COMMERCIAL CUSTOMER
& DEVELOPER
Conduit Installation Guideline and Specifications
Revised on 2/20/2020
Commercial Customer and Developer Conduit Installation of Tampa Electric’s Conduit System for Underground Development

The underground distribution installation agreement made between Customer and Tampa Electric Company (the Company) for customer installed conduit shall be in an easement adjacent to or near Customer's property, in consideration of the covenants and agreements herein set forth, the parties hereto covenant and agree as follows:

1. When Conduit in which the Company’s underground facilities are to be placed are installed by the Customer, the Customer must accept all conduit-related materials from the Company. A Tampa Electric Company Underground Distribution Facilities Installation Agreement must be signed by the New Construction Project Manager (NCPM) and the Customer. The executed document must be attached to the documents tab in the TECO Work Management System for the Underground Field Inspector (UGFI) to validate prior to requisitioning the materials from TECO Stores. These materials become the responsibility of the Customer until the completion of the work. In the event the Customer reassigns the work to an alternate contractor, all conduit-related materials will remain the responsibility of the Customer, and the transfer of all the conduit-related materials between parties will be managed by the Customer. In addition, once the Customer accepts the work; the job includes all necessary trenching, directional boring, feeder/primary manholes, feeder/primary pull boxes, primary/secondary hand holes, pad site preparation and grounding to include an Ohms report submitted to the Company for each grounding location. This does not include stand-alone crossing or residential underground primary, secondary or service Work Requests (WRs).

Subcontractors must provide an underground utility contractor license authorized by all applicable governmental authorities. They must also provide insurance levels sufficient to protect the Company prior to performing any work. Subcontractors must maintain accurate directional bore logs that are readily available to the Company upon request and must be submitted to a UGFI prior to final approval of the WR. Only a qualified/certified lineworker is authorized to work in the Company’s energized equipment and the subcontractor must have at least one qualified/certified lineworker on staff to be able to perform this required part of the project.

When the Customer installs the conduit, the Customer is responsible for the conduit system (stub up to stub up) until the cable and equipment is installed by the Company or our Contractor.

2. The Customer shall pay the Company a Contribution in Aid of Construction (CIAC) (will be referred to as the Contribution). This payment is based on the currently effective retail electric tariff filed with the Florida Public Service Commission (the Commission) by the Company.

3. A feeder credit (the Credit) shall be provided to the Customer for trenching, backfilling, installation of provided material and other work, if applicable, and approved by the Company. During the installation of the conduit, trenches shall remain open until inspection is completed by the Company’s field inspector. This includes the installation of all required PVC and galvanized risers at terminal pole
locations. Company provided mule tape is the only authorized pull string to be installed in the conduit system. The mule tape must be “blown in” using a rabbit in every conduit run. It is not permissible to use a vacuum system to “suck in” the mule tape. If the installation of the Conduit system does not conform to the Company's installation specifications provided on the Company's website, https://www.tampaelectric.com/business/construction/, the Customer will correct the installation and inform the UGFI when it is ready for a re-inspection. Any fees assessed for re-inspection shall be paid by the Customer.

4. The Contribution and Credit amounts are subject to adjustment when revisions to the Company's tariff are approved by the Commission. If the Customer has requested that the Company delay the scheduled installation date or the Company's tariff is changed by Commission Action, changes in the amount of the Contribution or Credit may be made reflecting such changes. Any additional costs caused by a change in Customer's plans submitted to the Company on which the Contribution was based, shall be paid for by the Customer.

