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1. UFM furnished toilet accessories: 4 pages
2. Door Access Control: 2 sheets
3. Restroom Design: 3 pages
4. Electrical Items: 15 pages
5. Fire Department Items: 14 pages
6. Tree Protection Details: 1 page
7. Site Lighting: 2 sheets
UFM Approved Standardized Restroom Dispensers

Feminine Hygiene Disposal Receptacle  RMC Sanisac #33W  Part #25033000

GoJo Handsoap Dispenser, 1250 ML ADX-12, White  8884-06
GoJo Purell Hand Sanitizer Dispenser, 1200 ML ADX-12, White 8820-06

GoJo Shield Floor/Wall Protector 1045-WHT-12
Von Drehle Tissue Dispenser, 3 Station Carousel, Smoke/Black  3342

Item # | Description | Depth | Uses Paper
--- | --- | --- | ---
3342 | 3 Station Carousel Dispenser | 6.08 inches | PR350

- **Brand name:**
- **Base:** Black Polystyrene
- **Cover:** Smoke Polycarbonate
- **Case Cubes:** 8.73
- **Width:** 13.11 inches
- **Height:** 14.93 inches
- **Shipping Weight:** 4.60 lbs

Von Drehle Auto-Cut Towel Dispenser, Black/Black  8864

Item # | Description | Depth | Uses Paper
--- | --- | --- | ---
8864 | 8” Mechanical Pull Down Dispenser | 10.18 inches | 818B, 818N, 835-0, 835-N, 860-0, 860-N, 860BS, 860NS, 880-0, 880-N, 88012-0, 88012-N, 88012T, 88015, 88015S, 88015N, 88015NS

- **Brand name:**
- **Base:** Black Impact-Resistant Plastic
- **Cover:** Black Impact-Resistant Plastic
- **Case Cubes:** 127
- **Diameter:**
- **Width:** 12.05 inches
- **Height:** 15.00 inches
- **Shipping Weight:** 6.7 lbs
Residence Services Toilet Accessories

**Paper towel dispensers** – Scott roll towel (smoke) 46253

**Toilet paper dispensers** – GP compact Quad – 56744

GP compact two roll veridical – 56790

**Soap dispensers** – GOJO ADX-12 1250 ml

**Hand sanitizer** – Purell 7720-01 1200 ml, battery built into refill

Student Center and Rec Center Toilet Accessories

**Paper towel dispensers** – DV-880012N roll towel 800

**Toilet paper dispensers** – Staples 9 inch jumbo rolls

**Soap dispensers** – varies: use liquid pink hand soap

DeWeese Health Center Toilet Accessories

**Paper towel dispensers** – DV-880012N roll towel 800

**Toilet paper dispensers** – DV-3109 Jumbo toilet paper, single and double rolls

**Soap dispensers** – varies
Specifications

Conductor Size: 350-37 kcmil
Insulation Thickness: .220" EPR
Tape Shield: .005" COPPER
Single Jacket Thickness: .080" CPE
Single O.D.: 1387"
Ground Conductor: 1 X #2-7 AWG
Armor Thickness: .030" ALUMINUM
Jacket Thickness: .085" FR-PVC
Approximate O.D.: 3.483"
Approximate Weight: 7265 LBS/MFT

Color to be determined by KSU

Standards
ASTM - B3 & 8
ICEA - S-93-639
UL - 1072
### MEDIUM VOLTAGE ONE CONDUCTOR EPR CABLE

**CATALOG SPEC: CT1-13ET**  
CT RATING for Sizes 1/0 and Larger  
Southwire Internet Catalog Sec. 36 p. 4

<table>
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<th>SIZE</th>
<th>INSULATION THICKNESS</th>
<th>STOCK NUMBER</th>
<th>COPPER WEIGHT/MFT</th>
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Need +25% overlap on tape-shield

### CATALOG SPEC: CT1 - 21ET

Southwire Internet Catalog Sec. 36 p. 8

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+25% overlap

[Diagram of cable with annotations]

KENT STATE UNIVERSITY  
UNIVERSITY ARCHITECT'S OFFICE  
[Approval stamps]

DATE: 4/15/2009 BY C. Ricchetti

DESIGN GUIDE 260513  
MED VOLT CABLE  
SINGLE CONDUCTOR  
DATE: 01-14-2010  
CA-2
EPR/Copper Wire Shield/CPE, Medium-Voltage Power, Shielded
15kV, UL Type MV-105, 133% Ins. Level, 220 Mils

Product Construction
Conductor:
• 2 AWG thru 1000 kcmil annealed bare copper compact Class B strand

Extruded Strand Shield (ESS):
• Extruded thermostet semi-conducting stress-control layer over conductor

Insulation:
• Ethylene Propylene Elastomer (EPE) insulation ordered to contrast with black conducting shield layers

Composite Insulation Shield and Jacket:
• Six corrugated copper drain wires embedded in composite layers of semi-conducting thermoset copolymer and semi-conducting black flame-resistant Unisheild Polyethylene (CP)

Print:
• GENERAL CABLE CORP (CITY OF MANUFACTURE) LIGHTNING BOLT SYMBOL 1/2 SCALE (FWI) COMPACT CU UniSheild Insulation Thickness EPR DiRTIP SEMI-CONE CPE J TYPE MV-165 (VOLTAGE) KV6 INSULATION LEVEL, SUN FES FOR USE (LA) SEQUENTIAL FOOTAGE MARK *Some smaller sizes 1/2 AWG do include "FOR CT USE"

Features:
• Rated at 105°C
• Reduced conductor size and shield system provides the smallest premium medium-voltage shielded power cable with full insulation
• Smaller outside dimensions reduce the size of duct needed to increase the ampacity per duct
• All features contribute to faster and easier installation
• Superior cold temperature performances
• Stable and constant shield short circuit performance

Applications:
• Installed in a broad range of commercial, industrial, and utility projects such as pulp and paper mills, petrochemical plants, steel mills, textile mills, water and sewage treatment facilities, environmental protection systems, railways, mines and fossil fuel utility generating stations
• Suitable for use in wet or dry locations when installed in accordance with NEC
• For use in aerial, conduit, open tray and underground duct installations
• Suitable for use in direct buried if installed in a system with a grounded conductor that is in close proximity, and conforms with NEC 250-4 (A) (6)

Compliances:
• National Electrical Code (NEC)
• UL 1072
• IEC 60502-1 (NEMA WC-74)
• IEC 60838-1
• ADIC CS8
• UL listed as Type MV-105 for use in accordance with NEC
• Suits 1/2 AWG and larger are listed and marked "Sunlight-Resistant Foil CT USE" in accordance with NEC
• IEEE 1386 (70,000 BTU/kW) CSA F74
• Meets EPA 40 CFR, Part 267 for leachable lead content per TCLP method
• OSHA acceptable

Optional Flame Tests:
• IEC 129-200 (0,100,000 BTU/h)

Packaging:
• Material cut to length and shipped on non-returnable wood reels. Lengths in excess of 10,000 ft are provided on returnable steel reels that require a deposit
• Extra charges apply for cuts less than 1000 ft, lagging, pulling eyes, paralleling, and一大堆}

<table>
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<tr>
<th>CATALOG NUMBER</th>
<th>CORD. SIZE (AWG)</th>
<th>NOMINAL CONDUCTOR DIAMETER (INCHES)</th>
<th>INSULATION DIAMETER (INCHES)</th>
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*Not stock item, minimum order apply. Please consult Customer Service for price and delivery.

(1) Ampacities are in accordance with Table 310-72 of the NEC for single or three single conductor copper cable. All ampacities are based on conductor temperature of 75°C (167°F) and 100% insulation load. For cable sizes 1/2 AWG and larger, the ampacity is based on the conductor's temperature of 75°C (167°F) minus 4°C (4°F) for each degree of decrease in temperature. For cable sizes 1/2 AWG and larger, the ampacity is based on the conductor's temperature of 75°C (167°F) minus 4°C (4°F) for each degree of decrease in temperature. For cable sizes 1/2 AWG and larger, the ampacity is based on the conductor's temperature of 75°C (167°F) minus 4°C (4°F) for each degree of decrease in temperature. For cable sizes 1/2 AWG and larger, the ampacity is based on the conductor's temperature of 75°C (167°F) minus 4°C (4°F) for each degree of decrease in temperature.

