

This is the third edition of Spon's First Stage Estimating Handbook and it is aimed at all those members of the construction team who are involved in assessing construction costs during the early stages of the development of a project. There are many factors that can affect the profitability of a job over which the construction team has little or no control.

It is important, therefore, that areas that can be influenced by good management skills should be given special attention. This applies particularly to the first stage estimating process when a solid base of the project's financial position can be established.

The contents have been laid out in the order that most projects are financially assessed. The quality of the cost information, however, is almost wholly dependent upon the quality of the specification and the design information that is available at that stage of the appraisal.

**Chapter 1** lists square metre rates for building work for a wide variety of building types. The rates are expressed in a range based on historical costs and should provide a client with a broad indication of likely costs.

**Chapter 2** fulfils the same function but the costs are given in unit costs, e.g. the cost per hospital bed or per pupil in a school. This method of assessment can be surprisingly accurate but should always be backed up by more detailed methods of cost appraisal.

**Chapter 3** contains elemental cost analyses of 32 different types of buildings. These analyses provide data on the percentage and cost breakdown of 24 elements for each building and are a useful tool in identifying imbalances between the elements of different buildings.

**Chapter 4** includes unit rates for building, landscaping, civil engineering, electrical and alteration work. Where possible, composite rates are displayed that combine several different descriptions to provide a single rate for separate but linked activities. For example, excavation, concrete and brickwork up to DPC level are combined to produce a single linear metre rate for strip foundations.

The use of composite rates can save valuable time in the preparation of the cost plan. Where item descriptions do not lend themselves to be combined with others they are listed as principal rates.

**Chapter 5** provides indices reflecting historical costs of construction costs and tender prices.

**Chapter 6** deals with property insurance and contains two examples of re-building costs for insurance purposes.

**Chapter 7** sets out the cost of employing professional advisors whose fees are now negotiable and not mandatory.

**Chapter 8** includes a list of useful addresses.

**Chapter 9** contains estimating data that may be useful when preparing a first stage estimate.

# 1

## Costs per square metre

### BUILDING WORK

These square metre prices exclude the cost of external works, fittings, furniture, professional fees and VAT. They are expressed in a range and are intended to provide a broad indication of the cost of the work in the early stages of a project's financial appraisal.

	£/m <sup>2</sup>
<b>Public service buildings</b>	
Banks	
local	1600–1850
city	2150–2750
Building societies	
local	1450–1750
city	1650–2050
Fire stations	1400–1750
Courts	
magistrates	1450–1700
county	1800–2150
Police stations	1350–1800
Prisons	1700–2300
Post offices	950–1250
Halls	
town	1000–1300
village	900–1200
Ambulance stations	1250–1600
Vehicle repair	1350–1500
Car showroom	1100–1300
Car repairs and maintenance	1400–1650
Petrol stations	1500–1900

## 2 Costs per unit

The following represent the cost per unit of a range of types of buildings. This method of assessing construction costs is usually the first step in the process of the consideration of the viability of project.

	Unit	£
<b>Health and welfare facilities</b>		
Hospitals (general)	Bed	90,000–150,000
Hospitals (private)	Room	115,000–210,000
Nursing home		
old peoples'	Bed	30,000–75,000
children's	Bed	25,000–50,000
<b>Leisure</b>		
Theatres	Seat	25,000–35,000
Sports stadium, new stands		
single tier stand	Seat	1,100–1,350
multi-tier stands with hospitality boxes	Seat	3,000–4,000
Hotels		
3 star	Bedroom	35,000–55,000
5 star	Bedroom	85,000–180,000
<b>Residential</b>		
Local Authority housing	Bedroom	30,000–40,000
Local Authority flats	Bedroom	25,000–35,000
Sheltered housing	Bedroom	45,000–60,000
Private housing	Bedroom	55,000–90,000
Private flats	Bedroom	60,000–95,000
Student accommodation	Bedroom	40,000–55,000

## 3

# Elemental costs

This chapter contains elemental cost breakdowns for building and electrical work. The building work is comprised of 38 different types in 8 categories, each building broken down into 24 cost elements.