5. Ownership of the Conduit or facilities shall always remain with the Company.

6. Prior to the Company's construction the Customer shall:
   a. Clear the Company easement on the Customer's property of tree stumps, all trees, and other obstructions that conflict with construction, including the drainage of all flooded areas and well pointing if required. The Customer shall be responsible for clearing, compacting, boulder and large rock removal, stump removal, paving, and addressing other special conditions. The easement shall be graded to within six inches of final grade with soil stabilized. The Customer shall be responsible for compaction and density under paved areas.
   b. Provide property line and corner stakes, designated by a licensed surveyor, to establish a reference for locating the underground Conduit or Cable trench route in the easement. Additional reference stakes are required by the Company to be installed every 50 feet for runs over 100’. Also, the Customer shall provide stakes identifying the location, depth, size and type of facility for all underground facilities not owned by the Company within or near the easement where the Company’s Facilities will be installed. The Customer shall maintain these stakes, and if any of these stakes are lost, destroyed or moved and the Company requires their use, the Customer shall replace the stakes at no cost to the Company. The Customer shall provide staking for Company equipment including pad mounted transformers, switch gear, manholes, pull boxes, handholes and streetlights.
   c. Shall pay the cost of any subsequent relocation or repair of the Company's Facilities, once installed. If said relocation or repair is a result of a change in the grading by the Customer or any of the Customer's contractors or subcontractors, the pad mounted transformer and cable installation will not be scheduled until the relocation or repairs have been made by the Customer's contractors or subcontractors and passed inspected by the UGFI.
   d. Shall pay for all additional costs incurred by the Company which may include, but are not limited to engineering, design, administration and relocation due to changes made to the subdivision, development layout or grade.
e. Provide applicable trenching, backfilling, installation of Company-provided material and other work in accordance with the Company specifications provided on the Company's website, https://www.tampaelectric.com/business/construction/. At the discretion of the Company, either correct within two (2) working days any discrepancies found in the installation that are inconsistent with the instructions and specifications or pay the associated cost to correct the installation within thirty (30) days of receiving the associated bill, and in either case, reimburse the Company for costs associated with lost crew time due to such discrepancies.

7. Company shall:

   a. Provide the Customer with a plan showing the location of all Company underground facilities, point of delivery, transformer locations and specifications required by the Company and to be adhered to by the Customer.

   b. Install cable and equipment, own, and maintain the Facilities up to the designated point of delivery except when otherwise noted.

   c. Request the Customer to participate in a pre-construction meeting with the Customer’s contractors, the Company’s representatives and representatives of other affected utilities within six (6) weeks prior to the start of construction. At the pre-construction meeting, the Company shall provide the Customer with an estimate of the date when service may be provided.

The Customer and the Company will coordinate closely in fulfilling obligations to avoid delays in providing permanent electric service at the time of the Customer’s receipt of a certificate of occupancy.
Commercial Customer & Developer Installed Directional Bore Requirements

If a customer wants to schedule and install a directional bore as an on-site, they can. They must provide the following information, which will need to be reviewed and attached to the documents tab in TECO Work Management System prior to scheduling the job.

Prior to construction:

1. Current insurance certificate showing coverage in the amount of $5 million dollars or larger.
2. A valid Florida Certified Underground & Excavation Contractor License.

After construction:

1. Accurate bore logs that would be turned into the field inspector, so they can be added to the documents tab in TECO Work Management System and then the WR can be completed.

The Customer will be responsible for following all applicable state laws concerning digging. They will also be responsible for the installation and associate costs of the HDPE conduit used for the directional bore from the beginning to the end of directional bore. The Company does not stock or issue directional bore pipe to the Customer or our Contractors. The Company will provide (2) 90-degree elbows and the mule tape. If applicable, (1) 10’ galvanized stick of conduit to go up the terminal pole with the associated clamps. The mule tape must be blown through the conduit and tied and taped to the stub ups.

If the field inspector has a concern with the accuracy of the bore log, they can require the Customer to pothole the locations of concern to verify depth. If it is found that the conduit is shallow, it will be the responsibility of the Customer to have the directional bore re-installed.
1. Staking shall be performed per Tampa Electric specs. 1-44 & 1-45 for typical subdivisions layouts within said easement and spec. 1-46 for zero lot line or commercial applications.
   - Once staking is installed, the On-site contractor must call the Tampa Electric service area main line inspector.
   - Conduit installation should not start until the staking has been approved by the Tampa Electric service main line inspector.

2. Conduit should be buried at a minimum of 36 inches per specs. 1-43 & 1-44
   - Trench should remain open until the Tampa Electric service area main line inspector approves the installation for proper depth and location.
   - Failure to leave the trench open can result in re-excavation until proper inspection has been completed by the Tampa Electric service area main line inspector.

3. Conduit stub ups at transformer locations shall be at proper location within the transformer window per specs. 1-48 & 7.26 for a single-phase transformer and specs. 1-47 for a three-phase transformer.
   - Failure to stub up conduit at proper location within the transformer window may result in re-installation and re-inspection.

4. Pad site preparation shall be compacted and graded to final grade in a 6x6 foot area per spec. 1-48 for single-phase transformers and a 12x12 foot area per spec. 1-47 for a three-phase pad mounted transformer application.

5. Once all conduit is installed, pad sites have been prepared and grounding is installed, contractor shall call the Tampa Electric Service area main line inspector for inspection and final approval.

