مدیریت مالی، حسابداری و هزینه در پروژه ها و سازمان‌های پروژه‌محور

بخش سوم:

مدیریت حسابداری: سیستم حسابداری پروژه

ارائه دهنده:

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(PhD, PMP, CMIT)

What you will learn?

- Purposes of the project accounting system
- Method of accounting
- Components of an accounting system
- Balance sheet
- Income statement
- General ledger
- Job cost ledger
- Equipment ledger
- Components of a cost control system

The general ledger

- The **general ledger** consists of **all of the accounts** necessary to track the financial data **needed** to **prepare:**

1. **Balance sheet,**
2. **Income statement,**
3. **Income taxes.**

- The way **transactions** are handled in the **general ledger** is based on the **accounting method used** by the construction company.

CHART OF ACCOUNTS

110 Cash	730 Repairs and Maintenance
120 Accounts Receivable-Trade	740 Fuel and Lubrication
121 Accounts Receivable-Retention	750 Taxes, Licenses, and Insurance
130 Inventory	798 Equipment Costs Charged to Employees
140 Costs and Profits in Excess of Billings	799 Equipment Costs Charged to Jobs
150 Notes Receivable	
155 Due From Construction Loans	805 Advertising
160 Prepaid Expenses	806 Promotion
199 Other Current Assets	810 Car and Truck Expenses
	811 Computer and Office Furniture
210 Building and Land	812 Repairs and Maintenance
220 Construction Equipment	819 Depreciation
230 Trucks and Autos	820 Employee Wages and Salaries
240 Office Equipment	821 Employee Benefits
250 Less Acc. Depreciation	822 Employee Retirement
260 Capital Leases	823 Employee Recruiting
299 Other Assets	824 Employee Training
	825 Employee Taxes
310 Accounts Payable-Trade	830 Insurance
311 Accounts Payable-Retention	835 Taxes and Licenses
320 Billings in Excess of Costs and Profits	840 Office Supplies
330 Notes Payable	841 Office Purchase
340 Accrued Payroll	842 Office Rent
341 Accrued Payables	843 Office Utilities
342 Accrued Taxes	844 Postage and Delivery
343 Accrued Insurance	845 Janitorial and Cleaning
344 Accrued Vacation	846 Telephone
350 Capital Leases Payable	850 Charitable Contributions
360 Warranty Reserves	855 Dues and Memberships
379 Other Current Liabilities	860 Publications and Subscriptions
380 Long-Term Liabilities	865 Legal and Professional Services
	870 Meals and Entertainment
410 Capital Stock	875 Travel
420 Retained Earnings	880 Bank Fees
430 Current Period Net Income	881 Interest Expense
	885 Bad Debts
500 Revenue	891 Unallocated Labor
	892 Unallocated Materials
610 Materials	893 Warranty Expense
620 Labor	898 Miscellaneous
630 Subcontract	899 Overhead Charged to Jobs
640 Equipment	
650 Other	910 Other Income
	920 Other Expense
710 Rent and Lease Payments	950 Income Tax
720 Depreciation	

Income Statement

- **Represents** the **transactions**
- Includes:
  - **Revenues**
  - **Construction Costs**
  - **Equipment Costs**
  - **Overhead (General overhead)**
  - **Other Income and Expense**
  - **Income Tax**
- **Like the balance sheet**, **multiple accounts** on the income statement may be **combined** and **unneeded accounts left out**.