(2) Ampacity is in accordance with Table 310-72 of the NEC for shielded or three single conductor copper cable and is based on conductor temperature of 75°C (167°F) and 100% insulation load. For cable sizes 1/2 AWG and larger, the ampacity is based on the conductor's temperature of 75°C (167°F) minus 4°C (4°F) for each degree of decrease in temperature. For cable sizes 1/2 AWG and larger, the ampacity is based on the conductor's temperature of 75°C (167°F) minus 4°C (4°F) for each degree of decrease in temperature. For cable sizes 1/2 AWG and larger, the ampacity is based on the conductor's temperature of 75°C (167°F) minus 4°C (4°F) for each degree of decrease in temperature.

DATE: 01-14-2010
NEW MANHOLE NOTES

1. Provide precast flush to grade 6” x 8’ x 6’ manhole with accesssories as indicated. Manhole to withstand H-20 loading in accordance with AASHTO.

2. Provide 18” bedding under vault, #57 gravel. Gravel shall extend out 24-36” on all sides.

3. Belco type “PCM” 30” x 30” aluminum access door with panic hardware. Standard removable turn handle, removable plug lockset, provide lock and keying per KSU standard. Corbin Russwin Mortise Cylinder, 6BA-6 pin keyway. Door to be cast into manhole. Door shall be min 1/4” AL diamond plate. Typical of 2. Door shall have “electric” logo.

4. Grout (non-shrink) all joints in walls and duct entrances to provide a waterproof structure. Install 1” double between ductbank & manhole, all conduits entering WH shall have bell end fittings.

5. 1” diameter steel, reinforced polypropylene manhole steps 18” wide, 12” on centers, starting at 12” down from access door to within 2” of floor.

6. 12” gravel swale, fur sloped to drain to swale. Provide rock swale 2’-0” deep, 3” diameter centered beneath swale hole.

7. Pulling rods

8. Heavy duty non-metallic 14” cable racks. Rack standon shall be secured to wall with concrete anchors. Adjust racks to accommodate the cables from the various ducts. Typical of 8. All hardware shall be stainless steel.

9. 1” openings in concrete base with 3/4” x 10’ ground rod. Attach to 600V ground conductor with 4/0 copper.

10. EC shall install these 5” SCH 40 PVC conduits out from WH and intercept existing conduits stubbed out from stopper/Johnson construction site. These conduits shall also be encased in concrete.

11. Manhole shall have two coats of waterproof sealer applied inside and out.

12. 6” compacted granular leveling course (ODOT A304 crushed limestone).

13. Install granular fill on all four sides to within 24” of top.

NEW MANHOLE #1

NO SCALE

TYPICAL REQUIRED MANHOLE CONSTRUCTION
SPLICING CONNECTOR (BLACKBURN WR9, BRUNDY YPC2ABU OR EQUAL) ENCAPSULATED WITH A RAYCHEM GEL ENCLOSURE

HEAVY DUTY BOLTED COVER QUAZITE PART #P01324H400 (OR EQUAL), WITH LOGO "LIGHTING".

FLUSH TO GRADE INGROUND PULLBOX 13" X 24" WITH OPEN BOTTOM QUAZITE PART #P01324B412 (OR EQUAL).

RED 2" WIDE WARNING TAPE WITH ALUMINUM CORE ABOVE ALL UNDERGROUND CONDUITS.

MIN 3/4" SCH40 PVC CONDUIT, CONDUIT TO EXTEND 3" ABOVE GRAVEL TYP.

6" OF GRAVEL OR CRUSHED ROCK FOR DRAINAGE PURPOSES. EXTEND GRAVEL 4" BEYOND EDGE OF BOX.

UNDISTURBED EARTH MATERIAL

SPLICE BOX INSTALLATION DETAIL
NO SCALE
EC SHALL RAKE RED DYE INTO TOP 1" OF ODOT CLASS F CONCRETE

WARNING TAPE

GRADE

2" - 6" MINIMUM COVER

1/2" SCH40 PVC WITH #12AWG (TRACER).

RE-INFORCING RODS (2, #4 REBAR RUN PARALLEL WITH CONDUIT ENTIRE LENGTH.

#3 TIES AT 24" O.C. TYP

CARLON NONMETALLIC SNAP-LOC SPACER (EVERY 8') TO ENSURE 3" CONCRETE COVER ALL SIDES

5" PVC, SCH 40 DUCTS ENCASED IN CONCRETE

REQUIRED DUCTBANK CONSTRUCTION
1. PROVIDE AND INSTALL 3140500V CLASS DATABASE ELBOW CONNECTIONS WITH TEST POINT, INSULATING PLUG, CAP, SEND AND CABLE ADAPTER KIT (CABLE=DOCK). ON APPROVED TYPE. FC SHALL ORDER APPROPRIATE ACCESSORIES SUCH AS LUGS, SHEILD GROUNDING CLIPS, ETC. BOX CABLE SHOULDE TO GROUND USING COMPRESSION CONNECTORS, TYPICAL OF B.

2. PROVIDE AND INSTALL FAULT INDICATOR ON EACH PHASE. THE INDICATOR SHALL PROVIDE ALARM AFTER THE CABLE HAS FAULTED. THE FAULT INDICATORS SHALL BE SET AT THE HEAD OF THE SF6 KIT SHALL BE VENTED, HEAT AND CORROSION RESISTANT.

3. FC SHALL INSTALL SURGE ARRESTER ON PER CABLE. FC SHALL USE A TYPICAL CLASS B/14W METAL CLAD Varistor ELBOW ARRESTER HUBBELL (H110142) OR APPROVED EQUIV. THE ELBOW ARRESTER SHALL BE INSTALLED ON THE BACK OF THE SF6 DEGRADATION ELBOW (H1A), A TYPICAL CONDENSATION INLET PLUG HUBBELL (H110130) OR APPROVED EQUIV.

4. RANDOMAIZE CLASS LOUDSPEAKER ON PER PHASE WITH A 30A FUSE PLUS 3 SPARE.

5. FOUR (4) 3/4" x 1" GROUND ROHS AROUND XFRM PAD CONNECTED WITH 4/0 Cu CONDUIT. 4/0 Cu GLD FROM OPEN BLOX CABAL TO END. CONDUCTOR OR ROHS TO XFRM. TAPER 4/0 Cu TERMINAL CONGO AND BONDED CAP BRAH ACG, Sibe. TO CONDUIT.

6. FC SHALL ENSURE THAT THE SF6 TRANSFORMER SECONDARY BUSHINGS ARE CALLED TO ACCEPT A B-DOCKS WIT, CONDUCTORS PER PHASE.

7. FC SHALL ANCHOR THE PADMOUNT TRANSFORMER XFRM TO THE CONCRETE PAD AT FOUR CORNERS OF DEVICE.

8. LOOPTED SWITCHES CONNECTING OF THE (2) TWO SECTION, 13Kv, 500VA, 100A, 1200 VAC OPERATED INTERGALIC OR SWITCHES.

9. OPEN DRAWER SWITCH TO D5-DOWN, THE TRANSFORMER WITHOUT OPENING THE LOOPTED SWITCHES.

10. THE TRANSFORMER SHALL ALSO HAVE (2) LINE BREAKER, COLD SHUNT VALUE, PRESSURE GAUGE, PRESSURE GIGE VALVE, TEEN GE FILL VALVE AND A TEMPERATURE GAUGE.

11. FC SHALL INSTALL 3, 13Kv INSULATED PROTECTIVE CAPS, CONNECT BUSHINGS TO BATCH.

12. THE TRANSFORMER PAD SHALL BE 12" THICK SHOWN CONCRETE WITH 4" RISING BUTT STEEL T/F/B, EACH DIRECTION.

13. INSTALL A MINIMUM 8" OF CRUSHED STONE OR GRAVEL BELOW PAD. THE STONE/GRAVEL SHALL EXTEND MINIMUM OF 8' OUT FROM THE SLAB ON ALL SIDES.

14. 1" ROUNDED EDGE ALL SIDES.