   Please note: After all the above steps are completed, the pad mounted transformers and cable portion of this project is now ready to be scheduled. Tampa Electric schedules all work on the next available Plan of the Week (POW) which is a minimum of two weeks away from the final approved inspection.
The purpose of this procedure is to suggest recommended practices for joining PVC conduit using solvent cement. Field conditions should be taken into consideration. PVC conduit sections may be joined by using the factory installed coupling, bell or a separate coupling. When joining 3 inch or smaller PVC, use the Clear, Fast Drying Cement, TEC NO. 2007227: for PVC larger than 3 inches, use the Gray, Medium Drying Cement, TEC NO. 2007228. In either case, the following steps should be followed:

Step 1) Examine each length of conduit and remove all debris such as paper, dirt, etc. Conduit should be dry.

Step 2) Cut pipe square and remove any burrs from both the outside of the conduit end and the inside of the coupling to be joined. Wipe clean, and if wet, dry as much as possible.

Step 3) Check dry fit, the conduit must enter at least 1/3 of the way into the socket without force.

Step 4) Quickly apply cement inside fitting/bell to full depth of socket. Also apply heavy coat of cement to conduit end. DO NOT glob, splosh or pour cement in the fitting, socket or joint - especially on bell end conduit.

Step 5) While cement is wet, insert conduit into fitting (be sure of snug fit) turning 1/4 to distribute cement evenly. When working with large conduit, extra workers or the use of mechanical helpers may be necessary. Hold joint together for one minute to set cement. Wipe excess cement off joint. Set period will depend on the following:

1) Type of Cement
2) Size of Conduit
3) Air Temperature
4) Dry Joint Tightness
5) Temperature of Conduit

NOTES:
- The cement used in joining conduit contains materials that are toxic and highly flammable. When concentrated, these vapors can be harmful and explosive. Observe, read and follow all directions on the cement container when using the cement.
- Store cement cans in a dry place out of the sun when not being used.
- Cement should have consistency of syrup or honey. If, due to prolonged exposure to air, cement becomes thick or lumpy dispose of properly. Do not try to restore cement by stirring in more cement.
- The approximate number of joints per quart of cement is as follows: 2" Conduit - 80 joints; 3" Conduit - 60 joints; 4" Conduit - 50 joints; 5" Conduit - 24 joints.
TRENCHING FOR UNDERGROUND CABLES

NOTES:

1. JOINT USE TRENCHING MAY ONLY BE USED FOR SPECIAL APPLICATIONS WITH PRIOR APPROVAL FROM A MANAGER E.D. FIELD CONSTRUCTION AND WITH ADVANCE COORDINATION AGREEMENT WITH ALL JOINT USERS.

2. DIMENSIONS SHOULD BE CALCULATED FROM FINISH GRADE OR THAT GRADE PROVIDED BY CONTRACTOR OR DEVELOPER.

3. ALL CABLES SHALL BE INSTALLED IN CONDUIT.

4. GALVANIZED STEEL CONDUIT SHALL BE USED WHEN JACKING CONDUIT UNDER EXISTING ROADWAYS. 4" AND 6" PVC CAN BE BORED UNDER ROADWAYS WITH APPROVAL FROM APPROPRIATE GOVERNMENT AGENCY.

5. MAXIMUM DEPTH TO TOP OF CONDUIT SHALL BE 42" ON ROAD RIGHT-OF-WAY UNLESS SPECIFIED BY TAMPA ELECTRIC PERSONNEL.

6. ALL SERVICES ON CUSTOMER'S PROPERTY SHALL BE NO DEEPER THAN 36" (INCHES).

7. THE FOLLOWING GUIDE MAY BE USED FOR SELECTING THE PROPER CONDUIT SIZE.

<table>
<thead>
<tr>
<th>CONDUIT SIZE</th>
<th>15 kV PRIMARY CABLE</th>
<th>600V SEC./SVC. CABLE</th>
<th>600Y STREET LIGHT CABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>2&quot;</td>
<td>1-1/0 AL</td>
<td>2-0-AL, 10-OR 30/</td>
<td>10-3/C-4 STR.</td>
</tr>
<tr>
<td>3&quot;</td>
<td></td>
<td>4-0-AL, 10-OR 30/</td>
<td></td>
</tr>
<tr>
<td>4&quot;</td>
<td>3-1/0 AL</td>
<td>500MCM AL, 10-OR 30/</td>
<td></td>
</tr>
<tr>
<td>4&quot;</td>
<td>3-4/0 AL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5&quot;</td>
<td>3-1000MCM AL</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
NOTES:
1. THIS LAYOUT IS TYPICAL FOR HILLSBOROUGH COUNTY AND IS PREFERRED THROUGHOUT OUR SERVICE AREA.
2. DO NOT GLUE ELL’S ON CUSTOMERS PROPERTY.

