

HAZARD IDENTIFICATION

E071 + E017

IF THE SPECIFICATION FOR PLANT | EQUIPMENT | PROJECT WHERE THE RISK TO OCCUPATIONAL HEALTH AND SAFETY EXIST, THE SPECIFICATION SHOULD OUTLINE THE INFORMATION FOR OHS.

- THE SUGGESTION TO OPERATOR HOW TO WORK
- INSTRUCTION AND ADVICE ON TOOLS / MATERIALS AND EQUIPMENT REGARDING SAFE WORKING AND SAFE OPERATION.
- OUTLINE ANY POSSIBLE UNSAFE PRACTICE AND THE THINGS TO AVOID.

TO GET THE COMPLETE INFORMATION, THE WRITER OF SPECIFICATION SHOULD ASK THE WORKING PERSONNELS FOR THE FOLLOWING ASPECTS.

- How people actually work?
- How plant and equipments are used?
- Usage of chemicals
- What safe or unsafe practice exist?
- General house keeping
- What hazards exist
- Record of injury.

THE WORK PLACE HAVE THE FOLLOWING UNSAFE SITUATIONS

- Exposed conductors & high voltage level
- Power factor correction capacitors
- Multiple supply sources
- Men connection
- Possible damp situation
- Coils and reactors.
- Possible of switched off circuit becoming live.

EX WRITE A SAFETY INSTRUCTION FOR WORKING NEAR LOW VOLTAGE INSTALLATION AND SYSTEM. THE INSTRUCTION IS TO ADVISE ELECTRICAL CONTRACTORS OF AVOIDING ELECTRICAL HAZARDS

(SPECIFICATION HOW TO WORK / HOW TO AVOID THE DANGER)

THE CONTRACTORS MUST FOLLOW THE FOLLOWING ELECTRICAL SAFETY PROCEDURE

- MEASURE VOLTAGES BETWEEN PHASES AND EARTH. PLACE THE APPROPRIATE WARNING NOTICE
- MEASURE THE VOLTAGE OF THE METAL FRAMEWORK CLOSE TO LIVE EXPOSED CONDUCTORS.
- TAKE CARE ON WORKING WITH CAPACITORS AS VOLTAGE MAY EXIST ACROSS UNDISCHARGED CAPACITORS.
- TEST THE MULTIPLE SUPPLY SOURCE OF POSSIBLE LIVE CONDITION
- MUST FOLLOW ELECTRICAL TESTING (OR) OPERATING EQUIPMENTS WITH OPEN ENCLOSURES IN HAZARDOUS AREAS AS DEFINED BY AS 3000:2007.
- SAFE PROCEDURE OUTLINED FOR DAMP SITUATION IN AS 3000:2007

- APPROPRIATE WARNING SIGN TO BE PLACED ON COLLS NEAR HIGH VOLTAGE OF POSSIBLE H-V

EX PREPARE A GENERAL ELECTRICAL SAFETY ADVICE FOR THE EMPLOYEES WHO ARE MODIFYING EXISTING ELECTRICAL INSTALLATION (OR) SYSTEM.

THE CONTRACTOR MUST BE AWARE OF

- THE SUPPLY MAY BECOME LIVE DURING WORK
- AUTOMATIC STARTING OF MACHINERY AFTER THE SUPPLY IS RESTORED
- MORE THAN ONE SOURCE OF SUPPLY (OR) LIVE CIRCUIT MAY BE AVAILABLE ON THE PREMISE

- DETEIORATED INSULATION OF OLD INSTALLATION SYSTEM

- RISE IN EARTH POTENTIAL OF MEN SYSTEM

- MAKE CLEAR TO ACCESS TO LOCATE ELECTRIC CABLES

- DAMAGE TO CONDUCTORS IN METALLIC CONDUITS WHERE EARTHING CONTINUITY OF THE CONDUIT HAS NOT BEEN MAINTAINED

- LOOSE BOLT / SCREW IN HAZARDOUS AREA
- MUST NOT WORK ALONG ON LIVE EQUIPMENT OR INSTALLATION
- PROPER CHECKING OF CABLES BEFORE EXCAVATION.

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- PROPER CHECKING OF CABLES BEFORE EXCAVATION.

