

## CHAPTER 7

# RESOURCING CONCEPTS

**INFocus**

WPL\_J406

**Microsoft Project's** primary purpose in life is to act as a *scheduling* tool – you enter a few tasks and assign a few resources to those tasks and hey presto – a **schedule** is created for you which outlines appropriate start and end dates not only for the entire project but also for its tasks.

You can elect not to use this powerful aspect of Microsoft Project by leaving your project and its tasks in manual scheduling mode. However, in the real world most users of Microsoft Project want to see what happens when tasks are delayed, or when you assign more resources to a task, or when a contractor can't start on the day required. All of these require that some or all of the tasks be auto-scheduled so that Microsoft Project can apply its internal calculation methodologies to derive relevant scheduling outcomes.

Once you **auto-schedule** tasks start and end dates miraculously (and sometimes mysteriously) move in and out as you manipulate and play around with your resource assignments. Understanding the underlying methodologies, how they work, and what outcomes they will generate is fundamental to keeping frustration levels with Microsoft Project to tolerable levels.

**In this session you will:**

- ✓ gain an understanding of how resource assignment calculations are made
- ✓ gain an understanding of the varying task types and work effort
- ✓ learn how to perform simple resource assignments
- ✓ learn how to work with fixed unit tasks
- ✓ learn how to work with fixed duration tasks
- ✓ learn how to make multiple assignments of resources in a **Task Form**
- ✓ learn how to add additional resources to a task and handle the consequences
- ✓ learn how to add more of the same resource to a task and work with the consequences
- ✓ learn how to add more of the same resource where multiple resource types exist
- ✓ gain an understanding of effort driven scheduling
- ✓ learn how to work with tasks that are not driven by effort
- ✓ learn how to work with effort driven tasks.

# RESOURCE ASSIGNMENT CALCULATIONS

When tasks are auto-scheduled, their start and end dates can be manipulated both by the task **duration** and the assignment of predecessors. Once resources are assigned to tasks, other

variables come into play which can affect their scheduling. Key amongst those variables are the number of resources (known as **units**) and the amount of **work** required by those resources.

## The Scheduling Triangle

Auto-scheduled tasks are controlled using three factors – **duration**, the number of **resources**, and the amount of **work** required by those resources. Generally you start a project with tasks and then assign durations to those tasks.

For example, you may want to paint the inside of your house which you assume will take a week to do. Let's say for the sake of this example that a week is made up of 5 working days, each 8 hours long. So the duration of the task is 1 week (i.e. 40 hours). The **task form** for this example would look as follows:

The screenshot shows the task form for 'Paint the Inside'. The duration is set to 1 week. The start date is Mon 14/03/16 and the finish date is Fri 18/03/16. The constraint is 'As Soon As Possible'. The task type is 'Fixed Units'. The WBS code is 1. The priority is 500. The % Complete is 0%. The task form includes a table for resource assignments and a table for predecessors.

ID	Resource Name	Units	Work

ID	Predecessor Name	Type	Lag

George the painter has been hired to do the work. As soon as you assign George to the task your **task form** will appear as follows:

The screenshot shows the task form for 'Paint the Inside' with George the Painter assigned. The duration is 1 week. The start date is Mon 14/03/16 and the finish date is Fri 18/03/16. The constraint is 'As Soon As Possible'. The task type is 'Fixed Units'. The WBS code is 1. The priority is 500. The % Complete is 0%. The resource assignment table shows George the Painter with 100% units and 40h work.

ID	Resource Name	Units	Work
1	George the Painter	100%	40h

ID	Predecessor Name	Type	Lag

Important assumptions have been made here by Microsoft Project based on what was just entered. Notice how the work field shows **40h**. This has been calculated from the number of units (**100%**) multiplied by the duration (**1w = 40h**). In this example the formula used by Microsoft Project for determining the amount of work required by George is:

$$\text{Work} = \text{units} \times \text{duration} \quad (40 = 100\% \times 40)$$

So, we have told Project that the task will take 1 week (i.e. 40 hours) and we've told Project it will take George 100% of his time to do it. Microsoft Project in turn has determined from this that there is **40** hours of **work** required by this resource to complete the task.

Once initial values are entered the calculation wheel is truly in motion. But what happens if we clone George and assign him and his clone to the task? In this scenario Microsoft Project can either:

- halve the duration (**20h** of duration = **40h** of work / **2** units of George)

or

- increase the work value to **80h** (**80h** of work = **2** units of George x **1w** duration)

As a default Microsoft Project will change the duration first. Therefore, if we assigned another George to the task above, the **duration** would halve from **1 wk** to **0.5 wks** (i.e. **40h** to **20h**).

# TASK TYPES AND WORK EFFORT

With auto-scheduled tasks the scheduling will update when one of the three resource variables – **duration**, **work**, or **units** – are changed. Microsoft Project affords you a greater degree of

control over what will be allowed to change through the use of **task types**. You can lock a task into being either one that is **fixed duration**, **fixed unit**, or **fixed work**.

## Task Types

The really neat thing about Microsoft Project is that while it needs all three points of the assignment triangle – **duration**, **work**, and **units** – to perform the appropriate calculation, it is happy to fill in the missing pieces should you leave one blank. Generally, you'll know the **duration** of a task and the **resources** you wish to assign to it. With this information Project can calculate the **work** and enter it for you.

However, once you have a handle on this, or if you want to specify the **work** yourself, you can play around with the calculation methodology to get it to do what you want. At any point in time one of three points of the assignment triangle is **fixed**, effectively allowing the other two to be manipulated.

As a default the **Units** are fixed because Project's default calculation bias leans towards changing **durations** first, then **work**, and finally **units**. You can, however, override this bias by fixing one of the other points. The consequences of this are outlined in the table below.

