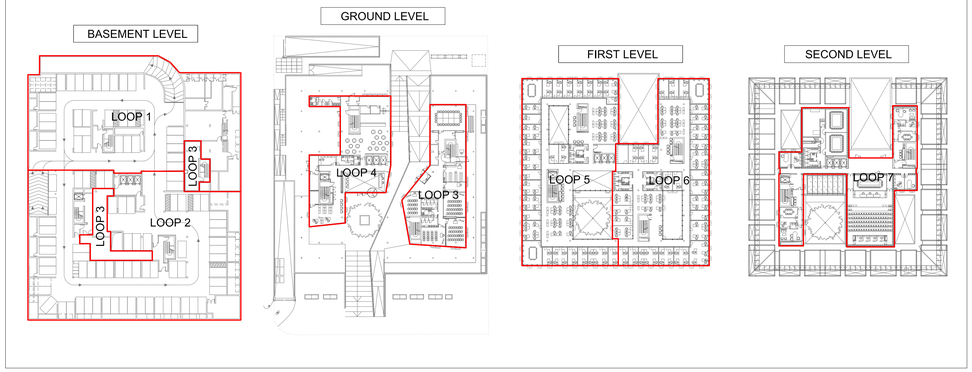
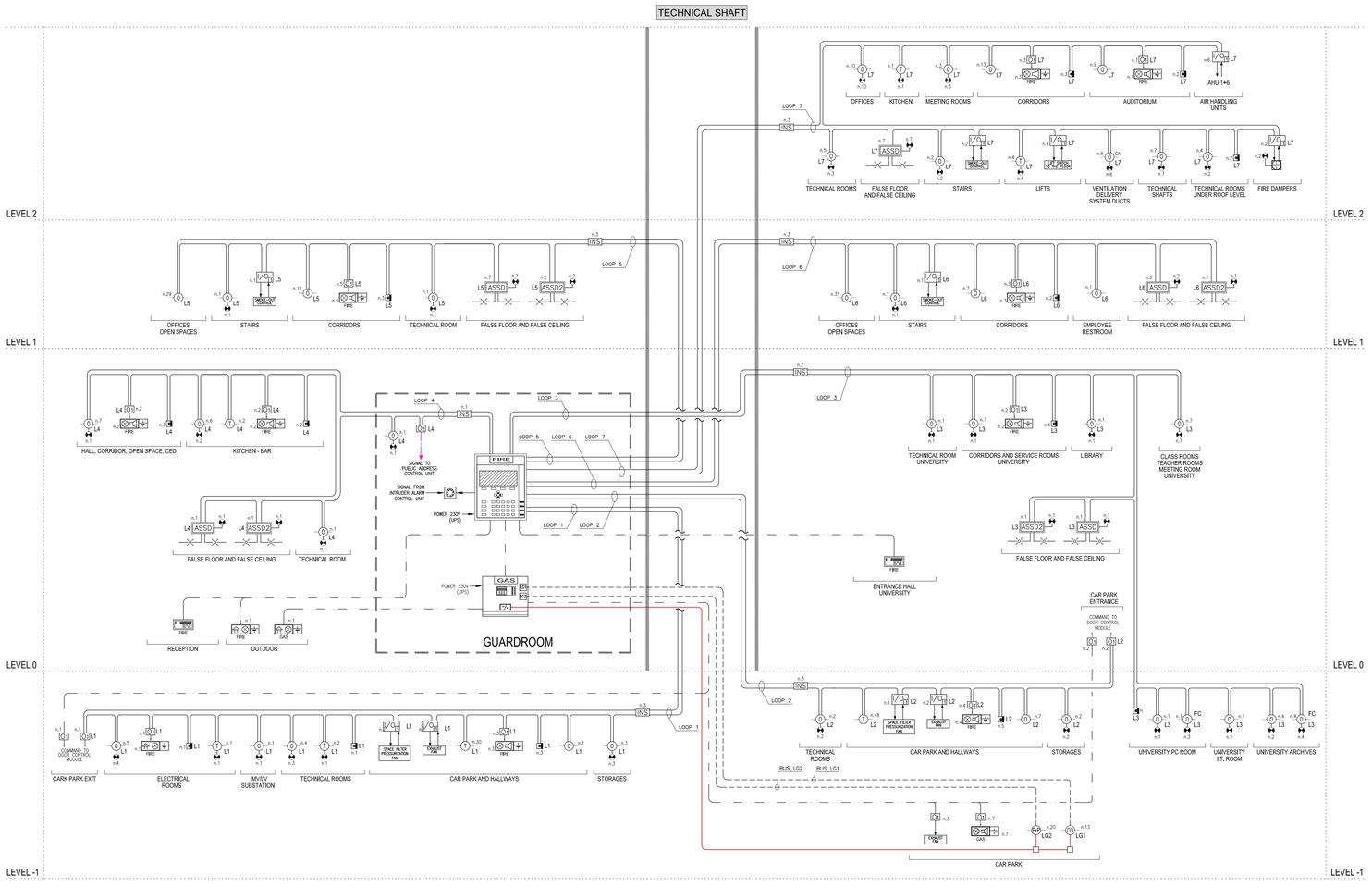
KEYPLANS



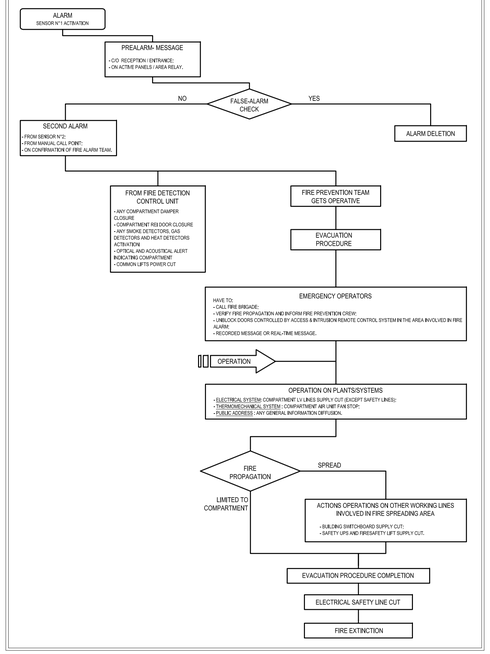


LEGEND

FIRE AND GASES DETECTION SYSTEM

CODE	SYMBOL AND DESCRIPTION
R10,A11,A2 R10,A11,A11	FIRE DETECTION CONTROL UNIT AND EXPANSION UNIT FOR REMOTE TERMINAL
R10,A12,A1	GAS DETECTION CONTROL UNIT
R10,A18,A1	REMOTE TERMINAL FOR VISUALIZATION ALARM AND CONTROL SIGNAL (FIRE DETECTION SYSTEM)
R10,A40,A1	ADDRESSABLE SMOKE DETECTOR
R10,A36,A1	ADDRESSABLE SMOKE DETECTOR LOCATED INTO VENTILATION SYSTEM
R10,A40,A1	ADDRESSABLE SMOKE DETECTOR LOCATED INTO FALSE CEILING
R10,A32,A1	ADDRESSABLE HEAT DETECTOR
R30,A23,A1	ADDRESSABLE GASOLINE VAPOUR DETECTOR
R30,A22,A1	ADDRESSABLE CO DETECTOR
R10,A70,A1	MANUAL CALL POINT
R10,A80,A2 R10,A80,A4	INPUT MODULE OUTPUT MODULE
R10,A52,A1	OPTICAL ACOUSTIC WARNING FIRE PANEL (INDOOR INSTALLATION) WITH SELF-POWERING KIT
R10,A52,A2	OPTICAL ACOUSTIC WARNING GAS PANEL (INDOOR INSTALLATION) WITH SELF-POWERING KIT
R10,A52,A3	OPTICAL ACOUSTIC WARNING FIRE PANEL (OUTDOOR INSTALLATION) WITH SELF-POWERING KIT
R10,A52,A4	OPTICAL ACOUSTIC WARNING GAS PANEL (OUTDOOR INSTALLATION) WITH SELF-POWERING KIT
R10,A76,B1 + R10,A76,B3 + R10,A76,B4 + R10,A76,B5	AIR SAMPLING SMOKE DETECTION SYSTEM WITH 1 DETECTOR (DETECTION ON FALSE FLOOR) AIR SAMPLING PIPE NETWORK (DETECTION ON FALSE FLOOR)
R10,A76,B2 + R10,A76,B3 + R10,A76,B4 + R10,A76,B5	AIR SAMPLING SMOKE DETECTION SYSTEM WITH 2 DETECTORS (DETECTION ON FALSE FLOOR) AIR SAMPLING PIPE NETWORK (DETECTION ON FALSE CEILING)
R10,A50,A1	RESPONSE INDICATOR
R10,A61,A1	DIALER
R10,A11,A5	LOOP INSULATOR (1 FOR 32 ELEMENTS), IT COULD BE COMBINED WITH DETECTORS
R100,A10,A2 OR R100,A10,A11	DETECTOR BUS DETECTOR LOOP POWER CABLE CONNECTION TO EXTERNAL DEVICES (CABLES COMBINED IN ANALOGICAL DETECTOR POINT CONNECTIONS)
	FIRE DAMPERS (MECHANICAL DEVICES)
	REFERENCE LOOP

CAUSE-CONSEQUENCE DIAGRAM - FIRE DETECTION SYSTEM



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ISSUE

MAIN PROJECT — ELECTRICAL EXTRA LOW VOLTAGE DRAWINGS

TITLE

FIRE ALARM AND GAS DETECTION SYSTEMS SCHEME

REV.	DATE	FILE	SUBJECT	DRAW	APPR.
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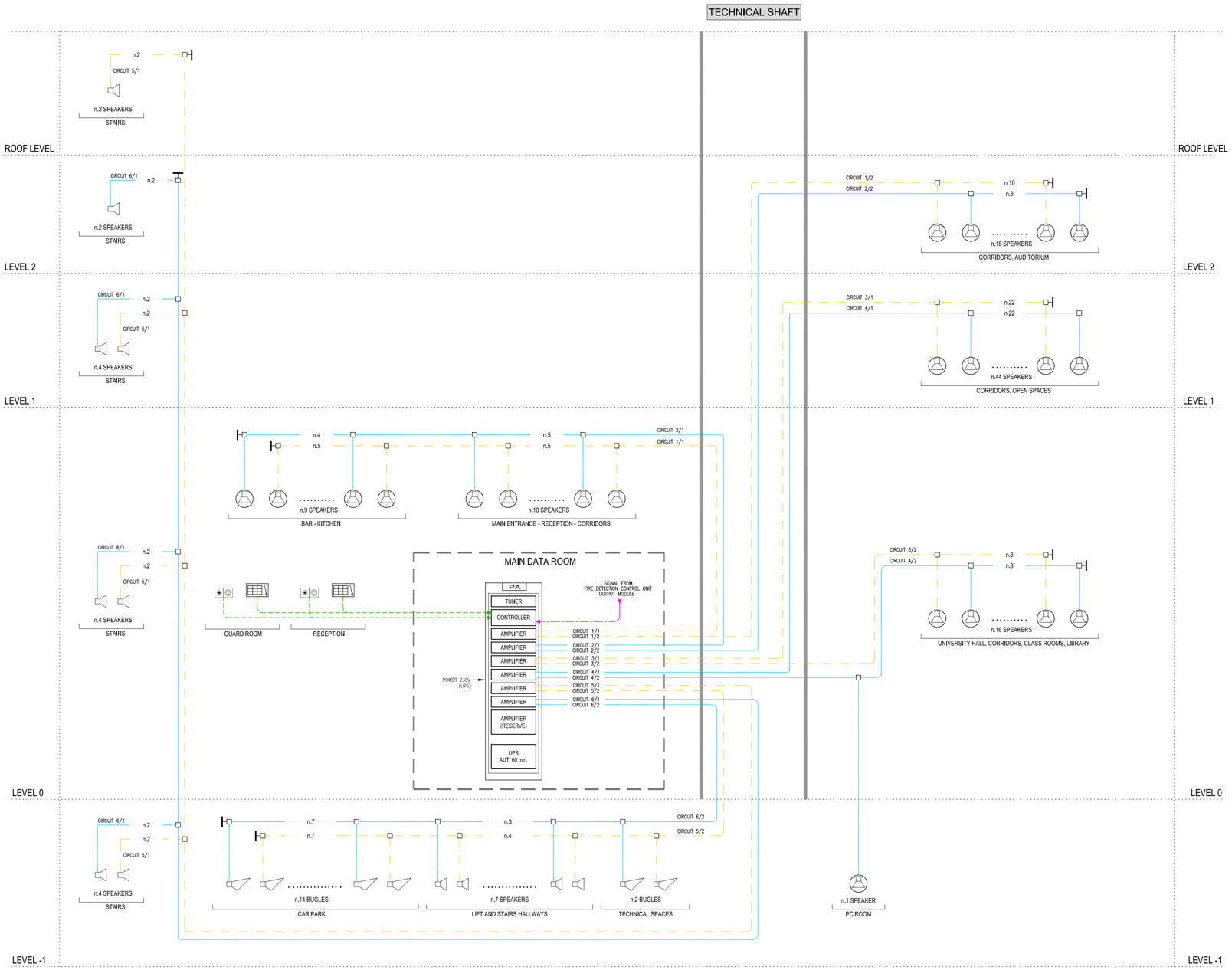

LEGEND

PUBLIC ADDRESS AND EVAC SYSTEM

CODE	SYMBOL AND DESCRIPTION
Q20.70.A1 Q20.70.A2	PA TUNER CONTROLLER AMPLIFIER AMPLIFIER PUBLIC ADDRESS AND EVAC CONTROL UNIT DEVICES TIPOLOGY: RACK 19" DIM, 600x600x2000 mm RADIO FM TUNER AND MP3 READER CONTROLLER FOR AMPLIFIED CIRCUIT AND DIGITAL MIXER AMPLIFIERS
Q20.A70.A6	MICROPHONE FOR EVAC AND PUBLIC ADDRESS WITH KEYPAD FOR CIRCUIT MAP CD AND MP3 FILES READER CONTROLLER
Q20.A30.A1	LOUDSPEAKER FOR FALSE CEILING INSTALLATION, POWER 6W, EQUIPPED WITH THERMAL FUSE AND CERAMIC CLAMPS
Q20.A30.A2	LOUDSPEAKER FOR WALL INSTALLATION, POWER 10W, EQUIPPED WITH THERMAL FUSE AND CERAMIC CLAMPS
Q20.A35.A1	BUGLE FOR WALL INSTALLATION, POWER 20W, PROTECTION LEVEL IP65
Q100.A10.A1 Q100.A10.A3 Q100.A10.A5	JUNCTION BOX WITH CERAMIC CLAMPS AND FUSES END CIRCUIT BOARD
A230.A10.A22 A230.A10.A23	FTG100M1 CABLE, IEC 60331 (CEI 20-45) - 2x2.5mmq FOR FLOOR DISTRIBUTION FTG100M1 CABLE, IEC 60331 (CEI 20-45) - 2x4mmq FOR MAIN DISTRIBUTION
	CONNECTION WITH FIRE DETECTION CONTROL UNIT (SEE FIRE DETECTION SYSTEM)
Q100.A20.A1	UTP CABLE CAT. 5, FOR MICROPHONE CONNECTION

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ENERGETSKI EFIKASNA ZGRADA
Urbanistička parcela 9
DUP "Univerzitetski centar" - izmjene i dopune
Podgorica, Crna Gora

ISSUE

MAIN PROJECT — **ELECTRICAL EXTRA LOW VOLTAGE DRAWINGS**

TITLE

PUBLIC ADDRESS SYSTEM SCHEME

REV.	DATE	FILE	SUBJECT	DRAW	APPR.
a	05/08/2011	926_Le_002_a.dwg	REVIEW ACCORDING TO REVISION COMMISSION NOTES	L.R.	M.C.
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d					

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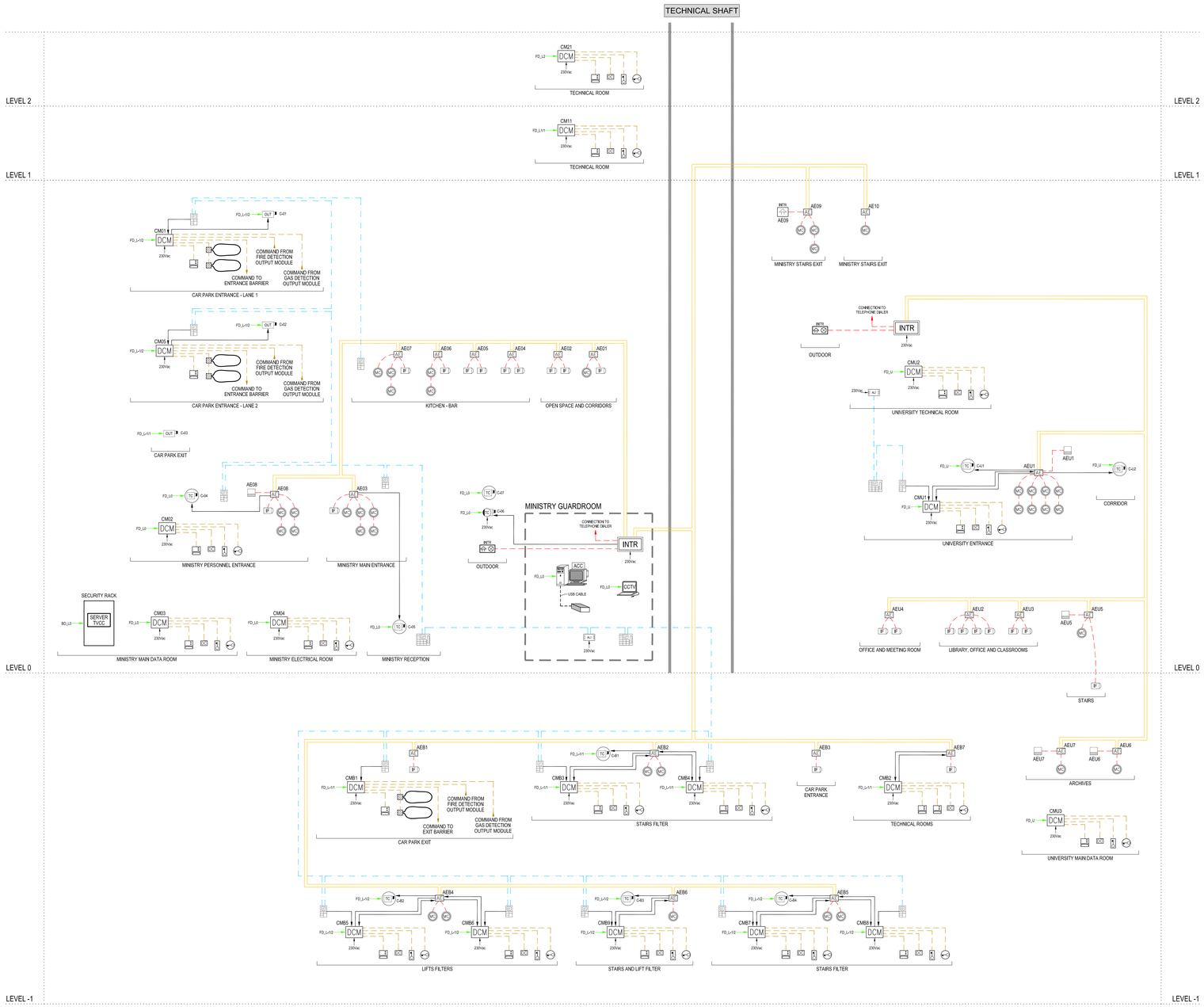

LEGEND

- INTRUDER DETECTION LINE - ADDRESSING ELEMENTS CONNECTION
- INTRUDER DETECTION LINE - FIELD DEVICES
- ACCESS CONTROL LINE - FIELD DEVICES
- 1 UNSHIELD TWISTED PAIR FOR VIDEO ENTRYPHONE SYSTEM
- FD_L... — CONNECTION TO COMMUNICATION DATA RACK (SEE DRAWING Le004)

NOTE: CABLES ARE INCLUDED IN EQUIPMENT CODES

INTRUDER ALARM SYSTEM

CODE	SYMBOL AND DESCRIPTION
R40,A10,A1 R40,A10,A7	INTRUDER ALARM CONTROL UNIT
R40,A41,A1	MAGNET CONTACT FOR DOORS AND WINDOWS
R40,A31,A1	PASSIVE INFRARED DETECTOR
R40,A80,A1	ADDRESSING ELEMENTS DEVICE
R60,A70,A1	KEYBOARD FOR DISCONNECTION INTRUDER ALARM
R40,A52,A1	WARNING INTRUDER PANEL FOR INDOOR
R40,A52,A2	WARNING INTRUDER PANEL WITH FLASHING SIGNAL FOR OUTDOOR
	AE... ADDRESSING ELEMENT REFERENCE

ACCESS CONTROL SYSTEM

CODE	SYMBOL AND DESCRIPTION
R20,A100,A1	DOOR CONTROL MODULE (CONNIECTED TO NEARLY TELECOM OUTLET)
M30,A10,A1	DOOR CONTACT
R20,A80,A1	BUTTON
M30,A10,A1	DOOR OPENER
R20,A102,A1	PROXIMITY READER WITH CODE KEYPAD
R20,A50,A2	MAGNETIC SPIRE
R20,A20,A1	ACCESS CONTROL SYSTEM SERVER
R20,A22,A1	PROGRAMMER FOR KEY CARD CODES

VIDEO SURVEILLANCE SYSTEM

CODE	SYMBOL AND DESCRIPTION
R50,A16,A1	IP FIXED CAMERA, MINIDOME MODEL, POE (CONNECTED TO NEARLY TELECOM OUTLET)
R50,A40,A1	IP FIXED CAMERA FOR OUTDOOR, POE (CONNECTED TO NEARLY TELECOM OUTLET)
R50,A17,A1	IP DOME CAMERA (CONNECTED TO NEARLY TELECOM OUTLET)
R50,A30,A1 R50,A45,A1 R50,A117,A1	CCTV CLIENT

VIDEO ENTRYPHONE SYSTEM

CODE	SYMBOL AND DESCRIPTION
S60,A40,A3	OUTDOOR VIDEO ENTRYPHONE WITH POWER SUPPLY
S60,A40,A2	INDOOR VIDEO ENTRYPHONE WITH POWER SUPPLY
S60,A40,A1	POWER SUPPLY