The cost data should be used with caution because imbalances can occur in the use of elemental costs in isolation. The figures are an amalgam of the costs for a range of buildings in each category and represent a broad indication of costs rather than an accurate statement of detail.

It should be remembered that the application of the information in this chapter is only one stage in the preparation of a budget estimate for a project. It is hoped that any major discrepancies will be highlighted by a comparison between the following detailed breakdowns and specific projects.

Nevertheless, the information provided should be an invaluable tool in assessing the relative values of elements in different buildings. The tables will be particularly useful in the early cost planning process and also in the evaluation of tenders.

The costs cover building work only and exclude the costs of drainage, external works, contingency sums, professional fees and VAT. Due to rounding off there may be some minor discrepancies in individual elemental costs and totals. The figures are based on costs prevailing in the first quarter of 2000. The following buildings are included.

### BUILDING WORK

#### Public service buildings

- Ambulance station
- City bank
- County court
- Fire station
- Police station
- Village hall

#### Industrial buildings

- Factory, light industrial
- Factory, heavy industrial
- Livestock building
- High tech laboratory
- Nursery units

Warehouse shell  
Warehouse complete

**Health and welfare**

Group surgery  
Health centre  
Old persons' nursing home  
Welfare centre

**Letsure**

Golf club house  
Public house  
Restaurant  
Sports hall

**Education**

Library  
Primary school  
Secondary school  
Sixth form college  
Special school  
Teachers' training college

**Residential**

Local Authority low rise flats  
Local Authority housing  
Private flats  
Luxury private flats

**Transport**

Multi-storey car park

## 4

# Composite and principal rates

When the appraisal of a project moves beyond the square metre stage, it is likely that the client will commission a cost plan to be prepared. This entails taking off rough quantities and applying global rates to produce an approximate cost of the project. These rates are the result of combining various item descriptions and costs into what are called composite rates.

Not all items can be combined with others to provide composite rates so principal rates are also included if their value is significant to the cost plan. The following rates are presented under headings in the same order as the elements in Chapter 3.

### BUILDING WORK

#### PRELIMINARIES

These will usually be assessed by referring to the needs of each particular project but a figure of 7.5 to 12.5% of the construction costs is normal depending upon the nature of the project.

#### SUBSTRUCTURES

<b>Excavation</b>		<b>£</b>
Excavate by machine to reduce levels and dispose of excavated material		
deposit on site in spoil heaps	m <sup>3</sup>	7.0
spread and level on site	m <sup>3</sup>	9.0
remove from site	m <sup>3</sup>	22.0
Excavate by machine for basements and dispose of excavated material		
deposit on site in spoil heaps	m <sup>3</sup>	8.0
spread and level on site	m <sup>3</sup>	10.0
remove from site	m <sup>3</sup>	23.0

## 6 Property insurance

When preparing first stage estimates, it is important that the fullest possible financial picture is presented to the client to enable him to make a decision on whether to proceed with the project or not.

A calculation must be done for insurance purposes to assess the rebuilding costs if the building was damaged by fire or some other cause.

The easiest way to achieve this is by using the square metre prices in Chapter 1 as a base. The appropriate rate should be multiplied by the area of the building to be insured. The resultant figure must then be adjusted by both the indices and regional variation factors in Chapter 5.

The insurance cover must also include for the demolition of the damaged building (not just clearing away debris but grubbing up existing foundations and basements) and professional fees to plan and supervise the work of reconstruction. Here is an example of how the calculation should be made.

### Example 1

*Day Surgery in the East Anglia region constructed in 1982 where the original cost is unknown.*

	£
Present day cost (Chapter 1) 600 m <sup>2</sup>	
@ say £1.350	810,000
Demolition of old building including site clearance (Chapter 4)	<u>21,600</u>
	<u>831,600</u>
Regional variation (Chapter 5) for East Anglia	
×91%×£831,600	756,756
Inflation during the demolition and rebuilding period based on a 18 month construction period and an initial 12 month pre-building period for the preparation of contract documents	
say 3%×2.5 years	<u>56,756</u>
Carried forward £	813,512
Brought forward £	813,512
Fees (Chapter 7)	
Professional fees say 12%	97,621
Planning and building regulations say	<u>25,000</u> <u>122,621</u>

## 7

# Professional fees

The use of fee scales used to be mandatory but now clients are able to negotiate the level of fees with their professional advisers. In the preparation of first stage estimates, the cost of fees must be included on either an all-in fee basis for the professional team or separate fees for each discipline. This chapter contains information for either method.

