

Design, Engineer, Construct! Level 2:

4. The candidate will be able to draft a plan.



Unit	Incomplete (U)	Secure (C)	Exceptional (A)	Comments:
1.4.1				
1.4.2				
1.4.3				
1.4.4				

Name: Jack Littlewood

Date:

Deadline for Submission:





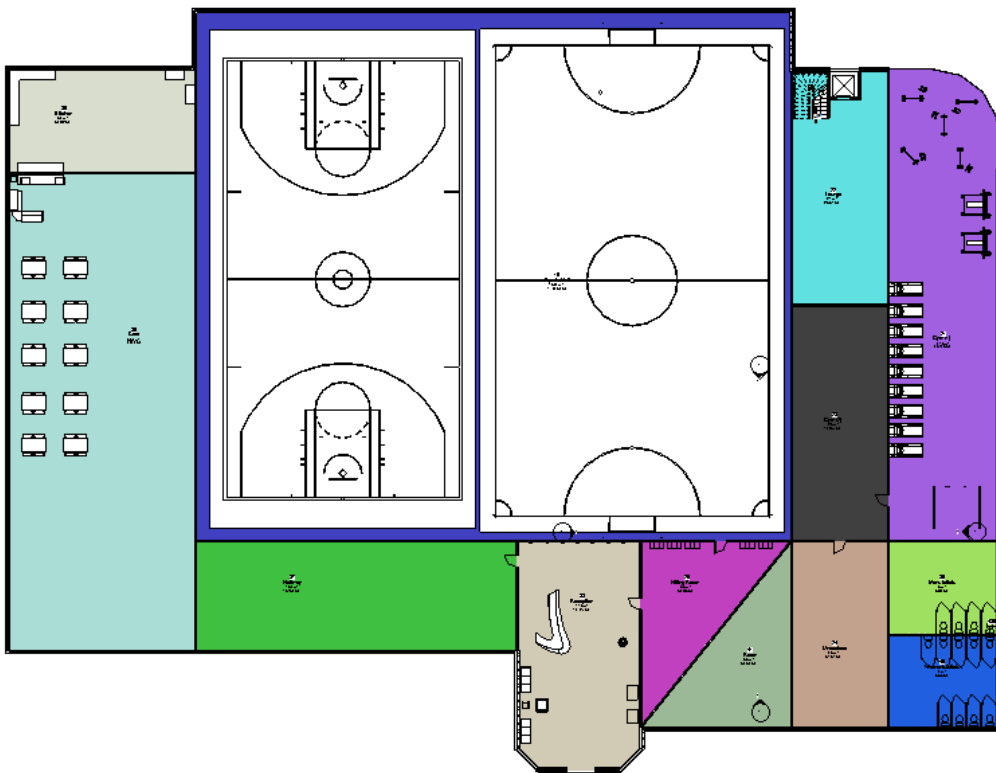
4. The candidate will be able to draft a plan.

4.1 I can create a draft project plan.

1. What is a bubble diagram?

A bubble diagram defines spaces that are identified on the base plan. At first, bubbles have many shapes and sizes. They roughly correspond to what will eventually be a real space in the landscape, but they are not specific and are without detail.

2. Create a bubble diagram to identify sizes and relationship of spaces in your building:



Justify your decisions from your bubble diagram

- The football and basketball courts have to be large so they can fit.
- Many different rooms for more areas to explore.
- Toilets are small since it's not the main focus.
- Displays the furniture's location.
-





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4.1 I can create a draft project plan.

3. What is the role of a Project Manager?

The project manager is the overseer of the project which he/she has individual tasks or duties which they have to complete, they also need to manage everyone on site.

4. What is a Steering Committee?

A committee that decides on the priorities or order of business of an organization and manages the general course of its operations.

5. Summarise the feedback from the Steering Committee on your Bubble Diagram:

Positives:

Some of the positives of the building is the colour scheme arranged in the bubble diagram as this was done to an excellent level, we also like the placement of rooms and also allows us to see a Birdseye angle of the rooms which gives us an advanced insight into knowing how people will rotate around the facility. We also like how the furniture appears through also giving us insight of the placement of it.

Concerns:

Some of the concerns of the building is that we notice that furniture is missing from certain rooms meaning we cannot gather information of furniture placements. We also notice the café area is quite large considering it's a sport facility which debates to us why have you used the amount of space that large?

Adjustments to Bubble Diagram :

I've added a little adjustments to the furniture placements, there's not much I can do about the size of the café suite so for now it'll have to stay how it already is.