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ISSUE

MAIN PROJECT — ELECTRICAL EXTRA LOW VOLTAGE DRAWINGS

TITLE

SECURITY SYSTEMS SCHEME

REV.	DATE	FILE	SUBJECT	DRAW	APPR.
a	05/08/2011	926_Le_003_a.dwg	REVIEW ACCORDING TO REVISION COMMISSION NOTES	L.R.	M.C.
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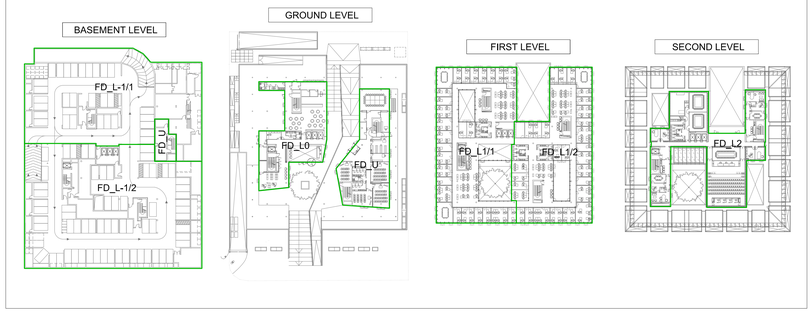
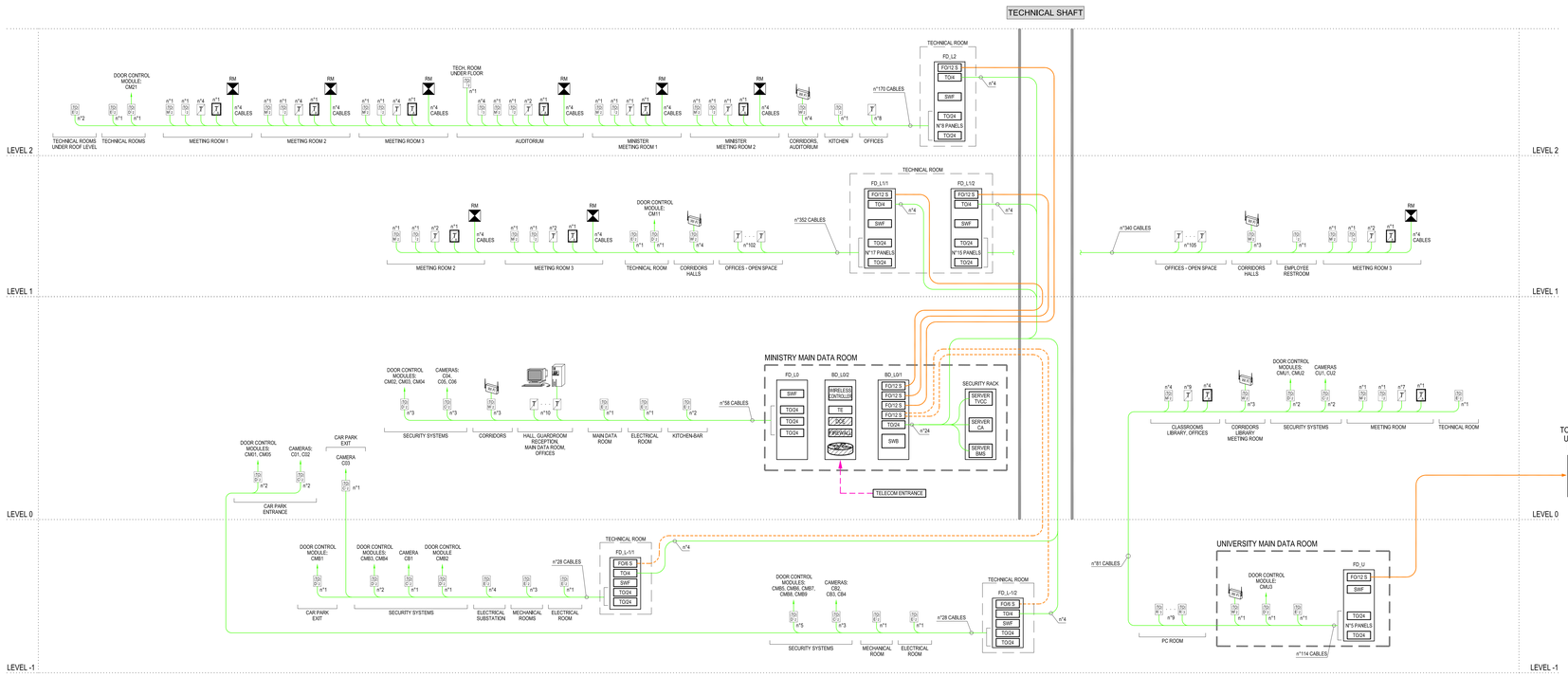
KEYPLANS

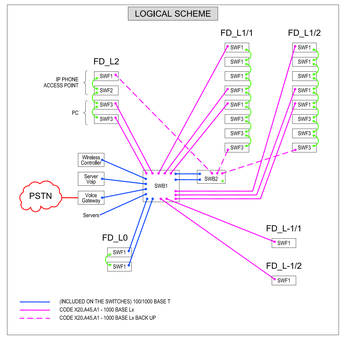


LEGEND

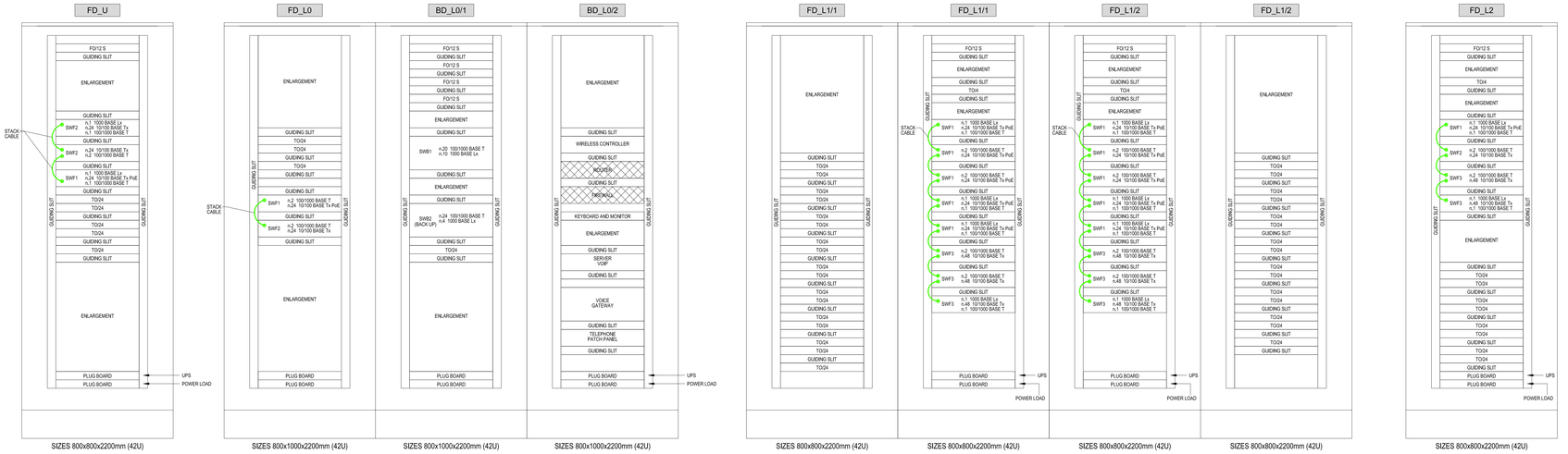
CODE	SYMBOL AND DESCRIPTION
A310.A22.A1	4-PAIR CABLE SFTP CATEGORY 6A
	TELECOM ENTRANCE CIRCUIT FOR DATA & PHONE COMMUNICATIONS (NOT INCLUDED)
A310.A31.A1	12 SINGLE MODE OPTIC FIBERS CABLE 9/125 um FROM RACK BD TO RACK FD
A310.A31.A2	6 SINGLE MODE OPTIC FIBERS CABLE 9/125 um FROM RACK BD TO RACK FD
	COMMUNICATION DATA RACK 19" COMPONENTS:
X11.A101.A1	SWB1 - SWITCH CORE MULTILAYER L2, L3, L4 GIGAETHERNET WITH REDUNDANT POWER SUPPLY
X11.A101.A2	SWB2 - SWITCH CORE BACK UP
X11.A102.A1	SWF1
X11.A102.A2	SWF2 - SWITCH L2-L4 STACKABLE, FAST ETHERNET & GIGAETHERNET
X11.A102.A3	SWF3
X11.A103.A1	TE - SERVER VOIP + VOICE GATEWAY
X10.A26.A11	FOS S - FIBER DISTRIBUTION SHELF FOR TERMINATING IN FIBER-OPTIC CABLES, RACK MOUNTABLE,
X10.A26.A13	FO12 S WITH n CONNECTORS LC (S: SINGLE MODE FIBER OPTICS)
X10.A23.A4 + n°y X10.A23.A6	TOy - RJ45 CATEGORY 6A JACK PANEL WITH y CONNECTORS, RACK MOUNTABLE
X50.A11.A1	WIRELESS CONTROLLER - WIRELESS CONTROLLER, RACK MOUNTABLE
	AP - NETWORK TERMINATION ISDN BRI (NOT INCLUDED)
	SSS - DATA COMMUNICATION EQUIPMENT (NOT INCLUDED)
	FIREWALL - FIREWALL (NOT INCLUDED)
	- ROUTER WITH FIREWALL FOR WAN COMMUNICATIONS (NOT INCLUDED)
	WAN - WIDE AREA NETWORK
	PSTN - PUBLIC SWITCHED TELECOM NETWORK
X100.A20.A11	n.3 TELECOM OUTLET RJ45 CAT.6A INSTALLED ON FLOOR BOX (SEE HIGH VOLTAGE BILL OF QUANTITIES) INCLUDING: - WIRES SFTP CAT.6A AND CONNECTIONS FROM OUTLET TO RACK 19" FLOOR DISTRIBUTION (AVERAGE LENGHT FOR SINGLE CONNECTION 70m) - FLEXIBLE PVC PIPE Ø32mm FROM FLOOR BOX TO METALLIC RACEWAY - FACEPLATE FOR n.3 POSITION INSTALLED ON FLOOR BOX - PERMANENT LINK CERTIFICATION
X100.A21.A1	n.2 TELECOM OUTLET RJ45 CAT.6A, RECESSED MOUNTING, INCLUDING: - n.3 PORTS OUTLET PVC BOX, RECESSED MOUNTING, HEIGHT INSTALLATION = 0,3m FROM FLOOR - WIRES SFTP CAT.6A AND CONNECTIONS FROM OUTLET TO RACK 19" FLOOR DISTRIBUTION (AVERAGE LENGHT FOR SINGLE CONNECTION 70m) - FLEXIBLE PVC PIPE Ø32mm FROM PVC BOX TO METALLIC RACEWAY - FACEPLATE FOR n.2 POSITION INSTALLED ON BOX - PERMANENT LINK CERTIFICATION
X100.A21.A2	n.2 TELECOM OUTLET RJ45 CAT.6A, DEDICATED TO WIRELESS ACCESS POINT, VISIBILE, INCLUDING: - n.3 PORTS OUTLET VISIBILE PVC BOX, LOCATED ON CEILING - WIRES SFTP CAT.6A AND CONNECTIONS FROM OUTLET TO RACK 19" FLOOR DISTRIBUTION (AVERAGE LENGHT FOR SINGLE CONNECTION 70m) - RIGID PVC PIPE Ø32mm FROM PVC BOX TO RACEWAY - FACEPLATE FOR n.2 POSITION INSTALLED ON BOX - PERMANENT LINK CERTIFICATION
X100.A21.A3	n.2 TELECOM OUTLET RJ45 CAT.6A, DEDICATED TO MULTIMEDIA SYSTEM, VISIBILE, INCLUDING: - n.3 PORTS OUTLET VISIBILE PVC BOX, LOCATED ON CEILING - WIRES SFTP CAT.6A AND CONNECTIONS FROM OUTLET TO RACK 19" FLOOR DISTRIBUTION (AVERAGE LENGHT FOR SINGLE CONNECTION 70m) - RIGID PVC PIPE Ø32mm FROM PVC BOX TO RACEWAY - FACEPLATE FOR n.2 POSITION INSTALLED ON BOX - PERMANENT LINK CERTIFICATION
X100.A21.A4	n.2 TELECOM OUTLET RJ45 CAT.6A, DEDICATED TO DOOR CONTROL MODULES, VISIBILE, INCLUDING: - n.3 PORTS OUTLET VISIBILE PVC BOX, LOCATED ON CEILING - WIRES SFTP CAT.6A AND CONNECTIONS FROM OUTLET TO RACK 19" FLOOR DISTRIBUTION (AVERAGE LENGHT FOR SINGLE CONNECTION 70m) - RIGID PVC PIPE Ø32mm FROM PVC BOX TO RACEWAY - FACEPLATE FOR n.2 POSITION INSTALLED ON BOX - PERMANENT LINK CERTIFICATION
X100.A21.A5	n.2 TELECOM OUTLET RJ45 CAT.6A, DEDICATED TO SECURITY CAMERAS, VISIBILE, INCLUDING: - n.3 PORTS OUTLET VISIBILE PVC BOX, LOCATED ON CEILING - WIRES SFTP CAT.6A AND CONNECTIONS FROM OUTLET TO RACK 19" FLOOR DISTRIBUTION (AVERAGE LENGHT FOR SINGLE CONNECTION 70m) - RIGID PVC PIPE Ø32mm FROM PVC BOX TO RACEWAY - FACEPLATE FOR n.2 POSITION INSTALLED ON BOX - PERMANENT LINK CERTIFICATION
X100.A21.A6	n.3 TELECOM OUTLET RJ45 CAT.6A INSTALLED ON PVC WALL MOUNTING RACEWAY (SEE HIGH VOLTAGE BILL OF QUANTITIES) INCLUDING: - WIRES SFTP CAT.6A AND CONNECTIONS FROM OUTLET TO RACK 19" FLOOR DISTRIBUTION (AVERAGE LENGHT FOR SINGLE CONNECTION 10m) - FACEPLATE FOR n.3 POSITION INSTALLED ON PVC WALL MOUNTING RACEWAY - PERMANENT LINK CERTIFICATION
X100.A21.A7	n.2 TELECOM OUTLET RJ45 CAT.6A, VISIBILE, INCLUDING: - n.3 PORTS OUTLET VISIBILE PVC BOX, HEIGHT INSTALLATION = 0,3m FROM FLOOR - WIRES SFTP CAT.6A AND CONNECTIONS FROM OUTLET TO RACK 19" FLOOR DISTRIBUTION (AVERAGE LENGHT FOR SINGLE CONNECTION 70m) - RIGID PVC PIPE Ø32mm FROM PVC BOX TO METALLIC RACEWAY - FACEPLATE FOR n.2 POSITION INSTALLED ON BOX - PERMANENT LINK CERTIFICATION
X100.A21.A8	n.3 TELECOM OUTLET RJ45 CAT.6A, RECESSED MOUNTING, INCLUDING: - n.3 PORTS OUTLET PVC BOX, RECESSED MOUNTING, HEIGHT INSTALLATION = 0,3m FROM FLOOR - WIRES SFTP CAT.6A AND CONNECTIONS FROM OUTLET TO RACK 19" FLOOR DISTRIBUTION (AVERAGE LENGHT FOR SINGLE CONNECTION 70m) - FLEXIBLE PVC PIPE Ø32mm FROM PVC BOX TO METALLIC RACEWAY - FACEPLATE FOR n.3 POSITION INSTALLED ON FLOOR BOX - PERMANENT LINK CERTIFICATION
X100.A22.A1	RM - CONNECTION RACK 19" FOR MULTIMEDIA EQUIPMENTS TO RACK 19" FLOOR DISTRIBUTOR INCLUDING: - n.4 WIRES SFTP CAT.6A - n.4 POSITION RJ45 CAT.6A PATCH PANEL INSTALLED ON MULTIMEDIA RACK - CONNECTIONS - n.2 FLEXIBLE PVC PIPES Ø32mm FROM MULTIMEDIA RACK TO RACEWAY - PERMANENT LINK CERTIFICATION
X100.A23.A1	n.3 TELECOM OUTLET RJ45 CAT.6A INSTALLED ON FLOOR BOX (SEE HIGH VOLTAGE BILL OF QUANTITIES) INCLUDING: - WIRES SFTP CAT.6A AND CONNECTIONS FROM OUTLET TO RACK 19" FLOOR DISTRIBUTION (AVERAGE LENGHT FOR SINGLE CONNECTION 70m) - n.2 FLEXIBLE PVC PIPES Ø32mm FROM FLOOR BOX TO METALLIC RACEWAY - FACEPLATE FOR n.3 POSITION INSTALLED ON FLOOR BOX - PERMANENT LINK CERTIFICATION
X50.A1.A1	ACCESS POINT STANDARD IEEE 802.11 b, g, n

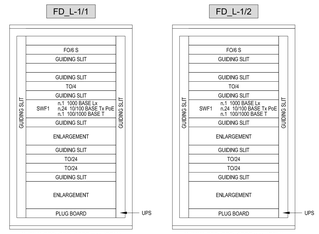


LOGICAL SCHEME



RACKS DETAIL





INVESTITOR: JOINT PROJECT ON ENVIRONMENT AND ENERGY BETWEEN ITALY AND MONTENEGRO
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Projektant faze – VODOVOD I KANALIZACIJA:
HIDROFOKUS
Projektant faze – ELEKTROINSTALACIJE / jaka struja:
SENESYS
Projektant faze – ELEKTROINSTALACIJE / slaba struja:
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ISSUE
MAIN PROJECT — ELECTRICAL EXTRA LOW VOLTAGE DRAWINGS

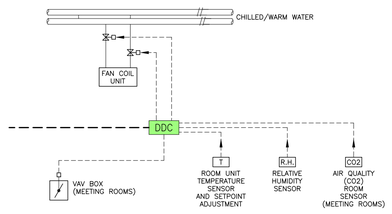
TITLE
COMMUNICATION SYSTEMS SCHEME

REV.	DATE	FILE	SUBJECT	DRAW	APPR.
a	07/03/2011	926_Le_004_b.dwg	REVIEW ACCORDING TO REVISION COMMISSION NOTES	L.R.	M.C.
b	05/05/2011	926_Le_004_b.dwg	REVIEW ACCORDING TO REVISION COMMISSION NOTES	L.R.	M.C.
c					
d					

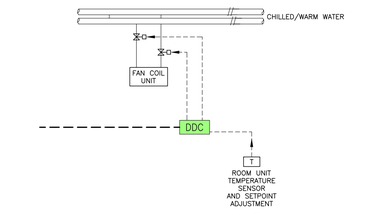
ISSUE NR. Le_004_b

DATE: 30/11/2010	SCALE: -	FILE: 926_Le_004_b.dwg
J.N. 926	DRAW: L.R.	APPROVED: M. C.

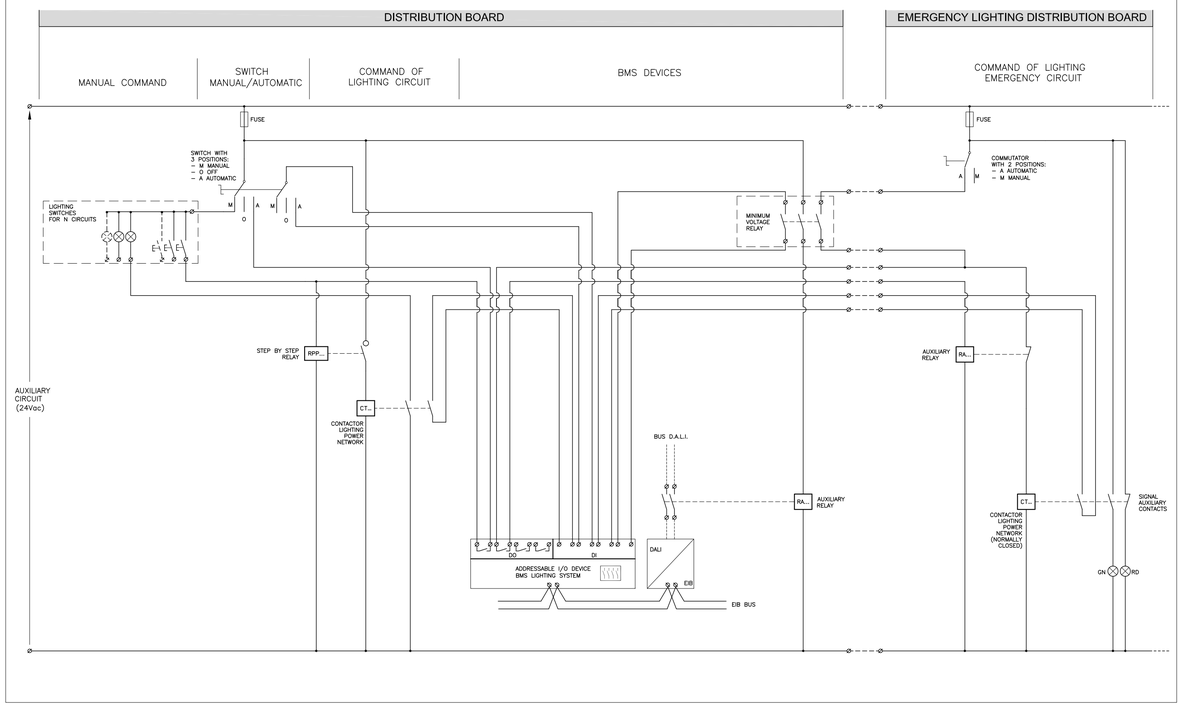
LOCAL DDC UNIT SCHEME FOR MEETING ROOM



LOCAL DDC UNIT SCHEME FOR OFFICES



LIGHTING CONTROL DISTRIBUTION BOARD SCHEME



LEGEND

- U/PDA — DIALOG UNIT FOR LV OPEN SWITCHGEAR
- U/PDS — DIALOG UNIT FOR LV MOULDED CASE SWITCHGEAR
- U/AI — FIELD UNIT FOR DIGITAL SIGNAL I/O (WITHOUT CPU)
- I — INPUT SIGNAL
- O — OUTPUT SIGNAL
- BUILDING MANAGEMENT SYSTEM PLC FOR ELECTRICS PLANTS
- SWITHBOARD OR DISTRIBUTION BOARD
- DDC — MAIN DDC UNIT FOR MECHANICAL PLANTS
- DDC — LOCAL DDC UNIT FOR MECHANICAL PLANTS
- SW BD / TO/y — RACK FOR DATA COMMUNICATION AND SECURITY SYSTEM
  - MAIN DATA COMMUNICATIONS SWITCH
  - RJ45 CATEGORY 6A JACK PANEL WITH y CONNECTORS ONLY FOR BMS
- INTR — INTRUDER ALARM CONTROL UNIT
- FIRE — FIRE DETECTION CONTROL UNIT
- GAS — GAS DETECTION CONTROL UNIT
- PA-EVAC — PUBLIC ADDRESS AND EVAC CONTROL UNIT
- TO/IP — TELECOM OUTLET RJ45 CAT.6A WITH SFTP CABLE CAT.6A ONLY FOR BUILDING MANAGEMENT SYSTEM
- ROUTER
- BUILDING MANAGEMENT SYSTEM SECONDARY BUS, MODBUS RTU, LON, OR OTHERS RS485 PROTOCOLS
- BUILDING MANAGEMENT SYSTEM PRIMARY BUS FOR ELECTRIC AND MECHANICAL PLANTS, TWISTED PAIR, LON OR BACNET COMMUNICATION PROTOCOLS
- 4-PAIR CABLE, CAT.6A, IP COMMUNICATION
- BUS DALI
- BUS EIBUS KONNEX
- ADDRESSABLE I/O SYSTEM FOR LAMPS CIRCUITS - EIB/KNX COMMUNICATION PROTOCOL
- DIMMABLE PUSH BUTTON SWITCH - EIB/KNX COMMUNICATION PROTOCOL
- INFRARED AND LIGHTING SENSOR - EIB/KNX COMMUNICATION PROTOCOL
- IF — INFRARED SENSOR - EIB/KNX COMMUNICATION PROTOCOL
- PUSH BUTTON SWITCH - EIB/KNX COMMUNICATION PROTOCOL
- R — BALLAST
- DALI — D.A.L.I. CONTROLLER - EIB/KNX COMMUNICATION PROTOCOL WITH BMS
- ZC — ZONE CONNECTOR (OPTO ISOLATOR FOR EIB/KNX LINE)
- AC — AREA OR BUILDING CONNECTOR

NOTE

- BUS D.A.L.I. : MAX 64 BALLAST FOR SINGLE BUS
  MAX 16 BALLAST GROUP FOR SINGLE BUS
- SWITCHBOARDS AND DISTRIBUTION BOARD CODES ARE SPECIFIED ON DRAWING Ee_001

BILL OF QUANTITIES

CODE	DESCRIPTION	ZONE	QUANTITY
Y100.A10.A1	BMS INPUT/OUTPUT ADDRESS POINT FOR ELECTRICAL PLANTS	UNDERGROUND	304
		GROUND FLOOR	72
		FIRST FLOOR	36
		SECOND FLOOR	121
		OUTDOOR	-
		TOTAL	533
Y100.A10.A3	BMS INPUT/OUTPUT ADDRESS POINT FOR SAFETY SYSTEMS	UNDERGROUND	585
		GROUND FLOOR	178
		FIRST FLOOR	333
		SECOND FLOOR	330
		OUTDOOR	18
		TOTAL	1444

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ISSUE
MAIN PROJECT — ELECTRICAL EXTRA LOW VOLTAGE DRAWINGS

TITLE
BUILDING MANAGEMENT SYSTEM (BMS) SCHEME

REV.	DATE	FILE	SUBJECT	DRAW	APPR.
a	05/08/2011	926_Le_005_a.dwg	REVIEW ACCORDING TO REVISION COMMISSION NOTES	L.R.	M.C.
b					
c					
d					

ISSUE NR. Le_005

DATE:	SCALE:	FILE:
30/11/2010	-	926_Le_005_a.dwg
J.N. 926	DRAW: L. R.	APPROVED: M. C.