EXTEND CONDUIT 1'-0" INTO CUSTOMERS PROPERTY AND ELL UP AS NEEDED.

THE CONDUIT WILL EXTEND 10'-0" FROM THE TRANSFORMER LOCATION INTO THE CUSTOMERS PROPERTY.

DENOTES LATEST REVISION

TYPICAL URD LAYOUT OF HILLSBOROUGH COUNTY

TAMPA ELECTRIC CO.  STANDARDS  GENERAL RULES & SPECIFICATIONS UG.

1-44
SUBDIVISION STAKING REQUIREMENTS
FOR ALL TEC EQUIPMENT IN EASEMENTS

1-45, PG. 1 OF 2
TAMPA ELECTRIC CO.
STANDARDS
GENERAL RULES & SPECIFICATIONS UG.
STAKING REQUIREMENTS FOR APARTMENTS AND COMMERCIAL ZERO LOT LINE APPLICATIONS

1. All stakes to be installed by developer.
2. Stakes & grade required every 100' for conduit trench line, on curved portions at 25' intervals, or less if requested.
3. Staking required for all TEC equipment.
4. Offset staking required for TEC equipment - transformers, handholes, pullboxes, switchgear/LBC.

REFERENCES
CR&S, UGC.
STD. 1-11
STD. 1-43
STD. 1-44
STD. 11-1

DENOTES LATEST REVISION

TECO © March 2017
NOTES:
1. ALL DIMENSIONS SHOWN ARE MINIMUM.
2. THIS DIMENSION ALSO APPLIIES TO OPEN STAIRWAYS.
3. THERE SHALL BE NO PIPING OR CONDUIT UNDER THE PAD OTHER THAN THOSE REQUIRED TO CONNECT THE EQUIPMENT.
4. NO PORTION OF THE BUILDING SHALL EXTEND OVER EQUIPMENT, OTHER THAN METER EQUIPMENT.
5. ADEQUATE PASSAGeways TO ACCOMMODATE TRUCKS OR OTHER NECESSARY LIFTING AND HAULING EQUIPMENT SHALL BE PROVIDED TO ALLOW FOR EQUIPMENT REPLACEMENT.
6. THE EQUIPMENT SHALL BE INSTALLED SO THAT THE FRONT OF THE UNIT FACES AWAY FROM THE BUILDING.
7. THERE SHALL BE NO ABOVE GROUND OBSTRUCTIONS SUCH AS COOLING TOWERS, SHRUBS, PLANTS, FENCES, ETC. WITHIN 10'-0" OF THE FRONT OF THE EQUIPMENT, OR WITHIN 3'-0" OF THE SIDES OR BACK.
8. 5'-0" DIMENSION ALSO PERTAINS TO LP GAS PIPELINE CONNECTIONS, VALVES, OR GAUGES.
9. THIS 12'-0" DIMENSION APPLIES TO EQUIPMENT PLACED IN FRONT OF DOORS OR OPEN STAIRWAYS.
10. PRIMARY CABLES WILL NOT BE PERMITTED UNDER BUILDINGS AND STRUCTURES.
11. A VERTICAL SEPARATION OF 1'-0" OR GREATER IS REQUIRED WHEN CROSSING OTHER UNDERGROUND STRUCTURES (SEWER LINE, WATER LINE, GAS LINE, FLAMMABLE MATERIAL LINE, BUILDING FOUNDATION, STEAM LINE, ETC.) OR CABLE. THE CABLE SHALL BE SUITABLY SUPPORTED OR HAVE SUFFICIENT VERTICAL SEPARATION TO LIMIT THE LIKELIHOOD OF TRANSFERRING A DETRIMENTAL LOAD ONTO THE STRUCTURE (2017 NESc Rule 353B).
12. EQUIPMENT AND CONDUIT SHALL MAINTAIN A 3'-0" CLEARANCE FROM SEPTIC TANKS, DRAIN FIELDS, AND ASSOCIATED PIPING, AND CONDUIT SHALL NOT BE INSTALLED UNDER DRAIN FIELDS.
13. IF ANY PART OF TEC'S ELECTRICAL EQUIPMENT WILL NEED TO BE CLOSER TO ANY OUTSIDE WALL OF A BUILDING THAN INDICATED ABOVE, LOCATED IN THE R.G.W., OR LOCATED UNDERGROUND ANY PART OF THE BUILDING IT WILLLIKELY NEED TO BE PLACED IN A VAULT—SEE L.G.R.S SECTION 13 AND CONTACT DISTRIBUTION ENGINEERING.

