

DESIGN STANDARDS FOR OVERHEAD DEVELOPMENT

NSO109

- SERVICE FROM THE EXISTING LOW VOLTAGE RETICULATION SYSTEM
- DIRECT DISTRIBUTOR (415V/240V)
- CUSTOMER SUBSTATION (11kV/415/240V)
SUBSTATION SIZE = 400 KVA

WHERE THE SUPPLY IS TAKEN DIRECT FROM A CUSTOMER SUBSTATION, THE CUSTOMER'S MAIN SWITCH BOARD SHALL BE LOCATED ADJACENT TO THE SUBSTATION.

UNDER GROUND / OVER HEAD POLICY

URBAN AREA

LOW VOLTAGE RETICULATION, LOW VOLTAGE AND AERIAL BUNDLED CABLES SHALL BE USED AS STANDARD CONSTRUCTION.

H.V RETICULATION

THE CONSTRUCTION SHALL BE EITHER OF OPEN WIRE CONSTRUCTION TYPE (OR) COVERED CONDUCTOR TYPE.

MATERIALS USED FOR CONSTRUCTION

CONDUCTOR RATING

11KV, WIND VELOCITY 1 m/s FOR SYDNEY
0.5 m/s FOR HUNTER

MAXIMUM DESIGN TEMPERATURE 75°C

LOW VOLTAGE

WIND VELOCITY 1m/s FOR SYDNEY. 0.5m/s FOR HUNTER

MAXIMUM DESIGN TEMPERATURE 50°C.

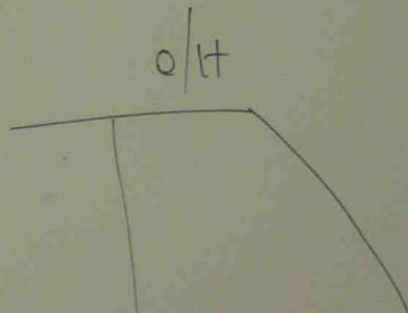
OVER HEAD SERVICES SHALL BE INSTALLED IN ACCORDANCE WITH
NSW SERVICE AND INSTALLATION RULES.

STREET LIGHTING CABLES

MINIMUM CABLE STANDARD 16mm² TWO CORE COPPER.

XLPE INSULATED P.V.C SHEATHED CABLE.

FOUR CORE 16mm² COPPER, XLPE INSULATED PVC SHEATHED
CABLES MAY BE USED.



