



**BCATS**

BUILDING, CONSTRUCTION  
AND ALLIED TRADE SKILLS

# Plan, monitor and check

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**Unit Standard 24358 (v3), Level 2**

Plan and monitor the construction  
of a BCATS project, and quality  
check the product

**3** CREDITS

**BCITO**  
buildingpeople

**Building and Construction Industry Training Organisation  
(BCITO)**

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# Introduction

This handbook provides an overview of how to plan and construct a quality project. It is structured to provide an introduction to:

- confirming sizes and specifications
- planning work
- checking and confirming that the construction project meets the requirements of the job specifications.

**Remember:**

Your teacher/tutor will help you confirm your project's specifications, how to plan and undertake your project, and how to plan and implement quality controls appropriate to your project. They may give you project specifications to get you started.

They may also have their own handy techniques and resources that are in addition to the information included in this handbook.

# How you will be assessed

To achieve this unit standard, you need to complete a basic construction project (such as wooden garden furniture, a dog kennel, a cupboard) where you can plan and carry out the project and quality check procedures. Your teacher/tutor will tell you which project to complete.

You need to show your teacher/tutor that you can:

- read and/or listen to the instructions for a job and check anything you are not sure about
- work out the steps involved and write a project plan
- work out how you will check how well you are doing the job at each step (the quality control methods) and write these in the project plan
- work out what materials and equipment you need and write these in the project plan
- follow the project plan to construct the project
- use the quality control methods to check your work and make notes about this in the project plan
- check the finished project, compare it to the job instructions and identify any differences you find, and make notes about this in the project plan.

Your teacher/tutor will also give you a Work Plan/Diary to record your project plan and how you carried it out. Your teacher/tutor will assess and verify this.

# Health and safety

The Health and Safety at Work Act 2015 is designed to:

- prevent harm to employees at work
- promote good practices in health and safety management.

The Act puts responsibilities on everyone to take all practical steps to ensure your own safety and the safety of others. To work safely and effectively:

- know what to do
- know how to do it safely
- keep your mind focused on the project
- consider the wellbeing of your classmates.

One way you can help ensure your own safety is to use personal protection equipment (PPE). You will likely need to use at least:

- hearing protection
- safety boots or covered shoes
- gloves when handling treated timber
- dust masks
- safety glasses (even if you wear prescription glasses, you must still use safety glasses)
- apron or overalls.

The machinery and other equipment you use can cause serious injuries. You must use appropriate guards and safety devices. You must not use any machine without the safety guards fitted correctly. You must receive training in the use of machines and equipment and apply it when you use them.

**Depending on your school's policy, you might not be able to use some portable power tools on your own accord, such as a compound mitre saw. If this is the case, you must still set up the machine for your teacher/tutor to use and be on hand to be talked through how to use the machine safely and to see the process completed.**

# Planning

Planning is the key to success. A properly organised project should progress smoothly, generate few mistakes and produce a product everyone is happy with.

Good planning includes:

- detailed job specifications
- scheduling what works needs to be done and when
- quality checks.

## Job specifications

The ability to read and understand job specifications has a direct effect on quality and productivity. Fast work and high output is of no value if the finished project doesn't meet requirements, including quality requirements.

- Rework takes extra time, adds cost to the project, and causes deadlines to not be met.
- Fixing or repairing mistakes for group projects can cause other people's work to not be able to start on time.

Before starting any project, understand the job specifications. These have information about:

- the project
- materials to be used
- sizes or dimensions of each component (part)
- any allowable tolerances
- the required quality of the finished product.

They convey this information through:

- plans
- working drawings
- written and verbal instructions.

This information is used to plan the ordering and delivery of materials and the scheduling of people, plant and equipment.

## Planning

**Job specifications must be clear enough to interpret and understand and to be able to visualise the final project before even starting work on it. If any part of a job specification raises questions or is unclear, check it with the person who wrote or provided the specification.**

### Checking specifications against the plans and dimensions

To ensure the job specifications fit the specified requirements, it is good practice to systematically check:

- all dimensions
- that all measurements on the cutting list match the working drawings to ensure:
  - the measurements correspond with the overall sizes
  - the positions and proportions of components e.g. drawers, cabinets, windows and doors, are correctly positioned;
- for allowable tolerances
- that the materials identified in the specifications are actually suitable.