15. R-1-1/2" PIPE SCH 40 CONNECTS WITH (4)-DOCKS WIT, CONDUCTORS IN BASE.

16. THE TRANSFORMER SHALL CONTAIN LESS FLAMMABLE LIQUID (G-KING).

TYPICAL PADMOUNT XFRM

NO SCALE

KENT STATE UNIVERSITY
OFFICE OF THE UNIVERSITY ARCHITECT

DESIGN GUIDE 261200
MEDIUM VOLT XFRM

DATE: 01-14-2010

XF-1
NEW SECTIONALIZING SWITCH

1. The bottom of equipment is critical. Equipment layout as shown is based on the basic switch design. The owner shall assume responsibility for any changes or additional work created by use of equipment by manufacturers other than ECI.

2. ECI shall provide and install bolt-on feet, shield enclosure (6000 x 1000 mm). Enclosure shall be painted olive green and anchored to concrete pad.

3. ECV shall install 1/4" x 1" copper ground bar at the length of the switch.

4. Pin prohibit and install 1/8" copper clad exoskeleton elbow connections (3000 mm). Pin prohibit and a 1/8" copper clad exoskeleton elbow (4" square exoskeleton) with a 1/8" copper clad exoskeleton elbow sharp (4" square exoskeleton) or approved equal (12 terminals). ECI shall bond arrester and leads to copper bus. ECI shall verify bonding by coulometer to ensure that there is 0 ohm contact to accommodate copper elbow, zinc insert & elbow arrester.

5. ECI shall provide 6" sch 40 PVC conduits out of the slab. Conduits shall be 2" above slab. Conduits shall have steel conduit ferrules, 1 of 5 conduit.

6. Provide and install copper (3000 mm) and resistor fault indicators one per phase (12 total). ECI shall also supply 2 copper resistor tools (insert).

7. ECI shall provide and install 4 copper 3/4" x 10" cold rods in the slab. ECI shall use 4/0 copper conductors to bond the rods and ground one of the three units in the switch.

8. ECI shall provide 3/4" hot rod for minimum compression strength concrete pad and 3/4" rebar secured below pad.

9. All rebar for steel 12" die steel are earring securely tied together.
NOTE FOR KING OHIO
TEFLON TAPE AND ASSEMBLE AT FACTORY PRIOR TO SHIPPING

SPECIFICATIONS
CATALOGUE NO.: K829-HGSA-V-150(MED)
- MH(PS) - 277(MT) - KPL10

QUANTITY: 1
OPTICAL SYSTEM: HYDROFORM GLASS LENS
IES LTG. CLASS: TYPE V
WATTAGE: 150W
SOCKET SIZE: MEDIUM
LIGHT SOURCE: METAL HALIDE (PULSE START)
LINE VOLTAGE: 277V (MULTI-TAP)
PANT: FLAT

KENT STATE UNIVERSITY
UNIVERSITY ARCHITECTS OF OHIO

FINAL APPROVAL
APPROVED AS NOTED
REVISE AND RESUBMIT

BALLAST INFORMATION:
BALLAST TYPE: HX-HPF
BALLAST MANU.: ADVANCE

DATE 1/5/10
BY CHECKED CATALOG NUMBER: 71A5492-500D

CHECKING OF SHOP DRAWINGS BY THIS OFFICE DOES NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR DEVIATIONS FROM DRAWINGS & SPECIFICATIONS OR FOR ERRORS IN SHOP DRAWINGS.

QUICK DISCONNECT CHECKED
TERMINAL BLOCK

OTHER:
FOR WIRING DIAGRAM SEE DRAWING 209B0103

CUSTOMER APPROVAL & DATE: 1/5/10 CMA

KENT STATE UNIVERSITY

STRESSCREETE GROUP

Manufacturing Locations:
Burlington, Ontario 1-800-268-7609
Northport, Alabama 1-800-435-8553
Atchison, Kansas 1-800-837-1024
Jefferson, Ohio 1-800-269-7609

CUSTOMER ORDER No:
P0007368

STRESSCREETE ORDER No:

KING CANADA ORDER No:
K01108

KING U.S. ORDER No:
A03199

PROJECT/CUSTOMER:

DRAWN BY: AI
CHECKED BY DATE:
12/30/09
REVISION:

DRAWING TYPE:
APPROVAL DRAWING

DRAWING NUMBER:
206A4649-2

NOTE:
1) LAMP BY OTHERS
2) UNDERSIDE OF SPINNING TO BE PAINTED SAME COLOR AS REST OF LUMINAIRE
3) PIPE SEALER TO BE USED ON ALL N.P.T. THREADED COMPONENTS
ARM SPECIFICATIONS
CATALOGUE NO.: KA15-T-1 (MOD.)
QUANTITY: 4
MATERIAL: ALUMINUM
POWDERCOAT: SMOOTH BLACK

KENT STATE UNIVERSITY
UNIVERSITY ARCHITECTS OFFICE

FINAL APPROVAL
APPROVED AS NOTED
REVISE AND RESUBMIT

DATE 1/5/10

CHECKING OF SHOP DRAWINGS BY THIS OFFICE DOES NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR DEVIATIONS FROM DRAWINGS & SPECIFICATIONS OR FOR ERRORS IN SHOP DRAWINGS.

CUSTOMER APPROVAL & DATE:

STRESSCRETE GROUP
KENT STATE UNIVERSITY

CUSTOMER ORDER NO: P0007368
STRESSCRETE ORDER NO: -
KING CANADA ORDER NO: K01108
KING U.S. ORDER NO: A03199

DRAWN BY: A. ALVELA
CHECKED BY: SCI
REVISION: 12/30/09
DRAWING TYPE: APPROVAL DRAWING
DRAWING NUMBER: A03199-4

MANUFACTURING LOCATIONS:
Burlington, Ontario 1-800-266-7809
Northport, Alabama 1-800-435-6563
Atchison, Kansas 1-800-837-1024
Jefferson, Ohio 1-800-266-7809

DESIGN GUIDE 265600
STD POLE ARM

DATE: 01-14-2010

PA-1
Substation _CENTRAL - Akron Customers
Bus 1258 KENT ST U.69 BR

Area 1 C_AK Zone 69 69 KV Sub Tr
Base KV 71.11 Ph-Ph (41.06 @0 deg A-0) Prefault 1.000 V (p.u.) @ 0.08
Voltage (KV) Ph-0 @ 0.0 20.5280 @ 0.0 0.00000 @ 0.0 41.0549 @ 0.0 20.5280 @ 180.0 20.5280 @ 180.0
Thevenin (R, X) (p.u.) > 0.03556, 0.02334 0.01556, 0.00939 0.03682, 0.10638
Thevenin (R, X) (Ohms) > 0.76539, 0.72256 0.76539, 0.72256 1.86296, 3.31837

Fault Currents (Amps) > 7231.45 @ -73.9 7231.45 @ 106.1 0.00000 @ 0.0 0.00000 @ 0.0 12525.2 @ -161.9 12525.2 @ 161.9
Line Currents (Amps) total from 

CENTRAL - Akron Pllc. Buses (Real bus WEST RAVENNA 1479 W.RAVENNA 69) : DARGON_WEST_RAVENNA_69KV
1698 KSU TAP 69 1 7231.45 @ -73.9 7231.45 @ 106.1 0.00000 @ 0.0 0.00000 @ 0.0 12525.2 @ -161.9 12525.2 @ 161.9

Substation _CENTRAL - Akron Pllc. Buses
Bus 1698 KSU TAP 69 LV

Area 1 C_AK Zone 1364 69KV Sub Tr
Base KV 71.11 Ph-Ph | 41.06 @0 deg A-0) Prefault 1.000 V (p.u.) @ 0.08
Voltage (KV) Ph-0 @ 0.1 20.4556 @ 0.1 0.00000 @ 0.0 41.0559 @ 0.0 20.4556 @ -179.7 20.4556 @ 179.5
Line Currents (Amps) total from 

KENT (Real bus DAREW 1110 DAREW 69) : DAREW_WEST_RAVENNA_69KV
1264 KENT 69 1 2025.35 @ -72.1 2025.35 @ 107.1 0.00000 @ 0.0 0.01672 @ -164.9 3507.66 @ -162.3 1507.67 @ 17.9
CENTRAL - Akron Customers Line: DARGON_WEST_RAVENNA_69KV
1258 KENT ST U.69 1 7231.45 @ 106.1 7231.45 @ -73.9 0.00000 @ 0.0 0.05500 @ 0.0 12525.2 @ 161.1 12525.2 @ -161.9

CENTRAL - Akron Pllc. Buses (Real bus WEST RAVENNA 1479 W.RAVENNA 69) : DAREW_WEST_RAVENNA_69KV
1704 KENT WRT 769 1 5207.75 @ -74.6 5207.75 @ 105.4 0.00000 @ 0.0 0.01672 @ 15.1 9020.10 @ -164.6 3020.08 @ 15.4
Immediately below is the fault data requested for the Kent State 69kV substation, which is adjacent to the Power Plant. I have highlighted in RED the relevant data.