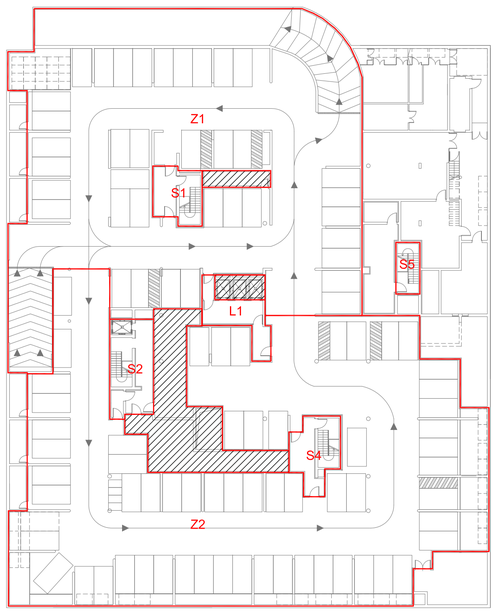
STAIRS

	ZONES	INPUTS	OUTPUTS	
STAIRS S1	BASEMENT LEVEL	N°2	ON/OFF	2
	LEVEL 0	N°1		
	LEVEL 1	N°1		
	GENERAL	BMS CONTROL		
STAIRS S2	BASEMENT LEVEL	N°3	ON/OFF	2
	LEVEL 0	N°1		
	LEVEL 1	N°1		
	LEVEL 2	N°1		
	ROOF LEVEL	N°1		
	GENERAL	BMS CONTROL		
STAIRS S3	LEVEL 0	N°1	ON/OFF	2
	LEVEL 1	N°1		
	LEVEL 2	N°1		
	ROOF LEVEL	N°1		
	GENERAL	BMS CONTROL		
STAIRS S4	BASEMENT LEVEL	N°2	ON/OFF	2
	LEVEL 0	N°1		
	LEVEL 1	N°1		
	GENERAL	BMS CONTROL		
STAIRS S5	BASEMENT LEVEL	N°1	ON/OFF	2
	LEVEL 0	N°1		
	GENERAL	BMS CONTROL		
STAIRS AND LIFTS LOBBY L1	BASEMENT LEVEL	N°3	ON/OFF	2
	GENERAL	BMS CONTROL		

BASEMENT LEVEL

ZONES	INPUTS	OUTPUTS	
CAR PARKING ZONE Z1	N°9	ON/OFF	2
	BMS CONTROL		

ZONES	INPUT	OUTPUT	
CAR PARKING ZONE Z2	N°7	ON/OFF	2
	BMS CONTROL		



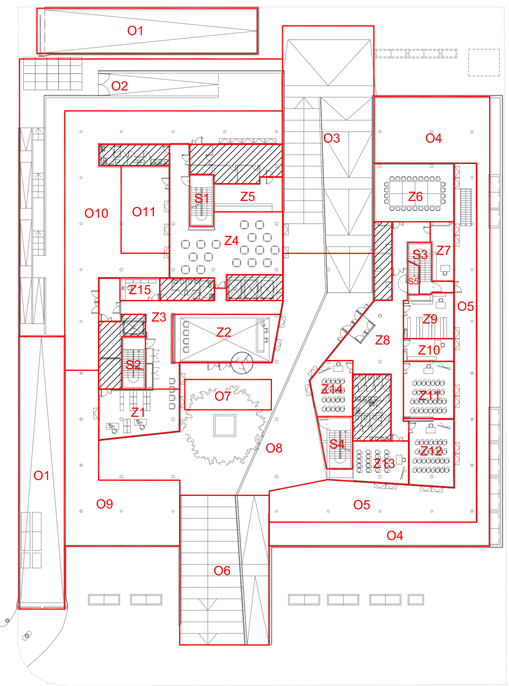
LEVEL 0

ZONES		INPUTS	OUTPUTS	
OUTDOOR	O1	BMS CONTROL	ON/OFF	2
	O2	BMS CONTROL	ON/OFF	2
	O3	BMS CONTROL	ON/OFF	2
	O4	BMS CONTROL	ON/OFF	2
	O5	BMS CONTROL	ON/OFF	2
	O6	BMS CONTROL	ON/OFF	2
	O7	BMS CONTROL	ON/OFF	2
	O8	BMS CONTROL	ON/OFF	2
	O9	BMS CONTROL	ON/OFF	2
	O10	BMS CONTROL	ON/OFF	2
	O11	BMS CONTROL	ON/OFF	2

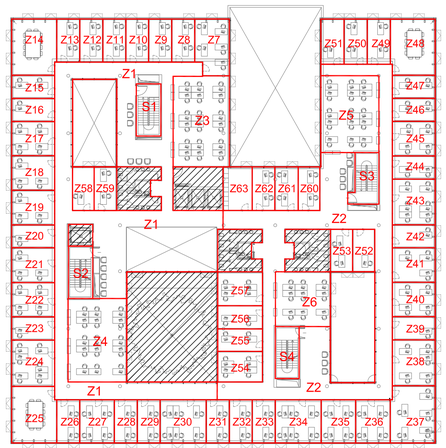
ZONES		INPUTS	OUTPUTS	
MINISTRY	Z1	N°1	ON/OFF/DIM	3
		BMS CONTROL		
	Z2	N°2	ON/OFF	2
		BMS CONTROL		
	Z3	N°7	ON/OFF	2
		BMS CONTROL		
	Z15	N°1	ON/OFF/DIM	3
		BMS CONTROL		

ZONES		INPUTS	OUTPUTS	
KITCHEN BAR	Z4	N°6	ON/OFF	2
		BMS CONTROL		
	Z5	N°2	ON/OFF	2
		BMS CONTROL		

ZONES		INPUTS	OUTPUTS	
UNIVERSITY	Z6	N°1	ON/OFF/DIM	3
		BMS CONTROL		
	Z7	N°1	ON/OFF/DIM	3
		BMS CONTROL		
	Z8	N°7	ON/OFF	2
		BMS CONTROL		
	Z9 + Z14 (N°6)	N°1	ON/OFF/DIM	3
		BMS CONTROL		

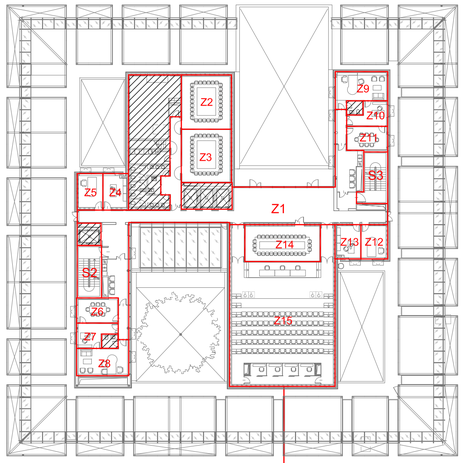


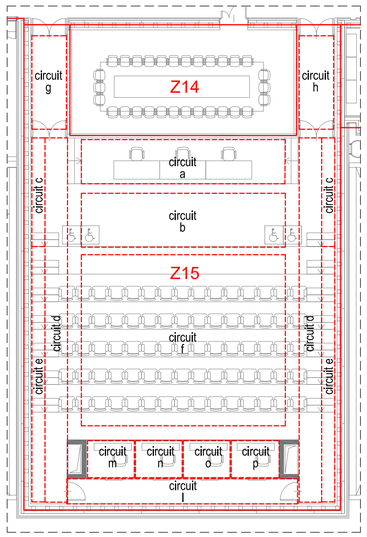
LEVEL 1



ZONES		INPUTS	OUTPUTS	
CORRIDORS	Z1	N°8	ON/OFF	2
		BMS CONTROL	ON/OFF	2
	Z2	N°8	ON/OFF	2
		BMS CONTROL	ON/OFF	2
OPEN SPACES	Z3 + Z6 (N°4)	N°1	ON/OFF/DIM	3
		N°1	ON/OFF/DIM	3
		BMS CONTROL	ON/OFF/DIM	3
OFFICES	Z7 + Z62 (N°56)	N°1	ON/OFF/DIM	3
		N°1	ON/OFF/DIM	3
		BMS CONTROL	ON/OFF/DIM	3
RESTROOM	Z63	N°1	ON/OFF	2
		BMS CONTROL	ON/OFF	2

LEVEL 2





ZONES		INPUTS	OUTPUTS	
CORRIDORS	Z1	N°6	ON/OFF	2
		BMS CONTROL		
MEETING ROOMS	Z2 Z3 Z14 (N°3)	N°1	ON/OFF/DIM	3
		BMS CONTROL		
OFFICES	Z4 + Z13 (N°10)	N°1	ON/OFF/DIM	3
		N°1		
		BMS CONTROL		
AUDITORIUM Z15	circuit a	N°2	ON/OFF/DIM	3
		BMS CONTROL + MULTIMEDIAL		
	circuit b	N°2	ON/OFF/DIM	3
		BMS CONTROL + MULTIMEDIAL		
	circuit c	N°2	ON/OFF/DIM	3
		BMS CONTROL + MULTIMEDIAL		
	circuit d	N°2	ON/OFF/DIM	3
		BMS CONTROL + MULTIMEDIAL		
	circuit e	N°2	ON/OFF	2
		BMS CONTROL + MULTIMEDIAL		
	circuit f	N°2	ON/OFF/DIM	3
		BMS CONTROL + MULTIMEDIAL		
	circuit g	N°1	ON/OFF	2
		BMS CONTROL		
	circuit h	N°1	ON/OFF	2
		BMS CONTROL		
	circuit i	N°2	ON/OFF	2
		BMS CONTROL		
	circuit m	N°1	ON/OFF/DIM	3
		BMS CONTROL		
	circuit n	N°1	ON/OFF/DIM	3
		BMS CONTROL		
	circuit o	N°1	ON/OFF/DIM	3
		BMS CONTROL		
	circuit p	N°1	ON/OFF/DIM	3
		BMS CONTROL		
OUTDOOR ORNAMENTAL LIGHTING		BMS CONTROL	ON/OFF	2

LEGEND

	SWITCH
	INFRARED SENSOR
	DIMMABLE SWITCH
	PUSH BUTTON SWITCH
	INFRARED AND LIGHTING SENSOR
BMS CONTROL	DIRECTLY FROM BUILDING MANAGEMENT SYSTEM PROGRAM SETUP
Zn	BALLASTS GROUP
	AREAS WITHOUT BMS CONTROL WITH LOCAL SWITCHES (INFRARED SENSORS IN TOILET FACILITIES; SIMPLE SWITCHES IN STORAGE ROOMS, ARCHIVES AND EQUIPMENT ROOMS)

BILL OF QUANTITIES

CODE	DESCRIPTION	ZONE	QUANTITY
Y100.A10.A2	BMS INPUT/OUTPUT ADDRESS POINT FOR CONTROL LIGHTING SYSTEM	UNDERGROUND	76
		GROUND FLOOR	89
		FIRST FLOOR	581
		SECOND FLOOR	143
		OUTDOOR	20
		TOTAL	909

INVESTITOR: JOINT PROJECT ON ENVIRONMENT AND ENERGY BETWEEN ITALY AND MONTENEGRO

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Urbanistička parcela 9
DUP "Univerzitetski centar" - izmjene i dopune
Podgorica, Crna Gora

ISSUE

MAIN PROJECT — **ELECTRICAL EXTRA LOW VOLTAGE DRAWINGS**

TITLE

LIGHTING CONTROL SYSTEM

REV.	DATE	FILE	SUBJECT	DRAW	APPR.
a	05/08/2011	926_Le_006_a.dwg	REVIEW ACCORDING TO REVISION COMMISSION NOTES	L.R.	M.C.
b					
c					
d					

ISSUE NR. Le_006

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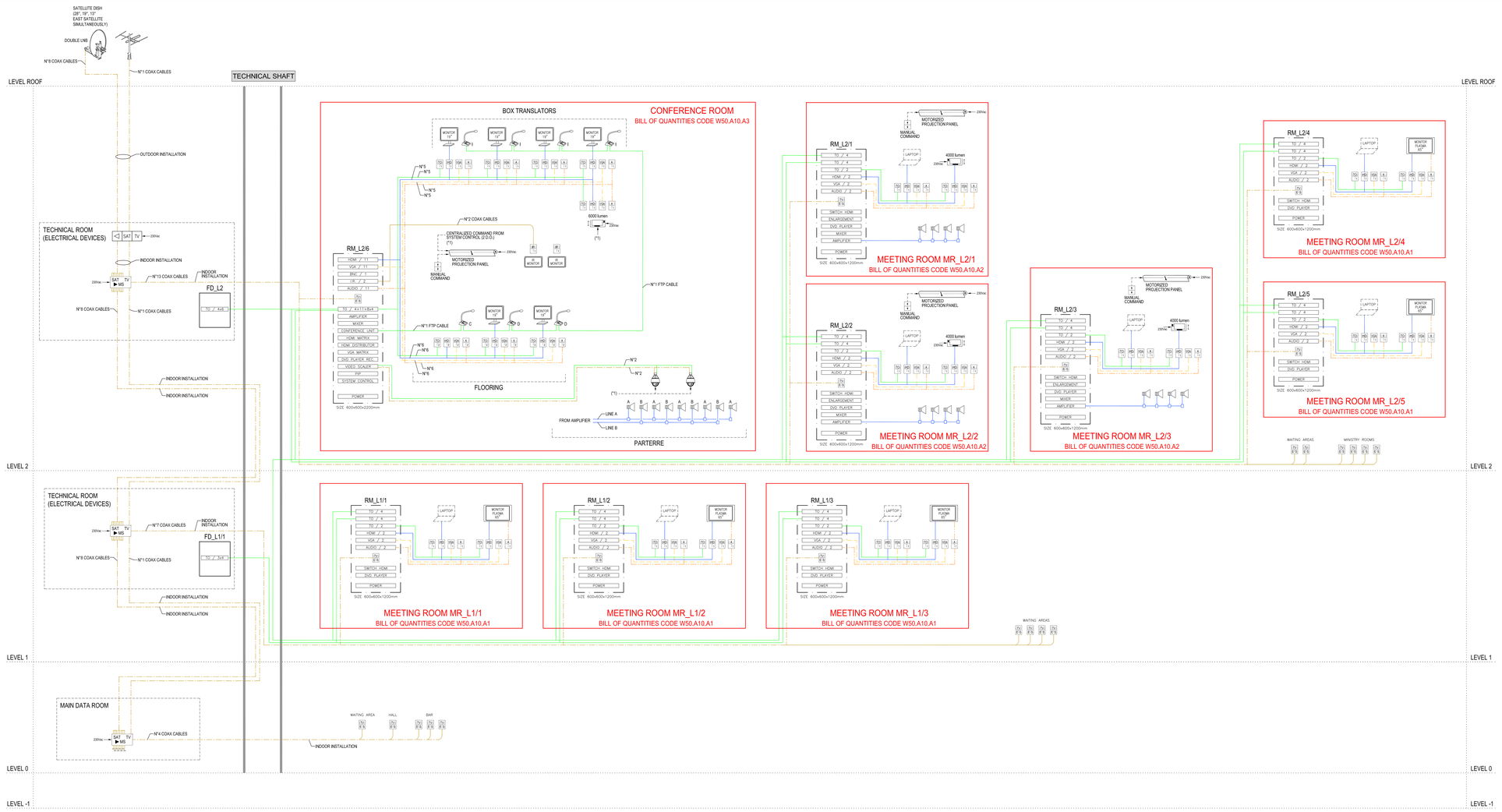
J.N. 926	DRAW: L. R.	APPROVED: M. C.



LEGEND

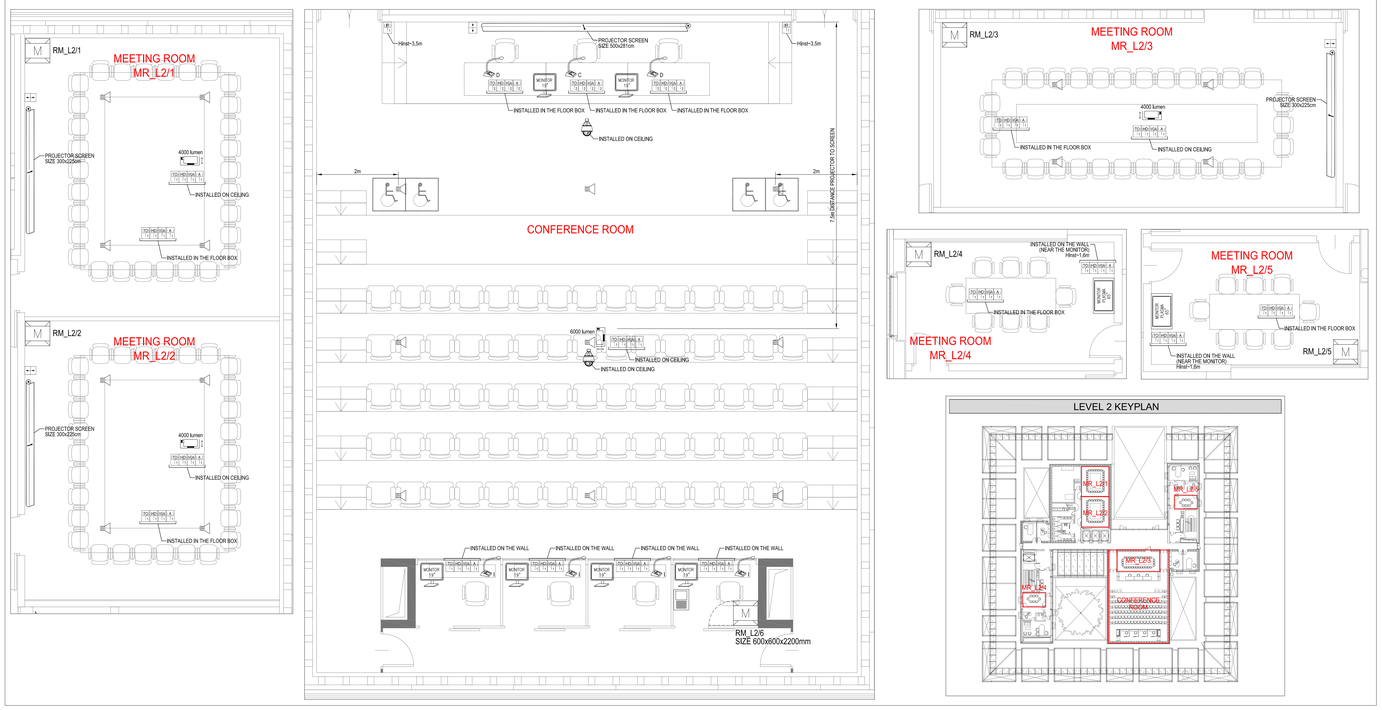
MULTIMEDIA SYSTEM

- AUDIO CABLE
- HDMI CABLE
- VGA CABLE
- RG59 COAXIAL CABLE (I.R. DISTRIBUTION SYSTEM)
- COAXIAL CABLE: FOR INDOOR INSTALLATION LSZH LIKE FRACARRO PAS4206200 OR EQUIVALENT FOR OUTDOOR INSTALLATION PE LIKE FRACARRO PAS4136104 OR EQUIVALENT
- FGTOM1 2x1.5 CABLE
- FTP CABLE CAT.6A
- PLASMA MONITOR 65" WITH LOUDSPEAKER AND PEDESTAL
- MONITOR LCD TFT 19"
- UNITS WITH GOOSNECK FOR CONFERENCE SYSTEM AND SIMULTANEOUS TRANSLATION C: CHAIRMAN D: DELEGATE I: INTERPRETER
- DOME CAMERA
- JOYSTICK AND KEYBOARD TO CONTROL DOME CAMERA AND VIDEO MATRIX
- n. OUTLET RJ45 CAT.6A DEDICATED TO MULTIMEDIA SYSTEM
- n. VGA OUTLET FOR VISUAL PRESENTER, NOTEBOOK, ETC.
- n. BNC OUTLET 50ohm, I.R. SYSTEM FOR SIMULTANEOUS TRANSLATION SYSTEM
- n.1 HDMI OUTLET FOR MULTIMEDIA SYSTEM
- n. IN/OUT AUDIO STEREO OUTLET
- TOUCH SCREEN TO CONTROL MULTIMEDIA SYSTEM
- LEVALIER MICROPHONE WITH WIRELESS UHF BODYPACK TRANSMITTER
- MOTION-PICTURES PROJECTOR x ANSI LUMEN WITH MOTORIZED PANTOGRAPH
- WIRELESS UHF MICROPHONE WITH HANDHELD TRANSMITTER
- PUSH BUTTON UP/DOWN PROJECTION SCREEN
- LOUDSPEAKER WITH TRANSFORMER 100V, INSTALLED ON CEILING
- MULTIMEDIA RACK 19" SIZE 600x600x1200mm
- MULTIMEDIA RACK 19", SIZE DEFINED ON DRAWING, COMPOSED BY:
  - HDMI PATCH PANEL, n° CABLES
  - VGA PATCH PANEL, n° CABLES
  - RG59 PATCH PANEL, n° CABLES
  - RG59 PATCH PANEL IR RADIATOR n° CABLES
  - XLR3 PATCH PANEL, AUDIO DISTRIBUTION n° CABLES
  - FTP CAT.6A PATCH PANEL, n° CABLES
  - AUDIO AND VIDEO DEVICES INDICATED IN THE SCHEME
  - POWER SUPPLY PANEL
- (*1) CENTRALIZED COMMAND FROM SYSTEM CONTROL DEVICE