Check specs, plans and dimensions



### Tolerances

'Tolerance' is the stated range of allowable variation within the job specifications. It is usually included when the overall size of the item is not crucial.

A tolerance around the given dimension is indicated by +, which means greater than, or -, which means less than. For example, +/- 1mm means the measurement can be 1 millimetre larger or 1 millimetre smaller than the specified dimension.

A kitchen designer will often show a nominal dimension on a drawing and write on it the letters C.O.S. (check on site). This means that the dimension on the plans is approximate and needs to be checked before the construction takes place.

### Planning the stages

The initial impression of a project can be quite daunting. However, the biggest project is just a series of small projects that are planned and co-ordinated well.

Even if it is a smaller project, like making garden furniture, reduce the main task to a series of separate stages to help work out the most logical and efficient order of work. This contributes to:

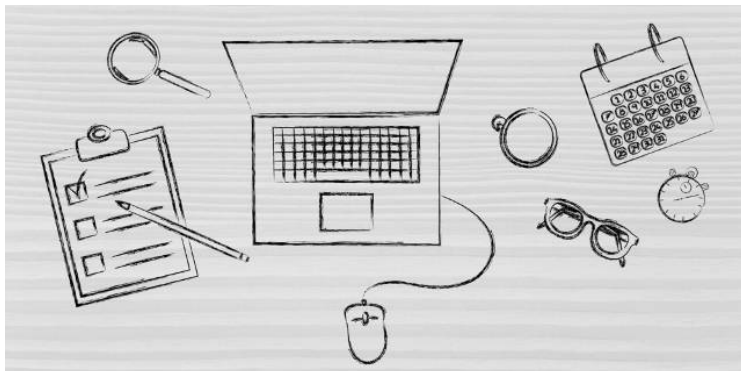
- clearer thinking
- effective planning
- better use of materials and less wastage
- better tracking of progress.

### Specific task requirements

Identify the specific task requirements for the different stages. Consider:

- health and safety requirements
- equipment needed
- additional instruction or training requirements
- any need for extra help
- deadlines.

# Scheduling work



There are many different ways to schedule what needs to be done for a project and when. The Work Plan/ Diary template your teacher gives you to complete is at the more basic end of the scale. However, the thinking you put into what you need to do for your project planning is similar to what is needed for bigger projects.

An example of how work for bigger projects can be scheduled is a

Time Activity Programme. Just like how you record how you've planned your project's stages, a Time Activity Programme is a record of the order in which the various stages of a project should occur. It becomes a way for the Project Manager (and client) to monitor the intended and actual progress of a construction project. The Time Activity Programme is developed before any work on the project is undertaken. (An example of one for a typical single storey house is included in this resource.)

A Time Activity Programme involves:

- a list of the construction activities and operations;
- the order in which each construction activity or operation should be undertaken
- a careful estimation of the timescale required to complete the different construction activities and operations.

The Time Activity Programme also provides an effective means for monitoring the actual progress of a construction project:

1. The time for each activity or operation is documented.
2. The actual time taken to complete each particular operation is entered against the original programmed time allocation.
3. A visual comparison of the actual progress of the combined operations can be made.
4. This comparison will highlight areas for concern.
5. Effective steps can be taken to remedy the situation.

## Preparing a time activity programme

In order for the objectives of a Time Activity Programme to be met, it must be carefully planned and organised. It will form a timetable for construction operations, and must be easily interpreted and accessible to all people involved in the construction process.

A time activity programme will show:

- the contract start and finish date
- where each activity or operation is phased in
- when tools, plant, equipment, machinery and vehicles will be needed
- material delivery dates
- start and finish dates for subcontractors
- holiday periods
- quantity of work completed
- inspection dates.

Once the project sequence has been developed, it is relatively easy to manage an efficient construction process.