An allowance should be made for expenses incurred in connection with the contract and VAT on professional fees should also be included. The following categories of fees are included:

- architects
- quantity surveyors
- consulting engineers
- landscape architects
- planning
- building regulations.

### Architects' fees

Details of Architects' fees are set out in 'Engaging an Architect' and a copy can be obtained from RIBA Publications (0207 608 2375) The fees are based upon three classifications of buildings:

- simple—car parks, warehouses, factories etc
- average—offices, retail outlets, housing, schools etc
- complex—specialist buildings, hospitals, laboratories etc

The work stages are set out below

	<b>Stages</b>	<b>Proportion of fee</b>
C	Outline proposals	10%–15%
D	Detailed proposals	15%–20%
E	Final proposals	20%
F	Production information	20%
G-L	Tender and construction	25%–35%

The fees are assessed by applying the classification of the project to its value on a fee scale graph. Extra fees may be due if the work is carried out in Stage A (Appraisal) and Stage B (Strategic Brief) or alteration work. These fees would normally be charged on a time basis at an agreed rate. Here are some typical examples of fees for new work.



## 9

# Estimating data

When preparing first stage estimates, it is often necessary to take a broad view because of lack of time or information. The data in this chapter are intended to help in this process.

### LABOUR

The rates in this book have been calculated based on the following labour hourly values:

General operatives	£13
Craftsmen	£17
Plumbers	£18
Electricians	£19

The following hourly gang rates have also been used where applicable.

#### Building

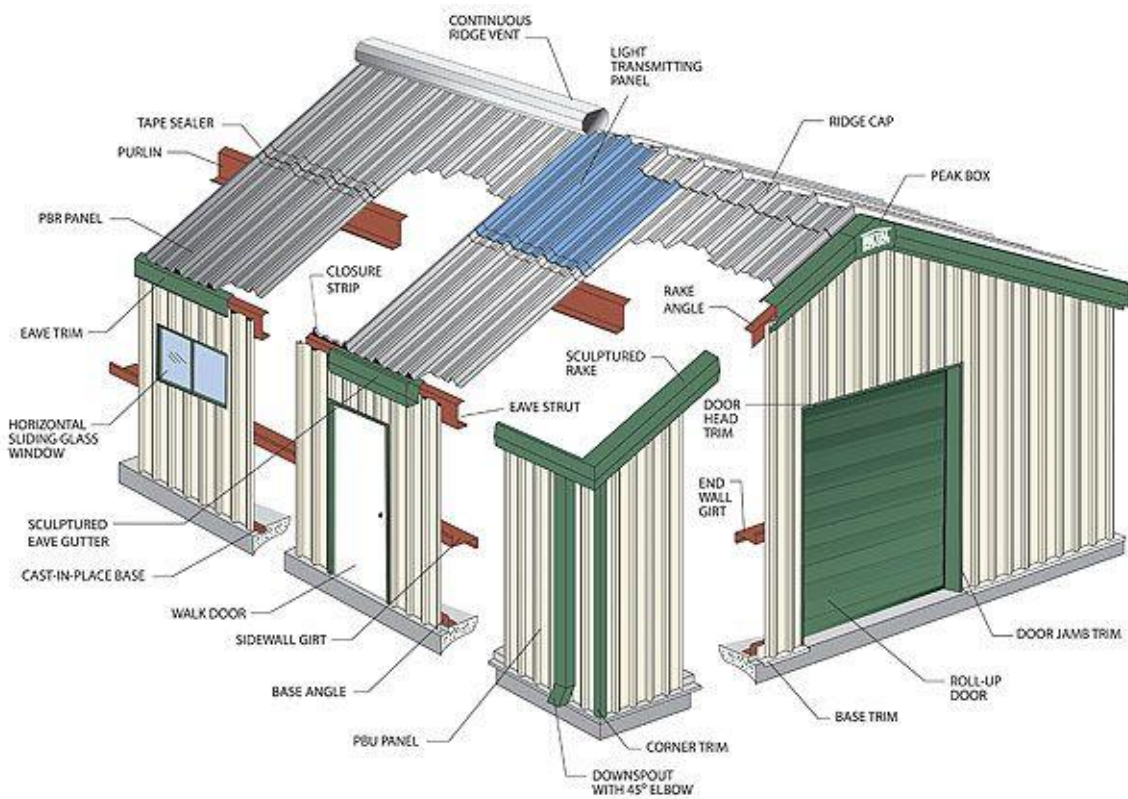
Groundwork gang	£70
Concreting gang	£60
Steel fixing gang	£60
Formwork gang	£90
Bricklaying gang	£50
Lightweight blockwork gang	£50
Dense blockwork gang	£50
Carpentry gang	£60
Drain laying gang	£35