CABLE INSTALLATION & BONDING

ALL CIVIL WORK, CONSTRUCTION AND BONDING OF CABLES
MUST BE CARRIED OUT IN ACCORDANCE WITH

NS0125 - SPECIFICATION FOR LOW VOLTAGE OVER HEAD CONDUCTOR

NS0126 - SPECIFICATION FOR HIGH VOLTAGE OVER HEAD CONDUCTOR

NS0128 - SPECIFICATION FOR POLE INSTALLATION & REMOVAL

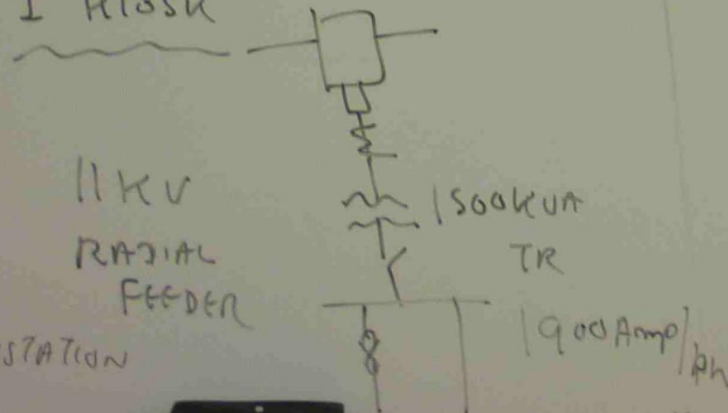
DISTRIBUTION SUBSTATIONS

OVER HEAD NETWORKS MAY BE USED TO SUPPLY
UNDER GROUND SUPPLIED KIOSK (OR) CHAMBER

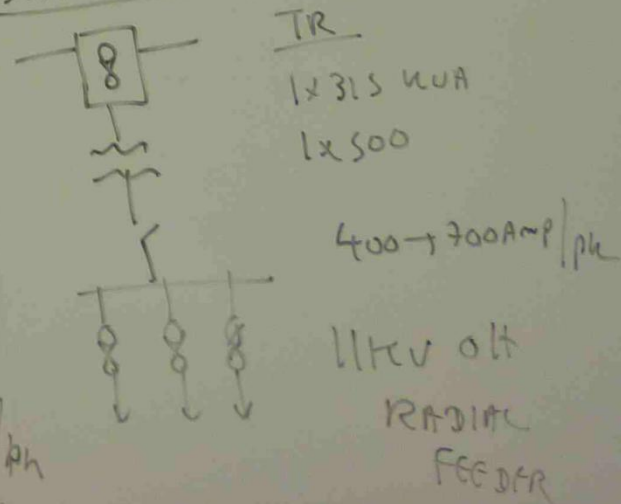
TYPE SUBSTATION

SUBSTATION TYPE

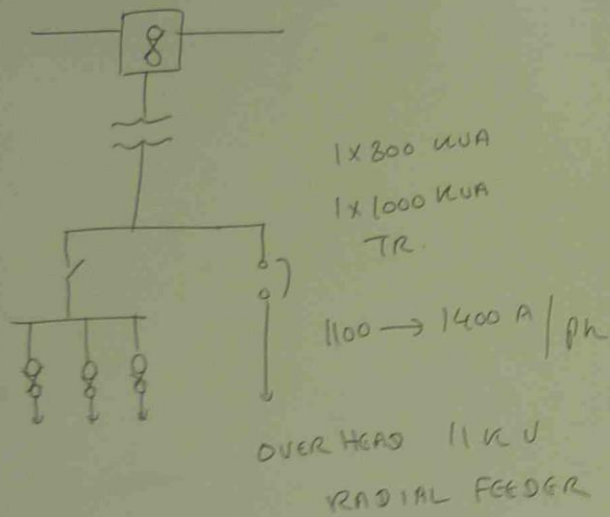
I KIOSK



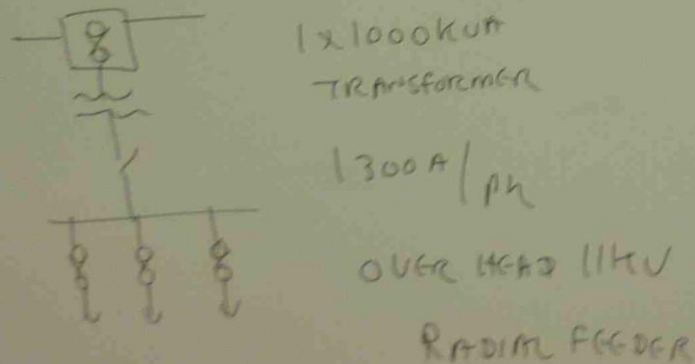
SMALL ORION KIOSK ✓✓



LARGE ORION KIOSK

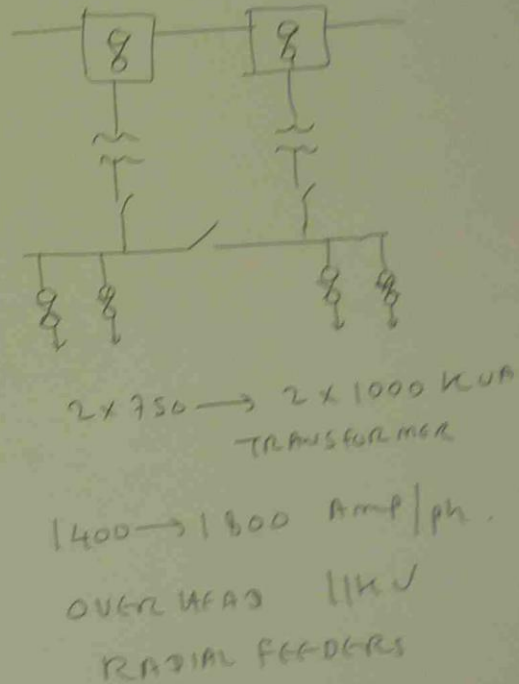


CHAMBER SUBSTATION SINGLE TRANSFORMER



CHAMBER SUBSTATION

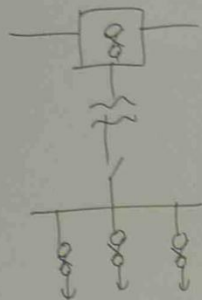
TWO TRANSFORMER



J & K
