CONDUIT FILL RATE DIAMETERS FOR EMT (NO BENDS)									
CONDUIT TRADE SIZE CABLE DUTSIDE DIAMETER									
	16mm (1/2") C	21mm (3/4") C	27mm (1") C	35 mm (1-1/4") C	41 mm (1-1/2") C	53 mm (2") C	63 mm (2-1/2") C	78 mm (3") C	104 mm (4") C
4.6mm (0.18")	4	8	13	23	32	52	75	116	200
5.0mm (0.20")	3	6	11	19	25	42	60	94	162
6.0mm (0.24")	2	4	7	13	18	29	42	65	112
7.0mm (0.28")	1	3	5	9	13	21	31	48	82
0.8mm (0.31)	1	2	4	7	10	17	25	39	67
9.0mm (0.35")	1	2	4	7	10	17	25	39	67

CONDUIT FILL RATE DIAMETERS FOR EMT (ONE BEND)									
CONDUIT TRADE SIZE MAXIMUM NUMBER OF CABLES DUTSIDE DIAMETER									
	16mm (1/2") C	21mm (3/4") C	27mm (1") C	35 mm (1-1/4") C	41 mm (1-1/2") C	53 mm (2") C	63 mm (2-1/2") C	78 mm (3") C	104 mm (4") C
4.6mm (0.18")	4	7	11	19	27	44	63	98	170
5.0mm (0.20")	3	5	9	16	22	36	51	80	137
6.0mm (0.24")	2	4	6	11	15	25	35	55	95
7.0mm (0.28")	1	2	4	8	11	18	26	40	70
0.8mm (0.31)	1	2	3	6	9	15	21	33	57
9.0mm (0.35")	1	1	3	5	7	11	16	26	44

CONDUIT FILL RATE DIAMETERS FOR EMT (TWO BENDS)									
CONDUIT TRADE SIZE CABLE OUTSIDE DIAMETER  CONDUIT TRADE SIZE  MAXIMUM NUMBER OF CABLES							.ES		
	16mm (1/2") C	21mm (3/4") C	27mm (1") C	35 mm (1-1/4") C	41 mm (1-1/2") C	53 mm (2") C	63 mm (2-1/2") C	78 mm (3") C	104 mm (4") C
4.6mm (0.18")	3	5	9	16	22	36	52	81	140
5.0mm (0.20")	2	4	7	13	18	29	42	65	113
6.0mm (0.24")	1	3	5	9	12	20	29	45	78
7.0mm (0.28")	1	2	3	6	9	15	21	33	57
8.0mm (0.31)	1	1	3	5	7	12	17	27	47
9.0mm (0.35")	0	1	2	4	5	9	13	21	37

NOTE: NOT ALL SYMBOLS AND ABBREVIATIONS APPLY. REFER TO	O DRAWINGS.
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	ABBREV	/IATIONS	3
ACS	ACCESS CONTROL SYSTEM	MTR	MAIN TELECOMMUNICATIONS RO
AFC	ABOVE FINISHED CEILING	N/A	NOT APPLICABLE
AFF	ABOVE FLOOR FINISH	NC	NORMALLY CLOSED
AHU	AIR HANDLING UNIT	NIC	NOT IN CONTRACT
ATS	AUTOMATIC TRANSFER SWITCH	NO	NORMALLY OPEN
AV	AUDIO VIDEO / AUDIO VISUAL	N.T.S	NOT TO SCALE
AWG	AMERICAN WIRE GAUGE	ОС	OVER COUNTER / 1200MM AFF
BFC	BELOW FINISHED CEILING	OD	OUTSIDE DIAMETER
BMS	BUILDING MANAGEMENT SYSTEM	OR	OUTDOOR RATED
С	CONDUIT	OSP	OUTSIDE PLANT
CAT	CATEGORY	PB	PULL BOX
СМ	CEILING MOUNTED	PBB	PRIMARY BONDING BUS BAR (PREVIOUSLY TMGB)
CPP	COPPER PATCH PANEL	PDU	POWER DISTRIBUTION UNIT
CR	COMPUTER ROOM	PT	POKE THROUGH
CRAC	COMPUTER ROOM AIR CONDITIONER	PWR	POWER
C/W	COMES WITH / COMPLETE WITH	R	REMOVE
DAS	DISTRIBUTED ANTENNA SYSTEM	RE	REMOVE EXISTING DEVICE
DEMARC	DEMARCATION POINT	RF	RADIO FREQUENCY
DWG	DRAWING	RL	DEVICE IN ITS RELOCATED LOCATION
E	EXISTING DEVICE TO REMAIN	RM	ROOM
EC	EMPTY CONDUIT	RU	RACK UNIT
EF	ENTRANCE FACILITY	SBB	SECONDARY BONDING BUSBAR (PREVIOUSLY TGB)
EMT	ELECTRICAL METALLIC TUBING	SCS	STRUCTURED CABLING SYSTEM
EVC	ELECTRIC VEHICLE CHARGING STATION	SEC	SECURITY
F	FUTURE	SM	SINGLE-MODE
FAP	FIRE ALARM PANEL	SPEC	SPECIFICATION
FAS	FIRE ALARM SYSTEM	STP	SHIELDED TWISTED PAIR
FO	FIBRE OPTIC	TBD	TO BE DETERMINED
FOPP	FIBRE OPTIC PATCH PANEL	TGB	REPLACED BY SBB
FR	FURNITURE	TMGB	REPLACED BY PBB
HWM	HORIZONTAL WIRE MANAGER	TR	TELECOMMUNICATIONS ROOM
IDS	INTRUSION DETECTION SYSTEM	TV	TELEVISION
LAN	LOCAL AREA NETWORK	TYP	TYPICAL
MAX	MAXIMUM	UG	UNDERGROUND
MB	MOTORIZED BLINDS	UON	UNLESS OTHERWISE NOTED
MCR	MAIN COMMUNICATIONS ROOM	UPS	UNINTERRUPTIBLE POWER SUPP
MER	MAIN EQUIPMENT ROOM	UTP	UNSHIELDED TWISTED PAIR
MGAP	MEDICAL GAS ALARM PANEL	VR	VANDAL RESISTANT
MH	MOUNTING HEIGHT	VSS	VIDEO SURVEILLANCE SYSTEM
MIN	MINIMUM	VMM	VERTICAL WIRE MANAGER
MM	MULTI-MODE	WAN	WIDE AREA NETWORK
mm	MILLIMETERS	WAP	WIRELESS ACCESS POINT
			WEATHERPROOF/WALL PHONE

	DRAWING LIST					
	DWG No.	SHEET NAME				
	T1.0	TELECOMMUNICATIONS LEGEND AND DRAWING LIST				
	T2.0	TELECOMMUNICATIONS SPECIFICATIONS				
	ТЗ.0	TELECOMMUNICATIONS PLAN - 2ND FLOOR				
	T4.0	COMMUNICATIONS DETAILS 1 OF 2				
1	T4.1	COMMUNICATIONS DETAILS 2 OF 2				

		COMMUNICATIONS LEGEND
	SYMBOL	DESCRIPTION
	$\triangleright$	WALL MOUNTED COMMUNICATIONS OUTLET. PROVIDE BACK BOX AND CONDUIT TO AN ACCESSIBLE CEILING SPACE. CONDUIT C/W PULL STRINGS. PROVIDE QUANTITY OF CATEGORY 6 HORIZONTAL CABLES AS INDICATED ON THE DRAWINGS.
_	<b>#</b>	CEILING MOUNTED DATA OUTLET. PROVIDE BACK BOX AND CONDUIT TO AN ACCESSIBLE CEILING SPACE. CONDUIT C/W PULL STRINGS. PROVIDE QUANTITY OF CATEGORY 6 HORIZONTAL CABLES AS INDICATED ON THE DRAWINGS.
		FLOOR BOX MOUNTED COMMUNICATIONS DROPS C/W CONDUIT TO NEAREST (SAME FLOOR) TELECOM ROOM. PROVIDE QUANTITY OF CATEGORY 6 HORIZONTAL CABLES AS INDICATED ON THE DRAWINGS.
	WAP WAP	WIRELESS ACCESS POINT. PROVIDE BACK BOX AND CONDUIT TO AN ACCESSIBLE CEILING LOCATION. INSTALL CONDUIT C/W PULL STRINGS. PROVIDE TWO (2) CATEGORY 6 HORIZONTAL CABLES PER LOCATION AS INDICATED ON THE DRAWINGS.
	w	SYSTEMS FURNITURE/RACEWAY CORES TO BE PROVIDED BY ELECTRICAL. REFER TO ELECTRICAL DRAWINGS. COMMUNICATION CONTRACTOR TO PULL CABLE THROUGH TRENCH/RACEWAYS/PAC POLES/CORING. COMMUNICATION CONTRACTOR TO COORDINATE WITH SYSTEMS FURNITURE CONTRACTOR AND ELECTRICAL CONTRACTOR PRIOR TO TERMINATION.

#### GENERAL NOTES

1. ALL DRAWINGS SHALL BE READ IN CONJUNCTION WITH OTHER CONSULTANT DRAWINGS AND SPECIFICATIONS INCLUDING, BUT NOT LIMITED TO, ARCHITECTURAL, ELECTRICAL AND MECHANICAL. 2. CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR PROCEEDING WITH ANY WORK PRIOR TO RECEIVING APPROVAL. ALL COSTS TO RECTIFY ANY PORTION OF THE WORK DONE WITHOUT THIS APPROVAL SHALL BE AT THE CONTRACTOR'S EXPENSE.

- 3. WORK IN ALL AREAS, INCLUDING FINAL LOCATIONS OF DEVICES, SHALL BE COORDINATED WITH THE OWNER'S DESIGNATED REPRESENTATIVE AND WITH THE ARCHITECT.
- 4. REFER TO ARCHITECTURAL DRAWINGS FOR FINAL COORDINATED DIMENSIONS AND MOUNTING HEIGHT REQUIREMENTS, AND FOR EXACT LOCATIONS OF DATA OUTLETS AND OTHER COMMUNICATIONS DEVICES. IF DIMENSIONS ARE NOT SHOWN, THE CONTRACTOR SHALL VERIFY EXACT MOUNTING HEIGHT AND LOCATION OF ALL DATA OUTLETS AND DEVICES PRIOR TO ROUGH—IN.
- 5. COORDINATE WORK WITH OTHER TRADES PRIOR TO THE ROUGH-IN OF ANY DEVICE INCLUDING COORDINATION WITH FURNITURE AND EQUIPMENT SUPPLIER.
- 6. ALL NEW DEVICES BEING INSTALLED ON EXISTING WALLS SHALL BE RECESSED MOUNTED. SURFACE MOUNTED INSTALLATION IN WIREMOLD IS PERMITTED WHERE SHOWN ON DRAWINGS. ALL NEW DEVICES BEING INSTALLED IN NEW PARTITIONS SHALL BE RECESSED MOUNTED AND INSTALLED IN THE WALL.
- PROVIDE CUTTING, PAINTING AND PATCHING, AS REQUIRED, TO FACILITATE THE INSTALLATION OF NEW SERVICES. 8. PROVIDE ULC LISTED FIRESTOPPING WHERE EXISTING AND NEW CONDUITS PENETRATE FIRE SEPARATION WALL AND/OR FLOOR.
- 9. FIRESTOP AND CLOSE ANY OPENINGS IN WALLS OR CEILING THAT OCCUR DUE TO THE REMOVAL OF EXISTING SERVICES OR DUE TO INSTALLATION OF NEW SERVICES. FINISH TO MATCH EXISTING.
- 10. WHERE CORE DRILLING IS REQUIRED, PROVIDE SUITABLE SLEEVES AND CONCRETE CURBS FOR THE GENERATED OPENINGS; SEAL WITH FIRESTOPPING AND SEAL WATERTIGHT. 11. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGES TO SURFACES, FINISHES AND MATERIALS DUE TO WORK UNDER THIS CONTRACT AND SHALL INCUR ALL COSTS TO RECTIFY, REPAIR AND REPLACE SAME TO CONSULTANT'S SATISFACTION.

# City of Pickering

2460 Brock Road, Pickering, ON, Canada L1X 0J1 Building A-200A, 2nd Floor



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03		24/08/23	ISSUED FOR PERMIT/TENDER
02		24/08/16	ISSUED FOR 100% COORDINATION
01		24/08/08	ISSUED FOR 90% REVIEW
ISSUE	Δ	YY/MM/DD	DESCRIPTION



354 Davenport Road, Suite 200 Toronto, Ontario, Canada M5R 1K6 T: (416) 413-0063 email: info@instudiocreative.com

Client	Name	

Project Name

City of Pickering

CoP Interior Fit-Out

Project Address

2460 Brock Road Pickering, ON L1X 0J1

Project number

2240483

## TELECOMMUNICATIONS **LEGEND AND DRAWING** LIST

Drawing Scale NO SCALE Drawing Number

T1.0

#### DIVISION 27

#### GENERAL

1. CONFORM WITH THE REQUIREMENTS OF THE ELECTRICAL AND ARCHITECTURAL TENDER SPECIFICATIONS AND 2. ALL TENDER DOCUMENTS, DRAWINGS, AND SPECIFICATIONS ARE THE PROPERTY OF THE OWNER AND SHALL BE RETURNED ALONG WITH THE SUBMITTED BID. 3. WHERE THE WORD "PROVIDE" IS USED IT MEANS SUPPLY, INSTALL AND CONFIGURE.

#### WORK INCLUDED

1. PRICE QUOTATIONS ARE TO INCLUDE THE FURNISHING OF ALL MATERIALS, EQUIPMENT, MAINTENANCE AND TRAINING MANUALS, TOOLS, AND THE PROVISION OF ALL LABOUR AND SERVICES NECESSARY OR PROPER FOR THE COMPLETION OF THE WORK, EXCEPT AS MAY BE OTHERWISE EXPRESSLY PROVIDED IN THE CONTRACT DOCUMENTS. THE OWNER WILL NOT BE LIABLE FOR ANY COSTS BEYOND THOSE PROPOSED HEREIN AND AWARDED.

2. WORK TO BE DONE UNDER THIS SECTION SHALL INCLUDE FURNISHING OF LABOUR, MATERIALS, AND EQUIPMENT SHOWN, AS SPECIFIED AND AS OTHERWISE REQUIRED. COMPLETE SYSTEMS SHALL BE LEFT READY FOR CONTINUOUS AND EFFICIENT SATISFACTORY OPERATION. PROVIDE EQUIPMENT, MATERIALS, LABOUR, AND SERVICES NOT SPECIFICALLY MENTIONED OR SHOWN WHICH MAY BE NECESSARY TO COMPLETE OR PERFECT ALL PARTS OF THIS INSTALLATION AND IN COMPLIANCE WITH REQUIREMENTS STATED OR REASONABLY INFERRED BY THE CONTRACT DOCUMENTS. 3. ALL WORK SHALL BE PERFORMED AS PER THE SCHEDULE PREPARED BY THE GENERAL CONTRACTOR. ALLOW FOR WORK TO BE DONE AFTER HOURS AND ON WEEKENDS AS DICTATED BY THE SCHEDULE

#### CODES AND STANDARDS

1. ALL WORK PERFORMED ON THIS PROJECT WILL BE INSTALLED IN ACCORDANCE WITH THE CURRENT EDITION OF THE CANADIAN ELECTRICAL CODE AND ALL LOCAL CODES AND ORDINANCES, AUTHORITIES HAVING JURISDICTION, AND THE FOLLOWING STANDARDS (INCLUDING ALL SUB-HEADINGS, ADDENDA, AND TSB'S): -ANSI/TIA/EIA-568-E.1, COMMERCIAL BUILDING TELECOMMUNICATIONS CABLING STANDARD, PART 1: GENERAL

REQUIREMENTS, 2001 -ANSI/TIA/EIA-568-E.2, COMMERCIAL BUILDING TELECOMMUNICATIONS CABLING STANDARD, PART 2: BALANCED TWISTED-PAIR CABLING COMPONENTS, 2001. -ANSI/TIA/EIA-568-E.3. OPTICAL FIBER CABLING COMPONENTS STANDARD. APRIL 2000

-ANSI/TIA/EIA-569-E, COMMERCIAL BUILDING STANDARDS FOR TELECOMMUNICATIONS PATHWAYS AND SPACES, 2003. -ANSI/TIA/EIA-606-D. ADMINISTRATION STANDARD FOR COMMERCIAL TELECOMMUNICATIONS INFRASTRUCTURE, 2002 -ANSI J-STD-607-D, COMMERCIAL BUILDING GROUNDING (EARTHING) AND BONDING REQUIREMENTS FOR TELECOMMUNICATIONS, 2002.

-CSA C22.1-21, CANADIAN ELECTRICAL CODE, PART 1, 2021. -CSA T527, GROUNDING AND BONDING FOR TELECOMMUNICATIONS IN COMMERCIAL BUILDINGS, 1999. -CAN/CSA T528, DESIGN GUIDELINES FOR ADMINISTRATION OF TELECOMMUNICATIONS INFRASTRUCTURE IN COMMERCIAL

-CSA T529, TELECOMMUNICATIONS CABLING SYSTEMS IN COMMERCIAL BUILDINGS, 2000 -CSA T530, COMMERCIAL BUILD STANDARD FOR TELECOMMUNICATIONS PATHWAYS AND SPACES, 1999 -BUILDING INDUSTRY CONSULTING SERVICE INTERNATIONAL (BICSI) TDM MANUAL LATEST EDITIONS AT THE TIME OF

-MANUFACTURERS DESIGN GUIDE. 2. THE CONTRACTOR'S PERFORMANCE OF THE WORK SHALL COMPLY WITH APPLICABLE NATIONAL, PROVINCIAL AND LOCAL LAWS, RULES, AND REGULATIONS. THE CONTRACTOR SHALL GIVE REQUIRED NOTICES, SHALL PROCURE NECESSARY GOVERNMENTAL LICENSES AND INSPECTIONS, AND SHALL PAY WITHOUT BURDEN TO THE OWNER, ALL FEES AND CHARGES IN CONNECTION THEREWITH UNLESS SPECIFICALLY PROVIDED OTHERWISE. IN THE EVENT OF VIOLATION, THE CONTRACTOR SHALL PAY ALL FINES AND PENALTIES, INCLUDING ATTORNEY'S FEES, AND OTHER DEFENCE COSTS AND EXPENSES IN CONNECTION THEREWITH.

#### QUALIFICATION OF SYSTEM

1. ACCEPTABLE PROPOSED SYSTEM WILL BE COVERED BY A TWO PART CERTIFICATION PROGRAM PROVIDED BY A SINGLE MANUFACTURER AND THAT MANUFACTURER'S RESELLER (VENDOR, INSTALLER OR SIMILAR DESIGNATION). 2. MANUFACTURER SHALL ADMINISTER A PROGRAM THROUGH THE INSTALLER TO PROVIDE SUPPORT AND SERVICE TO THE PURCHASER

3. THE FIRST PART IS AN ASSURANCE PROGRAM WHICH PROVIDES THAT THE CERTIFIED SYSTEM WILL SUPPORT THE APPLICATIONS FOR WHICH IT IS DESIGNED, DURING THE LIFETIME OF THE CERTIFIED SYSTEM. 4. THE SECOND PORTION OF THE CERTIFICATION IS A 25-YEAR WARRANTY PROVIDED BY THE MANUFACTURER AND THE RESELLER ON ALL PRODUCTS WITHIN THE SYSTEM (JACKS, CABLES, CROSS-CONNECTS, BALUNS, ETC..). 5. IN THE EVENT THAT THE CERTIFIED SYSTEM CEASES TO SUPPORT THE CERTIFIED APPLICATIONS, WHETHER AT THE TIME OF CUT OVER, DURING NORMAL USE OR WHEN UPGRADING, THE MANUFACTURER AND RESELLER SHALL COMMIT TO PROMPTLY IMPLEMENT CORRECTIVE ACTION. 6. DOCUMENTATION PROVING THE CABLING SYSTEM'S COMPLIANCE TO THE RECOMMENDATIONS, AS LISTED IN THE CODES AND STANDARDS SECTION SHALL BE PROVIDED BY THE RESELLER PRIOR TO THE STRUCTURED CABLING SYSTEM

BEING INSTALLED. 7. WORKMANSHIP AND INSTALLATION METHODS USED SHALL BE EQUAL TO OR BETTER THAN THAT FOUND IN THE BICSI (BUILDING INDUSTRY CONSULTING SERVICE INTERNATIONAL) TDM MANUAL AND THE NEIS DOCUMENT "INSTALLING COMMERCIAL BUILDING TELECOMMUNICATIONS CABLING" 8. PURCHASER DEMANDS STRICT ADHERENCE TO THE PERFORMANCE SPECIFICATIONS LISTED IN THE CODES AND

STANDARDS SECTION. THE MANUFACTURER SHALL MAINTAIN 9001 QUALITY CONTROL CERTIFICATION FOR THE FACILITIES THAT MANUFACTURER THE PRODUCT USED IN THIS CABLING SYSTEM.