#### Civil engineering

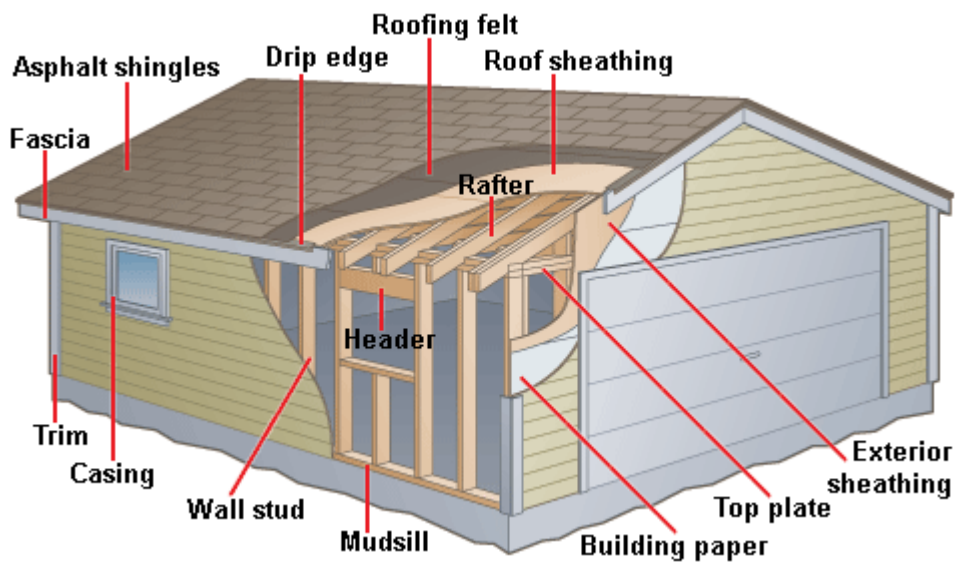
Concreting gang	£90
Shuttering gang	£75
Pipe laying (small bore) gang	£80
Pipe laying (large bore) gang	£90
Sub base laying gang	£75
Concrete paving gang	£90