BIG W CONSTRUCTION
INCOME STATEMENT

REVENUES	3,698,945	100.0%
CONSTRUCTION COSTS		
Materials	712,564	19.3%
Labor	896,514	24.2%
Subcontract	1,452,352	39.3%
Equipment	119,575	3.2%
Other	5,452	0.1%
Total Construction Costs	3,186,457	86.1%
EQUIPMENT COSTS		
Rent and Lease Payments	35,425	1.0%
Depreciation	32,397	0.9%
Repairs and Maintenance	21,254	0.6%
Fuel and Lubrication	29,245	0.8%
Taxes, Licenses, and Insurance	1,254	0.0%
Equipment Costs Charged to Jobs	119,575	3.2%
Equipment Costs Charged to Employees	0	0.0%
Total Equipment Costs	0	0.0%
GROSS PROFIT	512,488	13.9%
OVERHEAD	422,562	11.4%
NET PROFIT FROM OPERATIONS	89,926	2.4%
OTHER INCOME AND EXPENSE	21,521	0.6%
PROFIT BEFORE TAXES	111,447	3.0%
INCOME TAX	33,434	0.9%
PROFIT AFTER TAXES	78,013	2.1%

Income Statement – Revenue

- **Revenue** is the income **recognized** from the **completion** of **part or all** of a project.
- For a company using the **percentage-of-completion** or **accrual accounting methods**, revenue is **recognized** at the time the **project's owner is billed** for the work.
- For a company using the **completed contract method**, revenue is **recognized** at the **completion of the project**.
- For a company using the **cash method**, revenue is **recognized** when the company is **paid for the work** by the **project's owner**.
- **Revenue** **may also** be referred to as **contract revenue** on a construction company's income statement and is **equivalent** to **net sales** used by **other industries**.

Income Statement – Revenue

Income from non-construction operations is usually classified as other income.

Types of costs

- **Direct Cost**
  - Material (**fixed cost**)
  - Subcontractor (**fixed cost**)
  - Labor (**variable cost**)
  - Equipment (**variable cost**)

- **Indirect cost**
  - **General overhead** or **home-office overhead** or **company overhead**
    - ✓ **Fixed overhead cost**
  - **Project overhead** or **job overhead**
    - ✓ **Fixed or variable overhead cost**
      - o Cost of bonding (fixed)
      - o Mobilization (variable)

Income Statement – Construction Costs

❑ Materials

- ❖ Include **supplies** or **material** that are **purchased** by the **company** and **incorporated** into the **finished project**, such as windows, concrete, and etc.
- ❖ **Transportation** and **storage** of the materials should be **included** in the **cost of the materials** as well as any **sales tax** on the **purchase**.
- ❖ Does **not** include **labor cost** for the **installation** of the **material**
- ❖ **Purchases** that include **labor** would be considered a **subcontract cost type**.

Income Statement – Construction Costs

❑ Labor

- ❖ Includes **only** the labor that is **processed through** the construction company's **payroll system** and is charged to a **construction project**.
- ❖ Divided into:
  1. **Labor Cost (employee's wages)**
  2. **Labor burden Cost** (Medicare, vacation allowance, health insurance, company-paid benefits, etc.)

One reason for this breakdown is that a company **often pays** a **different liability** on **each of these types of costs**.

- ❖ Labor that **does not pass** through **company's payroll syste**m including **temporary labor services**, would be considered a **subcontract cost type**.

Income Statement – Construction Costs

Subcontract

- **Must always** include **labor** being **performed** by the **SC** on the **jobsite**
- **May include supplying** of **materials**, **equipment**, **other items**
- Does **not** include **SC cost** that is **processed** through the **contractor's payroll system**

Income Statement – Construction Costs

Equipment

- Equipment costs that have been **charged** to a **construction project**
- These charges come from the **"Equipment Cost" section** of the income statement.
- **If** equipment is charged **directly** to the **"Construction Costs" section**:
  - ✓ Break the **"Equipment" cost type** in "Construction Costs" into **"Rental Equipment"** and **"Owned Equipment"**
    - Costs for **equipment rented** and **equipment owned** go **directly** to **"Rental Equipment"** and **"Owned Equipment",** respectively**.**
    - Or **first** go to **"Equipment Cost" section** of income statement and **then** go to **"Rental Equipment"** and **"Owned Equipment"**

Income Statement – Construction Costs

❑ Other

❖ Project Overhead Costs

- ✓ Costs are **not classified** as labor, materials, equipment, or subcontract cost types and are **performed** on a **construction project**
- ✓ **Cannot** be **allocated** to **specific items**
- ✓ **Services** and **materials** that are **not incorporated** into the **construction project** (e.g., **temporary toilets, surveying**, etc.)

