

EEE 314

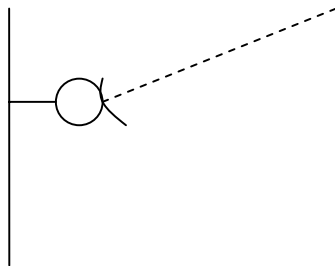
Electrical Services Design

Conduit Layout Lecture 2

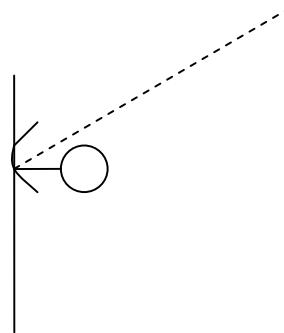
**Prepared by: Md. Itrat Bin
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Some points related to previous lecture:

- 5A receptacle points can be a three pin or two pin points, but a 15A receptacle point is always a three pin point.
- While designing a single storied building, we are always seeing the conduits going down. So 'conduit going down' mark should be placed after each conduit termination.
- In fittings and fixture diagram fluorescent lights must be small in length compared to the diameter of ceiling fan.
- Conduits must be connected to the point of appliance's electrical connection. Not to appliance's outside edge. As,



Wrong

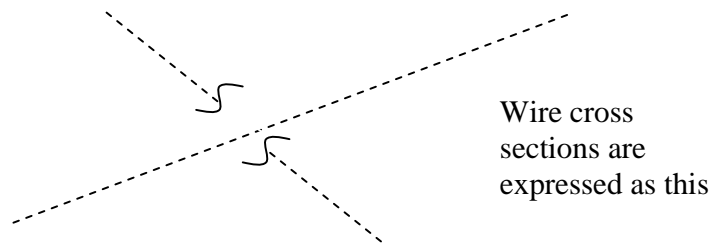


Right

- Any size of conduits can be used but only those available to the market have to be used.
- 5A components are driven by 1.5 mm² wires and 15A components from 4 mm². 2.5 mm² wires are also used to drive some instruments but it is usual practice to use 4 mm² wires for high current rated instruments. 2.5 mm² wires are generally used to connect switchboards if a lot of load is connected to the switchboard and also for switchboard to distribution board connection.
- Wire should be drawn from distribution board to each switchboard. It is not necessary to draw wires to every switchboard from distribution board, if there are several interconnected switchboards then only one needs to be connected to the distribution board. In this way several group of switchboards are made and each group is connected to the distribution board.

Some general concepts about a conduit layout:

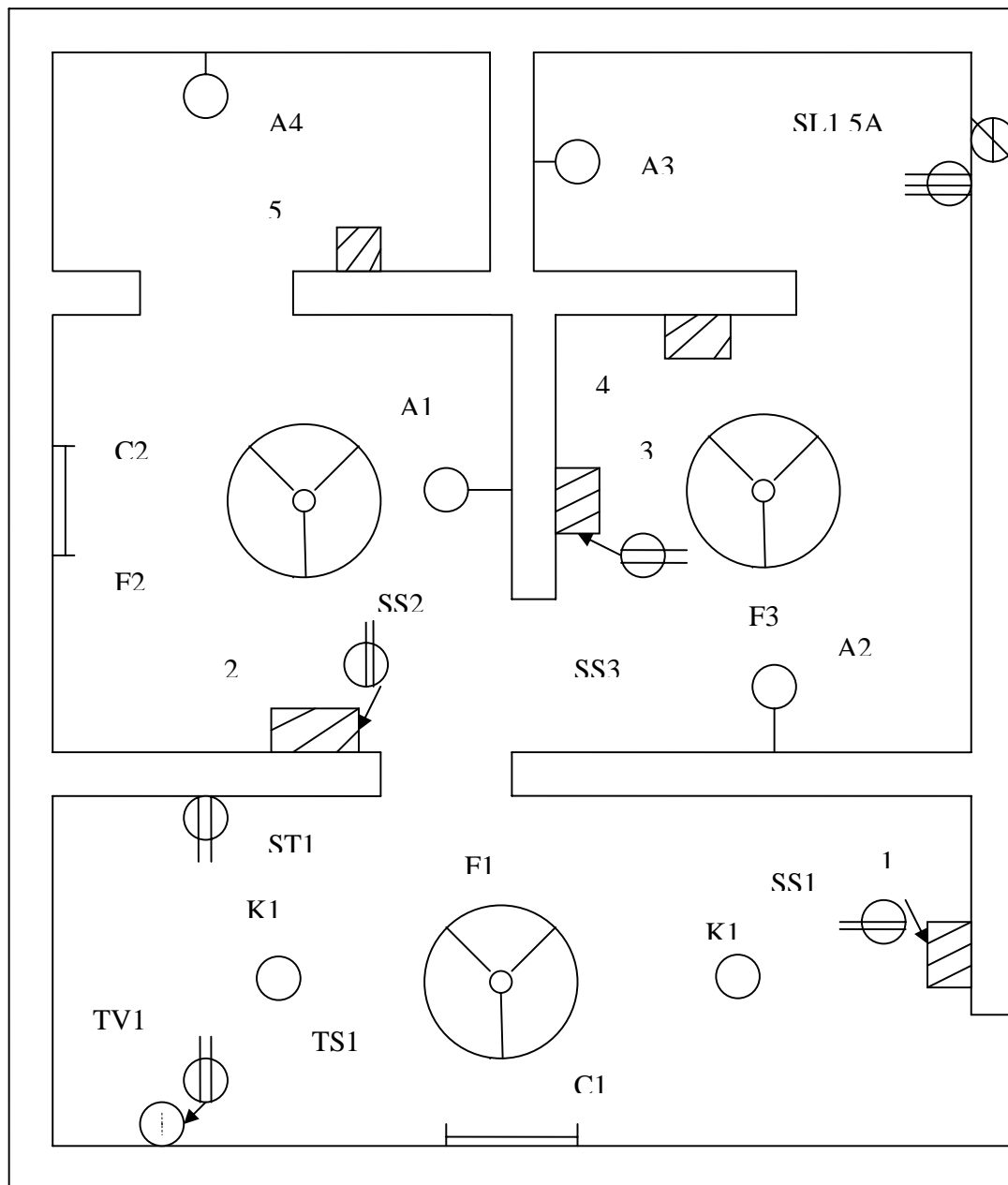
- There should be as small number of cross points of conduits as possible.



- If more than one conduit is to be placed in a room then 90° alignment between the conduits should be kept as long as possible.
- Prime target of conduit layout is to use least length of conduit not least number of them.
- There is no need to place a separate conduit for two switchboard interconnection. Any other conduits can be used to take the connecting wire.
- Wires are cheaper than conduits, so there should be no law about how much wire is need in a conduit layout.