Prepare the estimating for the following diagrams. You can refer the textbook

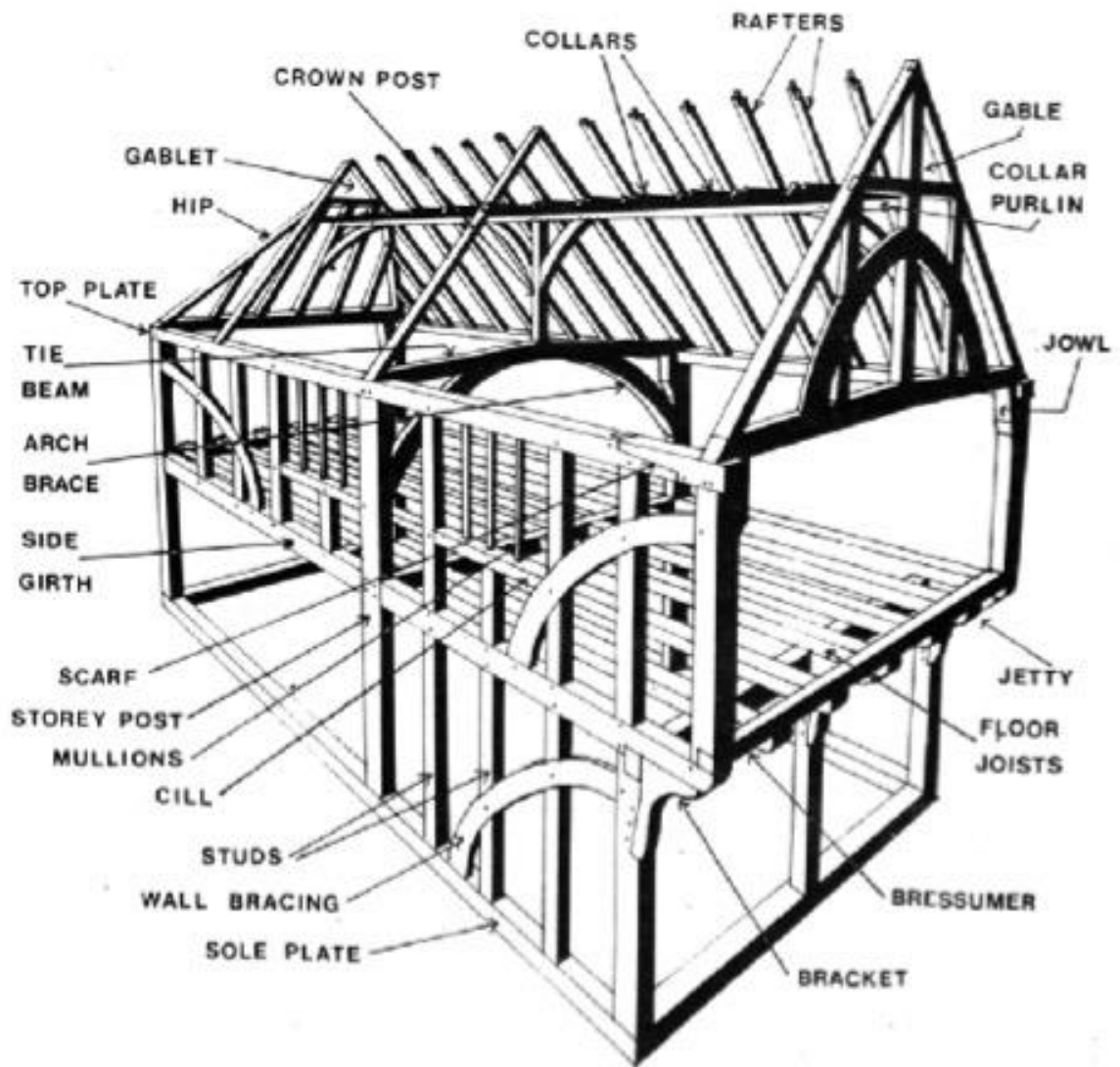
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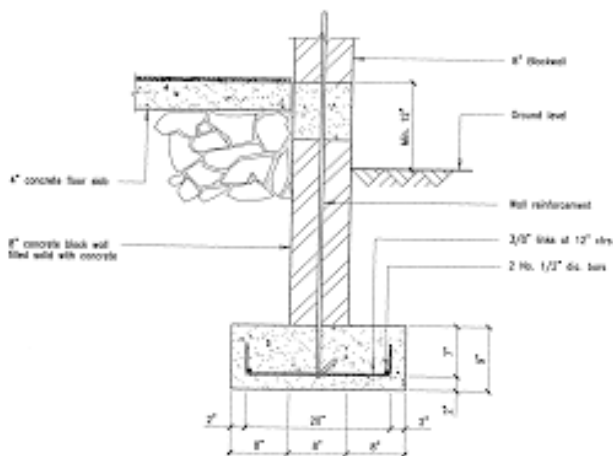
