

APPENDIX

DESIGN & ENGINEERING Guidelines FOR ARCHITECTS AND ENGINEERS

**KENT STATE UNIVERSITY
OFFICE OF THE
UNIVERSITY ARCHITECT**

DESIGN AND ENGINEERING GUIDE-APPENDIX

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UFM Approved Standardized Restroom Dispensers

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



RMC25033000 RMC Sanisac Wall Mount No 33W Disposal, EA



Summary

White enamel, opens from bottom Uses RMC Product #77 Liners Specifications 8
1/8W x 10 3/4H x 4 3/8D

GoJo Handsoap Dispenser, 1250 ML ADX-12, White 8884-06

GOJO 1250 ml Gray And White ADX-12 Dispenser

This high capacity 1250 mL GOJO® dispenser is ideal for high traffic areas. Large sight window, skylight and crystal clear refill bottles make it easy to check fill status. Converts to a locking dispenser at any time by simply removing the key from inside the dispenser. Fully ADA compliant. Lifetime guarantee. Patent pending CONTROLLED COLLAPSE refill bottles hold their shape as they empty for a more attractive overall appearance. Removable pump makes recycling easy. SANITARY SEALED refills are made of durable, recyclable PET material, using 30% less plastic than rigid HDPE bottles.

ASSEMBLY

Documents are in PDF format

Product Specifications	
WIDTH INCHES	4-1/2
DEPTH INCHES	4
HEIGHT INCHES	11-3/4
CAPACITY	1250 ml
COLOR FINISH	Gray/White
BRAND	GOJO
CONSTRUCTION	Plastic
DESCRIPTION	ADX Dispenser
MANUFACTURER'S PART NUMBER	8884-06
PACKAGE QUANTITY	1
STYLE	Wall Mount Manual
TYPE	Foam



Push Button Dispensing

- Building Maintenance • Receiving & Distribution • Custodial Services • Electrical • Fleet Services • Grounds • Parking Services Maintenance • Structures • Energy Management •

GoJo Purell Hand Sanitizer Dispenser, 12 00 ML ADX-12, White 8820-06

Purell Hand Sanitizer Dispenser - ADX 1200mL White - 8820-06

High capacity 1200mL dispenser is ideal for high traffic areas. Large sight window, skylight and crystal clear refill bottles make it easy to check fill level. Slim design with high capacity. Easily converts to locked dispenser. For use with Purell Hand Sanitizer Refills (sold separately). Fully ADA compliant. White color finish. Measures 4-1/2"W x 4"D x 11-3/4"H.

ASSEMBLY

Documents are in PDF format

Product Specifications	
WIDTH INCHES	4-1/2
DEPTH INCHES	4
HEIGHT INCHES	11-3/4
CAPACITY	1200 ml
COLOR FINISH	White
BRAND	Purell
CONSTRUCTION	Plastic
DESCRIPTION	ADX Dispenser
MANUFACTURER'S PART NUMBER	8820-06
PACKAGE QUANTITY	1
TYPE	Dispenser



GoJo Shield Floor/Wall Protector 1045-WHT-12

Home > 1045-WHT-12



SHIELD™ Floor & Wall Protector for ADX™ and LTX™ Attachment for Bottom of Dispenser

Protects floors and walls against splashes and drips caused by typical use.

- Helps protect floors, walls and countertops
- Attaches to any ADX™ or LTX™ dispenser
- Easy to install
- Available in black or white



MESSENGER™
Installation

MESSENGER™
Installation



Specifications

SKU



1045-WHT-12

- Building Maintenance • Receiving & Distribution • Custodial Services • Electrical • Fleet Services • Grounds • Parking Services Maintenance • Structures • Energy Management •

Von Drehle Tissue Dispenser, 3 Station Carousel, Smoke/Black 3342

Item #	Description	Depth	Uses Paper
▼ 3342	3 Station Carousel Dispenser	6.08 inches	PR350
<div>  <div> Brand name: Color: Base: Black Polystyrene Cover: Smoke Polycarbonate Case Cube: 0.73 Diameter: Width: 13.11 inches Height: 14.93 inches Shipping Weight: 4.05 </div>  </div>			
<div> <div>SPEC SHEET</div> <div>HIGH RES IMAGE</div> </div>			

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

Item #	Description	Depth	Uses Paper
▼ 8864	8" Mechanical Pull Down Dispenser	10.18 inches	813B, 813N, 835-B, 835-N, 860-B, 860-N, 860BS, 860NS, 880-B, 880-N, 88012-B, 88012-N, 88012T, 880BI, 880BS, 880NI, 880NS
<div>  <div> Brand name: Color: Base: Black Impact-Resistant Plastic Cover: Black Impact-Resistant Plastic Case Cube: 1.27 Diameter: Width: 12.05 inches Height: 15.99 inches Shipping Weight: 6.7 </div>  </div>			
<div> <div>SPEC SHEET</div> <div>HIGH RES IMAGE</div> </div>			

- Building Maintenance • Receiving & Distribution • Custodial Services • Electrical • Fleet Services • Grounds • Parking Services Maintenance • Structures • Energy Management •

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



KEY			
SI	SECURITY INTEGRATOR	CR	CARD READER
GC	GENERAL CONTRACTOR	PP	DOOR ACTUATOR PUSH PLATE
EC	ELECTRICAL CONTRACTOR	PR	PROXIMITY READER
OP	POWERED OPERATOR	EPT	ELECT. POWER TRANSFER
JB	JUNCTION BOX	EP	EXIT DEVICE W/ INTERNAL REX
SEC	SECURITY/ACCESS CONTROLS	DC	DOOR CONTACT
PS	POWER SUPPLY	EC	ELECTRIC STRIKE

- ## GENERAL NOTES
1. CONTRACTOR TO OFFER RIGHT OF FIRST REFUSAL TO ALL DOORS AND HARDWARE. LOCK SHOP TO SALVAGE PARTS AS NECESSARY. CONTRACTOR TO DISPOSE OF ALL UN-USED PARTS AND COMPONENTS.
 2. WIRING FROM ALL DEVICES TO BE RETURNED TO THE HEAD END. LOCATED IN THE DATA CLOSET LOCATIONS SHOWN. SEE ELECTRICAL FOR SPECIFIC CABLING REQUIREMENTS.
 3. FOR MULTIPLE DOOR OPENINGS, DOOR CONTACTS SHALL BE WIRED IN SERIES THEN HOME RUN TO THE HEAD END IN A SINGLE RUN.
 4. ALL INL-2010 CARD SWIPES TO BE PROGRAMMED TO READ TRACK 2 ONLY. LEVEL PROGRAMMING LICENSING CAPACITY SHALL BE INCREASED BY THE UNIVERSITY LOCK SHOP.
 5. IN ALL LOCATIONS, EXISTING DOGGING MECHANISMS ON EXIT DEVICES ARE TO BE REMOVED AND OR DISABLE ENTIRELY. ANY KEED CYLINDERS IN EXIT DEVICES ARE TO BE REMOVED AND CAPPED.
 6. ALL ELECTRICAL CONDUIT ARE TO BE CONCEALED IN EXISTING WALLS, BUILDING COMPONENTS, SERVICE AREAS, ETC. IN AREAS WHERE SURFACE MOUNTING CANNOT BE AVOIDED, USE WIREMOLD.
 7. ALL AREAS OF CONCRETE CUTTING AND PATCHING ARE TO BE RESTORED WITH 4,000 PSI CONCRETE WITH INTEGRAL FIBER REINFORCING.
 8. ALL STEEL BOLLARDS AND POSTS ARE TO BE GALVANIZED AND POWDER COATED BLACK UNLESS SPECIFIED OTHERWISE.
 9. EXTERIOR BACKER PLATES ARE TO BE DOUBLE LAYER BLACK FINISHED BY UNIVERSAL PLASTICS, AKRON, OHIO OR PIEDMONT WITH PEBBLED PROVID. PANEL SIZES PER ELECTRICAL DETAILS.
 10. INTERIOR BACKER PLATES SHALL BE SAME AS EXTERIOR BACKER PLATES BUT SHALL BE SOLID 1 PIECE WHERE CABLING CAN BE HIDDEN BEHIND THE PLATE. IF AN INTERIOR BOLLARD OR PEDESTAL IS USED THEN PLATE SHALL BE DOUBLE LAYER TOO.
 11. AT AREAS WHERE DOORS ARE REMOVED FROM FRAMES, INSTALL BLACK PLATE AT EACH HINGE LOCATION. PLATE TO BE STAINLESS STEEL. HOLES AT CLOSER REMOVAL LOCATIONS ARE TO BE FILLED WITH SCREWS OR PLUGS.

[illegible]

PROJECT NO: _____

CAD DWG FILE:

DESIGNED BY:

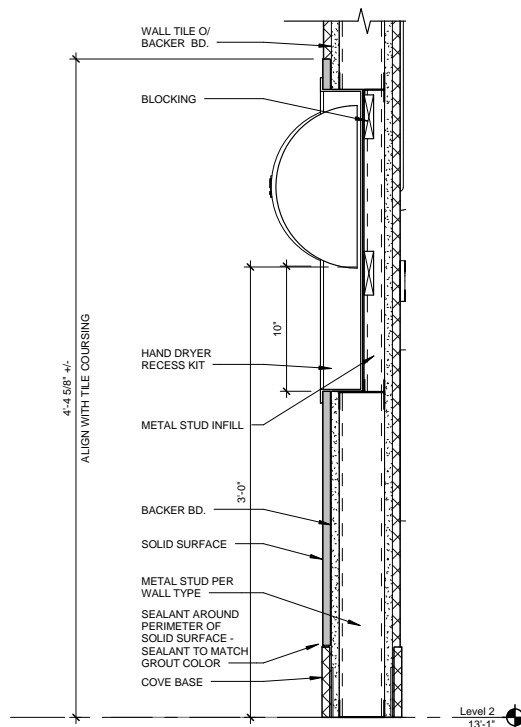
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CHECKED BY: _____

DATE: _____

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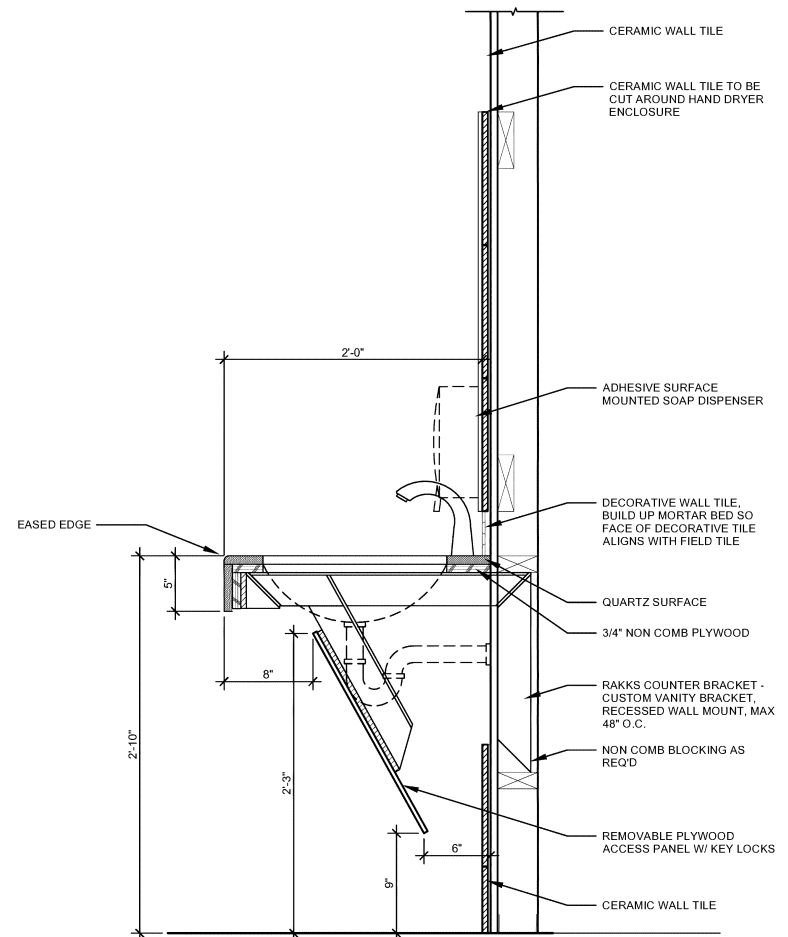
ACCESS CONTROL DETAILS