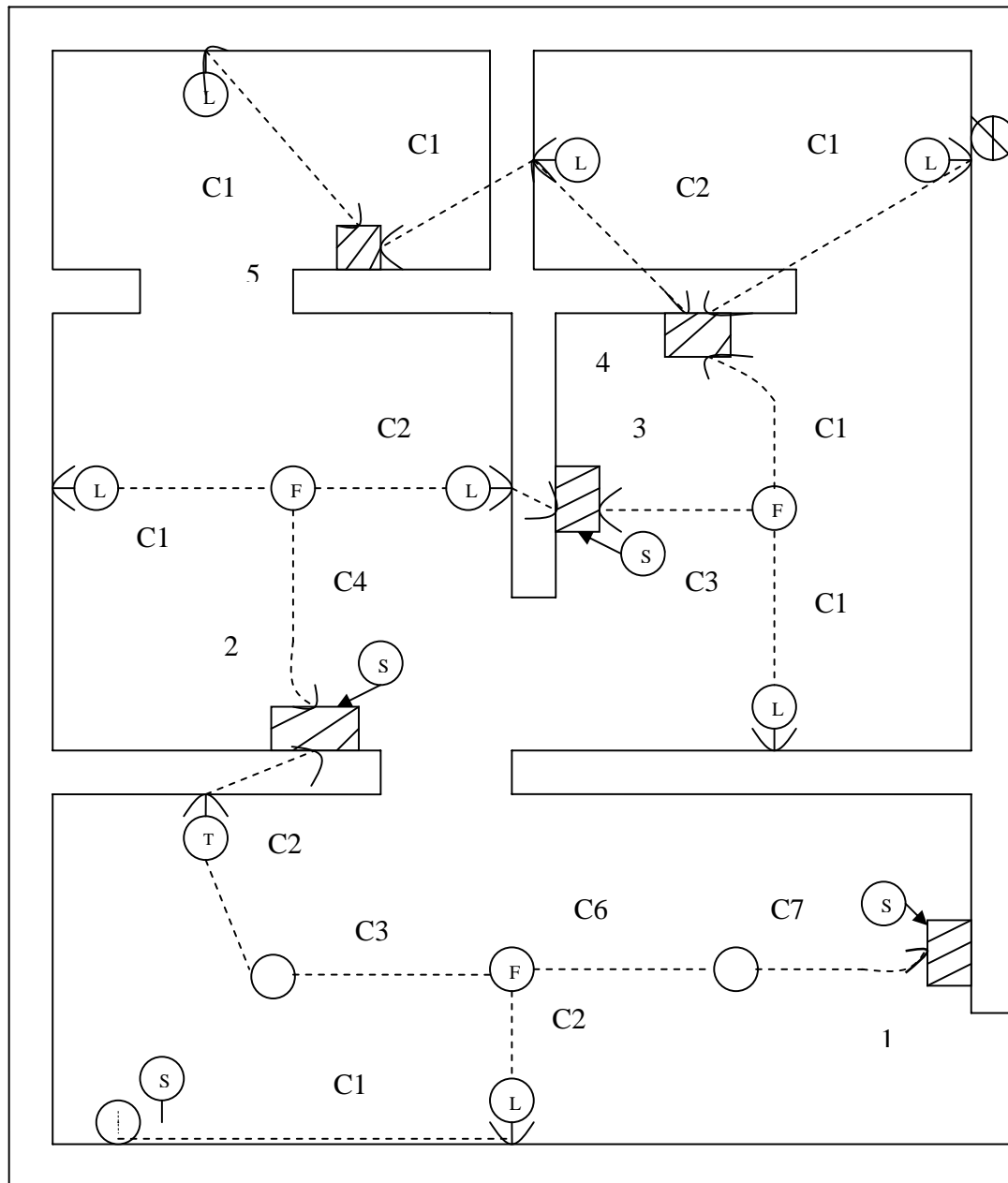
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Example 1:
Fittings and Fixtures layout:



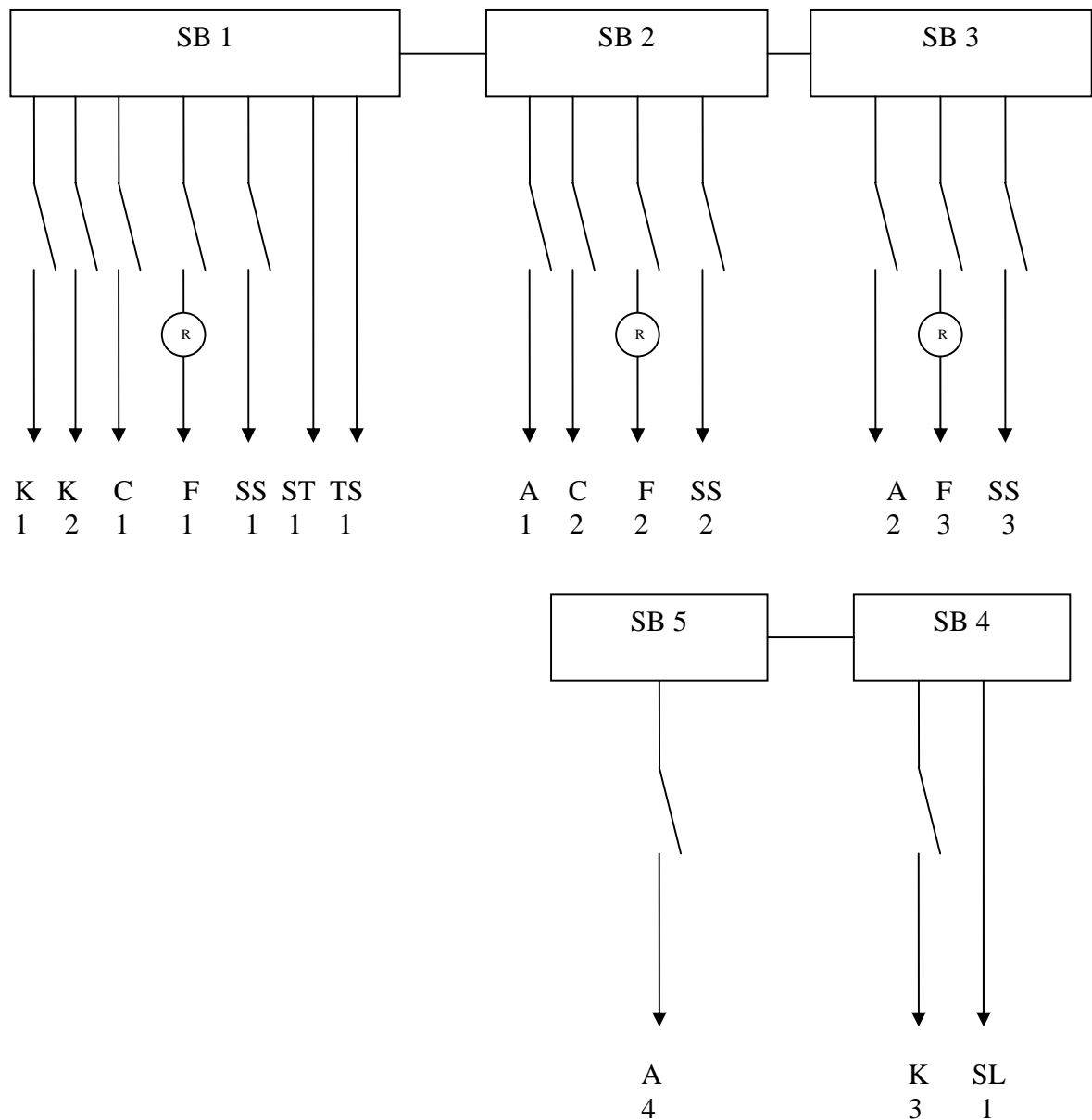
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Conduit Layout:



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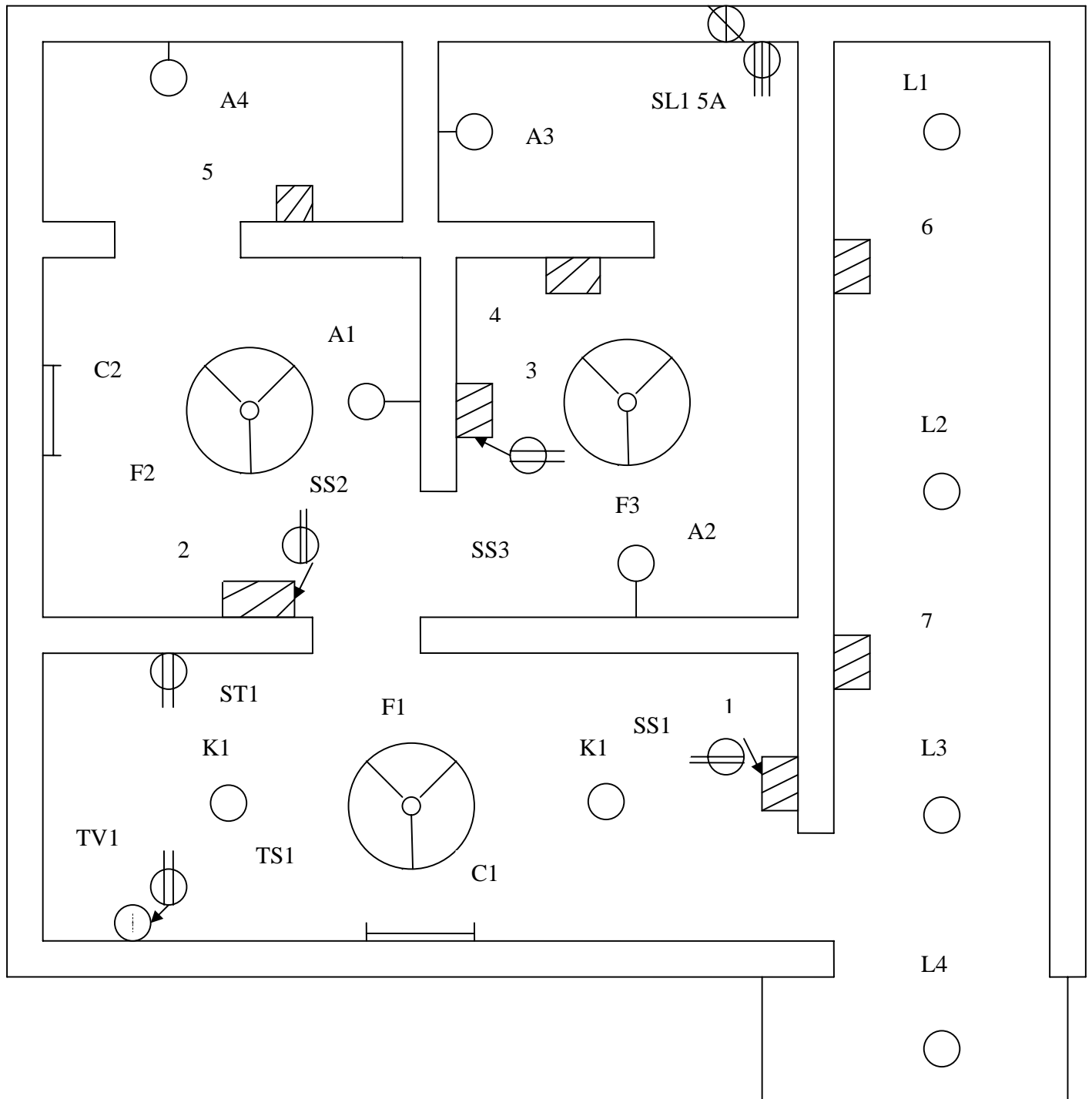
Switchboard Connection Diagram:



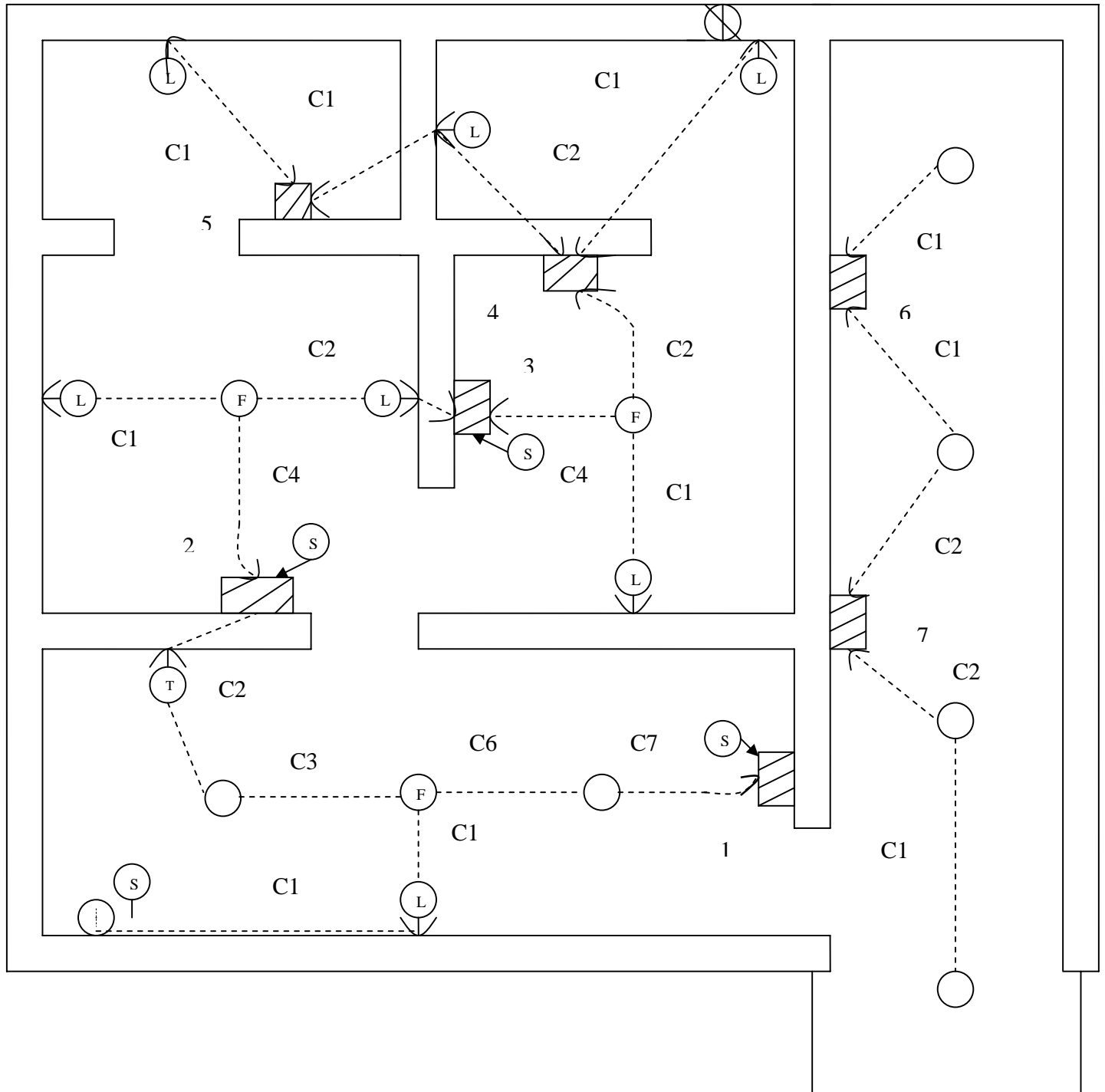
All switch boards are connected via 1.5 mm² wire.

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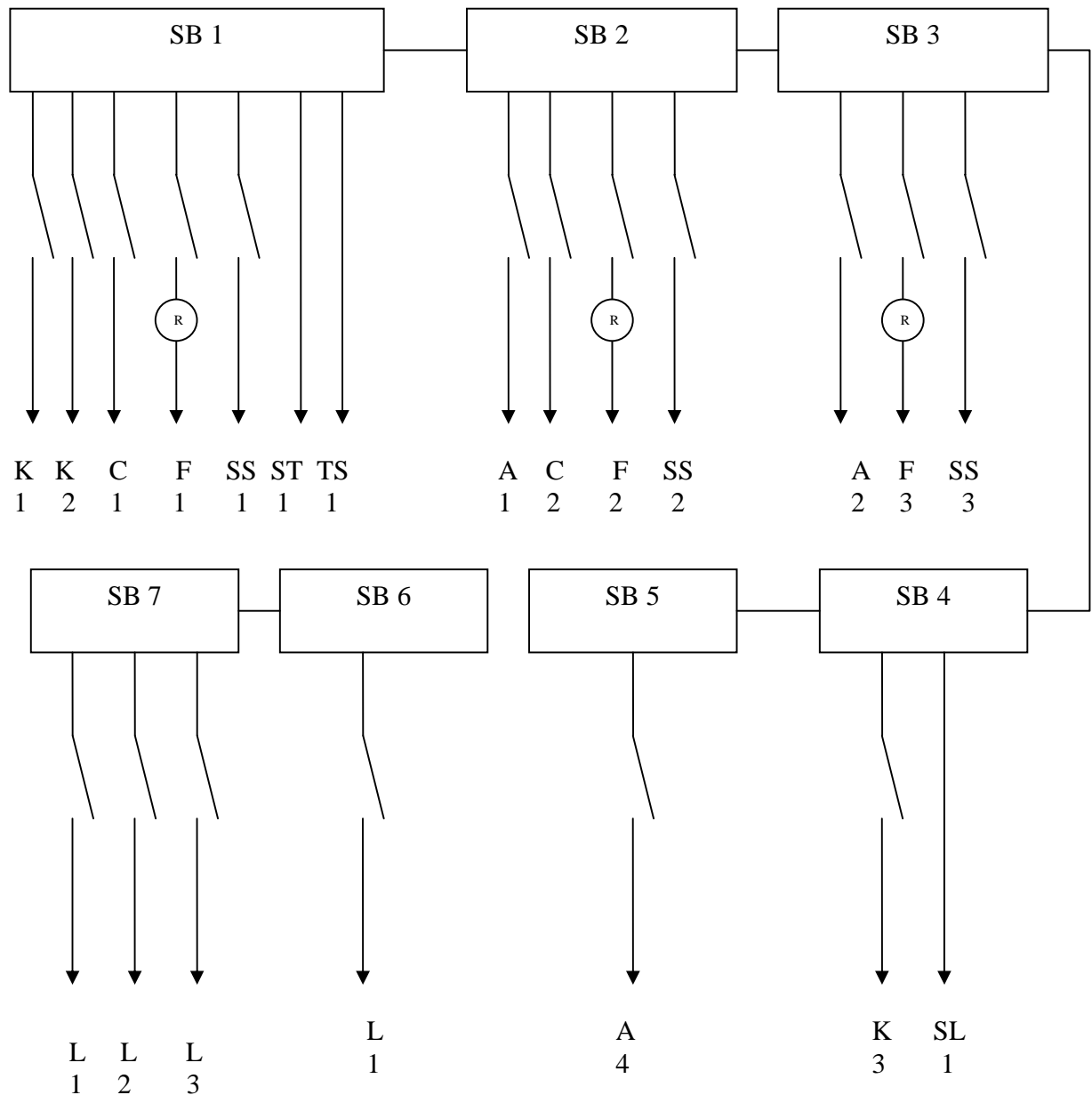
Example 2:
Fittings and Fixtures layout:



Conduit Layout:



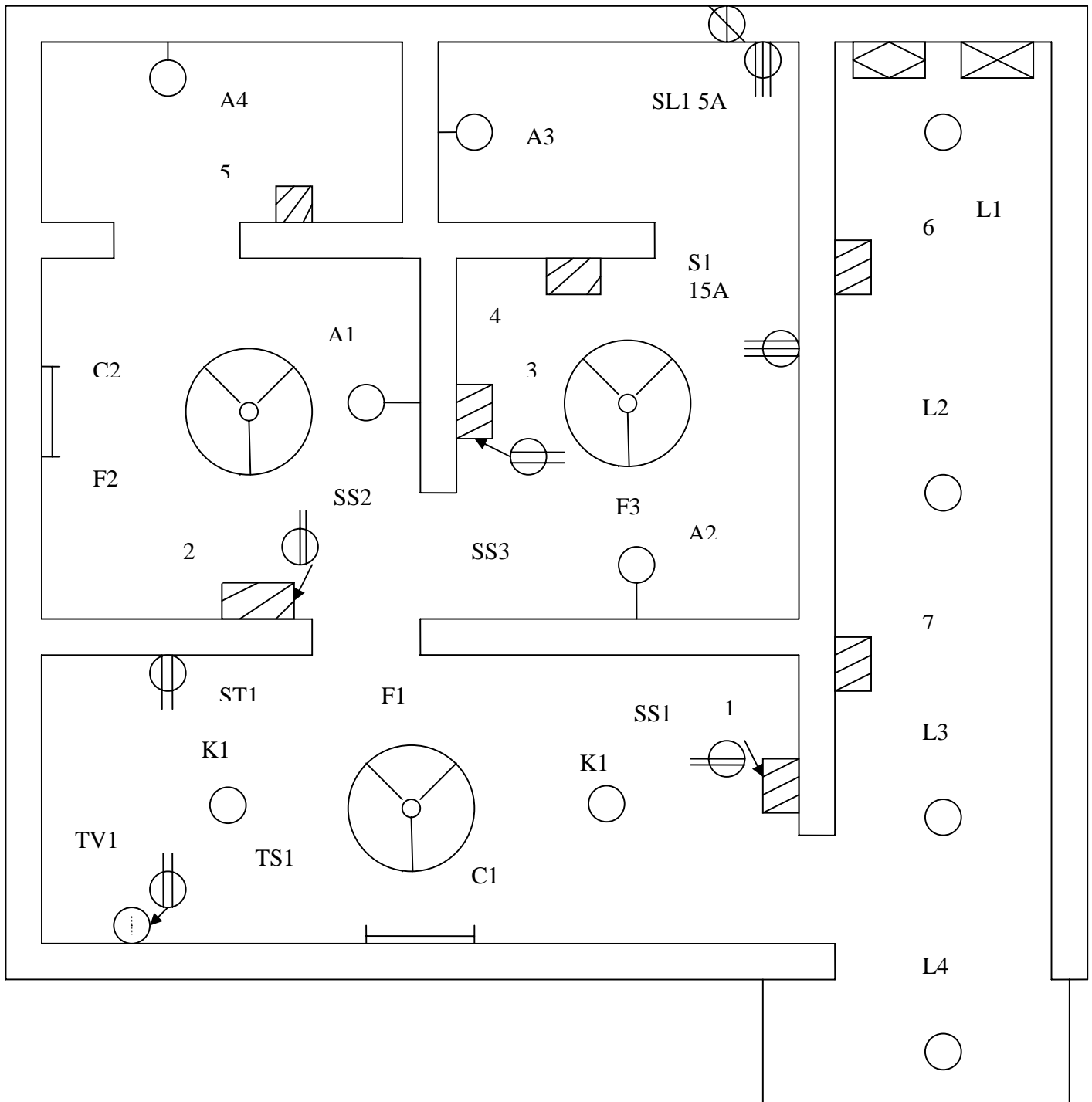
Switchboard Connection Diagram:



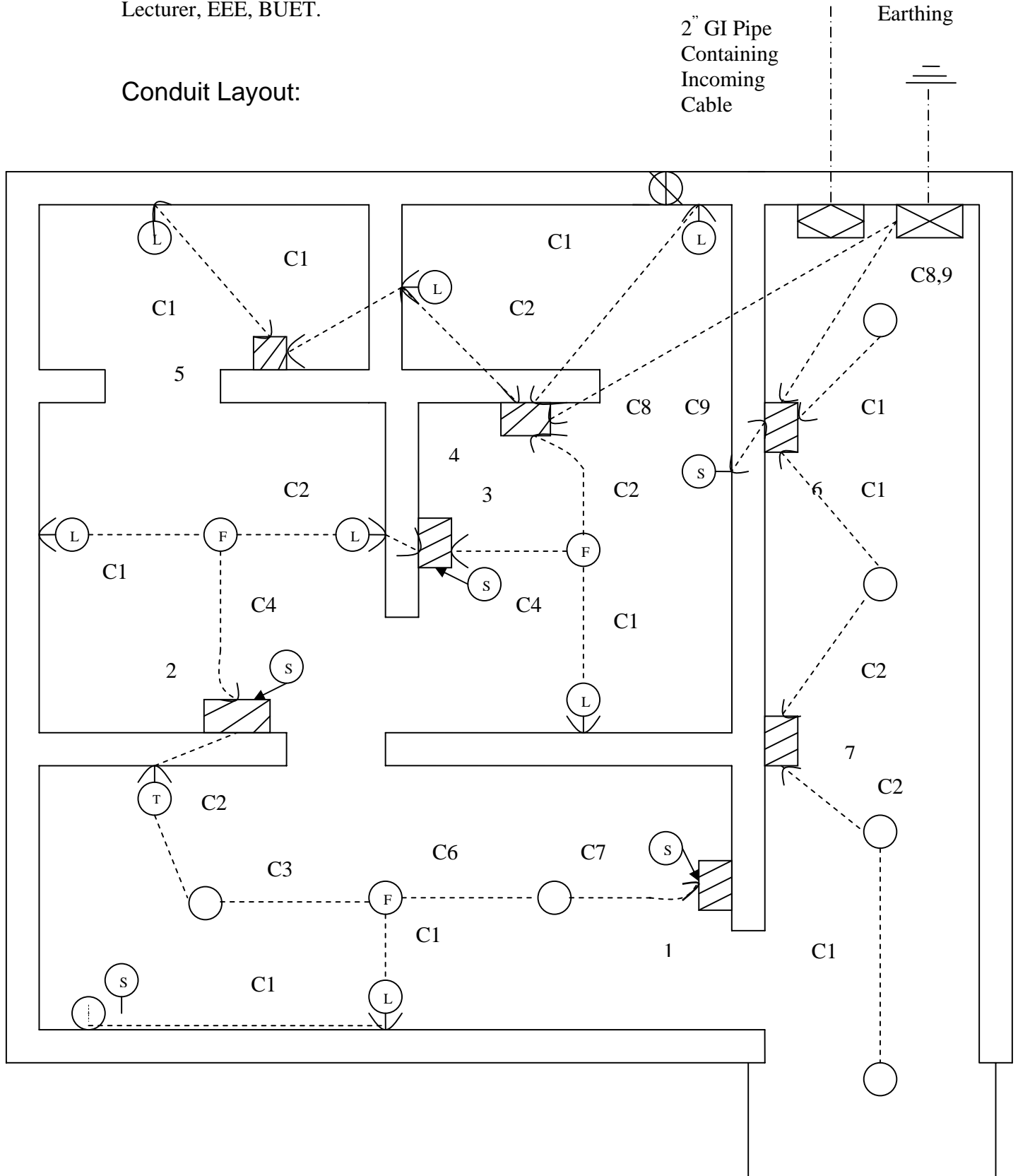
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Example 3:

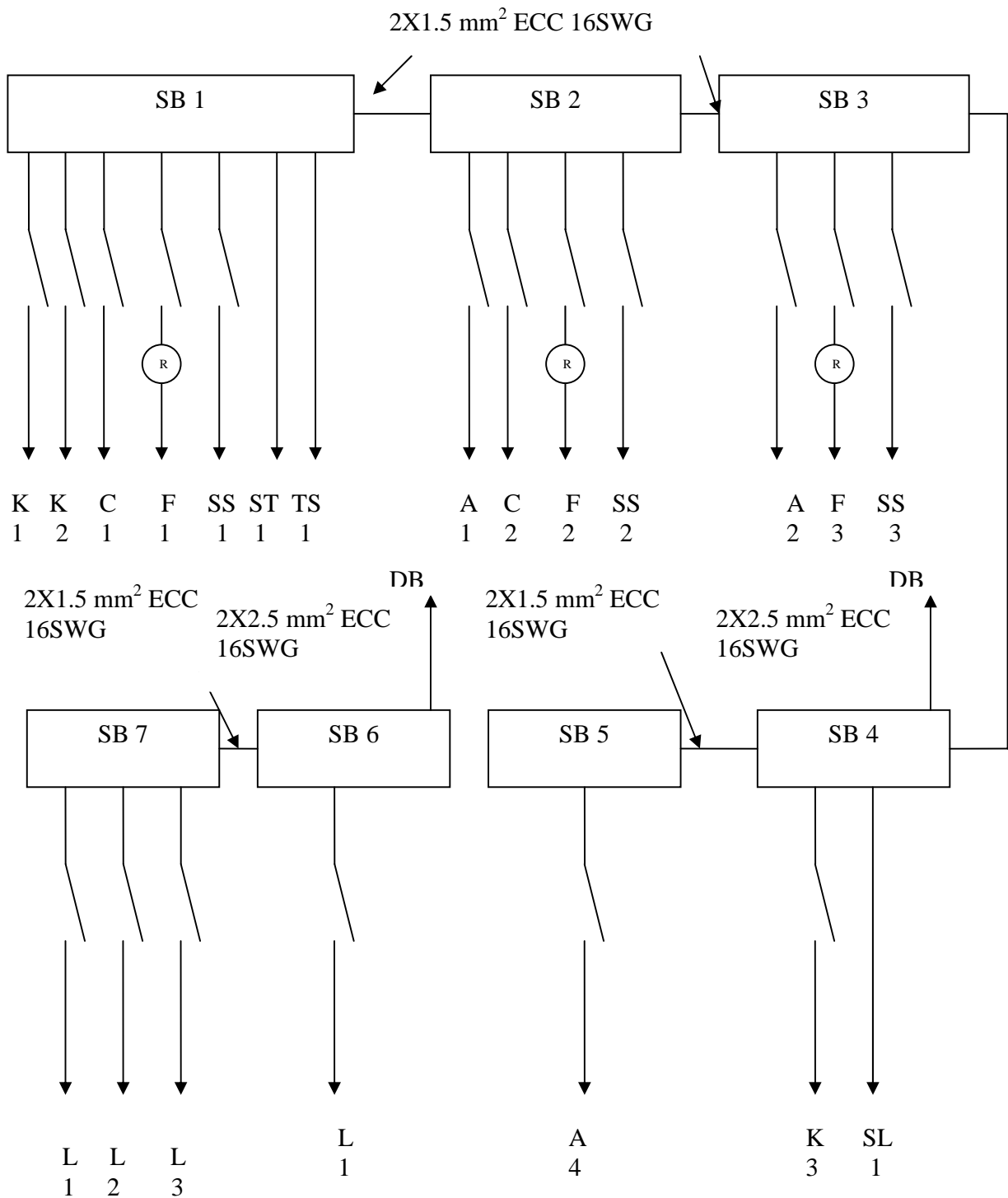
Fittings and Fixtures layout:



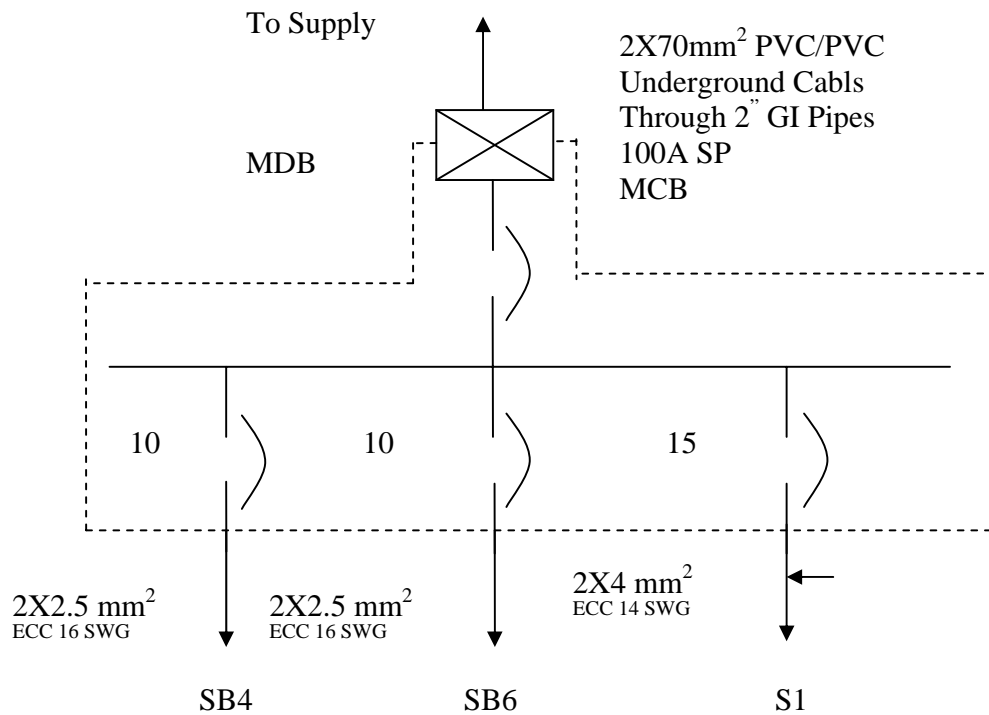
Conduit Layout:



Switchboard Connection Diagram:




Distribution Board Connection Diagram:



Legends of Wires:

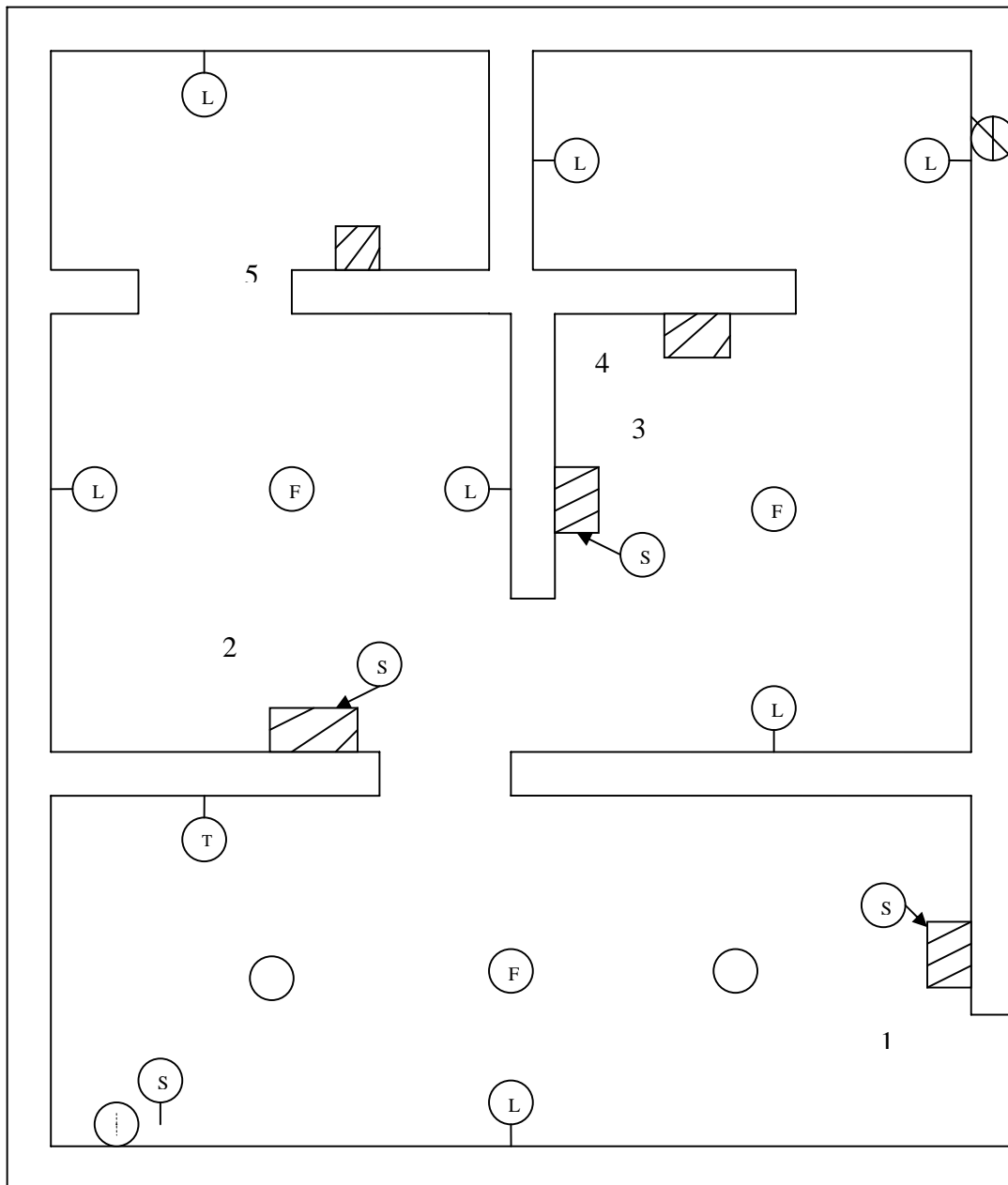
- C1 = 2X1.5mm²
- C2 = 4X1.5mm²
- C3 = 6X1.5mm²
- C4 = 8X1.5mm²
- C5 = 10X1.5mm²
- C6 = 12X1.5mm²
- C7 = 14X1.5mm²
- C8 = 2X2.5mm²
- C9 = 2X4mm²
- C8,9=2X2.5mm² and 2X4mm²

Some points related to this lecture:

- Three pin receptacle points to drive exhaust fans are denoted as,  .
Like other lintel level components.
- Three pin 15A receptacle points are driven by distribution board directly, not from any switchboard as other plug points. 2X4 mm² wire is need for one such a point.
- Switchboards are connected to distribution board via 1.5 or 2.5 mm² wires and 4 mm² in case of very high loads (unusual for domestic purposes).