NOT SUITABLE FOR
INDUSTRIAL + COMMERCIAL
HIGH / MEDIUM DOMESTIC SUPPLY

OTHER KIOSK SUBSTATIONS

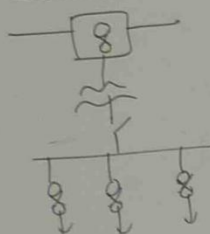
J KIOSK



1x160 kVA → 1x400 kVA
200 → 400 A

UG. 11KV RADIAL (OR)
CLOSED NETWORK FEEDERS

L KIOSK

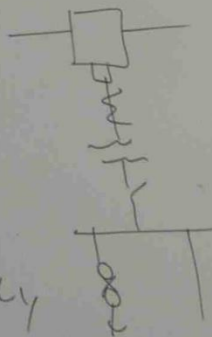


1x400 kVA → 1x1000 kVA

600 → 1400 AMP

UG 11KV RADIAL (OR)
CLOSED NETWORK FEEDERS

K KIOSK

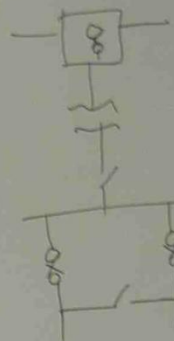


1x1500 kVA

2000 AMP | ph

tic supply

H KIOSK

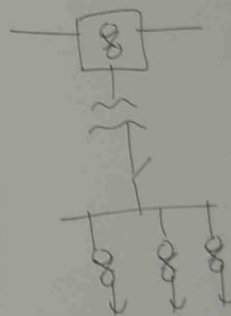


1x400 kVA

500 AMP

OVER HEAD 11KV
RADIAL FEEDER
(ONLY SYDNEY)

E KIOSK



1x400 → 1x750 kVA

500 → 1000 A

OVER HEAD
11KV
RADIAL FEEDER.

K, J KIOSK

FOR SINGLE INDUSTRIAL CUSTOMERS.

THE FOLLOWING STANDARDS ARE TO BE APPLIED FOR SUBSTATION SITTING,
SELECTION, SITE SELECTION, ELECTRICAL CONSTRUCTION AND POLE POSITIONING