TV-SAT SYSTEM

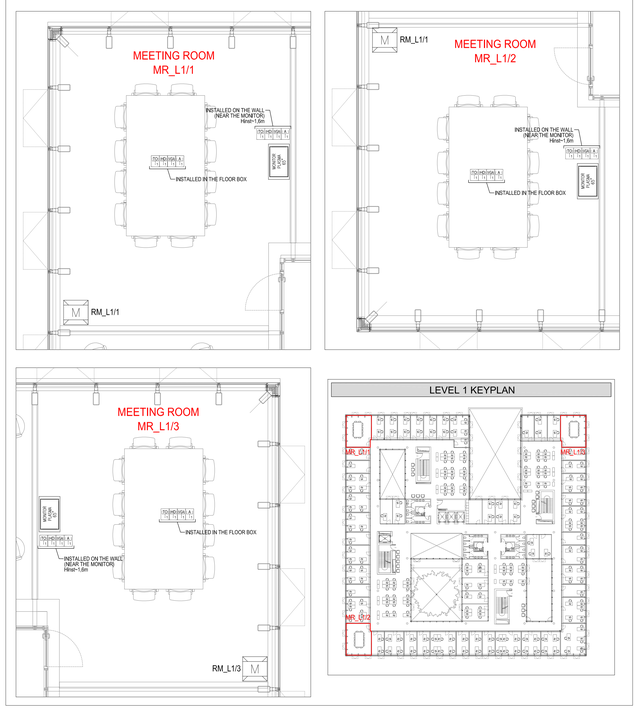
CODE	SYMBOL AND DESCRIPTION	
T20.A10.A1	TV	n.1 DEMODULED TV-SAT OUTLET (n.1 TV FEMALE, n.1 SAT MALE)
T10.A10.A1	SAT TV	CENTRAL UNIT FOR TV-SAT SYSTEM
T10.A10.A2	SAT TV IN OUT	MULTISWITCH DEVICE, AMPLIFIED, n.8 SAT + n.1 TV INPUT, NUMBER 16 OUTPUT MODULED

MULTIMEDIA DEVICES LAYOUTS - LEVEL 2 (SCALE 1:50)



LEVEL 2 KEYPLAN

MULTIMEDIA DEVICES LAYOUTS - LEVEL 1 (SCALE 1:50)



LEVEL 1 KEYPLAN

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Projektant faze - ELEKTROINSTALACIJE / jaka struja: SINERSYS
Projektant faze - ELEKTROINSTALACIJE / slaba struja: simes

Projektant faze - MAŠINSKE INSTALACIJE: NOVA ENERGIJA
Projektant faze - ZAŠTITA OD POŽARA: PREVENT

Objekat izgradnje:

Poslovni objekat - objekat Vlade Crne Gore
ENERGETSKI EFIKASNA ZGRADA
Urbanistička parcela 9
DUP "Univerzitetski centar" - izmjene i dopune
Podgorica, Crna Gora

ISSUE: **MAIN PROJECT** — ELECTRICAL EXTRA LOW VOLTAGE DRAWINGS

TITLE: MULTIMEDIA AND TV–SAT SYSTEMS LAYOUTS AND SCHEME

REV.	DATE	FILE	SUBJECT	DRAW	APPR.
a	05/09/2011	926_Le_007_a.dwg	REVIEW ACCORDING TO REVISION COMMISSION NOTES	L.R.	M.C.
b					
c					
d					

ISSUE NR. Le_007

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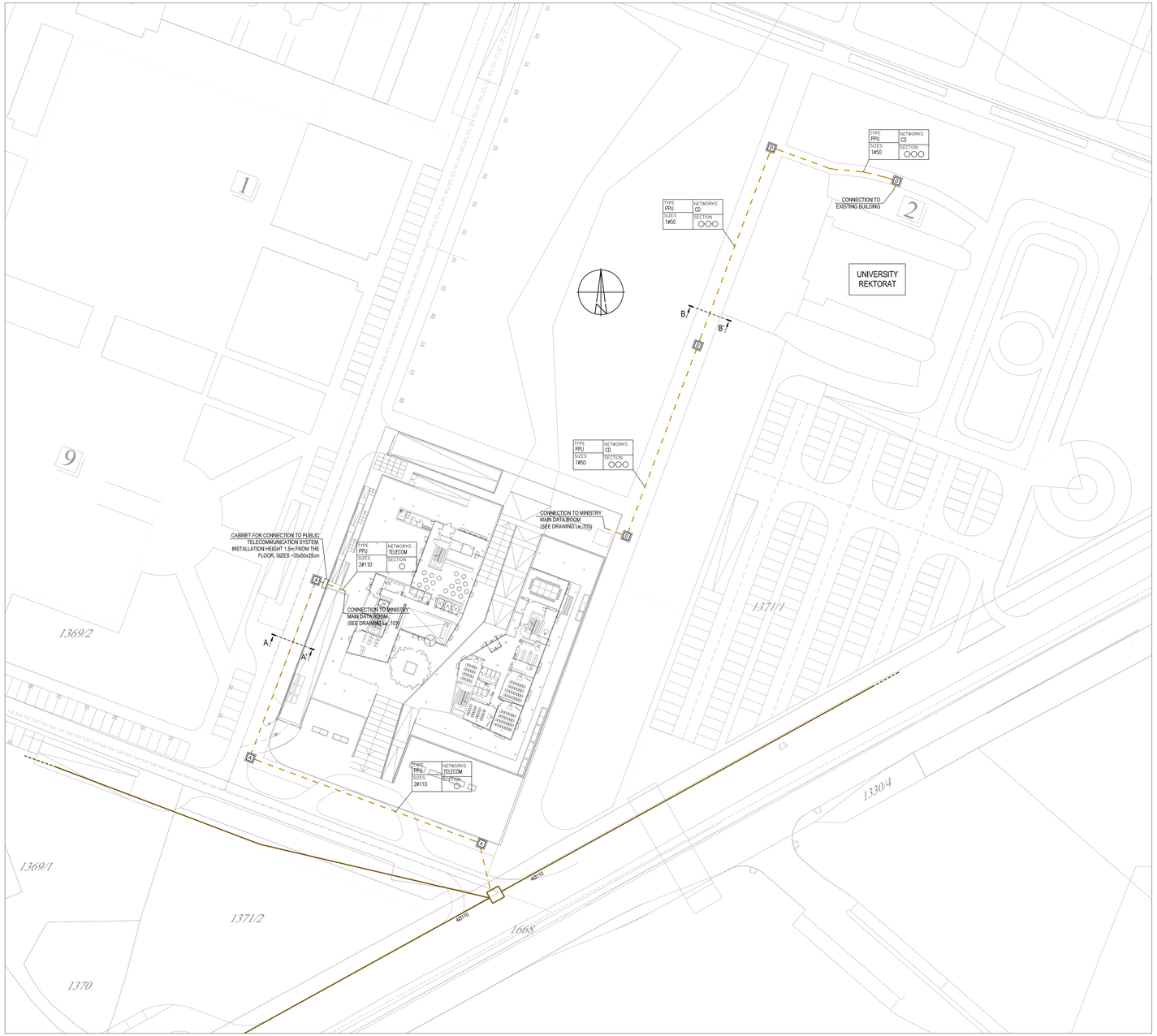
J.N. 926 — DRAW: L.R. — APPROVED: M. C.



LEGEND

COMMUNICATION AND DATA NETWORK - FLOOR DISTRIBUTION

EXISTING TELECOMMUNICATION DUCTS

A,B,C,D — PREFABRICATED CONCRETE BOX FOR INSTALLATION UNDERGROUND AND EQUIPPED WITH CAST IRON COVER
A= SIZE 600x600xh600mm
B= SIZE 1000x1000xh1000mm
C= SIZE 600x600xh200mm
D= SIZE 400x400xh400mm

hinst — INSTALLATION HEIGHT

TYPE / NETWORKS / SIZE / SECTION

DESCRIPTION
CD — COMMUNICATION AND DATA SYSTEMS
TELECOM — PUBLIC TELECOMMUNICATION SYSTEM

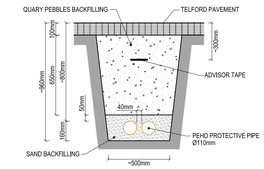
SECTION EXAMPLES
PIPE
THREE PIPES ATTACHED

DESCRIPTION OF THE INDIVIDUAL CHANNELLING MODELS
PPU — PEHD PROTECTIVE PIPE TO BURY IN LIGHTWEIGHT CONCRETE OR UNDERGROUND

SIZES OF CHANNELLING

SECTION A-A'

EXCAVATION DETAIL (SCALE 1:20)



SECTION B-B'

EXCAVATION DETAIL (SCALE 1:20)

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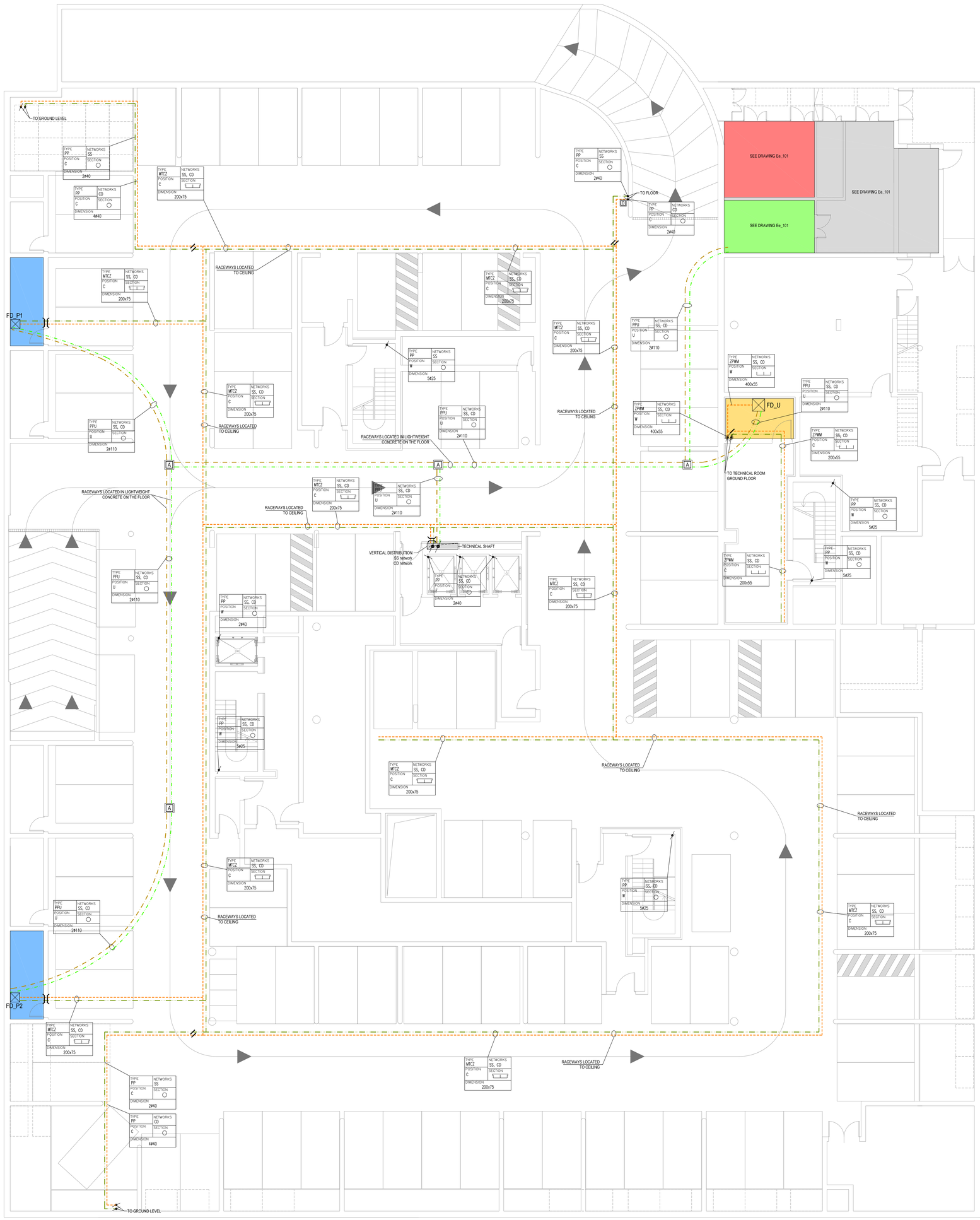
ISSUE
MAIN PROJECT — ELECTRICAL EXTRA LOW VOLTAGE DRAWINGS

TITLE
MAIN CONNECTIONS GENERAL PLAN – EXTRA LV

REV.	DATE	FILE	SUBJECT	DRAW	APPR.
a					
b					
c					
d					

ISSUE NR. Le_101

DATE:	SCALE:	FILE:
30/11/2010	1:500	926_Le_101.dwg
J.N. 926	DRAW: L. R.	APPROVED: M. C.



LEGEND

- RACK 19" FOR FLOOR DISTRIBUTOR (DATA AND COMMUNICATION SYSTEMS)
- INTR — INTRUDER ALARM CONTROL UNIT
- FIRE — FIRE DETECTION CONTROL UNIT
- GAS — GAS DETECTION CONTROL UNIT
- PA-EVAC — PUBLIC ADDRESS AND EVAC CONTROL UNIT
- RACK 19" FOR MULTIMEDIAL EQUIPMENTS
- MV/LV TRANSFORMER SUBSTATION
- LV SUBSTATION
- ELECTRICAL ROOM
- UPS ROOM
- MAIN DATA ROOM
- MAIN ELECTRICAL/DATA SHAFT
- FIRE BREAKING BARRIER
- COMMUNICATION AND DATA NETWORK - FLOOR DISTRIBUTION
- SAFETY AND SECURITY NETWORK (PA, CCTV, INTRUDER ALARM, ACCESS CONTROL, FIRE DETECTION) - FLOOR DISTRIBUTION
- COMMUNICATION AND DATA NETWORK - CEILING DISTRIBUTION
- SAFETY AND SECURITY NETWORK (PA, CCTV, INTRUDER ALARM, ACCESS CONTROL, FIRE DETECTION) - CEILING DISTRIBUTION
- VERTICAL RACEWAY / PIPE WAY
- RACEWAY CHANGE OF SIZE
- A,B,C,D — PREFABRICATED CONCRETE BOX FOR INSTALLATION UNDERGROUND AND EQUIPPED WITH CAST IRON COVER
  - A= SIZE 600x600x600mm
  - B= SIZE 1000x1000x1000mm
  - C= SIZE 600x600x200mm
  - D= SIZE 400x400x400mm
- hinst — INSTALLATION HEIGHT

TYPE / NETWORKS / POSITION / SECTION / DIMENSION

DESCRIPTION
- SS — SAFETY AND SECURITY SYSTEMS
- CD — COMMUNICATION AND DATA SYSTEMS

SECTION EXAMPLES
- RACEWAY WITHOUT LID
- RACEWAY WITH LID
- RACEWAY WITH LID AND DIVIDER
- PIPE
- THREE PIPES ATTACHED

POSITION OF RACEWAY
- C — CEILING
- U — UNDERFLOOR
- W — WALL

DESCRIPTION OF THE INDIVIDUAL RACEWAY MODELS
- MTCZ — METAL TRUNKING IN CLOSED VERSION, ZINC PLATED
- ZPWM — ZINC PLATED WIRE MESH
- PPU — PEHD PROTECTIVE PIPE TO BURY IN LIGHTWEIGHT CONCRETE OR UNDERGROUND
- PP — PROTECTIVE PVC PIPE
- ZPMP — ZINC PLATED METAL PIPE

SIZES OF VERTICAL DISTRIBUTION IN TECHNICAL SHAFT

TYPE	NETWORKS	SIZES	SECTION	
ZPWM	SS	200x105		VERTICAL DISTRIBUTION SAFETY AND SECURITY SYSTEMS NETWORK (PA, CCTV, INTRUDER ALARM, ACCESS CONTROL, FIRE DETECTION
ZPWM	CD	200x105		VERTICAL DISTRIBUTION COMMUNICATION AND DATA SYSTEMS NETWORK.

INVESTITOR: JOINT PROJECT ON ENVIRONMENT AND ENERGY BETWEEN ITALY AND MONTENEGRO

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Urbanistička parcela 9
DUP "Univerzitetski centar" - izmjene i dopune
Podgorica, Crna Gora

ISSUE

MAIN PROJECT — ELECTRICAL EXTRA LOW VOLTAGE DRAWINGS

TITLE

MAIN DEVICES AND RACEWAYS LAYOUT – EXTRA LV
LEVEL –1

REV.	DATE	FILE	SUBJECT	DRAW	APPR.
a					
b					
c					
d					

ISSUE NR. Le_102

DATE:	SCALE:	FILE:
30/11/2010	1:100	926_Le_102.dwg
J.N. 926	DRAW: L. R.	APPROVED: M. C.

LEGEND

- RACK 19" FOR FLOOR DISTRIBUTOR (DATA AND COMMUNICATION SYSTEMS)
- INTR — INTRUDER ALARM CONTROL UNIT
- FIRE — FIRE DETECTION CONTROL UNIT
- GAS — GAS DETECTION CONTROL UNIT
- PA-EVAC — PUBLIC ADDRESS AND EVAC CONTROL UNIT
- RACK 19" FOR MULTIMEDIAL EQUIPMENTS
- MV/LV TRANSFORMER SUBSTATION
- LV SUBSTATION
- ELECTRICAL ROOM
- UPS ROOM
- MAIN DATA ROOM
- MAIN ELECTRICAL/DATA SHAFT
- FIRE BREAKING BARRIER
- COMMUNICATION AND DATA NETWORK - FLOOR DISTRIBUTION
- SAFETY AND SECURITY NETWORK (PA, CCTV, INTRUDER ALARM, ACCESS CONTROL, FIRE DETECTION) - FLOOR DISTRIBUTION
- COMMUNICATION AND DATA NETWORK - CEILING DISTRIBUTION
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- VERTICAL RACEWAY / PIPE WAY
- RACEWAY CHANGE OF SIZE
- A,B,C,D — PREFABRICATED CONCRETE BOX FOR INSTALLATION UNDERGROUND AND EQUIPPED WITH CAST IRON COVER
  - A= SIZE 600x600x600mm
  - B= SIZE 1000x1000x1000mm
  - C= SIZE 600x600x200mm
  - D= SIZE 400x400x400mm
- hinst — INSTALLATION HEIGHT

TYPE / NETWORKS / POSITION / SECTION / DIMENSION

DESCRIPTION
- SS — SAFETY AND SECURITY SYSTEMS
- CD — COMMUNICATION AND DATA SYSTEMS

SECTION EXAMPLES
- RACEWAY WITHOUT LID
- RACEWAY WITH LID
- RACEWAY WITH LID AND DIVIDER
- PIPE
- THREE PIPES ATTACHED

POSITION OF RACEWAY
- C — CEILING
- U — UNDERFLOOR
- W — WALL

DESCRIPTION OF THE INDIVIDUAL RACEWAY MODELS
- MTCZ — METAL TRUNKING IN CLOSED VERSION, ZINC PLATED
- ZPWM — ZINC PLATED WIRE MESH
- PPU — PEHD PROTECTIVE PIPE TO BURY IN LIGHTWEIGHT CONCRETE OR UNDERGROUND
- PP — PROTECTIVE PVC PIPE
- ZPMP — ZINC PLATED METAL PIPE

SIZES OF VERTICAL DISTRIBUTION IN TECHNICAL SHAFT

TYPE	NETWORKS	SIZES	SECTION	
ZPWM	SS	200x105		VERTICAL DISTRIBUTION SAFETY AND SECURITY SYSTEMS NETWORK (PA, CCTV, INTRUDER ALARM, ACCESS CONTROL, FIRE DETECTION
ZPWM	CD	200x105		VERTICAL DISTRIBUTION COMMUNICATION AND DATA SYSTEMS NETWORK.

INVESTITOR:
JOINT PROJECT ON ENVIRONMENT AND ENERGY BETWEEN ITALY AND MONTENEGRO

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Objekat i mjesto:
Poslovni objekat - objekat Vlade Crne Gore
ENERGETSKI EFIKASNA ZGRADA
Urbanistička parcela 9
DUP "Univerzitetski centar" - izmjene i dopune
Podgorica, Crna Gora

ISSUE
MAIN PROJECT — ELECTRICAL EXTRA LOW VOLTAGE DRAWINGS

TITLE
MAIN DEVICES AND RACEWAYS LAYOUT – EXTRA LV
LEVEL 0

REV.	DATE	FILE	SUBJECT	DRAW	APPR.
a					
b					
c					
d					

ISSUE NR.

Le_103

DATE:	SCALE:	FILE:
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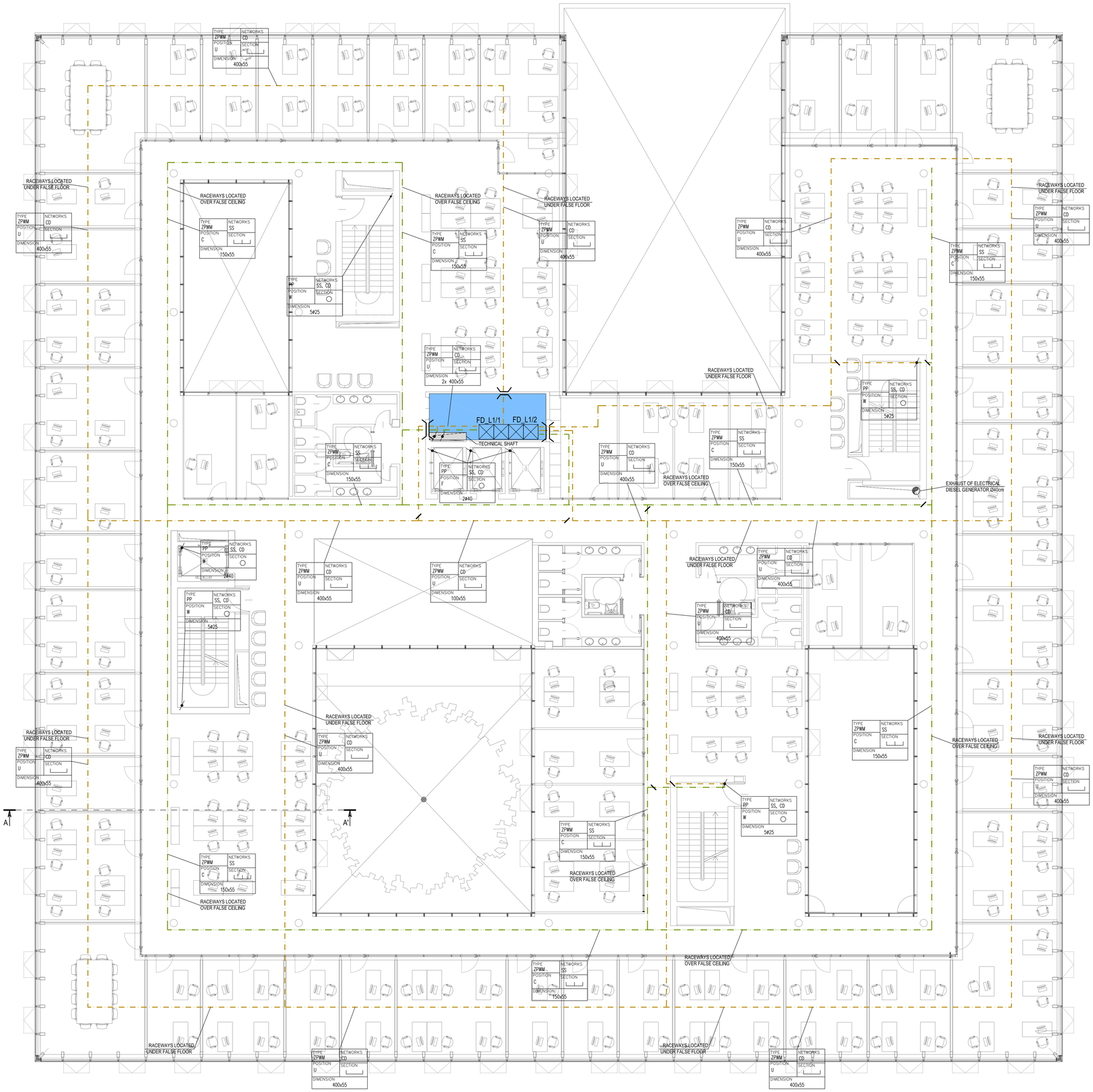
J.N. 926	DRAW: L. R.	APPROVED: M. C.