Summarise what you have learnt in 3 sentences:

- I have learnt what a role of a project manager.
- I have learnt what a steering committee is
- I have learnt what I need to improve.





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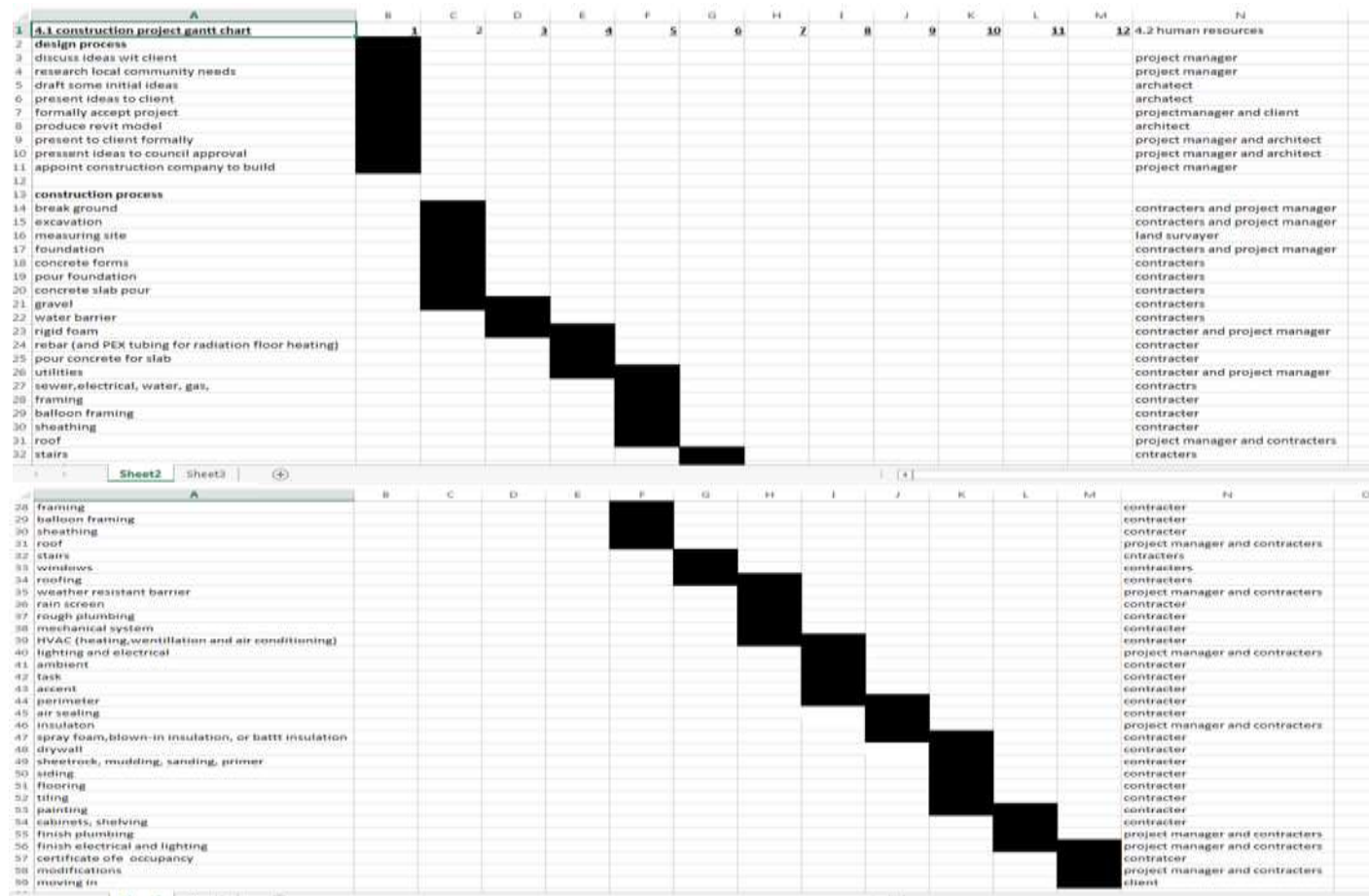
4.1 I can create a draft project plan.

6. What is a Gantt Chart?

A chart in which a series of horizontal lines shows the amount of work done or production completed in certain periods of time in relation to the amount planned for those periods

7. Produce a Gantt Chart for the Project.

Put all tasks and estimates in a calendar and outlines each stage of the project, how much time each stage is expected to take, and when each stage is scheduled to begin and end.