H15
A602

HAND DRYER RECESS

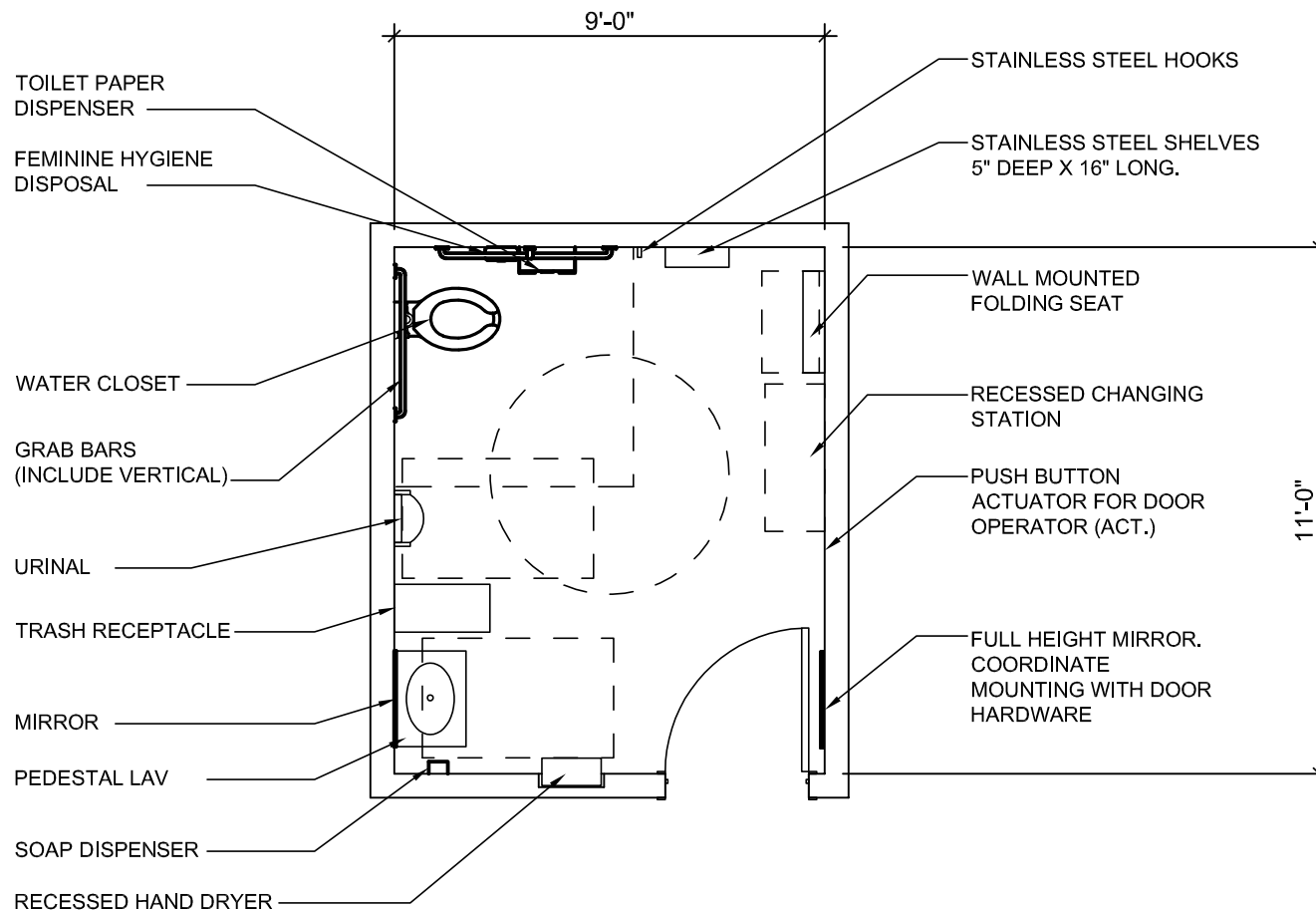
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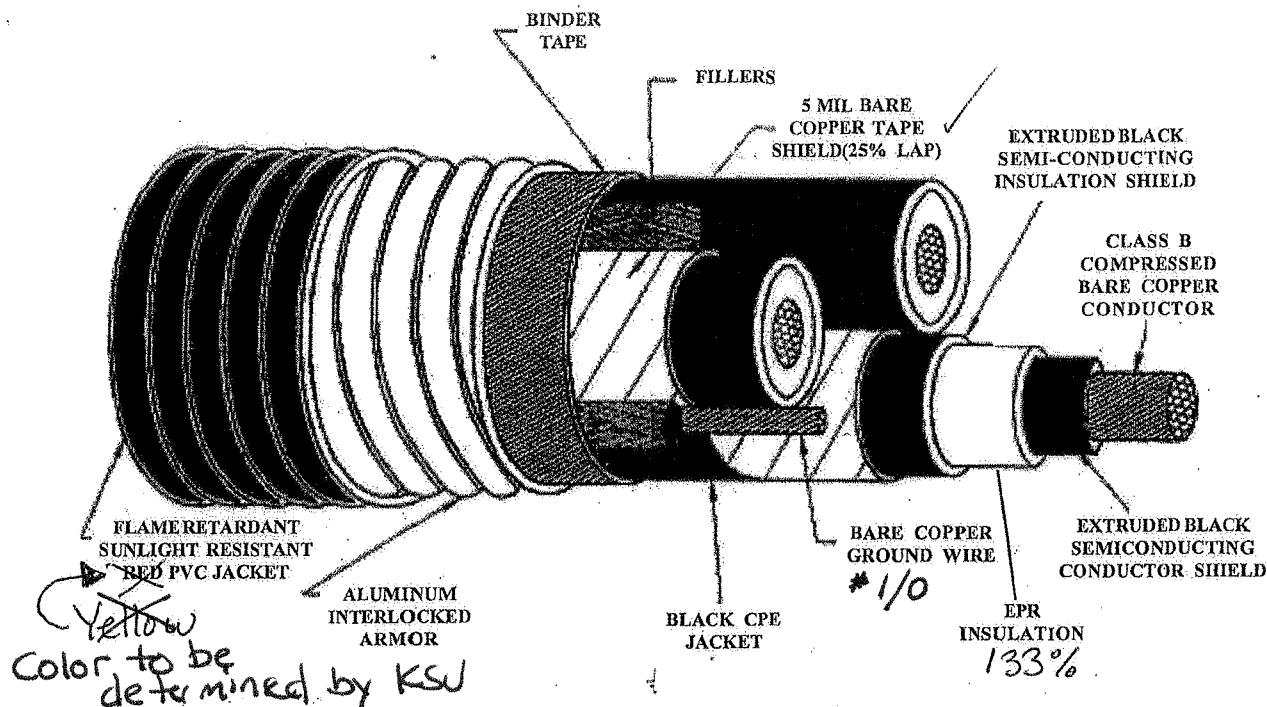


1

RESTROOM COUNTER
SECTION

SCALE= 1 1/2" = 1'-0"





Standards

ASTM- B3 & 8
ICEA- S-93-639
UL- 1072

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 ← 1/0
Armor Thickness: .030" ALUMINUM
Jacket Thickness: .085" FR-PVC
Approximate O.D.: 3.483"
Approximate Weight: 7265 LBS/MFT

KENT STATE UNIVERSITY UNIVERSITY ARCHITECT'S OFFICE

- ☐ FINAL APPROVAL
☒ APPROVED AS NOTED
☐ REVISE AND RESUBMIT

DATE 4/15/2009 BY C. Ricchetti

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.



Southwire

SUBJECT: 3/C, BARE COPPER CONDUCTOR, EPR INSULATION, BARE COPPER TAPE SHIELD (25% LAP), BLACK CPE JACKET ON INDIVIDUALS, FILLERS, BARE COPPER GROUND WIRE, BINDER, ALUMINUM INTERLOCKED ARMOR, FLAME RETARDANT RED PVC JACKET OVERALL, 15KV 133%.

DATE: 03/23/08

BY: JPW

SCALE: NONE

DWG. 09-QE000995

KENT STATE
UNIVERSITY
OFFICE OF THE UNIVERSITY ARCHITECT

DESIGN GUIDE 260513
MED VOLT CABLE
ARMORED

DATE: 01-14-2010

CA-1

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

1/C, 15KV, 220 MIL EPR, 133%, SHIELDED, FRPVC JACKET, CT RATED, MV-105

SIZE	INSULATION THICKNESS	STOCK NUMBER	COPPER WEIGHT/MFT	SHIPPING WEIGHT/MFT	OVERALL DIAMETER (in.)
2	220 MILS	95-36-38-89	205	667	.995
1/0	220 MILS	95-59-89-89	326	841	1.07
2/0	220 MILS	95-59-97-89	411	957	1.11
4/0	220 MILS	95-60-11-89	653	1273	1.21
250	220 MILS	95-60-29-89	772	1447	1.27
350	220 MILS	95-60-37-89	1081	1828	1.38
500	220 MILS	95-60-45-89	1544	2382	1.50
750	220 MILS	95-60-52-89	2316	3385	1.76
1000	220 MILS	95-60-60-89	3204	4295	1.90

Need +25% overlap on tape-shield

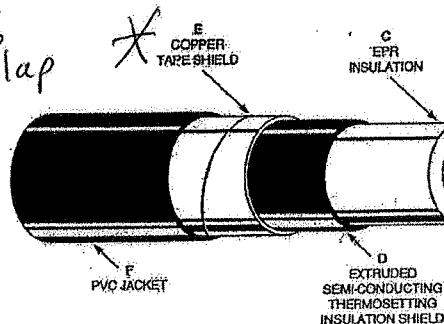
CATALOG SPEC: CT1 - 21ET

Southwire Internet Catalog Sec. 36 p. 8

1C, 35KV, 420 MIL EPR, 133% SHIELDED, FRPVC JACKET, CT-RATED, MV105

SIZE	INSULATION THICKNESS	STOCK NUMBER	COPPER WEIGHT/MFT	SHIPPING WEIGHT/MFT	OVERALL DIAMETER (in.)
1/0	420 MILS	89-00-65-89	326	1311	1.51
4/0	420 MILS	89-00-66-89	653	1886	1.73
350	420 MILS	89-00-67-89	1081	2536	1.92
500	420 MILS	89-00-68-89	1544	3142	2.04

+25% overlap



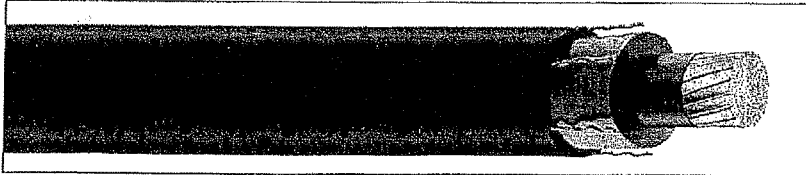
KENT STATE UNIVERSITY
UNIVERSITY ARCHITECT'S OFFICE

☐ FINAL APPROVAL
☒ APPROVED AS NOTED
☐ REVISE AND RESUBMIT

DATE 4/15/2009 BY C. Ricchetti

UniShield®

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 thermoset semi-conducting stress-control layer over conductor

Insulation:

- Ethylene Propylene Rubber (EPR) insulation colored 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-retardant Chlorinated Polyethylene (CPE)

Print:

- GENERAL CABLE® (DI) (MO/YR OF MANUFACTURE) LIGHTNING BOLT SYMBOL 1/C SIZE (AWG OR KCMIL) COMPACT CU UNISHIELD® (INSULATION THICKNESS) EPR DRTP SEMI-CON CPE JKT TYPE MV-105 (VOLTAGE) KV% INSULATION LEVEL SUN RES FOR CT USE (UL) SEQUENTIAL FOOTAGE MARK

* Sizes smaller than 1/0 AWG do not include "FOR CT USE"

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, railroads, 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
- For use in direct burial if installed in a system with a ground conductor that is in close proximity, and conforms with NEC 250.4 (A) (5)

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 or increase the ampacity per duct
- All features contribute to faster and easier installation
- Superior cold bend and cold impact performance
- Stable and constant shield short circuit performance

Features (cont'd.):

- Excellent heat and moisture resistance
- Outstanding corona resistance
- Flexibility for easy handling
- High dielectric strength
- Low dielectric loss
- Low moisture absorption
- Electrical stability under stress
- Chemical-resistant
- Sunlight-resistant
- Meets cold bend test at -55°C

Compliances:

- National Electrical Code (NEC)
- UL 1072
- ICEA S-93-639/NEMA WC74
- ICEA S-97-682
- AEC CS8
- UL listed as Type MV-105 for use in accordance with NEC
- Sizes 1/0 AWG and larger are listed and marked "Sunlight-Resistant FOR CT USE" in accordance with NEC
- IEEE 1202 (70,000 BTU/h)/CSA FT4
- Meets EPA 40 CFR, Part 2671 for leachable lead content per TCLP method
- OSHA acceptable

Optional Flame Tests:

- ICEA T-29-520 (210,000 BTU/h)

Packaging:

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

CATALOG NUMBER	COND. SIZE (AWG/kcmil)	NOMINAL CONDUCTOR DIAMETER INCHES	INSULATION DIAMETER INCHES	DRAIN WIRE SIZE (AWG)	NOMINAL CABLE				COPPER WEIGHT		AMPACITY			
					DIAMETER		WEIGHT				CONDUIT IN AIR (1)	UNDERGROUND DUCT (2)	TRAY (3)	CONDUIT SIZING (4) (INCHES)
			MIN.	MAX.	INCHES	mm	LBS/1000 FT	kg/km	LBS/1000 FT	kg/km				
15kV, UL TYPE MV-105, 133% INS. LEVEL, 220 MILS														
19161.660200	2	0.27	0.710	0.800	19	0.93	23.88	555	835	230	342	165	165	3
19161.675100	1/0	0.34	0.780	0.865	18	1.01	25.91	734	1102	358	533	215	215	3.5
19161.675200	2/0	0.38	0.820	0.905	18	1.05	27.18	844	1259	443	659	255	245	3.5
19161.665300*	3/0	0.43	0.865	0.955	18	1.10	28.45	978	1458	550	818	290	275	3.5
19161.675400	4/0	0.48	0.920	1.005	18	1.16	29.72	1151	1716	685	1019	330	315	4
19161.686000	250	0.53	0.970	1.060	17	1.23	31.50	1325	1984	813	1210	365	345	4
19161.686200	350	0.62	1.070	1.155	17	1.33	33.78	1691	2530	1122	1669	440	415	5
19161.686500	500	0.74	1.190	1.275	17	1.46	37.08	2238	3344	1585	2358	535	500	5
19161.697000	750	0.91	1.370	1.460	16	1.67	42.42	3174	4739	2368	3523	655	610	6
19161.307500*	1000	1.06	1.520	1.610	16	1.86	47.24	4122	6133	3138	4669	755	690	6

*Non-stock item, minimum runs apply. Please consult Customer Service for price and delivery.

(1) Ampacities are in accordance with Table 310-73 of the NEC for triplexed or three single conductor copper cable in air based on a conductor temperature of 105°C (221°F) and an ambient air temperature of 40°C (104°F).

(2) Ampacities are in accordance with Table 310-77 of the NEC for triplexed or three single conductor copper cable in underground ducts (three conductors per duct), based on a conductor temperature of 105°C (221°F) and an ambient earth temperature of 20°C (68°F), electrical duct arrangement per Figure 310-60 Detail 1, unless otherwise noted.

(3) Ampacities are based on single conductor Type MV-105 sizes 1/0 AWG and larger in an uncooled tray in accordance with Section 392-13(B) of the NEC at an ambient air temperature of 40°C (104°F); the ampacities are based on 75% of the values per Table 310-69. For cable trays with unventilated covers for more than 6 feet, the ampacities shall not exceed 50% of the values shown above.

(4) Based on nominal cable diameters, three single cables in the duct (PVC Schedule 40) with no ground wire and a maximum of 40% fill. Fan rating has been considered, but it should be checked for individual installations.

*100% insulation level is available upon request

Dimensions and weights are nominal; subject to industry tolerances.