Task Type	Usage	Impact
<i>Fixed Units</i>	This is the <i>default</i> setting. It means that Units will not be altered.	Change <i>duration</i> and the <i>work</i> will adjust
		Change <i>work</i> or <i>units</i> and the <i>duration</i> will adjust
<i>Fixed Duration</i>	Use this setting if the duration must remain constant.	Change <i>units</i> or <i>duration</i> and the <i>work</i> will adjust
		Change <i>work</i> and the <i>units</i> will remain unchanged
<i>Fixed Work</i>	Used when work is to remain constant. For example, when a specific amount of work has been quoted and will be charged for irrespective of resources used or duration.	Change <i>units</i> and the <i>duration</i> will adjust
		Change <i>duration</i> and <i>units</i> will remain unchanged

## Resource Work

While simple, single resource examples are fine and relatively easy to understand, the waters get a little murkier when several resources are involved. For example, let's say that erecting the framework of a house takes six weeks. This translates to 240 hours given an 8 hour working day (6 x 40 hours per week). The **work** required for the following resources is:

Resource	Units Assigned	Work	Resource Duration	Work Formula
Carpenters	500%	<b>1200h</b>	240h	5 * 240
Labourers	800%	<b>1920h</b>	240h	8 * 240
Driver	100%	<b>240h</b>	240h	1 * 240
Supervisor	25%	<b>60h</b>	240h	.25 * 240

All resources above have been assigned to work for the duration of the task (240 hours). The supervisor works one quarter of each day (during the entire task), while the other categories work the full day.

As you can see **work** should not be confused with **duration** – **work** is the total number of hours required by the resource units to complete the task in the **duration**. So while carpenters will be taking 240 hours to complete the task, because there are 5 (500%) carpenters there is actually 1,200 hours of carpenter work effort required to complete the task within 240 hours.

The total work required by all of the resources is known as the **effort**. A task can be **effort driven** where the total amount of work controls the scheduling.

# CREATING A SIMPLE ASSIGNMENT

The best way to see how the calculation of work effort is performed is to create a relatively simple assignment in a project. We will step out of the case study for the remainder of this chapter and

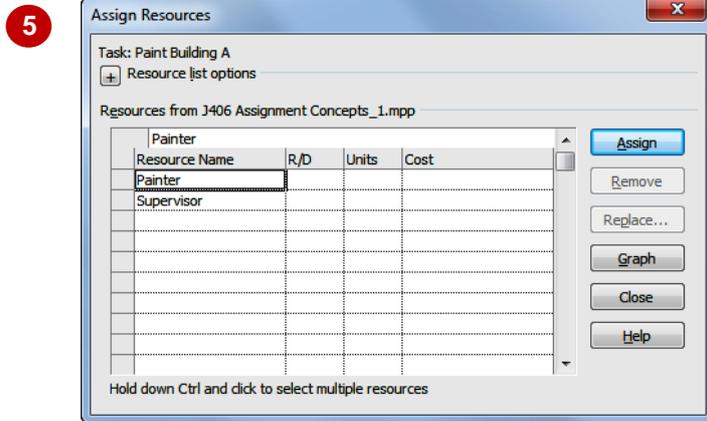
play around with a simple project. One of the best ways to assign resources and to see what is going on is to use a split view incorporating a **Task Form**.

## Try This Yourself:

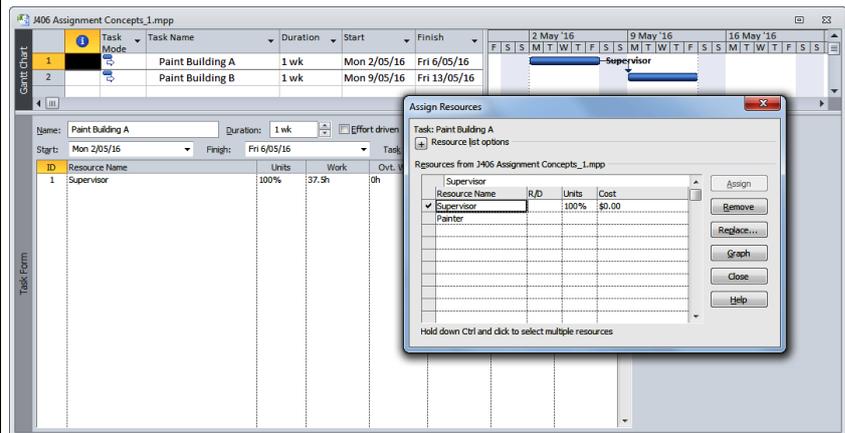
Open File

Before starting this exercise you **MUST** open the file *J406 Assignment Concepts\_1.mpp...*

- 1 Click on the **View** tab of the **Ribbon** and click on **Details** in **Split View** to see a **Task Form** in the lower part of the screen
- 2 Click on the **Task Form** bar at the left of the screen
- 3 Click on the **Format** tab on the **Ribbon** and click on **Work** in **Details** to see the **Work** settings in the form
- 4 Click on **Paint Building A** in the **Gantt Chart**
- 5 Click on the **Resource** tab on the **Ribbon** and click on **Assign Resources** to see the **Assign Resources** dialog box
- 6 Click on **Supervisor** and click on **[Assign]** to assign this resource
- 7 Click on **[Close]** to close the **Assign Resources** dialog box



The **Assign Resources** dialog box allows you to assign resources to the task that is selected. Its other advantage is that it lets you see the resources available to your project.



In this example we have assigned the **Supervisor** to the task. The task has a duration of 1 week, which in this project file is equivalent to 37.5 hours. That is why the **Work** column shows 37.5h.

## For Your Reference...

To assign a **single resource** to a task:

1. Display the appropriate view and select the task
2. Click on the **Resource** tab and click on **Assign Resources**
3. Click on the resource and click on **[Assign]**

## Handy to Know...

- A split screen is made up of an **upper** and **lower** pane. The bar at the left of each pane is used to select the pane you want to work with. Commands on the **Ribbon** sometimes change according to the pane and the view that is currently selected.

# WORKING WITH FIXED UNIT TASKS

As a default, new tasks entered into Microsoft Project are created with the **Fixed Units** type classification. This means that once entered, if you change the *duration* the *work* hours will

automatically update, or if you change the *work* hours, the *duration* will automatically update.

## Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file *J406 Assignment Concepts\_2.mpp...*

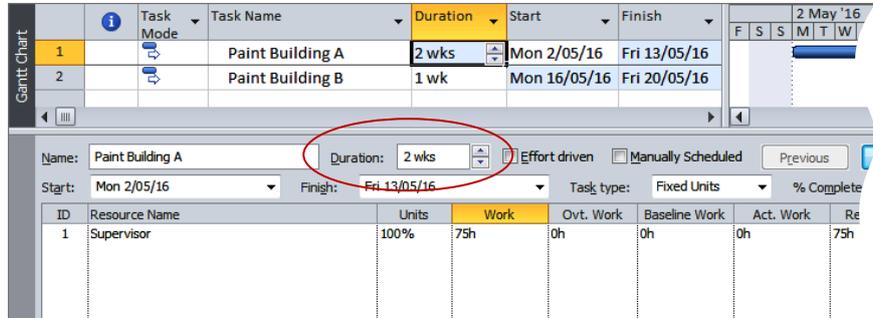
1 Select **1 wk** in **Duration** in the **Task Form**, type **2w** and click on [OK]

Here we've changed the duration. Let's alter the work hours this time to see what happens to the duration...

2 Click on **75h** in **Work** in the **Task Form**

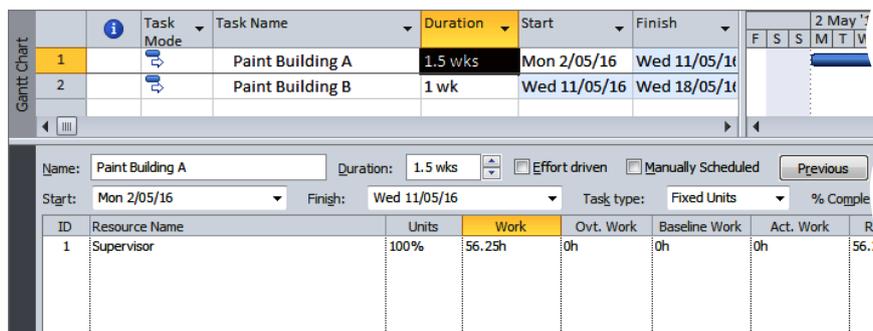
3 Type **56.25h** and click on [OK]

4 Click on **56.25h** in **Work**, type **37.5h** and click on [OK] to reset the values



1

Because the Task type is Fixed Units, the Units of resource has remained at 100%. The work however has doubled because the duration has changed to 2 weeks (100% x 37.5h x 2).



3

Since the Units are fixed at 100% and we have changed the work to 56.25h the only variable that can change is the duration. The duration has changed to 1.5 weeks (1 supervisor x 56.25h)

## For Your Reference...

When a **task** is **Fixed Unit**:

- If you change the **Duration**, the **Work** will automatically update
- If you change the **Work**, the **Duration** will automatically update

## Handy to Know...

- If a task is set with a **Fixed Unit** task type you can still adjust the number of units. When you do this Microsoft Project will, as a default, make changes to the **duration**.

# WORKING WITH FIXED DURATION TASKS

There are some tasks that need their durations fixed. **Fixed Duration** type tasks are normally ones where the duration won't or can't change because the events that shape the task are

outside of your control. Since the duration is fixed changes made to these tasks don't normally interrupt the schedule. However, they often create problems of insufficient resources for the task.

## Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file *J406 Assignment Concepts\_3.mpp...*

1 Click on the drop arrow  for **Task type** in the **Task Form**, click on **Fixed Duration** and click on [OK]

2 Click on **100%** in **Units**, type **200%**, and click on [OK]

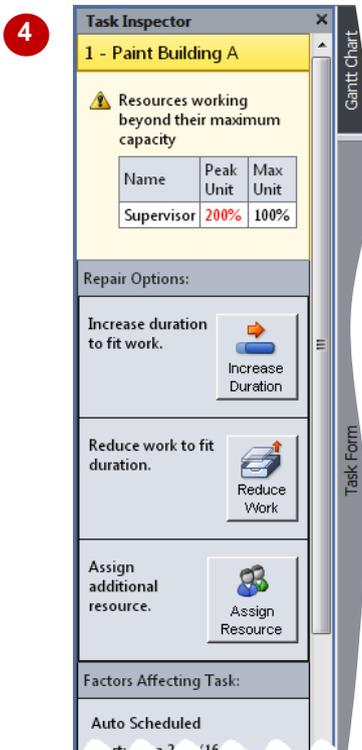
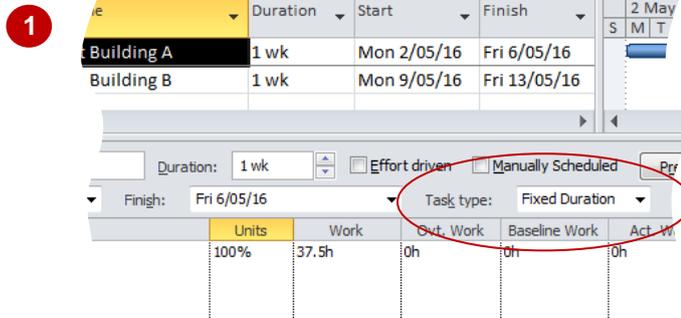
At first glance it appears as though things have worked. Units have increased as have the work hours. However a resource problem indicator has appeared next to the task name suggesting that we have a resource allocation problem...

3 Hover the mouse pointer on the indicator and read the (cryptic) information that appears

4 Right click on the indicator and click on **Fix in Task Inspector** to see a new panel appear at the left

This panel explains the problem and suggests relevant fixes...

5 Click on [Reduce Work] to restore the work back to **37.5h** and the units to **100%**



There is only 1 supervisor in the whole project. The message here indicates that we've assigned 2 supervisors which obviously can't be done.

Three solutions are offered to us. We can:

1. Increase the duration – since work is now 75h the duration will need to be increased to 2 weeks.
2. Reduce the work – it can be no more than 37.5h.
3. Assign another resource.

You can click on any of these options and Microsoft Project will make the necessary adjustments.

## For Your Reference...

When a **task** is **Fixed Duration**:

- If you change the **Units**, the **Work** will automatically update
- If you change the **Work**, the **Units** will not change

## Handy to Know...

- When we instructed the **Task Inspector** to repair the problem by reducing the work the units also reverted back to 100%. This occurred because the problem we were fixing was an over allocation of resources – it reverted back to the available number of units.

