	Green Concrete Saw, self-powered	$67.41	7A	4U		View
Wahkiakum	Cement Masons	Grouting of all Plates	$66.91	7A	4U		View
Wahkiakum	Cement Masons	Grouting of all Tilt-up Panels	$66.91	7A	4U		View
Wahkiakum	Cement Masons	Gunite Nozzleman	$67.41	7A	4U		View
Wahkiakum	Cement Masons	Hand Powered Grinder	$67.41	7A	4U		View
Wahkiakum	Cement Masons	Journey Level	$66.91	7A	4U		View
Wahkiakum	Cement Masons	Patching Concrete	$66.91	7A	4U		View
Wahkiakum	Cement Masons	Pneumatic Power Tools	$67.41	7A	4U		View
Wahkiakum	Cement Masons	Power Chipping & Brushing	$67.41	7A	4U		View
Wahkiakum	Cement Masons	Sand Blasting Architectural Finish	$67.41	7A	4U		View
Wahkiakum	Cement Masons	Screed & Rodding Machine	$67.41	7A	4U		View
Wahkiakum	Cement Masons	Spackling or Skim Coat Concrete	$66.91	7A	4U		View
Wahkiakum	Cement Masons	Troweling Machine Operator	$67.41	7A	4U		View
Wahkiakum	Cement Masons	Troweling Machine Operator on Colored Slabs	$67.41	7A	4U		View
Wahkiakum	Cement Masons	Tunnel Workers	$67.41	7A	4U		View
Wahkiakum	Divers & Tenders	Bell/Vehicle/Submersible Operator (not under pressure)	$109.44	5A	1B		View
Wahkiakum	Divers & Tenders	Dive Master	$76.17	5A	1B		View
Wahkiakum	Divers & Tenders	Dive Supervisor	$76.17	5A	1B		View
Wahkiakum	Divers & Tenders	Diver	$109.44	5A	1B	8V	View
Wahkiakum	Divers & Tenders	Diver On Standby	$71.67	5A	1B		View
Wahkiakum	Divers & Tenders	Diver Tender	$65.44	5A	1B		View
Wahkiakum	Divers & Tenders	Manifold Operator	$65.44	5A	1B		View
Wahkiakum	Divers & Tenders	Manifold Operator Mixed Gas	$70.44	5A	1B		View
Wahkiakum	Divers & Tenders	Remote Operated Vehicle Operator/Technician	$65.44	5A	1B		View
Wahkiakum	Divers & Tenders	Remote Operated Vehicle Tender	$61.28	5A	1B		View
Wahkiakum	Dredge Workers	Assistant Engineer	$63.45	5D	1N	8D	View
Wahkiakum	Dredge Workers	Assistant Mate (deckhand)	$58.09	5D	1N	8D	View
Wahkiakum	Dredge Workers	Boatman (licensed)	$63.45	5D	1N	8D	View
Wahkiakum	Dredge Workers	Fill Equipment Operator	$60.79	5D	1N	8D	View
Wahkiakum	Dredge Workers	Fireman	$61.96	5D	1N	8D	View
Wahkiakum	Dredge Workers	Leverman (hydraulic & Clamshell)	$66.55	5D	1N	8D	View
Wahkiakum	Dredge Workers	Mate	$63.45	5D	1N	8D	View
Wahkiakum	Dredge Workers	Oiler	$58.09	5D	1N	8D	View
Wahkiakum	Dredge Workers	Tenderman (boatman Attending Dredge Plant)	$61.96	5D	1N	8D	View

Wahkiakum	Dredge Workers	Welder	$63.45	5D	1N	8D	View
Wahkiakum	Drywall Applicator	Journey Level	$61.85	5A	1B		View
Wahkiakum	Drywall Tapers	Journey Level	$58.45	7E	1E		View
Wahkiakum	Electrical Fixture Maintenance Workers	Journey Level	$13.69		1		View
Wahkiakum	Electricians - Inside	Journey Level	$77.33	5A	1B		View
Wahkiakum	Electricians - Inside	Journeyman, Welder	$82.52	5A	1B		View
Wahkiakum	Electricians - Motor Shop	Craftsman	$15.37		1		View
Wahkiakum	Electricians - Motor Shop	Journey Level	$14.69		1		View
Wahkiakum	Electricians - Powerline Construction	Cable Splicer	$82.39	5A	4D		View
Wahkiakum	Electricians - Powerline Construction	Certified Line Welder	$75.64	5A	4D		View
Wahkiakum	Electricians - Powerline Construction	Groundperson	$49.17	5A	4D		View
Wahkiakum	Electricians - Powerline Construction	Heavy Line Equipment Operator	$75.64	5A	4D		View
Wahkiakum	Electricians - Powerline Construction	Journey Level Lineperson	$75.64	5A	4D		View
Wahkiakum	Electricians - Powerline Construction	Line Equipment Operator	$64.54	5A	4D		View
Wahkiakum	Electricians - Powerline Construction	Meter Installer	$49.17	5A	4D	8W	View
Wahkiakum	Electricians - Powerline Construction	Pole Sprayer	$75.64	5A	4D		View
Wahkiakum	Electricians - Powerline Construction	Powderperson	$56.49	5A	4D		View
Wahkiakum	Electronic Technicians	Journey Level	$63.70	5A	1B		View
Wahkiakum	Elevator Constructors	Mechanic	$100.92	5N	4A		View
Wahkiakum	Elevator Constructors	Mechanic In Charge	$108.99	5N	4A		View
Wahkiakum	Fabricated Precast Concrete Products	Journey Level	$13.69		1		View
Wahkiakum	Fabricated Precast Concrete Products	Journey Level - In-Factory Work Only	$13.69		1		View
Wahkiakum	Fence Erectors	Fence Erector	$43.90	6Z	1M		View
Wahkiakum	Fence Erectors	Fence Laborer	$43.90	6Z	1M		View
Wahkiakum	Flaggers	Journey Level	$46.94	6Z	1M		View
Wahkiakum	Glaziers	Journey Level	$67.22	7I	1C		View
Wahkiakum	Heat & Frost Insulators And Asbestos Workers	Mechanic	$77.66	5N	1F		View
Wahkiakum	Heating Equipment Mechanics	Journey Level	$91.83	7F	1E		View
Wahkiakum	Hod Carriers & Mason Tenders	Journey Level	$52.70	5D	1B		View
Wahkiakum	Industrial Power Vacuum Cleaner	Journey Level	$13.69		1		View
Wahkiakum	Inland Boatmen	Boat Operator	$61.41	5B	1K		View
Wahkiakum	Inland Boatmen	Cook	$56.48	5B	1K		View
Wahkiakum	Inland Boatmen	Deckhand	$57.48	5B	1K		View
Wahkiakum	Inland Boatmen	Deckhand Engineer	$58.81	5B	1K		View
Wahkiakum	Inland Boatmen	Launch Operator	$58.89	5B	1K		View