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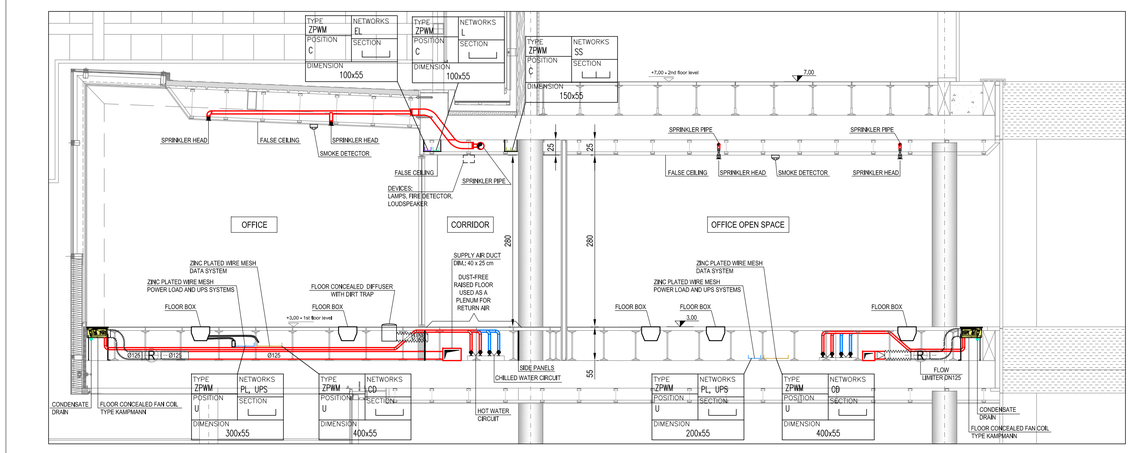
ZPWM	CD	200x105		VERTICAL DISTRIBUTION COMMUNICATION AND DATA SYSTEMS NETWORK.

SECTION A-A' - scale 1:50



INVESTITOR: JOINT PROJECT ON ENVIRONMENT AND ENERGY BETWEEN ITALY AND MONTENEGRO

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Projektant faze - MAŠINSKE INSTALACIJE: NOVA ENERGIJA — D.O.O. ZA PROJEKTOVANJE, INŽENJERING, PROMET I USLUGE, IVANA VUJOŠEVIĆA 26, 81000 PODGORICA, CRNA GORA; tel/fax. +382 20 245-142; e-mail: novaenergija@t-com.me

Projektant faze - ZAŠTITA OD POŽARA: PREVENING d.o.o. Podgorica — ul. 4. Jul TS-1; tel. 020/602-390; mob. 069/053-408; fax. 020/602-391; INSTITUT za protivpožarnu zaštitu, Zaštita na radu i Zaštita životne sredine

Objekat i mjesto:

Poslovni objekat - objekat Vlade Crne Gore
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DUP "Univerzitetski centar" - izmjene i dopune
Podgorica, Crna Gora

ISSUE

MAIN PROJECT — **ELECTRICAL EXTRA LOW VOLTAGE DRAWINGS**

TITLE

MAIN DEVICES AND RACEWAYS LAYOUT – EXTRA LV
LEVEL 1

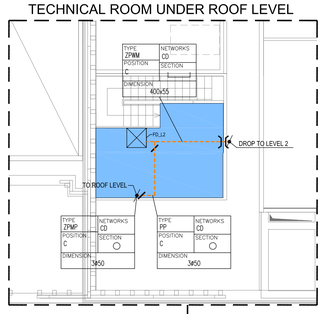
REV.	DATE	FILE	SUBJECT	DRAW	APPR.
a					
b					
c					
d					

ISSUE NR.

Le_104

DATE:	SCALE:	FILE:
30/11/2010	1:100	926_Le_104.dwg
J.N. 926	DRAW: L. R.	APPROVED: M. C.

TECHNICAL ROOM UNDER ROOF LEVEL



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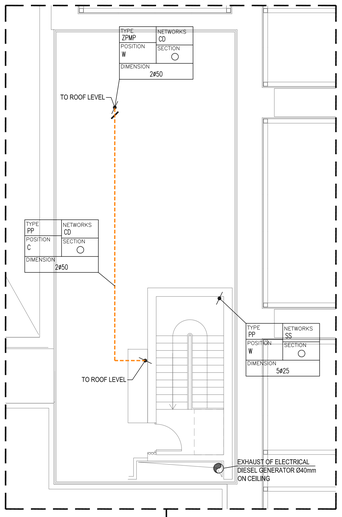

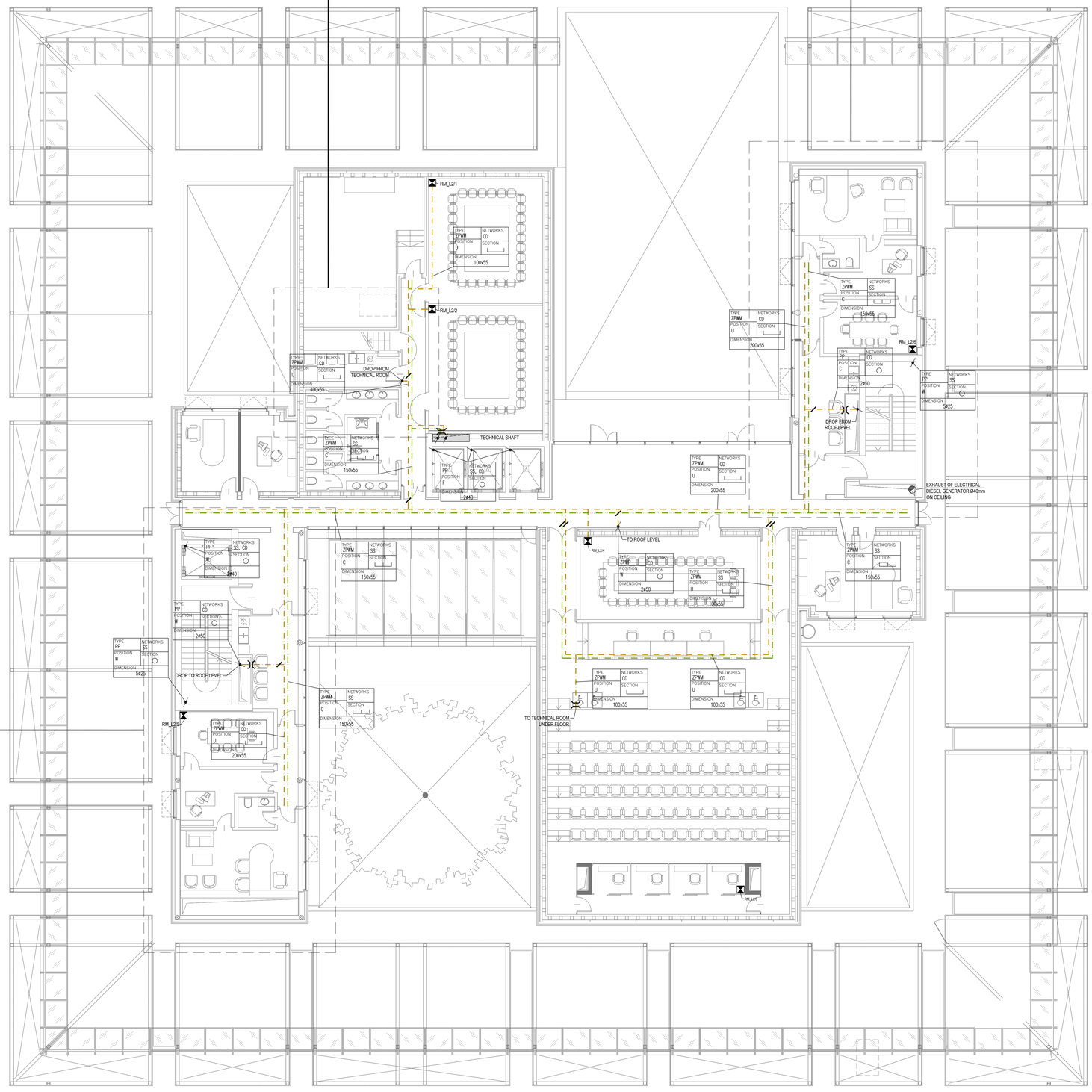

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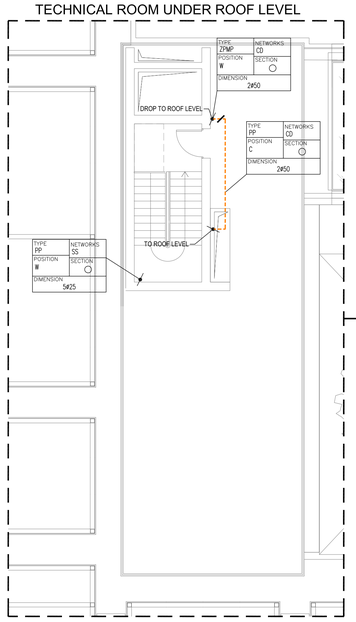

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SIZES OF VERTICAL DISTRIBUTION IN TECHNICAL SHAFT

TYPE ZPWM | NETWORKS SS | SIZES 200x105 | SECTION
VERTICAL DISTRIBUTION
SAFETY AND SECURITY SYSTEMS NETWORK (PA, CCTV, INTRUDER ALARM, ACCESS CONTROL, FIRE DETECTION

TYPE ZPWM | NETWORKS CD | SIZES 200x105 | SECTION
VERTICAL DISTRIBUTION
COMMUNICATION AND DATA SYSTEMS NETWORK.

INVESTITOR: JOINT PROJECT ON ENVIRONMENT AND ENERGY BETWEEN ITALY AND MONTENEGRO

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INSTITUT za protivpožarne sisteme, Zaštita na radu i Zaštita životne sredine

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ENERGETSKI EFIKASNA ZGRADA
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Podgorica, Crna Gora

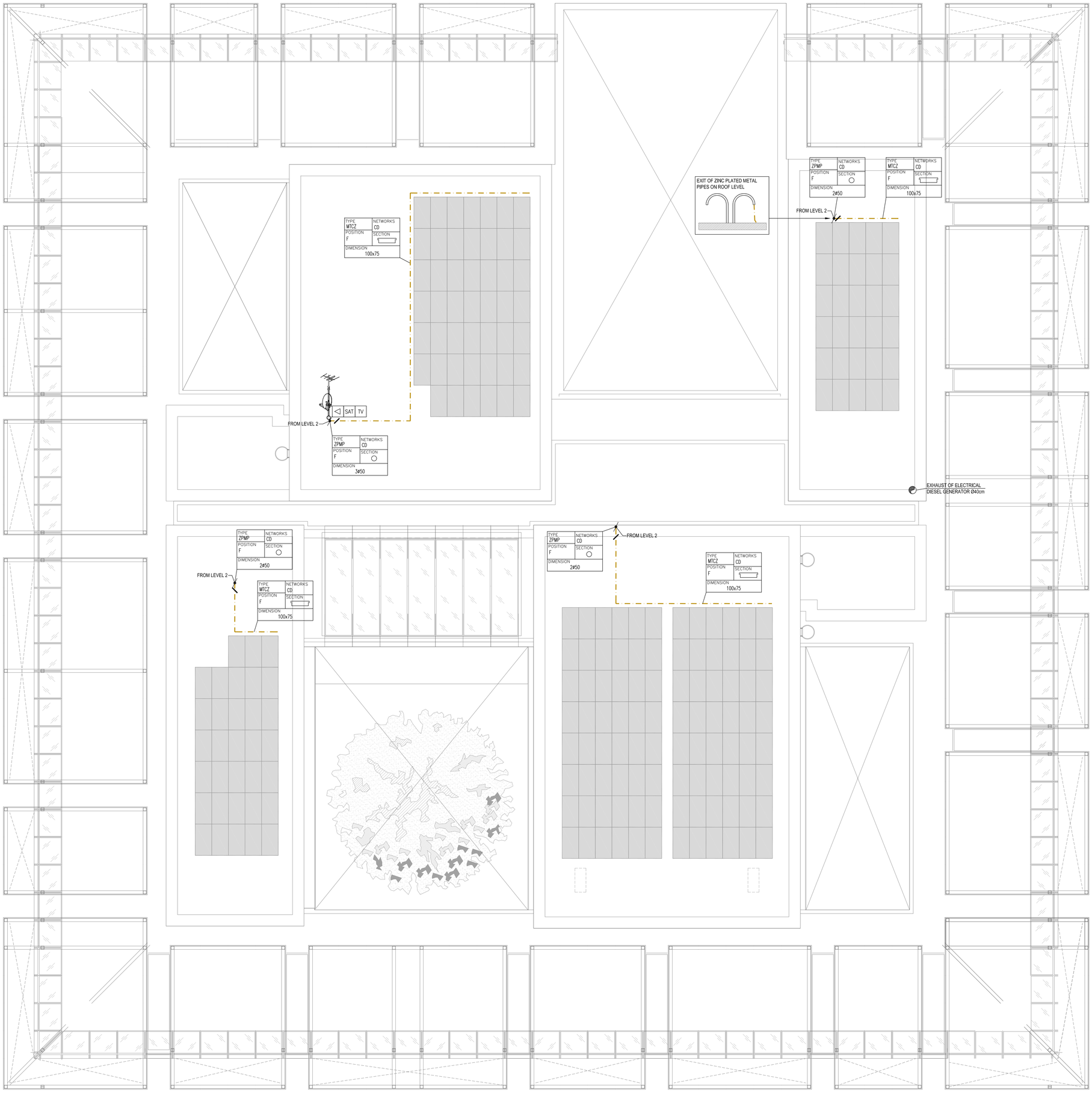
ISSUE
MAIN PROJECT — ELECTRICAL EXTRA LOW VOLTAGE DRAWINGS

TITLE
MAIN DEVICES AND RACEWAYS LAYOUT – EXTRA LV LEVEL 2

REV.	DATE	FILE	SUBJECT	DRAW	APPR.
a					
b					
c					
d					

ISSUE NR. Le_105

DATE:	SCALE:	FILE:
30/11/2010	1:100	926_Le_105.dwg
J.N. 926	DRAW: L. R.	APPROVED: M. C.



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- PP — PROTECTIVE PVC PIPE
- ZPMP — ZINC PLATED METAL PIPE

SIZES OF VERTICAL DISTRIBUTION IN TECHNICAL SHAFT

TYPE ZPWM | NETWORKS SS | SIZES 200x105 | SECTION
VERTICAL DISTRIBUTION
SAFETY AND SECURITY SYSTEMS NETWORK (PA, CCTV, INTRUDER ALARM, ACCESS CONTROL, FIRE DETECTION

TYPE ZPWM | NETWORKS CD | SIZES 200x105 | SECTION
VERTICAL DISTRIBUTION
COMMUNICATION AND DATA SYSTEMS NETWORK.

INVESTITOR: JOINT PROJECT ON ENVIRONMENT AND ENERGY BETWEEN ITALY AND MONTENEGRO

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ENERGETSKI EFIKASNA ZGRADA
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DUP "Univerzitetski centar" - izmjene i dopune
Podgorica, Crna Gora

ISSUE
MAIN PROJECT — ELECTRICAL EXTRA LOW VOLTAGE DRAWINGS

TITLE
MAIN DEVICES AND RACEWAYS LAYOUT – EXTRA LV
ROOF LEVEL

REV.	DATE	FILE	SUBJECT	DRAW	APPR.
a					
b					
c					
d					

ISSUE NR. Le_106

DATE:	SCALE:	FILE:
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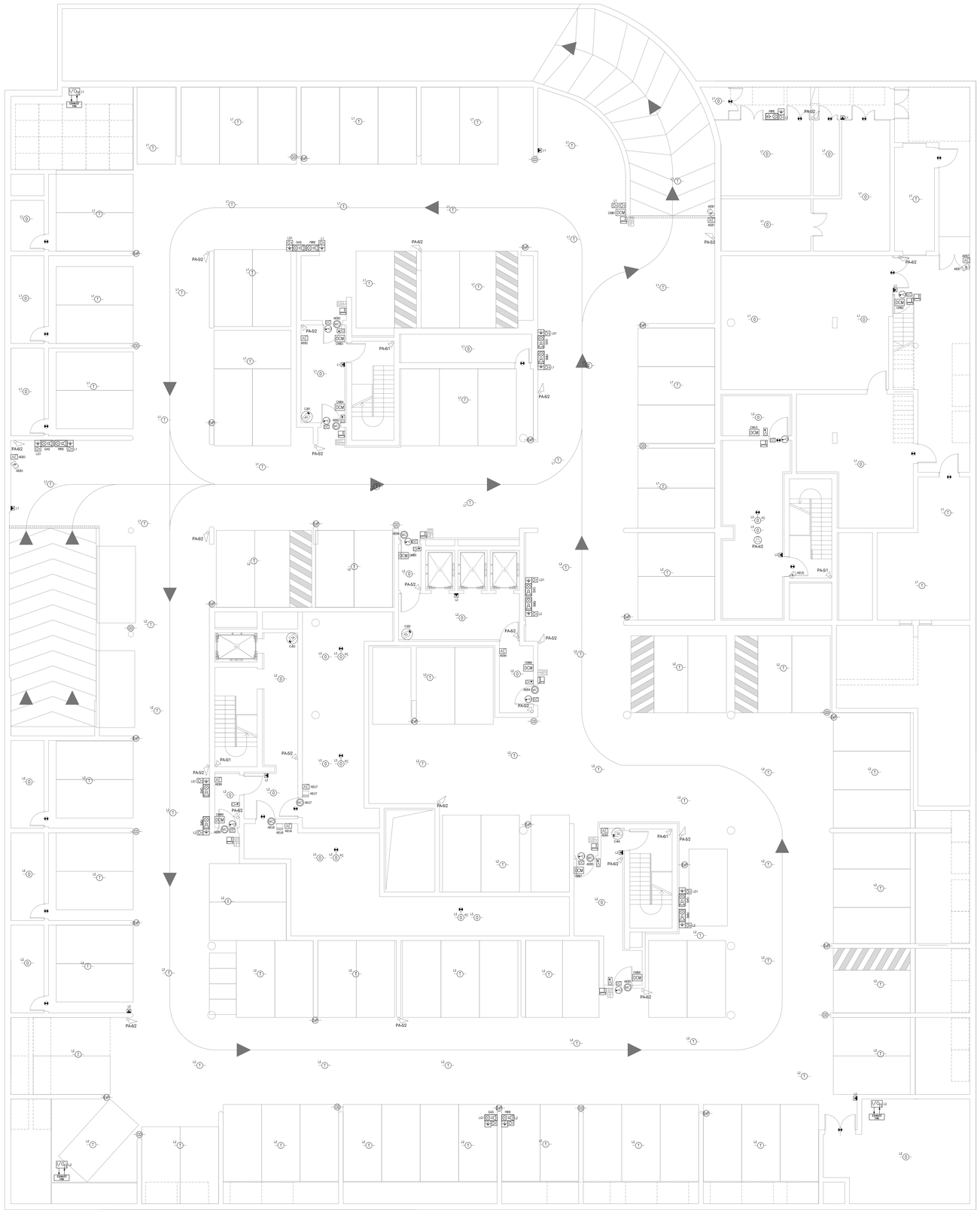
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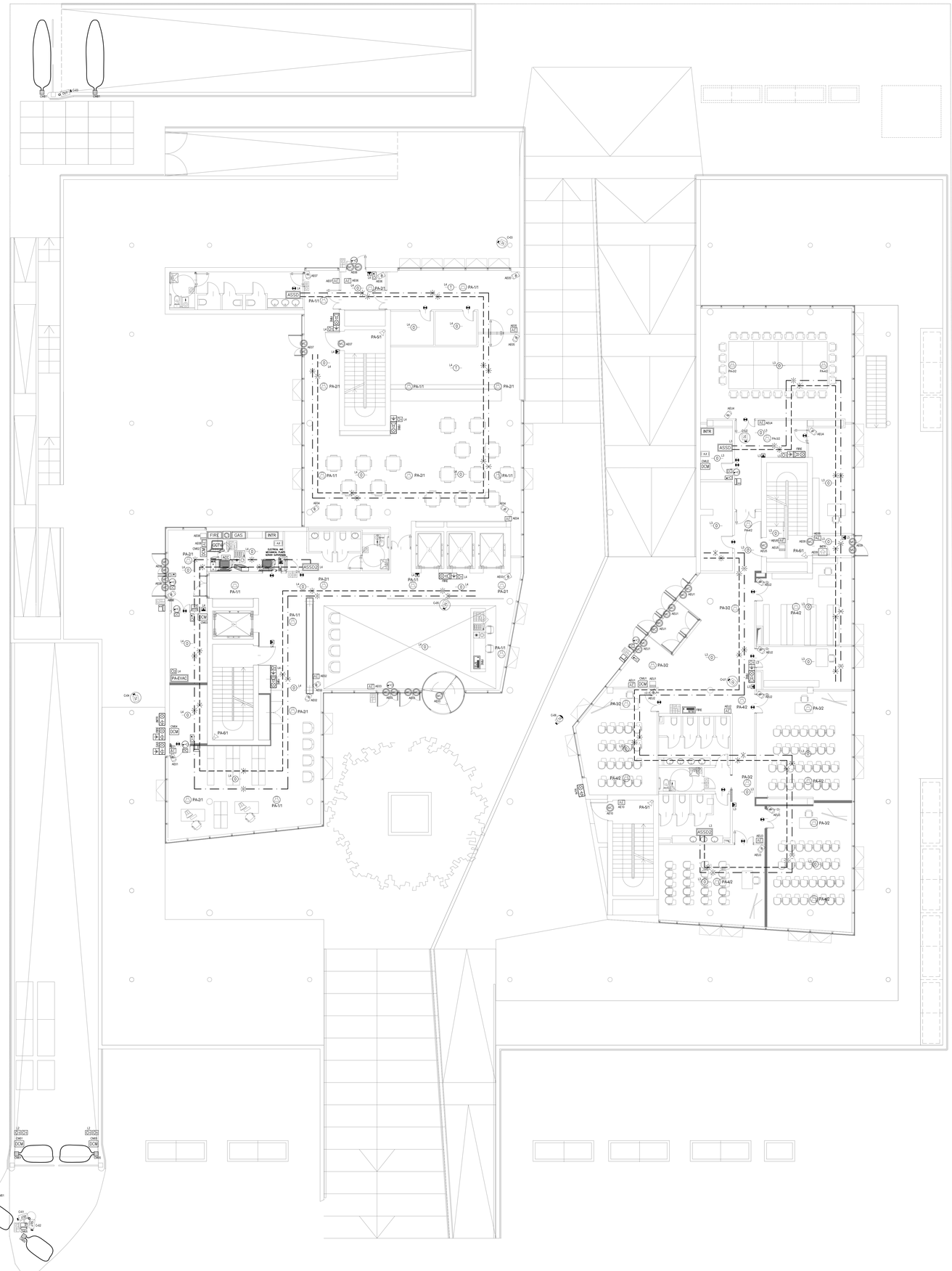
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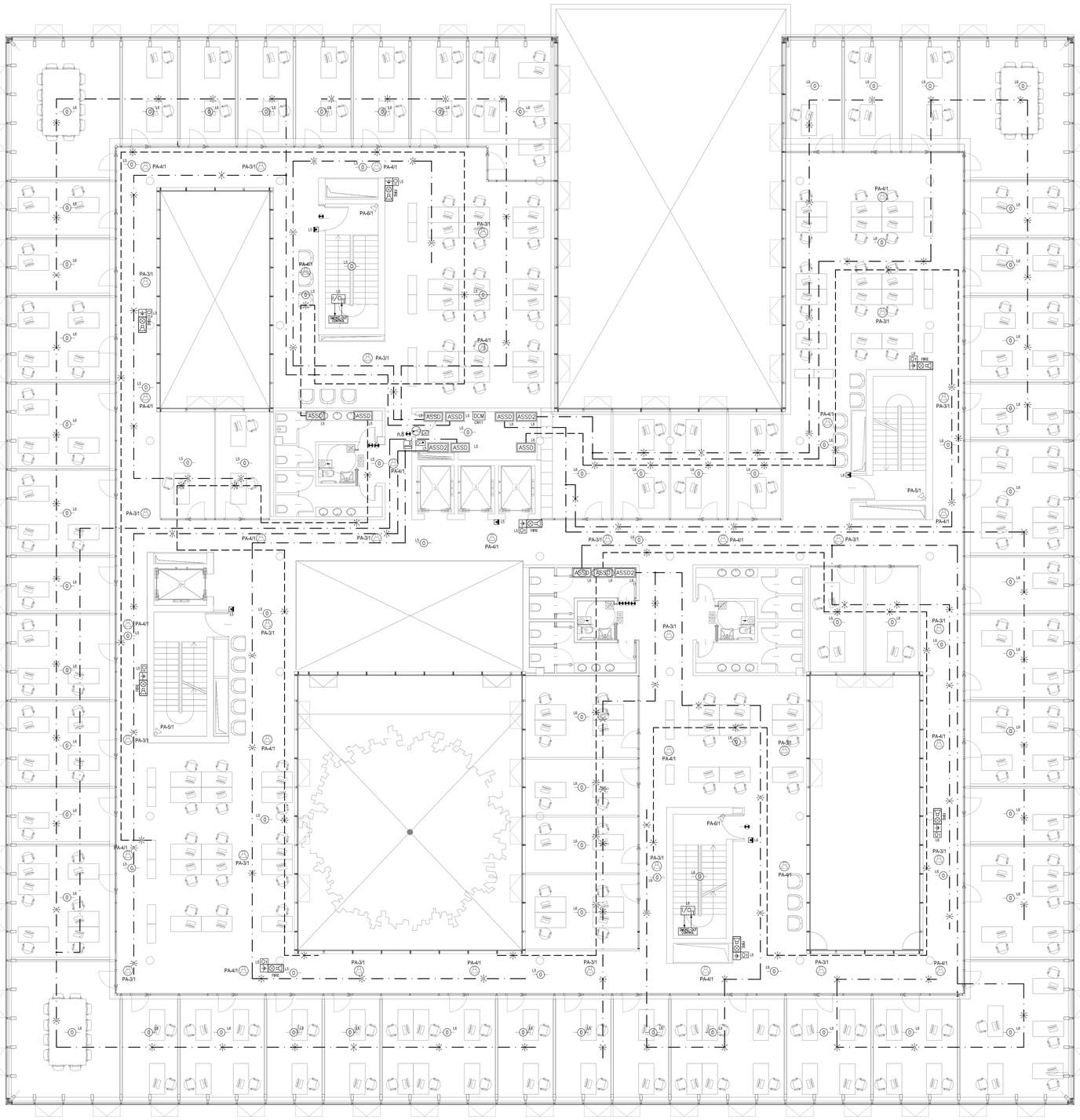
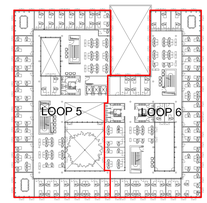