Note: a) Sizes smaller than 1/0 AWG do not include "FOR CT USE"

b) The NESC Lightning bolt symbol is on all UniShield® constructions



KENT STATE UNIVERSITY
UNIVERSITY ARCHITECTS OFFICE

☒ FINAL APPROVAL

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☐ REVISE AND RESUBMIT

DATE 2/20/08

BY C. Richert

General Cable

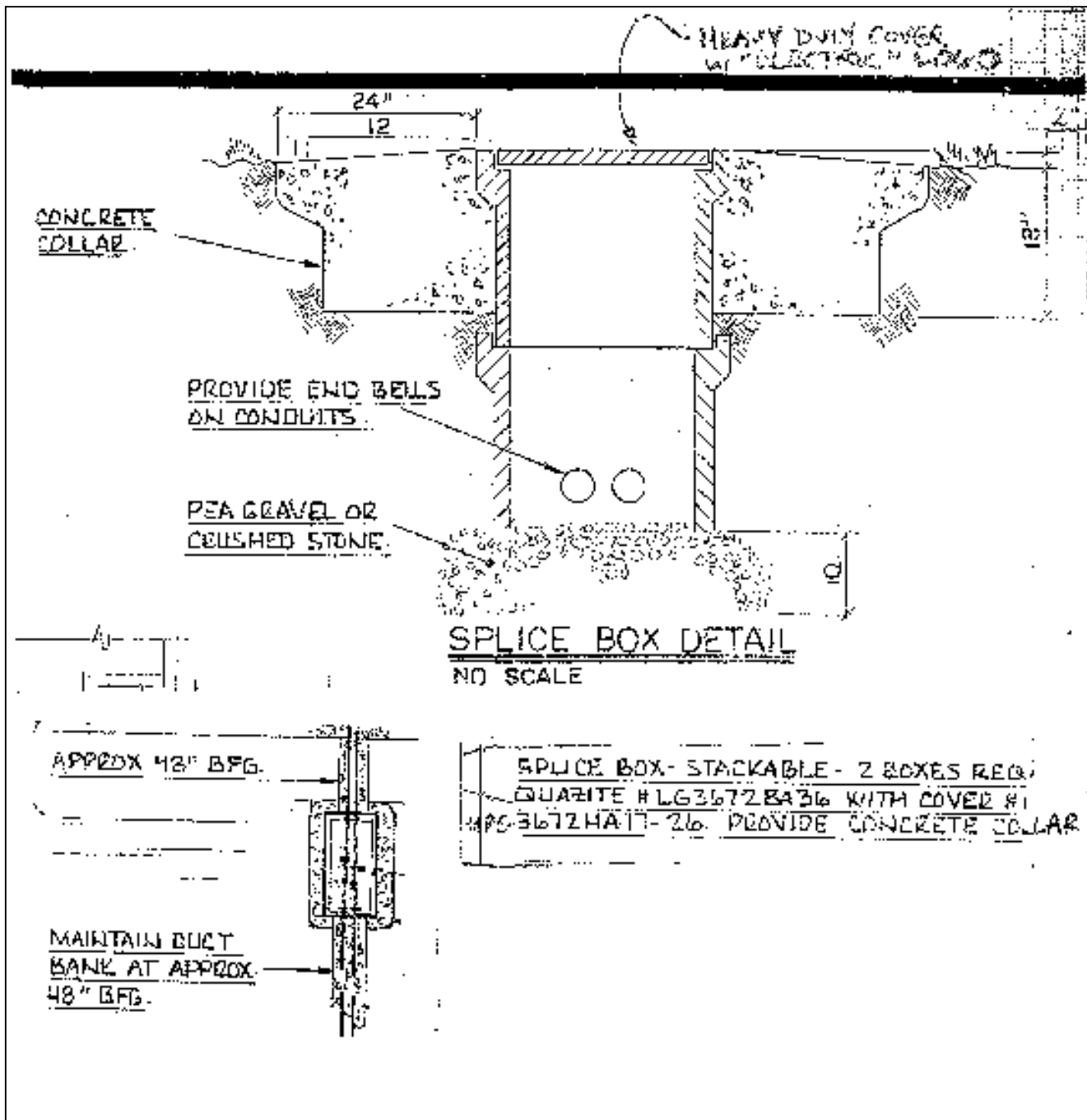
Phone: 888-593-3355
www.generalcable.com

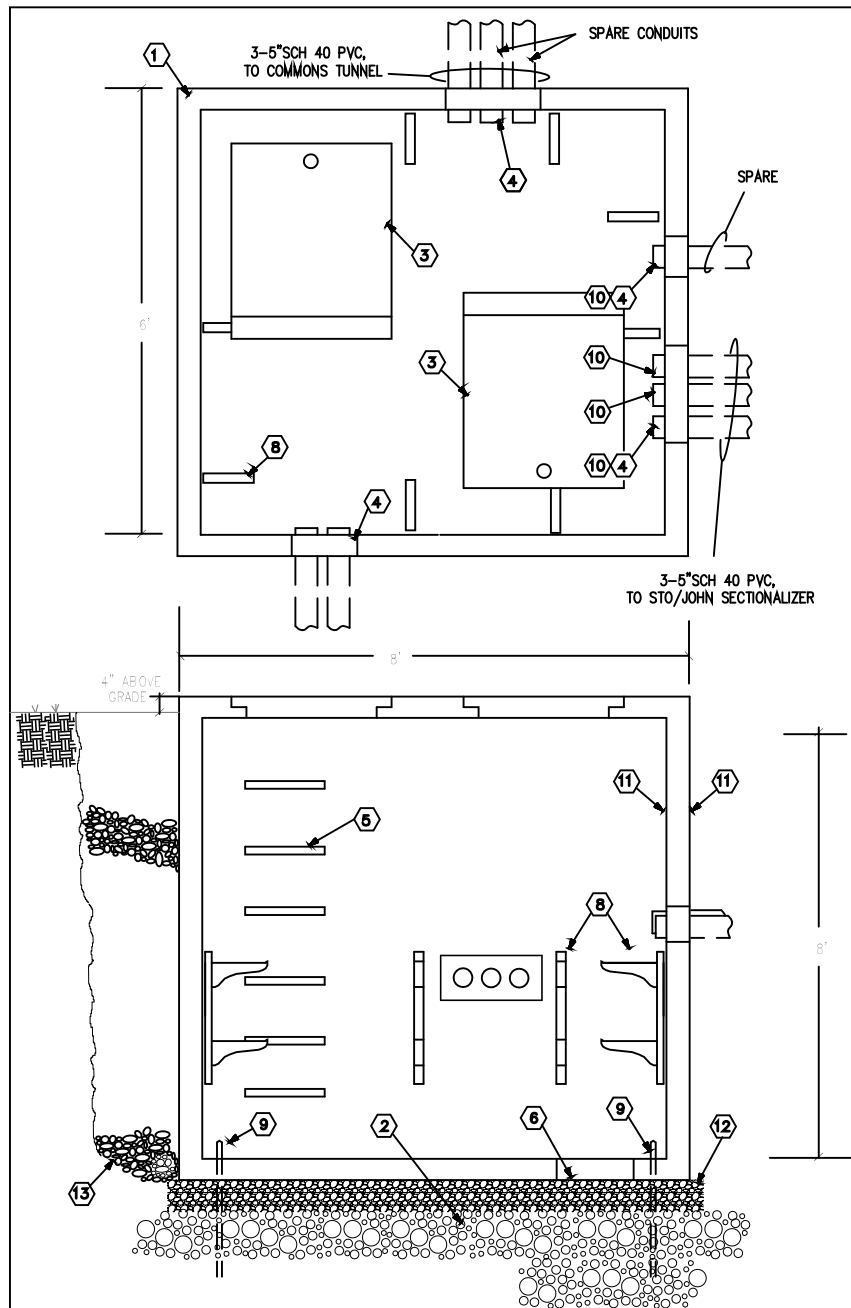
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DESIGN GUIDE 260513
MED VOLT CABLE
SINGLE CONDUCTOR
UNISHIELD- 4" DUCTS

DATE: 01-14-2010

CA-3





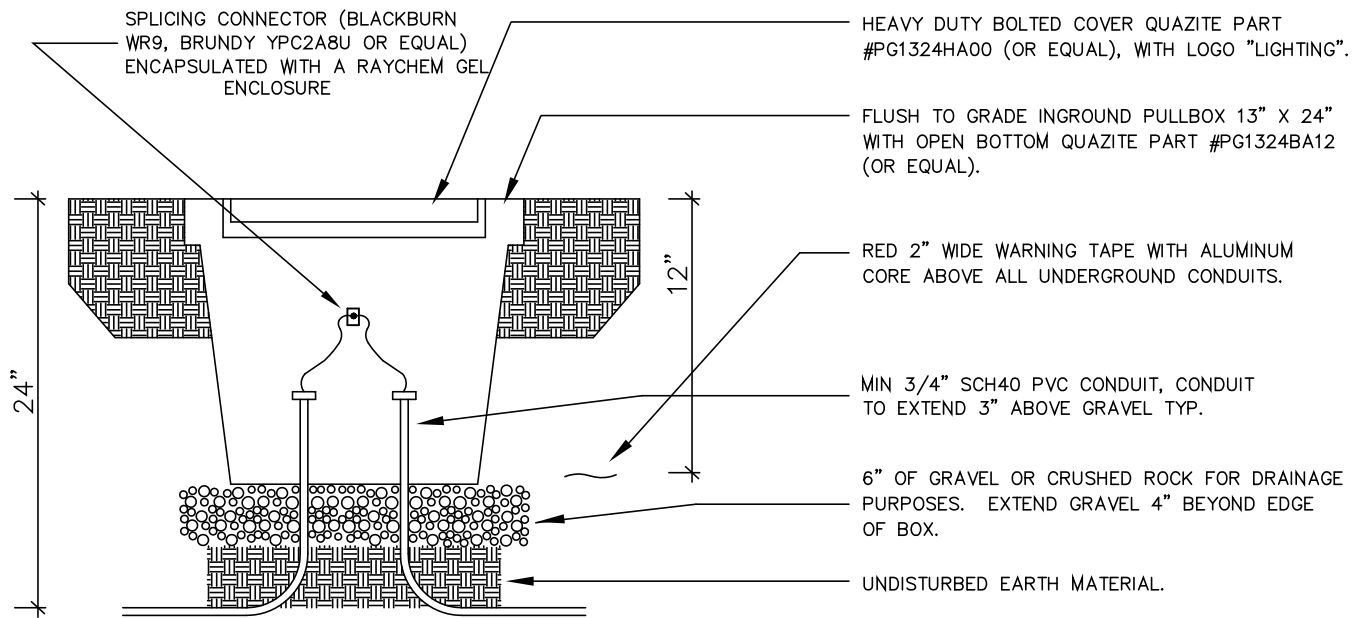
NEW MANHOLE NOTES

- 1 - PROVIDE PRECAST FLUSH TO GRADE 6"W X 8"L X 8"H MANHOLE WITH ACCESSORIES 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 - BILCO TYPE "PCM" 30" X30" ALUMINUM ACCESS DOOR WITH PANIC HARDWARE, STANDARD REMOVABLE TURN HANDLE, REMOVABLE PLUG LOCKSET. PROVIDE LOCK AND KEYING PER KSU STANDARD (CORBIN RUSSWIN MORTISE CYLINDER, 59A2-6 PIN KEYWAY). DOOR TO BE CAST INTO MANHOLE. DOOR SHALL BE MIN 1/4" AL DIAMOND PLATE. TYPICAL 1 OF 2. DOOR SHALL HAVE "ELECTRIC" LOGO.
- 4 - GROUT (NON SHRINK) ALL JOINTS IN WALLS AND DUCT ENTRANCES TO PROVIDE A WATERPROOF STRUCTURE. INSTALL 12" DOWELS BETWEEN DUCTBANK & MANHOLE. ALL CONDUITS ENTERING MH SHALL HAVE BELL END FITTINGS.
- 5 - 1" DIAMETER STEEL REINFORCED POLYPROPYLENE MANHOLE STEPS 16" WIDE, 12" ON CNTRS. STARTING AT 12" DOWN FROM ACCESS DOOR TO WITHIN 12" OF FLOOR.
- 6 - 12" GRAVEL SUMP, FLR SLOPED TO DRAIN TO SUMP. PROVIDE ROCK SUMP 2'-0" DEEP, 3' DIAMETER CENTERED BENEATH SUMP HOLE.
- 7 - PULLING IRONS
- 8 - HEAVY DUTY NON METALLIC 14"CABLE RACKS. RACK STANCHION 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 - EC SHALL INSTALL THESE 5" SCH 40 PVC CONDUITS OUT FROM MH. AND INTERCEPT EXISTING CONDUITS STUBBED OUT FROM STOPPER/JOHNSON CONSTRUCTION SITE THESE CONDUITS SHALL ALSO BE ENCASE IN CONCRETE.
- 10 - 1" OPENINGS IN CONCRETE BASE WITH 3/4" X 10' GROUND ROD. ATTACH TO 600V GND CONDUCTOR WITH 4/0 COPPER.
- 11 - MANHOLE SHALL HAVE TWO COATS OF WATERPROOF SEALER APPLIED INSIDE AND OUT.
- 12 - 6" COMPACTED GRANULAR LEVELING COURSE (ODOT #304 CRUSHED LIMESTONE).
- 13 - INSTALL GRANULAR FILL ON ALL FOUR SIDES TO WITHIN 24" OF TOP.

