

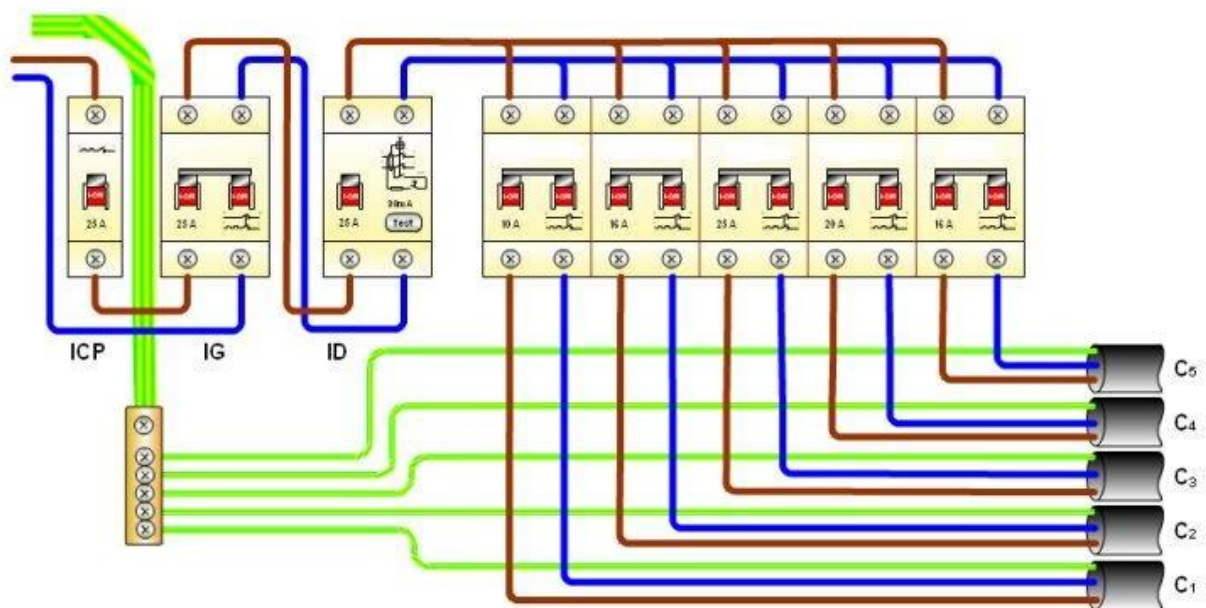
STUDENTS' WORKSHOP MINI PROJECT -1

Title: Electrical Installation of a house under Spanish Regulations

DESCRIPTION:All electrical installations with low voltage have to be made following specific rules: REBT (Electro Technical Regulations for Low Voltage). This National Law is the guide for all Electro Technicians in outdoor and indoor installations.

Our proposal for Mini Project is based on chapter ITC25: Electric Installations in Houses. The basics of this chapter are:

- There are two levels of installations: Basic and Extended. Our proposal for Mini Project is a **Basic Installation in a House**.
- The main panel for this installation (Panel for Control and Safety) will contain following elements:



1. **ICP: Switch for Power Control.** It is a Magneto Thermal Protection Breaker to control max current. This device is controlled by company supplier.
2. **IG: General Switch.** It is a Magneto Thermal Protection Breaker to protect full installation against short circuit.
3. **ID: Differential Switch.** It is Differential Switch to detect earthing.
4. **Five MCB (Miniature Circuit Breaker) for circuits.** It is a Magneto Thermal Protection Breaker to control max current of each circuit.

Task 1:

All devices of Main Panel will be put and wired by students.