Time allocations, which can be used for costing the project, can also be used to co-ordinate people and services; for example, determining when the ready-mix concrete delivery should take place.

The next page shows a typical Time Activity Programme for a single storey house.

## Time Activity Programme

Illustration of a typical time frame for a ground floor house construction

Activities	Start Week	Finish Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34					
Preliminary	1	4	1			4																																			
Setting out	4	5			4	5																																			
Excavation	6	7					6	7																																	
Foundations	7	11							7					11																											
Floors	12	14												12		14																									
Wall framing	15	18															15																								
Roof framing	19-22	17																			19		22																		
Exterior lining	18	19																					22																		
Exterior joinery	19	19																										26	27												
Exterior trim	20	21																											27	27											
Insulation	22	23																																							
Interior linings	24	27																																							
Interior doors and trim	26	27																																							
Electrical	26	27																																							
Plumbing	28	32				4	5																																		
Inspection	28	34																																				X			
			Month 1					Month 2					Month 3					Month 4					Month 5					Month 6					Month 7					Month 8			

# Quality control

Check all aspects of the project at each stage of constructing it. It is much easier and less expensive to correct mistakes as the job progresses than when the project is complete. Checking at the end of each stage will ensure that the completed work is as it should be. If it isn't up to standard, it can be fixed before doing further work.

For example, if an incorrectly positioned wall partition isn't identified and corrected before other work occurs, it could mean that the plumbers, electricians, plasterers, painters, flooring specialists and other construction-related people have to be called back to help fix the mistake. This can be very expensive for the person or company that didn't pick up on the mistake because they can be made to pay for the cost of fixing it.

Quality controls you need to include in your project plan will depend on exactly what your project is. Below are some general things that are helpful to think about for any project.

## Set up the job

Mark out the project to specifications as accurately as possible.

- Lay out the project in a logical sequence so that identifying and checking setting-out can be done easily.
- Use storey rods or templates wherever possible.
- Check that all timber and materials meet the project requirements.
- Check that marking-out is correct, especially for crucial parts, then move onto cutting and assembling.

Remember the old saying: "Measure twice, cut once."

## Preventing problems and emergencies

The project's specifications can help to identify potential problems. These can be used to put in place a range of precautions, preventative actions or strategies for preventing the problem or dealing with any emergency.

Problems could arise as a result of:

- lack of experience (eg, I've never made this project before and am finding it hard to visualise what I need to do.)
- lack of materials (eg, Are there enough materials for all my class' projects? Is the material I need for mine especially hard to get?)
- relying on other people (eg, Will someone be able to help when I need to lift/move materials into position?)

## Quality control

- deadlines not being met (eg, How can I make sure my project is finished on time?)
- needing extra support or help. (eg, At this stage I know I'll need to ask my teacher to help me with using this machine.)

## Work habits

Skill only develops with experience. Choose to be patient and take your time to get it right. This will improve your work quality and speed. Taking shortcuts, rushing, or missing important steps in a process can cause risks to your health and safety and to the final product.

Relaxed and methodical work habits and avoiding distractions will reduce the likelihood of confusion and errors.

Bypassing proven construction processes will, in many cases, create expensive problems in the longer term. Leaking houses, where costs were reduced by not applying finishing materials according to the manufacturer's specifications or omitting flashings over windows and doors, are examples of what can go wrong. The result was a plague of leaking homes and a repair bill that far exceeds the time and money initially saved.

## Tools, equipment

Tools and equipment should be appropriate for the task, maintained and checked before use. It is almost impossible to meet quality requirements with incorrect, damaged or blunt gear.

Appropriate safety guards should be fitted and working properly, and appropriate safety equipment used.

A clean work area is generally a safer and more productive work environment because people are able to move around, locate tools and work more efficiently in a tidy space. Tools are also less likely to be damaged.

To maintain a clean and efficient working environment:

- ensure tools are always stored away in the correct place
- keep the area clear of rubbish
- dispose of off-cuts in the appropriate place and manner
- report any damaged or blunt tools, equipment, and machinery immediately
- eliminate, or minimise the risk from all hazards.