KEYPLAN FIRE DETECTION LOOP

FIRST LEVEL



LEGEND AND BILL OF QUANTITIES

FIRE AND GAS DETECTION SYSTEMS

CODE	SYMBOL AND DESCRIPTION	QUANTITY
R10,A11,A2 R10,A11,A11	FIRE DETECTION CONTROL UNIT AND EXPANSION UNIT FOR REMOTE TERMINAL	/
R10,A12,A1	GAS DETECTION CONTROL UNIT	/
R10,A18,A1	REMOTE TERMINAL FOR VISUALIZATION ALARM AND CONTROL SIGNAL (FIRE DETECTION SYSTEM)	/
R10,A40,A1	ADDRESSABLE SMOKE DETECTOR	82
R10,A36,A1	ADDRESSABLE SMOKE DETECTOR LOCATED INTO VENTILATION SYSTEM	/
R10,A40,A1	ADDRESSABLE SMOKE DETECTOR LOCATED INTO FALSE CEILING	/
R10,A32,A1	ADDRESSABLE HEAT DETECTOR	/
R30,A23,A1	ADDRESSABLE GASOLINE VAPOUR DETECTOR	/
R30,A22,A1	ADDRESSABLE CO DETECTOR	/
R10,A70,A1	MANUAL CALL POINT	5
R10,A80,A2 R10,A80,A4	INPUT MODULE OUTPUT MODULE	2 10
R10,A76,B1	AIR SAMPLING SMOKE DETECTION SYSTEM WITH 1 DETECTOR (DETECTION ON FALSE FLOOR)	9
R10,A76,B2	AIR SAMPLING SMOKE DETECTION SYSTEM WITH 2 DETECTORS (DETECTION ON FALSE FLOOR)	3
R100,A10,A2	ANALOGICAL DETECTOR POINT CONNECTION WITH PVC FLEXIBLE PIPE AND CABLES	86
R100,A10,A11	ANALOGICAL DETECTOR POINT CONNECTION WITH PVC RIGID PIPE AND CABLES	23
R10,A52,A1	OPTICAL ACOUSTIC WARNING FIRE PANEL (INDOOR INSTALLATION) WITH SELF-POWERING KIT	8
R10,A52,A2	OPTICAL ACOUSTIC WARNING GAS PANEL (INDOOR INSTALLATION) WITH SELF-POWERING KIT	/
R10,A52,A3	OPTICAL ACOUSTIC WARNING FIRE PANEL (OUTDOOR INSTALLATION) WITH SELF-POWERING KIT	/
R10,A52,A4	OPTICAL ACOUSTIC WARNING GAS PANEL (OUTDOOR INSTALLATION) WITH SELF-POWERING KIT	/
R10,A76,B3 R10,A76,B4 R10,A76,B5	AIR SAMPLING PIPE NETWORK (DETECTION ON FALSE FLOOR) AIR SAMPLING PIPE NETWORK (DETECTION ON FALSE CEILING)	970 / 6
R10,A50,A1	RESPONSE INDICATOR	15
R10,A61,A1	DIALER	/
	FIRE DAMPERS (MECHANICAL DEVICES)	
	REFERENCE LOOP	

PUBLIC ADDRESS AND EVAC SYSTEM

Q20,70,A1 ÷ Q20,70,A2	PUBLIC ADDRESS AND EVAC CONTROL UNIT	/
Q20,A70,A6 ÷ Q100,A20,A1	MICROPHONE FOR EVAC AND PUBLIC ADDRESS WITH KEYPAD FOR CIRCUIT MAP CD AND MP3 FILES READER CONTROLLER	/
Q20,A30,A1 ÷ Q100,A10,A3	LOUDSPEAKER FOR FALSE CEILING INSTALLATION, POWER 6W, EQUIPPED WITH THERMAL FUSE AND CERAMIC CLAMPS	44
Q20,A30,A2 ÷ Q100,A10,A1	LOUDSPEAKER FOR WALL INSTALLATION, POWER 10W, EQUIPPED WITH THERMAL FUSE AND CERAMIC CLAMPS	4
Q20,A35,A1 ÷ Q100,A10,A5	BUGLE FOR WALL INSTALLATION, POWER 20W, PROTECTION LEVEL IP65	/
	PA-.../... CONNECTION CIRCUIT	

INTRUDER ALARM SYSTEM

R40,A10,A1 ÷ R40,A10,A7	INTRUDER ALARM CONTROL UNIT	/
R40,A41,A1	MAGNET CONTACT FOR DOORS AND WINDOWS	/
R40,A31,A1	PASSIVE INFRARED DETECTOR	/
R40,A80,A1	ADDRESSING ELEMENTS DEVICE	/
R60,A70,A1	KEYBOARD FOR DISCONNECTION INTRUDER ALARM	/
R40,A52,A1	WARNING INTRUDER PANEL FOR INDOOR	/
R40,A52,A2	WARNING INTRUDER PANEL WITH FLASHING SIGNAL FOR OUTDOOR	/
	AE.... ADDRESSING ELEMENT REFERENCE	

ACCESS CONTROL SYSTEM

R20,A100,A1	DOOR CONTROL MODULE (CONNECTED TO NEARLY TELECOM OUTLET)	1
M30,A10,A1	DOOR CONTACT	1
R20,A80,A1	BUTTON	1
M30,A10,A1	DOOR OPENER	1
R20,A102,A1	PROXIMITY READER WITH CODE KEYPAD	1
R20,A50,A2	MAGNETIC SPIRE	/
R20,A20,A1	ACCESS CONTROL SYSTEM SERVER	/
R20,A22,A1	PROGRAMMER FOR KEY CARD CODES	/

VIDEO SURVEILLANCE SYSTEM

R50,A16,A1	IP FIXED CAMERA, MINIDOME MODEL, POE (CONNECTED TO NEARLY TELECOM OUTLET)	/
R50,A40,A1	IP FIXED CAMERA FOR OUTDOOR, POE (CONNECTED TO NEARLY TELECOM OUTLET)	/
R50,A17,A1	IP DOME CAMERA (CONNECTED TO NEARLY TELECOM OUTLET)	/
R50,A30,A1 R50,A45,A1 R50,A117,A1	CCTV CLIENT	/

VIDEO ENTRYPHONE SYSTEM

S60,A40,A3	OUTDOOR VIDEO ENTRYPHONE WITH POWER SUPPLY	/
S60,A40,A2	INDOOR VIDEO ENTRYPHONE WITH POWER SUPPLY	/
S60,A40,A1	POWER SUPPLY	/

CALL SYSTEM

S10,A10,A12	OPTIC-ACOUSTIC SIGNAL POINT	3
S10,A10,A15	CALL PUSH-BUTTON	3
S10,A10,A14	RESET CALL PUSH-BUTTON	3

INVESTITOR:

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ENERGETSKI EFIKASNA ZGRADA
Urbanistička parcela 9
DUP "Univerzitetski centar" - izmjene i dopune
Podgorica, Crna Gora

ISSUE

MAIN PROJECT — **ELECTRICAL EXTRA LOW VOLTAGE DRAWINGS**

TITLE

SAFETY & SECURITY SYSTEMS DEVICES LAYOUT
LEVEL 1

REV.	DATE	FILE	SUBJECT	DRAW	APPR.
a	05/08/2011	926_Le_203_a.dwg	REVIEW ACCORDING TO REVISION COMMISSION NOTES	L.R.	M.C.
b					
c					
d					

ISSUE NR. Le_203

DATE:	SCALE:	FILE:
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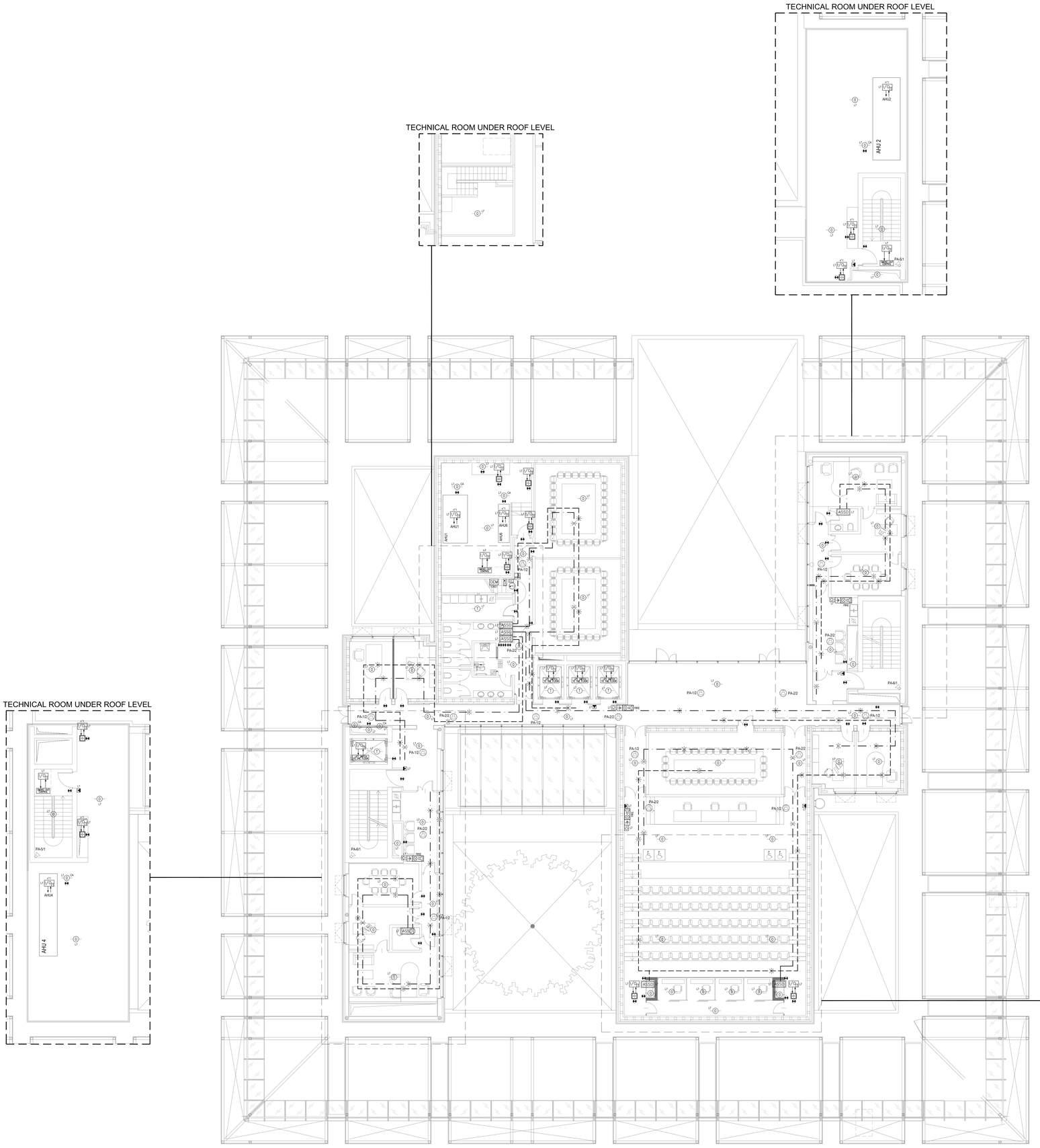
J.N. 926	DRAW: L. R.	APPROVED: M. C.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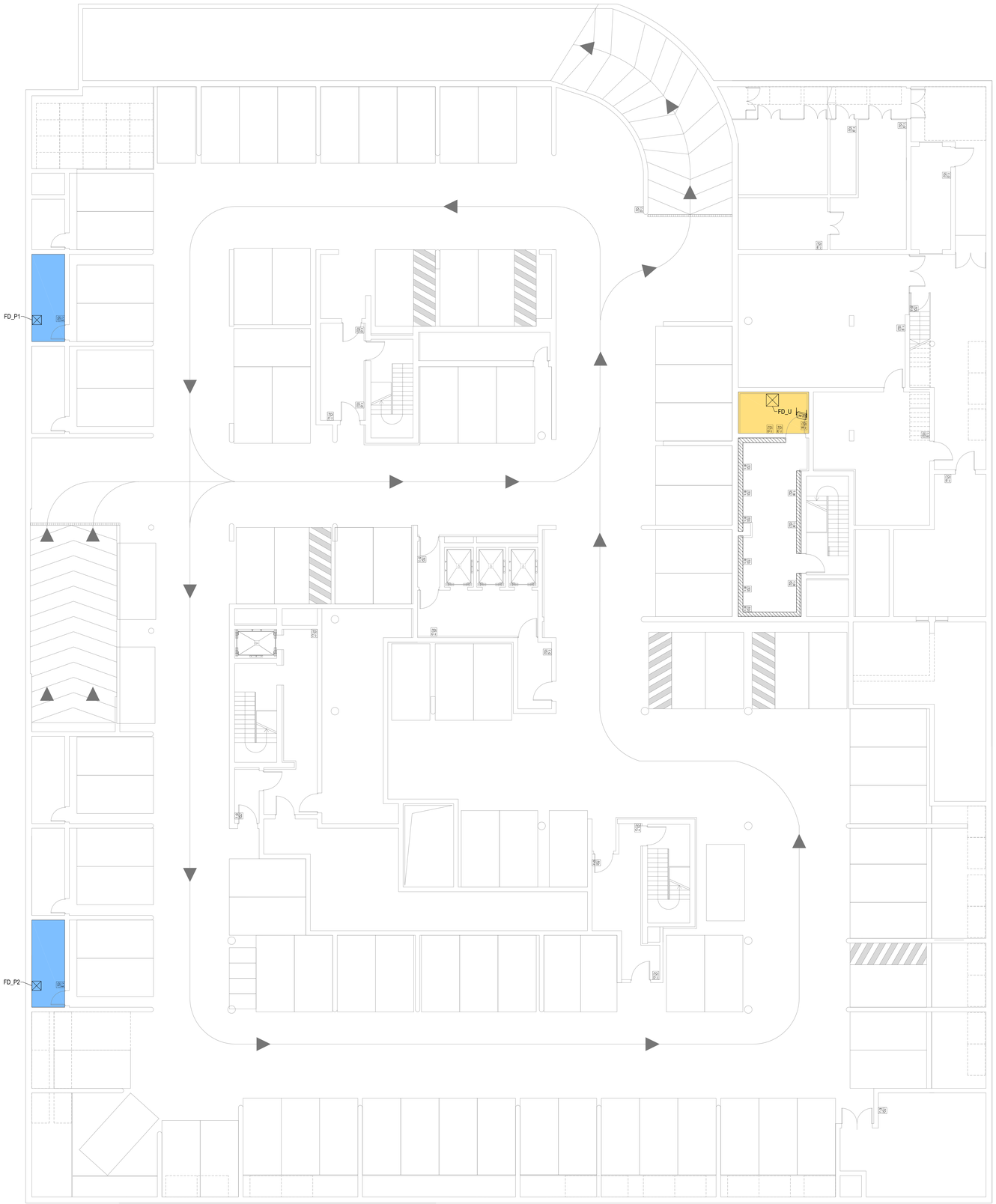