What did you find difficult when producing the Gantt Chart?

- There was a error creating some black boxes.
- Didn't have much knowledge at the time.
- Hard to find errors as it was a large file.





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4.2 match project planning to the human resources of the team

1. Mind map possible strategies to encourage all team members to work together and communicate:

Located on the next page

2. What is BIM?

BIM mean Building Information Moduling.

It is a digital program to design buildings.

How can BIM encourage collaboration?

It can be used for this because people from all around working on the project can input on the building without it being very difficult.

Discuss the benefits of using BIM on a project.

It can benefit a building because the Architects are all working on the same programmer and therefore people can not get confused.

3. How often should Team member meet?

They should meet regular so they can discuss what changes and decisions they have met.

Who should be involved in these meetings?

The architects, designers and all major roles relating to the building design.

Why is it important that members meet face to face regularly?

So they can discuss new changed to the project and development.

What should be discussed in these meetings?

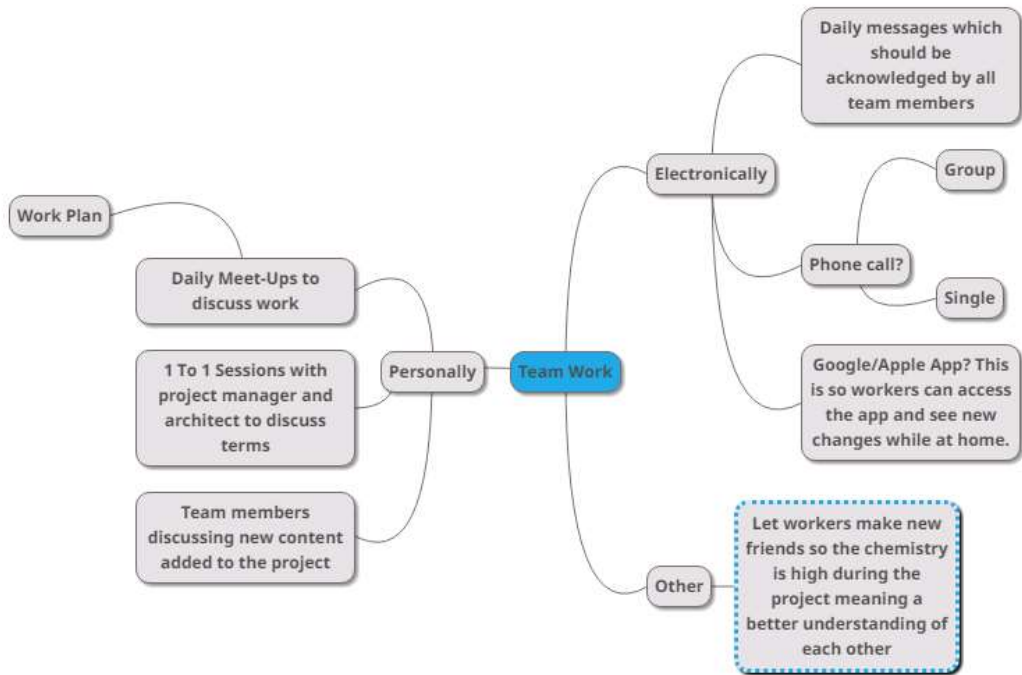
Development,

Where should they take place?

What did you find difficult when producing the Gantt Chart?

- I found positioning the text difficult.
- Also applying colours to some of the boxes without them overlapping.
- There's also an issue with text not deleting.