# MAKING MULTIPLE ASSIGNMENTS

Planning before you hit the keyboard is what success in **Microsoft Project** is all about. Often tasks will require more than one resource assignment. Careful planning should reveal to

you what resources are required before you set up your project. If you know the resources that will be required it is best to enter them directly into the **Task Form** in one operation.

## Try This Yourself:

**Open File**

Before starting this exercise you **MUST** open the file *J406 Assignment Concepts\_4.mpp...*

**1** Click on **Paint Building A** in the **Gantt Chart**

*There are currently no assignments here...*

**2** Click in **Resource Name** in the form, click on the drop arrow and click on **Supervisor**

*The assignment still has to be recorded. This is done later after we've added all of the resources...*

**3** Click directly below the **Supervisor** in **Resource Name**, click on the drop arrow and click on **Painter**

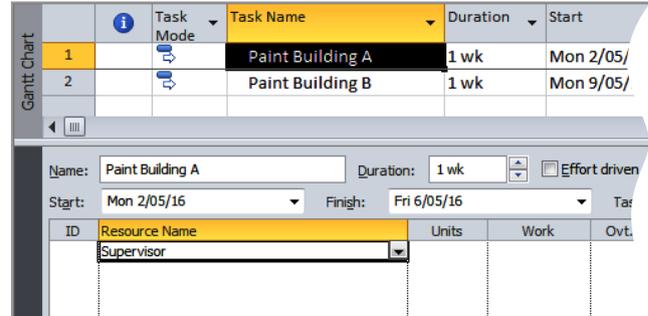
**4** Click in **Units** next to **Painter** and type **300%**

*This represents 3 painters working for the entire duration...*

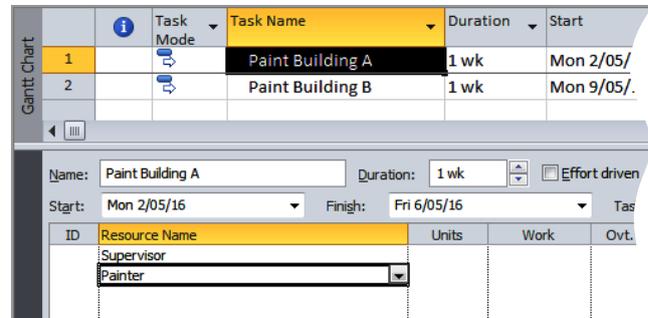
**5** Click on **[OK]** to record all of the assignments

*Notice that there are 37.5h for supervisors, and 112.5h for the painters in work*

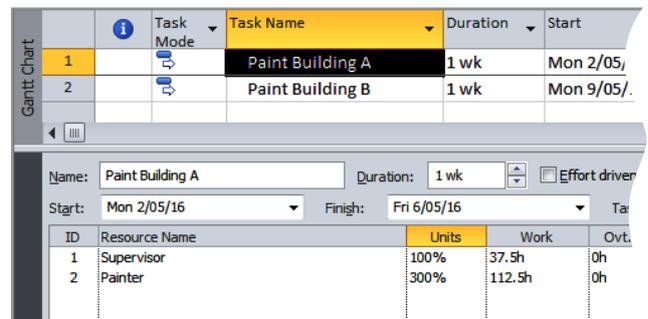
**2**



**3**



**5**



## For Your Reference...

To make **multiple assignments**:

1. Click on the **Resource Name** drop arrow in a blank row in the **Task Form** and click on the desired resource
2. Once all of the resources have been listed click on **[OK]**

## Handy to Know...

- Only when the **[OK]** button is clicked does Microsoft Project record the total **effort** for the task. The effort is simply the sum of all of the work. In this example the effort will be **150h** (i.e. 37.5 + 112.5 hours).

# ADDING ADDITIONAL RESOURCES

There will be times when you need to make adjustments to the current resource assignments of a task. This can escape the original planning phase and occur for all manner of reasons.

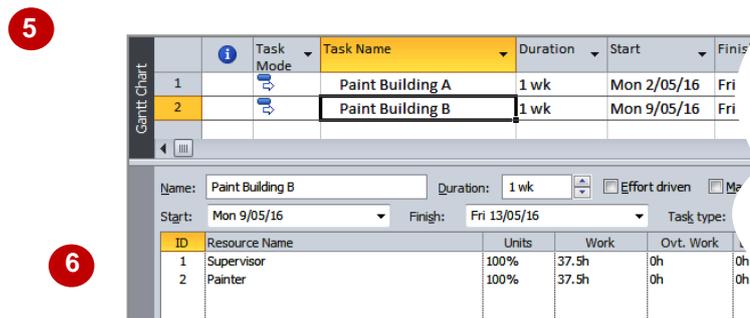
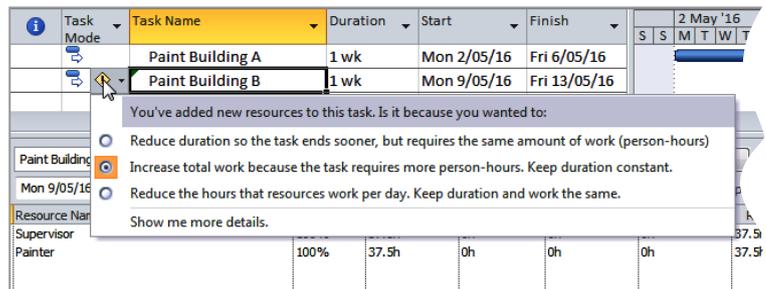
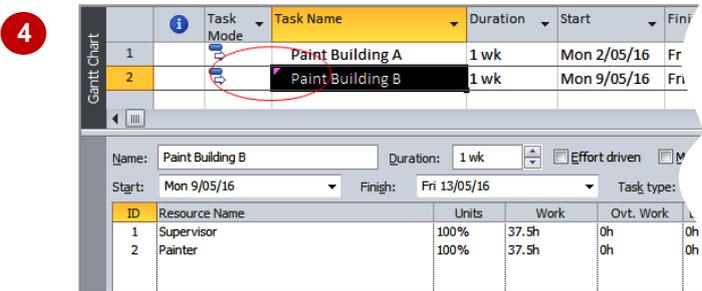
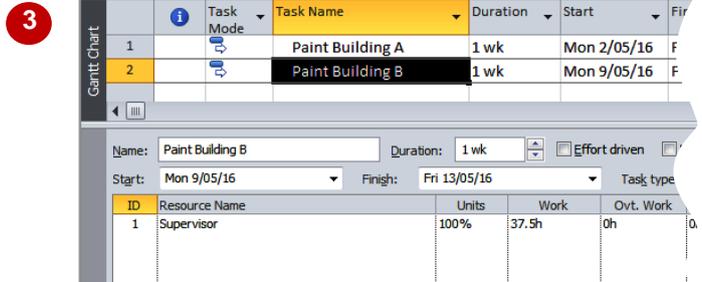
Depending upon the type of task you are working with this may have interesting implications for your schedule. When implications become apparent Microsoft Project will provide you with options.

## Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file *J406 Assignment Concepts\_5.mpp...*

- 1 Click on **Paint Building B** in the **Gantt Chart**
- 2 Click on the **Resource** tab on the **Ribbon** and click on **Assign Resources** in **Assignments**
- 3 Click on **Supervisor** and click on **[Assign]**  
*So far so good. But let's see what happens when another resource is assigned...*
- 4 Click on **Painter** in the **Assign Resources** dialog box and click on **[Assign]**  
*A triangle appears at the top left of the task indicating that there are a couple of ways of handling this...*
- 5 Click on the triangle to see an **Action Button** and click on the button to see the options  
*We want the supervisor and painter both to work 37.5h each...*
- 6 Click on **Increase total work because the task requires more person hours** to resolve the problem



## For Your Reference...

To **assign additional resources** to a task:

1. Click on the **Resource** tab on the **Ribbon** and click on **Assign Resources** in **Assignments**
2. Click on the desired resource and click on **[Assign]** – look out for triangles

## Handy to Know...

- In this example we initially assigned a supervisor at **37.5h**. When we subsequently assigned a painter Microsoft Project wasn't sure whether we wanted the total effort kept at **37.5h** or whether we wanted both to work at **37.5h** each for a total effort of **75h**.

# ADDING MORE OF THE SAME RESOURCE

If you add or remove resources using the **Resource Assignment** dialog box Microsoft Project will try and help you overcome potential problems or scheduling issues by displaying a

triangle and an action button with suggestions and strategies. This doesn't occur when you add resources by typing directly into the **Task Form**.

## Try This Yourself:

Open File

Before starting this exercise you **MUST** open the file *J406 Assignment Concepts\_6.mpp...*

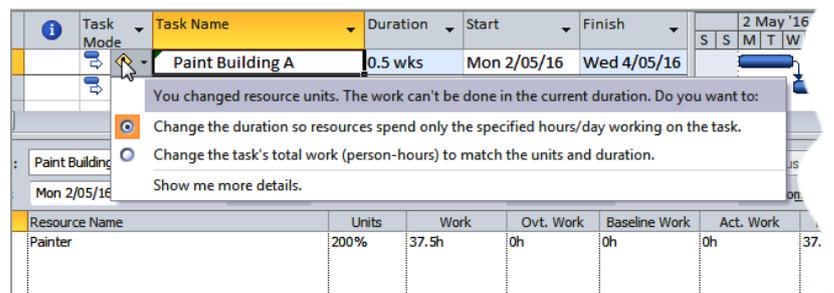
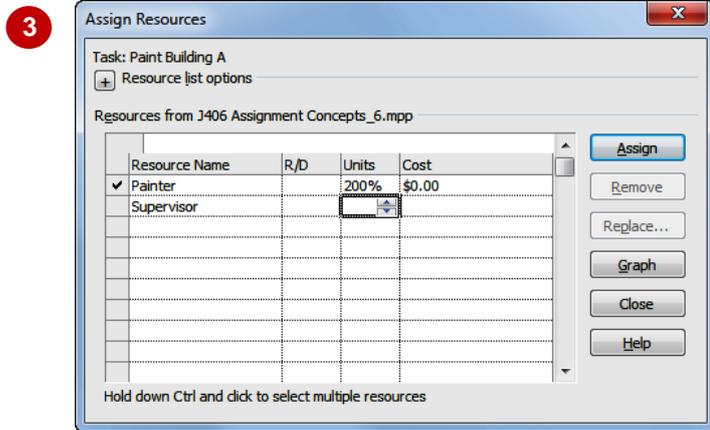
- 1 Click on **Paint Building A** and notice that it has 1 painter assigned to it
- 2 Click on the **Resource** tab on the **Ribbon** and click on **Assign Resources** in the **Assignments** group
- 3 Click on **100%** in the dialog box, type **200%** and press **Enter**

Because this is a **Fixed Units** task the total work has remained at **37.5h** and the duration has halved. But there is also the triangle in the task name...

- 4 Click on the triangle and click on the **Action Button**  to see the options you have

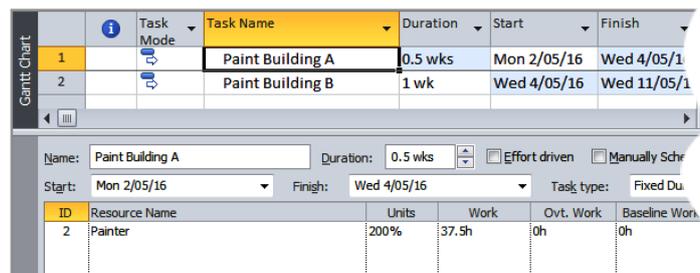
The default in this case is actually fine...

- 5 Click on **Change the duration so resources spend only the specified hours/day working on the task** to confirm that the right choice has been made



4

5



## For Your Reference...

To **increase resources** using a dialog box:

1. Click on the **Resource** tab on the **Ribbon** and click on **Assign Resources** in the **Assignments** group
2. Increase the current percentage shown for the resource and press **Enter**

## Handy to Know...

- Choosing the **Change the task's total work...** option would have resulted in the Work increasing to **75h** but the duration remaining at **1 wk**.