1. PREPARE THE SAFE WORKING PROCEDURE FOR GENERAL ELECTRICAL TESTING WORK.

THE FOLLOWING GENERAL SAFETY PROCEDURES ARE TO BE OBEYED.

- TESTING MUST BE DONE PRIOR TO TOUCHING.
- IDENTIFY THE ELECTRICAL EQUIPMENTS. IDENTIFICATION MUST INCLUDE CLEAR LABELLING
- THE ELECTRICAL EQUIPMENT TO BE WORKED ON MUST BE ISOLATED FROM ALL SOURCE OF SUPPLY
- APPROPRIATE TAGS MUST BE PLACED AT ALL POINTS OF SWITCHING
- ALL CIRCUIT BREAKERS AND COMBINED FUSE SWITCH UNITS MUST BE LOCKED OFF WHERE POSSIBLE
- ALL ELECTRICAL EQUIPMENTS UNLESS PROVEN TO BE DE-ENERGIZED MUST BE TREATED AS LIVE

CONDUCTORS SUPPLYING THE EQUIPMENT MUST BE BONDED AND ATTACHED TO EARTH

- DE-ENERGIZE THE CABLE BEFORE CUTTING
- THE OUT OF SERVICE EQUIPMENT MUST BE ISOLATED FROM SUPPLY, TEST FOR DE-ENERGIZING AND THEN REMOVE.

PREPARING THE ELECTRICAL INSTALLATION DIAGRAM AND SPECIFICATION

SINGLE PHASE 1 CIRCUIT | MAIN SUPPLY AND PROTECTION.