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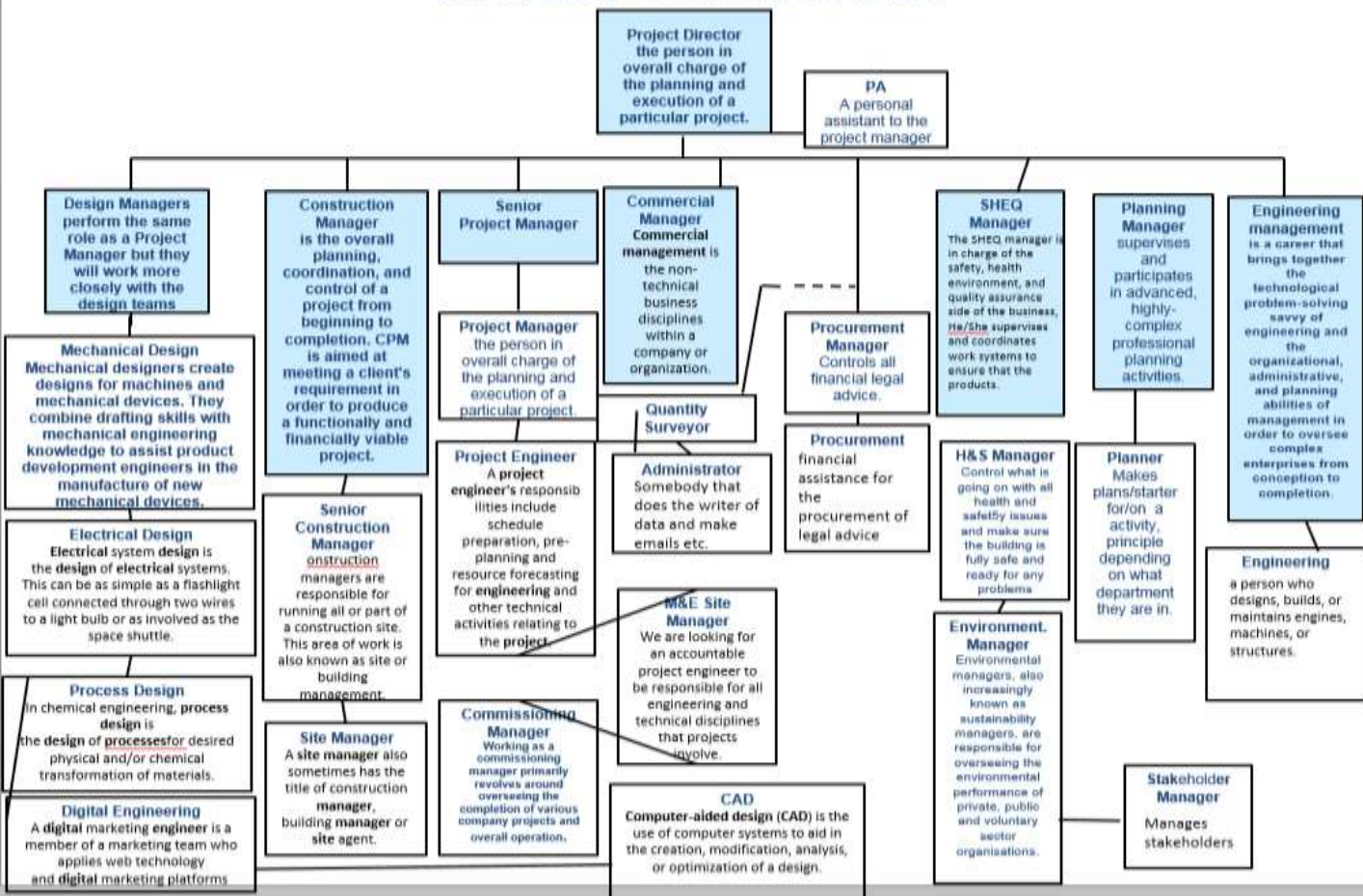
4.3 create an Organogram for the project

1. What is an Organogram?

An organogram is the short name for an organisation chart

2. Produce an Organogram for your Project Team:

DAVYHULME MODERNISATION PROJECT



What did you learn through completing the organogram?

- I learned some key roles of the project.
- I learned how to create an organogram.
- I learned a lot more roles to do with engineering.



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4.4 provide forecasts of the lifespan of the completed project and facilities management costs taking account of environmental considerations



1. What are lifecycle costs?

Life-cycle cost analysis (LCCA) is a tool to determine the most cost-effective option among different competing alternatives to purchase, own, operate, maintain and, finally, dispose of an object or process, when each is equally appropriate to be implemented on technical grounds.

2. Diagram showing breakdown of life cycle costs:

Life cycle costs

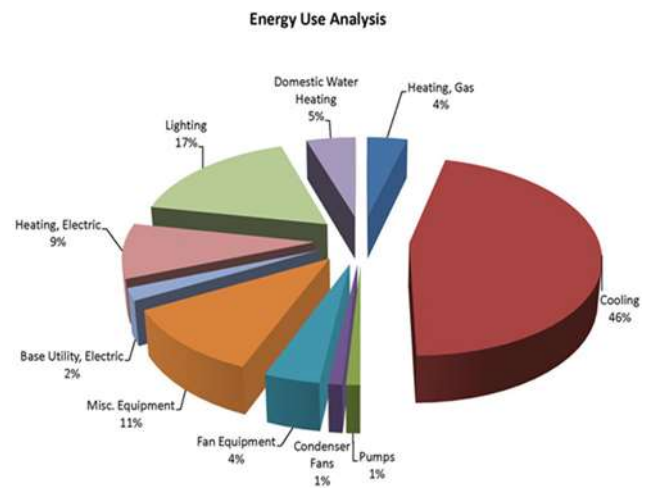
Construction:1260000
Maintenance:63000
Major replacements:189000
Operational costs:1890000

Maintenance: Clearing and making sure everything is in order.