Wahkiakum	Inland Boatmen	Mate	$57.31	5B	1K		View
Wahkiakum	Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control	Cleaner Operator, Foamer Operator	$13.69		1		View
Wahkiakum	Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control	Grout Truck Operator	$13.69		1		View
Wahkiakum	Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control	Head Operator	$13.69		1		View
Wahkiakum	Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control	Technician	$13.69		1		View
Wahkiakum	Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control	Tv Truck Operator	$13.69		1		View
Wahkiakum	Insulation Applicators	Journey Level	$62.53	5A	1B		View
Wahkiakum	Insulation Applicators	Journey Level	$60.21	5A	1B		View
Wahkiakum	Ironworkers	Journey Level	$69.11	7N	1O		View
Wahkiakum	Laborers	Anchor Machines	$51.38	6Z	1M		View
Wahkiakum	Laborers	Application (including Pot Power Tender For Same), Applying Protective Material By Hand Or Nozzle On Utility Lines Or Storage Tanks On Project	$50.81	6Z	1M	8S	View
Wahkiakum	Laborers	Asbestos Removal	$51.38	6Z	1M		View
Wahkiakum	Laborers	Asphalt Plant Laborers	$50.06	6Z	1M	8T	View
Wahkiakum	Laborers	Asphalt Raker	$51.86	6Z	1M		View
Wahkiakum	Laborers	Asphalt Spreaders	$50.06	6Z	1M	8T	View
Wahkiakum	Laborers	Ballast Regulators	$51.38	6Z	1M		View
Wahkiakum	Laborers	Batch Weighman	$50.06	6Z	1M	8T	View
Wahkiakum	Laborers	Bit Grinder	$51.38	6Z	1M		View
Wahkiakum	Laborers	Broomers	$50.06	6Z	1M	8T	View
Wahkiakum	Laborers	Brush (power Saw)	$50.81	6Z	1M	8S	View
Wahkiakum	Laborers	Brush Burners And Cutters	$50.06	6Z	1M	8T	View
Wahkiakum	Laborers	Burners	$50.81	6Z	1M	8S	View
Wahkiakum	Laborers	Car And Truck Loaders	$50.06	6Z	1M	8T	View
Wahkiakum	Laborers	Carpenter Tender	$50.06	6Z	1M	8T	View
Wahkiakum	Laborers	Change-house Man Or Dry Shack Man	$50.06	6Z	1M	8T	View
Wahkiakum	Laborers	Chipping Guns	$50.81	6Z	1M	8S	View
Wahkiakum	Laborers	Choker Setters	$50.06	6Z	1M	8T	View
Wahkiakum	Laborers	Choker Splicer	$50.81	6Z	1M	8S	View
Wahkiakum	Laborers	Chuck Tender	$50.81	6Z	1M	8S	View
Wahkiakum	Laborers	Clary Power Spreader And Similar Types	$50.81	6Z	1M	8S	View
Wahkiakum	Laborers	Clean Up Laborers	$50.06	6Z	1M	8T	View
Wahkiakum	Laborers	Clean-up Nozzleman-green-cutter (concrete Rock, Etc.)	$50.81	6Z	1M	8S	View
Wahkiakum	Laborers	Concrete Crew, Bull Gang	$50.81	6Z	1M	8S	View
Wahkiakum	Laborers	Concrete Laborers	$50.81	6Z	1M	8S	View

Wahkiakum	Laborers	Concrete Nozzlemen	$51.86	6Z	1M		View
Wahkiakum	Laborers	Concrete Power Buggyman	$50.81	6Z	1M	8S	View
Wahkiakum	Laborers	Concrete Saw Operator	$51.38	6Z	1M		View
Wahkiakum	Laborers	Concrete Saw Operator (walls)	$51.86	6Z	1M		View
Wahkiakum	Laborers	Confined Space / Hole Watch	$46.94	6Z	1M		View
Wahkiakum	Laborers	Crusher Feeder	$50.81	6Z	1M	8S	View
Wahkiakum	Laborers	Curing, Concrete	$50.06	6Z	1M	8T	View
Wahkiakum	Laborers	Demolition And Wrecking Charred Materials	$50.81	6Z	1M	8S	View
Wahkiakum	Laborers	Demolition, Wrecking And Moving Laborers	$50.06	6Z	1M	8T	View
Wahkiakum	Laborers	Drill Doctor	$51.38	6Z	1M		View
Wahkiakum	Laborers	Drill Operators, Air Tracks, Cat Drills, Wagon Drills, Rubber-mounted Drills And Other Similar Types, Including At Crusher Plants	$51.86	6Z	1M		View
Wahkiakum	Laborers	Dry Pack Machine	$50.81	6Z	1M	8S	View
Wahkiakum	Laborers	Dumpers, Road Oiling Crew	$50.06	6Z	1M	8T	View
Wahkiakum	Laborers	Dumpmen (for Grading Crew)	$50.06	6Z	1M	8T	View
Wahkiakum	Laborers	Elevator Feeders	$50.06	6Z	1M	8T	View
Wahkiakum	Laborers	Erosion Control Specialist	$50.06	6Z	1M	8T	View
Wahkiakum	Laborers	Fine Graders	$50.06	6Z	1M	8T	View
Wahkiakum	Laborers	Fire Watch	$46.94	6Z	1M		View
Wahkiakum	Laborers	Form Strippers (not Swinging Stages)	$50.06	6Z	1M	8T	View
Wahkiakum	Laborers	General Laborer	$50.06	6Z	1M	8T	View
Wahkiakum	Laborers	Grade Checker	$51.86	6Z	1M		View
Wahkiakum	Laborers	Guard Rail, Median Rail, Reference Post Guide Post, Right-of-way Marker	$50.06	6Z	1M	8T	View
Wahkiakum	Laborers	Gunite Nozzleman	$51.86	6Z	1M		View
Wahkiakum	Laborers	Gunite Nozzleman Tender	$50.81	6Z	1M	8S	View
Wahkiakum	Laborers	Gunite Or Sand Blasting Pot Tender	$50.81	6Z	1M	8S	View
Wahkiakum	Laborers	Hand Placed Sand Blasting (wet)	$50.81	6Z	1M	8S	View
Wahkiakum	Laborers	Handlers Or Mixers Of All Materials Of An Irritating Nature (including Cement & Lime)	$50.81	6Z	1M	8S	View
Wahkiakum	Laborers	Hazardous Waste Worker	$51.38	6Z	1M		View
Wahkiakum	Laborers	High Scalers, Strippers And Drillers Covers Work In Swinging Stages, Chairs Or Belts, Under Extreme Conditions Unusual To Blasting, Barring Down, Or S	$51.86	6Z	1M		View
Wahkiakum	Laborers	Jackhammer	$50.81	6Z	1M	8S	View
Wahkiakum	Laborers	Laser Beam	$51.86	6Z	1M		View

Wahkiakum	Laborers	Laser Beam (pipe Laying) - Applicable When Employee Assigned To Move, Set Up, Align	$51.86	6Z	1M		View
Wahkiakum	Laborers	Laser Beam (tunnel) - Applicable When Employee Assigned To Move, Set Up, Align	$51.86	6Z	1M		View
Wahkiakum	Laborers	Lead Abatement	$51.38	6Z	1M		View
Wahkiakum	Laborers	Leverman Or Aggregate Spreaders (flaherty And Similar Types)	$50.06	6Z	1M	8T	View
Wahkiakum	Laborers	Loading Spotters	$50.06	6Z	1M	8T	View
Wahkiakum	Laborers	Loop Installation	$51.86	6Z	1M		View
Wahkiakum	Laborers	Manhole Building	$51.38	6Z	1M		View
Wahkiakum	Laborers	Material Yard Man (including Electrical)	$50.06	6Z	1M	8T	View
Wahkiakum	Laborers	Miner - Tunnel	$51.86	6Z	1M		View
Wahkiakum	Laborers	Miner - Tunnel	$51.86	6Z	1M		View
Wahkiakum	Laborers	Mold Remediation Or Removal	$51.38	6Z	1M		View
Wahkiakum	Laborers	Multiple Tampers	$51.38	6Z	1M		View
Wahkiakum	Laborers	Nippers And Timbermen	$51.38	6Z	1M		View
Wahkiakum	Laborers	Nuclear Plant Worker - Lead Shield	$51.38	6Z	1M		View
Wahkiakum	Laborers	Paving Breakers	$50.81	6Z	1M	8S	View
Wahkiakum	Laborers	Pipe Doping & Wrapping	$50.81	6Z	1M	8S	View
Wahkiakum	Laborers	Pipe Layer All Types	$51.86	6Z	1M		View
Wahkiakum	Laborers	Pittsburgh Chipper Operator Or Similar Types	$50.06	6Z	1M	8T	View
Wahkiakum	Laborers	Post Hold Digger, Air, Gas Or Electric	$50.81	6Z	1M	8S	View
Wahkiakum	Laborers	Pot Tender	$50.81	6Z	1M	8S	View
Wahkiakum	Laborers	Powderman	$51.86	6Z	1M		View
Wahkiakum	Laborers	Powderman Tender	$50.06	6Z	1M	8T	View
Wahkiakum	Laborers	Power Jacks	$51.38	6Z	1M		View
Wahkiakum	Laborers	Power Saw Operators (bucking & Falling)	$51.38	6Z	1M		View
Wahkiakum	Laborers	Pressure Washer	$50.81	6Z	1M	8S	View
Wahkiakum	Laborers	Pumpcrete Nozzleman	$51.86	6Z	1M		View
Wahkiakum	Laborers	Railroad Track Laborers	$50.06	6Z	1M	8T	View
Wahkiakum	Laborers	Ribbon Setter, Head	$50.81	6Z	1M	8S	View
Wahkiakum	Laborers	Ribbon Setters (including Steel Forms)	$50.06	6Z	1M	8T	View
Wahkiakum	Laborers	Rip Rap Man (hand Placed)	$50.06	6Z	1M	8T	View
Wahkiakum	Laborers	Rip Rap Man (head)	$50.81	6Z	1M	8S	View
Wahkiakum	Laborers	Road Pump Tender	$50.06	6Z	1M	8T	View
Wahkiakum	Laborers	Sand Blasting (dry)	$51.38	6Z	1M		View
Wahkiakum	Laborers	Scaffold Tender	$50.06	6Z	1M	8T	View
Wahkiakum	Laborers	Sewer Labor	$50.06	6Z	1M	8T	View
Wahkiakum	Laborers	Sewer Timbermen	$51.38	6Z	1M		View

Wahkiakum	Laborers	Signalman	$50.06	6Z	1M	8T	View
Wahkiakum	Laborers	Skipman	$50.06	6Z	1M	8T	View
Wahkiakum	Laborers	Slopers	$50.06	6Z	1M	8T	View
Wahkiakum	Laborers	Spraymen	$50.06	6Z	1M	8T	View
Wahkiakum	Laborers	Stake Chaser	$50.06	6Z	1M	8T	View
Wahkiakum	Laborers	Stake-setter	$50.81	6Z	1M	8S	View
Wahkiakum	Laborers	Stockpiler	$50.06	6Z	1M	8T	View
Wahkiakum	Laborers	Tampers	$50.81	6Z	1M	8S	View
Wahkiakum	Laborers	Tie Back Shoring	$50.06	6Z	1M	8T	View
Wahkiakum	Laborers	Timber Faller And Bucker (hand Labor)	$50.06	6Z	1M	8T	View
Wahkiakum	Laborers	Toolroom Man (at Job Site)	$50.06	6Z	1M	8T	View
Wahkiakum	Laborers	Track Liners	$51.38	6Z	1M		View
Wahkiakum	Laborers	Traffic Control Laborer	$50.06	6Z	1M	8T	View
Wahkiakum	Laborers	Traffic Control Supervisor	$50.81	6Z	1M	8S	View
Wahkiakum	Laborers	Tugger Operator	$51.38	6Z	1M		View
Wahkiakum	Laborers	Tunnel Bullgang (above Ground)	$51.86	6Z	1M		View
Wahkiakum	Laborers	Tunnel Chuck Tenders	$51.86	6Z	1M		View
Wahkiakum	Laborers	Tunnel Motorman - Dinky Locomotive	$51.86	6Z	1M		View
Wahkiakum	Laborers	Tunnel Muckers, Brakemen	$51.86	6Z	1M		View
Wahkiakum	Laborers	Tunnel Powderman	$51.86	6Z	1M		View
Wahkiakum	Laborers	Tunnel Shield Operator	$51.86	6Z	1M		View
Wahkiakum	Laborers	Vibrating Screed	$51.38	6Z	1M		View
Wahkiakum	Laborers	Vibrators (all Types)	$51.38	6Z	1M		View
Wahkiakum	Laborers	Water Blaster	$51.38	6Z	1M		View
Wahkiakum	Laborers	Weight-man-crusher (aggregate When Used)	$50.06	6Z	1M	8T	View
Wahkiakum	Laborers	Welder	$51.38	6Z	1M		View
Wahkiakum	Laborers - Underground Sewer & Water	General Laborer And Topman	$50.06	6Z	1M	8T	View
Wahkiakum	Laborers - Underground Sewer & Water	Pipe Layer	$51.86	6Z	1M		View
Wahkiakum	Landscape Construction	Landscape Operator	$57.87	7B	4G	8U	View
Wahkiakum	Landscape Construction	Landscaping or Planting Laborer	$39.87	6Z	1M		View
Wahkiakum	Landscape Maintenance	Groundskeeper	$13.69		1		View
Wahkiakum	Lathers	Journey Level	$61.85	5A	1B		View
Wahkiakum	Marble Setters	Journey Level	$66.89	5A	1B		View
Wahkiakum	Metal Fabrication (In Shop)	Fitter	$16.99		1		View
Wahkiakum	Metal Fabrication (In Shop)	Laborer	$13.69		1		View
Wahkiakum	Metal Fabrication (In Shop)	Machine Operator	$17.21		1		View
Wahkiakum	Metal Fabrication (In Shop)	Painter	$17.03		1		View
Wahkiakum	Metal Fabrication (In Shop)	Welder	$16.99		1		View
Wahkiakum	Millwright	Journey Level	$65.45	5A	1B		View
Wahkiakum	Modular Buildings	Journey Level	$13.69		1		View
Wahkiakum	Painters	Bridge Painter	$48.07	7E	2B		View
Wahkiakum	Painters	Commercial Painter	$40.40	7E	2B		View