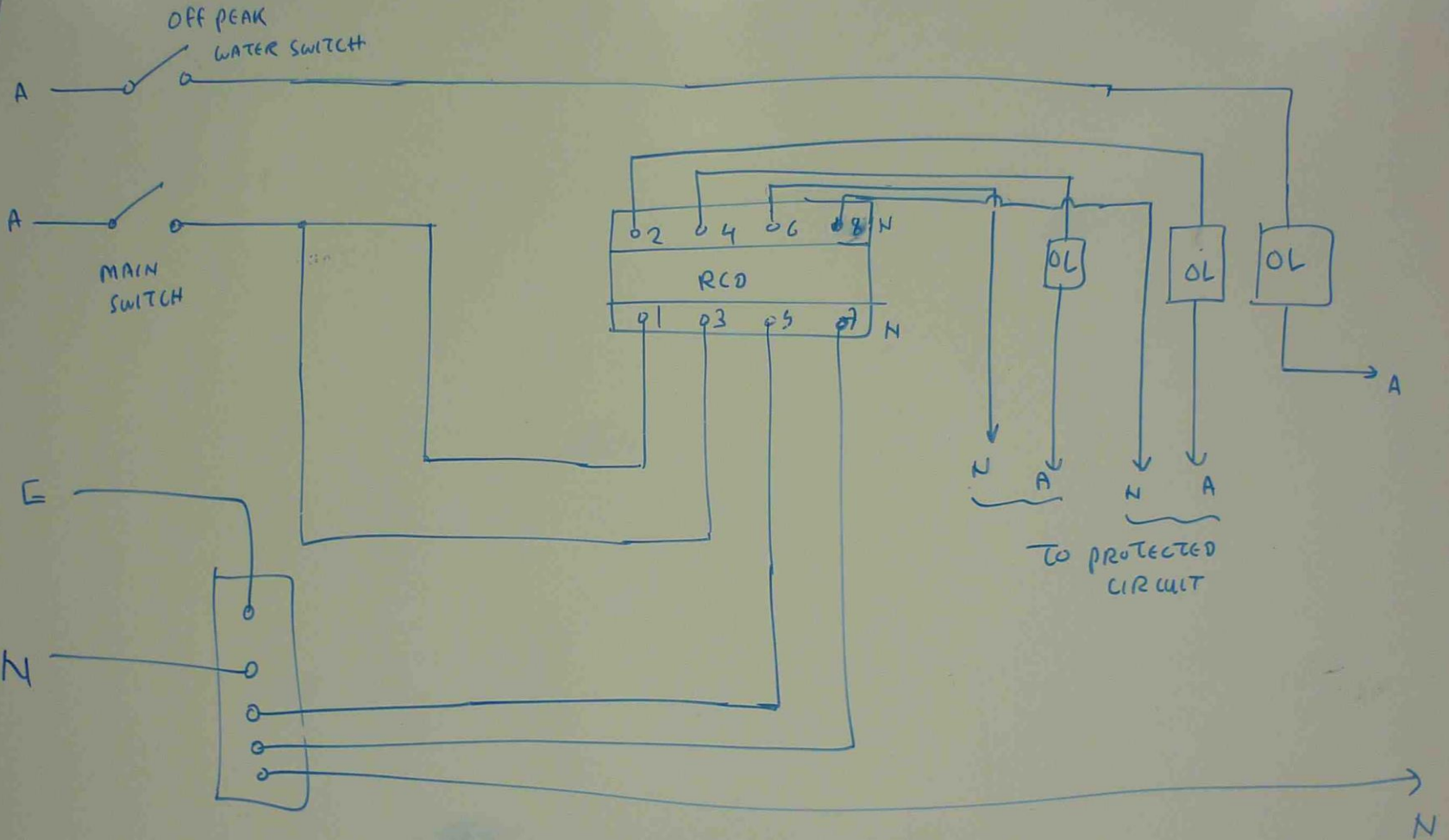
Ex

YOU ARE REQUIRED TO PROVIDE AN ELECTRICAL INSTALLATION DIAGRAM AND SPECIFICATION FOR MAIN POWER SUPPLY FOR

SINGLE PHASE 2 CIRCUITS.

SKETCH AN ELECTRICAL INSTALLATION DIAGRAM AND SPECIFICATION

INSTALLATION DIAGRAM



MAIN SUPPLY WIRE

THE MAIN SUPPLY WIRE MUST HAVE THE APPROXIMATE SIZE AND THE CALCULATION OF THE SIZE MUST BE IN ACCORDANCE WITH MAXIMUM DEMAND AND AS 3008 REQUIREMENT.

MAIN SWITCH

MAIN SWITCH MUST BE IN ACCORDANCE WITH AS 3000: 2007

CLAUSe NUMBER _____.

MAIN SWITCH LOCATION AND ACCESSIBILITY MUST BE IN ACCORDANCE WITH

AS 3000: 2007 CLAUSe NO _____.

THE SIZE OF MAIN SWITCH MUST BE COMPATIBLE WITH CONSUMER SUPPLY WIRE

RCD

RCD MUST BE CAPABLE OF PROTECTING TWO CIRCUITS.

THE SIZE OF RCD MUST BE COMPATIBLE WITH THE CIRCUIT CURRENT AND VOLTAGE.

RCD MUST FOLLOW AS 3000: 2007

CLAUSe NO _____.

SUB MAIN	OVER LOAD PROTECTION
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OVER LOAD PROTECTION DEVICE CLASSIFICATION MUST BE APPROPRIATE TO CIRCUIT

OVERCURRENT PROTECTION REQUIREMENT THEIR OPERATION TIME MUST MEET THE

THE SIZE OF MAIN SWITCH MUST BE
COMPATIBLE WITH CONSUMER SUPPLY
WIRE

RCD

RCD MUST BE CAPABLE OF PROTECTING
TWO CIRCUITS.

THE SIZE OF RCD MUST BE COMPATIBLE
WITH THE CIRCUIT CURRENT AND VOLTAGE.

RCD MUST FOLLOW AS 3000:2007

CLAUSE NO _____

SUB MAIN	OVER LOAD PROTECTION
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OVER LOAD PROTECTION DEVICE CLASSIFICATION
MUST BE APPROPRIATE TO CIRCUIT

OVERCURRENT PROTECTION REQUIREMENT
THEIR OPERATION TIME MUST MEET THE

PROTECTION TIME REQUIREMENT.

THE PROTECTION CIRCUIT BREAKERS MUST BE CLEARLY
LABELLED ON THE MAIN SWITCH BOARD AND THE
DEVICES THAT THEY PROTECT MUST BE INDICATED

FINAL SUB CIRCUIT

THE SIZE OF FINAL SUB CIRCUIT WIRE MUST
BE APPROPRIATE SIZE SO THAT THE VOLTAGE
DROP MUST NOT EXCEED $\pm 5\%$ OF SUPPLY
VOLTAGE.