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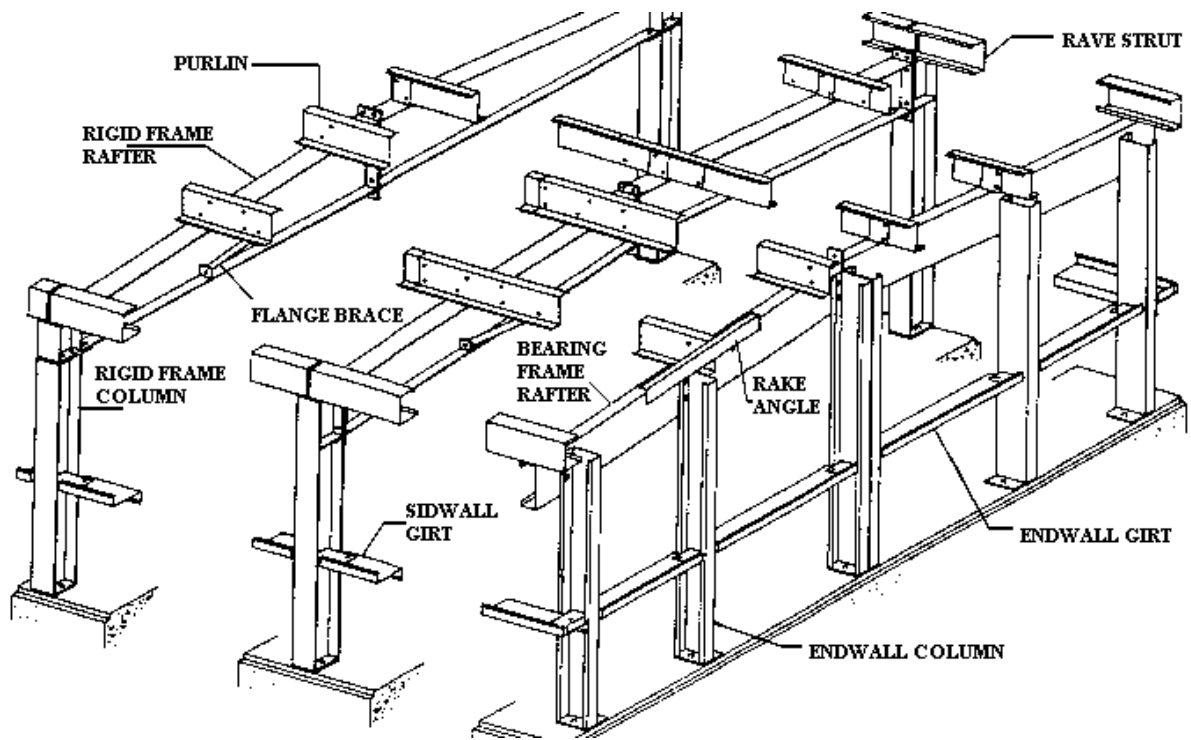
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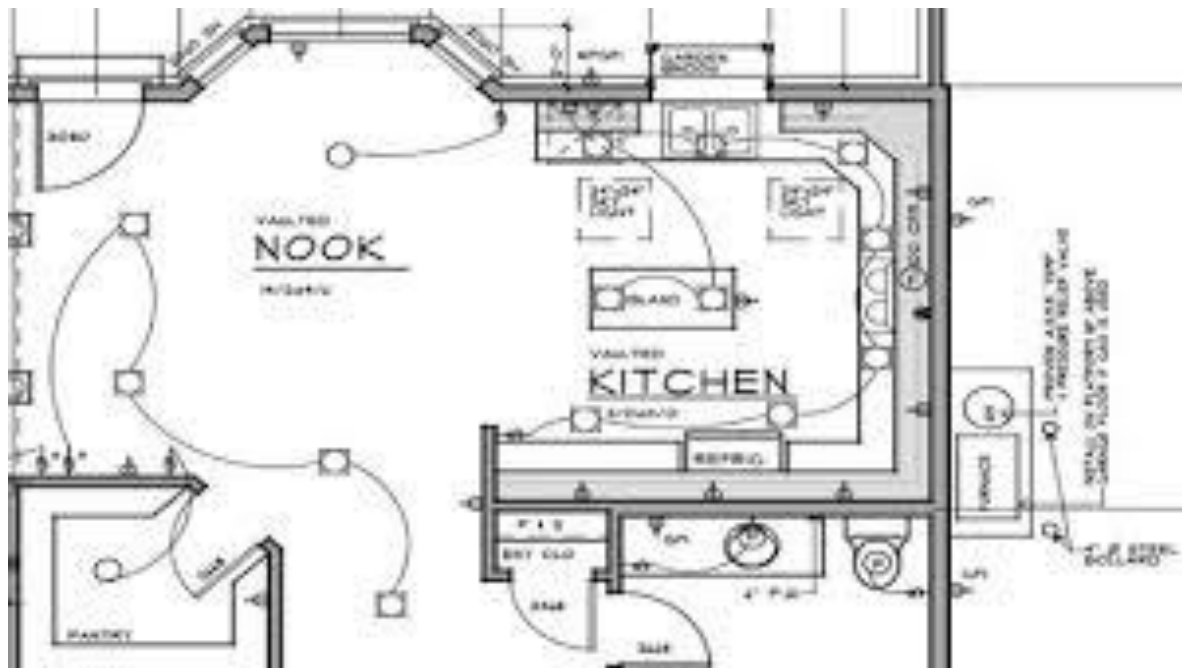