NEW MANHOLE #1

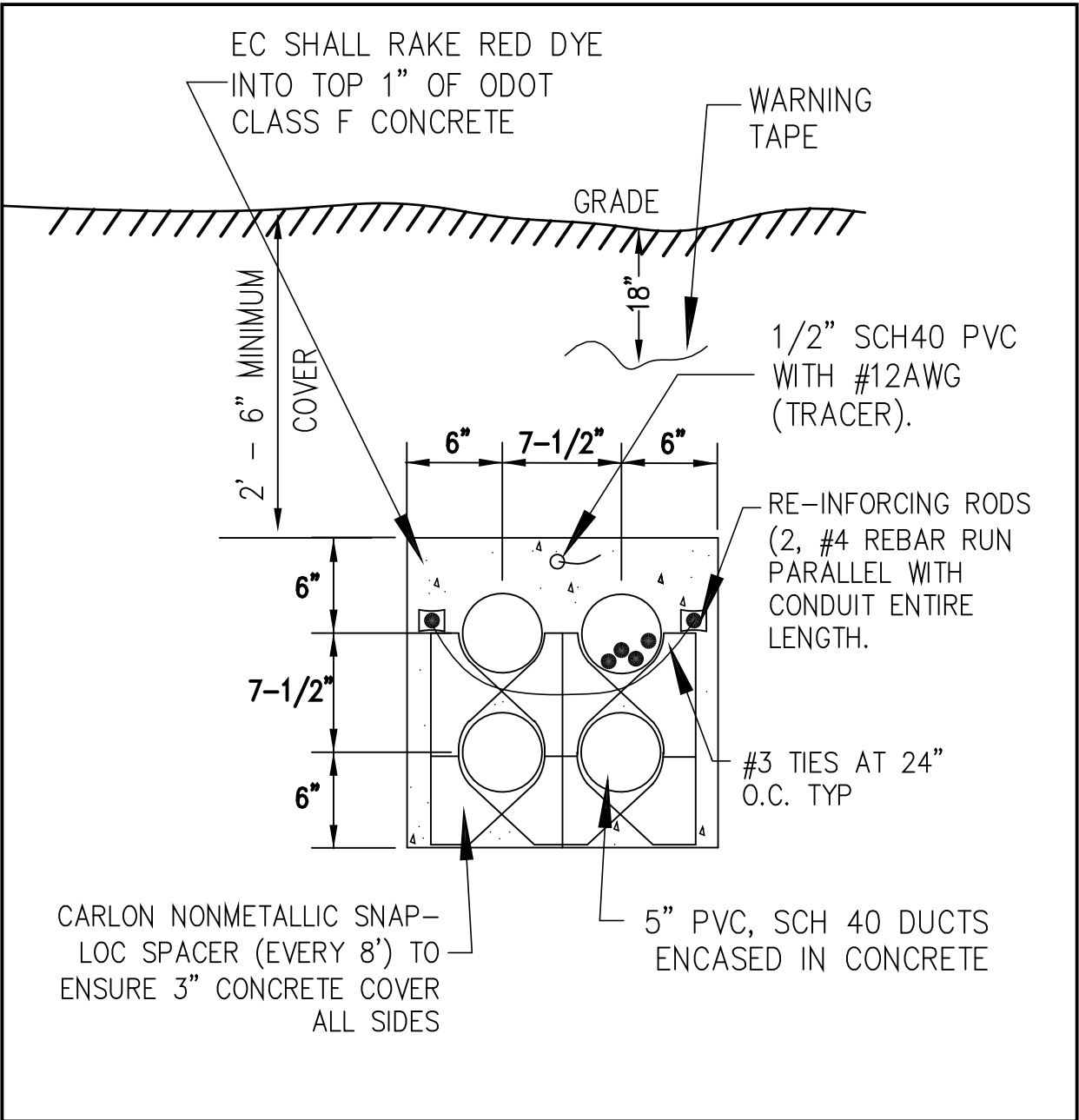
NO SCALE

TYPICAL REQUIRED MAHOLE CONSTRUCTION

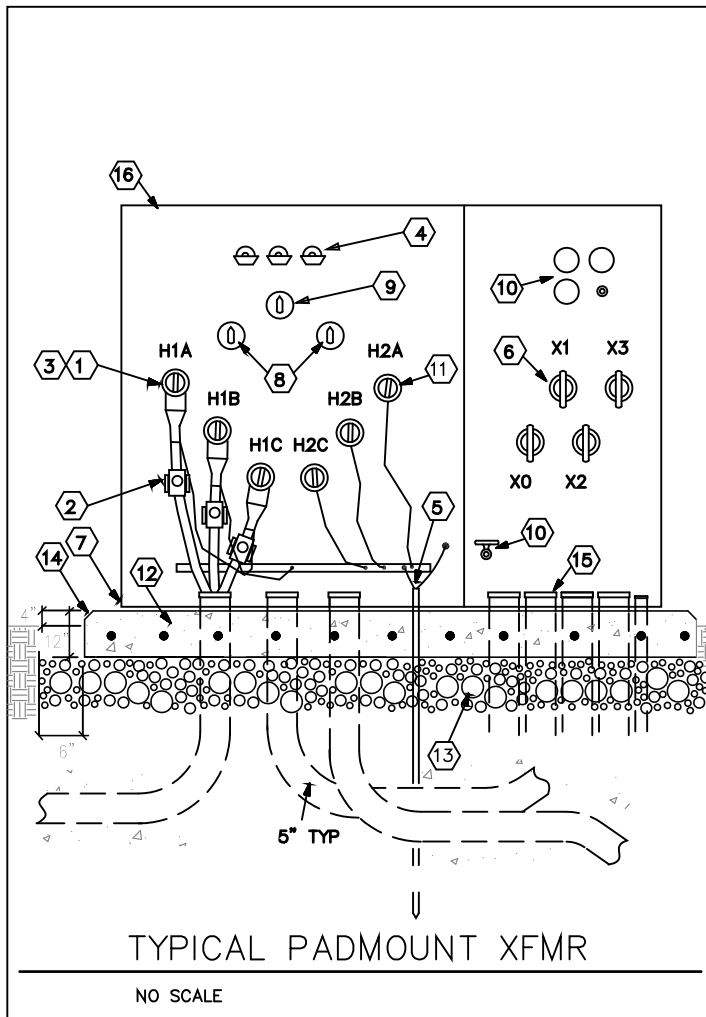


SPLICE BOX INSTALLATION DETAIL

NO SCALE



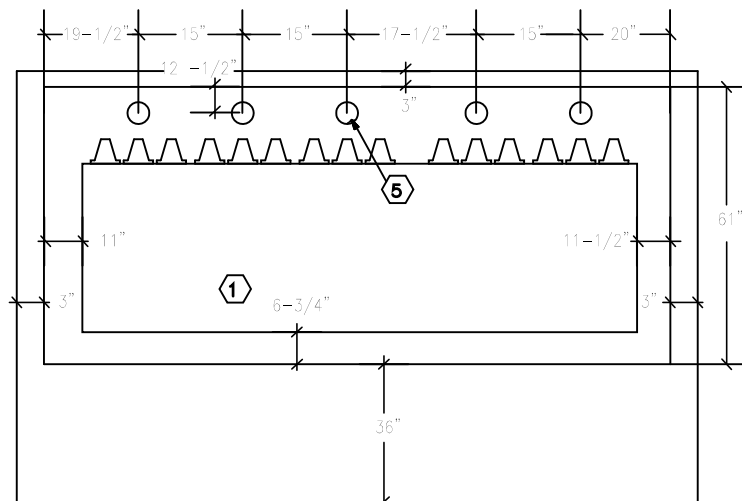
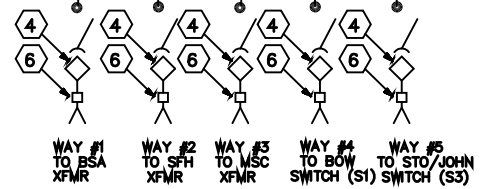
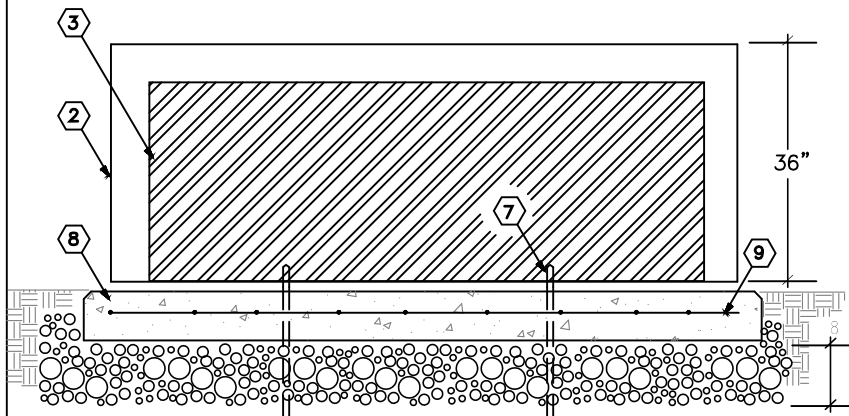
REQUIRED DUCTBANK CONSTRUCTION



PADMOUNT TRANSFORMER NOTES



- 1 - PROVIDE AND INSTALL 15KV 600AMP CLASS DEADBREAK ELBOW CONNECTORS WITH TEST POINT, INSULATING PLUG, CAP, STUD AND CABLE ADAPTER HUBBELL (#K655LR-WOX-) OR APPROVED EQUAL. EC SHALL ORDER APPROPRIATE ACCESSORIES SUCH AS LUGS, SHIELD GROUNDING KIT, ETC. BOND CABLE SHIELDING TO GROUND BUSS WITH COMPRESSION CONNECTORS. TYPICAL OF 6.
- 2 - PROVIDE AND INSTALL FAULT INDICATOR ONE PER PHASE. THE INDICATOR SHALL PROVIDE A DISPLAY AFTER THE CABLE HAS FAULTED. THE FAULT INDICATORS SHALL BE SET AT THE HIGH TRIP RATING AND SHALL BE MOISTURE, HEAT AND CORROSION RESISTANT.
- 3 - EC SHALL INSTALL SURGE ARRESTER ONE PER CABLE. EC SHALL USE A 15KV CLASS, 8.4KV MCOV METAL OXIDE VARISTOR ELBOW ARRESTER HUBBELL (#611509) OR APPROVED EQUAL. THE ELBOW ARRESTER SHALL BE INSTALLED ON THE BACK OF THE 600AMP DEADBREAK ELBOW USING A 15KV LOADBREAK REDUCING TAP PLUG HUBBELL (#650ETP) OR APPROVED EQUAL.
- 4 - BAYONET OIL-FUSED CUTOFF, ONE PER PHASE WITH 3, 80A FUSES PLUS 3 SPARE.
- 5 - FOUR (4), 3/4" X 10" GROUND RODS AROUND XFMR PAD CONNECTED WITH #4/0 CU. PROVIDE #4/0 CU GRND FROM GRND RING(CAD WELD TO GRND RING CONDUCTOR OR ROD) TO XFMR. TAKE ALL 15KV TERMINATION ELBOW AND INSULATION CAP DRAIN WIPES, SHIELDS TO GROUND.
- 6 - EC SHALL ENSURE THAT THE TRANSFORMER SECONDARY BUSHINGS ARE CAPABLE OF ACCEPTING 9-600KCMIL CONDUCTORS PER PHASE.
- 7 - EC SHALL ANCHOR THE PADMOUNT TRANSFORMER/SWITCH TO THE CONCRETE PAD AT FOUR CORNERS OF DEVICE.
- 8 - LOOP-FEED SWITCHES CONSISTING OF TWO (2) TWO POSITION, 15KV, 95KVBIIL, 600A, 10KAD GANG OPERATED INTERNAL OIL SWITCHES.
- 9 - ON-OFF RADIAL SWITCH TO DE-ENERGIZE THE TRANSFORMER WITHOUT OPENING THE LOOP-FEED SWITCHES.
- 10 - THE TRANSFORMER SHALL ALSO HAVE LIQUID LEVEL GAUGE, LIQUID DRAIN VALVE, PRESSURE GAUGE, PRESSURE RELIEF VALVE, NITROGEN TEST/FILL PORT AND A TEMPERATURE GAUGE.
- 11 - EC SHALL INSTALL 3, 15KV INSULATED PROTECTIVE CAPS, CONNECT DRAIN WIRES TO GND.
- 12 - THE TRANSFORMER PAD SHALL BE 12" THICK 3500PSI CONCRETE WITH #5 REINFORCING STEEL 12"O.C. EACH DIRECTION.
- 13 - INSTALL A MINIMUM 8" OF CRUSHED STONE OR GRAVEL BELOW PAD. THE STONE/GRAVEL SHALL EXTEND MINIMUM OF 6" OUT FROM THE SLAB ON ALL SIDES.
- 14 - 1" ROUNDED EDGE ALL SIDES.
- 15 - 9, 3-1/2" PVC SCH 40 CONDUITS WITH 4-600KCMIL CONDUCTORS IN EACH.
- 16 - THE TRANSFORMER SHALL CONTAIN LESS FLAMMABLE LIQUID (R-TEMP).



NEW SECTIONALIZING SWITCH

NO SCALE

NEW SWITCH#2 NOTES

- 1 - THE DIMENSION OF EQUIPMENT IS CRITICAL. EQUIPMENT LAYOUT AS SHOWN IS BASED ON THE S&C SWAY VISTA SWITCH. EC SHALL ASSUME RESPONSIBILITY FOR ANY CHANGES OR ADDITIONAL WORK CREATED BY USE OF EQUIPMENT BY MANUFACTURERS OTHER THAN S&C.
- 2 - EC SHALL PROVIDE AND INSTALL MILD STEEL SWITCH ENCLOSURE (61"D X 102"W). ENCLOSURE SHALL BE PAINTED OLIVE GREEN AND ANCHORED TO CONCRETE PAD.
- 3 - 15KV S&C "VISTA" 5WAY PADMOUNT SWITCH. ALL 5 WAYS SHALL BE LOAD INTERRUPTER SWITCH WAYS. ANCHOR SWITCH TO MH. EC SHALL INSTALL 1/4" X 1" COPPER GROUND BAR THE LENGTH OF THE SWITCH.
- 4 - PROVIDE AND INSTALL 15KV 600AMP CLASS DEADBREAK ELBOW CONNECTORS WITH TEST POINT, AND A 15KV REDUCING TAP PLUG (HUBBELL #650ETP) WITH A 8.4KV MCOV METAL OXIDE VARISTOR ELBOW ARRESTER (HUBBELL #611509) OR APPROVED EQUAL (12 TERMINATIONS). EC SHALL BOND ARRESTER GND LEADS TO GROUND BUS. EC SHALL VERIFY POSITIONING OF ENCLOSURE TO ENSURE THAT THERE IS ENOUGH DEPTH TO ACCOMMODATE 600A ELBOW, 200A INSERT & ELBOW ARRESTER.
- 5 - EC SHALL BRING UP 5" SCH 40 PVC CONDUITS OUT OF THE SLAB. CONDUITS SHALL BE 2" ABOVE SLAB. CONDUITS SHALL HAVE BELL END FITTINGS. TYPICAL 1 OF 5 CONDUITS.
- 6 - PROVIDE AND INSTALL COOPER (#SMHI) 15KV MANUAL RESET FAULT INDICATORS ONE PER PHASE (12 TOTAL). EC SHALL ALSO SUPPLY 2 COOPER RESET TOOLS (#SMRT).
- 7 - EC SHALL PROVIDE AND INSTALL 4, COPPER 3/4" X 10' GND RODS IN THE SLAB. EC SHALL USE 4/0 CU CONDUCTORS TO BOND THE RODS AND EXTEND TO THE GND BUS IN THE SWITCH.
- 8 - EC SHALL PROVIDE 12" THICK 3500 PSI MINIMUM COMPRESSION STRENGTH CONCRETE PAD AND 8" AGGREGATE BELOW PAD.
- 9 - #5 REINFORCING STEEL 12" O.C. BOTH DIRECTIONS SECURELY TIED TOGETHER.

DESIGN GUIDE 265600
STD CUTOFF FIXTURE

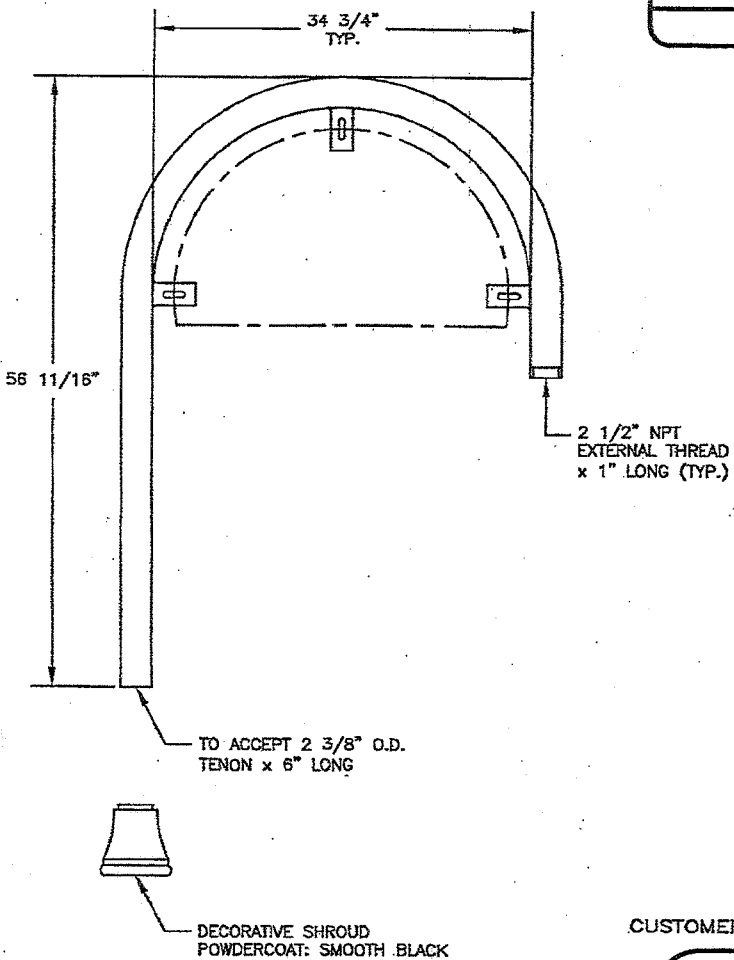
DATE: 01-14-2010

LF-1

REV. <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; height: 20px;"></td> <td style="width: 50%; height: 20px;"></td> </tr> </table>			ALTERATION <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; height: 20px;"></td> <td style="width: 50%; height: 20px;"></td> </tr> </table>			DATE <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; height: 20px;"></td> <td style="width: 50%; height: 20px;"></td> </tr> </table>			<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2" style="padding: 5px;"> SPECIFICATIONS CATALOGUE NO.: K829-HCSA-V-150(MED) -MH(PS)-<u>277</u>(MT)-KPL10 ← QUANTITY: <u>7</u> OPTICAL SYSTEM: HYDROFORM GLASS SAG LENS IES LTG. CLASS.: TYPE V WATTAGE: 150W SOCKET SIZE: MEDIUM SOURCE: METAL HALIDE (PULSE START) <u>277V</u> (MULTI-TAP) ← SMOOTH BLACK M102 LAMP BY OTHERS </td> </tr> <tr> <td style="width: 50%; padding: 5px;"> KENT STATE UNIVERSITY UNIVERSITY ARCHITECTS OF OHIO <input type="checkbox"/> FINAL APPROVAL <input checked="" type="checkbox"/> APPROVED AS NOTED <input type="checkbox"/> REVISE AND RESUBMIT DATE <u>1/5/10</u> BY <u>C. Kuchel</u> </td> <td style="width: 50%; padding: 5px;"> TYPE: HX-HPF MANU.: ADVANCE 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. </td> </tr> </table>	SPECIFICATIONS CATALOGUE NO.: K829-HCSA-V-150(MED) -MH(PS)- <u>277</u> (MT)-KPL10 ← QUANTITY: <u>7</u> OPTICAL SYSTEM: HYDROFORM GLASS SAG LENS IES LTG. CLASS.: TYPE V WATTAGE: 150W SOCKET SIZE: MEDIUM SOURCE: METAL HALIDE (PULSE START) <u>277V</u> (MULTI-TAP) ← SMOOTH BLACK M102 LAMP BY OTHERS		KENT STATE UNIVERSITY UNIVERSITY ARCHITECTS OF OHIO <input type="checkbox"/> FINAL APPROVAL <input checked="" type="checkbox"/> APPROVED AS NOTED <input type="checkbox"/> REVISE AND RESUBMIT DATE <u>1/5/10</u> BY <u>C. Kuchel</u>	TYPE: HX-HPF MANU.: ADVANCE 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.
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<div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <p>NOTE FOR KING OHIO TEFLON TAPE AND ASSEMBLE AT FACTORY PRIOR TO SHIPPING</p> </div> <div style="width: 65%;"> </div> </div>													
<div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <p>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</p> </div> <div style="width: 65%;"> <p>CUSTOMER ORDER No: P0007368 STRESSCRETE ORDER No: - KING CANADA ORDER No: K01108 KING U.S. ORDER No: A03199</p> </div> </div>													