THE CONNECTIONS OF FINAL SUB CIRCUITS,
THE JUNCTIONS ARE TO BE CLEARLY INDICATED
ON THE DIAGRAM AND ARE TO BE PROVIDED
WITH ACCESSIBILITY FOR FUTURE MODIFICATION
AND RENOVATION.

APPROPRIATE ARRANGEMENT FOR FUTURE EXPANSION OF POWER POINTS AND LOAD ALSO NEEDS TO BE PROVIDED.

ACTIVE WIRE SIZE MUST BE IN ACCORDANCE WITH THE MAXIMUM DEMAND OF THE CONNECTED LOAD.

THE SIZE OF NEUTRAL WIRE MUST COMPLY WITH AS 3000:2007 CLAUSE NO _____.

A SEPARATE OFF PEAK WATER SUPPLY CIRCUIT MUST BE PROVIDED.

A SEPARATE OVER LOAD PROTECTION AND NEUTRAL WIRE MUST BE PROVIDED.

OFF PEAK WATER SUPPLY MUST NOT PASS THROUGH R.C.D.

EARTHING SYSTEM

MEN SYSTEM MUST BE APPLIED

THE MEN - EARTH & NEUTRAL LINK MUST BE IN ACCORDANCE WITH AS 3000:2007 CLAUSE NO _____.

THE SIZE OF EARTHING CONDUCTOR MUST BE IN ACCORDANCE WITH AS 3000:2007 CLAUSE NO _____.

TESTING

TESTING OF INSULATION RESISTANCE BETWEEN ACTIVE WIRES, ACTIVE TO EARTH, ACTIVE TO NEUTRAL MUST BE DONE AND THE RESULTS MUST COMPLY WITH AS 3000:2007 CLAUSE NO _____.

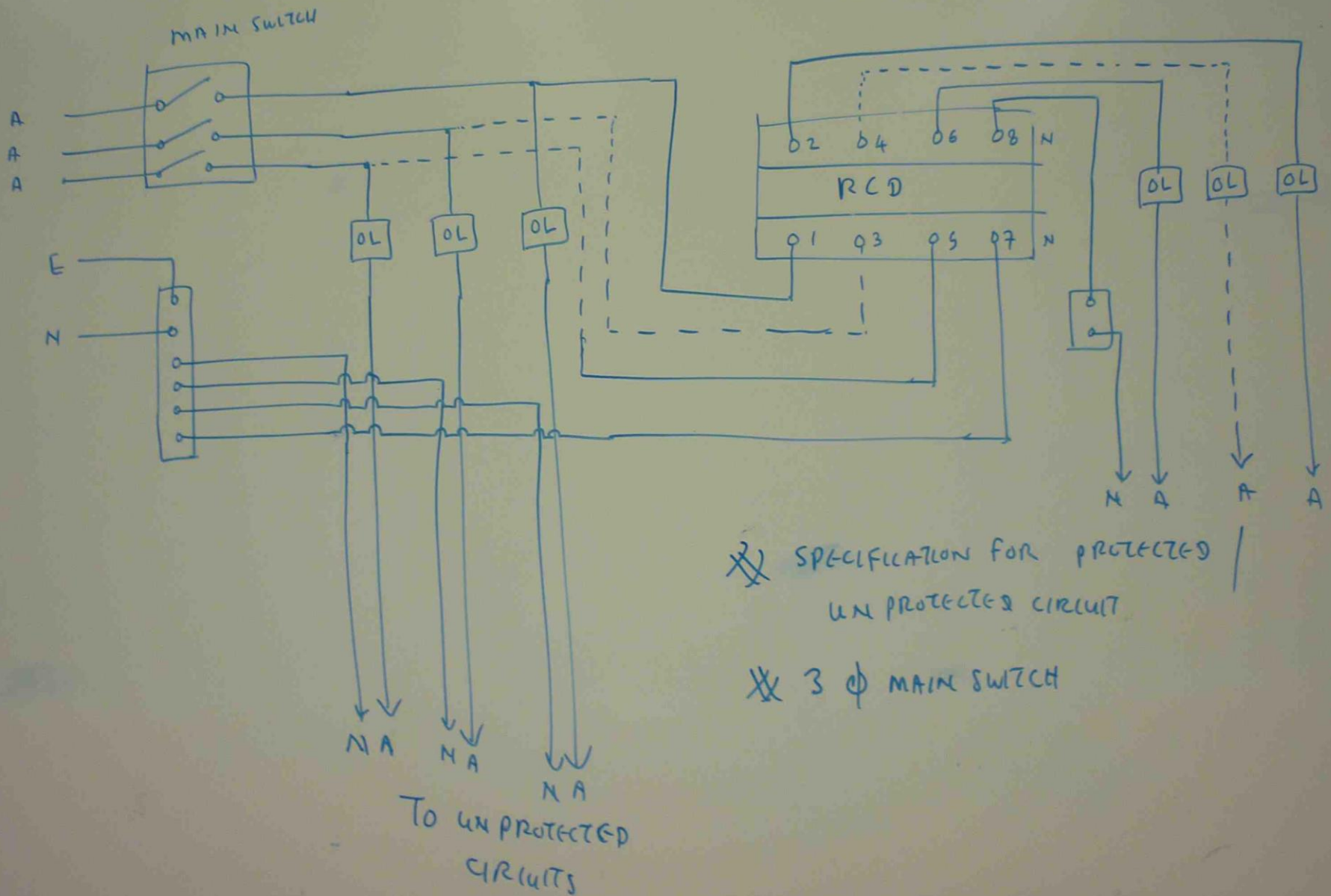
POLARITY TESTING MUST ALSO BE PERFORMED AND THE RESULT MUST ALSO BE PROVIDED.