---

**SINGLE LINE GROUND** at bus "1258 KENT ST U.69" 

<table>
<thead>
<tr>
<th>Substation</th>
<th>Central - Akron Customers</th>
<th>Area</th>
<th>I C_AK</th>
<th>Zone</th>
<th>69 69 kV Sub Tr</th>
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</thead>
<tbody>
<tr>
<td>Bus</td>
<td>1258 KENT ST U.69 RR</td>
<td>seq</td>
<td>0 seq / 310</td>
<td>A phase</td>
<td>B phase</td>
</tr>
<tr>
<td>Voltage (kV) Ph-Ph</td>
<td>10.3063 @ 178.4</td>
<td>20.4596 @ 178.4</td>
<td>9.00500 @ 0.0</td>
<td>46.3200 @ 131.5</td>
<td>47.6140 @ 128.1</td>
</tr>
</tbody>
</table>

---

**Fault Currents (Amps)** > 3630.65 @ -72.3

3630.65 @ -72.3 10892.0 @ -72.3 0.00000 @ 0.0 0.00000 @ 0.0

---

**Line Currents (Amps) total from**

**Central** - Akron Pico. Buses (Real bus WEST RAVENNA 1479 W RAVENNA 69) : DARRON_WEST_RAVENNA_69KV

1698 KSU TAP 69 1 3630.65 @ -72.3 3630.65 @ -72.3 10892.0 @ -72.3 10892.0 @ -72.3 0.00006 @ -147.6 0.00006 @ -147.6

---

**Substation** _Central_ - Akron Pico. Buses | Area | I C_AK | Zone | 1016 69kV Sub Tr |
| Bus        | 1498 KSU TAP 69 DF       | seq  | 0 seq / 310 | A phase | B phase | C phase |
| Voltage (kV) Ph-Ph | 10.7916 @ 178.3 | 20.3633 @ 178.4 | 0.17595 @ -16.3 | 46.2746 @ -131.4 | 47.5784 @ 129.1 |

---

**Line Currents (Amps) total from**

**Central** - Akron Customers (Real bus DARRON 1110 DARRON 69) : DARRON_WEST_RAVENNA_69KV

1254 KENT 69 1 1016.76 @ -70.5 2016.76 @ -70.5 3720.26 @ -71.0 | 2943.24 @ -70.6 | 107.319 @ 114.5 | 107.360 @ 114.6

**Central** - Akron Customers (Real bus WEST RAVENNA 1479 W RAVENNA 69) : DARRON_WEST_RAVENNA_69KV

1259 KENT ST U.69 1 3630.65 @ 107.7 3630.65 @ 107.7 10892.0 @ 107.7 10892.0 @ 107.7 0.00000 @ 32.4 0.00000 @ 32.4

---

**Central** - Akron Pico. Buses (Real bus WEST RAVENNA 1479 W RAVENNA 69) : DARRON_WEST_RAVENNA_69KV

1704 KENT TAP 69 1 2016.62 @ -73.0 2016.62 @ -73.0 8163.65 @ -72.8 | 7950.45 @ -72.9 | 107.370 @ -66.0 | 107.360 @ -66.9
<table>
<thead>
<tr>
<th>Substation</th>
<th>Akron Customers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus</td>
<td>1255 KENT ST U.69 BK</td>
</tr>
<tr>
<td>Area 1 C,AK</td>
<td>Zone 69 69 KV Sub Tr</td>
</tr>
<tr>
<td>Base kV</td>
<td>71.11 Ph-Ph (41.06 ø9 deg A-Gnd)</td>
</tr>
<tr>
<td>Prefault 1.000 V (p.u.)</td>
<td>0.00</td>
</tr>
<tr>
<td>Voltage (KV) Ph-Gnd</td>
<td>0.00000 ø 0.0</td>
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<tr>
<td>Thevenin (R, Z) (p.u.)</td>
<td>0.01555,0.05394</td>
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<tr>
<td>Thevenin (R, Z) (ohms)</td>
<td>0.78675,2.72744</td>
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<tr>
<td>Fault Currents (Amps)</td>
<td>14463.1 ø -73.9</td>
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</table>

<table>
<thead>
<tr>
<th>Line Currents (Amps) total from</th>
</tr>
</thead>
<tbody>
<tr>
<td>_CENTRAL - Akron Pic. Buses (Real bus WEST RAVENNA)</td>
</tr>
<tr>
<td>1479 W.RAVENNA 69) ; DARNERG_WEST_RAVENNA_69KV</td>
</tr>
<tr>
<td>1698 BUS TAP 69</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Substation</th>
<th>Akron Pic. Buses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus</td>
<td>1698 BUS TAP 69 BK</td>
</tr>
<tr>
<td>Area 1 C,AK</td>
<td>Zone 1036 69KV Sub Tr</td>
</tr>
<tr>
<td>Base kV</td>
<td>71.11 Ph-Ph (41.06 ø9 deg A-Gnd)</td>
</tr>
<tr>
<td>Prefault 1.000 V (p.u.)</td>
<td>0.00</td>
</tr>
<tr>
<td>Voltage (KV) Ph-Gnd</td>
<td>0.1966 ø -24.9</td>
</tr>
<tr>
<td>Thevenin (R, Z) (p.u.)</td>
<td>0.00000 ø 0.0</td>
</tr>
<tr>
<td>Thevenin (R, Z) (ohms)</td>
<td>0.15969 ø -144.9</td>
</tr>
<tr>
<td>Line Currents (Amps) total from</td>
<td></td>
</tr>
<tr>
<td>-----------------</td>
<td></td>
</tr>
<tr>
<td>KENT (Real bus DARNERG)</td>
<td></td>
</tr>
<tr>
<td>1110 DARNERG 69) ; DARNERG_WEST_RAVENNA_69KV</td>
<td></td>
</tr>
<tr>
<td>1254 KENT 69</td>
<td>4050.35 ø -72.1</td>
</tr>
<tr>
<td>_CENTRAL - Akron Customers Line:</td>
<td>DARNERG_WEST_RAVENNA_69KV</td>
</tr>
<tr>
<td>1255 KENT ST U.69</td>
<td>14463.1 ø 106.1</td>
</tr>
<tr>
<td>_CENTRAL - Akron Pic. Buses (Real bus WEST RAVENNA)</td>
<td></td>
</tr>
<tr>
<td>1479 W.RAVENNA 69) ; DARNERG_WEST_RAVENNA_69KV</td>
<td></td>
</tr>
<tr>
<td>1704 WEST TAP 69</td>
<td>10415.6 ø -74.6</td>
</tr>
</tbody>
</table>
Parameters:
- Inside Cramp Angle: 33.00°
- Axle Track: 83.11 in.
- Wheel Offset: 5.25 in.
- Tread Width: 17.40 in.
- Chassis Overhang: 65.80 in.
- Additional Bumper Depth: 22.00 in.
- Wheelbase: 256.00 in.

Calculated Turning Radii:
- Inside Turn: 31 ft. 8 in.
- Curb to Curb: 46 ft. 4 in.
- Wall to Wall: 53 ft. 3 in.

Comments:
- Aerial Application
  - Bumper to Bumper - 41'
  - Width - 8'
  - Front Overhang - 5.5'
  - Length including bucket - 46'
  - Height - 11' 4''
  - Weight (use 40 T)

Notes:
- Actual Inside Cramp Angle may be less due to highly specialized options.
- Curb to Curb turning radius calculated for a 9.00 inch curb.
- Reduce turning radius by 33% if vehicle is equipped with all-wheel steer.
NOTE: FOR AERIAL REACH MEASURE FROM THE PLATFORM STEP- ADD 10"

Figure 4. 100-Foot Aerial Platform Range Diagram
AERIAL PLATFORM OPERATION PROCEDURE

Figure 8. Typical Switch Panel

STABILIZER PRECAUTIONS:
SET-UP PROCEDURE

IMPORTANT: SET WHEEL CHOCKS IN PLACE.
Refer to Figure 1 for location of three doors which house the controls for extending beams and jack cylinders to set up the unit.