NS 0113 - SITE SELECTION - CIVIL DESIGN

NS 0114 - ELECTRICAL DESIGN STANDARD FOR CHAMBER TYPE SUBSTATION

NS 0116 - DESIGN STANDARD FOR DISTRIBUTION EARTHING

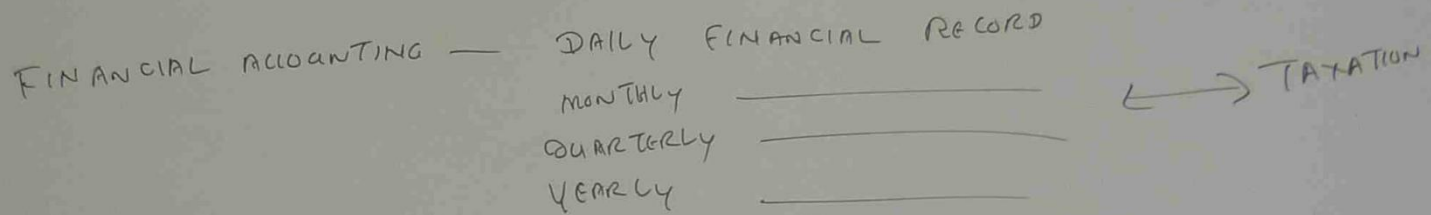
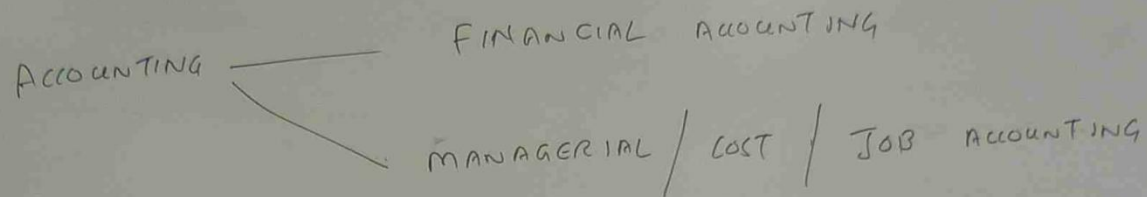
NS 0117 - DESIGN STANDARD FOR KIOSK TYPE SUBSTATION

NS 0122 - POLE MOUNTED SUBSTATION CONSTRUCTION

NS 0169 - POLE POSITIONING

NS 0179 - VEGETATION SAFETY CLEARANCE.

ELECTRICAL CONTRACTING — JOB ACCOUNTING



JOB ACCOUNTING (OR) JOB COST ACCOUNTING IS CRITICAL TO ALMOST ANY ELECTRICAL CONTRACTING ENTERPRISE. WITHOUT IT, THERE IS NO WAY TO CHECK THE PROGRESS AND OUTCOMES OF INDIVIDUAL JOBS.

JOB ACCOUNTING SYSTEM COMPOSES OF THE RECORDS OF THE COSTS OF MATERIALS AND LABOUR.

COMPLEX SYSTEMS

THE COMPLEX SYSTEMS ARE EXPENSIVE TO OPERATE AND NOT MUCH MORE ACCURATE.
ANY INFORMATION WILL NEED CLARIFICATION BEFORE IT CAN BE USED

SECTIONAL SYSTEMS

THE SECTIONAL SYSTEM IS DESIGNED FOR SIMPLICITY. THE JOB IS DIVIDED INTO SEVERAL SECTIONS WHICH ARE ACCOUNTED FOR SEPARATELY.

SECTION ONE - SLAB, SITE WORK, TEMPORARY POWER

SECTION TWO - INTERIOR RACEWAY

SECTION THREE - DISTRIBUTION EQUIPMENTS

SECTION FOUR - WIRE

SECTION FIVE - LIGHT FIXTURES

SECTION SIX - TRIM OUT

SECTION SEVEN - SPECIAL SYSTEMS (OR) OTHER

E.

SECTION (1) TEMPORARY POWER

IT ALSO INCLUDES ANY PRELIMINARY JOB SET UP

SECTION (2) INTERIOR RACEWAY

CONDUIT FITTINGS, PIPE NIPPLES, BUSHINGS, STRAPS, SERVICE HEADS, OUTLET BOXES,
PULL BOXES, UNDER FLOOR DUCT, WALL DUCTS, WIRE WAYS, CABLE TRAYS,
ENCLOSURES AND CABINETS, MISCELLANEOUS