SINGLE PHASE - 3 CIRCUIT

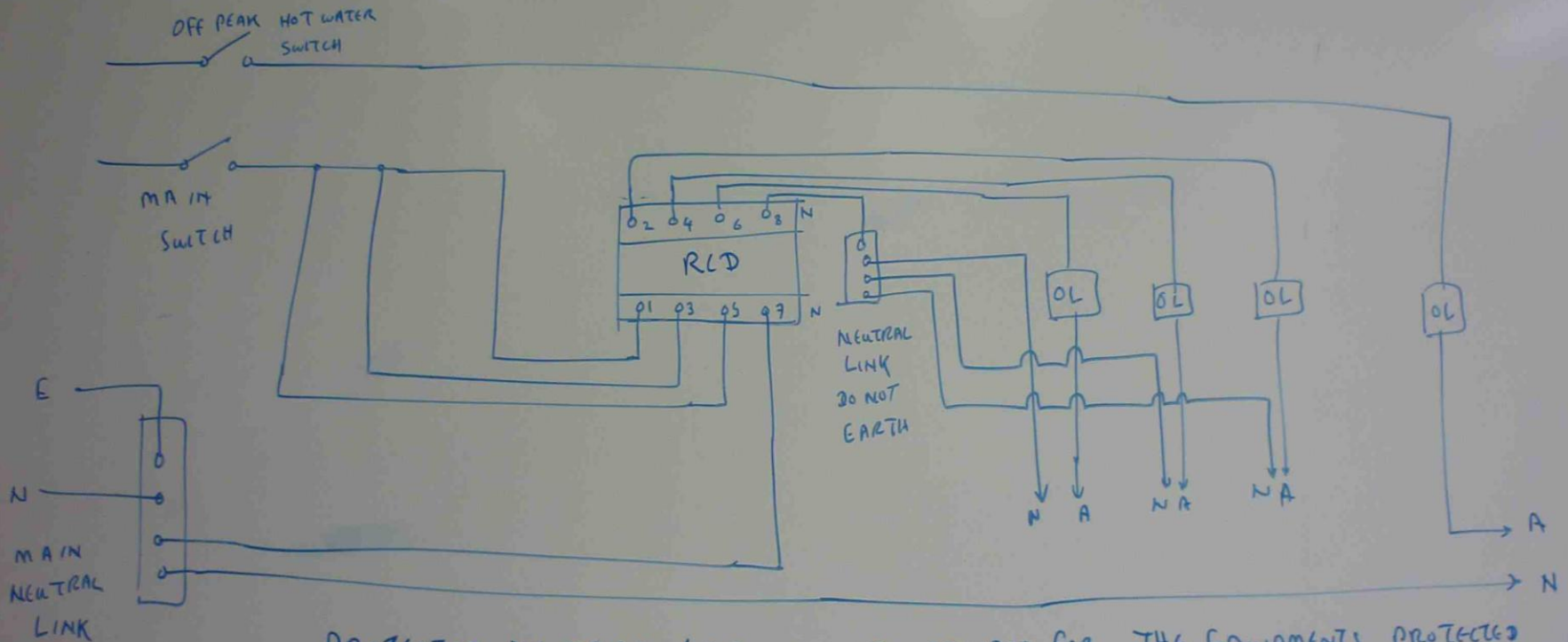
PROTECTED NEUTRAL LINK MUST BE PROVIDED FOR THE EQUIPMENTS PROTECTED BY R.C.D. THE RCD MUST CUT OFF BOTH ACTIVE AND NEUTRAL WIRES.