CUSTOMER APPROVAL & DATE: 1/5/10 CME

 STRESSCRETE GROUP <small>King Luminaires • Stresscrete • Est. 1953</small>	PROJECT/CUSTOMER: KENT STATE UNIVERSITY MANUFACTURING LOCATIONS: Burlington, Ontario 1-800-268-7809 Northport, Alabama 1-800-435-6563 Atchison, Kansas 1-800-837-1024 Jefferson, Ohio 1-800-268-7809
DRAWN BY: A. ALVELA CHECKED BY: SC1 DATE: 12/30/09	REVISION: DRAWING NUMBER: 206A4649-2





REV.	ALTERATION	DATE	BY

ARM SPECIFICATIONS
 CATALOGUE NO. KA15-T-1 (MOD.)
 QUANTITY: 4
 MATERIAL: ALUMINUM
 POWDERCOAT: SMOOTH BLACK

KENT STATE UNIVERSITY UNIVERSITY ARCHITECT'S OFFICE	
<input checked="" type="checkbox"/>	FINAL APPROVAL
<input type="checkbox"/>	APPROVED AS NOTED
<input type="checkbox"/>	REVISE AND RESUBMIT
DATE 1/5/10 BY C. Ricchetti	
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.	

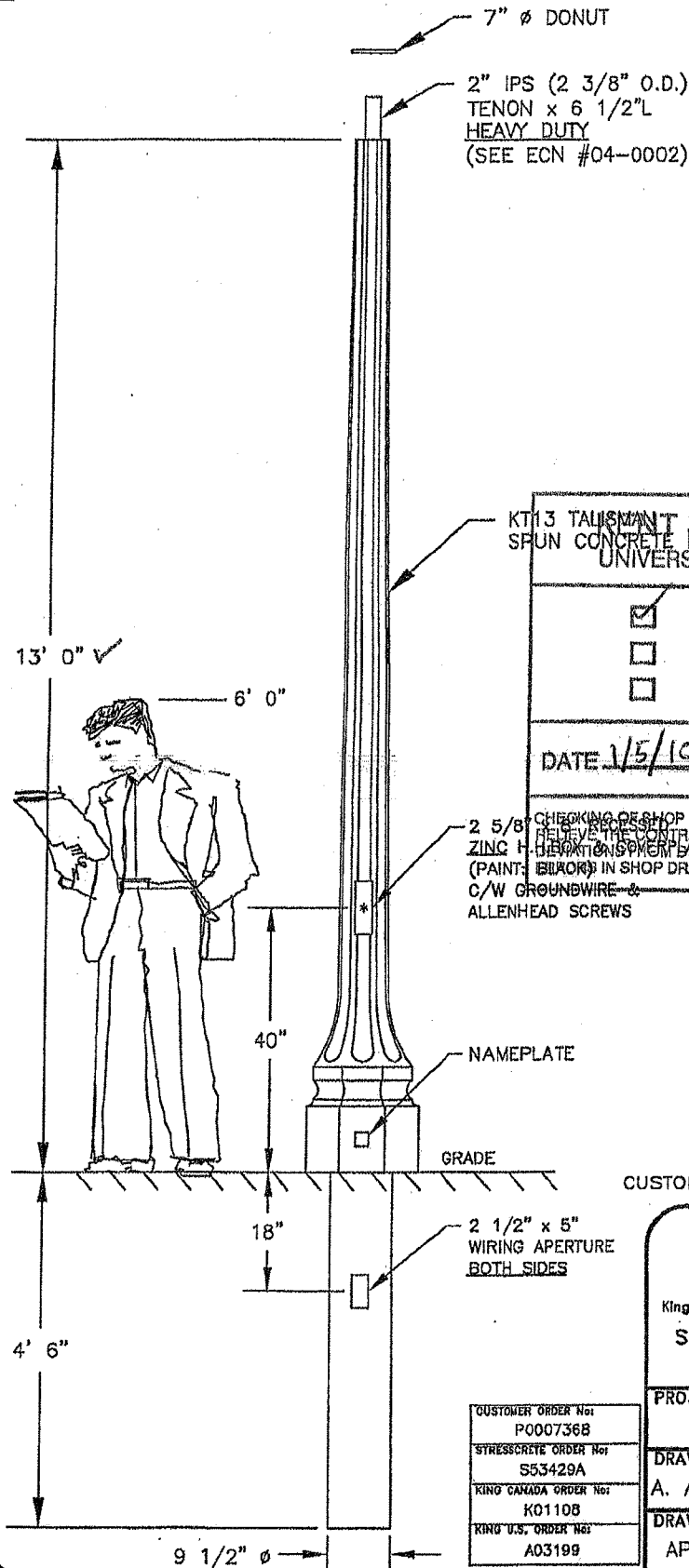
CUSTOMER APPROVAL & DATE:

  King Luminaire • Stresscrete • Est. 1953		Manufacturing Locations: Burlington, Ontario 1-800-268-7809 Northport, Alabama 1-800-435-6563 Atchison, Kansas 1-800-837-1024 Jefferson, Ohio 1-800-268-7809	
CUSTOMER ORDER No: P0007368 STRESSCRETE ORDER No: - KING CANADA ORDER No: K01108 KING U.S. ORDER No: A03199		STRESSCRETE GROUP PROJECT/CUSTOMER: KENT STATE UNIVERSITY DRAWN BY: A. ALVELA AT: SC1 CHECKED BY: DATE: 12/30/09 REVISION: DRAWING TYPE: APPROVAL DRAWING DRAWING NUMBER: A03199-4	

POLE SPECIFICATIONS

CATALOGUE NO.: KT13-G--E11 C/W
140-25/65 & DONUT

QUANTITY: (4)
SECTION: FLUTED OCTAGONAL
COLOUR: ECLIPSE
FINISH: ETCHED
POLE TOP: 5 1/2" FL/FL
POLE BUTT: 9 1/2" Ø
POLE LENGTH: 17' 6" ✓
APPROX WEIGHT: 1,075 lbs.
MIN. RACEWAY: 1 1/4" Ø
OPTIONS: 7" Ø DONUT (SMOOTH BLACK)

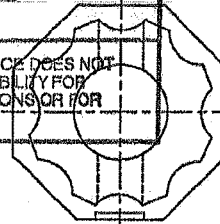


KENT STATE UNIVERSITY
UNIVERSITY ARCHITECT'S OFFICE
KENT, OHIO 44240-3100
GRAFFITTI FULL LENGTH (JB)

- ☒ FINAL APPROVAL
☐ APPROVED AS NOTED
☐ REVISE AND RESUBMIT

DATE 1/5/10 BY C. Reddett

CHECKING OF SHOP DRAWINGS BY THIS OFFICE DOES NOT
RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR
ZINC H-BEAM SECTION DRAWINGS & SPECIFICATIONS OR FOR
(PAINT: BLACK) IN SHOP DRAWINGS.
C/W GROUNDWIRE &
ALLENHEAD SCREWS



H.H. BOX, NAMEPLATE
THRU APERTURE
TOP VIEW

CUSTOMER APPROVAL & DATE: 1/5/10 CMR



King Luminaire • Stresscrete • Est. 1953

STRESSCRETE
GROUP

Manufacturing Locations:

Burlington, Ontario 1-800-268-780
Northport, Alabama 1-800-435-65
Atchison, Kansas 1-800-837-1024
Jefferson, Ohio 1-800-268-7809

PROJECT/CUSTOMER:

KENT STATE UNIVERSITY

DRAWN BY:	AT:	CHECKED BY:	DATE:	REVISION:
A. ALVELA	SC1		12/30/09	
DRAWING TYPE:		DRAWING NUMBER:		
APPROV./MFG. DWG.		A03199-1		

CUSTOMER ORDER NO:
P0007368
STRESSCRETE ORDER NO:
S53429A
KING CANADA ORDER NO:
K01108
KING U.S. ORDER NO:
A03199

KENT STATE
UNIVERSITY
OFFICE OF THE UNIVERSITY ARCHITECT

DESIGN GUIDE 265600
STD WALKWAY POLE

DATE: 01-14-2010

PL-1

LINE TO LINE at bus "1258 KENT ST U.69"

5/06/2009

Substation CENTRAL - Akron Customers	Area 1 C_AK	Zone 69 69 kV Sub Tr
Bus 1258 KENT ST U.69 RR	Base kV 71.11 Ph-Ph (41.06 @0 deg A-Gnd)	Prefault 1.000 V (p.u.) @ 0.00
+ seq	- seq	0 seq / 3Io
	A phase	B phase
		C phase
Voltage (kV) Ph-Gnd > 20.5280 @ 0.0	20.5280 @ 0.0	0.00000 @ 0.0 41.0559 @ 0.0 20.5280 @ 180.0 20.5280 @ 180.0

Thevenin (R, X) (p.u.) > 0.01555, 0.05394 0.01556, 0.05394 0.03682, 0.10518
 Thevenin (R, X) (Ohms) > 0.78639, 2.72753 0.78696, 2.72744 1.86196, 5.31857

→ Fault Currents (Amps) > 7231.45 @ -73.9 7231.45 @ 106.1 0.00000 @ 0.0 | 0.00000 @ 0.0 12525.2 @ -163.9 12525.2 @ 16.1

Line Currents (Amps) total from >

CENTRAL - Akron Fic. Buses (Real bus WEST RAVENNA 1479 W.RAVENNA 69): DARROW_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 @ -163.9 12525.2 @ 16.1

Substation CENTRAL - Akron Fic. Buses	Area 1 C_AK	Zone 1036 69kV Sub Tr
Bus 1698 KSU TAP 69 LT	Base kV 71.11 Ph-Ph (41.06 @0 deg A-Gnd)	Prefault 1.000 V (p.u.) @ 0.00
+ seq	- seq	0 seq / 3Io
	A phase	B phase
		C phase
Voltage (kV) Ph-Gnd > 20.6004 @ -0.1	20.4556 @ 0.1	0.00000 @ 0.0 41.0559 @ 0.0 20.5866 @ -179.7 20.4701 @ 179.6

Line Currents (Amps) total from >

KENT (Real bus DARROW 1110 DARROW 69): DARROW_WEST_RAVENNA_69KV
 1264 KENT 69 1 2025.15 @ -72.1 2025.15 @ 107.9 0.00000 @ 0.0 | 0.01672 @ -164.9 3507.66 @ -162.1 3507.67 @ 17.9

CENTRAL - Akron Customers Line: DARROW_WEST_RAVENNA_69KV
 1258 KENT ST U.69 1 7231.45 @ 106.1 7231.45 @ -73.9 0.00000 @ 0.0 | 0.00000 @ 0.0 12525.2 @ 16.1 12525.2 @ -163.9

CENTRAL - Akron Fic. Buses (Real bus WEST RAVENNA 1479 W.RAVENNA 69): DARROW_WEST_RAVENNA_69KV
 1704 KENT WTR T69 1 5207.75 @ -74.6 5207.75 @ 105.4 0.00000 @ 0.0 | 0.01672 @ 15.1 9020.10 @ -164.6 9020.08 @ 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.

5/06/2009

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

Substation CENTRAL - Akron Customers		Area 1 C_AK		Zone 69 69 kV Sub Tr		
Bus	1258 KENT ST U.69 RR	Base kV	71.11 Ph-Ph (41.06 @0 deg A-Gnd)	Prefault 1.000 V (p.u.)	@ 0.00	
		+ seq	- seq	0 seq / 3Io	A phase	
					B phase	
					C phase	
Voltage (kV)	Ph-Gnd > 30.7547 @ -0.5	10.3063 @-178.4	20.4590 @ 178.4	0.00000 @ 0.0	46.3120 @-131.5	47.6143 @ 130.1

→ Thevenin (R, X) (p.u.) > 0.01555, 0.05394 0.01556, 0.05394 0.03682, 0.10518
 Thevenin (R, X) (Ohms) > 0.78639, 2.72753 0.78696, 2.72744 1.86196, 5.31857

→ Fault Currents (Amps) > 3630.65 @ -72.3 3630.65 @ -72.3 10892.0 @ -72.3 | 10892.0 @ -72.3 0.00000 @ 0.0 0.00000 @ 0.0

Line Currents (Amps) total from >

CENTRAL - Akron Fic. Buses (Real bus WEST RAVENNA 1479 W.RAVENNA 69): DARROW_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 Fic. Buses		Area 1 C_AK		Zone 1036 69kV Sub Tr		
Bus	1698 KSU TAP 69 LT	Base kV	71.11 Ph-Ph (41.06 @0 deg A-Gnd)	Prefault 1.000 V (p.u.)	@ 0.00	
		+ seq	- seq	0 seq / 3Io	A phase	
					B phase	
					C phase	
Voltage (kV)	Ph-Gnd > 30.7916 @ -0.6	10.2700 @-178.3	20.3633 @ 178.4	0.17596 @ -16.3	46.2746 @-131.4	47.5754 @ 130.1

Line Currents (Amps) total from >

KENT (Real bus DARROW 1110 DARROW 69): DARROW_WEST_RAVENNA_69KV
 1264 KENT 69 1 1016.76 @ -70.5 1016.76 @ -70.5 2729.26 @ -71.0 | 2943.24 @ -70.6 107.375 @ 114.0 107.360 @ 114.0
 CENTRAL - Akron Customers Line: DARROW_WEST_RAVENNA_69KV
 1258 KENT ST U.69 1 3630.65 @ 107.7 3630.65 @ 107.7 10892.0 @ 107.7 | 10892.0 @ 107.7 0.00006 @ 32.4 0.00006 @ 32.4
 CENTRAL - Akron Fic. Buses (Real bus WEST RAVENNA 1479 W.RAVENNA 69): DARROW_WEST_RAVENNA_69KV
 1704 KENT WTR T69 1 2614.62 @ -73.0 2614.62 @ -73.0 8163.65 @ -72.8 | 7950.45 @ -72.9 107.375 @ -66.0 107.360 @ -66.0