Income Statement – Equipment Costs

- **More complicated** when **allocating** to **multiple projects**

- When a construction company **spends $5,000** on tires for a **front-end loader** that is used on dozens or maybe **hundreds of jobs** during the **life of the tires**
  - It is **unclear** **which** project should be **charged** for **equipment costs**
  - The **"equipment costs" portion** of the income statement is where these **costs are held until** they can be **allocated to specific projects**.
  - The **equipment cost portion** of the income statement is a **unique feature** of income statements for **construction companies** that **own** their **own equipment**.

Income Statement – Equipment Costs

- **Equipment costs** should **not be confused** with **company overhead costs**.
- When **equipment** is used on a **single construction project**, **all costs** go to the **project**.
- **Some companies** and **accountants** require that **all of the equipment costs** be **allocated** by the **end of the company's fiscal year**.

Let's look at how the equipment section of the income statement works.

Income Statement – Equipment Costs

- Suppose that your company had a **frontend loader** whose **ownership costs** for **depreciation**, **taxes**, **licenses**, and **insurance** were **$3,200 per month.**
- Whose **preventative maintenance**, **fuel**, and **lubrication** were **$35 per billable hour**.
- **During the month** of **April** the **tires** were **replaced** on the loader at a cost of **$6,000**.
- **No other costs** were incurred during the year.
- The loader was **only used** during the months of **April through October**.

Income Statement – Equipment Costs

- The monthly costs and billable hours by job are shown in Table.

Month	Ownership Costs ($)	Hourly Costs ($)	Tires ($)	Billable Hours by Job	Average Hourly Cost ($)
January	3,200	0	0	0	?
February	3,200	0	0	0	?
March	3,200	0	0	0	?
April	3,200	2,800	6,000	80 hr on Job 101	150.00
May	3,200	6,300	0	80 hr on Job 101 100 hr on Job 102	52.78
June	3,200	6,300	0	180 hr on Job 102	52.78
July	3,200	6,300	0	180 hr on Job 102	52.78
August	3,200	6,300	0	180 hr on Job 102	52.78
September	3,200	6,300	0	180 hr on Job 102	52.78
October	3,200	1,400	0	40 hr on Job 102	115.00
November	3,200	0	0	0	?
December	3,200	0	0	0	?

- The **monthly costs** are charged to the **equipment cost portion** of the **income statement** in the **month** they are **incurred**, and

  then the costs are **allocated** based on a **projected hourly cost** of the equipment and the **billable hours to each project**.

Income Statement – Equipment Costs

- During **January, February, and March** the **monthly costs** would be recorded to the **equipment cost portion** of the income statement, whereas **no costs** would be **allocated** to the **jobs**.
- At the **end of March**, the **equipment cost portion** of the income statement would have a **balance of $9,600** in **unallocated costs**.

Month	Ownership Costs ($)	Hourly Costs ($)	Tires ($)	Billable Hours by Job	Average Hourly Cost ($)
January	3,200	0	0	0	?
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October	3,200	1,400	0	40 hr on Job 102	115.00
November	3,200	0	0	0	?
December	3,200	0	0	0	?

Income Statement – Equipment Costs

- During **April $12,000** would be billed to the **equipment cost portion** of the income statement.
- If we allocate equipment cost **at this point**, **Job 101** = $21,600

Month	Ownership Costs ($)	Hourly Costs ($)	Tires ($)	Billable Hours by Job	Average Hourly Cost ($)
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February	3,200	0	0	0	?
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October	3,200	1,400	0	40 hr on Job 102	115.00
November	3,200	0	0	0	?
December	3,200	0	0	0	?

Income Statement – Equipment Costs

- If we allocate equipment cost at the **end of year**,
  - **Job 101** = 160 hrs. and $12,565
  - **Job 102** = 860 hrs. and $67,536

Month	Ownership Costs ($)	Hourly Costs ($)	Tires ($)	Billable Hours by Job	Average Hourly Cost ($)
January	3,200	0	0	0	?
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November	3,200	0	0	0	?
December	3,200	0	0	0	?

Income Statement – Equipment Costs

All the equipment (projects and others)

INCLUDES:

- ❑ Rent and Lease Payments
- ❑ Depreciation
- ❑ Repairs and Maintenance
- ❑ Fuel and Lubrication
- ❑ Taxes, Licenses, and Insurance
- ❑ Equipment Costs Charged to Jobs
- ❑ Equipment Costs Charged to Employees

CONSTRUCTION COSTS		
Materials	712,564	19.3%
Labor	896,514	24.2%
Subcontract	1,452,352	39.3%
Equipment	119,575	3.2%
Other	5,452	0.1%
Total Construction Costs	3,186,457	86.1%
EQUIPMENT COSTS		
Rent and Lease Payments	35,425	1.0%
Depreciation	32,397	0.9%
Repairs and Maintenance	21,254	0.6%
Fuel and Lubrication	29,245	0.8%
Taxes, Licenses, and Insurance	1,254	0.0%
Equipment Costs Charged to Jobs	119,575	3.2%
Equipment Costs Charged to Employees	0	0.0%
Total Equipment Costs	0	0.0%

Income Statement – Equipment Costs

❑ Rent and Lease Payments

- ❖ Equipment **not owned**
- ❖ **May** be billed **directly** to **"Rental Equipment"** in **"Construction Costs"**

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Income Statement – Equipment Costs

❑ Depreciation

- ❖ **Company-owned** equipment
- ❖ **Depreciation method <u>may</u>** be **different** for **allocating construction costs** than the **depreciation method** used for **income tax purposes**

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Income Statement – Equipment Costs

❑ Repairs and Maintenance

- ❖ **Include**: **repairs**, **routine maintenances**, and the **replacement of tires and other wear items**.
  1. **Repairs** include **repairs** because of **damage** and **other major repairs** (such **as overhauls**)
  2. **Routine maintenance** includes all **regularly scheduled** or **preventive maintenance** and includes **oil** and **filter changes**.
  3. **Tires and other wear items** include the **replacement of tires**, **cutting edges**, **bucket teeth**, and other items that **frequently wear out**.
- ❖ **Repairs and Maintenance** should include the **materials**, **supplies**, and **labors** involved in the repairs and maintenance.

Income Statement – Equipment Costs

Fuel and Lubrication

- Includes the **fuel** used to **operate** the equipment
- Includes **lubricants <u>consumed</u>** on the **job** such as **grease** for the **grease fittings**
- **Lubricants** added by the **<u>operator</u>** at the **beginning** of **each shift**
- ***This is not maintenance cost***

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Income Statement – Equipment Costs

Taxes, Licenses, and Insurance

- **Taxes** include **all taxes** and **licensing fees** assessed by **government agencies**.
  - This includes also **property taxes** on the **equipment** and **licensing fees** for **vehicles** that **travel over public roads**.
- **Insurance** includes **automotive insurance**, which **protects** the company **against loss** or **damage** to the **equipment** and the **damage** caused by the **use of the equipment**.

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Income Statement – Equipment Costs

Equipment Costs Charged to Jobs

- It is a **contra account**
- Used to **record** the **equipment costs** that **have been allocated** or charged to the **construction costs** for **a specific construction project**.
- **Offset** the cost categories in the **equipment cost section** of the income statement in the **same way depreciation offsets the fixed assets** on the balance sheet.

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Income Statement – Equipment Costs

Equipment Costs Charged to Employees

- **Contra account**
- Includes **all costs reimbursements** from **employees** for the **personal use.**
- **Employees must** be charged for **personal use** of company vehicles—including **travel to and from work**.
- The **company must** include the **value** of the **employees' use** of **company vehicles** as a **taxable benefit** in the **employees' benefit package**.
- **Like equipment costs charged to jobs**, equipment costs used to **offset** the cost categories in the **equipment cost section** of the income statement.

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Income Statement – Relationships

- ***Gross Profit = Revenues – Construction Costs – Equipment Costs***
- **General Overhead**
- ***Net Profit from Operations = Gross Profit - Overhead***
- **Other Income and Expense**
  - All income and expenses **not associated with construction operations**
- ***Profit before Taxes = Net Profit from Operations – Other Income and Expenses***
- **Income Tax**
  - Income Tax Liabilities
  - Deferred Income Taxes
- ***Profit after Taxes =***

  = Profit before Taxes – Income Tax

GROSS PROFIT	512,488	13.9%
OVERHEAD	422,562	11.4%
NET PROFIT FROM OPERATIONS	89,926	2.4%
OTHER INCOME AND EXPENSE	21,521	0.6%
PROFIT BEFORE TAXES	111,447	3.0%
INCOME TAX	33,434	0.9%
PROFIT AFTER TAXES	78,013	2.1%

Income Statement – Relationships

- **Deferred income tax** occurs when a company uses a **different accounting method** for **income tax purposes** than it does for **financial purposes**.

- **For example**, a company may use the **cash accounting method** for **income tax purposes**, but uses the **percentage-of-completion method** for preparation of **financial statements**
  - In this case, the **difference** in the income tax **calculated** and would be reported on the **financial statement** as **deferred income tax**.

General Ledger – Relationships

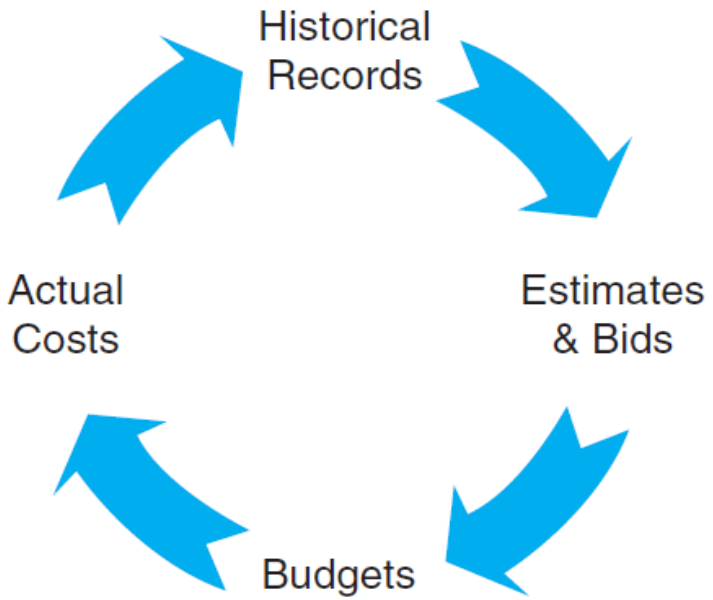
- **Balance Sheet**
  - ***Asset = Liabilities + Equity***

- **Income Statement**
  - ***Revenue (including other income) = Expenses (including Construction Costs, Equipment Costs, General overhead, Other Expenses, and Income Tax) + Profit***

- **Balance Sheet and Income Statement**
  - ***Change in Equity = Profit***

Job Cost Ledger

- For **management** to **monitor and control** the **cost of projects**
- **Historical records**
- **General ledger lacks** the **necessary details**



Cost Information Cycle

ACEMI

UniFormat

- **Uniformat** is a standard for **classifying building specifications**, **cost estimating**, and **cost analysis** in the **U.S. and Canada**.
- The elements are **major components common** to most buildings.
- The system can be used to provide **consistency in the economic evaluation** of building projects.
- It is a publication of **Construction Specification Institute (CSI)** and **Construction Specifications Canada (CSC)**,
- It is a method of **arranging construction information** based on **functional elements**, or parts of a facility characterized **by their functions**, **without regard** to the **materials and methods** used to accomplish them.
  - These elements are often referred to as **systems or assemblies**.
    - ✓ *Substructure, superstructure, roofing, electrical, sitework, etc.*

ACEMI

UniFormat

- Its **most notable use** is as a format for estimators to **present cost estimates** during the **schematic design phase.**

- **UniFormat** breaks a facility into **systems and assemblies** that perform a predominating function, such as substructure, shell, interiors, and services.

- This allows the facility to be **priced at the elemental level** and **allowing design alternatives to be better evaluated**.

- **UniFormat's** approach to **organizing data** is also important to the continued development of **building information modeling (BIM) software**, as its system organization allows **objects to be placed** **before their properties have been further defined.**

ACEMI

UniFormat

A	SUBSTRUCTURE	Level 1
A10	Foundations	Level 2
A1010	Standard Foundations	Level 3
A1010.10	Wall Foundations	Level 4
A1010.10.CF	Continuous Footings	Level 5

DO NOT FORGET TO SEE UNIFORMAT FILE

MasterFormat

- **MasterFormat** is a standard for **organizing specifications** and other written information for commercial and institutional building projects in the **U.S. and Canada.**

- **MasterFormat** is a product of the **Construction Specifications Institute (CSI)** and **Construction Specifications Canada (CSC).**

- It provides a **master list** of **Divisions**, and **Section numbers** with **associated titles** within each **Division**, to **organize information** about a **facility's construction requirements** and **associated activities**.

- It is **material-based organization** of building content.
  - *Concrete, masonry, metals, etc.*

MasterFormat

- **MasterFormat** is used throughout the **construction industry** to **format specifications** for **construction contract documents**.

- The **purpose** of this format is to assist the user in **organizing information** into **distinct groups** when **creating contract documents**, and to **assist the user** searching for specific information in **consistent locations**.

- The information contained in **MasterFormat** is organized in a standardized outline format within **50 Divisions (16 Divisions pre-2004).**
  - Each Division is **subdivided into a number of Sections.**

MasterFormat

MasterFormat is the specifications-writing standard for most commercial building design and construction projects in North America. It lists titles and section numbers for organizing data about construction requirements, products, and activities. By standardizing such information, MasterFormat facilitates communication among architects, specifiers, contractors and suppliers, which helps them meet building owners' requirements, timelines and budgets.

The numbers and titles presented here are identical to the numbers and titles contained in the MasterFormat® 2016 publication available for purchase from the Construction Specifications Institute (CSI) and Construction Specifications Canada (CSC).

Contents reflect MasterFormat titles and numbers as of April 2016. Consult http://www.masterformat.com/revisions/ for the most current additions and changes to MasterFormat.

MasterFormat numbers and titles are intentionally structured for anticipated growth and expansion in the future. CSI and CSC encourage all interested parties to provide input using the "Propose a Revision" link on http://www.masterformat.com/revisions/ so that as the built environment evolves so can MasterFormat. Updates to MasterFormat are made annually.

To learn more about MasterFormat training, certification and local chapter information from CSI go to http://www.csinet.org/ or from CSC go to http://www.csc-dcc.ca/. **For information about licensing use of MasterFormat for commercial or educational purposes, contact CSI at http://www.csinet.org/, csi@csinet.org or by calling 800-689-2900.**

DO NOT FORGET TO SEE MASTERFORMAT FILE

Difference between UniFormat and MasterFormat

- **UniFormat** is proposed for **elements**.
- **MasterFormat** is proposed for **work results**.
- **UniFormat** is a **systems-based organization** of building content.
- **MasterFormat** is a **material-based organization** of building content.
- **Uniformat** used for **systems and assemblies.**
- **MasterFormat** used for **construction contract documents.**