PROTECTED NEUTRAL LINK MUST NOT BE EARTHED

THREE PHASE CIRCUITS / OUT LETS



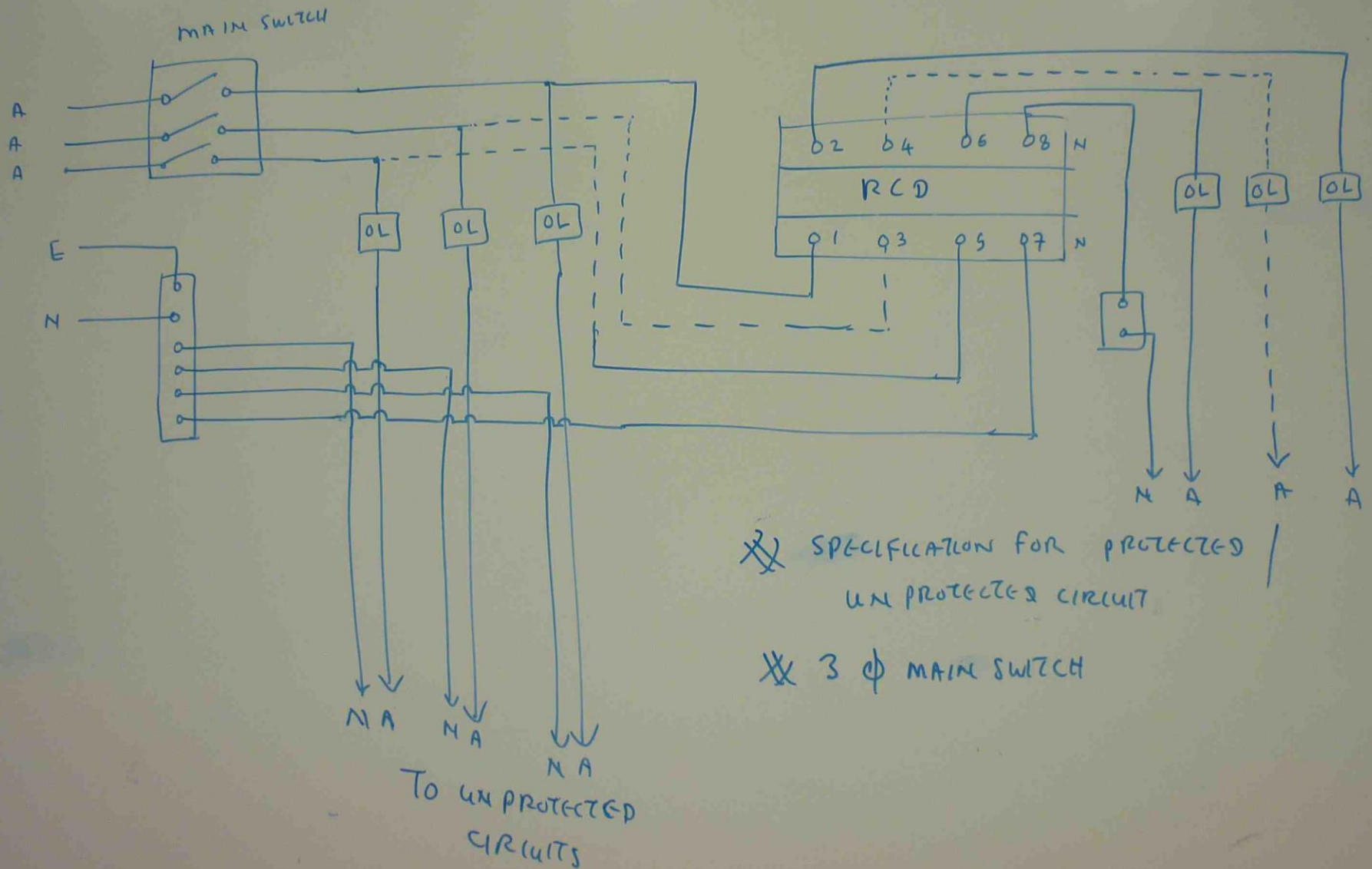