Wahkiakum	Painters	Industrial Painter	$42.20	7E	2B	9F	View
Wahkiakum	Pile Driver	Journey Level	$63.53	5A	1B		View
Wahkiakum	Plasterers	Journey Level	$56.92	5H	1E		View
Wahkiakum	Playground & Park Equipment Installers	Journey Level	$13.69		1		View
Wahkiakum	Plumbers & Pipefitters	Journey Level	$80.97	5A	1G		View
Wahkiakum	Power Equipment Operators	Air Filtration Equipment(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Asphalt Plant (any Type) (assistant Engineer Required) (group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Asphalt, Burner & Reconditioner (any Type), (asst To Engineer If Required)(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Asphalt, Extrusion Machine Operator(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Asphalt, Paver (screed Man Required)(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Asphalt, Pugmill (any Type)(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Asphalt, Raker(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Asphalt, Roller (any Asphalt Mix)(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Asphalt, Roto-mill, Pavement Profiler Under 8 Ft Lateral Cut(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Asphalt, Roto-mill, Pavement Profiler, 8 Ft Lateral Cut & Over(group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Asphalt, Roto-mill, Pavement Profiler, Groundman(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Asphalt, Screed(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Asphalt, Truck Mounted Spreader, With Screed(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Auger Oiler(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Auto Grader Or "trimmer" (grade Checker Required) (group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Back Filling Machine (assistant To Engineer Required)(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Backhoe, Robotic, Track And Wheel Type Up To And Including 20,000 Lbs. With Any Attachments(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Band Wagons (in Conjuction With Whell Excavator)(group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Bell Man (any Type Of Comunication)(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Blade Any Type(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Blade, Robotic(group 2)	$62.84	7B	4G	8U	View

Wahkiakum	Power Equipment Operators	Boatman(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Boatman, Licensed(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Bobcat, Skid Steer (< 1yd)(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Boom Type Lifting Device, 5 Ton Capacity Or Less(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Boring Machine (asst To Engineer Required)(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Broom Self-propelled, Construction Job Site(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Bulldozer Operator, 20,000 Lbs Or Less, Or 100 Horse Or Less(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Bulldozer Operator, Over 20,000 Lbs And More Than 100 Horse Up To 70,000 Lbs(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Bulldozer Over 70,000 Lbs Up To And Including 120,000 Lbs(group 3)	$61.69	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Bulldozer Over 120,000 Lbs And Above(group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Bulldozer Robotic Equipment(group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Cable-plow (any Type)(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Cableway 25 Ton & Over(group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Cableway Up To 25 Ton(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Canal Trimmer (grade Oiler Required)(group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Cat Drill (john Henry)(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Cement Pump(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Challenger(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Chip Spreading Machine(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Chippers (asst To Engineer If Required)(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Churn Drill & Earth Boring Machine(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Combination Heavy Duty Mechanic-welder, When Required To Do Both(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Compactor Self Propelled Without Blade(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Compactor With Blade Self Propelled(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Compactor, Multi-engine(group 4)	$59.11	7B	4G	8U	View

Wahkiakum	Power Equipment Operators	Compactor, Robotic(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Compressor (any Power) 1,250 Cu Ft And Over Total Capacity(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Compressor Operator (any Power) Under 1,250 Cu Ft Total Capacity(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Concrete Batch Plant And/or Wet Mix (3 Units Or More) (group1)	$64.75	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Concrete Batch Plant And/or Wet Mix Operator (1 & 2 Drums)(group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Concrete Batch Plant Quality Control(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Concrete Breaker (assistant To Engineer Required)(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Concrete Canal Line, Assistant To Engineer Required(group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Concrete Curing Machine (riding Type)(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Concrete Diamond Head Profiler(group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Concrete Paving Road Mixer(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Concrete Planer(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Concrete Saw(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Concrete, Automatic Slip Form Paver (asst To Engineer Required)(group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Concrete, Combination Mixer & Compressor Operator, Gunite Work(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Concrete, Curb Machine Mechanical Berm, Curb And/or Curb And Gutter(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Concrete, Finishing Machine(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Concrete, Grout Plant(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Concrete, Grouting Machine(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Concrete, Joint Machine(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Concrete, Mixer Mobile(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Concrete, Mixer Single Drum Any Capacity(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Concrete, Paving Machine 8' And Less (asst To Engineer Required)(group 5)	$57.87	7B	4G	8U	View

Wahkiakum	Power Equipment Operators	Concrete, Placing Boom(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Concrete, Pump Truck(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Concrete, Pump(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Concrete, Pumpcrete Operator (any Type)(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Concrete, Reinforced Tank Banding Machine (asst To Engineer Required)(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Concrete, Slip Form Pumps, Power Driven Hydraulic Lifting Device For Concrete Forms(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Concrete, Spreader(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Concrete, Telebelt(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Concrete, Treated Base Roller Operator, Oiling(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Conveyor Operator Or Assistant(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Conveyored Material Hauler(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Crane, Bridge Locomotive, Gantry And Overhead(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Crane, Carry Deck(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Crane, Chicago Boom & Similar Types(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Crane, Floating (derrick Barge) 30 Ton But Less Than 150 Ton (asst To Engineer Required)(group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Crane, Floating 150 Ton But Less Than 250 Ton (asst To Engineer Required) (group 1)	$64.75	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Crane, Floating 250 Ton And Over (asst To Engineer And Deckhand Required)(group 1)	$66.91	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Crane, Floating Clamshell 3 Cu. Yds. & Over (fireman Or Diesel Electric Engineer Required(group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Crane, Floating Clamshell, Dragline Etc. Operator Under 3 Cu. Yds. Or Less Than 30 Ton (diesel-electric Engineer Required)(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Crane, Hydraulic 200 Ton Through 399 Ton (group 1)	$64.75	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Crane, Hydraulic 50 Ton Through 89 Ton With Luffing Or Tower Attachment(group 2)	$62.84	7B	4G	8U	View