REFERENCE: 2017 NESc

LOCATION OF NON-OIL FILLED ELECTRICAL EQUIPMENT

1-16
TAMPA ELECTRIC CO. STANDARDS | GENERAL RULES & SPECIFICATIONS
NOTES: (APPLY TO PAGE 1 & 2)

1. ALL DIMENSIONS SHOWN ARE MINIMUM. AN AUTHORITY HAVING JURISDICTION OR ANOTHER CODE MAY REQUIRE ADDITIONAL CLEARANCE. REDUCTION OF THE ABOVE DIMENSIONS REQUIRES WRITTEN APPROVAL FROM THE STATE FIRE MARSHALL AND TEC.

2. DRAINAGE OF THE AREA SURROUNDING THE EQUIPMENT SHOULD BE AWAY FROM BUILDING.

3. THIS DIMENSION ALSO APPLIES TO OPEN STAIRWAYS, WHEEL CHAIR RAMPS, ETC.

4. THERE SHALL BE NO PIPING OR CONDUT UNDER THE PAD OTHER THAN THOSE REQUIRED TO CONNECT THE EQUIPMENT.

5. NO PORTION OF THE BUILDING SHALL EXTEND OVER THE EQUIPMENT.

6. PAVED AND UNOBSTRUCTED PASSAGEWAYS TO ACCOMMODATE TRUCKS OR OTHER NECESSARY LIFTING AND HAULING EQUIPMENT SHALL BE PROVIDED TO ALLOW FOR EQUIPMENT REPLACEMENT.

7. THE EQUIPMENT SHALL BE INSTALLED SO THAT THE FRONT OF THE UNIT FACES AWAY FROM THE BUILDING.

8. THERE SHALL BE NO ABOVE GROUND OBSTRUCTIONS SUCH AS COOLING TOWERS, SHRUBS, PLANTS, FENCES, ETC. WITHIN 10'-0" IN FRONT OF THE OIL FILLED EQUIPMENT DOORS, OR WITHIN 3'-0" OF THE SIDES OR BACK.

9. THE MINIMUM CLEARANCE REQUIREMENTS FOR DOORWAY ALSO APPLIES TO FIRE ESCAPES.

10. DIMENSION A1 IS APPLICABLE WHERE THERE IS NO WINDOW ABOVE THE EQUIPMENT OR THERE IS A WINDOW AT A HEIGHT OF 12'-0" OR MORE AS SHOWN IN THE ELEVATION ABOVE. SEE A2, A3 AND TABLE 1 WHEN WINDOW IS NEAR.

11. DIMENSION C IS APPLICABLE WHEN OIL FILLED EQUIPMENT IS LOCATED IN FRONT OF DOOR.

12. DIMENSIONS ALSO APPLY TO TRANSCLUSION CABINET WALLS.

13. TAMPA ELECTRIC CO. REQUIRES THAT THE EXHAUST OUTLET FOR CUSTOMER-OWNED GENERATORS BE AT LEAST 15'-0" FROM ALL TAMPA ELECTRIC EQUIPMENT BECAUSE OF HEAT, NOISE & EXHAUST FUMES.

14. TAMPA ELECTRIC CO. REQUIRES A MINIMUM SWITCHING CLEARANCE OF 10 FEET IN FRONT OF THE EQUIPMENT DOORS AND 3 FEET ON THE SIDES AND BACK OF EQUIPMENT FOR MAINTENANCE ACCESS.

15. PRIMARY CABLES WILL NOT BE PERMITTED UNDER BUILDINGS AND STRUCTURES.

16. PROVIDE 3'-0" MINIMUM CLEARANCE TO DOORWAY. FOR DOORS WIDER THAN 3'-0", THE MINIMUM CLEARANCE SHALL BE INCREASED TO THE WIDTH OF THE DOOR. CLEARANCE IS REQUIRED REGARDLESS OF DIRECTION OF DOOR SWING OR HINGE LOCATION.