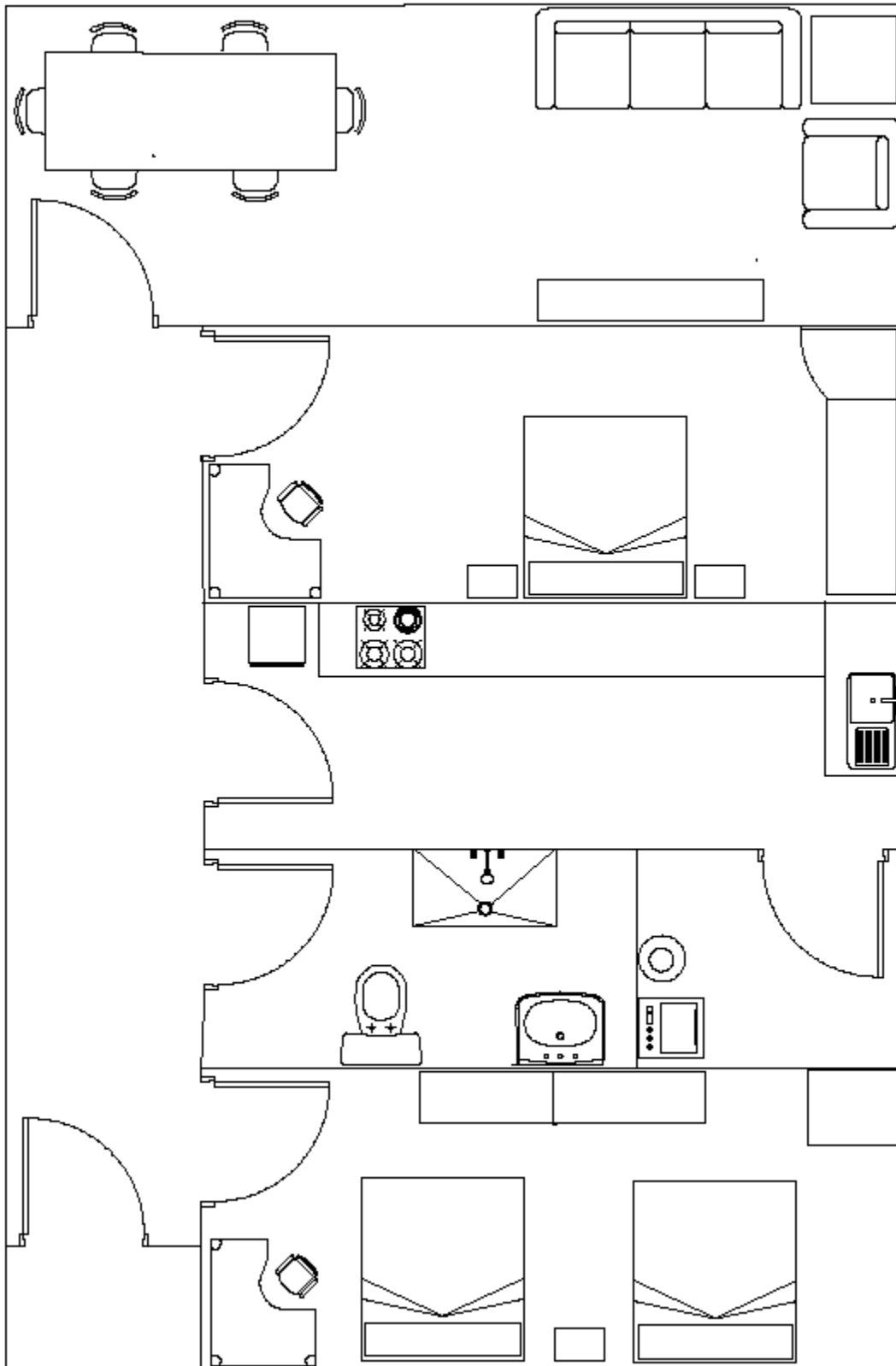
According with Spanish regulations, a **Basic Installation** in a House requires FIVE different circuits:

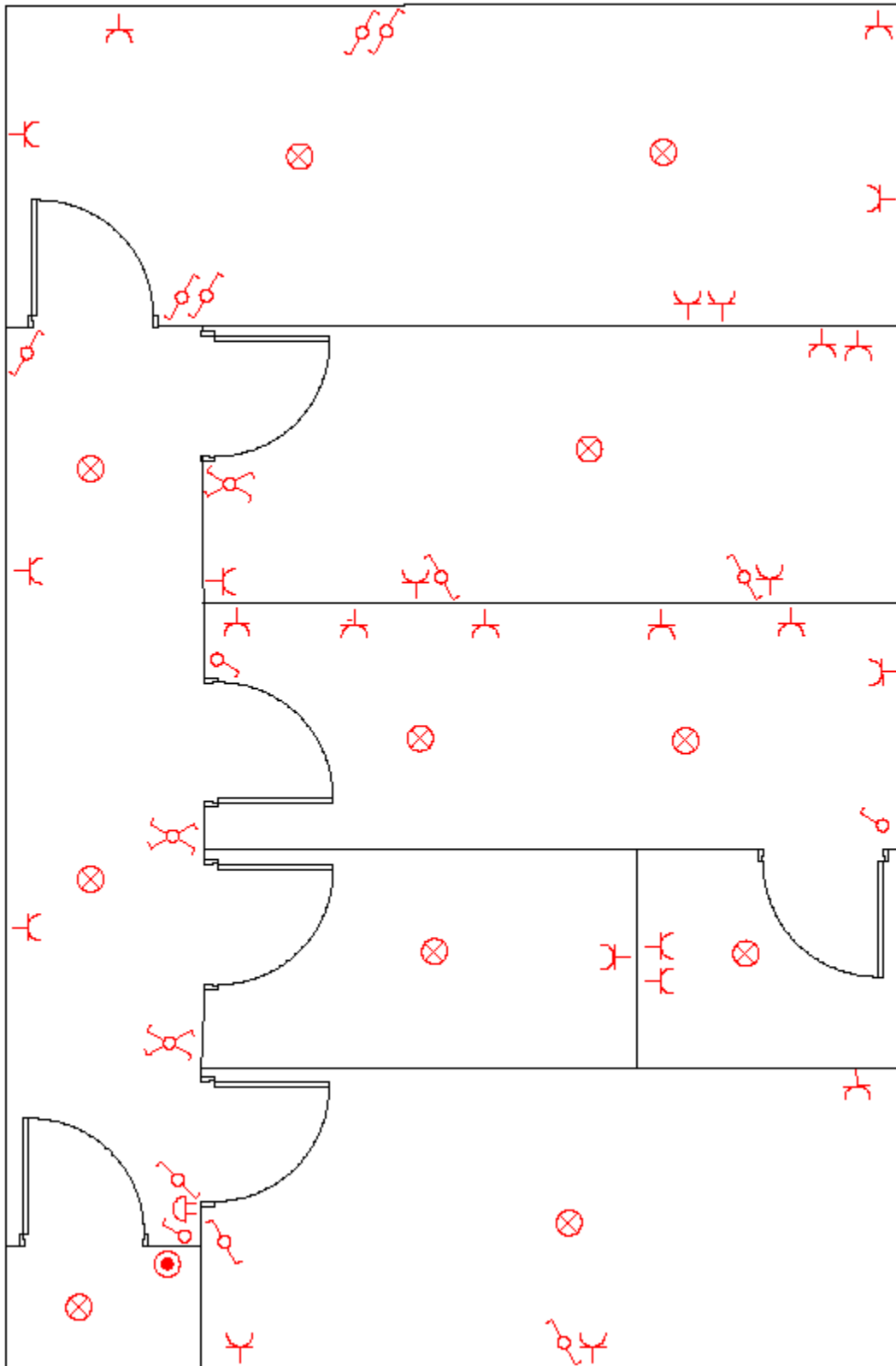
	Description	MCB	PIPE diameter	WIRE section
C1	Lighting in the House (max. 30 lighting points)	10 amp.	16 mm.	3 x 1.5 mm ²
C2	General Power Sockets (max. 20 power points)	16 amp.	20 mm.	3 x 2.5 mm ²
C3	Cooking board + Oven	25 amp.	25 mm.	3 x 6.0 mm ²
C4	Washing machine + Water heater + Dishwashing	20 amp.	20 mm.	3 x 4.0 mm ²
C5	Power sockets in bathrooms and kitchen board	16 amp.	20 mm.	3 x 2.5 mm ²

Note: In case of additional circuits/devices: Air conditioning, heater, more than 30 lighting points, more than 20 power socket points, house bigger than 160 m², automation devices, the house would require an **Extended Installation** with different regulation than a Basic Installation.

Task 2:

All devices of the installation (switches and power sockets) in each room of the house will be connected to the appropriated circuit, according with the following scheme, using correct wire and checking that everything works fine.





ICP	IG	ID	C ₁	C ₂	C ₃	C ₄	C ₅
(x)	(x) (x)	(x) (x)	(x) (x)	(x) (x)	(x) (x)	(x) (x)	(x) (x)
			Lighting 	Power 	Kitchen 	Washing M 	Bathrooms
25A	25A	25A	10A	16A	25A	20A	16A
(x)	(x) (x)	(x) (x)	(x) (x)	(x) (x)	(x) (x)	(x) (x)	(x) (x)