# MORE RESOURCES IN MULTIPLE ASSIGNMENTS

Adding more resources to a task should normally reduce the duration of the task – after all, many hands make light work. But Microsoft Project has issues when you add more of one type of a

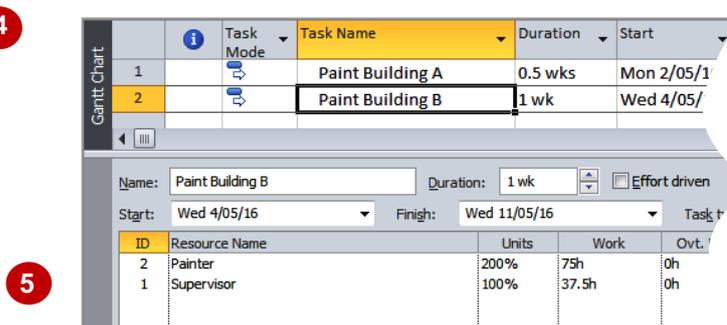
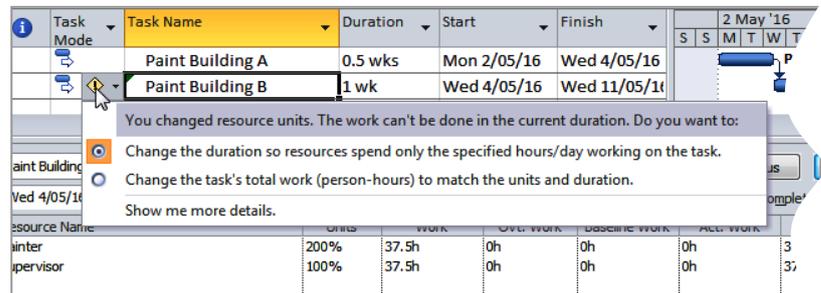
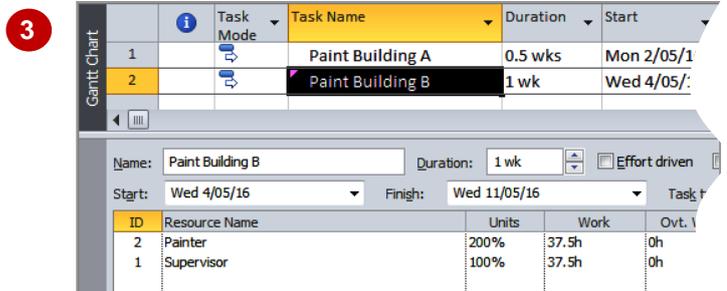
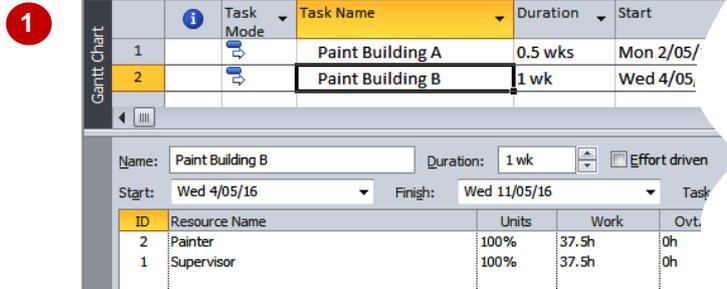
resource where other resources are also present. It doesn't know whether you are trying to shorten the **duration**, or simply add more resources because more **work** for a resource is required.

## Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file *J406 Assignment Concepts\_7.mpp...*

- 1 Click on **Paint Building B** and notice that it has 1 painter and 1 supervisor
  - 2 If necessary click on the **Resource** tab on the **Ribbon** and click on **Assign Resources** in the **Assignments** group
  - 3 Click on **100%** for **Painter** in the dialog box, type **200%** and press **Enter**
- Okay, so nothing appears to have happened – or has it? Even though the duration and the work remain the same Project is saying that there are now 2 painters working a total of 37.5h – in other words they are job sharing doing only 18.75h each on the task...
- 4 Click on the triangle in **Paint Building B** and click on the **Action Button**  to see the options you have
  - 5 Click on **Change the task's total work (person hours) to match the units and duration**



## For Your Reference...

When adding resources in multiple assignments:

1. Use the **Resource Assignment** dialog box to add the resources
2. Use the task's **Action Button**  to work out the best option for your project

## Handy to Know...

- In this task the work assumed originally per resource was **37.5h**. Even though more painters were added to the task the supervisor was still required to work 37.5h. Microsoft Project therefore retained 37.5h as the work for the painter but split this between the two when we added the extra painter.

# UNDERSTANDING EFFORT DRIVEN SCHEDULING

It is safe to assume that if you add another carpenter to a task that already has a carpenter, then the **duration** of the task should *reduce* given that the same amount of *work* is now

handled by two carpenters. However, should the duration change if you add a labourer to that task? If the answer is yes, then you will need to consider changing the task to **effort driven**.

## Work Driven Scheduling

In Microsoft Project the terms **work** and **effort** apply to two very different things. **Work** is a measurement of the time that it takes resources to complete what is required of them in a task. Work is usually measured in hours, and the resource in a task that has the most work (hours) is the one that normally controls how long the task will take (the duration).

ID	Resource Name	Units	Work	Ovt. Work	Baseline Work
1	Carpenters	100%	40h	0h	0h
2	Supervisors	100%	40h	0h	0h

In the example above we have a carpenter who requires **40h** to complete the task and a supervisor who requires **40h**. The duration is determined by the longest amount of work, which in this case is **40h**, and it is calculated at **1 week** (assuming a 40 hour week).

ID	Resource Name	Units	Work	Ovt. Work	Baseline Work
1	Carpenters	200%	40h	0h	0h
2	Supervisors	100%	40h	0h	0h
3	Labourers	100%	40h	0h	0h

We've now added another carpenter and also a labourer. Adding the carpenter resulted in no change to the amount of *work* – however, each carpenter job shares and works only 20 hours. The duration hasn't changed because the supervisor had the greatest amount of work after the second carpenter was added. When we subsequently added a labourer Microsoft Project assumed that the labourer would work the duration of the task (40 hours).