#### MANUFACTURER

MANUFACTURER REFERS TO THE COMPANY THAT MANUFACTURES THE COMPONENTS AND IS RESPONSIBLE FOR THE DESIGN AND INSTALLATION GUIDELINES USED BY THE RESELLER (INSTALLER, VENDOR, OR SIMILAR DESIGNATION) TO COMPLETE THIS CABLING SYSTEM INSTALLATION. 2. THE MANUFACTURER ALONG WITH THE RESELLER IS RESPONSIBLE FOR THE FINAL WARRANTY AND CERTIFICATION OF THE APPLICATION ASSLIBANCE

3. THE RESELLER SHALL SHOW PROOF OF A CONTRACTUAL RELATIONSHIP WITH THE MANUFACTURER, AND SHALL PASS THROUGH THE MANUFACTURER'S CERTIFICATION TO PURCHASER. 4. THE CABLING MANUFACTURER SHALL PROVIDE AN END-TO-END CABLING SOLUTION, INCLUDING HORIZONTAL CABLES, BACKBONE CABLES, JACKS AND CONNECTORS, PATCH PANELS, TERMINATION BLOCKS, PATCH CORDS AND JUMPERS.

FOR THIS PROJECT ONLY END-TO-END SOLUTIONS SHALL BE ACCEPTED. 5. WHERE NO MANUFACTURE IS SPECIFIED, PROVIDE PRODUCTS FROM MANUFACTURES IN COMPLIANCE WITH THE LISTED REQUIREMENTS.

### PRE-CONSTRUCTION SUBMITTALS

1. SUBMIT THE FOLLOWING DOCUMENTS FOR REVIEW PRIOR TO CONSTRUCTION: a) A REMOVAL TIME SCHEDULE WITH APPLICABLE CUTOVERS IN AREAS THAT HAVE EXISTING USERS. NOTE ANY AREAS WHERE SYSTEMS WILL NECESSITATE BEING OFF-LINE.

b) A LIST OF ANY LONG LEAD TIME ITEMS. c) A CABLE LABELLING SCHEDULE (SEE ADMINISTRATION SECTION FOR MORE INFORMATION)

CROSS-CONNECT SCHEDULE FOR APPROVAL BY THE OWNER. e) DOCUMENTS OUTLINING PROPOSED LAYOUT FOR ALL TELECOMMUNICATION ROOMS, SERVER ROOMS, AND TELEPHONE ROOMS, DRAWN IN 1:50 SCALE (OR 1/4" = 1'-0" FOR IMPERIAL DRAWINGS). SHOW ALL EQUIPMENT AND PATHWAYS

f) A LIST OF ALL STAFF TO BE USED, INCLUDING PROOF OF EXPERIENCE OF INSTALLING STRUCTURED CABLING. ) SHOP DRAWINGS . SUBMIT SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES WITH PROMPTNESS AS NOT TO CAUSE DELAY IN WORK OR IN THE ACTIVITIES OF SEPARATE CONTRACTORS. SUBMIT SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES AS A COMPLETE SET WITHIN THIRTY (30) DAYS OF AWARD OF CONTRACT FOR ENGINEER'S REVIEW.

3. BY SUBMITTING SHOP DRAWINGS THE CONTRACTOR REPRESENTS THAT THE MATERIALS HAVE BEEN CAREFULLY REVIEWED AND VERIFIED, AS WELL AS RELATED QUANTITIES, FIELD MEASUREMENTS, AND FIELD CONSTRUCTION CRITERIA. IT ALSO REPRESENTS THAT THE CONTRACTOR HAS CHECKED, COORDINATED, AND VERIFIED THAT INFORMATION CONTAINED WITHIN SHOP DRAWINGS AND SAMPLES CONFORM TO THE REQUIREMENTS OF THE CONTRACT DOCUMENTS. 4. THE REVIEW OF SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES SUBMITTED BY THE CONTRACTOR SHALL NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR DEVIATIONS FROM REQUIREMENTS OF THE CONTRACT DOCUMENTS, UNLESS THE CONTRACTOR HAS SPECIFICALLY INFORMED THE ENGINEER IN WRITING OF SUCH DEVIATION AT TIME OF SUBMITTAL, AND THE ENGINEER HAS GIVEN WRITTEN APPROVAL OF THE SPECIFIC DEVIATION. THE CONTRACTOR SHALL CONTINUE TO BE RESPONSIBLE FOR DEVIATIONS FROM REQUIREMENTS OF THE CONTRACT DOCUMENTS NOT SPECIFICALLY NOTED BY THE CONTRACTOR IN WRITING, AND SPECIFICALLY APPROVED BY THE ENGINEER IN WRITING. 5. THE ENGINEER'S REVIEW OF SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES SHALL NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR ERRORS OR OMISSIONS IN SUCH SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES. 6. THE ENGINEER'S REVIEW OF SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES, IS FOR THE LIMITED PURPOSE OF CHECKING FOR CONFORMANCE WITH INFORMATION GIVEN AND DESIGN CONCEPT EXPRESSED IN THE CONTRACT DOCUMENTS. THE ENGINEER'S REVIEW OF SUCH SUBMITTALS IS NOT CONDUCTED FOR THE PURPOSE OF DETERMINING ACCURACY AND COMPLETENESS OF OTHER DETAILS SUCH AS DIMENSIONS AND QUANTITIES, OR FOR SUBSTANTIATING INSTRUCTIONS FOR INSTALLATION OR PERFORMANCE OF EQUIPMENT OR SYSTEMS, ALL OF WHICH REMAIN THE RESPONSIBILITY OF THE CONTRACTOR AS REQUIRED BY THE CONTRACT DOCUMENTS. THE REVIEW SHALL NOT CONSTITUTE APPROVAL OF SAFETY PRECAUTIONS OR OF CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, OR PROCEDURES. THE ENGINEER'S REVIEW OF A SPECIFIC ITEM SHALL NOT INDICATE APPROVAL OF AN ASSEMBLY OF WHICH THE ITEM IS A COMPONENT.

7. PERFORM NO PORTION OF THE WORK REQUIRING SUBMITTAL AND REVIEW UNTIL THE ENGINEER HAS REVIEWED THE 8. SUBMIT SHOP DRAWINGS IN PDF FORMAT. SHOPS DRAWINGS SHOULD COMBINE PRODUCTS FOR A SPECIFIC SYSTEM ONLY AND SHOULD NOT INCLUDE UNRELATED SYSTEMS.

1. SUBMIT A SCHEDULE INDICATING EACH TYPE OF COMMUNICATION PENETRATION, TYPE OF BUILDING CONSTRUCTION BEING PENETRATED INCLUDING THE HOURLY RESISTANCE RATING OF FLOOR, WALL, OR OTHER PARTITION OF BUILDING CONSTRUCTION INTO WHICH FIRESTOP DESIGN WILL BE INSTALLED

2. SUBMIT SHOP DRAWINGS, PRODUCT DATA AND DOCUMENTATION FOR FIRESTOP DEVICES OR SYSTEMS PROPOSED FOR USE. INCLUDE ANY FIRE RETARDANT PAINTS THAT WILL BE USED. 3. PROVIDE A LETTER AT CLOSEOUT OF THE PROJECT SEALED BY A PROFESSIONAL ENGINEER LICENSED IN ON CONFIRMING THAT ALL FIRESTOPPING HAS BEEN DESIGNED AND INSTALLED TO MEET ALL REQUIREMENTS OF THE AHJ, BUILDING AND FIRE CODES.

#### POST-CONSTRUCTION SUBMITTALS (MAINTENANCE MANUALS)

I. THE CONTRACTOR SHALL SUBMIT WITHIN TWO (2) WEEKS OF THE END OF CONSTRUCTION: a) MANUFACTURER'S TECHNICAL DOCUMENTATION ON ALL DEVICES USED IN CABLING SYSTEM. ) MANUFACTURER SUPPLIED APPLICATION GUIDELINES FOR REQUIRED APPLICATIONS. THE MANUFACTURER'S AND CONTRACTORS WARRANTY AND CERTIFICATION.

d) COMPLETE CABLE TESTING DOCUMENTATION IN HARD AND SOFT COPIES. PROVIDE LICENSED VERSIONS OF ANY SOFTWARE REQUIRED FOR VIEWING TEST RESULTS e) AN END USER'S MANUAL DESCRIBING THE ESSENTIAL SYSTEM ELEMENTS AS WELL AS THE END USER'S

RESPONSIBILITY FOR MAINTAINING THE INTEGRITY OF THE CABLING SYSTEM OVER TIME. THIS MANUAL SHALL INCLUDE, AS A MINIMUM, GUIDELINES FOR SYSTEM EXPANSION AND MODIFICATION (MOVES, ADDITIONS, CHANGES OF SERVICE) AS WELL AS LABELLING AND RECORD KEEPING. 2. THE PROJECT SHALL NOT BE CONSIDERED COMPLETE UNTIL ALL DOCUMENTS, INCLUDING THE ORIGINAL MANUFACTURER'S CERTIFICATION, HAVE BEEN DELIVERED TO THE OWNER. 3. WITHIN 30 DAYS PRIOR TO SUBSTANTIAL COMPLETION, THE CONTRACTOR SHALL SUBMIT A DRAFT COPY OF THE PROPOSED CONTENTS OF EACH MANUAL TO THE CONSULTANT FOR REVIEW PRIOR TO SUBSTANTIAL COMPLETION. WITHIN 10 DAYS THE CONSULTANT SHALL PROVIDE A REVIEW OF THIS DOCUMENT TO THE CONTRACTOR. REQUIRED FOR INSTALLATION, TESTING AND PUTTING INTO PROPER OPERATION COMPLETE COMMUNICATIONS SYSTEMS AS