17. IF ANY PART OF TEC'S OIL FILLED EQUIPMENT WILL NEED TO BE CLOSER TO ANY OUTSIDE WALL OF A BUILDING THAN INDICATED ABOVE, LOCATED IN THE R.O.W., OR LOCATED UNDERNEATH ANY PART OF THE BUILDING IT WILL LIKELY NEED TO BE PLACED IN A VAULT - SEE UG GRS SECTION 13 AND CONTACT DISTRIBUTION ENGINEERING.
CONDUIT INSTALLATION

1. ALL CONDUITS TO HAVE 36" MIN. COVER
2. STACK CONFIGURATION TO BE AS SHOWN ABOVE.
3. PRIMARY & STREET LIGHT CONDUITS TO BE INSTALLED TOWARD FRONT OF WINDOW AND IDENTIFIED WITH BLACK MARKER AS FOLLOWS:
   PR=PRIMARY LEFT
   PS=PRIMARY RIGHT
   SL=STREET LIGHT
4. TEC FIELD ENGINEER TO SPECIFY NUMBER OF CONDUITS.

TRANSF. SITE PREPARATION

1. FINISHED GRADE MARK TO BE NOTED ON PDI CONDUIT WITH BLACK MARKER, PROPERTY CORNERS TO BE PLAINLY MARKED.
2. PROVIDE 6' X 6' FLAT LEVEL AREA AROUND CONDUITS COMPACTED AND AT FINAL GRADE, SEE OUTLINE ABOVE.
3. AT HANDHOLE LOCATIONS PROVIDE 4' X 4' FLAT LEVEL AREA AROUND CONDUITS AT FINISHED GRADE TO BE MARKED ON SEC. CONDUIT.
4. ALL CUSTOMER CONDUITS MUST BE IN PLACE & Stubbed OUT 10' BEYOND PAD WITH SECONDARY CABLE PLAINLY MARKED & IDENTIFIED WHEN INSTALLED.
5. BOTTOM OF PAD TO BE EQUAL TO TOP OF SIDEWALK, SOIL, DIRT, MULCH & CONCRETE, ETC.
6. SMALL & LARGE PADS TEC NO. 2001001 & 2001002 MADE AFTER AUGUST OF 2000 HAVE BEEN STANDARDIZED TO A 14" X 24" WINDOW, LARGE PADS, TEC NO. 2001002 BUILT BEFORE AUGUST OF 2000 WILL HAVE A 12" X 24" WINDOW.
7. THE GRADED SITE SHALL BE SURROUNDED WITH SOIL OR SUITABLE PLASTIC TO PROTECT IT FROM EROSION.
8. SLOPED AREAS ADJACENT TO THE SITE MAY REQUIRE EROSION PROTECTION AT THE DIRECTION OF TEC PERSONNEL.
9. FOR MOLDED TYPE PAD SITE, ADD GRADE 2' BEYOND PAD SITE.

DETONES LATEST REVISION

CONDUIT INSTALLATION/SITE PREPARATION
SINGLE-PHASE PAD-MOUNT TRANSFORMER INSTALLATION

TAMPA ELECTRIC CO. STANDARDS GENERAL RULES & SPECIFICATIONS UG.
TABLE 1

<table>
<thead>
<tr>
<th>TRANSFORMER KVA</th>
<th>ALLOWABLE SERVICE CABLES PER LEG</th>
<th>SECONDARY CONNECTOR TEC. NO.</th>
<th>CABLE RANGE</th>
<th>CU OR AL</th>
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<tbody>
<tr>
<td>25 THRU 75</td>
<td>6</td>
<td>2004948</td>
<td>#10-350 KCMIL</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>2004954</td>
<td>#6-500 KCMIL</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>2004902</td>
<td>1/0-750 KCMIL</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>2004950</td>
<td>#6-250 KCMIL</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>2004904</td>
<td>#6-500 KCMIL</td>
<td></td>
</tr>
<tr>
<td>100 THRU 250</td>
<td>6</td>
<td>2004952</td>
<td>#2-500 KCMIL</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>2004901</td>
<td>1/0-750 KCMIL</td>
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</tr>
<tr>
<td></td>
<td>8</td>
<td>2004903</td>
<td>#2-500 KCMIL</td>
<td></td>
</tr>
</tbody>
</table>

NOTES:

1. CONCRETE PAD AND ITS LOCATION WILL BE SPECIFIED BY TAMPA ELECTRIC CO.
2. LOCATION OF PAD-MOUNT TRANSFORMERS MUST MEET THE LOCATION REQUIREMENTS FOR OIL FILLED EQUIPMENT (SEE 7.39).
3. ALL CUSTOMER-OWNED CONDUITS SHALL STUB UP BETWEEN 1" AND 3" ABOVE PAD WINDOW. BEGIN INSTALLING CONDUIT FROM THE RIGHT REAR OF THE WINDOW.
4. TAMPA ELECTRIC CO. WILL MAKE ALL SECONDARY CONNECTIONS.
5. SECONDARY CONNECTORS FOR SPECIFIC WIRE SIZES ARE LISTED IN THE TABLE AND SUPPLIED BY TAMPA ELECTRIC CO. ANY OTHER CONNECTOR MUST BE APPROVED BY TAMPA ELECTRIC CO. FOLLOWING APPROVAL, THE CUSTOMER SHALL PROVIDE THE CONNECTORS AND ONE SET OF SPARES TO TAMPA ELECTRIC CO. FOR INSTALLATION.
6. WHEN THE NUMBER OF SECONDARY CABLES EXCEED TABLE 1, A PAD-MOUNT SECONDARY CABINET WILL BE REQUIRED (SEE 7.28).
7. A SINGLE SERVICE SHALL NOT BE GREATER THAN 1,200 AMPERES CONTINUOUS LOAD. CONTACT DISTRIBUTION ENGINEERING FOR LARGER SERVICES.

DENOTES LATEST REVISION

REQUIREMENTS FOR SINGLE-PHASE URD PADMOUNT TRANSFORMER INSTALLATIONS
CONDUIT DETAIL FOR
OPEN WYE-OPEN DELTA TRANSFORMER BANK
USING SINGLE-PHASE TRANSFORMERS

<table>
<thead>
<tr>
<th>PAD</th>
<th>A</th>
<th>B</th>
<th>USE FOR TRANSFORMER SIZES</th>
</tr>
</thead>
<tbody>
<tr>
<td>USING TWO PADS TEC NO. 2001315</td>
<td>40</td>
<td>40</td>
<td>25 - 50 kVA</td>
</tr>
<tr>
<td>USING TWO PADS TEC NO. 2001316</td>
<td>44</td>
<td>44</td>
<td>75 - 250 kVA</td>
</tr>
<tr>
<td>USING ONE OF EACH PAD TEC NO. 2001315 &amp; 2001316</td>
<td>42</td>
<td>42</td>
<td>25 - 50 &amp; 75 - 250 kVA</td>
</tr>
</tbody>
</table>

NOTE:
1. ADD 12" TO DIMENSION A & B IF PADS ARE TO BE SPACED 12" APART IN AREA WITH NO TRUCK ACCESS.
NOTES:

1. CUSTOMER CONDUIT MUST BE IN PLACE AND STUBBED OUT 10' BEYOND PAD BEFORE PAD IS SET OR POURED.
2. PROVIDE 12'X12' COMPACTED AND FLAT LEVEL AREA AT FINISHED GRADE SEE OUTLINE ABOVE.
3. ALL CONDUITS TO HAVE 36" MIN. COVER.
4. CUSTOMERS SECONDARY CABLE, WHEN INSTALLED TO BE MARKED & IDENTIFIED.
5. BOTTOM OF PAD TO BE EQUAL TO TOP OF SIDEWALK, SOD, DIRT, MULCH & CONCRETE, ETC.
6. FINISHED GRADE MARK TO BE NOTED ON PRIMARY CONDUIT WITH BLACK MARKER.
7. TRANSFORMER PAD SITES PRONE TO EROSION MAY REQUIRE SOD OR SUITABLE PLASTIC. AREAS ADJACENT TO THE SITE MAY ALSO REQUIRE EROSION PROTECTION AT TEC PERSONNEL'S DISCRETION.
8. SLOPED AREAS ADJACENT TO THE SITE MAY REQUIRE EROSION PROTECTION AT THE DIRECTION OF TEC PERSONNEL.
9. PRIMARY & SERVICE CONDUIT TO BE SEPARATED A MINIMUM OF 13'.
10. FOR MOUNDED TYPE PAD SITE, ADD GRADE 2' BEYOND PAD SITE.
**Transformer Material No.**

<table>
<thead>
<tr>
<th>Transformer Material No.</th>
<th>Transformer KVA</th>
<th>Pad Size</th>
<th>Percent Pad</th>
<th>TKN No.</th>
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</thead>
<tbody>
<tr>
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**NOTES:**