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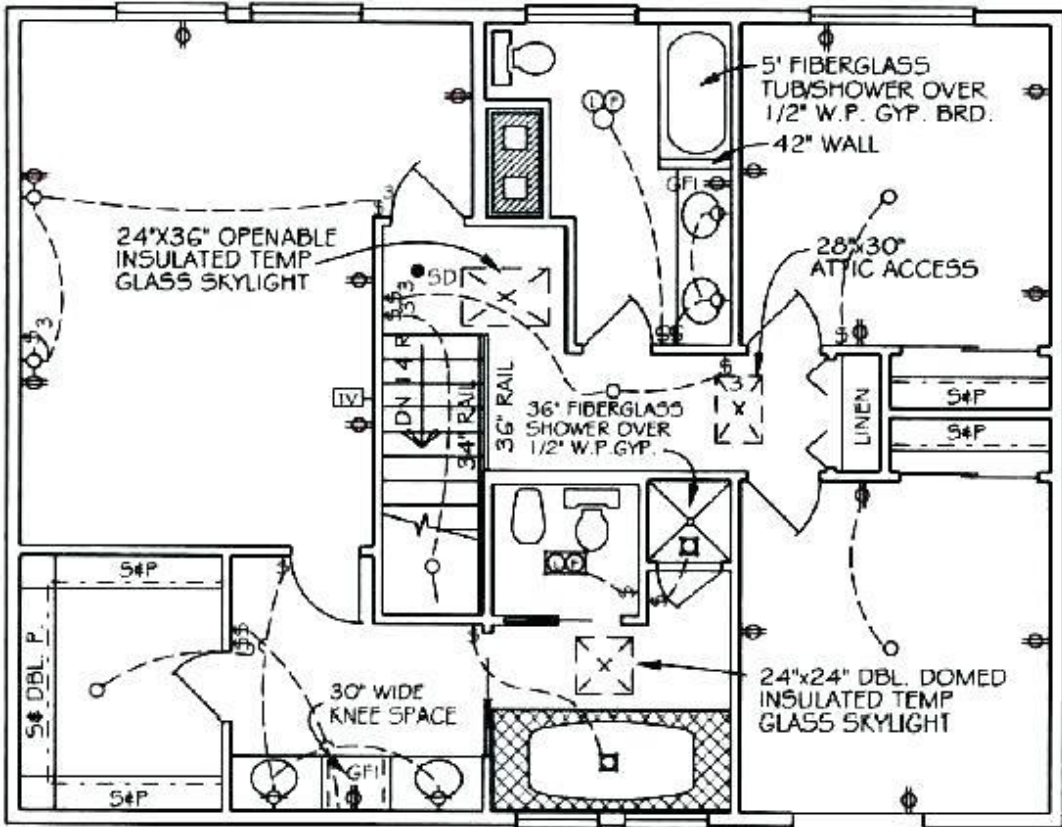
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6



7



8