4. ONCE THE DRAFT COPY IS APPROVED, THE CONTRACTOR WILL SUPPLY FOUR (4) COPIES IN SUITABLY LABELLED, HARD BACK, D-RING TYPE COMMERCIAL BINDERS, EACH COMPLETE WITH AN INDEX AND TABBED TITLE SHEETS FOR EACH SECTION. FINAL COPIES OF MANUALS ARE TO BE RECEIVED BY CONSULTANT NOT LESS THAN 7 DAYS PRIOR TO

#### AS-BUILT DRAWINGS

1. THE CONTRACTOR SHALL KEEP ONE COMPLETE SET OF PRINTS AT THE SITE OFFICE, INCLUDING ALL ADDENDUMS, CHANGE ORDERS, SITE INSTRUCTIONS, CLARIFICATIONS AND REVISIONS FOR THE PURPOSE OF RECORD DRAWINGS. AS THE WORK ON SITE PROCEEDS, THE CONTRACTOR SHALL CLEARLY RECORD IN RED PENCIL ALL AS-BUILT CONDITIONS THAT DEVIATE FROM THE ORIGINAL CONTRACT DOCUMENTS.

2. WITHIN TWO (2) WEEKS OF THE PROJECTS COMPLETION THE CONTRACTOR SHALL SUBMIT A COMPLETE SET OF AS-BUILT DRAWINGS INCLUDING CABLE ROUTING, TELECOMMUNICATION ROOMS LAYOUTS, RISER DIAGRAMS AND TELECOMMUNICATIONS OUTLETS. THE LAYOUT SHALL DETAIL LOCATIONS OF ALL EQUIPMENT AND INDICATE ALL WIRING PATHWAYS, AND OUTLETS (INCLUDING CABLE ID NUMBERS). THIS AS BUILT INFORMATION SHALL INCLUDE ADDENDUMS, CHANGE ORDERS, CLARIFICATIONS, REVISIONS, AND SITE INSTRUCTIONS. 3. UPON COMPLETION THE CONTRACTOR SHALL CERTIFY, IN WRITING THAT THE AS BUILT RECORDS ARE COMPLETE AND THAT THEY ACCURATELY INDICATE ALL COMMUNICATION SERVICES RELATED TO THE COMMUNICATIONS INFRASTRUCTURE. THIS SHALL INCLUDE ALL VISIBLE AND ALL INVISIBLE ITEMS. THE INFORMATION SHALL ALSO CORRESPOND WITH ALL

IDENTIFICATIONS APPLIED BY THE CONTRACTOR TO CABLES AND TERMINATION DEVICES IN THE BUILDINGS. 4. THE CONTRACTOR SHALL FORWARD A LETTER OF CERTIFICATION TO THE CONSULTANT FOR FINAL REVIEW AND AS-BUILT CAD DRAWINGS TO THE CONSULTANT FOR FINAL REVIEW. 5. THE CONTRACTOR MAY OBTAIN COPIES OF THE TELECOMMUNICATION CONTRACT DRAWINGS (TENDER ISSUE) IN DWG FORMAT FROM THE CONSULTANT ON REQUEST. A DRAWINGS RELEASE FORM NEEDS TO BE SIGNED BY THE

TWO (2) COPIES TO THE OWNER AND TWO (2) COPIES TO THE FACILITIES MANAGEMENT (IF DIFFERENT FROM THE 7. FOR EACH TELECOMMUNICATIONS ROOM PROVIDE A FULL-SIZE LAMINATED COPY OF THE FLOOR PLANS INDICATING WHICH CABLES ORIGINATE FROM THAT PARTICULAR TELECOMMUNICATIONS ROOM AND ALL APPLICABLE PATHWAYS. MOUNT THE DRAWING ON THE TELECOMMUNICATIONS ROOM WALL THAT IS EASILY ACCESSIBLE TO THE OWNER.

6. AFTER AS—BUILT DRAWINGS HAVE BEEN REVIEWED. PRINT FOUR (4) FULL SIZE COPIES OF THE DRAWINGS. DELIVER

CONTRACTOR PRIOR TO RELEASING THE DRAWINGS.

. WITHIN TEN (10) DAYS OF THE DATE OF ACCEPTANCE OF THIS BID, THE CONTRACTOR SHALL NOTIFY THE CONSULTANT OF THE APPOINTMENT OF A COMPETENT PROJECT MANAGER, EXPERIENCED IN THE DESIGN AND INSTALLATION OF STRUCTURED CABLING SYSTEMS AND IN THE SUPERVISION OF SIMILAR CONTRACT WORK. 2. THE PROJECT MANAGER SHALL BE AVAILABLE DURING THE ENTIRE LIFE OF THE CONTRACT TO ANSWER ALL QUESTIONS PERTAINING TO THE CONTRACTUAL WORK, AND SHALL BE AVAILABLE AT THE SITE FROM THE COMMENCEMENT DATE OF EQUIPMENT DELIVERY TO THE COMMISSIONING COMPLETION DATE. 3. THE PROJECT MANAGER SHALL REPRESENT THE CONTRACTOR AND SHALL HAVE AUTHORITY TO CARRY OUT DIRECTIONS GIVEN TO HIM AS THE CONTRACTOR'S REPRESENTATIVE. 4. THE STAFF SELECTED FOR THE INSTALLATION OF THE STRUCTURED CABLING SYSTEM SHALL CONFORM TO THE FOLLOWING:

a) AN INSTALLER ON SITE THAT IS A CURRENT MEMBER OF BICSI AND HOLDS A VALID RCDD DESIGNATION. THIS INSTALLER ALONG WITH THE PROJECT MANAGER WILL ULTIMATELY BE RESPONSIBLE FOR THE CONSTRUCTION OF THIS b) SUBMIT TO THE CONSULTANT WITHIN SEVEN DAYS OF CONTRACT AWARD A LIST OF ALL STAFF TO BE USED IN ABOVE INSTALLATION INCLUDING PROOF OF EXPERIENCE. c) <u>only</u> qualified technicians directly employed by the CSV or reseller shall terminate all cables (at BOTH ENDS), TEST AND PERFORM CROSS-CONNECTS.

d) CERTIFICATION IN THE INSTALLATION OF STRUCTURED CABLING SYSTEMS UNDER THE TITLE OF CSV, RESELLER, VENDOR, OR OTHER SIMILAR STATUS ISSUED BY THE CABLING MANUFACTURER. e) PROVIDE MANUFACTURER'S CERTIFICATION NUMBER WITH IN TWO WEEKS UPON AWARD OF CONTRACT.

#### GENERAL INSTALLATION REQUIREMENTS

ANY JOINTS OR SPLICES.

1. ALL VOIP AND DATA OUTLETS SHALL BE FLUSH MOUNTED WHERE POSSIBLE, OTHERWISE A SURFACE MOUNT SHALL BE USED UNLESS OTHERWISE INDICATED ON THE SUPPLIED DRAWINGS. 2. ALL FACE PLATES SHALL BE COLOURED TO MATCH ELECTRICAL FACE PLATES IN THE AREA UNLESS OTHERWISE NOTED. COLOURS MUST BE VERIFIED BY THE INTERIOR DESIGNER BEFORE PURCHASE. 3. BLANK INSERTS ARE TO BE PLACED INTO OUTLET PORTS NOT CONTAINING COMMUNICATIONS JACKS. THE BLANKS ARE TO BE COLOURED TO MATCH THE FACEPLATE. 4. ALL FOUR PAIRS OF HORIZONTAL CABLES ARE TO BE TERMINATED. ANSI/TIA T568D WIRING CONFIGURATION A IS TO BE USED. THE SPLITTING OF PAIRS IS STRICTLY PROHIBITED.

5. ALL DROP LOCATIONS AND QUANTITIES TO BE CONFIRMED PRIOR TO THE START OF THE INSTALLATION. ALLOW A 6. HORIZONTAL CABLING WILL BE SPLIT AND DRESSED IN CABINET. DISTRIBUTE CABLES EVENLY AND NEATLY IN 7. THE LENGTH OF EACH INDIVIDUAL RUN OF HORIZONTAL CABLE FROM THE PATCH PANEL ON EACH FLOOR TO THE

TELECOMMUNICATIONS OUTLET SHALL NOT EXCEED 90M (295'). 8. ALL CABLES SHALL BE LOOSELY BUNDLED USING VELCRO CABLE TIES EVERY 150MM (6"). TO MINIMIZE THE EFFECTS OF ALIEN CROSS-TALK, DO NOT COMB-OUT CABLES. VELCRO TIE-WRAPS SHALL BE PLENUM RATED. 9. UTILIZE ALL INDICATED AND AVAILABLE CABLE PATHWAYS SUCH AS CONDUIT, CABLETRAYS, DUCTS, RACEWAYS AND FURNITURE SYSTEM CHANNELS EXCEPT WHERE OTHERWISE NOTED. EXERCISE CAUTION WHEN PULLING CABLES IN SUCH PATHWAYS TO AVOID DAMAGE TO ANY CABLING AND TO ENSURE THAT THE CABLE MANUFACTURERS' MAXIMUM PULL-FORCE AND MINIMUM BEND RADII SPECIFICATIONS ARE ADHERED TO. 10. ROUTE ALL CABLES TO MAINTAIN MINIMUM SEPARATIONS FROM SOURCES OF LIGHTING, POWER CABLES, HVAC AND ELECTRICAL EQUIPMENT AS INDICATED IN THE MANUFACTURER'S MINIMUM SEPARATION SCHEDULE OR OTHERWISE

REQUIRED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SUPPLY OF ALL MATERIALS AND LABOUR THAT MAY BE REQUIRED TO MAINTAIN THE INDICATED MINIMUM SEPARATIONS. 11. IN THE TELECOMMUNICATIONS ROOMS ALL COMMUNICATIONS CABLES SHALL BE NEATLY BUNDLED, SUPPORTED AND ROUTED TO THE CORRESPONDING TERMINATION PANEL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SUPPLY AND INSTALLATION OF ANY ADDITIONAL CABLE SUPPORTS. VELCRO TIE-WRAPS (FT6) ON CABLES SHOULD BE LOOSE 12. EACH RUN OF CABLE BETWEEN THE TERMINATION BLOCK AND THE DATA OUTLET SHALL BE CONTINUOUS WITHOUT

13. WHERE THE CONTRACTOR IS REQUIRED TO REMOVE CEILING TILES, SUCH WORK SHALL NOT BREAK OR DISTURB GRID OR TILES 14. TERMINATED CONDUCTOR ENDS SHALL BE PROPERLY TRIMMED TO ASSURE A MINIMUM CLEARANCE OF 0.250" BETWEEN THE CONDUCTORS OF ADJACENT MODULES. 15. GROUND ALL TELECOMMUNICATIONS EQUIPMENT, RACKS AND CABLETRAYS USING GREEN INSULATED #6 AWG

COPPER WIRE TO THE TELECOMMUNICATIONS GROUND BAR. ALL GROUND WIRES SHALL BE HOME-RUN BACK TO THE TELECOMMUNICATIONS GROUND BAR. DO NOT DAISY CHAIN. 16. UPON COMPLETION OF EACH PHASE OF THE PROJECT, A CERTIFICATION INSPECTION WALK THROUGH WILL BE PERFORMED BY THE OWNER AND THE CONSULTANT TO VERIEY COMPLIANCE TO THE STANDARDS. COMPLETELY TEST OUT SYSTEMS AND, BEFORE THEY ARE TURNED OVER TO OWNER, DEMONSTRATE THEM TO OWNER'S REPRESENTATIVE UNTIL SUCH TIME AS HE IS FULLY CONVERSANT WITH THE OPERATION OF THE SYSTEMS. SIX MONTHS AFTER INSTALLATION HAS BEEN ACCEPTED BY OWNER, ARRANGE A TIME CONVENIENT TO THE OWNER TO DO NECESSARY RE-ALIGNING, AND REPLACE DEFECTIVE COMPONENTS.

#### RACK AND CABINETS

THE CONTRACTOR SHALL PROVIDE A WALL MOUNTED CABINET OF MINIMUM SIZE 19" x 26RU, BLACK POWDER COATED, STANDARD OF ACCEPTANCE: TRIPP LITE - 26U WALL MOUNT RACK ENCLOSURE PART # SRW26USDP (SUBSTITUTION NOT ALLOWED) PROVIDE ONE (1) UPS OF 3kVA IN RACK. STANDARD OF ACCEPTANCE: APC SMART-UPS PART # SMX3000HVT SUBSTITUTION NOT ALLOWED); PROVIDE COMPATIBLE NETWORK INTERFACE CARD FOR REMOTE MONITORING. SUPPLY AND INSTALL ANY ADDITIONAL EQUIPMENT SHOWN ON THE DRAWINGS AND NOT SPECIFICALLY INDICATED IN THE SPECIFICATIONS. 4. BOND CABINET TO THE TELECOMMUNICATIONS GROUND BUSBAR USING GREEN (OR GREEN/YELLOW) #6 AWG STRANDED COPPER WIRE. USE CONNECTOR LUGS FOR CONNECTING TO THE TELECOMMUNICATIONS GROUNDING BUSBAR. CONNECTOR LUGS MUST BE ULC LISTED OR CSA CERTIFIED TWO-HOLES, LONG BARREL, ELECTRO TIN-PLATED COMPRESSION LUGS WITH INSPECTION PORT.

#### DATA COMMUNICATIONS NETWORK EQUIPMENT

PROVIDE FIVE (5) NETWORK SWITCHES. STANDARD OF ACCEPTANCE: CISCO CATALYST PART # C1300-48FP-4X (SUBSTITUTION NOT ALLOWED). PROVIDE ALL REQUIRED ACCESSORIES FOR A COMPLETE AND FUNCTIONING SYSTEM. PROVIDE TWO (2) WIRÉLESS ACCESS POINTS (WAPs). STANDARD OF ACCEPTANCE: CISCO MERAKI MR44 PART ; MR44-HW (SUBSTITUTION NOT ALLOWED). PROVIDE ALL RÉQUIRED ACCESSORIES FOR A COMPLETE AND FUNCTIONING

COORDINATE THE EQUIPMENT CONFIGURATION DETAILS WITH THE OWNER. 4. FINAL EQUIPMENT BILL OF MATERIALS TO BE SUBMITTED TO OWNER FOR APPROVAL.

#### BACKBOARDS

1. COVER WALL WITH FIRE RATED GOOD ONE SIDE PAINTED PLYWOOD WHERE RACK WILL BE MOUNTED. 2. AT LEAST ONE FIRE RATING FACTORY STAMP MUST BE VISIBLE ON EACH SHEET OF PLYWOOD.

2. ALL HORIZONTAL CABLES WILL BE FT6 RATED FOR PLENUM ENVIRONMENT (CMP), BLUE IN COLOUR. 3. ALL TERMINATIONS SHALL BE IN T568A CONFIGURATION. 4. FOR ALL HORIZONTAL CABLES PROVIDE 10' (3m) OF SLACK AT THE TELECOMMUNICATIONS ROOM END AND 10' (3m) OF CABLE SLACK AT THE WORK AREA OUTLET. ALL CABLE SLACK SHALL BE COILED AT CONDUIT ENTRY POINT IN 5. FOLLOW THE MANUFACTURER'S GUIDELINES FOR PULLING FORCE. IF NO GUIDELINES ARE PRESENT THE MAXIMUM PULL-FORCE FOR 4-PAIR HORIZONTAL TWISTED-PAIR CABLES IS 25lbf. 6. MAINTAIN THE MANUFACTURERS RECOMMENDED BEND RADIUS AT ALL TIMES. IF NO GUIDELINES ARE PRESENT ENSURE THE BEND RADIUS DOES NOT EXCEED FOUR (4) TIMES THE OUTSIDE CABLE DIAMETER.

1. PROVIDE CAT 6 CABLING TO ALL DROPS IDENTIFIED ON THE PLANS. TWO (2) CAT6 TO BE PROVIDED TO WIFI APs.

7. THE COMMUNICATIONS WIRING SYSTEM SHALL BE AN END—TO—END SOLUTION PROVIDED BY: BELDEN, COMMSCOPE HUBBELL, LEVITON, PANDUIT OR SUPERIOR ESSEX. 8. WORKSTATION OUTLETS WILL CONSIST OF MODULAR JACKS INSTALLED IN ASSOCIATED FACEPLATES. PROVIDE ANY MOUNTING PLATES REQUIRED FOR USE IN FLOOR BOXES OR MODULAR FURNITURE. 9. CABLES WILL BE ROUTED THROUGH CONDUITS AND CABLE TRAY ONLY (NO EXCEPTIONS). THE ELECTRICAL CONTRACTOR WILL PROVIDE THE CONDUITS AND CABLE TRAY. 10. TERMINATIONS IN THE TELECOMMUNICATIONS ROOMS SHALL BE AS INDICATED CONSISTING OF THE FOLLOWING COMPONENTS:

b) 8-CONDUCTOR 8-WIRE (RJ45) MODULAR JACK FOR CATEGORY 6 PERFORMANCE (INSTALLED IN PATCH PANELS). 11. EACH DATA OUTLET SHALL INCLUDE THE FOLLOWING PARTS: a) 8-CONDUCTOR 8-WIRE (RJ45) MODULAR JACK FOR CATEGORY 6 PERFORMANCE. b) BLANK INSERTS (WHERE REQUIRED) COLOURED TO MATCH FACEPLATE. 12. THE 8-CONDUCTOR 8-WIRE MODÚLAR TELECOMMUNICATIONS JACK SHALL ACCEPT 4 OR 6 POSITION MODULAR PLUGS (RJ11 OR RJ12) WHILE PROVIDING PROPER ELECTRICAL CONNECTION AND NOT DAMAGING TELECOMMUNICATIONS OUTLET (JACK).

#### PATCH CORDS AND ASSEMBLIES

1. ALL PATCH CORDS SHALL BE FT4 RATED, BLUE IN COLOUR. 2. FOR EACH DATA DROP INSTALLED PROVIDE ONE (1) PATCH CORD AT THE PATCH PANEL END, 6" IN LENGTH, CATEGORY 6 (RJ45-RJ45) 4. FOR EACH DATA DROP INSTALLED PROVIDE ONE (1) PATCH CORD AT THE WORKSTATION END, 6' IN LENGTH, CATEGORY 6 (RJ45-RJ45).

5. ALL DATA PATCH CORDS SHALL BE INSTALLED BY THE CONTRACTOR 6. ALL DATA PATCH CORDS SHALL BE RJ45 TO RJ45 WITH BOOTED CONNECTOR ENDS.

a) 24-PORT 19" MODULAR RACK MOUNTABLE PATCH PANEL, 1U.