LEGEND AND BILL OF QUANTITIES

CODE	SYMBOL AND DESCRIPTION	QUANTITY
	RACK 19" FOR FLOOR DISTRIBUTOR	SEE DRAWING Le_304_b
	ELECTRICAL ROOM	
	MAIN DATA ROOM	
X100.A20.A11	n.3 TELECOM OUTLET RJ45 CAT.6A INSTALLED ON FLOOR BOX (SEE HIGH VOLTAGE BILL OF QUANTITIES) INCLUDING: - WIRES SFTP CAT.6A AND CONNECTIONS FROM OUTLET TO RACK 19" FLOOR DISTRIBUTION (AVERAGE LENGHT FOR SINGLE CONNECTION 70m) - FLEXIBLE PVC PIPE Ø32mm FROM FLOOR BOX TO METALLIC RACEWAY - FACEPLATE FOR n.3 POSITION INSTALLED ON FLOOR BOX - PERMANENT LINK CERTIFICATION	/
X100.A21.A1	n.2 TELECOM OUTLET RJ45 CAT.6A, RECESSED MOUNTING, INCLUDING: - n.3 PORTS OUTLET PVC BOX, RECESSED MOUNTING, HEIGHT INSTALLATION = 0,3m FROM FLOOR - WIRES SFTP CAT.6A AND CONNECTIONS FROM OUTLET TO RACK 19" FLOOR DISTRIBUTION (AVERAGE LENGHT FOR SINGLE CONNECTION 70m) - FLEXIBLE PVC PIPE Ø32mm FROM PVC BOX TO METALLIC RACEWAY - FACEPLATE FOR n.2 POSITION INSTALLED ON BOX - PERMANENT LINK CERTIFICATION	/
X100.A21.A2	n.2 TELECOM OUTLET RJ45 CAT.6A, DEDICATED TO WIRELESS ACCESS POINT, VISIBLE, INCLUDING: - n.3 PORTS OUTLET VISIBLE PVC BOX, LOCATED ON CEILING - WIRES SFTP CAT.6A AND CONNECTIONS FROM OUTLET TO RACK 19" FLOOR DISTRIBUTION (AVERAGE LENGHT FOR SINGLE CONNECTION 70m) - RIGID PVC PIPE Ø32mm FROM PVC BOX TO RACEWAY - FACEPLATE FOR n.2 POSITION INSTALLED ON BOX - PERMANENT LINK CERTIFICATION	1
X100.A21.A3	n.2 TELECOM OUTLET RJ45 CAT.6A, DEDICATED TO MULTIMEDIA SYSTEM, VISIBLE, INCLUDING: - n.3 PORTS OUTLET VISIBLE PVC BOX, LOCATED ON CEILING - WIRES SFTP CAT.6A AND CONNECTIONS FROM OUTLET TO RACK 19" FLOOR DISTRIBUTION (AVERAGE LENGHT FOR SINGLE CONNECTION 70m) - RIGID PVC PIPE Ø32mm FROM PVC BOX TO RACEWAY - FACEPLATE FOR n.2 POSITION INSTALLED ON BOX - PERMANENT LINK CERTIFICATION	/
X100.A21.A4	n.2 TELECOM OUTLET RJ45 CAT.6A, DEDICATED TO DOOR CONTROL MODULES, VISIBLE, INCLUDING: - n.3 PORTS OUTLET VISIBLE PVC BOX, LOCATED ON CEILING - WIRES SFTP CAT.6A AND CONNECTIONS FROM OUTLET TO RACK 19" FLOOR DISTRIBUTION (AVERAGE LENGHT FOR SINGLE CONNECTION 70m) - RIGID PVC PIPE Ø32mm FROM PVC BOX TO RACEWAY - FACEPLATE FOR n.2 POSITION INSTALLED ON BOX - PERMANENT LINK CERTIFICATION	10
X100.A21.A5	n.2 TELECOM OUTLET RJ45 CAT.6A, DEDICATED TO SECURITY CAMERAS, VISIBLE, INCLUDING: - n.3 PORTS OUTLET VISIBLE PVC BOX, LOCATED ON CEILING - WIRES SFTP CAT.6A AND CONNECTIONS FROM OUTLET TO RACK 19" FLOOR DISTRIBUTION (AVERAGE LENGHT FOR SINGLE CONNECTION 70m) - RIGID PVC PIPE Ø32mm FROM PVC BOX TO RACEWAY - FACEPLATE FOR n.2 POSITION INSTALLED ON BOX - PERMANENT LINK CERTIFICATION	4
X100.A21.A6	n.3 TELECOM OUTLET RJ45 CAT.6A INSTALLED ON PVC WALL MOUNTING RACEWAY (SEE HIGH VOLTAGE BILL OF QUANTITIES) INCLUDING: - WIRES SFTP CAT.6A AND CONNECTIONS FROM OUTLET TO RACK 19" FLOOR DISTRIBUTION (AVERAGE LENGHT FOR SINGLE CONNECTION 10m) - FACEPLATE FOR n.3 POSITION INSTALLED ON PVC WALL MOUNTING RACEWAY - PERMANENT LINK CERTIFICATION	9
X100.A21.A7	n.2 TELECOM OUTLET RJ45 CAT.6A, VISIBLE, INCLUDING: - n.3 PORTS OUTLET VISIBLE PVC BOX, HEIGHT INSTALLATION = 0,3m FROM FLOOR - WIRES SFTP CAT.6A AND CONNECTIONS FROM OUTLET TO RACK 19" FLOOR DISTRIBUTION (AVERAGE LENGHT FOR SINGLE CONNECTION 70m) - RIGID PVC PIPE Ø32mm FROM PVC BOX TO METALLIC RACEWAY - FACEPLATE FOR n.2 POSITION INSTALLED ON BOX - PERMANENT LINK CERTIFICATION	11
X100.A21.A8	n.3 TELECOM OUTLET RJ45 CAT.6A, RECESSED MOUNTING, INCLUDING: - n.3 PORTS OUTLET PVC BOX, RECESSED MOUNTING, HEIGHT INSTALLATION = 0,3m FROM FLOOR - WIRES SFTP CAT.6A AND CONNECTIONS FROM OUTLET TO RACK 19" FLOOR DISTRIBUTION (AVERAGE LENGHT FOR SINGLE CONNECTION 70m) - FLEXIBLE PVC PIPE Ø32mm FROM PVC BOX TO METALLIC RACEWAY - FACEPLATE FOR n.3 POSITION INSTALLED ON BOX - PERMANENT LINK CERTIFICATION	/
X100.A22.A1	CONNECTION RACK 19" FOR MULTIMEDIA EQUIPMENTS TO RACK 19" FLOOR DISTRIBUTOR INCLUDING: - n.4 WIRES SFTP CAT.6A - n.4 POSITION RJ45 CAT.6A PATCH PANEL INSTALLED ON MULTIMEDIA RACK - CONNECTIONS - n.2 FLEXIBLE PVC PIPES Ø32mm FROM MULTIMEDIA RACK TO RACEWAY - PERMANENT LINK CERTIFICATION	/
X100.A23.A1	n.3 TELECOM OUTLET RJ45 CAT.6A INSTALLED ON FLOOR BOX (SEE HIGH VOLTAGE BILL OF QUANTITIES) INCLUDING: - WIRES SFTP CAT.6A AND CONNECTIONS FROM OUTLET TO RACK 19" FLOOR DISTRIBUTION (AVERAGE LENGHT FOR SINGLE CONNECTION 70m) - n.2 FLEXIBLE PVC PIPES Ø32mm FROM FLOOR BOX TO METALLIC RACEWAY (ONE DEDICATED TO MULTIMEDIA OUTLET) - FACEPLATE FOR n.3 POSITION INSTALLED ON FLOOR BOX - PERMANENT LINK CERTIFICATION	/
X50.A1.A1	ACCESS POINT STANDARD IEEE 802.11 b, g, n	1
T10.A10.A1	EARTH CHANNELS ANTENNA VIA SATELLITE CHANNELS PARABOLIC ANTENNA SAT TV RACK FOR SATELLITE AND EARTH CHANNELS RECEIVER AND MODULATOR	/
T10.A10.A2	MS TV SAT MULTISWITCH	/
T20.A10.A1	n.1 DEMODULATED TV AND SAT OUTLET, RECESSED MOUNTING, INCLUDING: - n.3 PORTS OUTLET PVC BOX, RECESSED MOUNTING, HEIGHT INSTALLATION = 0,3m FROM FLOOR - FLEXIBLE PVC PIPE Ø25mm FROM PVC BOX TO METALLIC RACEWAY - COAXIAL CABLE FROM OUTLET TO MULTISWITCH	/
	WALL MOUNTING RACEWAY TO EQUIP WITH SOCKETS	SEE HIGH VOLTAGE DOCUMENTS

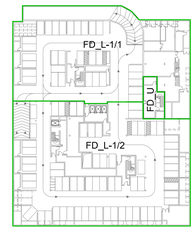
NOTES

1) TERMINAL CONNECTIONS FROM THE METALLIC CHANNELS (LOCATED UNDER FALSE FLOOR) TO DATA DEVICES (TELECOM OUTLET) WILL BE REALIZED TROUGHOUT STEEL OR PVC PIPES EMBEDDED ON THE WALL
2) TELECOM OUTLETS WILL BE INSTALLED AT A HEIGHT NOT LESS THAN 30cm (IF NOT DIFFERENTLY SPECIFIED)
3) FLOOR BOXES AND PVC WALL MOUNTING RACEWAYS ARE INCLUDED ON HIGH VOLTAGE DOCUMENTS

DETAIL ACCESS POINT INSTALLATION

KEYPLAN FLOOR DISTRIBUTOR CABLING AREA

BASEMENT LEVEL



INVESTITOR: JOINT PROJECT ON ENVIRONMENT AND ENERGY BETWEEN ITALY AND MONTENEGRO

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DUP "Univerzitetski centar" - Izmjene i dopune
Podgorica, Crna Gora

ISSUE
MAIN PROJECT — **ELECTRICAL EXTRA LOW VOLTAGE DRAWINGS**

TITLE:
COMMUNICATION SYSTEMS DEVICES LAYOUT
LEVEL –1

REV.	DATE	FILE	SUBJECT	DRAW	APPR.
a	05/09/2011	926_Le_301_a.dwg	REVIEW ACCORDING TO REVISION COMMISSION NOTES	L.R.	M.C.
b					
c					
d					

ISSUE NR.

Le_301

DATE:	SCALE:	FILE:
30/11/2010	1:100	926_Le_301_a.dwg
J/N: 926	DRAW: L. R.	APPROVED: M. C.

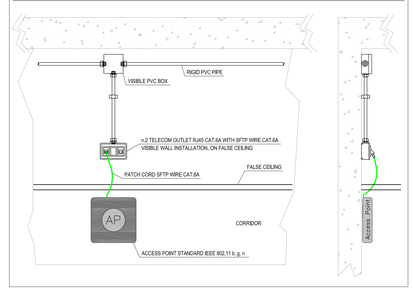
LEGEND AND BILL OF QUANTITIES

CODE	SYMBOL AND DESCRIPTION	QUANTITY
	RACK 19" FOR FLOOR DISTRIBUTOR	SEE DRAWING Le_304_b
	ELECTRICAL ROOM	
	MAIN DATA ROOM	
X100.A20.A11	n.3 TELECOM OUTLET RJ45 CAT.6A INSTALLED ON FLOOR BOX (SEE HIGH VOLTAGE BILL OF QUANTITIES) INCLUDING: - WIRES SFTP CAT.6A AND CONNECTIONS FROM OUTLET TO RACK 19" FLOOR DISTRIBUTION (AVERAGE LENGHT FOR SINGLE CONNECTION 70m) - FLEXIBLE PVC PIPE Ø32mm FROM FLOOR BOX TO METALLIC RACEWAY - FACEPLATE FOR n.3 POSITION INSTALLED ON FLOOR BOX - PERMANENT LINK CERTIFICATION	26
X100.A21.A1	n.2 TELECOM OUTLET RJ45 CAT.6A, RECESSED MOUNTING, INCLUDING: - n.3 PORTS OUTLET PVC BOX, RECESSED MOUNTING, HEIGHT INSTALLATION = 0,3m FROM FLOOR - WIRES SFTP CAT.6A AND CONNECTIONS FROM OUTLET TO RACK 19" FLOOR DISTRIBUTION (AVERAGE LENGHT FOR SINGLE CONNECTION 70m) - FLEXIBLE PVC PIPE Ø32mm FROM PVC BOX TO METALLIC RACEWAY - FACEPLATE FOR n.2 POSITION INSTALLED ON BOX - PERMANENT LINK CERTIFICATION	1
X100.A21.A2	n.2 TELECOM OUTLET RJ45 CAT.6A, DEDICATED TO WIRELESS ACCESS POINT, VISIBLE, INCLUDING: - n.3 PORTS OUTLET VISIBLE PVC BOX, LOCATED ON CEILING - WIRES SFTP CAT.6A AND CONNECTIONS FROM OUTLET TO RACK 19" FLOOR DISTRIBUTION (AVERAGE LENGHT FOR SINGLE CONNECTION 70m) - RIGID PVC PIPE Ø32mm FROM PVC BOX TO RACEWAY - FACEPLATE FOR n.2 POSITION INSTALLED ON BOX - PERMANENT LINK CERTIFICATION	6
X100.A21.A3	n.2 TELECOM OUTLET RJ45 CAT.6A, DEDICATED TO MULTIMEDIA SYSTEM, VISIBLE, INCLUDING: - n.3 PORTS OUTLET VISIBLE PVC BOX, LOCATED ON CEILING - WIRES SFTP CAT.6A AND CONNECTIONS FROM OUTLET TO RACK 19" FLOOR DISTRIBUTION (AVERAGE LENGHT FOR SINGLE CONNECTION 70m) - RIGID PVC PIPE Ø32mm FROM PVC BOX TO RACEWAY - FACEPLATE FOR n.2 POSITION INSTALLED ON BOX - PERMANENT LINK CERTIFICATION	5
X100.A21.A4	n.2 TELECOM OUTLET RJ45 CAT.6A, DEDICATED TO DOOR CONTROL MODULES, VISIBLE, INCLUDING: - n.3 PORTS OUTLET VISIBLE PVC BOX, LOCATED ON CEILING - WIRES SFTP CAT.6A AND CONNECTIONS FROM OUTLET TO RACK 19" FLOOR DISTRIBUTION (AVERAGE LENGHT FOR SINGLE CONNECTION 70m) - RIGID PVC PIPE Ø32mm FROM PVC BOX TO RACEWAY - FACEPLATE FOR n.2 POSITION INSTALLED ON BOX - PERMANENT LINK CERTIFICATION	7
X100.A21.A5	n.2 TELECOM OUTLET RJ45 CAT.6A, DEDICATED TO SECURITY CAMERAS, VISIBLE, INCLUDING: - n.3 PORTS OUTLET VISIBLE PVC BOX, LOCATED ON CEILING - WIRES SFTP CAT.6A AND CONNECTIONS FROM OUTLET TO RACK 19" FLOOR DISTRIBUTION (AVERAGE LENGHT FOR SINGLE CONNECTION 70m) - RIGID PVC PIPE Ø32mm FROM PVC BOX TO RACEWAY - FACEPLATE FOR n.2 POSITION INSTALLED ON BOX - PERMANENT LINK CERTIFICATION	8
X100.A21.A6	n.3 TELECOM OUTLET RJ45 CAT.6A INSTALLED ON PVC WALL MOUNTING RACEWAY (SEE HIGH VOLTAGE BILL OF QUANTITIES) INCLUDING: - WIRES SFTP CAT.6A AND CONNECTIONS FROM OUTLET TO RACK 19" FLOOR DISTRIBUTION (AVERAGE LENGHT FOR SINGLE CONNECTION 10m) - FACEPLATE FOR n.3 POSITION INSTALLED ON PVC WALL MOUNTING RACEWAY - PERMANENT LINK CERTIFICATION	/
X100.A21.A7	n.2 TELECOM OUTLET RJ45 CAT.6A, VISIBLE, INCLUDING: - n.3 PORTS OUTLET VISIBLE PVC BOX, HEIGHT INSTALLATION = 0,3m FROM FLOOR - WIRES SFTP CAT.6A AND CONNECTIONS FROM OUTLET TO RACK 19" FLOOR DISTRIBUTION (AVERAGE LENGHT FOR SINGLE CONNECTION 70m) - RIGID PVC PIPE Ø32mm FROM PVC BOX TO METALLIC RACEWAY - FACEPLATE FOR n.2 POSITION INSTALLED ON BOX - PERMANENT LINK CERTIFICATION	5
X100.A21.A8	n.3 TELECOM OUTLET RJ45 CAT.6A, RECESSED MOUNTING, INCLUDING: - n.3 PORTS OUTLET PVC BOX, RECESSED MOUNTING, HEIGHT INSTALLATION = 0,3m FROM FLOOR - WIRES SFTP CAT.6A AND CONNECTIONS FROM OUTLET TO RACK 19" FLOOR DISTRIBUTION (AVERAGE LENGHT FOR SINGLE CONNECTION 70m) - FLEXIBLE PVC PIPE Ø32mm FROM PVC BOX TO METALLIC RACEWAY - FACEPLATE FOR n.3 POSITION INSTALLED ON BOX - PERMANENT LINK CERTIFICATION	/
X100.A22.A1	CONNECTION RACK 19" FOR MULTIMEDIA EQUIPMENTS TO RACK 19" FLOOR DISTRIBUTOR INCLUDING: - n.4 WIRES SFTP CAT.6A - n.4 POSITION RJ45 CAT.6A PATCH PANEL INSTALLED ON MULTIMEDIA RACK - CONNECTIONS - n.2 FLEXIBLE PVC PIPES Ø32mm FROM MULTIMEDIA RACK TO RACEWAY - PERMANENT LINK CERTIFICATION	/
X100.A23.A1	n.3 TELECOM OUTLET RJ45 CAT.6A INSTALLED ON FLOOR BOX (SEE HIGH VOLTAGE BILL OF QUANTITIES) INCLUDING: - WIRES SFTP CAT.6A AND CONNECTIONS FROM OUTLET TO RACK 19" FLOOR DISTRIBUTION (AVERAGE LENGHT FOR SINGLE CONNECTION 70m) - n.2 FLEXIBLE PVC PIPES Ø32mm FROM FLOOR BOX TO METALLIC RACEWAY (ONE DEDICATED TO MULTIMEDIA OUTLET) - FACEPLATE FOR n.3 POSITION INSTALLED ON FLOOR BOX - PERMANENT LINK CERTIFICATION	5
X50.A1.A1	ACCESS POINT STANDARD IEEE 802.11 b, g, n	6
T10.A10.A1	EARTH CHANNELS ANTENNA VIA SATELLITE CHANNELS PARABOLIC ANTENNA SAT TV RACK FOR SATELLITE AND EARTH CHANNELS RECEIVER AND MODULATOR	/
T20.A10.A2	TV SAT MULTISWITCH	1
T20.A10.A1	n.1 DEMODULATED TV AND SAT OUTLET, RECESSED MOUNTING, INCLUDING: - n.3 PORTS OUTLET PVC BOX, RECESSED MOUNTING, HEIGHT INSTALLATION = 0,3m FROM FLOOR - FLEXIBLE PVC PIPE Ø25mm FROM PVC BOX TO METALLIC RACEWAY - COAXIAL CABLE FROM OUTLET TO MULTISWITCH	5
	WALL MOUNTING RACEWAY TO EQUIP WITH SOCKETS	SEE HIGH VOLTAGE DOCUMENTS

NOTES

1) TERMINAL CONNECTIONS FROM THE METALLIC CHANNELS (LOCATED UNDER FALSE FLOOR) TO DATA DEVICES (TELECOM OUTLET) WILL BE REALIZED TROUGHOUT STEEL OR PVC PIPES EMBEDDED ON THE WALL
2) TELECOM OUTLETS WILL BE INSTALLED AT A HEIGHT NOT LESS THAN 30cm (IF NOT DIFFERENTLY SPECIFIED)
3) FLOOR BOXES AND PVC WALL MOUNTING RACEWAYS ARE INCLUDED ON HIGH VOLTAGE DOCUMENTS

DETAIL ACCESS POINT INSTALLATION



KEYPLAN FLOOR DISTRIBUTOR CABLING AREA

GROUND LEVEL

INVESTITOR: JOINT PROJECT ON ENVIRONMENT AND ENERGY BETWEEN ITALY AND MONTENEGRO

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ISSUE

MAIN PROJECT — **ELECTRICAL EXTRA LOW VOLTAGE DRAWINGS**

TITLE

COMMUNICATION SYSTEMS DEVICES LAYOUT
LEVEL 0

REV.	DATE	FILE	SUBJECT	DRAW	APPR.
a	05/09/2011	926_Le_302_a.dwg	REVIEW ACCORDING TO REVISION COMMISSION NOTES	L.R.	M.C.
b					
c					
d					

ISSUE NR.

Le_302

DATE:	SCALE:	FILE:
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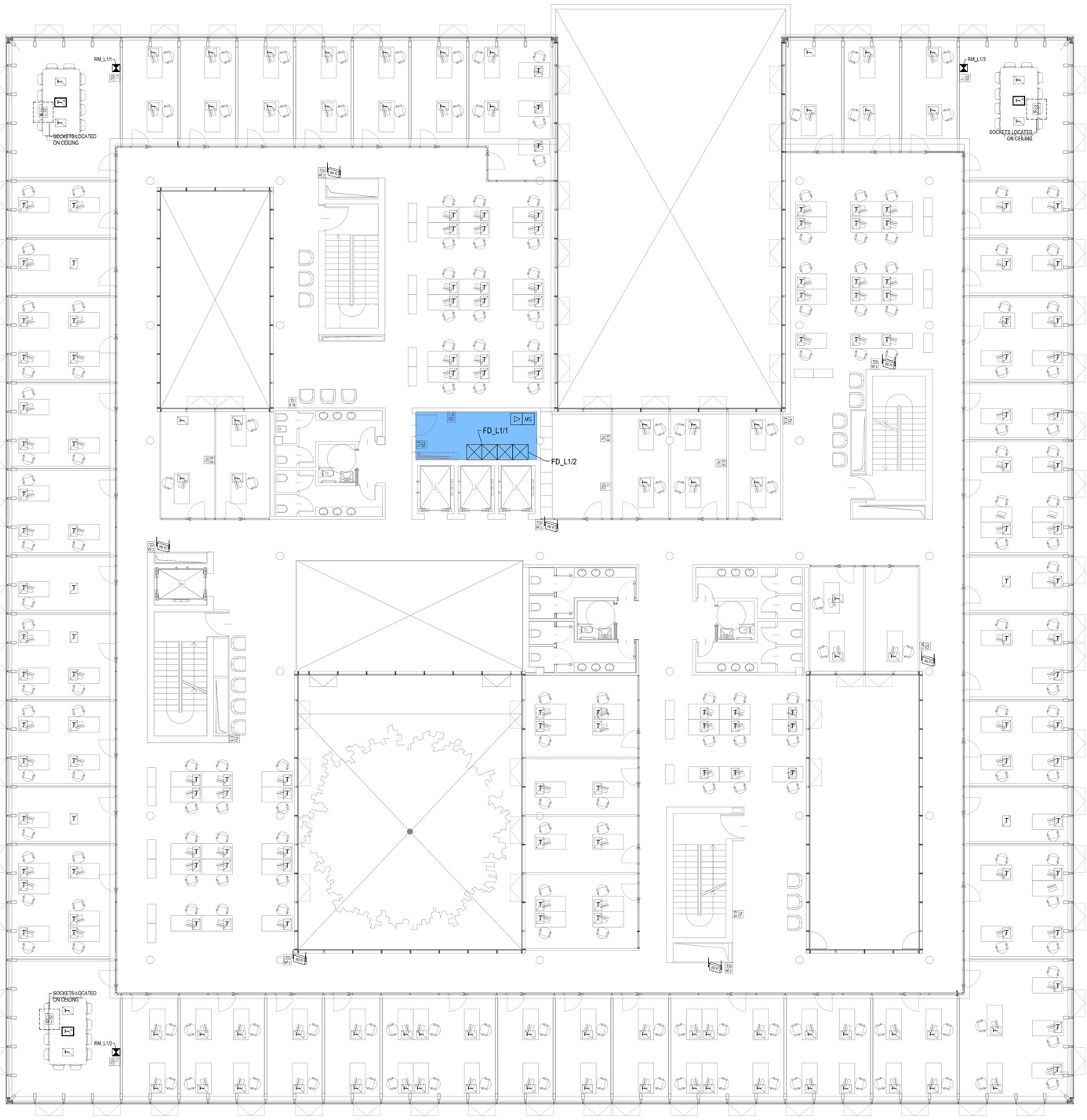
J.N.	DRAW:	APPROVED:
926	L.R.	M.C.