⚠️ SAFE OPERATING LIMITS
Safe operating angles at full load when the unit is set up are:
- 0° to 3.5° Side to Side (Slope)
- 0° to 5.5° Front to Rear (Grade)

Angle° indicators are located at the rear of the unit (Figure 1).
NOTE: CHECK AERIAL PTO INDICATOR LIGHT - HYDRAULIC POWER SHOULD BE AVAILABLE AND THE ENGINE SHOULD BE AT LOW IDLE. REVIEW PRECEDING STEP 2. IF YOU DO NOT HAVE HYDRAULIC POWER OR LOW IDLE.

1. Switch hydraulic power to “stabilizer.” You now have hydraulic power to function the stabilizer valve controllers, and the warning “beepers” will activate.
   They will remain “ON” until the stabilizers are set and will be indicated by green lights. Refer to figure 1.
2. Turn “ON” high idle switch (figure 1). The engine idle RPM is preset for maximum hydraulic power.
3. Extend stabilizer beams and jacks (figure 9).

NOTE: TO AVOID RELEVELING THE UNIT, LEVEL LEFT SIDE OF APPARATUS BEFORE THE HIGH SIDE.
   a. Push down on the outside control handles (refer to figure 1) to extend beams.
   b. Repeat for the opposite side.
   c. Place ground pads under jack locations. Push down on the center control handles (refer to figure 1) to lower jacks. Pushing on both handles simultaneously with heel of your hand will lower both jacks at the same time.
   d. Raise the rear tires off the ground about 1 - 1/2".
   e. Raise the front tires just enough to take out the bumper. The front tires must contact the ground for stability (Undue stress is placed on the chassis if the front tires are off the ground and the ladder is fully extended in the cab.)
**WARNING:**
Horizontal beams must be to full extension for 360° rotation of aerial unit.

1. For operations over one side, the horizontal beams on that side must be fully extended. When the beams are not fully extended on the opposite side, the load is reduced to 850# from 1000# without flowing water and to 500# from 600# flowing water. Ref. page 11 preceding.

2. Do not take aerial over the centerline of chassis if beams on the other side are not at full extension. The unit will become unstable and may upset.

**IMPORTANT:**
If any stabilizer beam is not fully extended, the stabilizer override switch will have to be held "ON" momentarily to raise the ladder clear of the cradle.

**CAUTION:**
BE SURE UNIT IS SET UP WITHIN SAFE OPERATING LIMITS, maximum 3.5° side to side and 5.5° fore and aft.

4. Turn "OFF" high idle. When the unit returns to low idle, select aerial hydraulic power.

5. Close and latch door covering controls and indicators.

6. Install stabilizer safety pins keeping the collar about 1" from jack. If a jack would settle, it must sit on the pin evenly.

7. Close stabilizer control doors.

8. Reposition wheel chocks. Downhill side against tire and the uphill chock approximately 2" from tire. The aerial is ready for operations.

**CAUTION:**
TAG: Electrocution Hazard - personnel not involved with the aerial operations should "stand clear."

---

**Figure 9. Horizontal Beams Extension**
APPENDIX D
FIRE APPARATUS ACCESS ROADS

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

SECTION D101
GENERAL

D101.1 Scope. Fire apparatus access roads shall be in accordance with this appendix and all other applicable requirements of the International Fire Code.

SECTION D102
REQUIRED ACCESS

D102.1 Access and loading. Facilities, buildings or portions of buildings hereafter constructed shall be accessible to fire department apparatus by way of an approved fire apparatus access road with an asphalt, concrete or other approved driving surface capable of supporting the imposed load of fire apparatus weighing at least 75,000 pounds (34 050 kg).

SECTION D103
MINIMUM SPECIFICATIONS

D103.1 Access road width with a hydrant. Where a fire hydrant is located on a fire apparatus access road, the minimum road width shall be 26 feet (7925 mm), exclusive of shoulders (see Figure D103.1).

D103.2 Grade. Fire apparatus access roads shall not exceed 10 percent in grade.

Exception: Grades steeper than 10 percent as approved by the fire chief.

D103.3 Turning radius. The minimum turning radius shall be determined by the fire code official.

D103.4 Dead ends. Dead-end fire apparatus access roads in excess of 150 feet (45 720 mm) shall be provided with width and turnaround provisions in accordance with Table D103.4.

<table>
<thead>
<tr>
<th>LENGTH (feet)</th>
<th>WIDTH (feet)</th>
<th>TURNAROUNDS REQUIRED</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-150</td>
<td>20</td>
<td>None required</td>
</tr>
<tr>
<td>151-500</td>
<td>20</td>
<td>120-foot Hammerhead, 60-foot “Y” or 96-foot diameter cul-de-sac in accordance with Figure D103.1</td>
</tr>
<tr>
<td>501-750</td>
<td>26</td>
<td>120-foot Hammerhead, 60-foot “Y” or 96-foot diameter cul-de-sac in accordance with Figure D103.1</td>
</tr>
<tr>
<td>Over 750</td>
<td>Special approval required</td>
<td></td>
</tr>
</tbody>
</table>

For SI: 1 foot = 304.8 mm.

FIGURE D103.1
DEAD-END FIRE APPARATUS ACCESS ROAD TURNAROUND
D103.5 Fire apparatus access road gates. Gates securing the fire apparatus access roads shall comply with all of the following criteria:

1. The minimum gate width shall be 20 feet (6096 mm).
2. Gates shall be of the swinging or sliding type.
3. Construction of gates shall be of materials that allow manual operation by one person.
4. Gate components shall be maintained in an operative condition at all times and replaced or repaired when defective.
5. Electric gates shall be equipped with a means of opening the gate by fire department personnel for emergency access. Emergency opening devices shall be approved by the fire code official.
6. Manual opening gates shall not be locked with a padlock or chain and padlock unless they are capable of being opened by means of forcible entry tools or when a key box containing the key(s) to the lock is installed at the gate location.
7. Locking device specifications shall be submitted for approval by the fire code official.
8. Electric gate operators, where provided, shall be listed in accordance with UL 325.
9. Gates intended for automatic operation shall be designed, constructed and installed to comply with the requirements of ASTM F2200.

D103.6 Signs. Where required by the fire code official, fire apparatus access roads shall be marked with permanent NO PARKING—FIRE LANE signs complying with Figure D103.6. Signs shall have a minimum dimension of 12 inches (305 mm) wide by 18 inches (457 mm) high and have red letters on a white reflective background. Signs shall be posted on one or both sides of the fire apparatus road as required by Section D103.6.1 or D103.6.2.

![Figure D103.6](image)

D103.6.1 Roads 20 to 26 feet in width. Fire lane signs as specified in Section D103.6 shall be posted on both sides of fire apparatus access roads that are 20 to 26 feet wide (6096 to 7925 mm).

D103.6.2 Roads more than 26 feet in width. Fire lane signs as specified in Section D103.6 shall be posted on one side of fire apparatus access roads more than 26 feet wide (7925 mm) and less than 32 feet wide (9754 mm).

SECTION D104
COMMERCIAL AND INDUSTRIAL DEVELOPMENTS

D104.1 Buildings exceeding three stories or 30 feet in height. Buildings or facilities exceeding 30 feet (9144 mm) or three stories in height shall have at least two means of fire apparatus access for each structure.

D104.2 Buildings exceeding 62,000 square feet in area. Buildings or facilities having a gross building area of more than 62,000 square feet (5760 m²) shall be provided with two separate and approved fire apparatus access roads.

Exception: Projects having a gross building area of up to 124,000 square feet (11 520 m²) that have a single approved fire apparatus access road when all buildings are equipped throughout with approved automatic sprinkler systems.

D104.3 Remoteness. Where two fire apparatus access roads are required, they shall be placed a distance apart equal to not less than one half of the length of the maximum overall diagonal dimension of the lot or area to be served, measured in a straight line between accesses.