## Effort Driven Scheduling

Using the same example above we get a very different result when we convert the task to **Effort driven** before making the changes. When we convert the original task to **effort driven** Microsoft Project totals all of the work to derive an effort value. In the original schedule effort will be 80 hours (**40h + 40h**). If we now add another carpenter and then a labourer the work values appear as shown:

ID	Resource Name	Units	Work	Ovt. Work	Baseline Work
1	Carpenters	200%	26.67h	0h	0h
2	Supervisors	100%	26.67h	0h	0h
3	Labourers	100%	26.67h	0h	0h

Here the 80 hours of **effort** remain constant. Since the carpenters are both job sharing they are counted as 1 resource, not 2. Therefore, there are 3 resources counted here (1 job-sharing carpenter, 1 supervisor, and 1 labourer). Dividing the total effort (80 hours) by 3 provides work hours for each resource (**26.67h**), and since this is now the longest work value it controls the duration. Here all resources share the effort. Since the effort is fixed, the more resources, irrespective of type, we throw at the task the shorter the task takes to complete.

# WORKING WITH NON EFFORT DRIVEN TASKS

In **Microsoft Project 2010** new tasks as a default are created as non-effort driven. In other words the duration calculations are determined by the individual resource work loads as opposed to the

total work (or effort) of the task. This allows you to freely assign additional resource types without impacting too much on the work loads of the other resources.

## Try This Yourself:

**Open File**

Before starting this exercise you **MUST** open the file *J406 Assignment Concepts\_8.mpp...*

**1** Click on **Build the front walls** and notice that a **carpenter** and a labourer have been assigned to the task for 6 weeks

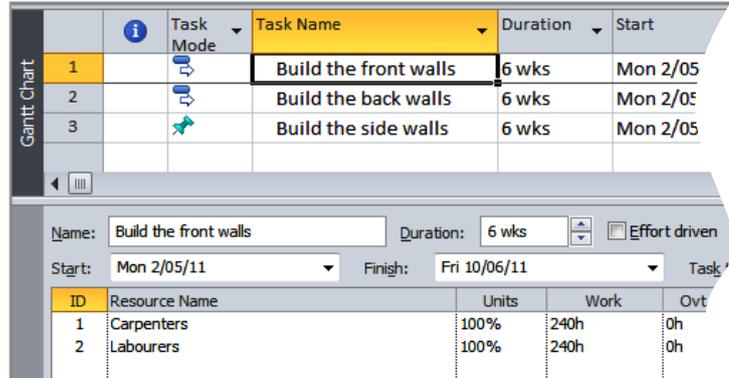
**2** Click on the **Resource** tab on the **Ribbon** and click on **Assign Resources** in **Assignments**

**3** Click on **Electricians** and click on **[Assign]**  
Here the total hours of work have been increased from 480h to 720h but the duration remains intact...

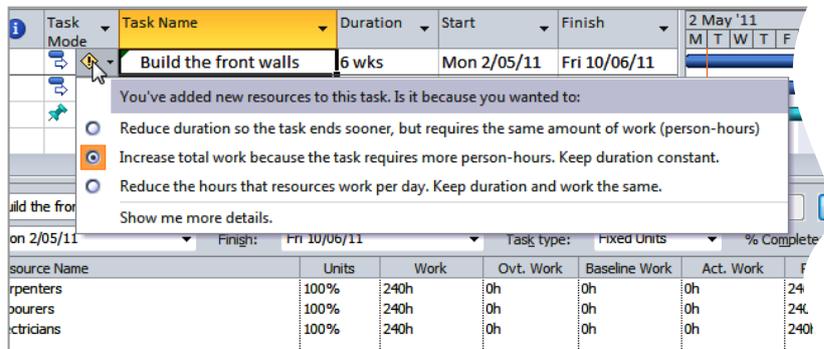
**4** Click on the triangle in **Build the front walls** and click on the **Action Button**  to see a list of options

**5** Click on **Increase total work...** to accept the default changes

**1**



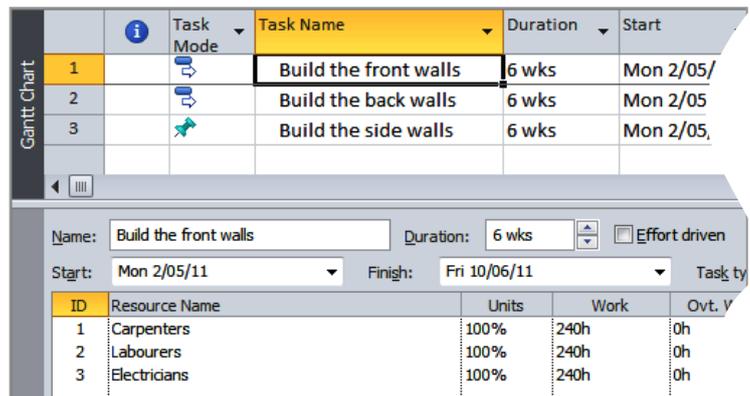
ID	Resource Name	Units	Work	Ovt
1	Carpenters	100%	240h	0h
2	Labourers	100%	240h	0h



Resource Name	Units	Work	Ovt. Work	Baseline Work	Act. Work	F
Carpenters	100%	240h	0h	0h	0h	240
Labourers	100%	240h	0h	0h	0h	240
Electricians	100%	240h	0h	0h	0h	240

**4**

**5**



ID	Resource Name	Units	Work	Ovt. V
1	Carpenters	100%	240h	0h
2	Labourers	100%	240h	0h
3	Electricians	100%	240h	0h

## For Your Reference...

To work with a **non-effort driven** task:

1. Ensure that the **Effort driven** setting in the Task Form is not ticked
2. Enter assignments as required

## Handy to Know...

- The **total work** (the sum of all of the work required by the resources) is the same as the task **effort**. When tasks are not driven by effort the amount of total work can freely increase.