Lighting: The cost of the power supply that goes into lighting up the surroundings of the building.

Heating: Costs of heating supply for the building.

3. Diagram showing breakdown of Operational Costs:



4. Estimated Life Cycle costs for my project:

£3465000.

What I learnt in 3 sentences:

- I learnt my life cycle costs.
- I learnt the definition of life cycle costs.
- I know what uses of my energy percentage is used up.
-





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4.4 provide forecasts of the lifespan of the completed project and facilities management costs taking account of environmental considerations

3. What are lifecycle costs?

Life cycle costs is the costs for the future operation of the building and maintaining it.

4. Explain what is included in each of the Life Cycle costs:

	What this includes:	% of Total Life Cycle Cost:
Construction	This includes the construction of the project and materials used.	30
Operation	Maintaining the building and operating it.	45
Major Replacements	Replacing any damaged materials or accessories in the building.	15
Maintenance	Cleaning and repairing of certain things in the building.	5
End of Life	Demolishing of the project.	5

5. Estimated Life Cycle costs for this project:

	Cost (£)
Construction	1260000
Operation	1890000
Major Replacements	189000
Maintenance	63000
End of Life	63000
Total:	3465000



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4.4.5 forecast facilities management costs

3. What is the role of a Facilities Manager?

To ensure that buildings and their services meet the needs of the people that work in them, this includes cleaning and maintaining the building.

4. Explain what is included in each of operational costs for your building:

	What this includes:	% of Life Cycle Cost
Energy	Lighting, heating costs and any electrical appliances.	10
Employee Wages	The amount of money you pay the employers to run the building.	20
Water	Cleaning water, drinking water etc.	5
Waste	Waste management, bin costs and litter picking.	5
Leasing/ council tax	Council tax.	5

5. Estimated Operational costs for this project:

	Cost (£)
Energy	420000
Employee Wages	840000
Water	210000
Waste	210000
Leasing/ Council Tax	210000
Total Operational Cost:	1890000



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4.4.6 take account of environmental considerations in planning

1. What is Green Buildings Studio?

A program which allows you to run building performance simulations help improve the efficiency of energy which circulates around the building.

Why is it used?

It's used to help minimise energy use across your project which can help lower the cost.

3, Discuss the differences between LED and Fluorescent Lighting:

LED lighting costs more to install and use in the long run and Fluorescent lighting contains small levels of mercury which if broken can potentially become poisonous. LED uses less energy meaning money is saved.

4. If your annual lighting costs using Fluorescent lights are 25% of your total energy costs then how much will would it cost you for lighting per year?

105000 pounds.

5. Using LED lighting uses 20% of the energy compared to Fluorescent Lighting. How much would it cost you using LED lighting per year?

84000 pounds.

6. How much would this save you over 30 years?

2415000 pounds.

7. Look at the two wall structures.

A

	Function	Material	Thickness
1	Finish 1 [4]	Stone - Natural	50.0
2	Substrate [2]	Concrete - Cast In Situ	15.0
3	Core Boundary	Layers Above Wrap	0.0
4	Structure [1]	Insulation / Thermal Ba	500.0
5	Core Boundary	Layers Below Wrap	0.0
6	Finish 2 [5]	Plasterboard	30.0

B

	Function	Material	Thickness
1	Finish 1 [4]	Wood Shake	50.0
2	Substrate [2]	Plywood - Exterior	15.0
3	Core Boundary	Layers Above Wrap	0.0
4	Structure [1]	Straw	500.0
5	Core Boundary	Layers Below Wrap	0.0
6	Finish 2 [5]	Render - Tan, Textured	30.0

Suggest a positive for each wall if used on your building:

The left image is more modern material and to the left is more sustainable materials.

When Energy Analysis was conducted in Green Building Studio on a 1000m² building it was found that using Wall A would cost £2000 per annum in energy. Although the materials don't appear as sustainable as Wall B it costs 15% more using Wall B.

How much would it cost per annum using Wall B? It would cost 300 pound more resulting in 2300 pounds per annum.

How is it that the energy costs are less using Wall A? Insulation is used resulting in less energy (heat loss).