THREE_PHASE at bus "1258 KENT ST U.69"

5/06/2009

Substation _CENTRAL - Akron Customers
Bus 1258 KENT ST U.69 RR
Area 1 C_AK Zone 69 69 kV Sub Tr
Base kV 71.11 Ph-Ph (41.06 @0 deg A-Gnd) Prefault 1.000 V (p.u.) @ 0.00
+ seq - seq 0 seq / 3Io A phase B phase C phase
Voltage (kV) Ph-Gnd > 0.00000 @ 0.0 0.00000 @ 0.0 0.00000 @ 0.0 | 0.00000 @ 0.0 0.00000 @ 0.0 0.00000 @ 0.0

Thevenin (R, X) (p.u.) > 0.01555, 0.05394 0.01556, 0.05394 0.03682, 0.10518
Thevenin (R, X) (Ohms) > 0.78639, 2.72753 0.78696, 2.72744 1.86196, 5.31857

Fault Currents (Amps) > 14463.1 @ -73.9 0.00000 @ 0.0 0.00000 @ 0.0 | 14463.1 @ -73.9 14463.1 @ 166.1 14463.1 @ 46.1

Line Currents (Amps) total from >

_CENTRAL - Akron Fic. Buses (Real bus WEST RAVENNA 1479 W.RAVENNA 69): DARROW_WEST_RAVENNA_69KV
1698 KSU TAP 69 1 14463.1 @ -73.9 0.00000 @ 0.0 0.00000 @ 0.0 | 14463.1 @ -73.9 14463.1 @ 166.1 14463.1 @ 46.1

Substation _CENTRAL - Akron Fic. Buses
Bus 1698 KSU TAP 69 LT
Area 1 C_AK Zone 1036 69kV Sub Tr
Base kV 71.11 Ph-Ph (41.06 @0 deg A-Gnd) Prefault 1.000 V (p.u.) @ 0.00
+ seq - seq 0 seq / 3Io A phase B phase C phase
Voltage (kV) Ph-Gnd > 0.15968 @ -24.9 0.00000 @ 0.0 0.00000 @ 0.0 | 0.15968 @ -24.9 0.15968 @ -144.9 0.15968 @ 95.1

Line Currents (Amps) total from >

KENT (Real bus DARROW 1110 DARROW 69): DARROW_WEST_RAVENNA_69KV
1264 KENT 69 1 4050.35 @ -72.1 0.00000 @ 0.0 0.00000 @ 0.0 | 4050.35 @ -72.1 4050.35 @ 167.9 4050.35 @ 47.9
_CENTRAL - Akron Customers Line: DARROW_WEST_RAVENNA_69KV
1258 KENT ST U.69 1 14463.1 @ 106.1 0.00000 @ 0.0 0.00000 @ 0.0 | 14463.1 @ 106.1 14463.1 @ -13.9 14463.1 @ -133.9
_CENTRAL - Akron Fic. Buses (Real bus WEST RAVENNA 1479 W.RAVENNA 69): DARROW_WEST_RAVENNA_69KV
1704 KENT WTR T69 1 10415.6 @ -74.6 0.00000 @ 0.0 0.00000 @ 0.0 | 10415.6 @ -74.6 10415.6 @ 165.4 10415.6 @ 45.4



100' Aerial Platform



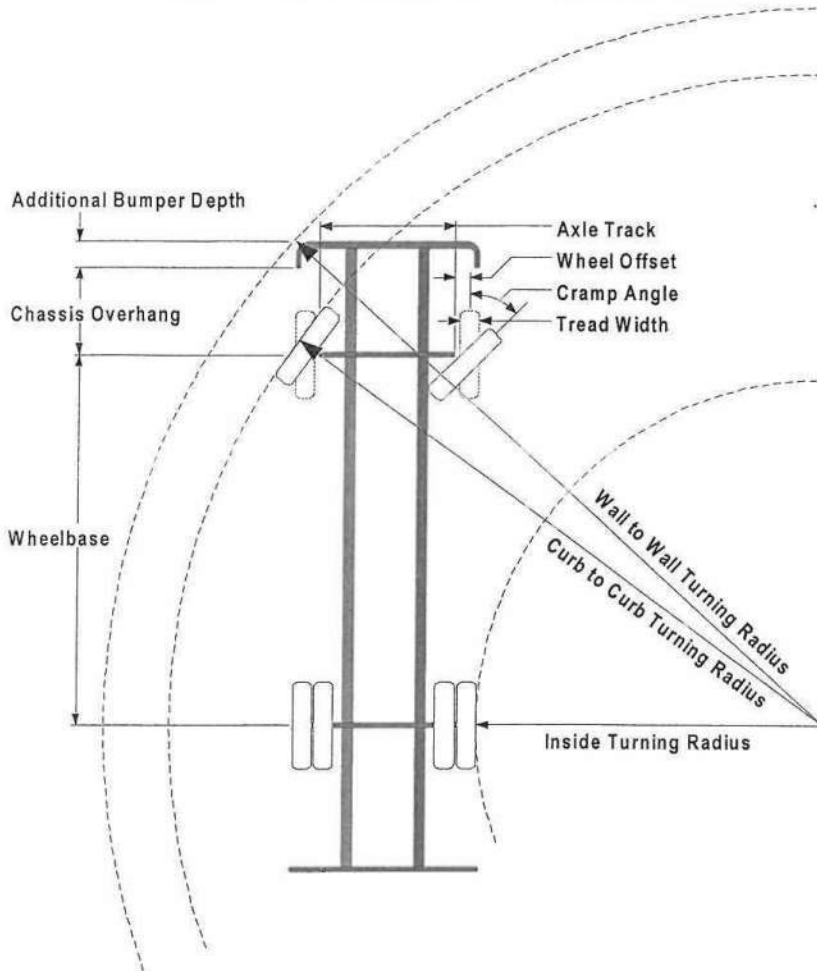
OPERATOR'S MANUAL



1819

Turning Performance Analysis

3/11/02



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 1/2"

LENGTH INCLUDING BUCKET - 46'

HEIGHT - 11' 4"

weight (USE 40 T)

Components	PRIDE #	Description
Front Axle	0000295	Axle, Front, Meritor FL-941, 21,000#
Front Tires	0001615	Tires, Goodyear, 425/65R22.50 18 ply G286 tread
Chassis	0060010	Pierce Arrow Chassis
Front Bumper	0012246	Bumper, 22" extended - all chassis'
Aerial Device	0022160	Aerial, 100' Pierce Platform

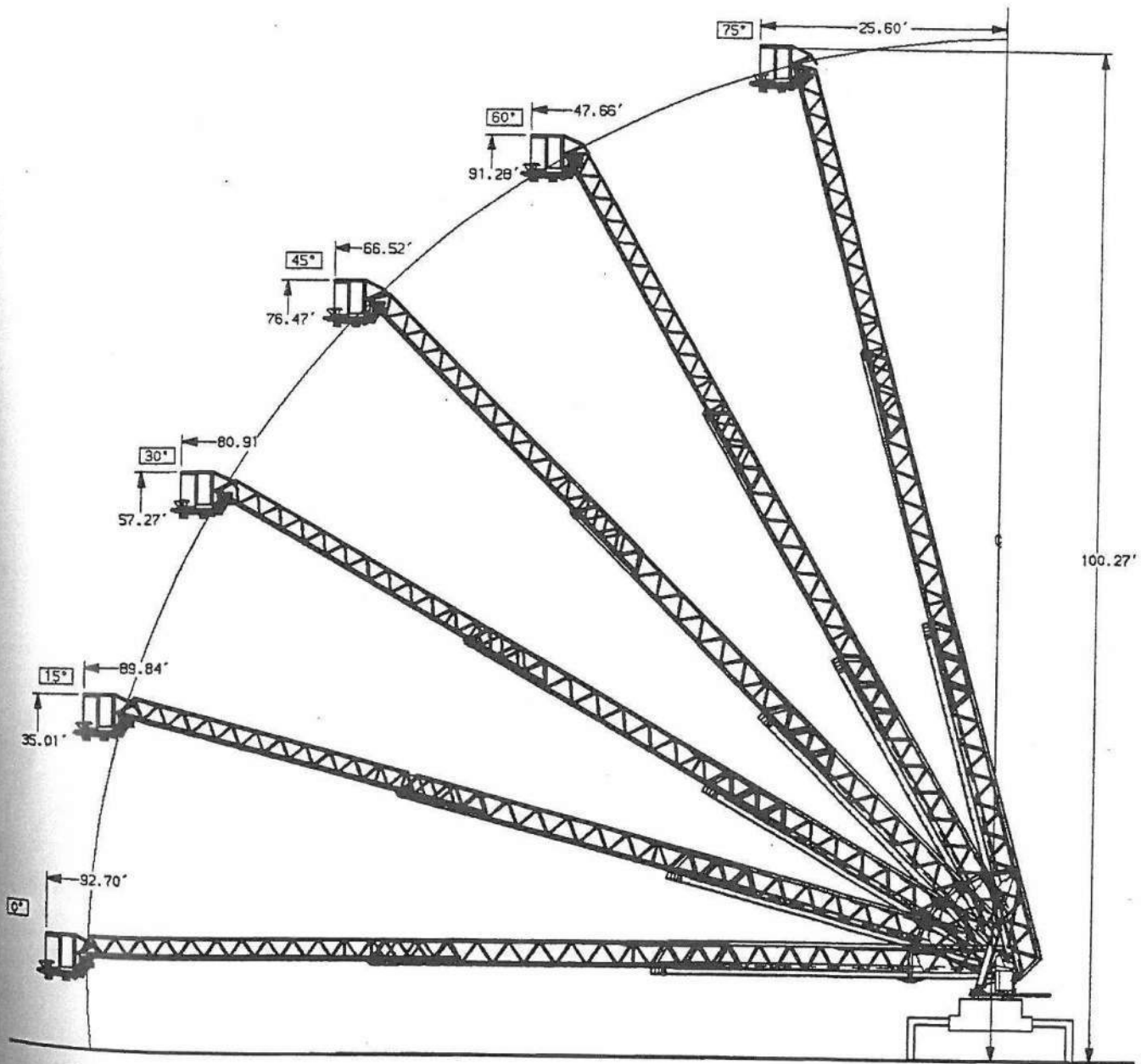
Notes:

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.

AERIAL FAMILIARIZATION INFORMATION



NOTE: FOR AERIAL REACH MEASURE FROM THE PLATFORM STEP- ADD 10"

Figure 4. 100-Foot Aerial Platform Range Diagram

AERIAL PLATFORM OPERATION PROCEDURE

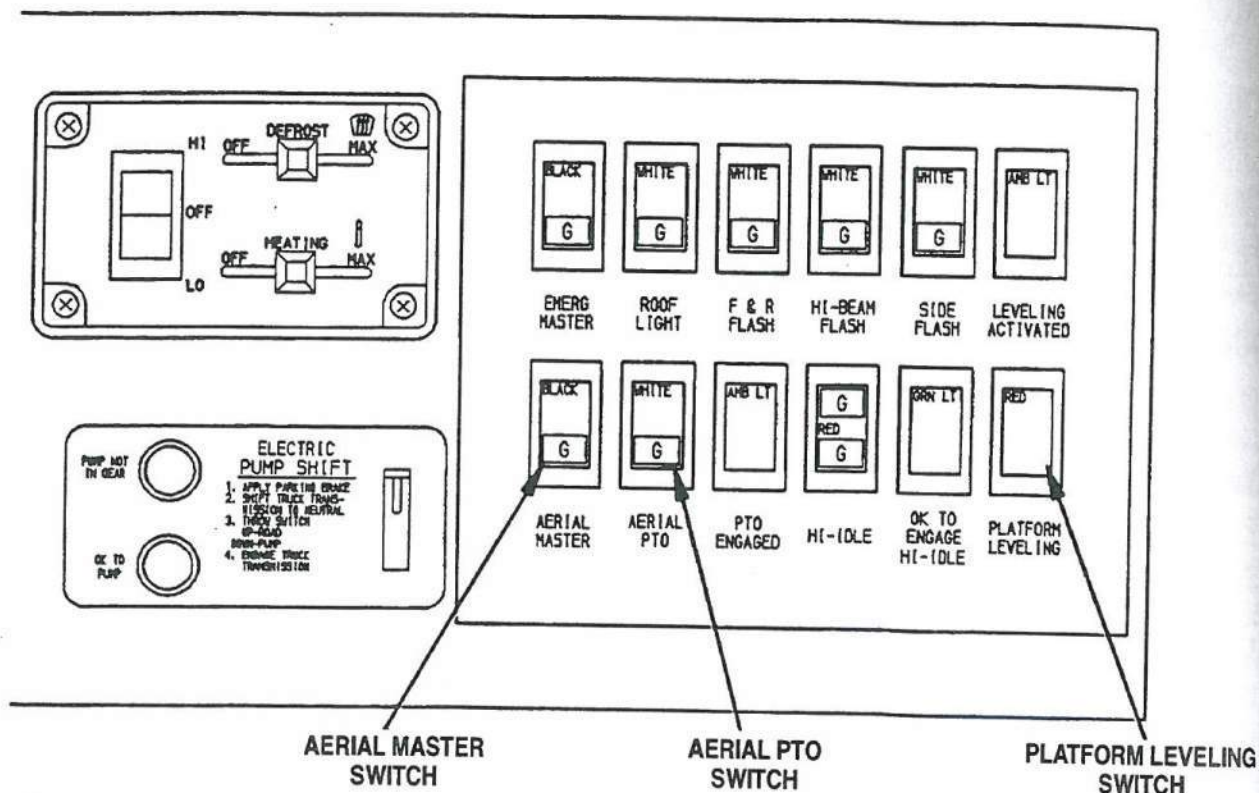


Figure 8. Typical Switch Panel

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 which 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 LOW 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 the heel of your hand will lower both jacks at the same rate.
- d. Raise the rear tires off the ground about 1 - 1 1/2 inches.
- e. Raise the front tires just enough to take out the bump. The front tires must contact the ground for stabilization. (Undue stress is placed on the chassis if the front tires are off the ground and the ladder is fully extended from 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."