SECTION D105
AERIAL FIRE APPARATUS ACCESS ROADS

D105.1 Where required. Where the vertical distance between the grade plane and the highest roof surface exceeds 30 feet (9144 mm), approved aerial fire apparatus access roads shall be provided. For purposes of this section, the highest roof surface shall be determined by measurement to the eave of a pitched roof, the intersection of the roof to the exterior wall, or the top of parapet walls, whichever is greater.

D105.2 Width. Aerial fire apparatus access roads shall have a minimum unobstructed width of 26 feet (7925 mm), exclusive of shoulders, in the immediate vicinity of the building or portion thereof.

D105.3 Proximity to building. At least one of the required access routes meeting this condition shall be located within a minimum of 15 feet (4572 mm) and a maximum of 30 feet (9144 mm) from the building, and shall be positioned parallel to one entire side of the building. The side of the building on which the aerial fire apparatus access road is positioned shall be approved by the fire code official.

SECTION D106
MULTIPLE-FAMILY RESIDENTIAL DEVELOPMENTS

D106.1 Projects having more than 100 dwelling units. Multiple-family residential projects having more than 100 dwelling units shall be equipped throughout with two separate and approved fire apparatus access roads.

Exception: Projects having up to 200 dwelling units may have a single approved fire apparatus access road when all
Wall To Wall (Per Manuf R = 47.2 Ft)
Approximate track of bucket in front.

29.4 ft

Wall To Wall (Per Manuf R = 47.2 Ft)
Approximate track of bucket in front.

29.4 ft
### Power-PRO® XT
powered ambulance cot

Reduce the risk of injuries when raising and lowering

#### Standard Features
- Automatic in-cot fastener shut-off
- Manual back-up release handle
- Automatic high-speed retract
- Battery-powered hydraulic lift system
- Preventative maintenance hour meter
- Battery pack power level indicator
- Settable load height with jog function
- Color-coded controls
- High visibility powder-coated frame
- Lightweight, rugged aluminum construction
- Scientifically optimized lift bar and control design
- Lower lifting bar
- Lift-capable safety bar
- Integrated bumper system
- Retractable head section
- Floor-mounted safety hook
- One-hand release, fold down side rails
- One-hand release, infinite positioning, pneumatically assisted backrest
- Oversized wheels with sealed caster and wheel bearings
- G-rated bolster mattress
- Shock or flat leg positioning
- G-rated restraint package
- Built-in pull handle
- X-frame guards
- Power washable
- SMRT power system
  (12V DC, 120V AC and 240V AC options available)

#### Optional Features
- Heavy duty two- or three-stage IV poles (patient right or left)
- Permanent or removable O₂ bottle holders
  (head end, foot end or fowler)
- Dual wheel locks
- Head extension
- Pillow
- Equipment hook
- Backrest storage pouch
- Head end storage flat
- Defibrillator platform
- Base storage net
- Knee gatch
- SMRT charger mounting bracket
- Power-LOAD™ compatibility

#### Specifications

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<thead>
<tr>
<th>Model Number</th>
<th>6506</th>
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<tr>
<td>Height* (infinite height positioning between lowest and highest position)</td>
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</tr>
<tr>
<td>Highest Position</td>
<td>41.5 in (105 cm)</td>
</tr>
<tr>
<td>Lowest Position</td>
<td>14 in (36 cm)</td>
</tr>
<tr>
<td><strong>Length</strong></td>
<td></td>
</tr>
<tr>
<td>Length Standard</td>
<td>87 in (220 cm)</td>
</tr>
<tr>
<td>Minimum</td>
<td>63 in (160 cm)</td>
</tr>
<tr>
<td>Width</td>
<td>23 in (58 cm)</td>
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<tr>
<td>Weight</td>
<td>125 lb (57 kg)</td>
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<tr>
<td>Wheels</td>
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<tr>
<td>Diameter</td>
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<td>Width</td>
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<td>Articulation</td>
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<td>Backrest</td>
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<tr>
<td>Shock Position</td>
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<tr>
<td>Optional Knee Gatch</td>
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<tr>
<td>Maximum Weight Capacity*</td>
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<td>Minimum Operator Required</td>
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<tr>
<td>Occupied Cot</td>
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<td><strong>Recommended Fastener System</strong></td>
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<tr>
<td>Power-LOAD™</td>
<td>Model 6390</td>
</tr>
<tr>
<td>Floor Mount</td>
<td>Model 6370 or 6377</td>
</tr>
<tr>
<td>Wall Mount</td>
<td>Model 6371</td>
</tr>
<tr>
<td><strong>Recommended Loading Height</strong></td>
<td>Up to 36 in (91 cm)</td>
</tr>
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</table>

#### Warranty
- Two-year parts, labor and travel
- One-year soft goods
- Three-year X-frame components
- Three-year limited powertrain
- Lifetime on all welds*

Extended warranties available.
* 7-year service life.

---

1 Height measured from bottom of mattress, at iso section, to ground level.
2 Cot is weighed with one battery pack, without mattress and restraints.
3 700 lb weight capacity with an unassisted lift capacity of 300 lb (136 kg) may require additional assistance to meet the set cot load height.
4 Can accommodate load decks up to 36 in. Load height can be set between 26 in and 36 in.

Stryker reserves the right to change specifications without notice.

In-service video included with every order.

The Power-PRO XT is designed to be compatible with competitive cot fastener systems.
The yellow and black color scheme is a proprietary trademark of the Stryker Corporation.
Patents pending.
FIRE SERVICE FEATURES

(A) SECTION 501
GENERAL

(1) 501.1 Scope. Fire service features for buildings, structures and premises shall comply with this rule.

(2) 501.2 Permits. A permit shall be required as set forth in rule 1301:7-7-01 of the Administrative Code.

(3) 501.3 Construction documents. Construction documents for proposed fire apparatus access, location of fire lanes, security gates across fire apparatus access and construction documents and hydraulic calculations for fire hydrant systems shall be submitted to the fire department for review and approval prior to construction.

(4) 501.4 Timing of installation. When fire apparatus access roads or a water supply for fire protection is required to be installed, such protection shall be installed and made serviceable prior to and during the time of construction except when approved alternative methods of protection are provided. Temporary street signs shall be installed at each street intersection when construction of new roadways allows passage by vehicles in accordance with paragraph (E)(2)(505.2) of this rule.

(B) SECTION 502
DEFINITIONS

(1) 502.1 Definitions. The following words and terms shall, for the purposes of this rule and as used elsewhere in this code, have the meanings shown herein.

"Fire apparatus access road." Same as "Fire Lane" as defined in this paragraph.

"Fire command center." The principal attended or unattended location where the status of the detection, alarm communications and control systems is displayed, and from which the system(s) can be manually controlled.

"Fire department master key." A limited issue key of special or controlled design to be carried by fire department officials in command which will open key boxes on specified properties.

"Fire lane." A road or other passageway developed to allow the passage of fire apparatus. A fire lane is not necessarily intended for vehicular traffic other than fire apparatus. A fire lane shall not be interpreted to mean a residential and/or public street.

"Key box." A secure device with a lock operable only by a fire department master key, and containing building entry keys and other keys that may be required for access in an emergency.

(C) SECTION 503
FIRE APPARATUS ACCESS ROADS

(1) 503.1 Where required. Fire apparatus access roads shall be provided and maintained in accordance with paragraphs (C)(1)(a)(503.1.1) to (C)(1)(c)(503.1.3) of this rule.

(a) 503.1.1 Buildings and facilities. Approved fire apparatus access roads shall be provided for every facility, building or portion of a building hereafter constructed or moved into or within the jurisdiction which are not readily accessible from a public and/or private street. The fire apparatus access road shall comply with the requirements of this paragraph and shall extend to within 150 feet (45 720 mm) of all portions of the facility and all portions of the exterior walls of the first story of the building as measured by an approved route around the exterior of the building or facility.

Exception: The fire code official is authorized to increase the dimension of 150 feet (45 720 mm) where:

1. The building is equipped throughout with an approved automatic sprinkler system installed in accordance with paragraph (C)(3)(a)(i) (903.3.1.1), (C)(3)(a)(ii)(903.3.1.2) or (C)(3)(a)(iii)(903.3.1.3) of rule 1301:7-7-09 of the Administrative Code.

2. Fire apparatus access roads cannot be installed because of location on property, topography, waterways, nonnegotiable grades or other similar conditions, and an approved alternative means of fire protection is provided.