#### ADMINISTRATION AND IDENTIFICATION

1. THE ADMINISTRATION SUBSYSTEM LINKS ALL OF THE SUBSYSTEMS TOGETHER. IT CONSISTS OF LABELLING HARDWARE FOR PROVIDING IDENTIFICATION. 2. ADMINISTRATION SHALL BE IN COMPLIANCE WITH THE TIA/EIA—606—A STANDARD FOR CLASS 2 ADMINISTRATION. IDENTIFIERS ARE REQUIRED IN THE FOLLOWING LOCATIONS: THE TELECOMMUNICATIONS ROOM, INTRABUILDING BACKBONE CABLE, INTRABUILDING BACKBONE CABLE PAIRS OR STRANDS, HORIZONTAL LINK, TMGB, AND TGB. 3. THE OWNER MAY DEVIATE FROM THE TIA/EIA-606-A STANDARD TO SUIT THEIR OWN PARTICULAR ADMINISTRATION 4. SUBMIT A COMPLETE LABELLING SCHEDULE (AS NOTED IN THE PER-CONSTRUCTION SUBMITS SECTION) TO THE OWNER FOR REVIEW. ALLOW FOR THE OWNER TO MAKE CHANGES. 5. THE CONTRACTOR SHALL PROVIDE LABELS AT THE FOLLOWING LOCATIONS: a) AT EACH END OF THE CABLE JACKET WITHIN 6" OF WHERE THE JACKET HAS BEEN STRIPPED.

b) ON THE FRONT OF EACH FACEPLATE ON THE INSIDE OF EACH OUTLET BOX.

d) ON THE FRONT OF THE PATCH PANEL OR TERMINATION BLOCK. e) AT EACH END OF EACH PATCH CORD WITHIN 6" OF THE CONNECTOR.

6. LABELS SHALL BE MACHINE PRINTED WITH BLACK TEXT ON WHITE BACKING. THE MINIMUM HEIGHT OF TEXT SHALL BE 3/16". USE LABELS PRODUCED BY THE CABLING MANUFACTURE AS RECOMMENDED FOR THE APPLICATION. 7. SEE DRAWINGS FOR DETAILS.

### COMMISSIONING OF COMMUNICATIONS

1. PROVIDE COMMISSIONING VERIFICATION, INSPECTION AND CERTIFICATION OF ALL COMMUNICATIONS CABLES INSTALLED. . 100% OF ALL CABLES INSTALLED MUST BE TESTED AND CERTIFIED. 3. TEST ALL FIBRE OPTIC CABLES IN ACCORDANCE WITH PROCEDURES OUTLINED IN ANSI/TIA/EIA-526-14A: OFSTP-14A OPTICAL POWER LOSS MEASUREMENTS OF INSTALLED MULTIMODE FIBRE CABLE PLANT AND ANSI/TIA/EIA-526-7: MEASUREMENT OF OPTICAL POWER LOSS OF INSTALLED SINGLEMODE FIBRE CABLE PLANT 4. EVERY COPPER CABLING LINK IN THE INSTALLATION SHALL BE TESTED IN ACCORDANCE WITH THE FIELD TEST SPECIFICATIONS DEFINED BY THE TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) STANDARD ANSI/TIA-568-C 5. THE INSTALLED TWISTED PAIR HORIZONTAL LINKS SHALL BE TESTED FROM THE IDE IN THE TELECOMMUNICATIONS ROOM TO THE TELECOMMUNICATION OUTLET IN THE WORK AREA AGAINST THE BASIC LINK PERFORMANCE LIMITS SPECIFICATION AS DEFINED IN ANSI/TIA/EIA-568-B.1 6. 100% OF THE INSTALLED CABLING LINKS MUST BE TESTED AND MUST PASS. ANY FAILING LINKS MUST BE DIAGNOSED AND CORRECTED. THE CORRECTIVE ACTION SHALL BE FOLLOWED WITH A NEW TEST TO PROVE THAT THE CORRECTED LINK MEETS THE PERFORMANCE REQUIREMENTS. 7. TEST ALL HORIZONTAL COPPER CABLE LINKS TO CATEGORY 6 STANDARDS. 8. WHEN TESTING CABLES THE CORRECT NVP VALUE MUST BE ENTERED IN TO THE TESTER FOR THE PARTICULAR CABLE BEING TESTED OR THE TEST RESULTS WILL BE CONSIDERED VOID.

1. REMOVE ALL REDUNDANT CABLES COMPLETELY-BOTH HORIZONTAL AND VERTICAL CABLE. 2. ALL EXISTING CABLES AND COMMUNICATIONS EQUIPMENT NEEDS TO BE REMOVED. 3. THE LAN ROOM IS TO BE CLEANED USING CANNED COMPRESSED AIR SUITABLE FOR CLEANING ELECTRONIC 4. ALL EQUIPMENT SHALL BE CLEANED OF DUST AND DEBRIS. THE FLOORS ARE TO BE VACUUMED AND ALL GARBAGE REMOVED PRIOR TO THE OWNER TAKING OCCUPANCY. 5. DO NOT DUST AND VACUUM UNTIL ALL TRADES HAVE COMPLETED WORK.

### OCCUPANCY

1. WHEN THE OWNER IS READY TO TAKE OCCUPANCY THE COMMUNICATIONS CONTRACTOR IS TO PROVIDE AN ON SITE COMMUNICATIONS TECHNICIAN TO ASSIST DURING THE MOVE. 2. THE COMMUNICATIONS TECHNICIAN IS TO HAVE EXTENSIVE KNOWLEDGE IN THE DESIGN AND CONSTRUCTION OF THE 3. THE COMMUNICATIONS TECHNICIAN IS TO ASSIST THE OWNER DURING THE MOVE AND ANSWER ANY QUESTIONS RELATED TO THE SYSTEM. 4. IF THE OWNER DEEMS THE TECHNICIAN UNABLE TO PROVIDE PROPER ASSISTANCE FOR ANY REASON, ANOTHER TECHNICIAN WILL BE PROVIDED BY THE CONTRACTOR IMMEDIATELY WITH NO ADDITIONAL CHARGE TO THE OWNER. 5. THE OWNER WILL DECIDE THE TIME AND DATE THAT THE TECHNICIAN IS TO ARRIVE. THE OWNER MUST GIVE AT LEAST 48 HOURS NOTICE TO THE COMMUNICATIONS CONTRACTOR BEFORE SUCH TIME. 6. THE TECHNICIAN IS TO REMAIN ON SITE FOR A MAXIMUM OF 8 HOURS. THESE HOURS MAY OCCUR DURING PREMIUM TIME OR DURING WEEKENDS. ANY ADDITIONAL TIME MUST BE ARRANGED WITH THE COMMUNICATIONS 7. ALL COMPUTERS, PRINTERS, FAXES AND COPIERS TO BE HANDLED BY CLIENT FORCES.

## City of Pickering

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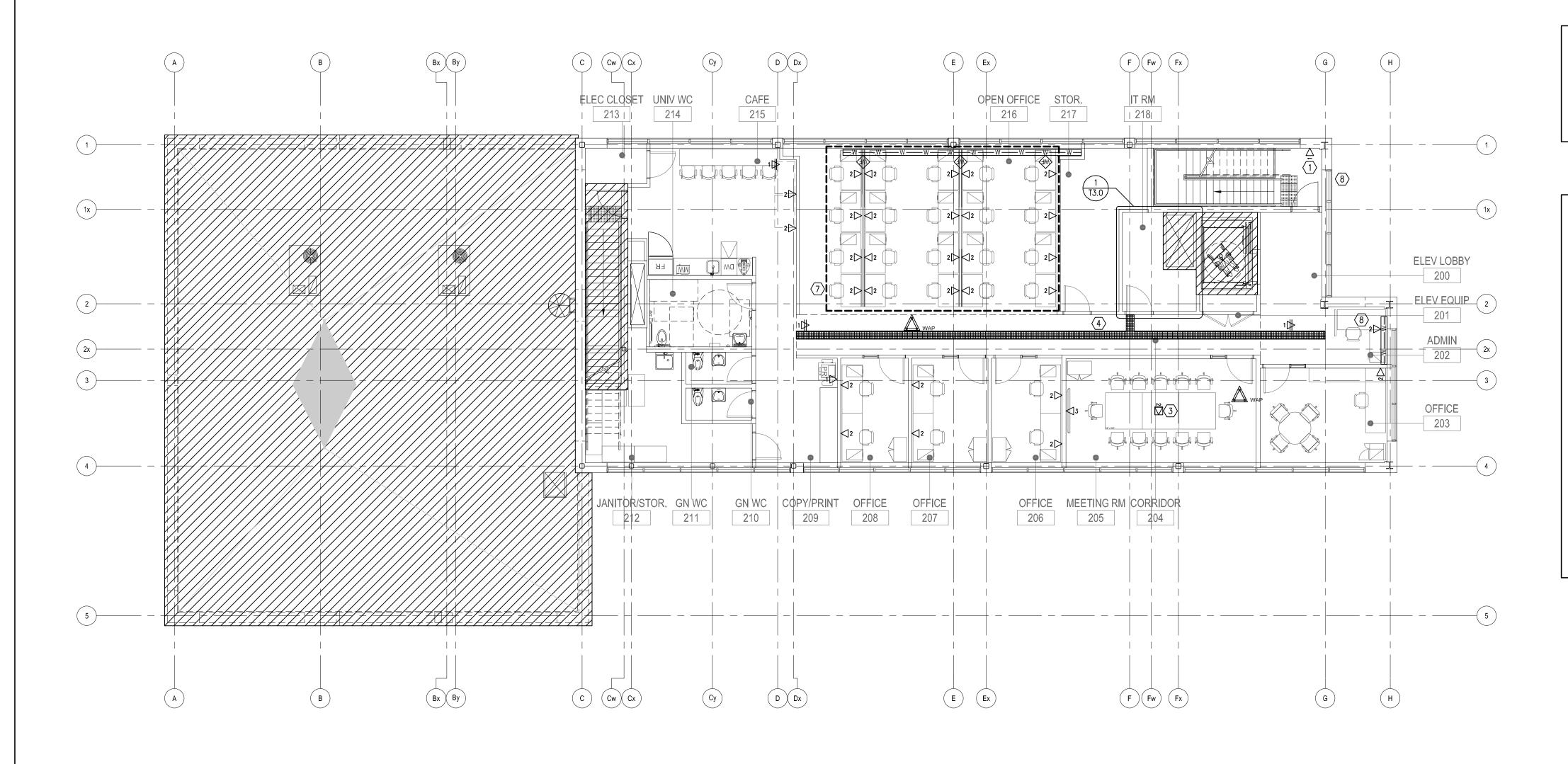