Wahkiakum	Power Equipment Operators	Crane, Hydraulic 50 Ton Through 89 Tons(group 3)	$61.69	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Crane, Hydraulic 90 Ton Through 199 Ton With Luffing Or Tower Attachment (group 1)	$64.75	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Crane, Hydraulic 90 Ton Through 199 Ton(group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Crane, Hydraulic Crane 200 Ton Through 300 Ton With Luffing Or Tower Attachment(group 1)	$66.91	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Crane, Hydraulic Crane 400 Ton And Over(group 1)	$69.07	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Crane, Hydraulic Crane Over 300 Ton Through 399 Ton With Luffer Or Tower Attachment(group 1)	$69.07	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Crane, Hydraulic Under 50 Ton(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Crane, Lattice Boom 200 Ton Through 299 Ton, With Over 200' Boom(group 1)	$66.91	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Crane, Lattice Boom 300 Ton Through 399 Ton(group 1)	$66.91	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Crane, Lattice Boom 300 Ton Through 399 Ton, With Over 200' Boom(group 1)	$69.07	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Crane, Lattice Boom 50 Ton Through 89 Ton With 150' Boom Or Less(group 3)	$61.69	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Crane, Lattice Boom 50 Ton Through 89 Ton With Over 150' Boom	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Crane, Lattice Boom 90 Ton Through 199 Ton With 150' - 200' Boom(group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Crane, Lattice Boom Under 50 Ton(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Crane, Lattice Boom, 200 Ton Through 299 Ton With 200' Boom Or Less (group 1)	$64.75	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Crane, Lattice Boom, 90 Ton Through 199 Ton With Over 200' Boom (group 1)	$64.75	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Crane, Shovel, Dragline Or Clamshell 3 Cu. Yds. But Less Than 5 Cu. Yds. (asst To Engineer Required)(group 3)	$61.69	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Crane, Tower Crane With 175' Tower Or Less And With Less Than 200' Jib(group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Crane, Tower Crane With Over 175' Tower Or Over 200' Jib (group 1)	$64.75	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Crane, Tugger(group 6)	$54.65	7B	4G	8U	View

Wahkiakum	Power Equipment Operators	Crane, Whirley 90 Ton And Over (group 1)	$64.75	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Crane, Whirley Under 90 Ton(group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Crusher Feederman(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Crusher Oiler(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Crusher Plant(group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Deckhand(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Derrick Operator Under 100 Ton (two Operators Required When Swing Control Is Remote From Hoist)(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Diesel-electric Engineer (plant Or Floating)(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Directional Drill Over 20,000 Lbs Pullback(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Drill Assistant(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Drill Cat Operator(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Drill Directional Type Less Than 20,ooo Lbs Pullback(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Drill Doctor And/or (bit Grinder)(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Drill Mud Mixer(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Drill Oscillator(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Drill, Directinal Locator(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Driller, Percussion, Diamond, Core, Cable, Rotary & Similar Type(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Elevating Grader Operator, Tractor Towed Requiring Operator Or Grader(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Elevating Loader Operator (any Type)(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Elevator To Move Personnel Or Materials(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Excavator Over 80,000 Lbs Through 130,000 Lbs(group 3)	$61.69	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Excavator Operator, Over 20,000 Lbs Through 80,000 Lbs(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Excavator Operator, Over 130,000 Lbs(group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Fireman(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Floating, Crane 350 Ton And Over (asst To Engineer And Deckhand Required)(group 1)	$69.07	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Fork Lift(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Fork Lift, Over 10 Ton Or Robotic(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Generator Operator(group 4)	$59.11	7B	4G	8U	View

Wahkiakum	Power Equipment Operators	Grade Checker(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Grade Setter / Layout From Plans(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Grade-all(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Guardrail Machines, I.e. Punch, Auger, Etc.(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Guardrail Punch Oiler(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Hammer Operator (pile Driver)(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Heavy Duty Repairman Assistant(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Heavy Equipment Robotics Operator Or Mechanic(group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Helicopter Hoist(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Helicopter Radioman (ground)(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Helicopter When Used In Erecting Workcrane(group 1)	$64.75	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Hoist Operator, Single Drum(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Hoist, 2 Drums Or More(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Hoist, Stiff Leg, Guy Derrick Or Similar Type, 50 Ton And Over(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Hydraulic Backhoe Track Type Up To And Including 20,000 Lbs(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Hydraulic Backhoe Wheel Type (any Make)(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Hydraulic Pipe Press(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Hydro Axe (loader Mounted Or Similar Type)(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Hydrographic Seeder Machine Straw, Pulp Or Seed(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Hydrostatic Pump Operator(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Internal Full Slab Vibrator Operator(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Jack Operator, Elevating Barges, Barge Operator, Self-unloading (asst To Engineer Required)(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Laser Screed(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Lattice Boom Crane 400 Ton And Over(group 1)	$69.07	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Lime Spreader, Construction Job Site(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Loaders Operator, Front End & Overhead, 25,000 Lbs And Less Than 60,000 Lbs(group	$59.11	7B	4G	8U	View

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Wahkiakum	Power Equipment Operators	Loaders, 120,000 Lbs And Above(group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Loaders, 60,000 Lbs And Less Than 120,000 Lbs(group 3)	$61.69	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Loaders, Rubber-tire Type, Less Than 25,000 Lbs(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Log Skidders(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Master Environmental Maintenance Mechanic(group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Material Handler(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Mechanic, Heavy Duty(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Mixer Box (c.t.b., Dry Batch, Etc.)(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Oiler(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Parts Man (tool Room)(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Pavement Grinder And Or Grooving Machine (riding Type)(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Pile Driver Operator (not Crane Type) (asst To Engineer Required)(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Pipe Bending, Cleaning, Doping And Wrapping Machines(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Pipe, Cast In Place Pipe Laying Machine(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Plant Oiler(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Pump (any Power)(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Pump Operator, More Than 5 Pumps (any Size)(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Rail, Ballast Compactor, Regulator Or Tamper Machines(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Rail, Ballast Tamper Multi-purpose(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Rail, Brakeman, Switchman, Motorman(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Rail, Car Mover(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Rail, Clip Applicator(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Rail, High Rail Self Loader Truck(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Rail, Lo-railer(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Rail, Locomotive, 40 Ton And Over (asst To Engineer Required)(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Rail, Shuttle Car Operator(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Rail, Speedswing(group 5)	$57.87	7B	4G	8U	View

Wahkiakum	Power Equipment Operators	Rail, Switchman(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Rail, Tamping Machine, Mechanical, Self-propelled(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Rail, Track Liner(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Remote Controlled Earth Moving Equipment(group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Rigger(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Roller Grading (not Asphalt) (group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Rubber-tired Dozers And Pushers(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Scraper All Types(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Service Oiler (greaser)(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Shovel, Dragline, Clamshell, 5 Yards And Over(group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Side-boom(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Skip Loader, Drag Box(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Stump Grinder (loader Mounted Or Similar Type)(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Surface Heater And Planer(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Sweeper Self-propelled, Construction Job Site(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Tar Pot Fireman (power Agitated) Or Not(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Tractor Rubber-tired, 50 Hp Flywheel & Under(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Tractor, Rubber-tired Over 50 Hp Flywheel(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Trenching Machine 3 Ft Depth And Deeper (asst To The Operator If Required) (group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Trenching Machine Operator, Maximum Digging Capacity 3 Ft Depth(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Truck Crane Oiler-driver(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Truck, All Terrain Or Track Type(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Truck, Barrel Type(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Truck, Boom(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Truck, Off-road Trucks, Articulated And Non-articulated Trucks(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Truck, Offraod Trucks, Articulated And Non-articulated Trucks(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Truck, Vacuum(group 5)	$57.87	7B	4G	8U	View