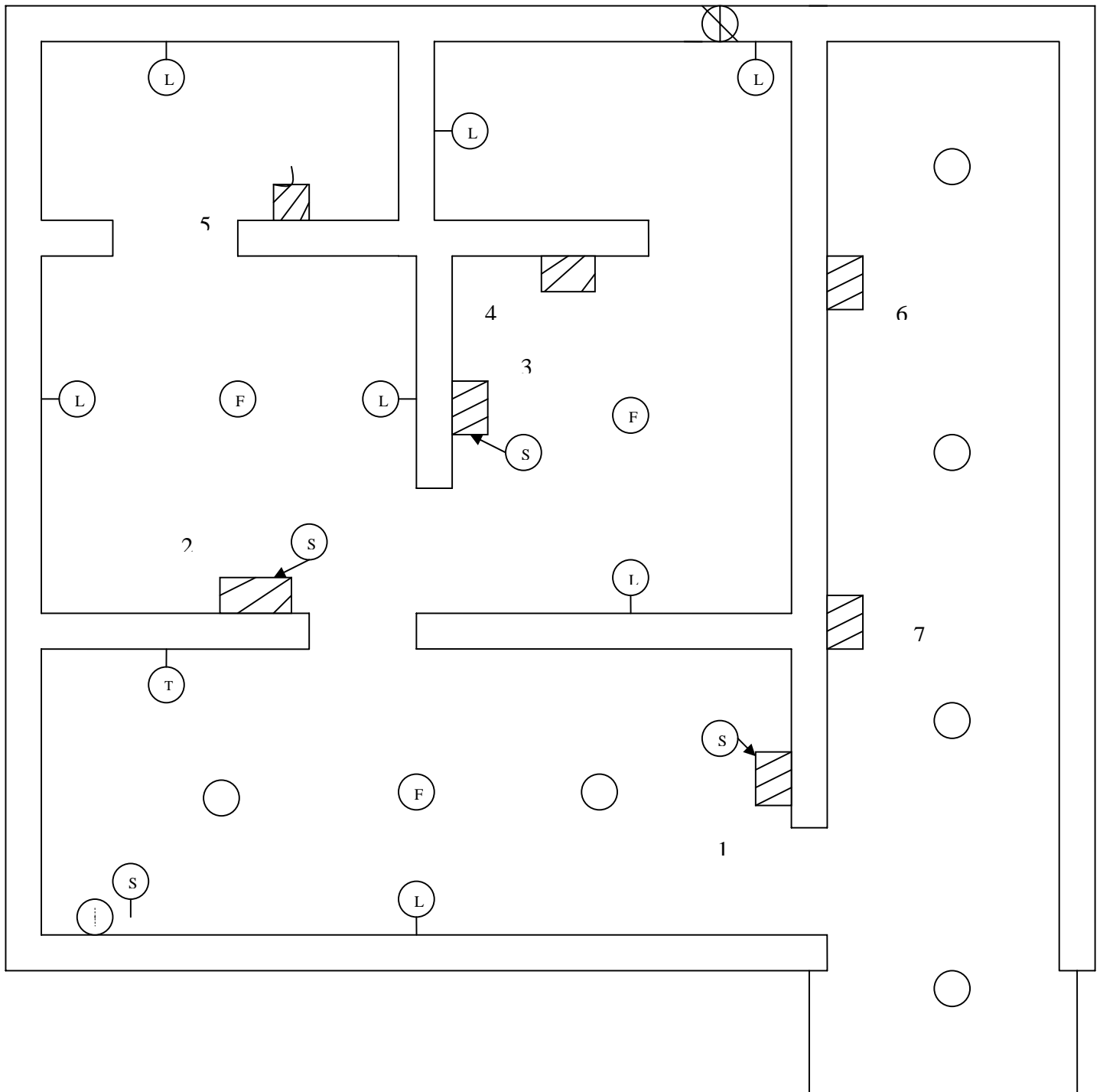
Practice Section:

Draw Conduit Diagram and Switchboard connection Diagram for Example 1:



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Draw Conduit Diagram and Switchboard connection Diagram for Example 2:



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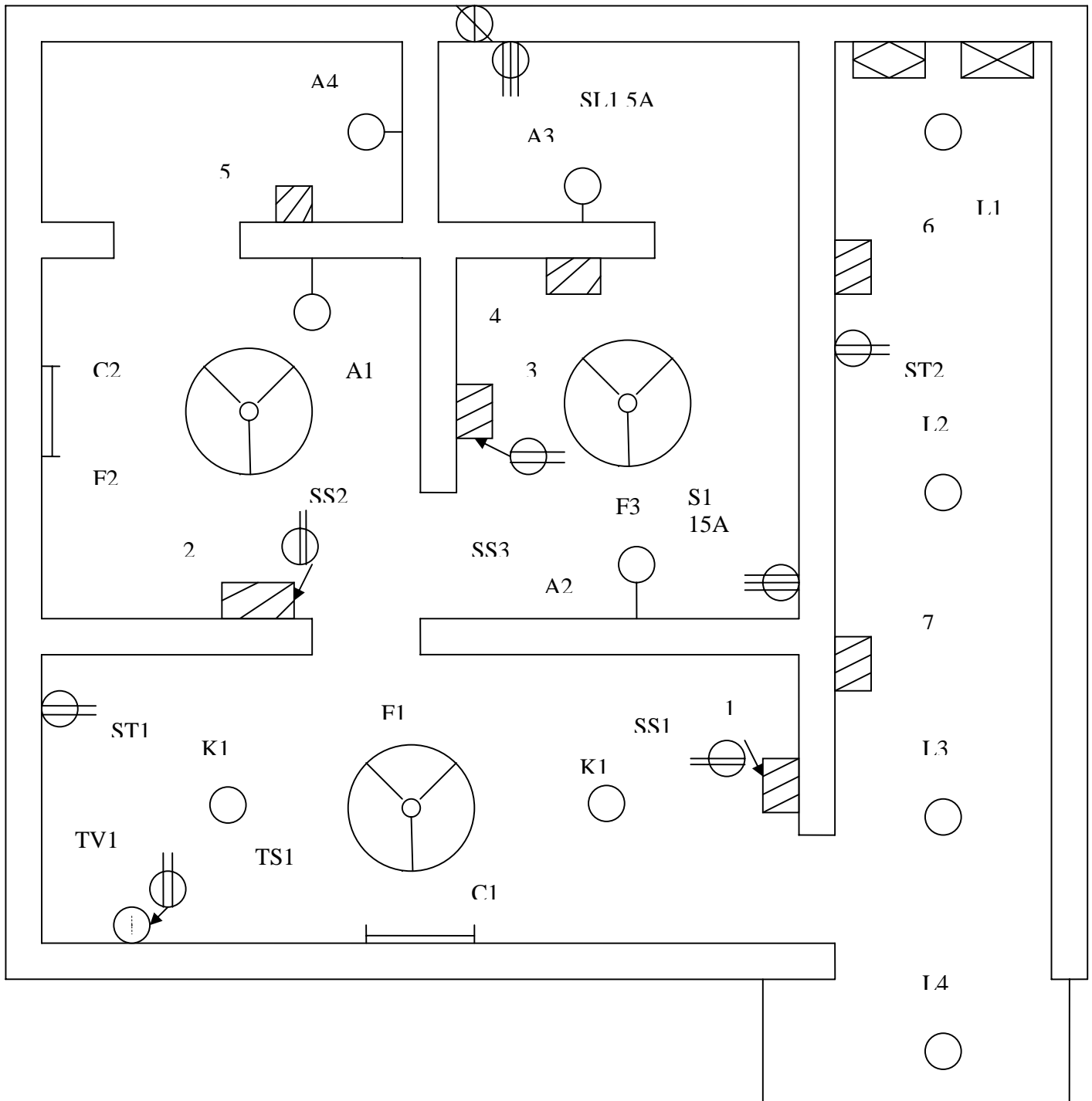
Draw Conduit Diagram and Switchboard connection Diagram and Distribution Connection Diagram for Example 3:

Assignment:

1. Design a two or three room home by yourself. Place suitable electrical appliances on that design and have fittings and fixture layout, conduit diagram layout and distribution connection diagram.
2. Give fittings and fixture layout, conduit diagram layout and distribution connection diagram for assignment two figure.
3. Give fittings and fixture layout, conduit diagram layout and distribution connection diagram for assignment two figure.

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Assignment 2 Figure:



Assignment 3 Figure:

