

# PROJECT ISSUES AND CHANGE ORDERS

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As in many other business fields, modifications and contingencies are common in the construction field.

## Project Issues in maestro\*

Some functions have been developed in **maestro\*** to meet clients' needs. The **maestro\* Change Order** sub-module offers users many options linked to project issues allowing them to note, document, structure, and register these said issues. Reports can be generated. Furthermore, issue-type templates can be created in the software, speeding up and standardizing data entry. Thus, each project issue type can display personalized fields that must be completed. **Maestro\*** offers templates for some types of project issues, such as:

- Daily Delivery Entry
- Project Incident
- Inspection Item
- Phone Log Entry
- Punch List Item
- Quality Issue
- Safety Issue
- Stop Work Order
- Request for Quote (RFQ)
- Etc.

Sub-project issues can also be created and linked to other project issues when a parental link unites them. In sum, the use of the **Issue Management** option in **maestro\*** offers many advantages, including being able to create change orders and estimates directly through an issue.

## Change Orders in maestro\*

The **Change Order** sub-module, like many others, has for advantage the integration of other **maestro\*** modules. Also, once its status is changed to *submitted* or *approved*, the transferred change orders can automatically update the budget of the project related to these change orders. If applicable, the material order and subcontract can also be generated. Furthermore, the change orders will be included in the invoicing contract.



It happens that a big change order (that would need more than 250 entry lines) is processed as a sub-project, independently from other change orders. Change order requests can also be grouped together to form only one big change order or sub-project. In sum, there is more than one way to account for change order expenses.

## Expense Accounting Methods

There are many ways to account for expenses resulting from change orders, each with its advantages and disadvantages:

- Using the project's activities:
  - Pre-existing activities (Scenario A)
  - New activities (Scenario B)
- Through a sub-project:
  - A sub-project for all the change orders (Scenario C)
  - A distinct sub-project for every change order (Scenario D)
- Through a budget modification (Scenario E)

A company can decide to use one or more of these methods, based on the nature, size, and number of change orders.

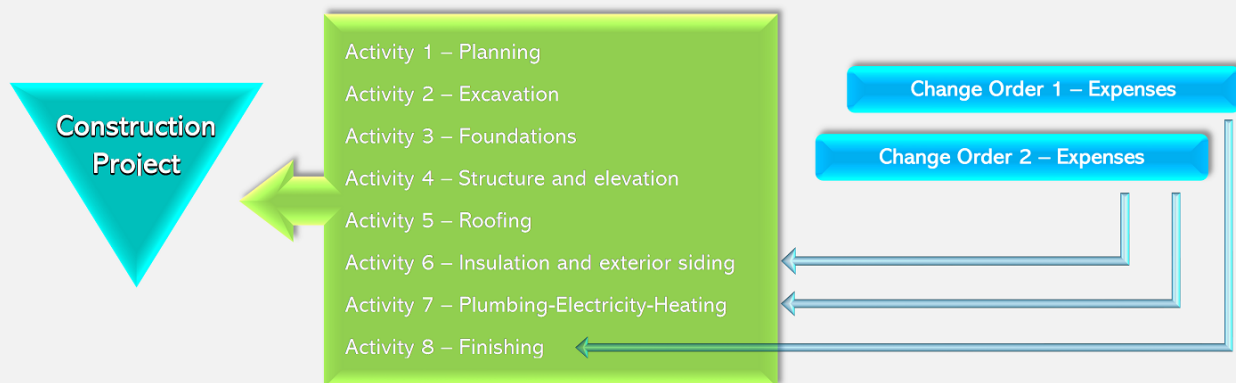
### Scenario A - Change Orders Integrated With Project Activities

The change order's expenses are accounted and recorded in the project's existing activities, to which the change order is linked. These activities act as budgetary modification.



**Maestro\*** makes it possible to identify the budget modification source (since it can be generated by a change order, but also by an estimate mistake, for example) and even to join the explanatory documents. When a user then performs data mining in a project, the nature of the modification is displayed.

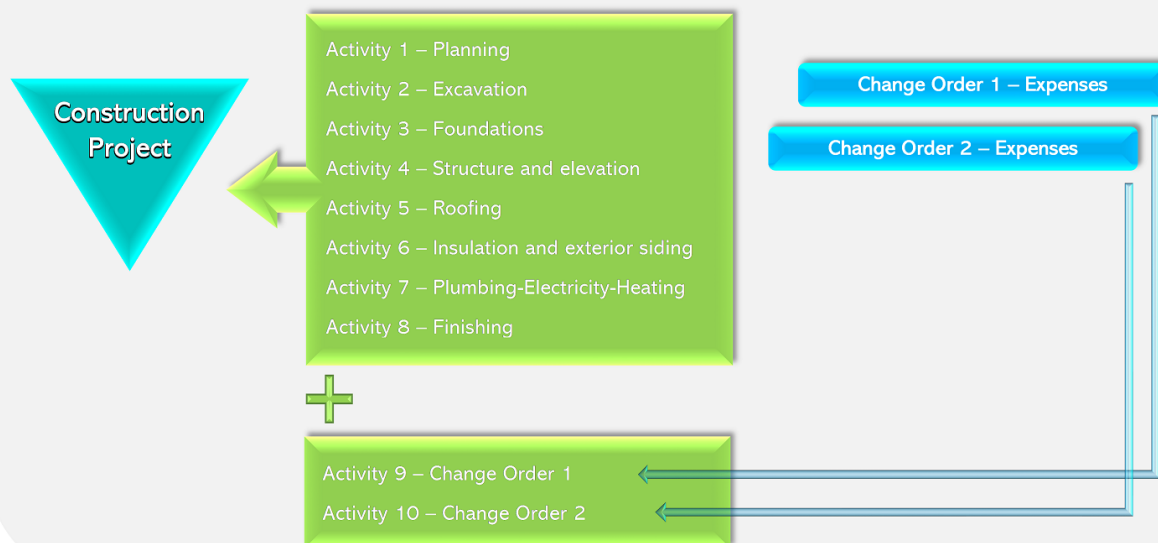
## Scenario A - Example



## Scenario B - Change Orders Managed by New Activities

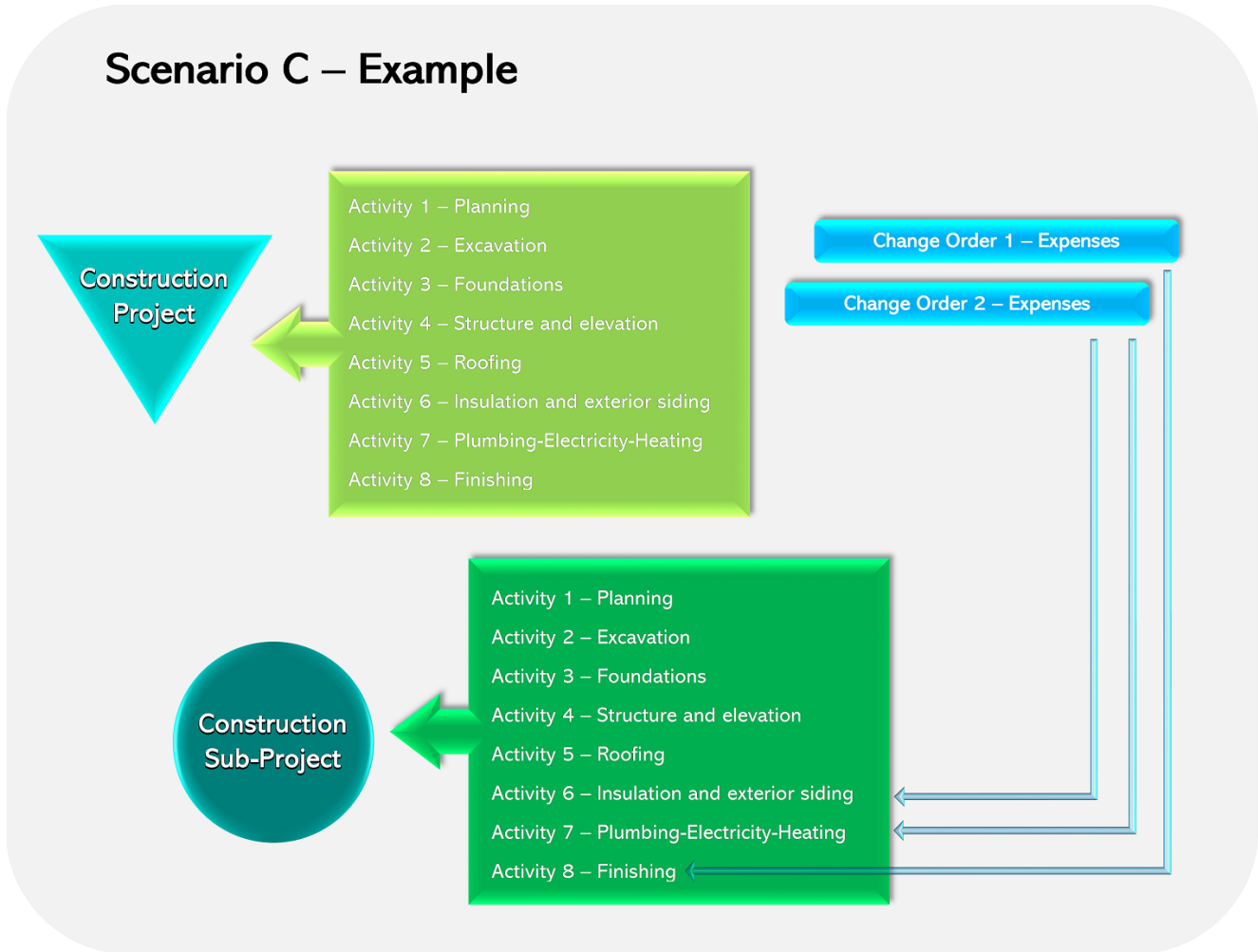
Each new change order has a new activity created and assigned to it in the project to which it is linked. Expenses for each change orders are therefore accounted for in a single activity, which belongs to the said change order.

## Scenario B – Example



## Scenario C - Change Orders Managed Together in a Sub-Project

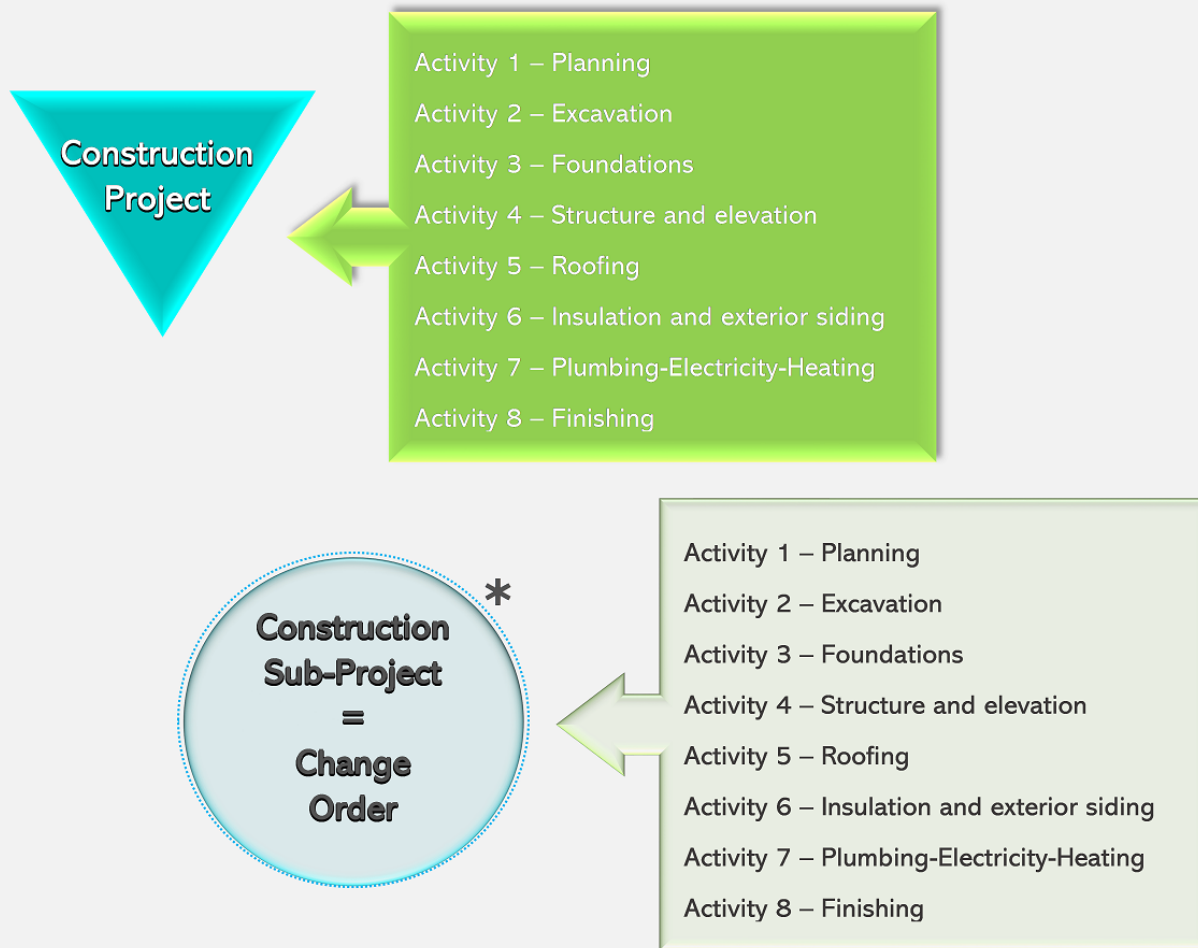
A sub-project is created for all change orders; in it can be found the same activities as in the project. All change order expenses are recorded in the sub-project's activities.



## Scenario D - Change Orders Managed Individually in Sub-Projects

A single change order is treated as a sub-project and its expenses are classed in the sub-project's activities. All other generated change orders are processed separately.

# Scenario D – Example



\* The sub-project activities can be identical, or not, to those of the project.

## Advantages and Disadvantages of Each Method

Scenario	Description	Advantages	Disadvantages
A	All expenses generated by change orders are charged to the project's existing activities.	This method is very simple. With this method, it isn't required to precisely enter all the work site information concerning a change order	It is harder to isolate all information concerning change orders. This method does not allow the follow-up concerning the

Scenario	Description	Advantages	Disadvantages
		(information that can sometimes be hard to acquire).	profitability of change orders but pictures the profitability of the project as a whole.
B	A new activity is added to the project for every new change order created for this said project. All expenses generated by this change order are charged to its associated activity.	All information concerning each change orders are regrouped in one activity. However, even if the information is globally displayed, it is still possible to know the cost and revenue of each change order.	This method can generate the creation of many additional activities if there are many change orders for a project.
C	A sub-project regrouping all the change orders is created.	This method is simpler when there are risks of many change order occurrences for a same project. Furthermore, it allows users to compare the project's real budget with the starting estimate, with change orders being accounted for separately.	Entering data is harder with this method. Users must be very rigorous when entering detailed information in <b>maestro*</b> .
D	A sub-project is created for each change change order (or for a large-scale change order).	This method allows a very detailed follow-up of the project's profitability and change order's costs. It allows for a very precise follow-up, ideal when working with major change orders that involve substantial sums.	This method requires a very detailed follow-up of the information.

As previously mentioned, more than one method can be used by a company to manage change orders. Many factors need to be taken into account when deciding which method to use, and these method may vary from one project to another for a same client. This decision depends of many factors, such as the information provided by the construction site, the number and competence level of users entering the data, etc.

## Change Order Management Scenarios

Here are some simple, but realistic, scenarios that happened to some clients. They portray how a project's change order management must reflect the nature of the work and the company: will material orders be placed at the beginning or as the project advances, will employees be able to know if the work done is linked to a change order or the project itself, is the project major, are many change orders anticipated, etc.

## Scenario #1 - Only fools don't change their mind!

Michael just took over as the head of a luxurious family-owned construction company. The latter having recently bought **maestro\***, Michael wishes to use the software to its full potential, in order to manage change orders. These often occur, especially for the many additional constructions of his most recent development project. Indeed, his clients often change their mind or have new ideas during construction. He has become a master in the art of the "while we're at it". His spouse and three other employees will have the task of performing the entries in **maestro\***. There is no shortage of work!



Observations:

- There are many projects to manage at once (at least 10 work sites), for a duration of at least 4 to 8 months.
- His clients generally want to view the details of every billable additions.
- The employees who's job is to enter data in **maestro\*** are limited and do not have much experience with the software.
- Michael is passionate about numbers and wishes to follow-up on the profitability of the houses he builds.

Michael's choice: B, all new project change order will become a new activity.

This method will allow Michael to follow-up on his projects' profitability and offer his clients the detail of all modifications made during construction.

## Scenario #2 - Know the opportunity that is right for you!

With her company now resting on solid foundations, Nathalie wishes to expand and miss no new business opportunities. A great occasion has actually presented itself; as she was just finishing the last details of an amphitheatre construction project, she was told that a major sports complex (with an olympic sized pool and all that) would be grafted to the initial building. The next nights promise to be short! But what could be better than changing your plans for the better?



Observations:

- The construction of the sports complex, which is being added to the main building, is shaping up to be even grander than the original project by itself.
- One thing's for sure, Nathalie must manage her expenses carefully!
- Nathalie is ready to roll up her sleeves and employ any necessary resources to



carry out her project.

Nathalie's choice: D, the change order will be managed as a sub-project.

Contrary to change orders she's had during previous projects, Nathalie has decided to manage this one as a project in itself. We are speaking about a change order for which there will most-likely be many expenses.

### Scenario #3 - Problems are opportunity's favourite costume!

Everything was going great for John and his commercial construction company until the beginning of the COVID-19 pandemic. Needless to say that business slowed down. However, John knew this situation wouldn't last forever! He will soon build residences for seniors (*Maisons des aînés*). To do so, he has decided to go all out and rethink his whole work management and organization, as much on work sites as in the office. A new team is now in place, **maestro\*** has been implanted, and his workers have access to **maestro\*MOBILE**. There are less contacts between employees, the exchange and loss of physical paperwork is a thing of the past, and the company has already become more efficient! However, doubt remains... How should John manage future change orders related to the construction of retirement homes?



Observations:

- John now wishes to optimize everything and he has put in place the needed tools to get all the information he needs.
- John will have to manage similar constructions. Each retirement home will bring its share of unexpected events and change orders.
- John wants to compare his teams' efficiency on work sites, and, of course, the profitability of each construction.

John's choice: C, a sub-project will be created for all the change orders of a same retirement home

With his employees having all the tools they need, it should be easier to obtain detailed work-site information. But mostly, this new change order management method should allow John to compare the costs of one construction project to another, with or without change orders.

### Charge Orders' Invoicing Methods

There are many different ways to bill change orders in **maestro\***:

- By **Lump Sum** when it's a fixed amount.
- Through **Progress Billing** (generally when a significant modification is generated by a change order). The addition of a floor to a building, for example.
- By **Cost Plus Invoicing**, the most-often used option for the invoicing of private project change orders. This invoice method makes it impossible to over-bill a client and simply allows the addition of small profit percentages and administration fees. For example, if the change order is the shoveling of snow on a roof, the costs will consist of the hourly rate, a small profit, and administration fees.
- By **Enter a Sale (T&M) Invoicing** (in part used for the invoicing of construction work done in *FastTrack* mode).

## REMINDER

- By project issue, we mean any and all situations that arise during a project, most usually during the construction work phase. **Maestro\*** offers an option which records those issues and, if needed, transfers them as change orders.
- A change order consists of a modification made to the initial estimate, once the project has begun; often results in additional costs.
- Hundred of change orders can arise during a project. They can be coupled or not.
- In **maestro\***, expenses linked to change orders can be managed in many ways: in the project's activities, in new activities, together or separately, in a sub-project, or through budgetary modifications.
- When transferred, change orders created through the sub-module with the same name, in **maestro\***, can systematically generate material orders, subcontracts, update the project's budget, and generate an invoice. That's one of the advantages of working with an ERP system!
- It sometimes happen, in a project, that modifications must be made before writing and negotiating a change order. That is what we call *Fast Track Execution*.
- In **maestro\***, change orders can be billed by lump sum, cost plus, through a progress bill, and by time and material. Furthermore, there are many ways to account for change order expenses.

## FOOD FOR THOUGHT - PREPARATION FOR IMPLEMENTATION

- How do you manage issues?
- What are the different invoicing methods commonly used by your company?
- How do you generally wish to account for your change orders?
- Are some projects processed in *Fast Track* mode?

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