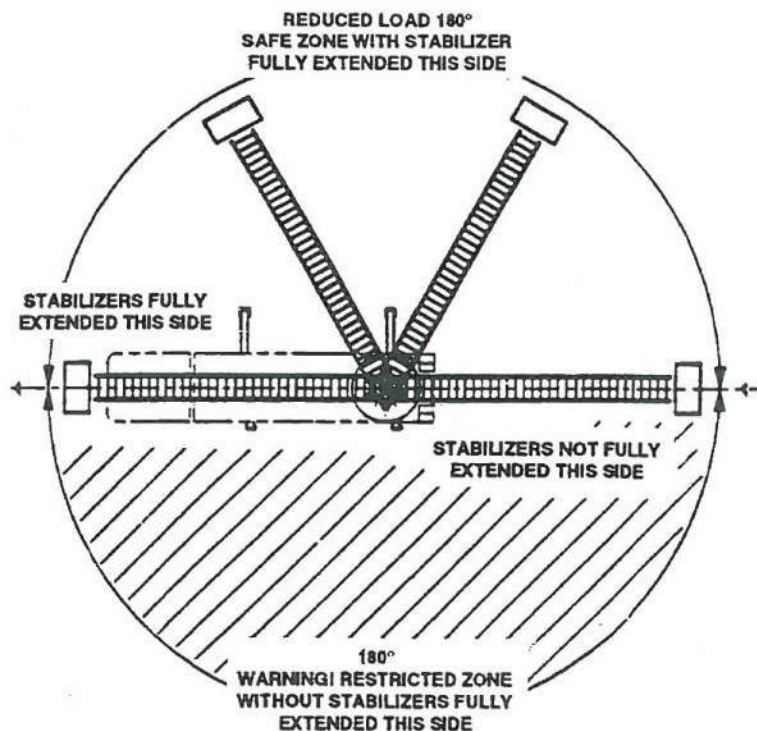


Figure 9. Horizontal Beams Extension

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.

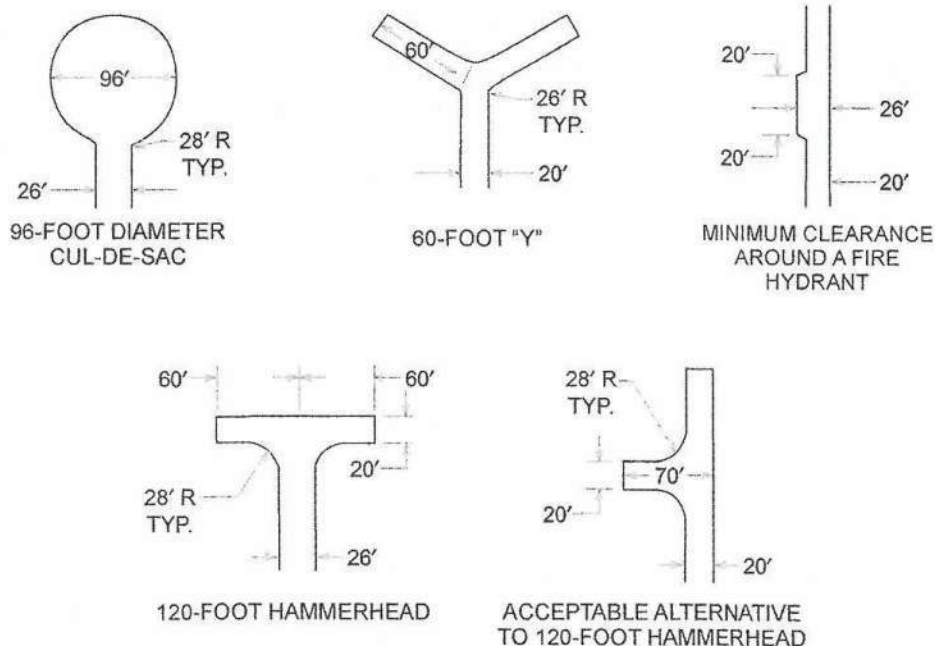
D103.3 Turning radius. The minimum turning radius shall be determined by the *fire code official*.

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 D103.4
REQUIREMENTS FOR DEAD-END
FIRE APPARATUS ACCESS ROADS**

LENGTH (feet)	WIDTH (feet)	TURNAROUNDS REQUIRED
0-150	20	None required
151-500	20	120-foot Hammerhead, 60-foot "Y" or 96-foot diameter cul-de-sac in accordance with Figure D103.1
501-750	26	120-foot Hammerhead, 60-foot "Y" or 96-foot diameter cul-de-sac in accordance with Figure D103.1
Over 750		Special approval required

For SI: 1 foot = 304.8 mm.



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 F 2200.

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.

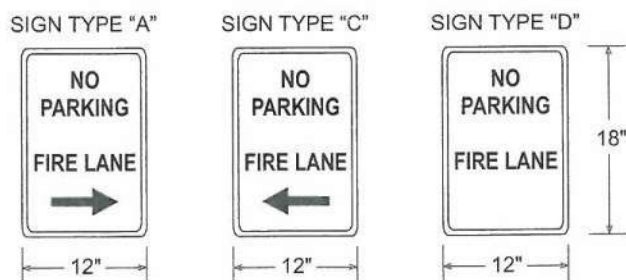


FIGURE D103.6
FIRE LANE SIGNS

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.

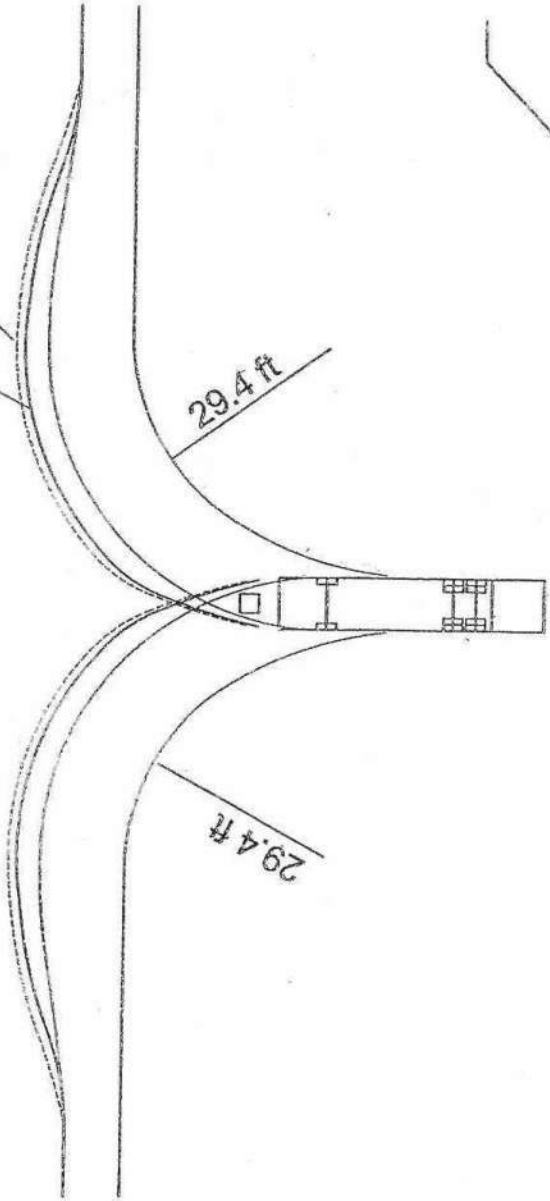
D105.3 Proximity to building. At least one of the required access routes meeting this condition shall be located within a minimum of 15 feet (4572 mm) and a maximum of 30 feet (9144 mm) from the building, and shall be positioned parallel to one entire side of the building. The side of the building on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

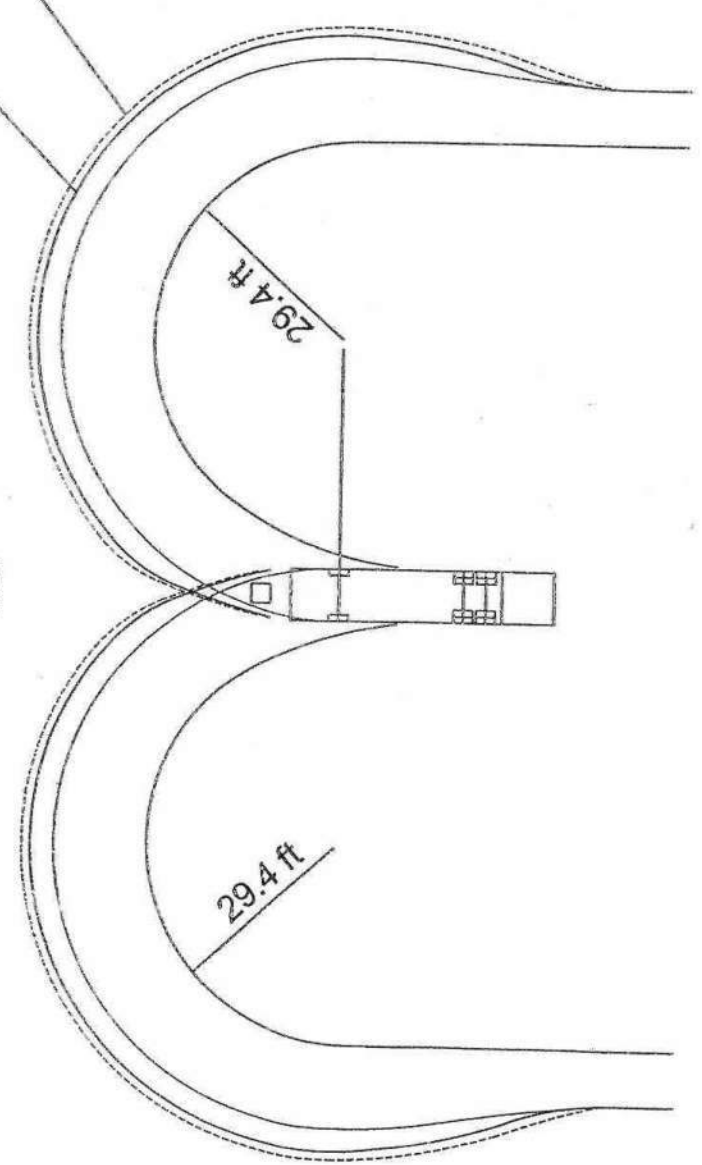
Exception: Projects having up to 200 dwelling units may have a single approved fire apparatus access road when all

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



Wall To Wall (Per
Manuf R= 47.2 Ft)

Approximate
track of bucket in
front.





Power-PRO™ XT

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Standard Features

- Automatic in-cot fastener shut-off
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- 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

Model Number	6506
Height¹ (infinite height positioning between lowest and highest position)	
Highest Position	41.5 in (105 cm)
Lowest Position	14 in (36 cm)
Length	
Standard	81 in (206 cm) <i>86" (due to oxygen bottle)</i>
Minimum	63 in (160 cm)
Width	23 in (58 cm)
Weight²	125 lb (57 kg)
Wheels	
Diameter	6 in (15 cm)
Width	2 in (5 cm)
Articulation	
Backrest	0–73°
Shock Position	+15°
Optional Knee Gatch	30°
Maximum Weight Capacity³	700 lb (318 kg)
Minimum Operator Required	
Occupied Cot	2
Unoccupied Cot	1
Recommended Fastener System	
Power-LOAD™	Model 6390
Floor Mount	Model 6370 or 6377
Wall Mount	Model 6371
Recommended Loading Height⁴	Up to 36 in (91 cm)

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 seat 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 500 lb (Cot loads over 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 conform to the Federal Specification for the Star-of-Life Ambulance KKK-A-1822.

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.

Certifications



IPX6 IEC-60601



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DDM/RRP 0811
Mkt Lit-152 Rev F

OHIO ADMINISTRATIVE CODE 1301:7-7-05

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' (width) for operation of truck.

(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 AASHTO 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 ROOFS

(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 $\frac{3}{4}$ 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 (I)(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 fire-fighting 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)(i) (903.3.1.1) or (C)(3)(a)(ii) (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 circumfer-

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.

(c) 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.
- (i) The fire-fighter's control panel required by *paragraph (I)(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 Administrative Code*.

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.

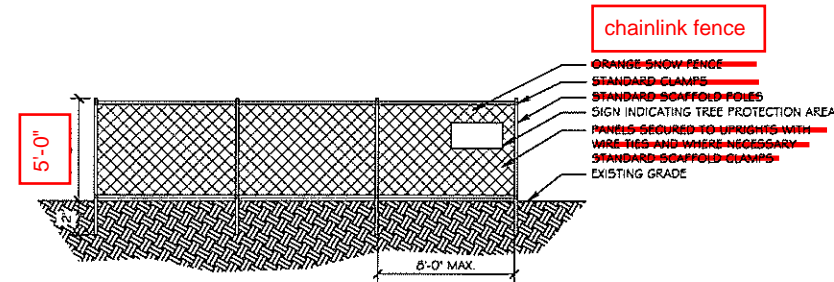
(3) 510.3 Emergency responder radio coverage in existing buildings. Existing buildings that do not have approved radio coverage for emergency responders within the building shall be equipped with such coverage according to one of the following:

- (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.

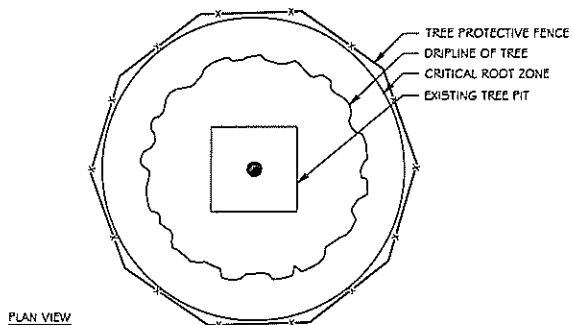
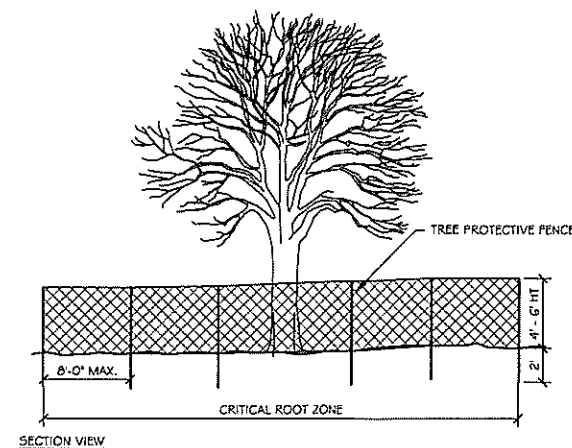
Effective Date: November 1, 2011

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

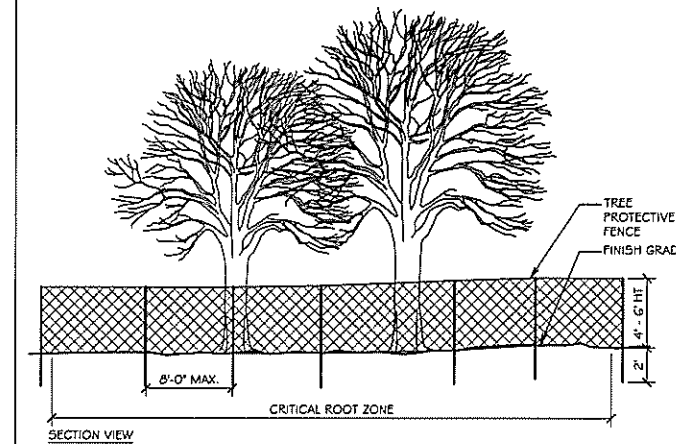
1 TREE PROTECTIVE FENCE SCALE: 1/4" = 1'-0"