Difference between UniFormat and MasterFormat

- **UniFormat** is a **systems-based organization** of building content.
- **MasterFormat** is a **material-based organization** of building content.
  - In **MasterFormat**, a value of 03-31-00 is reserved for **Concrete Material**. **All use of concrete** will be specified with this **value of 03-31-00.**
  - However, **UniFormat** can be used to **differentiate** the **many places** concrete is used in a building.
    - ✓ *Examples of **UniFormat** codes that can identify how concrete is being used in a project are as follows:*
      - *A1010 Foundations*
      - *A1020 Special Foundations (Caissons and Drilled Piers)*
      - *A1030 Slab on Grade*
      - *B1010 Structure*
      - *C2010 Stairs*
      - *G2030 Site Improvements*

Extending Uniformat by using Masterformat

Some users may want to add *MasterFormat* materials and methods information to a document organized according to *UniFormat*. *MasterFormat* numbers may be included if some materials and methods have been determined. For example, if the building structural frame will be steel but the design solutions for exterior walls have not been determined, *MasterFormat* numbers could be included for B10 Superstructure but not for B20 Exterior Vertical Enclosures. Users may refine documents organized according to *UniFormat* during subsequent design phases as materials and construction activities are determined.

The following is an example application for adding *MasterFormat* numbers to the *UniFormat* alphanumeric designations. A2010 Walls for Subgrade Enclosures is an example where the direct relationship with *MasterFormat* is referenced in the detailed listings below Level 4.

A20	**Subgrade Enclosures**		
A2010	**Walls for Subgrade Enclosures**		
A2010.10	Subgrade Enclosure Wall Construction		
	Cast-in-Place Concrete	03 30 00	Cast-in-Place Concrete
	Unit Masonry	04 20 00	Unit Masonry

Extending Uniformat by using Masterformat

In the example above, a related *MasterFormat* number is not available until the material designations of cast-in-place concrete and unit masonry are included. When the material to be used for Subgrade Enclosure Walls has been decided upon, a *MasterFormat* number can then be added after another decimal point to designate the material to be used for Subgrade Enclosure Wall Construction.

A2020.10.033000	Cast-in-Place Concrete Subgrade Enclosure Wall Construction
A2020.10.042000	Unit Masonry Subgrade Enclosure Wall Construction

International construction management standard (ICMS)

International standards and data for a global construction industry

Coalition organisations

The ICMS Coalition is a rapidly growing partnership of leading organisations from every continent of the world, committed to producing and supporting one shared standard for construction measurement. Starting with meetings at the International Monetary Fund in May 2015, the Coalition created an independent standard setting committee and committed to the vision of one shared and international standard.

Standards Setting Committee

The Standards Setting Committee comprises of 27 independent experts, from 17 different countries. They've been appointed by the coalition to draft and consult on the new International Construction Measurement Standards.

ICMS process of development

The third edition published in 2021

Third edition vs. second edition

The second edition of ICMS extended the scope of the first edition to encompass life cycle costs, reflecting the pivotal role they play in the financial management of construction projects around the world. This third edition recognises the criticality of reducing greenhouse gas emissions if a disaster caused by global climate change is to be averted. In ICMS, greenhouse gas emissions are measured in terms of carbon dioxide (CO_2) equivalent, and for simplicity, referred to throughout as 'carbon emissions'. By providing a common reporting framework for life cycle costs and carbon emissions, ICMS allows their interrelationship to be explored, and provides the opportunity to make decisions about the design, construction, operation and maintenance of the built environment to improve environmental sustainability.

What else?

Third edition vs. second edition

In addition to extending the use of ICMS to carbon emissions, the Standard Setting Committee (SSC) has taken this opportunity to add five new project types: 'Offshore structures', 'Near shore works', 'Ports', 'Waterway works' and 'Land formation and reclamation' as well as making minor modifications in response to feedback received from practitioners.

What else?