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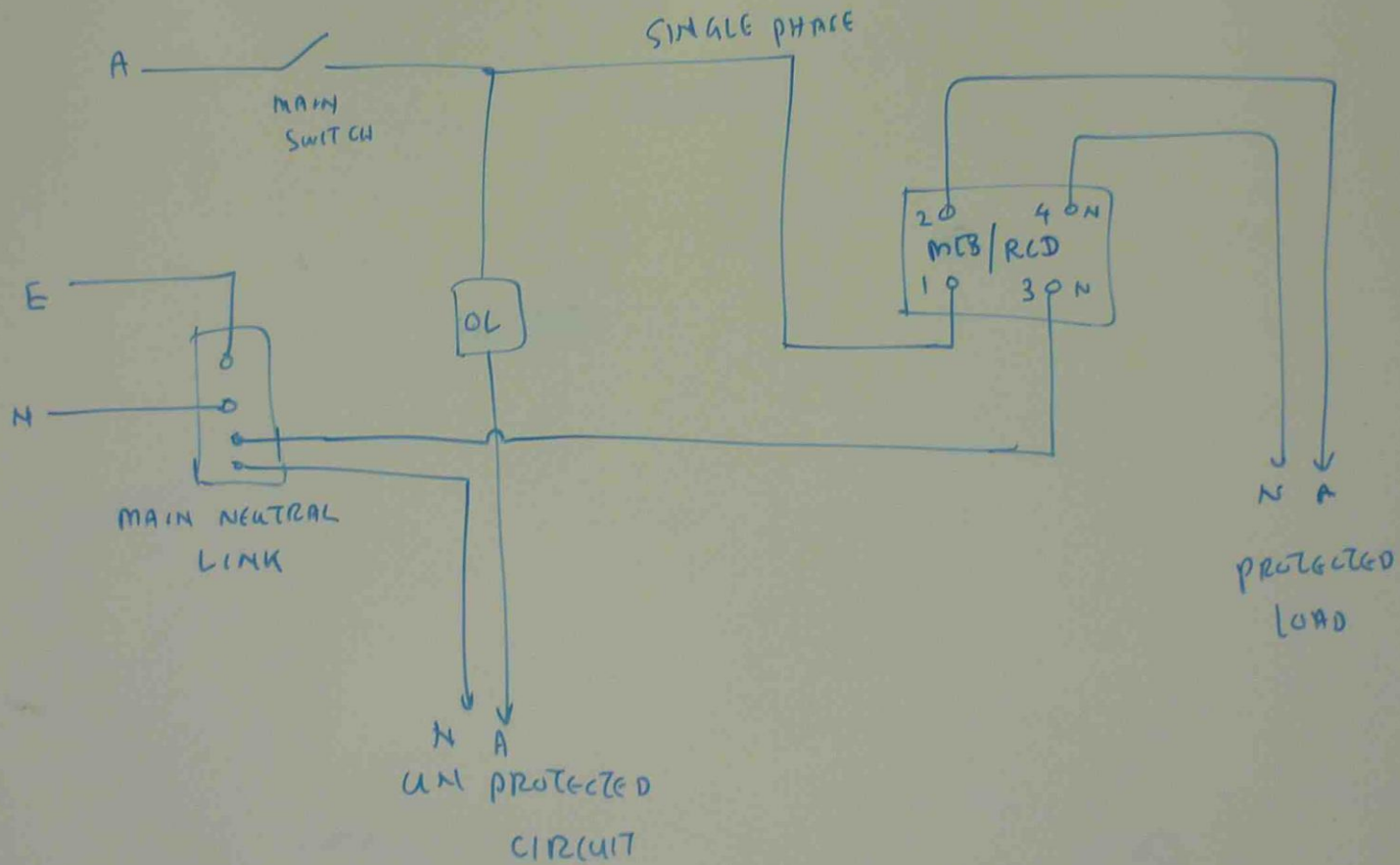
PROTECTED NEUTRAL LINK MUST NOT BE EARTHED.