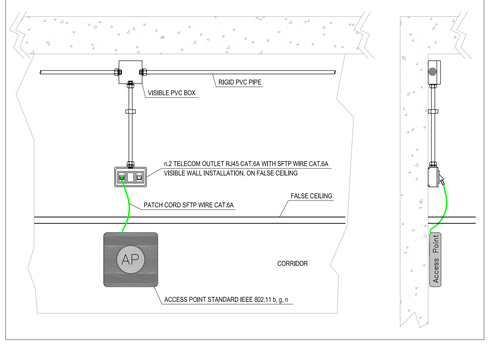
LEGEND AND BILL OF QUANTITIES

CODE	SYMBOL AND DESCRIPTION	QUANTITY
	RACK 19" FOR FLOOR DISTRIBUTOR	SEE DRAWING Le_004_b
	ELECTRICAL ROOM MAIN DATA ROOM	
X100.A20.A11	n.3 TELECOM OUTLET RJ45 CAT.6A INSTALLED ON FLOOR BOX (SEE HIGH VOLTAGE BILL OF QUANTITIES) INCLUDING: - WIRES SFTP CAT.6A AND CONNECTIONS FROM OUTLET TO RACK 19" FLOOR DISTRIBUTION (AVERAGE LENGHT FOR SINGLE CONNECTION 70m) - FLEXIBLE PVC PIPE Ø32mm FROM FLOOR BOX TO METALLIC RACEWAY - FACEPLATE FOR n.3 POSITION INSTALLED ON FLOOR BOX - PERMANENT LINK CERTIFICATION	213
X100.A21.A1	n.2 TELECOM OUTLET RJ45 CAT.6A, RECESSED MOUNTING, INCLUDING: - n.3 PORTS OUTLET PVC BOX, RECESSED MOUNTING, HEIGHT INSTALLATION = 0,3m FROM FLOOR - WIRES SFTP CAT.6A AND CONNECTIONS FROM OUTLET TO RACK 19" FLOOR DISTRIBUTION (AVERAGE LENGHT FOR SINGLE CONNECTION 70m) - FLEXIBLE PVC PIPE Ø32mm FROM PVC BOX TO METALLIC RACEWAY - FACEPLATE FOR n.2 POSITION INSTALLED ON BOX - PERMANENT LINK CERTIFICATION	4
X100.A21.A2	n.2 TELECOM OUTLET RJ45 CAT.6A, DEDICATED TO WIRELESS ACCESS POINT, VISIBLE, INCLUDING: - n.3 PORTS OUTLET VISIBLE PVC BOX, LOCATED ON CEILING - WIRES SFTP CAT.6A AND CONNECTIONS FROM OUTLET TO RACK 19" FLOOR DISTRIBUTION (AVERAGE LENGHT FOR SINGLE CONNECTION 70m) - RIGID PVC PIPE Ø32mm FROM PVC BOX TO RACEWAY - FACEPLATE FOR n.2 POSITION INSTALLED ON BOX - PERMANENT LINK CERTIFICATION	7
X100.A21.A3	n.2 TELECOM OUTLET RJ45 CAT.6A, DEDICATED TO MULTIMEDIA SYSTEM, VISIBLE, INCLUDING: - n.3 PORTS OUTLET VISIBLE PVC BOX, LOCATED ON CEILING - WIRES SFTP CAT.6A AND CONNECTIONS FROM OUTLET TO RACK 19" FLOOR DISTRIBUTION (AVERAGE LENGHT FOR SINGLE CONNECTION 70m) - RIGID PVC PIPE Ø32mm FROM PVC BOX TO RACEWAY - FACEPLATE FOR n.2 POSITION INSTALLED ON BOX - PERMANENT LINK CERTIFICATION	3
X100.A21.A4	n.2 TELECOM OUTLET RJ45 CAT.6A, DEDICATED TO DOOR CONTROL MODULES, VISIBLE, INCLUDING: - n.3 PORTS OUTLET VISIBLE PVC BOX, LOCATED ON CEILING - WIRES SFTP CAT.6A AND CONNECTIONS FROM OUTLET TO RACK 19" FLOOR DISTRIBUTION (AVERAGE LENGHT FOR SINGLE CONNECTION 70m) - RIGID PVC PIPE Ø32mm FROM PVC BOX TO RACEWAY - FACEPLATE FOR n.2 POSITION INSTALLED ON BOX - PERMANENT LINK CERTIFICATION	1
X100.A21.A5	n.2 TELECOM OUTLET RJ45 CAT.6A, DEDICATED TO SECURITY CAMERAS, VISIBLE, INCLUDING: - n.3 PORTS OUTLET VISIBLE PVC BOX, LOCATED ON CEILING - WIRES SFTP CAT.6A AND CONNECTIONS FROM OUTLET TO RACK 19" FLOOR DISTRIBUTION (AVERAGE LENGHT FOR SINGLE CONNECTION 70m) - RIGID PVC PIPE Ø32mm FROM PVC BOX TO RACEWAY - FACEPLATE FOR n.2 POSITION INSTALLED ON BOX - PERMANENT LINK CERTIFICATION	/
X100.A21.A6	n.3 TELECOM OUTLET RJ45 CAT.6A INSTALLED ON PVC WALL MOUNTING RACEWAY (SEE HIGH VOLTAGE BILL OF QUANTITIES) INCLUDING: - WIRES SFTP CAT.6A AND CONNECTIONS FROM OUTLET TO RACK 19" FLOOR DISTRIBUTION (AVERAGE LENGHT FOR SINGLE CONNECTION 15m) - FACEPLATE FOR n.3 POSITION INSTALLED ON PVC WALL MOUNTING RACEWAY - PERMANENT LINK CERTIFICATION	/
X100.A21.A7	n.2 TELECOM OUTLET RJ45 CAT.6A, VISIBLE, INCLUDING: - n.3 PORTS OUTLET VISIBLE PVC BOX, HEIGHT INSTALLATION = 0,3m FROM FLOOR - WIRES SFTP CAT.6A AND CONNECTIONS FROM OUTLET TO RACK 19" FLOOR DISTRIBUTION (AVERAGE LENGHT FOR SINGLE CONNECTION 70m) - RIGID PVC PIPE Ø32mm FROM PVC BOX TO METALLIC RACEWAY - FACEPLATE FOR n.2 POSITION INSTALLED ON BOX - PERMANENT LINK CERTIFICATION	1
X100.A21.A8	n.3 TELECOM OUTLET RJ45 CAT.6A, RECESSED MOUNTING, INCLUDING: - n.3 PORTS OUTLET PVC BOX, RECESSED MOUNTING, HEIGHT INSTALLATION = 0,3m FROM FLOOR - WIRES SFTP CAT.6A AND CONNECTIONS FROM OUTLET TO RACK 19" FLOOR DISTRIBUTION (AVERAGE LENGHT FOR SINGLE CONNECTION 70m) - FLEXIBLE PVC PIPE Ø32mm FROM PVC BOX TO METALLIC RACEWAY - FACEPLATE FOR n.3 POSITION INSTALLED ON BOX - PERMANENT LINK CERTIFICATION	/
X100.A22.A1	CONNECTION RACK 19" FOR MULTIMEDIA EQUIPMENTS TO RACK 19" FLOOR DISTRIBUTOR INCLUDING: - n.4 WIRES SFTP CAT.6A - n.4 POSITION RJ45 CAT.6A PATCH PANEL INSTALLED ON MULTIMEDIA RACK - CONNECTIONS - n.2 FLEXIBLE PVC PIPES Ø32mm FROM MULTIMEDIA RACK TO RACEWAY - PERMANENT LINK CERTIFICATION	3
X100.A23.A1	n.3 TELECOM OUTLET RJ45 CAT.6A INSTALLED ON FLOOR BOX (SEE HIGH VOLTAGE BILL OF QUANTITIES) INCLUDING: - WIRES SFTP CAT.6A AND CONNECTIONS FROM OUTLET TO RACK 19" FLOOR DISTRIBUTION (AVERAGE LENGHT FOR SINGLE CONNECTION 70m) - n.2 FLEXIBLE PVC PIPES Ø32mm FROM FLOOR BOX TO METALLIC RACEWAY (ONE DEDICATED TO MULTIMEDIA OUTLET) - FACEPLATE FOR n.3 POSITION INSTALLED ON FLOOR BOX - PERMANENT LINK CERTIFICATION	3
X50.A1.A1	ACCESS POINT STANDARD IEEE 802.11 b, g, n	7
T10.A10.A1	EARTH CHANNELS ANTENNA VIA SATELLITE CHANNELS PARABOLIC ANTENNA SAT TV RACK FOR SATELLITE AND EARTH CHANNELS RECEIVER AND MODULATOR	/
T10.A10.A2	MS TV SAT MULTISWITCH	1
T20.A10.A1	TV E-S n.1 DEMODULATED TV AND SAT OUTLET, RECESSED MOUNTING, INCLUDING: - n.3 PORTS OUTLET PVC BOX, RECESSED MOUNTING, HEIGHT INSTALLATION = 0,3m FROM FLOOR - FLEXIBLE PVC PIPE Ø25mm FROM PVC BOX TO METALLIC RACEWAY - COAXIAL CABLE FROM OUTLET TO MULTISWITCH	7
	WALL MOUNTING RACEWAY TO EQUIP WITH SOCKETS	SEE HIGH VOLTAGE DOCUMENTS

NOTES

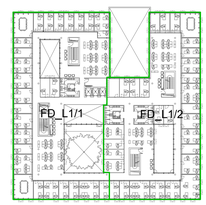
1) TERMINAL CONNECTIONS FROM THE METALLIC CHANNELS (LOCATED UNDER FALSE FLOOR) TO DATA DEVICES (TELECOM OUTLET) WILL BE REALIZED TROUGHOUT STEEL OR PVC PIPES EMBEDDED ON THE WALL
2) TELECOM OUTLETS WILL BE INSTALLED AT A HEIGHT NOT LESS THAN 30cm (IF NOT DIFFERENTLY SPECIFIED)
3) FLOOR BOXES AND PVC WALL MOUNTING RACEWAYS ARE INCLUDED ON HIGH VOLTAGE DOCUMENTS

DETAIL ACCESS POINT INSTALLATION



KEYPLAN FLOOR DISTRIBUTOR CABLING AREA

FIRST LEVEL



INVESTITOR: JOINT PROJECT ON ENVIRONMENT AND ENERGY BETWEEN ITALY AND MONTENEGRO

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DUP "Univerzitetski centar" - izmjene i dopune
Podgorica, Crna Gora

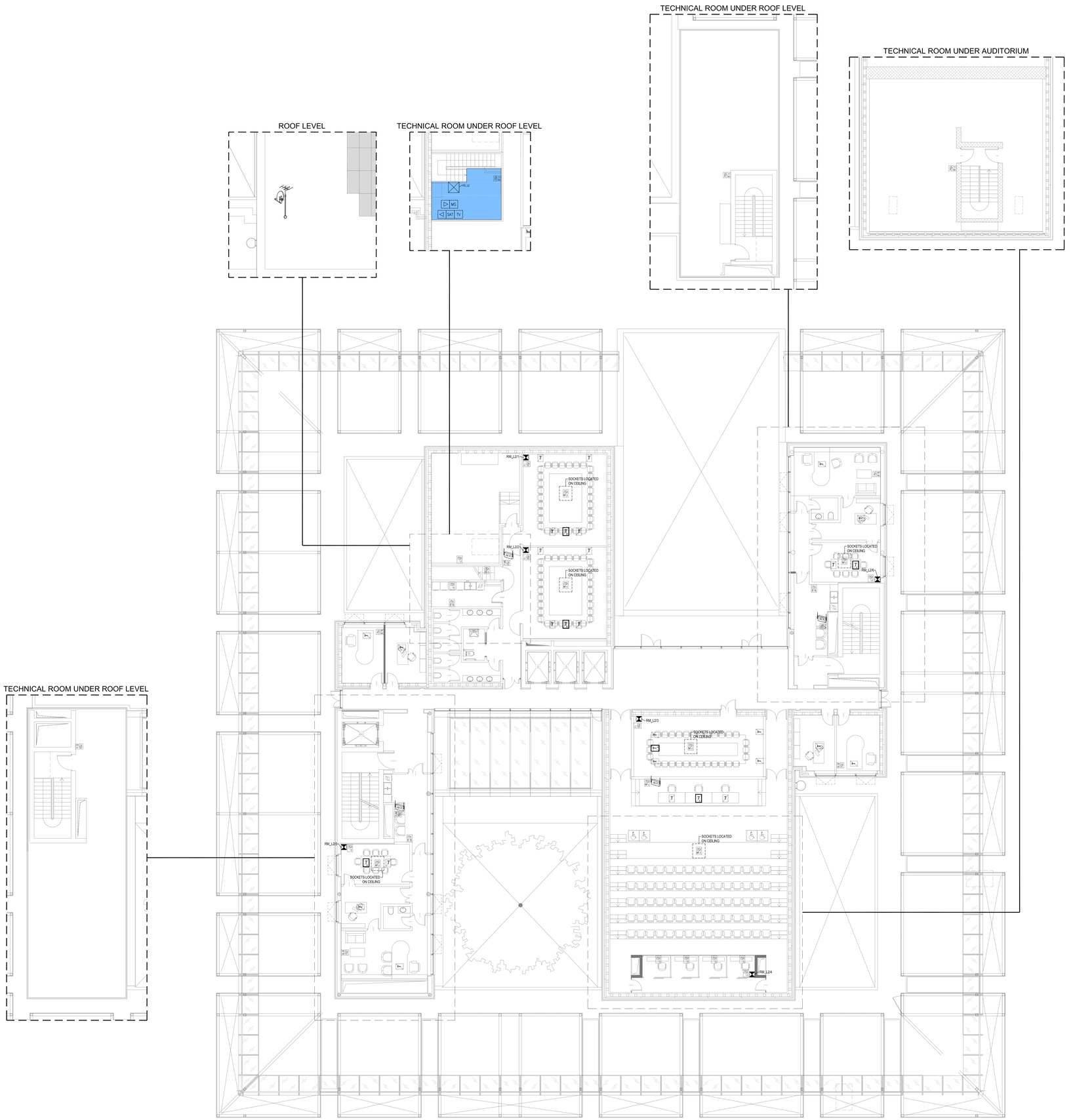
ISSUE
MAIN PROJECT — **ELECTRICAL EXTRA LOW VOLTAGE DRAWINGS**

TITLE
COMMUNICATION SYSTEMS DEVICES LAYOUT
LEVEL 1

REV.	DATE	FILE	SUBJECT	DRAW	APPR.
a	05/08/2011	926_Le_303_a.dwg	REVIEW ACCORDING TO REVISION COMMISSION NOTES	L.R.	M.C.
b					
c					
d					

ISSUE NR.
Le_303

DATE:	SCALE:	FILE:
30/11/2010	1:100	926_Le_303_a.dwg
J.N. 926	DRAW: L. R.	APPROVED: M. C.



LEGEND AND BILL OF QUANTITIES

CODE	SYMBOL AND DESCRIPTION	QUANTITY
	RACK 19" FOR FLOOR DISTRIBUTOR	SEE DRAWING Le_304_S
	ELECTRICAL ROOM MAIN DATA ROOM	
X100.A20.A11	n.3 TELECOM OUTLET RJ45 CAT.6A INSTALLED ON FLOOR BOX (SEE HIGH VOLTAGE BILL OF QUANTITIES) INCLUDING: - WIRES SFTP CAT.6A AND CONNECTIONS FROM OUTLET TO RACK 19" FLOOR DISTRIBUTION (AVERAGE LENGHT FOR SINGLE CONNECTION 70m) - FLEXIBLE PVC PIPE Ø32mm FROM FLOOR BOX TO METALLIC RACEWAY - FACEPLATE FOR n.3 POSITION INSTALLED ON FLOOR BOX - PERMANENT LINK CERTIFICATION	24
X100.A21.A1	n.2 TELECOM OUTLET RJ45 CAT.6A, RECESSED MOUNTING, INCLUDING: - n.3 PORTS OUTLET PVC BOX, RECESSED MOUNTING, HEIGHT INSTALLATION = 0,3m FROM FLOOR - WIRES SFTP CAT.6A AND CONNECTIONS FROM OUTLET TO RACK 19" FLOOR DISTRIBUTION (AVERAGE LENGHT FOR SINGLE CONNECTION 70m) - FLEXIBLE PVC PIPE Ø32mm FROM PVC BOX TO METALLIC RACEWAY - FACEPLATE FOR n.2 POSITION INSTALLED ON BOX - PERMANENT LINK CERTIFICATION	8
X100.A21.A2	n.2 TELECOM OUTLET RJ45 CAT.6A, DEDICATED TO WIRELESS ACCESS POINT, VISIBLE, INCLUDING: - n.3 PORTS OUTLET VISIBLE PVC BOX, LOCATED ON CEILING - WIRES SFTP CAT.6A AND CONNECTIONS FROM OUTLET TO RACK 19" FLOOR DISTRIBUTION (AVERAGE LENGHT FOR SINGLE CONNECTION 70m) - RIGID PVC PIPE Ø32mm FROM PVC BOX TO RACEWAY - FACEPLATE FOR n.2 POSITION INSTALLED ON BOX - PERMANENT LINK CERTIFICATION	4
X100.A21.A3	n.2 TELECOM OUTLET RJ45 CAT.6A, DEDICATED TO MULTIMEDIA SYSTEM, VISIBLE, INCLUDING: - n.3 PORTS OUTLET VISIBLE PVC BOX, LOCATED ON CEILING - WIRES SFTP CAT.6A AND CONNECTIONS FROM OUTLET TO RACK 19" FLOOR DISTRIBUTION (AVERAGE LENGHT FOR SINGLE CONNECTION 70m) - RIGID PVC PIPE Ø32mm FROM PVC BOX TO RACEWAY - FACEPLATE FOR n.2 POSITION INSTALLED ON BOX - PERMANENT LINK CERTIFICATION	6
X100.A21.A4	n.2 TELECOM OUTLET RJ45 CAT.6A, DEDICATED TO DOOR CONTROL MODULES, VISIBLE, INCLUDING: - n.3 PORTS OUTLET VISIBLE PVC BOX, LOCATED ON CEILING - WIRES SFTP CAT.6A AND CONNECTIONS FROM OUTLET TO RACK 19" FLOOR DISTRIBUTION (AVERAGE LENGHT FOR SINGLE CONNECTION 70m) - RIGID PVC PIPE Ø32mm FROM PVC BOX TO RACEWAY - FACEPLATE FOR n.2 POSITION INSTALLED ON BOX - PERMANENT LINK CERTIFICATION	1
X100.A21.A5	n.2 TELECOM OUTLET RJ45 CAT.6A, DEDICATED TO SECURITY CAMERAS, VISIBLE, INCLUDING: - n.3 PORTS OUTLET VISIBLE PVC BOX, LOCATED ON CEILING - WIRES SFTP CAT.6A AND CONNECTIONS FROM OUTLET TO RACK 19" FLOOR DISTRIBUTION (AVERAGE LENGHT FOR SINGLE CONNECTION 70m) - RIGID PVC PIPE Ø32mm FROM PVC BOX TO RACEWAY - FACEPLATE FOR n.2 POSITION INSTALLED ON BOX - PERMANENT LINK CERTIFICATION	/
X100.A21.A6	n.3 TELECOM OUTLET RJ45 CAT.6A INSTALLED ON PVC WALL MOUNTING RACEWAY (SEE HIGH VOLTAGE BILL OF QUANTITIES) INCLUDING: - WIRES SFTP CAT.6A AND CONNECTIONS FROM OUTLET TO RACK 19" FLOOR DISTRIBUTION (AVERAGE LENGHT FOR SINGLE CONNECTION 10m) - FACEPLATE FOR n.3 POSITION INSTALLED ON PVC WALL MOUNTING RACEWAY - PERMANENT LINK CERTIFICATION	/
X100.A21.A7	n.2 TELECOM OUTLET RJ45 CAT.6A, VISIBLE, INCLUDING: - n.3 PORTS OUTLET VISIBLE PVC BOX, HEIGHT INSTALLATION = 0,3m FROM FLOOR - WIRES SFTP CAT.6A AND CONNECTIONS FROM OUTLET TO RACK 19" FLOOR DISTRIBUTION (AVERAGE LENGHT FOR SINGLE CONNECTION 70m) - RIGID PVC PIPE Ø32mm FROM PVC BOX TO METALLIC RACEWAY - FACEPLATE FOR n.2 POSITION INSTALLED ON BOX - PERMANENT LINK CERTIFICATION	4
X100.A21.A8	n.3 TELECOM OUTLET RJ45 CAT.6A, RECESSED MOUNTING, INCLUDING: - n.3 PORTS OUTLET PVC BOX, RECESSED MOUNTING, HEIGHT INSTALLATION = 0,3m FROM FLOOR - WIRES SFTP CAT.6A AND CONNECTIONS FROM OUTLET TO RACK 19" FLOOR DISTRIBUTION (AVERAGE LENGHT FOR SINGLE CONNECTION 70m) - FLEXIBLE PVC PIPE Ø32mm FROM PVC BOX TO METALLIC RACEWAY - FACEPLATE FOR n.3 POSITION INSTALLED ON BOX - PERMANENT LINK CERTIFICATION	4
X100.A22.A1	CONNECTION RACK 19" FOR MULTIMEDIA EQUIPMENTS TO RACK 19" FLOOR DISTRIBUTOR INCLUDING: - n.4 WIRES SFTP CAT.6A - n.4 POSITION RJ45 CAT.6A PATCH PANEL INSTALLED ON MULTIMEDIA RACK - CONNECTIONS - n.2 FLEXIBLE PVC PIPES Ø32mm FROM MULTIMEDIA RACK TO RACEWAY - PERMANENT LINK CERTIFICATION	6
X100.A23.A1	n.3 TELECOM OUTLET RJ45 CAT.6A INSTALLED ON FLOOR BOX (SEE HIGH VOLTAGE BILL OF QUANTITIES) INCLUDING: - WIRES SFTP CAT.6A AND CONNECTIONS FROM OUTLET TO RACK 19" FLOOR DISTRIBUTION (AVERAGE LENGHT FOR SINGLE CONNECTION 70m) - n.2 FLEXIBLE PVC PIPES Ø32mm FROM FLOOR BOX TO METALLIC RACEWAY (ONE DEDICATED TO MULTIMEDIA OUTLET) - FACEPLATE FOR n.3 POSITION INSTALLED ON FLOOR BOX - PERMANENT LINK CERTIFICATION	6
X50.A1.A1	ACCESS POINT STANDARD IEEE 802.11 b, g, n	4
T10.A10.A1	EARTH CHANNELS ANTENNA VIA SATELLITE CHANNELS PARABOLIC ANTENNA SAT TV RACK FOR SATELLITE AND EARTH CHANNELS RECEIVER AND MODULATOR	1
T10.A10.A2	MS TV SAT MULTISWITCH	1
T20.A10.A1	n.1 DEMODULATED TV AND SAT OUTLET, RECESSED MOUNTING, INCLUDING: - n.3 PORTS OUTLET PVC BOX, RECESSED MOUNTING, HEIGHT INSTALLATION = 0,3m FROM FLOOR - FLEXIBLE PVC PIPE Ø25mm FROM PVC BOX TO METALLIC RACEWAY - COAXIAL CABLE FROM OUTLET TO MULTISWITCH	7
	WALL MOUNTING RACEWAY TO EQUIP WITH SOCKETS	SEE HIGH VOLTAGE DOCUMENTS

NOTES

1) TERMINAL CONNECTIONS FROM THE METALLIC CHANNELS (LOCATED UNDER FALSE FLOOR) TO DATA DEVICES (TELECOM OUTLET) WILL BE REALIZED TROUGHOUT STEEL OR PVC PIPES EMBEDDED ON THE WALL
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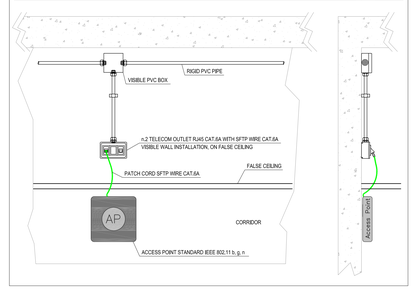
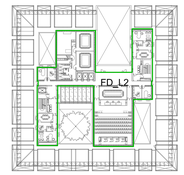
3) FLOOR BOXES AND PVC WALL MOUNTING RACEWAYS ARE INCLUDED ON HIGH VOLTAGE DOCUMENTS

DETAIL ACCESS POINT INSTALLATION



KEYPLAN FLOOR DISTRIBUTOR CABLING AREA

SECOND LEVEL



INVESTITOR: JOINT PROJECT ON ENVIRONMENT AND ENERGY BETWEEN ITALY AND MONTENEGRO

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ISSUE
MAIN PROJECT — **ELECTRICAL EXTRA LOW VOLTAGE DRAWINGS**

TITLE
COMMUNICATION SYSTEMS DEVICES LAYOUT
LEVEL 2

REV.	DATE	FILE	SUBJECT	DRAW	APPR.
a	05/08/2011	926_Le_304_a.dwg	REVIEW ACCORDING TO REVISION COMMISSION NOTES	L.R.	M.C.
b					
c					
d					

ISSUE NR.

Le_304

DATE: 30/11/2010	SCALE: 1:100	FILE: 926_Le_304_a.dwg	
J.N. 926	DRAW: L. R.	APPROVED: M. C.	