3. There are not more than two Group R-3 or Group U occupancies.

(b) 503.1.2 Additional access. The fire code official is authorized to require more than one fire apparatus access road based on the potential for impairment of a single road by vehicle congestion, condition of terrain, climatic conditions or other factors that could limit access.

(c) 503.1.3 High-piled storage. Fire department vehicle access to buildings used for high-piled combustible storage shall comply with the applicable provisions of rule 1301:7-7-23 of the Administrative Code.

(2) 503.2 Specifications. Fire apparatus access roads shall be installed and arranged in accordance with paragraphs (C)(2)(a)(503.2.1) to (C)(2)(h)(503.2.8) of this rule.

(a) 503.2.1 Dimensions. Fire apparatus access roads shall have an unobstructed width of not less than 20 feet (6096 mm), exclusive of shoulders, except for approved security gates in accordance with paragraph (C)(6)(503.6) of this rule, and an unobstructed vertical clearance of not less than 13 feet 6 inches (4115 mm).

KFD Requires 25" (635 mm) for operation of trucks.
(b) 503.2.2 Authority. The fire code official shall have the authority to require an increase in the minimum access widths where they are inadequate for fire or rescue operations.

(c) 503.2.3 Surface. Fire apparatus access roads shall be designed and maintained to support the imposed loads of fire apparatus and shall be surfaced so as to provide all-weather driving capabilities.

(d) 503.2.4 Turning radius. The required turning radius of a fire apparatus access road shall be determined by the fire code official.

(e) 503.2.5 Dead ends. Dead-end fire apparatus access roads in excess of 150 feet (45 720 mm) in length shall be provided with an approved area for turning around fire apparatus.

(f) 503.2.6 Bridges and elevated surfaces. Where a bridge or an elevated surface is part of a fire apparatus access road, the bridge shall be constructed and maintained in accordance with AASHO HB-17 as listed in rule 1301:7-7-47 of the Administrative Code. Bridges and elevated surfaces shall be designed for a live load sufficient to carry the imposed loads of fire apparatus. Vehicle load limits shall be posted at both entrances to bridges when required by the fire code official. Where elevated surfaces designed for emergency vehicle use are adjacent to surfaces which are not designed for such use, approved barriers, approved signs or both shall be installed and maintained when required by the fire code official.

(g) 503.2.7 Grade. The grade of the fire apparatus access road shall be within the limits established by the fire code official based on the fire department's apparatus.

(h) 503.2.8 Angles of approach and departure. The angles of approach and departure for fire apparatus access roads shall be within the limits established by the fire code official based on the fire department's apparatus.

(3) 503.3 Marking. Where required by the fire code official, approved signs or other approved notices or markings that include the words “NO PARKING—FIRE LANE” shall be provided for fire apparatus access roads to identify such roads or prohibit the obstruction thereof. The means by which fire lanes are designated shall be maintained in a clean and legible condition at all times and be replaced or repaired when necessary to provide adequate visibility.

(4) 503.4 Obstruction of fire apparatus access roads. Fire apparatus access roads shall not be obstructed in any manner, including the parking of vehicles. The minimum widths and clearances established in paragraph (C)(2)(a)(503.2.1) of this rule shall be maintained at all times.

(5) 503.5 Required gates or barricades. The fire code official is authorized to require the installation and maintenance of gates or other approved barricades across fire apparatus access roads, trails or other accessways, not including public streets, alleys or highways. Electric gate operators, where provided, shall be listed in accordance with UL 325 as listed in rule 1301:7-7-47 of the Administrative Code. Gates intended for automatic operation shall be designed, constructed and installed to comply with the requirements of ASTM F 2200 as listed in rule 1301:7-7-47 of the Administrative Code.

(a) 503.5.1 Secured gates and barricades. When required, gates and barricades shall be secured in an approved manner. Roads, trails and other accessways that have been closed and obstructed in the manner prescribed by paragraph (C)(5)(503.5) of this rule shall not be trespassed on or used unless authorized by the owner and the fire code official.

Exception: The restriction on use shall not apply to public officers acting within the scope of duty.

(6) 503.6 Security gates. The installation of security gates across a fire apparatus access road shall be approved by the fire chief. Where security gates are installed, they shall have an approved means of emergency operation. The security gates and the emergency operation shall be maintained operational at all times. Electric gate operators, where provided, shall be listed in accordance with UL 325 as listed in rule 1301:7-7-47 of the Administrative Code. Gates intended for automatic operation shall be designed, constructed and installed to comply with the requirements of ASTM F 2200 as listed in rule 1301:7-7-47 of the Administrative Code.

(D) SECTION 504

ACCESS TO BUILDING OPENINGS AND ROOFTOPS

(1) 504.1 Required access. Exterior doors and openings required by this rule or the building code as listed in rule 1301:7-7-47 of the Administrative Code shall be maintained readily accessible for emergency access by the fire department. An approved access walkway leading from fire apparatus access roads to exterior openings shall be provided when required by the fire code official.

(2) 504.2 Maintenance of exterior doors and openings. Exterior doors and their function shall not be eliminated without prior approval. Exterior doors that have been rendered nonfunctional and that retain a functional door exterior appearance shall have a sign affixed to the exterior side of the door with the words “THIS DOOR BLOCKED.” The sign shall consist of letters having a principal stroke of not less than \( \frac{3}{8} \) inch (19.1 mm) wide and at least 6 inches (152 mm) high on a contrasting background. Required fire department access doors shall not be obstructed or eliminated. Exit and exit access doors shall comply with rule 1301:7-7-10 of the Administrative Code. Access doors for high-piled combustible storage shall comply with paragraph (F)(6)(a)(2306.6.1) of rule 1301:7-7-23 of the Administrative Code.

(3) 504.3 Stairway access to roof. New buildings four or more stories in above grade plane, except those with a roof slope greater than four units vertical in 12 units horizontal (33.3 per cent slope), shall be provided with a stairway to the roof. Stairway access to the roof shall be in accordance with paragraph (1)(12)(1009.12) of rule 1301:7-7-10 of the Administrative Code. Such stairway shall be marked at street and floor levels with a sign indicating that the stairway continues to the roof. Where roofs are used for roof gardens or for other purposes, stairways shall be provided as required for such occupancy classification.
(E) SECTION 505
PREMISES IDENTIFICATION

(1) 505.1 Address numbers. New and existing buildings shall have approved address numbers, building numbers or approved building identification placed in a position that is plainly legible and visible from the street or road fronting the property. These numbers shall contrast with their background. Address numbers shall be Arabic numbers or alphabetical letters. Numbers shall be a minimum of 4 inches (101.6 mm) high with a minimum stroke width of 0.5 inch (12.7 mm). Where access is by means of a private road and the building cannot be viewed from the public way, a monument, pole or other sign or means shall be used to identify the structure.

(2) 505.2 Street or road signs. Streets and roads shall be identified with approved signs. Temporary signs shall be installed at each street intersection when construction of new roadways allows passage by vehicles. Signs shall be of an approved size, weather resistant and be maintained until replaced by permanent signs.

(F) SECTION 506
KEY BOXES

(1) 506.1 When required. Where access to or within a structure or an area is restricted because of secured openings or where immediate access is necessary for life-saving or firefighting purposes, the fire code official is authorized to require a key box to be installed in an approved location. The key box shall be of an approved type and shall contain keys to gain necessary access as required by the fire code official.

(a) 506.1.1 Locks. An approved lock shall be installed on gates or similar barriers when required by the fire code official.

(2) 506.2 Key box maintenance. The operator of the building shall immediately notify the fire code official and provide the new key when a lock is changed or rekeyed. The key to such lock shall be secured in the key box.

(G) SECTION 507
FIRE PROTECTION WATER SUPPLIES

(1) 507.1 Required water supply. An approved water supply capable of supplying the required fire flow for fire protection shall be provided to premises upon which facilities, buildings or portions of buildings are hereafter constructed or moved into or within the jurisdiction.

(2) 507.2 Type of water supply. A water supply shall consist of reservoirs, pressure tanks, elevated tanks, water mains or other fixed systems capable of providing the required fire flow.

(a) 507.2.1 Private fire service mains. Private fire service mains and appurtenances shall be installed in accordance with NFPA 24 as listed in rule 1301:7-7-47 of the Administrative Code.