Wahkiakum	Power Equipment Operators	Truck, Water(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Tub Grinder(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Tunnel Boring Machine Mechanic(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Tunnel Boring Machine(group 1)	$64.75	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Tunnel Segment Plant(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Tunnel Separation Plant(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Tunnel Shaef Loader(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Tunnel, Locomotive, Dinkey(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Tunnel, Micro Boring Tunnel Machine(group 1)	$64.75	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Tunnel, Mucking Machine(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Tunnel, Power Jumbo Setting Slip Forms, Etc.(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Tunnel, Shield Operator(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Ultra High Pressure Water Jet Cutting Tool System Operator(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Underwater Equipment, Remote Or Otherwise(group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Vacuum Blasting Machine Operator(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Water Pulls, Water Wagon(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Welder's Assistant(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Welder; Heavy Duty, Certified Or Not(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Welding Machine(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Wheel Excavation Any Size (grade Oiler Required)(group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators	Wire Mat Or Brooming Machine(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Air Filtration Equipment(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Asphalt Plant (any Type) (assistant Engineer Required) (group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Asphalt, Burner & Reconditioner (any Type), (asst To Engineer If Required)(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Asphalt, Extrusion Machine Operator(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Asphalt, Paver (screed Man Required)(group 4)	$59.11	7B	4G	8U	View

Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Asphalt, Pugmill (any Type)(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Asphalt, Raker(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Asphalt, Roller (any Asphalt Mix)(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Asphalt, Roto-mill, Pavement Profiler Under 8 Ft Lateral Cut(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Asphalt, Roto-mill, Pavement Profiler, 8 Ft Lateral Cut & Over(group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Asphalt, Roto-mill, Pavement Profiler, Groundman(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Asphalt, Screed(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Asphalt, Truck Mounted Spreader, With Screed(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Auger Oiler(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Auto Grader Or "trimmer" (grade Checker Required) (group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Back Filling Machine (assistant To Engineer Required)(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Backhoe, Robotic, Track And Wheel Type Up To And Including 20,000 Lbs. With Any Attachments(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Band Wagons (in Conjuction With Whell Excavator)(group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Bell Man (any Type Of Comunication)(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Blade Any Type(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Blade, Robotic(group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Boatman(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Boatman, Licensed(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Bobcat, Skid Steer (< 1yd)(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Boom Type Lifting Device, 5 Ton Capacity Or Less(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Boring Machine (asst To Engineer Required)(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Broom Self-propelled, Construction Job Site(group 6)	$54.65	7B	4G	8U	View

Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Bulldozer Operator, 20,000 Lbs Or Less, Or 100 Horse Or Less(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Bulldozer Operator, Over 20,000 Lbs And More Than 100 Horse Up To 70,000 Lbs(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Bulldozer Over 70,000 Lbs Up To And Including 120,000 Lbs(group 3)	$61.69	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Bulldozer Over 120,000 Lbs And Above(group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Bulldozer Robotic Equipment(group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Cable-plow (any Type)(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Cableway 25 Ton & Over(group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Cableway Up To 25 Ton(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Canal Trimmer (grade Oiler Required)(group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Cat Drill (john Henry)(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Cement Pump(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Challenger(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Chip Spreading Machine(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Chippers (asst To Engineer If Required)(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Churn Drill & Earth Boring Machine(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Combination Heavy Duty Mechanic-welder, When Required To Do Both(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Compactor Self Propelled Without Blade(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Compactor With Blade Self Propelled(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Compactor, Multi-engine(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Compactor, Robotic(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Compressor (any Power) 1,250 Cu Ft And Over Total Capacity(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Compressor Operator (any Power) Under 1,250 Cu Ft Total Capacity(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Concrete Batch Plant And/or Wet Mix (3 Units Or More) (group1)	$64.75	7B	4G	8U	View

Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Concrete Batch Plant And/or Wet Mix Operator (1 & 2 Drums)(group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Concrete Batch Plant Quality Control(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Concrete Breaker (assistant To Engineer Required)(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Concrete Canal Line, Assistant To Engineer Required(group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Concrete Curing Machine (riding Type)(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Concrete Diamond Head Profiler(group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Concrete Paving Road Mixer(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Concrete Planer(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Concrete Saw(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Concrete, Automatic Slip Form Paver (asst To Engineer Required)(group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Concrete, Combination Mixer & Compressor Operator, Gunite Work(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Concrete, Curb Machine Mechanical Berm, Curb And/or Curb And Gutter(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Concrete, Finishing Machine(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Concrete, Grout Plant(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Concrete, Grouting Machine(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Concrete, Joint Machine(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Concrete, Mixer Mobile(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Concrete, Mixer Single Drum Any Capacity(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Concrete, Paving Machine 8' And Less (asst To Engineer Required)(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Concrete, Placing Boom(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Concrete, Pump Truck(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Concrete, Pump(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Concrete, Pumpcrete Operator (any Type)(group 5)	$57.87	7B	4G	8U	View

Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Concrete, Reinforced Tank Banding Machine (asst To Engineer Required)(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Concrete, Slip Form Pumps, Power Driven Hydraulic Lifting Device For Concrete Forms(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Concrete, Spreader(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Concrete, Telebelt(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Concrete, Treated Base Roller Operator, Oiling(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Conveyor Operator Or Assistant(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Conveyored Material Hauler(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Crane, Bridge Locomotive, Gantry And Overhead(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Crane, Carry Deck(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Crane, Chicago Boom & Similar Types(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Crane, Floating (derrick Barge) 30 Ton But Less Than 150 Ton (asst To Engineer Required)(group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Crane, Floating 150 Ton But Less Than 250 Ton (asst To Engineer Required) (group 1)	$64.75	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Crane, Floating 250 Ton And Over (asst To Engineer And Deckhand Required)(group 1)	$66.91	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Crane, Floating Clamshell 3 Cu. Yds. & Over (fireman Or Diesel Electric Engineer Required(group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Crane, Floating Clamshell, Dragline Etc. Operator Under 3 Cu. Yds. Or Less Than 30 Ton (diesel-electric Engineer Required)(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Crane, Hydraulic 200 Ton Through 399 Ton (group 1)	$64.75	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Crane, Hydraulic 50 Ton Through 89 Ton With Luffing Or Tower Attachment(group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Crane, Hydraulic 50 Ton Through 89 Tons(group 3)	$61.69	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Crane, Hydraulic 90 Ton Through 199 Ton With Luffing Or Tower Attachment (group 1)	$64.75	7B	4G	8U	View

Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Crane, Hydraulic 90 Ton Through 199 Ton(group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Crane, Hydraulic Crane 200 Ton Through 300 Ton With Luffing Or Tower Attachment(group 1)	$66.91	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Crane, Hydraulic Crane 400 Ton And Over(group 1)	$69.07	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Crane, Hydraulic Crane Over 300 Ton Through 399 Ton With Luffer Or Tower Attachment(group 1)	$69.07	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Crane, Hydraulic Under 50 Ton(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Crane, Lattice Boom 200 Ton Through 299 Ton, With Over 200' Boom(group 1)	$66.91	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Crane, Lattice Boom 300 Ton Through 399 Ton(group 1)	$66.91	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Crane, Lattice Boom 300 Ton Through 399 Ton, With Over 200' Boom(group 1)	$69.07	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Crane, Lattice Boom 50 Ton Through 89 Ton With 150' Boom Or Less(group 3)	$61.69	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Crane, Lattice Boom 50 Ton Through 89 Ton With Over 150' Boom	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Crane, Lattice Boom 90 Ton Through 199 Ton With 150' - 200' Boom(group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Crane, Lattice Boom Under 50 Ton(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Crane, Lattice Boom, 200 Ton Through 299 Ton With 200' Boom Or Less (group 1)	$64.75	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Crane, Lattice Boom, 90 Ton Through 199 Ton With Over 200' Boom (group 1)	$64.75	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Crane, Shovel, Dragline Or Clamshell 3 Cu. Yds. But Less Than 5 Cu. Yds. (asst To Engineer Required)(group 3)	$61.69	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Crane, Tower Crane With 175' Tower Or Less And With Less Than 200' Jib(group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Crane, Tower Crane With Over 175' Tower Or Over 200' Jib (group 1)	$64.75	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Crane, Tugger(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Crane, Whirley 90 Ton And Over (group 1)	$64.75	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Crane, Whirley Under 90 Ton(group 2)	$62.84	7B	4G	8U	View

Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Crusher Feederman(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Crusher Oiler(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Crusher Plant(group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Deckhand(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Derrick Operator Under 100 Ton (two Operators Required When Swing Control Is Remote From Hoist)(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Diesel-electric Engineer (plant Or Floating)(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Directional Drill Over 20,000 Lbs Pullback(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Drill Assistant(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Drill Cat Operator(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Drill Directional Type Less Than 20,ooo Lbs Pullback(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Drill Doctor And/or (bit Grinder)(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Drill Mud Mixer(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Drill Oscillator(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Drill, Directinal Locator(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Driller, Percussion, Diamond, Core, Cable, Rotary & Similar Type(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Elevating Grader Operator, Tractor Towed Requiring Operator Or Grader(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Elevating Loader Operator (any Type)(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Elevator To Move Personnel Or Materials(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Excavator Over 80,000 Lbs Through 130,000 Lbs(group 3)	$61.69	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Excavator Operator, Over 20,000 Lbs Through 80,000 Lbs(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Excavator Operator, Over 130,000 Lbs(group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Fireman(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Floating, Crane 350 Ton And Over (asst To Engineer And Deckhand Required)(group 1)	$69.07	7B	4G	8U	View

Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Fork Lift(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Fork Lift, Over 10 Ton Or Robotic(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Generator Operator(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Grade Checker(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Grade Setter / Layout From Plans(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Grade-all(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Guardrail Machines, I.e. Punch, Auger, Etc.(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Guardrail Punch Oiler(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Hammer Operator (pile Driver)(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Heavy Duty Repairman Assistant(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Heavy Equipment Robotics Operator Or Mechanic(group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Helicopter Hoist(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Helicopter Radioman (ground)(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Helicopter When Used In Erecting Workcrane(group 1)	$64.75	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Hoist Operator, Single Drum(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Hoist, 2 Drums Or More(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Hoist, Stiff Leg, Guy Derrick Or Similar Type, 50 Ton And Over(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Hydraulic Backhoe Track Type Up To And Including 20,000 Lbs(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Hydraulic Backhoe Wheel Type (any Make)(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Hydraulic Pipe Press(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Hydro Axe (loader Mounted Or Similar Type)(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Hydrographic Seeder Machine Straw, Pulp Or Seed(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Hydrostatic Pump Operator(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Internal Full Slab Vibrator Operator(group 5)	$57.87	7B	4G	8U	View

Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Jack Operator, Elevating Barges, Barge Operator, Self-unloading (asst To Engineer Required)(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Laser Screed(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Lattice Boom Crane 400 Ton And Over(group 1)	$69.07	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Lime Spreader, Construction Job Site(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Loaders Operator, Front End & Overhead, 25,000 Lbs And Less Than 60,000 Lbs(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Loaders, 120,000 Lbs And Above(group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Loaders, 60,000 Lbs And Less Than 120,000 Lbs(group 3)	$61.69	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Loaders, Rubber-tire Type, Less Than 25,000 Lbs(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Log Skidders(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Master Environmental Maintenance Mechanic(group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Material Handler(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Mechanic, Heavy Duty(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Mixer Box (c.t.b., Dry Batch, Etc.)(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Oiler(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Parts Man (tool Room)(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Pavement Grinder And Or Grooving Machine (riding Type)(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Pile Driver Operator (not Crane Type) (asst To Engineer Required)(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Pipe Bending, Cleaning, Doping And Wrapping Machines(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Pipe, Cast In Place Pipe Laying Machine(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Plant Oiler(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Pump (any Power)(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Pump Operator, More Than 5 Pumps (any Size)(group 5)	$57.87	7B	4G	8U	View

Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Rail, Ballast Compactor, Regulator Or Tamper Machines(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Rail, Ballast Tamper Multi-purpose(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Rail, Brakeman, Switchman, Motorman(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Rail, Car Mover(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Rail, Clip Applicator(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Rail, High Rail Self Loader Truck(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Rail, Lo-railer(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Rail, Locomotive, 40 Ton And Over (asst To Engineer Required)(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Rail, Shuttle Car Operator(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Rail, Speedswing(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Rail, Switchman(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Rail, Tamping Machine, Mechanical, Self-propelled(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Rail, Track Liner(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Remote Controlled Earth Moving Equipment(group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Rigger(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Roller Grading (not Asphalt) (group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Rubber-tired Dozers And Pushers(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Scraper All Types(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Service Oiler (greaser)(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Shovel, Dragline, Clamshell, 5 Yards And Over(group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Side-boom(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Skip Loader, Drag Box(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Stump Grinder (loader Mounted Or Similar Type)(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Surface Heater And Planer(group 4)	$59.11	7B	4G	8U	View

Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Sweeper Self-propelled, Construction Job Site(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Tar Pot Fireman (power Agitated) Or Not(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Tractor Rubber-tired, 50 Hp Flywheel & Under(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Tractor, Rubber-tired Over 50 Hp Flywheel(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Trenching Machine 3 Ft Depth And Deeper (asst To The Operator If Required) (group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Trenching Machine Operator, Maximum Digging Capacity 3 Ft Depth(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Truck Crane Oiler-driver(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Truck, All Terrain Or Track Type(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Truck, Barrel Type(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Truck, Boom(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Truck, Off-road Trucks, Articulated And Non-articulated Trucks(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Truck, Offraod Trucks, Articulated And Non-articulated Trucks(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Truck, Vacuum(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Truck, Water(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Tub Grinder(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Tunnel Boring Machine Mechanic(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Tunnel Boring Machine(group 1)	$64.75	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Tunnel Segment Plant(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Tunnel Separation Plant(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Tunnel Shaef Loader(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Tunnel, Locomotive, Dinkey(group 5)	$57.87	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Tunnel, Micro Boring Tunnel Machine(group 1)	$64.75	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Tunnel, Mucking Machine(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Tunnel, Power Jumbo Setting Slip Forms, Etc.(group 5)	$57.87	7B	4G	8U	View

Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Tunnel, Shield Operator(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Ultra High Pressure Water Jet Cutting Tool System Operator(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Underwater Equipment, Remote Or Otherwise(group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Vacuum Blasting Machine Operator(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Water Pulls, Water Wagon(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Welder's Assistant(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Welder; Heavy Duty, Certified Or Not(group 4)	$59.11	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Welding Machine(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Wheel Excavation Any Size (grade Oiler Required)(group 2)	$62.84	7B	4G	8U	View
Wahkiakum	Power Equipment Operators-Underground Sewer & Water	Wire Mat Or Brooming Machine(group 6)	$54.65	7B	4G	8U	View
Wahkiakum	Power Line Clearance Tree Trimmers	Journey Level In Charge	$55.03	5A	4A		View
Wahkiakum	Power Line Clearance Tree Trimmers	Spray Person	$52.24	5A	4A		View
Wahkiakum	Power Line Clearance Tree Trimmers	Tree Equipment Operator	$55.03	5A	4A		View
Wahkiakum	Power Line Clearance Tree Trimmers	Tree Trimmer	$49.21	5A	4A		View
Wahkiakum	Power Line Clearance Tree Trimmers	Tree Trimmer Groundperson	$37.47	5A	4A		View
Wahkiakum	Refrigeration & Air Conditioning Mechanics	Journey Level	$80.96	5A	1G		View
Wahkiakum	Residential Brick Mason	Journey Level	$38.27		1		View
Wahkiakum	Residential Carpenters	Journey Level	$15.50		1		View
Wahkiakum	Residential Cement Masons	Journey Level	$58.79	7E	1H		View
Wahkiakum	Residential Drywall Applicators	Journey Level	$15.50		1		View
Wahkiakum	Residential Drywall Tapers	Journey Level	$14.86		1		View
Wahkiakum	Residential Electricians	Journey Level	$30.00		1		View
Wahkiakum	Residential Glaziers	Journey Level	$14.86		1		View
Wahkiakum	Residential Insulation Applicators	Journey Level	$14.86		1		View
Wahkiakum	Residential Laborers	Journey Level	$15.16		1		View
Wahkiakum	Residential Marble Setters	Journey Level	$38.27		1		View
Wahkiakum	Residential Painters	Journey Level	$14.86		1		View
Wahkiakum	Residential Plumbers & Pipefitters	Journey Level	$21.92		1		View
Wahkiakum	Residential Refrigeration & Air Conditioning Mechanics	Journey Level	$13.69		1		View

Wahkiakum	Residential Sheet Metal Workers	Journey Level (Field or Shop)	$55.15	7F	1R		View
Wahkiakum	Residential Soft Floor Layers	Journey Level	$53.68	7E	4Z		View
Wahkiakum	Residential Sprinkler Fitters (Fire Protection)	Journey Level	$13.69		1		View
Wahkiakum	Residential Stone Masons	Journey Level	$38.27		1		View
Wahkiakum	Residential Terrazzo Workers	Journey Level	$14.86		1		View
Wahkiakum	Residential Terrazzo/Tile Finishers	Journey Level	$14.86		1		View
Wahkiakum	Residential Tile Setters	Journey Level	$14.86		1		View
Wahkiakum	Roofers	Journey Level	$56.95	5A	2O		View
Wahkiakum	Roofers	Using Irritable Bituminous Materials	$59.95	5A	2O		View
Wahkiakum	Sheet Metal Workers	Journey Level (Field or Shop)	$91.83	7F	1E		View
Wahkiakum	Sign Makers & Installers (Electrical)	Journey Level	$16.88		1		View
Wahkiakum	Sign Makers & Installers (Non-Electrical)	Journey Level	$16.74		1		View
Wahkiakum	Soft Floor Layers	Journey Level	$53.68	7E	4Z		View
Wahkiakum	Solar Controls For Windows	Journey Level	$13.69		1		View
Wahkiakum	Sprinkler Fitters (Fire Protection)	Journey Level	$66.01	7J	1R		View
Wahkiakum	Stage Rigging Mechanics (Non Structural)	Journey Level	$13.69		1		View
Wahkiakum	Stone Masons	Journey Level	$65.89	5A	1B		View
Wahkiakum	Street And Parking Lot Sweeper Workers	Journey Level	$15.00		1		View
Wahkiakum	Surveyors	Chain Person	$54.65	7B	1B		View
Wahkiakum	Surveyors	Instrument Person	$57.87	7B	1B		View
Wahkiakum	Surveyors	Party Chief	$62.84	7B	1B		View
Wahkiakum	Telecommunication Technicians	Journey Level	$63.70	5A	1B		View
Wahkiakum	Telephone Line Construction - Outside	Cable Splicer	$38.27	5A	2B		View
Wahkiakum	Telephone Line Construction - Outside	Hole Digger/Ground Person	$25.66	5A	2B		View
Wahkiakum	Telephone Line Construction - Outside	Telephone Equipment Operator (Light)	$31.96	5A	2B		View
Wahkiakum	Telephone Line Construction - Outside	Telephone Lineperson	$36.17	5A	2B		View
Wahkiakum	Terrazzo Workers	Journey Level	$56.07	5A	1B		View
Wahkiakum	Tile Setters	Journey Level	$56.07	5A	1B		View
Wahkiakum	Tile, Marble & Terrazzo Finishers	Finishers	$42.05	5A	1B		View
Wahkiakum	Traffic Control Stripers	Journey Level	$50.69	7P	1K		View
Wahkiakum	Truck Drivers	Asphalt Mix Over 10 Yards	$47.01	5A	1B		View
Wahkiakum	Truck Drivers	Asphalt Mix To 10 Yards	$46.87	5A	1B		View
Wahkiakum	Truck Drivers	Dump Truck	$46.87	5A	1B		View
Wahkiakum	Truck Drivers	Dump Truck And Trailer	$47.01	5A	1B		View
Wahkiakum	Truck Drivers	Other Trucks	$47.01	5A	1B		View

Wahkiakum	Truck Drivers - Ready Mix	Transit Mix 5 cubic yards and under	$46.87	5A	1B		View
Wahkiakum	Truck Drivers - Ready Mix	Transit Mix over 11 cubic yards up to 15 cubic yards	$47.45	5A	1B		View
Wahkiakum	Truck Drivers - Ready Mix	Transit Mix over 5 cubic yards up to 7 cubic yards	$47.01	5A	1B		View
Wahkiakum	Truck Drivers - Ready Mix	Transit Mix Over 7 cubic yards up to 11 cubic yards	$47.15	5A	1B		View
Wahkiakum	Well Drillers & Irrigation Pump Installers	Irrigation Pump Installer	$13.69		1		View
Wahkiakum	Well Drillers & Irrigation Pump Installers	Oiler	$13.69		1		View
Wahkiakum	Well Drillers & Irrigation Pump Installers	Well Driller	$13.69		1		View