1. Contractor will use a concrete mix certified by the producer to develop 4,000 psi per cu. yd. in 28 days.
2. Reinforcing material to be 6" x 6" (10/10 wire mesh) installed 3" from the bottom of the pad.
3. Top of pad to be 2" above finished grade and have a 1" x 1" bevel around top edge.
4. Allow pad to harden three days before installing transformers.
5. Pad sizes are based on the heaviest transformer under each code number and a minimum of 3" concrete skirt around the transformer.
6. Secondary ducts should be placed as far to right as possible within the secondary compartment.
7. Examination of transformer KVA & Voltage code number is as follow:
   - 266 — Live-Front Radial Feed 208V/120V Secondary
   - 267 — Live-Front Radial Feed 480V/277V Secondary
   - 268 — Live-Front Radial Feed 480V/277V Secondary
   - 269 — Live-Front Radial Feed 480V/277V Secondary
   - 270 — Live-Front Radial Feed 480V/277V Secondary
   - 271 — Live-Front Radial Feed 480V/120V Secondary
   - 272 — Live-Front Radial Feed 240V/480V Secondary

**120V/208Y: 267 + Transformer Size = Pad Size**

**277V/480Y: 268 + Transformer Size = Pad Size**

**Ex: 267 + 150 KVA = 2670150 (74"W X 66"D X 48"A)**

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**PAD DESIGN FOR**

**THREE-PHASE PAD-MOUNTED TRANSFORMERS**

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**TAMPA ELECTRIC CO.**

**STANDARDS**

**GENERAL RULES & SPECIFICATIONS**

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**6-12**

---

**TECO March 2017**
**TABLE 1**

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<tr>
<th>KVA</th>
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<td>2000</td>
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*One additional conduit is allowed for CT wiring.*

**NOTES:**

1. Primary conduit to be centered in primary compartment.
2. Service conduit to be centered in secondary compartment. Customers should receive appropriate pad detail prior to installing conduit.
3. Primary & Service conduit to be separated a minimum of 13".
4. Maximum secondary conduits include those required for TEC use.
5. You must obtain standards approval to exceed maximum allowed conduits in secondary compartment.
6. Finished grade mark to be noted on primary conduit with black marker.

**CONDUIT DETAIL FOR THREE-PHASE**

**PAD-MOUNTED TRANSFORMER**
REFERENCES

GROUND WIRE MUST BE INSTALLED ON OPPOSITE SIDE FROM SET SCREW

½" GROUND ROD CLAMP TEC NO. 2077906

1/2" X 10'-0" THREADLESS GROUND ROD TEC NO. 2077980
(4 RODS AT DEPTH OF 40FT, REQUIRED)

ROTARY 'STAR-DRIVE' DRILLING TIP (OPTIONAL)
TEC NO. 2003837
TO BE USED ONLY IN HARD PAN AREAS

ELEVATION

1/2" THREADLESS COUPLING TEC NO. 2077939

GROUNDS ASSEMBLY AND INSTALLATION DETAILS
NOTES:
1. All conductors shall be staggered to extend 0 to 12 inches above the handhole so connections can be easily made.
2. Wire brush conductors.
3. Service conductors shall be color coded as shown in Griss UG Spec. 5-7.
4. Place warning decal on locking mechanism side (road side).
5. Ground under pedestal should be tamped to prevent settling.
6. Pedestal locking mechanism shall be installed a minimum of 2' above final grade.
7. Conduct shall stub up 2' above interior dirt fill.
8. Neutral service conductors shall extend above grade to just under height of cover when installed. Hot legs shall be staggered under neutral providing adequate clearance for work.

TYPICAL

SECTION "A-A"

ROAD SIDE
FRONT VIEW

SIDE VIEW

TYPICAL HANDHOLE GUIDELINE

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9-26-19
MCR RTS
REV. DATE
9-27-22-10

DENOTES LATEST REVISION

URD ABOVE GRADE PEDESTAL INSTALLATION INSTRUCTIONS
NOTES:

1. UP TO 4 BOLLARDS SHOULD BE INSTALLED AROUND PERIMETER WHEN OIL FILLED PAD-MOUNTED EQUIPMENT IS LOCATED IN ANY AREA ACCESSIBLE TO VEHICLES FOR PROTECTION OF AREAS THAT COULD BECOME CONTAMINATED WITH MINERAL OIL SUCH AS DRAINAGE PONDS, FOOD SERVICE AREAS, PARKING LOT DRAINS, OR OTHER SENSITIVE AREAS.

2. DISTANCES CAN VARY WITH SIZE OF EQUIPMENT DOORS, DOOR STOP ANGLE AND TYPE OF MAINTENANCE/OPTION PROCEDURES NECESSARY TO MAINTAIN/OPEPARE/REPLACE EQUIPMENT IN A SAFE MANNER.

Installation Procedure for Protective Bollards Used with Pad-Mounted Equipment