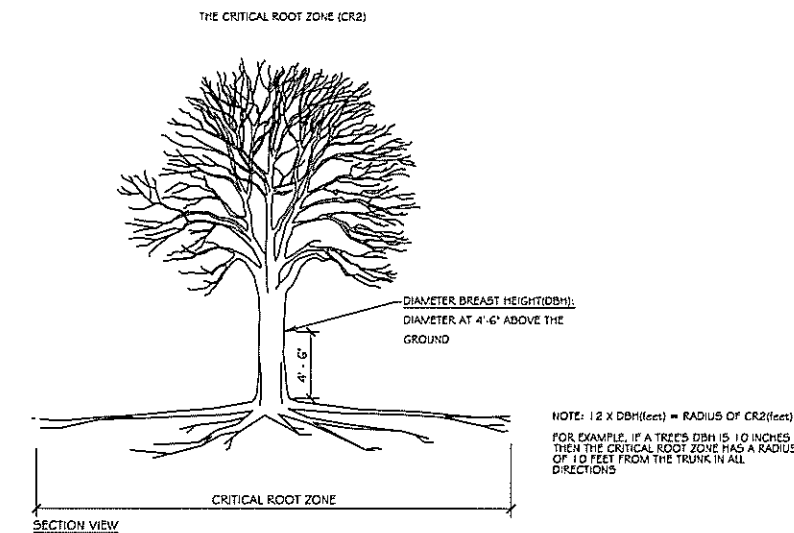
3 TREE PROTECTIVE FENCE AT CRITICAL ROOT ZONE SCALE: 1/4" = 1'-0"



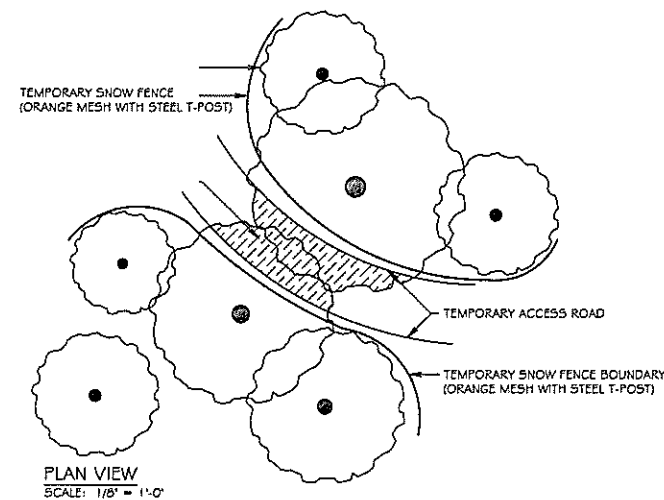
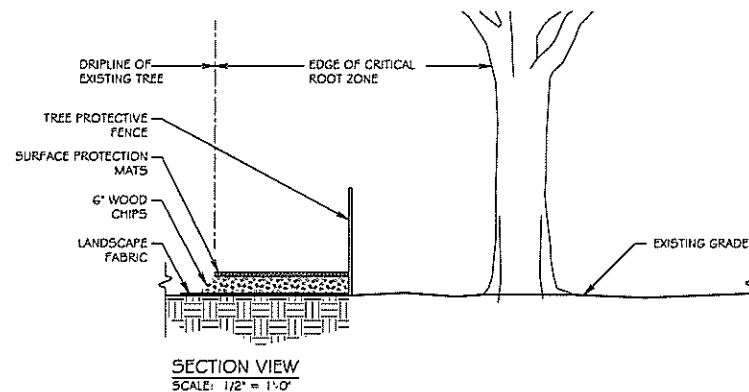
5 TREE PROTECTIVE FENCE FOR GROVES SCALE: 1/4" = 1'-0"



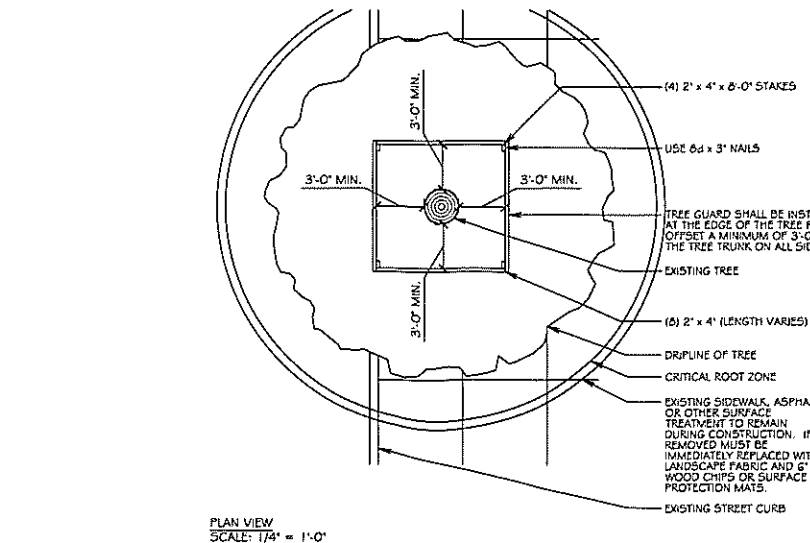
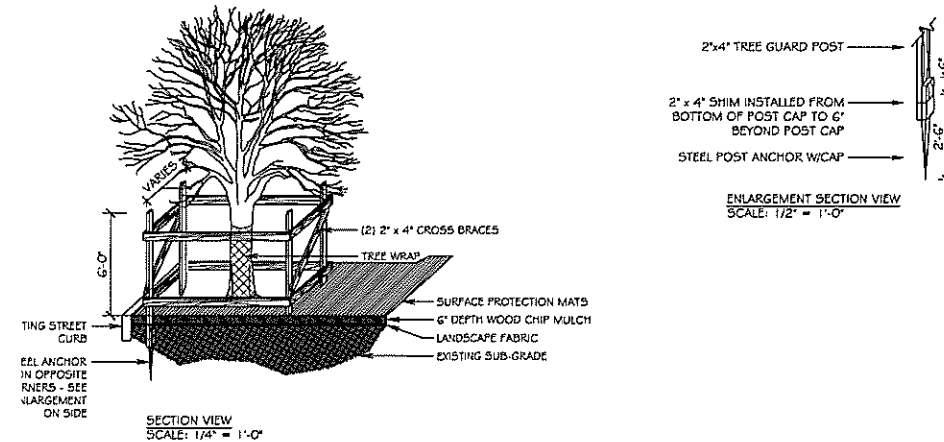
6 CALCULATING CRITICAL ROOT ZONE SCALE: 1/4" = 1'-0"



2 TREE PROTECTIVE FENCE WITH GROUND PROTECTION SCALE: AS SHOWN



4 TREE GUARD WITH CRITICAL ROOT ZONE GROUND PROTECTION SCALE: AS SHOWN



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.

1		2		3		4		5	
LIGHTING FIXTURE SCHEDULE						GENERAL NOTES		SHEET KEYNOTES	
TYPE	LAMP	WATTAGE PER FIXTURE	DESCRIPTION	CATALOG NUMBER	NOTES				
POLE A	75W LED	75	(2) KING LUMINAIRE AURORA SERIES PENDANT TYPE LUMINAIRES. BLACK PAINTED HEAVY WALL ALUMINUM BODY 26" DIAMETER WITH LEVELING HARDWARE, HINGED TOP FOR DRIVER ACCESS AND FLAT GLASS LENS (FULL CUTOFF CLASSIFICATION). THE POLE ARM IS BLACK PAINTED ALUMINUM DOUBLE ARCHED 2-1/2" O.D. 5TH X 35" L WITH DECORATIVE SHROUD PIECE. POLE SHALL BE 18'-0" H ONE PIECE ECLIPSE COLOR, ETCHED FINISH, FLUTED OCTAGONAL, CAST CONCRETE POLE WITH RECESSED ACCESS HANDHOLE, ANTI-GRAFFITI COATING AND 6-1/2" H X 2-3/8" DIA TENON AND DIRECT BURIED BASE.	FIXTURE - KING LUMINAIRE K824-FATL-V-1556L-208V(MT)-KPL10-BLK POLE - STRESSCRETE KT18-G-EII, C/W 140-25/65, B5-5M	--				
<div><div>DI</div><div>LIGHTING FIXTURE SCHEDULE NOTES</div><div>NONE</div></div>						<div>1. ALL CONDUIT USED BELOW GRADE SHALL BE 1-1/4" PVC SCHEDULE 40 DIRECT BURIAL 24" BELOW FINISHED GRADE UNLESS NOTED OTHERWISE AND SHALL BE MADE WATER TIGHT.</div> <div>2. ELECTRICAL CONTRACTOR (EC) SHALL BACKFILL AND COMPACT EXCAVATIONS TO 1-1/2" BELOW GRADE. THE GENERAL CONTRACTOR (GC) WILL FILL REMAINDER OF TRENCH WITH TOPSOIL AND SEED. ALL REPAIRS MADE DUE TO CONTRACTORS EXCAVATION SHALL BE DONE TO THE SATISFACTION OF THE UNIVERSITY. E.G. TO COORDINATE WITH THE GC, FOR CUTTING AND PATCHING OF WALKWAYS.</div> <div>3. THE E.G. TO EXERCISE EXTREME CAUTION DURING EXCAVATIONS BECAUSE OF THE EXISTING UNDERGROUND UTILITIES. THE EC SHALL VERIFY THE LOCATION OF UNDERGROUND UTILITIES BEFORE DIGGING AND SHALL TAKE NECESSARY MEASURES TO PROTECT HIMSELF, HIS PERSONNEL AND THE PUBLIC FROM HARM DUE TO CONTACT WITH UNDERGROUND UTILITIES WHETHER OR NOT SHOWN ON THE DRAWINGS.</div> <div>4. E.G. TO COORDINATE WITH THE GC FOR THE REMOVE OF ALL EXCESS EXCAVATED MATERIAL FROM THE SITE AS SOON AS POSSIBLE.</div> <div>5. ALL WIRING TO BE WITH TYPE THWN INSULATION UNLESS NOTED OTHERWISE.</div> <div>6. ALL SPLICES IN SPLICE/PULL BOXES (BELOW GRADE) TO BE MADE WATERTIGHT USING RAYCHEM H-FRAME GEL ENCLOSURE TO SEAL SPLICES/TAPS PART# GHFC-1-90.</div> <div>7. E.G. SHALL COORDINATE FIXTURE LOCATIONS WITH REPRESENTATIVE FROM THE OFFICE OF THE UNIVERSITY ARCHITECT PRIOR TO ROUGH-IN AT 216-672-3880.</div> <div>8. MAINTAIN TRAFFICABILITY (INGRESS AND EGRESS) OF DRIVES AND WALKWAYS AT ALL TIMES. COORDINATE USE OF BARRICADES WITH PARKING SERVICES AT 330-672-4432.</div> <div>9. E.G. SHALL CHOOSE ROUTING OF UNDERGROUND CONDUIT WHICH MINIMIZES ROOT DAMAGE TO THE EXISTING LANDSCAPING.</div> <div>10. E.G. SHALL BE SURE THAT THE EXISTING LIGHTS ARE KEPT OPERATIONAL THROUGHOUT CONSTRUCTION. THE EXISTING LIGHTS MUST BE TURNED ON EVERY EVENING.</div>			
<div><div>DI</div><div>LIGHTING FIXTURE SCHEDULE NOTES</div><div>NONE</div></div>						<div>1. FLUSH TO GRADE IN GROUND PULLBOX 13" X 24" WITH OPEN BOTTOM QUAZITE PART #PG1324BA12 (OR EQUAL).</div> <div>2. HEAVY DUTY BOLTED COVER QUAZITE PART #PG1324HA00 (OR EQUAL), WITH LOGO "LIGHTING".</div> <div>3. SPLICING CONNECTOR (BLACKBURN WR9, BRUNDY YPG2A8U OR EQUAL) ENCAPSULATED WITH A RAYCHEM GEL ENCLOSURE PART # GHFC-1-90.</div> <div>4. CONDUITS TO EXTEND 3" ABOVE GRAVEL TYPICAL.</div> <div>5. RED 3" WIDE WARNING TAPE WITH ALUMINUM CORE ABOVE ALL UNDERGROUND CONDUITS.</div> <div>6. 6" OF GRAVEL OR CRUSHED ROCK FOR DRAINAGE PURPOSES. EXTEND GRAVEL 4" BEYOND EDGE OF BOX.</div> <div>7. UNDISTURBED EARTH MATERIAL.</div> <div>8. #10 AWG, COPPER PHASE CONDUCTOR TO LUMINAIRE. TYPICAL.</div> <div>9. #10 AWG, COPPER GROUNDING CONDUCTOR TO LUMINAIRE. TYPICAL.</div> <div>10. LEAVE 12" LOOP FOR FUTURE FUSE REPLACEMENT.</div> <div>11. IN-LINE, WATERPROOF, UNFUSED CONNECTOR. TYPICAL FOR TWO.</div> <div>12. IN-LINE, WATERPROOF, FUSED CONNECTOR WITH 5 AMP FUSE AS MANUFACTURED BY BUSSMAN.</div> <div>13. NOT USED.</div> <div>14. NOT USED.</div> <div>15. 30" DECORATIVE ARM BRACKET (TYPICAL). ARM SHALL BE MOUNTED PERPENDICULAR TO THE LIGHT FIXTURE ARM.</div> <div>16. NOT USED.</div> <div>17. NOT USED.</div> <div>18. NOT USED.</div> <div>19. NOT USED.</div>			
<div><div>DI</div><div>LIGHTING FIXTURE SCHEDULE NOTES</div><div>NONE</div></div>						<div>20. EXISTING PHOTOCELL "PCI".</div> <div>21. 208V 1Ø, 2W FROM PANEL 'GA' IN MECHANICAL ROOM.</div> <div>22. EXISTING CONTACTOR LOCATED IN MECHANICAL ROOM.</div> <div>23. TO NEW POLE LIGHTING.</div> <div>24. REPLACE EXISTING (2) 20A/1P (CIRCUITS GA-40,42) WITH NEW 20A/2P CIRCUIT BREAKER IN PANEL 'GA'.</div> <div>25. FLAT TEMPERED GLASS LENS.</div> <div>26. SPECIAL DECORATIVE SHROUD.</div> <div>27. CUSTOM LOGO. PROVIDE SIGN TABS FOR LOGO MOUNT.</div> <div>28. 34.75" INCHES LUMINAIRE BISHOP'S CROOK ARM. REFER TO LIGHT FIXTURE SCHEDULE.</div> <div>29. LEVELING DEVICE.</div> <div>30. KING LUMINAIRE K825 LIGHT FIXTURE 20.5" TALL REFER TO LIGHT FIXTURE SCHEDULE.</div> <div>31. SPUN CONCRETE DECORATIVE POLE WITH 1 COAT ANTI-GRAFFITI FULL LENGTH SEE LIGHT FIXTURE SCHEDULE.</div> <div>32. 2-5/8" x 8" RECESSED POLYMER HAND HOLD BOX AND COVER PLATE COPPER WIRE GROUND AND ALLEN-HEAD SCREWS COLOR: BLACK.</div> <div>33. NAMEPLATE.</div> <div>34. SCOOP OUT SOIL TO A DEPTH JUST BELOW HAND HOLE.</div> <div>35. QUAZITE JUNCTION BOX - SEE ENLARGED DETAIL ON THIS SHEET.</div> <div>36. 2-1/2" x 5" WIRING APERTURE BOTH SIDES.</div> <div>37. UNDISTURBED SOIL - AUGER TO REMAINING DEPTH. TYPICAL.</div> <div>38. (3) #10 IN 1-1/4" PVC CONDUIT.</div> <div>39. GRAVEL.</div> <div>40. GRADE.</div>			
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