(b) 507.2.2 Water tanks. Water tanks for private fire protection shall be installed in accordance with NFPA 22 as listed in rule 1301:7-7-47 of the Administrative Code.

(3) 507.3 Fire flow. Fire flow requirements for buildings or portions of buildings and facilities shall be determined by an approved method.

(4) 507.4 Water supply test. The fire code official shall be notified prior to the water supply test. Water supply tests shall be witnessed by the fire code official or approved documentation of the test shall be provided to the fire code official prior to final approval of the water supply system.

(5) 507.5 Fire hydrant issues systems. Fire hydrant systems shall comply with paragraphs (G)(5)(a)(507.5.1) to (G)(5)(f) (507.5.6) of this rule.

(a) 507.5.1 Where required. Where a portion of the facility or building hereafter constructed or moved into or within the jurisdiction is more than 400 feet (122 m) from a hydrant on a fire apparatus access road, as measured by an approved route around the exterior of the facility or building, on-site fire hydrants and mains shall be provided where required by the fire code official.

Exceptions:
1. For Group R-3 and Group U occupancies, the distance requirement shall be 600 feet (183 m).
2. For buildings equipped throughout with an approved automatic sprinkler system installed in accordance with paragraph (C)(3)(a)(ii) (903.3.1.1) or (C)(3)(a)(i) (903.3.1.2) of rule 1301:7-7-09 of the Administrative Code, the distance requirement shall be 600 feet (183 m).

(b) 507.5.2 Inspection, testing and maintenance. Fire hydrant systems shall be subject to periodic tests as required by the fire code official. Fire hydrant systems shall be maintained in an operative condition at all times and shall be repaired where defective. Additions, repairs, alterations and servicing shall comply with approved standards.

(c) 507.5.3 Private fire service mains and water tanks. Private fire service mains and water tanks shall be periodically inspected, tested and maintained in accordance with NFPA 25 as listed in rule 1301:7-7-47 of the Administrative Code at the following intervals:

(i) Private fire hydrants (all types): Inspection annually and after each operation; flow test and maintenance annually.

(ii) Fire service main piping: Inspection of exposed, annually; flow test every 5 years.

(iii) Fire service main piping strainers: Inspection and maintenance after each use.

(d) 507.5.4 Obstruction. Unobstructed access to fire hydrants shall be maintained at all times. The fire department shall not be deterred or hindered from gaining immediate access to fire protection equipment or fire hydrants.

(e) 507.5.5 Clear space around hydrants. A 3-foot (914 mm) clear space shall be maintained around the circumference.
ence of fire hydrants except as otherwise required or approved.

(f) 507.5.6 Physical protection. Where fire hydrants are subject to impact by a motor vehicle, guard posts or other approved means shall comply with paragraph (L)(312) of rule 1301:7-7-03 of the Administrative Code.

(H) SECTION 508
FIRE COMMAND CENTER

(1) 508.1 Where required. Where required by other paragraphs of this code and in all buildings classified as high-rise buildings by the building code as listed in rule 1301:7-7-47 of the Administrative Code, a fire command center for fire department operations shall be provided and shall comply with paragraphs (H)(1)(a) (508.1.1) to (H)(1)(e) (508.1.5) of this rule.

(a) 508.1.1 Location and access. The location and accessibility of the fire command center shall be approved by the fire code official.

(b) 508.1.2 Separation. The fire command center shall be separated from the remainder of the building by not less than a 1-hour fire barrier constructed in accordance with section 707 of the building code as listed in rule 1301:7-7-47 of the Administrative Code or horizontal assembly constructed in accordance with section 712 of the building code as listed in rule 1301:7-7-47 of the Administrative Code, or both.

(e) 508.1.3 Size. The fire command center shall be a minimum of 200 square feet (19 m²) with a minimum dimension of 10 feet (3048 mm).

(d) 508.1.4 Layout approval. A layout of the fire command center and all features required by this paragraph to be contained therein shall be submitted for approval prior to installation.

(e) 508.1.5 Required features. The fire command center shall comply with NFPA 72 as listed in rule 1301:7-7-47 of the Administrative Code and shall contain the following features:

(i) The emergency voice/alarm communication system unit.

(ii) The fire department communications system.

(iii) Fire-detection and alarm system annunciator.

(iv) Annunciator unit visually indicating the location of the elevators and whether they are operational.

(v) Status indicators and controls for air distribution systems.

(vi) The fire-fighter’s control panel required by paragraph (V)(16)(909.16) of rule 1301:7-7-09 of the Administrative Code for smoke control systems installed in the building.

(vii) Controls for unlocking stairway doors simultaneously.

(viii) Sprinkler valve and water-flow detector display panels.

(ix) Emergency and standby power status indicators.

(x) A telephone for fire department use with controlled access to the public telephone system.

(xi) Fire pump status indicators.

(xii) Schematic building plans indicating the typical floor plan and detailing the building core, means of egress, fire protection systems, fire-fighting equipment and fire department access, and the location of fire walls, fire barriers, fire partitions, smoke barriers and smoke partitions.

(xiii) Work table.

(xiv) Generator supervision devices, manual start and transfer features.

(xv) Public address system, where specifically required by other paragraphs of this code.

(xvi) Elevator fire recall switch in accordance with ASME A17.1 as listed in rule 1301:7-7-47 of the Administrative Code.

(xvii) Elevator emergency or standby power selector switch(es), where emergency or standby power is provided.

(I) SECTION 509
FIRE PROTECTION EQUIPMENT IDENTIFICATION AND ACCESS

(1) 509.1 Identification. Fire protection equipment shall be identified in an approved manner. Rooms containing controls for air conditioning systems, sprinkler risers and valves, or other fire detection, suppression or control elements shall be identified for the use of the fire department. Approved signs required to identify fire protection equipment and equipment location shall be constructed of durable materials, permanently installed and readily visible.

(2) 509.2 Equipment access. Approved access shall be provided and maintained for all fire protection equipment to permit immediate safe operation and maintenance of such equipment. Storage, trash and other materials or objects shall not be placed or kept in such a manner that would prevent such equipment from being readily accessible.

(J) SECTION 510
EMERGENCY RESPONDER RADIO COVERAGE

(1) 510.1 Emergency responder radio coverage in buildings. All buildings shall have approved radio coverage for emergency responders within the building based upon the existing coverage levels of the public safety communication systems of the jurisdiction at the exterior of the building. This paragraph shall not require improvement of the existing public safety communication systems.

Exceptions:

1. Where approved by the building official and the fire code official, a wired communication system in accordance with paragraph (G)(2)(m)(ii) (907.2.13.2) of rule 1301:7-7-09 of the Administr-
tive Code shall be permitted to be installed or maintained in lieu of an approved radio coverage system.

2. Where it is determined by the fire code official that the radio coverage system is not needed.

(2) 510.2 Radio signal strength. The building shall be considered to have acceptable emergency responder radio coverage when signal strength measurements in 95 per cent of all areas on each floor of the building meet the signal strength requirements in paragraphs (j)(2)(a)(510.2.1) and (j)(2)(b)(510.2.2) of this rule.

(a) 510.2.1 Minimum signal strength into the building. A minimum signal strength of -95 dBm shall be receivable within the building.

(b) 510.2.2 Minimum signal strength out of the building. A minimum signal strength of -100 dBm shall be received by the agency’s radio system when transmitted from within the building.

(3) 510.3 Emergency responder radio coverage in existing buildings. Existing buildings that do not have approved radio coverage for emergency responders within the building shall be equipped with such coverage according to one of the following:

(a) Wherever existing wired communication system cannot be repaired or is being replaced, or where not approved in accordance with paragraph (j)(1)(510.1), exception 1 of this rule.

(b) Within a time frame established by the adopting authority.

Effective Date: November 1, 2011
Prior Effective Dates: 7/1/79; 6/1/85; 6/15/92; 7/1/93; 9/1/95; 1/9/98; 3/30/98; 11/20/98; 1/3/00; 9/1/05; 7/1/07
This sheet is provided as a starting point. Tree protection plans should be developed by project and reviewed by OUA and Kent State grounds for implementation.

1. If there is no existing irrigation system, specify watering requirements during the project.
2. No pruning shall be performed except by a Kent State approved arborist.
3. No equipment shall operate inside the protective fencing including during fence installation and removal.
4. No contractors are permitted within the tree protection without prior authorization.