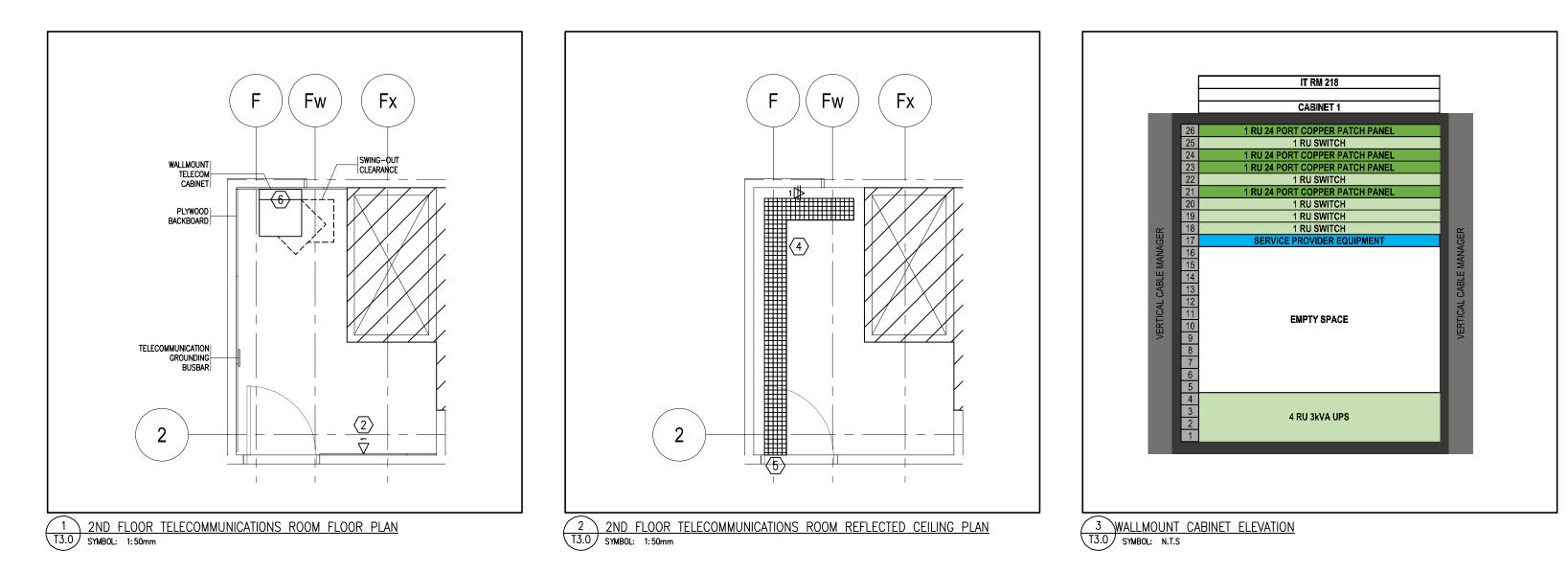
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Client Name	
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Project Name	
	CoP Interior Fit-Out
Project Address	
	2460 Brock Road Pickering, ON L1X 0J1
Project number	
	2240483

## **TELECOMMUNICATIONS SPECIFICATIONS**

Drawing Scale **NO SCALE** Drawing Number





### **GENERAL NOTES:**

1. ALL DATA OUTLET LOCATIONS TO BE RUN IN CONDUIT FROM WORK AREA OUTLET LOCATION TO CABLE TRAY. J-HOOK SUPPORTS OR FREE-AIRING OF CABLES NOT

2. ALL DATA OUTLET LOCATIONS TO BE RUN IN CONDUIT FROM WORK AREA OUTLET LOCATION TO CABLE TRAY. J-HOOK SUPPORTS OR FREE-AIRING OF CABLES NOT

### **DRAWING NOTES:**

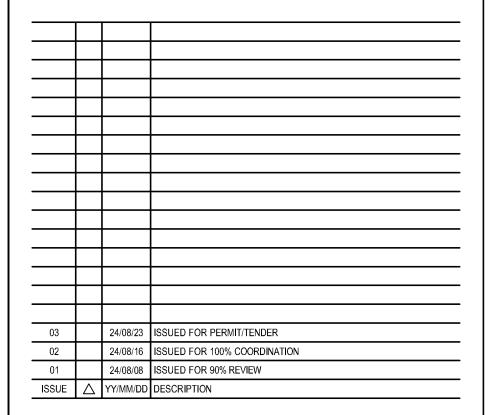
- PROVIDE ONE (1) CATEGORY 6 HORIZONTAL CABLE FROM IT ROOM 218 TO FIRST FLOOR ENTRY AREA FOR A SURVEILLANCE CAMERA. PROVIDE ALL REQUIRED PATHWAYS AND BACKBOXES. CONFIRM FINAL POSITIONING WITH DIVISION 28 SECURITY
- SECURITY ACCESS CONTROL PANEL LOCATION. PROVIDE ONE (1) CATEGORY 6 HORIZONTAL CABLE TO LOCATION. COORDINATE FINAL LOCATION WITH DIVISION 28 SECURITY CONTRACTOR.
- COMBINED ELECTRICAL/DATA/AV FLOORBOX LOCATION. REFER TO ELECTRICAL DRAWING E4.0 FOR DETAILS.
- PROVIDE 300mm X 100mm WIRE MESH CABLE TRAY COMPLETE WITH ALL MOUNTING HARDWARE, INCLUDING DROP-OUTS/WATERFALLS. ALL COMPONENTS TO BE FROM THE SAME MANUFACTURER AS THE CABLE TRAY. STANDARD OF ACCEPTANCE: LEGRAND CABOFIL, COOPER B-LINE, CER. CABLE TRAY SYSTEM TO BE INSTALLED AS PER MANUFACTURER'S REQUIREMENTS.
- PROVIDE TWO (2) 103mm EMT CONDUITS WITH PENETRATIONS FROM IT ROOM 218 TO CORRIDOR.
- PROVIDE 300mm X 100mm VERTICAL CABLE TRAY FROM HORIZONTAL CABLE TRAY TO ABOVE CABINET FOR CABLE SUPPORT. PROVIDE DROP-OUTS/WATERFALLS AS REQUIRED.
- MODULAR FURNITURE AREA. WIRE CATEGORY 6 HORIZONTAL CABLING DIRECTLY FROM WALL RACEWAY SYSTEM TO FINAL DESK TERMINATION LOCATION VIA MODULAR FURNITURE DATA CABLING CHANNELS/RACEWAYS.
- CONTRACTOR TO PROVIDE OPTIONAL PRICE FOR SUPPLY AND INSTALLATION OF ONE (1) CATEGORY 6 HORIZONTAL CABLE AT LOWER ENTRY DOOR AND ONE (1) CATEGORY 6 8 HORIZONTAL CABLE AT ADMIN 202 FOR INTERCOM SYSTEM. CABLES TO BE TERMINATED IN CABINET IN IT ROOM 218. REFER TO DRAWING NOTE #5 ON ELECTRICAL DRAWING

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City of Pickering

Project Name CoP Interior Fit-Out

Project Address

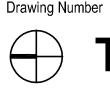
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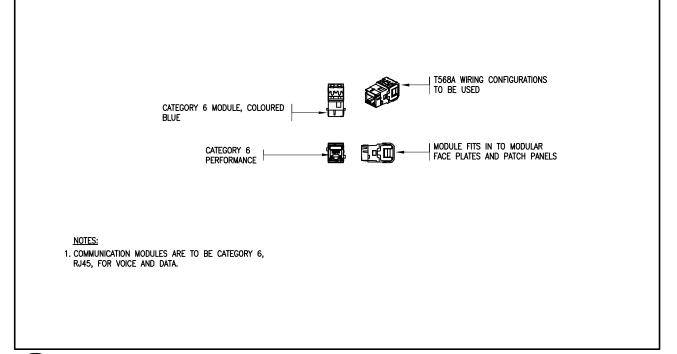
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## TELECOMMUNICATIONS PLAN -

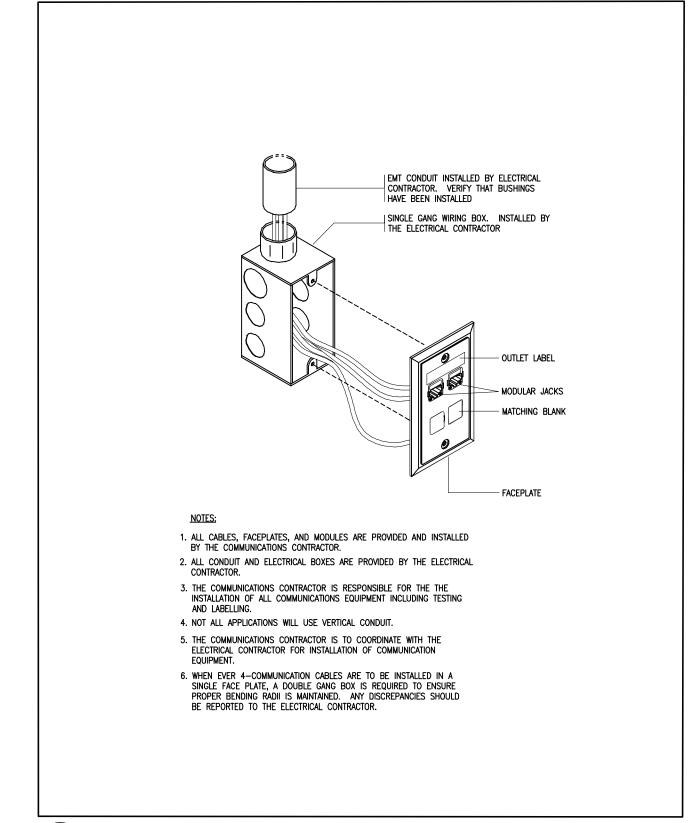
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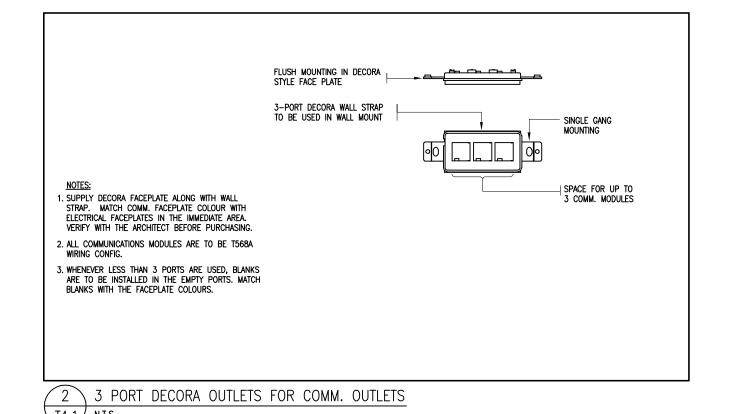
True North