THREE PHASE CIRCUITS / OUT LETS



WILL CO RCBM SERIES COMBINED

MCB | RCD WIRING DIAGRAM



RESIDENTIAL ELECTRICAL CONTRACTING WORK

THE NATURE OF RESIDENTIAL ELECTRICAL WORK IS DIFFERENT FROM LARGE COMMERCIAL CONTRACTS. PLANNING, ESTIMATION, QUOTATION AND INSTALLING ARE TO BE COMPLETED IN A SHORT TIME WITH SHORT NOTICE. JOB LAY OUT, PRE JOB PLANNING ARE TO BE REFERRED TO PREVIOUS EXPERIENCES IN SEVERAL TIMES.

THE FOLLOWING STANDARDS ARE IMPORTANT IN RESIDENTIAL WORKS.

- ① EXACTLY HOW THREE WAY SWITCHES WILL BE WIRED.
- ② THE MARKING OF WIRES
- ③ THE HEIGHTS OF RECEPTACLES AND SWITCHES.
(ESPECIALLY CRITICAL ABOVE COUNTER TOPS IN KITCHEN)

INSTALLATION PROCEDURES

- ① UNLOAD ALL MATERIALS AND TOOLS THAT WILL BE USED THAT DAY.
PLACE ALL MATERIALS AND TOOLS IN AN ACCESSIBLE AND CENTRAL LOCATION
 - ② RUN AN EXTENSION CORD TO THE POWER SOURCE
 - ③ FILL AND HANG THE REQUIRED CABLE DISHES
 - ④ MOUNT ALL OF THE ELECTRICAL BOXES.
 - ⑤ MOUNT PLASTER RINGS FOR LOW VOLTAGE OUTLETS
 - ⑥ DRILL ALL HOLES AND NOTCH ANY FRAMING MEMBERS AS REQUIRED.
 - ⑦ INSTALL CABLE EXACTLY SHOWN ON PLANS. AS EACH ARE IS COMPLETED. HIGHLIGHT IT BY MARKER.
- (a) INSTALL BRANCH CIRCUIT CABLE FIRST
- (b) INSTALL TV. PHONE
- (c) FOLLOW POWER CIRCUITS
- (d) APPROPRIATE CABLE COMING OUT LENGTH
- ⑧ INSTALL SERVICE PANEL. INSTALL CONNECTOR BEFORE MOUNTING PANEL.

9) BRING ALL CABLES INTO PANELS. BE SURE THAT ALL ARE MARKED.
USE A CONNECTOR FOR SERVICE CABLE.
COVER THE PANEL FRONT WITH CUPBOARD

10) MOUNT AND WIRE METER BASE

11) DRIVE GROUND ROD AND RUN GROUNDING ELECTRODE CONDUCTOR

12) INSTALL SERVICE RISER FOR OVER HEAD SERVICE (OR) DROP IN TO UNDERGROUND SERVICE

13) SPLICE ALL BRANCH CIRCUIT CABLES

14) DOUBLE CHECK THE ENTIRE JOB TO BE SURE THAT EVERYTHING IS COMPLETE

LOAD ALL MATERIALS AND TOOLS BACK INTO TRUCK.

THOROUGHLY CLEAN UP THE JOB SITE.