MISCELLANEOUS ITEMS INCLUDE

PLYWOOD BACKBOARDS, PATCH POCKETS, TAPE, WELDING, DUCT SEAL,
SOLDER, PAINT, NAME PLATES, FASTENERS (SCREW, BOLT ETC),
FIXTURE CLIPS, LUGS, WIRE NUTS, GROUND RODS, GROUNDING CLAMPS,
GROUNDING PIG TAILS, CHAIN, THREADED ROD, STRAIN RELIEF GRIPS,
SAW BLADES ETC

SECTION (3) DISTRIBUTION EQUIPMENT

ALL OF SWITCH GEARS

SWITCH BOARDS, PANEL BOARDS, LOAD CENTERS, MOTOR STARTERS (MAGNETIC)
MOTOR CONTROL CENTERS, CIRCUIT BREAKERS, FUSES, METERS, METER CENTERS
CURRENT TRANSFORMER CABINETS, TRANSFORMERS, CAPACITORS,

Encl.

Bus

SE

SE

ENCLOSED CIRCUIT BREAKERS, SAFETY SWITCHES, MANUAL STARTERS, LIGHTING CONTACTORS,
BUS DUCT, TIME CLOCKS, CONTROL ITEMS. (PHOTO CELLS, PUSH BUTTON ETC).

SECTION (4) WIRES

ALL TYPES OF WIRES AND CABLES

SECTION (5) LIGHT FIXTURES

ALL LIGHT FIXTURES, LAMPS (BULBS) SPECIAL HANGERS, TRACK, POLES.

SECTION (6) TRIM OUT

TRIM INCLUDES ALL TRIM OUTS AND EQUIPMENT CONNECTIONS.

IT CONSISTS OF

SWITCHES (ALL TYPES), RECEPTACLES (ALL TYPES), CORD SETS,
TRIM PLATES, PLUGS, FLEXIBLE CONDUIT CONNECTIONS, LOW
VOLTAGE RELAYS.

SECTION (7) SPECIAL SYSTEMS

FIRE ALARM SYSTEM, NURSE CALL SYSTEM, SOUND SYSTEM, CLTU, SECURITY SYSTEM,
SPECIAL HOSPITAL SYSTEM, EMERGENCY POWER SYSTEM, ENERGY MANAGEMENT SYSTEM,
CONTROL, PROCESS SYSTEM, UPS SYSTEM, LIGHTNING PROTECTION SYSTEM,
SIGNALLING SYSTEM, ELECTRIC HEATING SYSTEM

JOB COSTS, LABOUR COSTS ARE RECORDED IN RECORD.

JOB NAME _____ JOB NUMBER _____

SECTION _____

WEEK ENDING	HOURS	HOURS TO DATE	MATERIALS	MATERIAL TO DATE	-%	PURCHASE ORDER NO	COMPLETE

ESTIMATED HOUR _____ ESTIMATED MATERIALS _____ FINAL REVIEW

JOB REVIEW

JOB NAME _____

JOB NUMBER _____

REVIEWER _____ DATE _____

SECTIONS	HOURS	MATERIALS	ESTIMATED HOUR	ESTIMATED MATERIAL	HOURS RESULT	MATERIAL RESULT
1						
2						
3						
4						
5						
6						
7						

JOB COST

WEEK ENDING	ITEM	AMOUNT	PURCHASE ORDER (PO) NUMBER	COMPLETE

JOB COST TYPICALLY INCLUDES THE FOLLOWING:

STORAGE TRAILER / RENTAL INSURANCE

OFFICE TRAILER RENTAL INSURANCE

EQUIPMENT RENTAL

JOB SITE UTILITIES

BLUE PRINTING COST, TRAVEL, LODGING, PERFORMANCE BONDS,

FRIGHT EXPENSES, (ANY OTHER EXPENSES CAUSED BY JOB

BUT NOT INCLUDE COMPANY OVERHEADS)

DAILY TIME CARD

NAME _____ DATE _____

JOB NO. _____ JOB NAME _____

SECTION	1	2	3	4 --- 7
HOURLY				