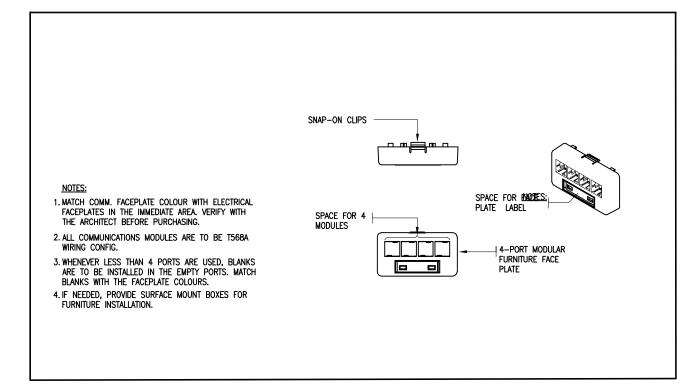


4 CATEGORY 6 MODULAR JACK T4.1 N.T.S.



1 WALL MOUNTED COMMUNICATIONS OUTLET - TYPICAL T4.1 N.T.S.





MODULAR FURNITURE OUTLET BOX 14.1 N.T.S.

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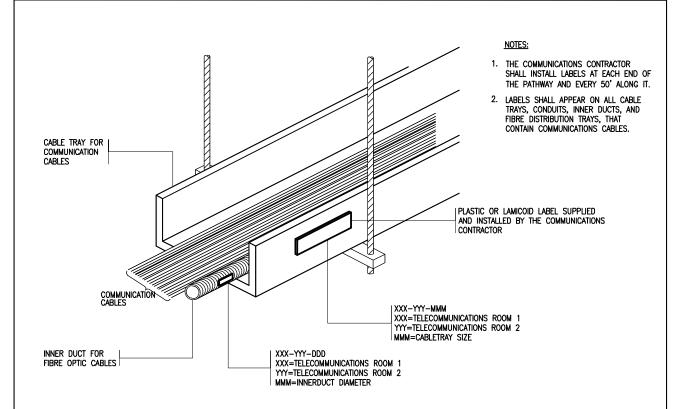
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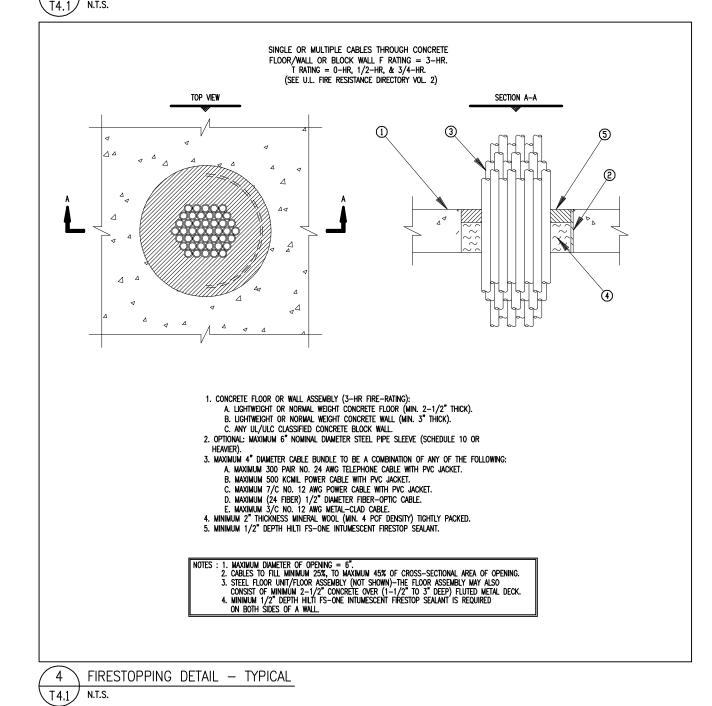
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DETAILS
1 OF 2

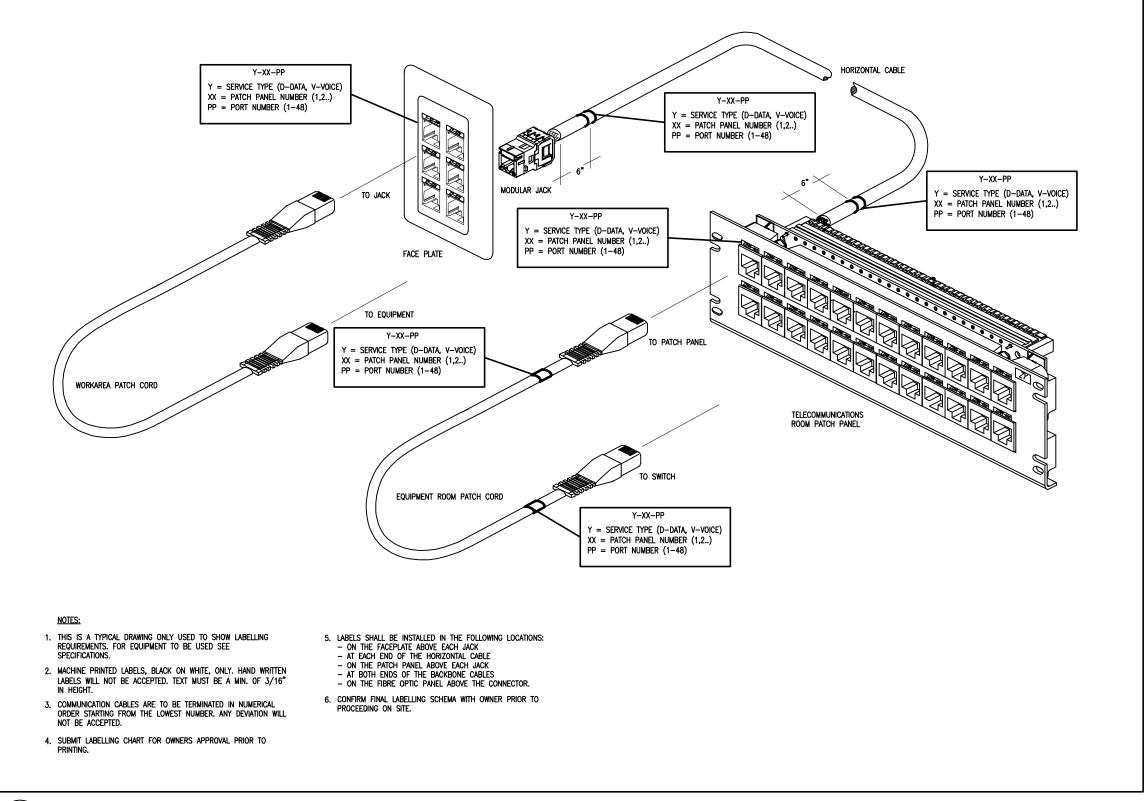
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**T4.0** 

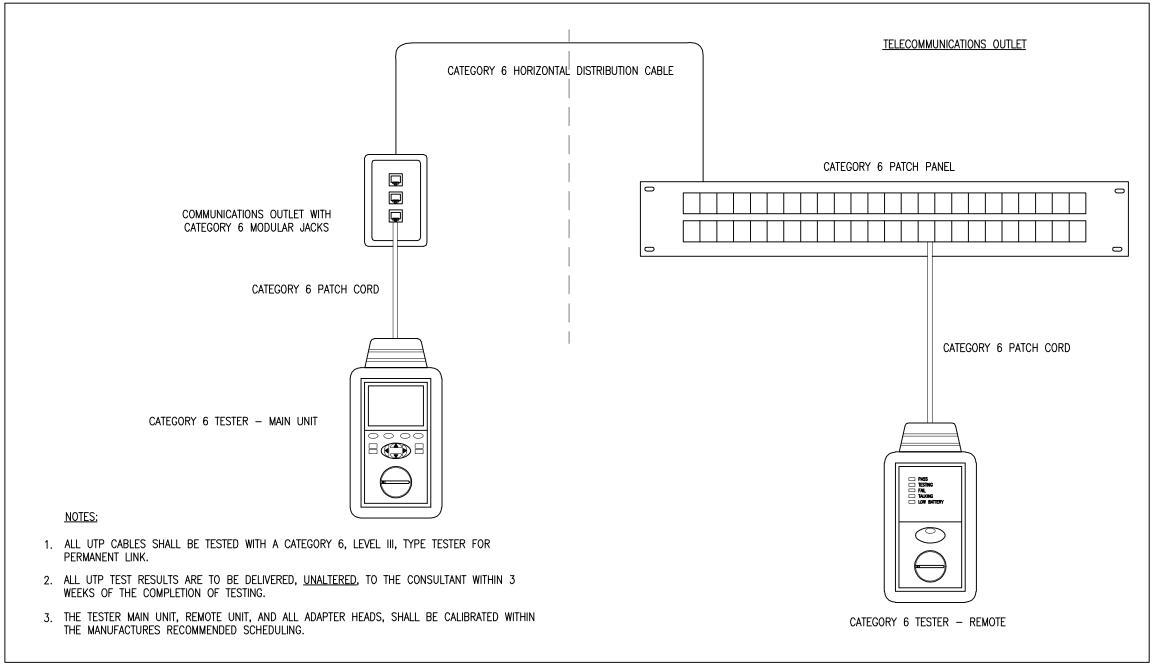


3 COMMUNICATIONS CABLE TRAY IDENTIFIERS - TYPICAL





1 COMMUNICATIONS HORIZONTAL CABLE LABELLING T4.1 N.T.S.



2 CATEGORY 6 UTP CABLE TESTING — TYPICAL T4.1 N.T.S.

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TELECOMMUNICATIONS
DETAILS
2 OF 2

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