# WORKING WITH EFFORT DRIVEN TASKS

If throwing additional resources will affect the duration of a task, then the task should be marked as **effort driven**. This is done by ticking the **Effort driven** setting in a **Task Form**. When

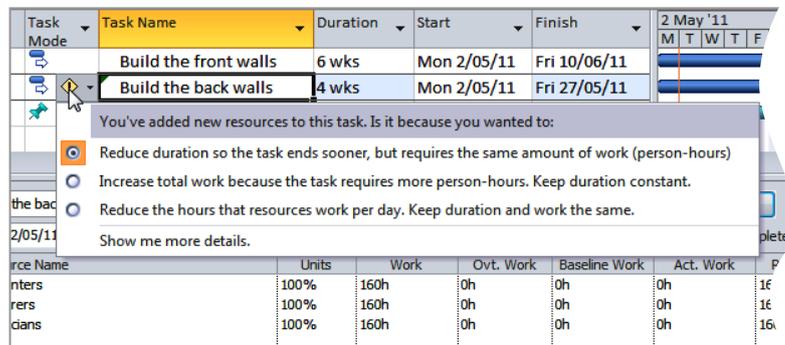
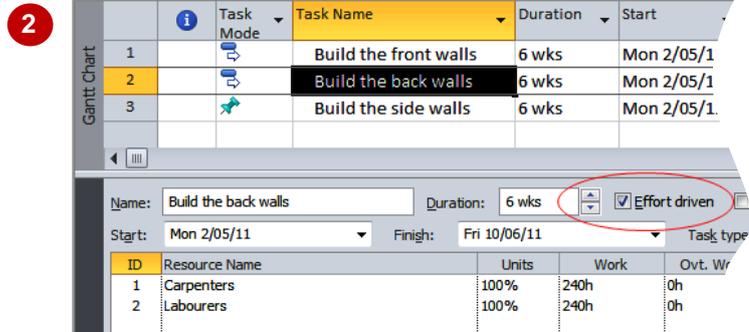
you mark a task as **Effort driven** the total work times of the task are summed to create an effort value which is then used to control the overall duration as the resources are updated.

## Try This Yourself:

Same File

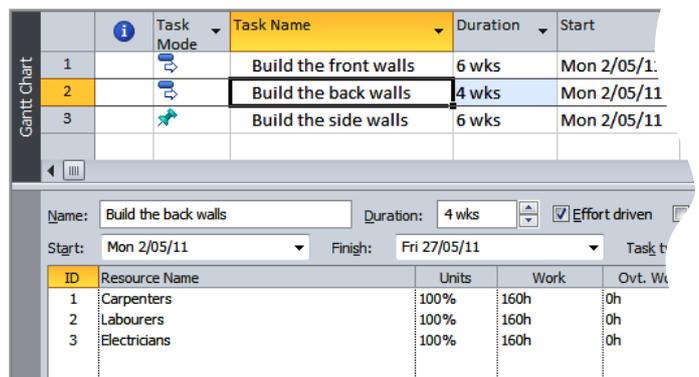
Continue using the previous file with this exercise, or open the file J406 Assignment Concepts\_9.mpp...

- 1 Click on **Build the back walls** and notice that a carpenter and a labourer have been assigned for 6 weeks
- 2 Click on **Effort driven** in the **Task Form** and click on [OK]  
This now sets up a total effort of 480 hours (240h + 240h)...
- 3 Click back on **Build the back walls**, click on **Electricians** in the **Assign Resources** dialog box and click on [Assign]  
The duration will decrease to 4 weeks because the 480 hours of effort is now being done by 3 resources rather than 2 meaning that each resource only needs to work 160 hours...
- 4 Click on the triangle in **Build the front walls** and click on the **Action Button** to see a list of options
- 5 Click on **Reduce duration...** to accept the default changes



4

5



## For Your Reference...

To make a task **effort driven**:

1. Click on **Effort driven** in the **Task Form**
2. Click on [OK]

## Handy to Know...

- **Effort driven** is really only relevant for tasks that have more than one resource assignment. With only one assignment duration is automatically recalculated when work or units change.

# RESOURCE ASSIGNMENT SUMMARY

A lot of theory has been covered in this particular chapter and it probably doesn't hurt to summarise the key points that have been covered. Much of what we've addressed here will become more

familiar and probably more logical as you work through your own projects.

## Resource Assignment Calculations

Resource assignment calculations in Microsoft Project are based on three elements – *duration*, *work*, and resource *units*. In the equation, duration will be adjusted first where possible, then units, then work. The calculation can be algebraically re-defined as follows:

$$\text{Work} = \text{Duration} \times \text{Units}$$

$$\text{Duration} = \text{Work} \div \text{Units}$$

$$\text{Units} = \text{Work} \div \text{Duration}$$

*Work* is normally shown in hours, and *Units* (the number of resources) as percentages.

## Task Types

Tasks must be assigned one of three possible types – *Fixed Units*, *Fixed Duration*, or *Fixed Work*. As a default a new task is created as **Fixed Units**. The type assigned to a task determines the scheduling calculation that will be performed by Microsoft Project on the task.

## Learn To Use, Not Abuse

It's all too easy to become frustrated with Microsoft Project's scheduling methodologies. Keep an eagle eye out for little symbols such as the **over-allocation** symbol  that appears in red in the information column on a task sheet, or the little triangle that indicates an **Action Button**  is available to guide you through troubled waters. These symbols and icons can usually be clicked or right-clicked to reveal automated actions or **inspectors** that offer advice.

Consider using the **Assign Resources** dialog box for entering resources as this dialog box will trigger **Action Buttons** for you.

## Effort Driven Scheduling

**Effort driven** scheduling is where the total work effort of a task remains fixed irrespective of how many resources you throw at the task. The total work effort is derived by summing all of the work done by the resources.

Since the total work remains fixed the duration of the task will be shortened when you add more resources and lengthened as you take them away.

Effort driven scheduling is turned off in **Microsoft Project 2010** but turned on in previous versions.

As a rough rule of thumb if you have a task where the duration should reduce the more resources of any kind that you throw at it, then it should be set up as an effort driven task.

## Adjust Your View

When allocating resources to tasks adjust the views of your project to provide as much information and easy access to features as possible. While you are beginning we suggest splitting the screen so that a **Gantt Chart** appears at the top and a **Task Form** appears below. The **Gantt Chart** will allow you to see your tasks in a task sheet on the left, and as a timeline at the right – the timeline is a great way to perceive scheduling changes. The **Task Form** at the bottom provides an easy way to adjust resource allocation details. You can use options on the **Format** tab on the **Ribbon** to tweak the settings in the **Task Form**.

## Expect the Unexpected

Keep an open mind and a calculator by your side when working with Microsoft Project. It hardly ever gets things wrong – but it can take a fair while sometimes to try and work out what it is doing, especially with work calculations.