Third edition vs. second edition

Considering these changes, the ICMS Coalition has decided to change the title of ICMS to 'International Cost Management Standard', which, while retaining the same acronym, reflects the broader scope of its contents. Nevertheless, the structural framework of ICMS remains unchanged, allowing comparisons with reports of capital and other life cycle costs that have been produced in accordance with the first and second editions. As a result, those familiar with the second edition will find little difference in this third edition other than the inclusion of carbon emissions and the extension of project types.

What are the aims of ICMS?

Aims of ICMS

- **Construction cost** and **other life cycle costs** to be **consistently** and **transparently benchmarked**.

- **Causes of difference** in **costs** **between projects** and **constructed assets** can be **identified**.

- **Data to be used** with **confidence** for
  - Project financing and investment
  - Schedule
  - Decision-making
  - Related purposes

Aims of ICMS

Since its inception, the driving principle behind ICMS has been that consistent practice in presenting the performance of construction projects globally will bring significant benefits to managing the performance of construction projects. As such, ICMS aims to provide global consistency in classifying, defining, measuring, recording, analysing, presenting and comparing entire life cycle costs and carbon emissions of construction projects and constructed assets at regional, state, national or international level. ICMS is a high-level classification system. The globalisation of the construction business has only increased the need to make this meaningful comparative analysis between countries, not least by international organisations such as the World Bank Group, the International Monetary Fund, various regional development banks, non-governmental organisations and the United Nations.

Has it been successful?

Aims of ICMS

Since its introduction to the market in 2017, ICMS has already been adopted by several high-profile bodies seeking to benchmark project performance internationally. To date this includes large public sector project sponsors, global cost consultancies, constructors, and other construction-sector stakeholders (for a list of business support partners visit the ICMS Coalition website).

Who has contributed?

ICMS Coalition of first and second edition

ICMS Coalition of third edition

The Coalition is a non-governmental, not-for-profit professional coalition. A wide range of professional organisations are represented in the Coalition and the SSC. They were generous in providing their national standards, which again provided the basis for the early deliberations of the SSC. The Coalition originally formed on 17 June 2015 at the International Monetary Fund in Washington DC, USA. The Coalition aims to bring about consistency in construction project reporting standards internationally through the development and adoption of ICMS.

ICMS Coalition of third edition

1. Africa Association of Quantity Surveyors (AAQS)
2. Association for the Advancement of Cost Engineering International (AACE)
3. Association of Cost Engineers (ACostE)
4. Association of South African Quantity Surveyors (ASAQS)
5. Australian Institute of Quantity Surveyors (AIQS)
6. Brazilian Institute of Cost Engineers (IBEC)
7. Building Surveyors Institute of Japan (BSIJ)
8. Canadian Association of Consulting Quantity Surveyors (CACQS)
9. Canadian Institute of Quantity Surveyors (CIQS)
10. Chartered Institute of Building (CIOB)
11. Chartered Institution of Civil Engineering Surveyors (CICES)
12. China Electricity Council (CEC)
13. China Cost Engineering Association (CCEA)
14. Commonwealth Association of Surveying and Land Economy (CASLE)
15. Conseil Européen des Economistes de la Construction (CEEC)
16. Consejo General de la Arquitectura Técnica de España (CGATE)
17. Dutch Association of Quantity Surveyors (NVBK)
18. European Federation of Engineering Consultancy Associations (EFCA)
19. Fédération Internationale des Géomètres (FIG)
20. Fiji Institute of Quantity Surveyors (FIQS)
21. Ghana Institution of Surveyors (GhIS)
22. Hong Kong Institute of Surveyors (HKIS)
23. Ikatan Quantity Surveyor Indonesia (IQSI)
24. Indian Institute of Quantity Surveyors (IIQS)
25. Institute of Engineering and Technology (IET)
26. Institute of Quantity Surveyors of Kenya (IQSK)
27. Institute of Quantity Surveyors Sri Lanka (IQSSL)
28. Institution of Civil Engineers (ICE)
29. Institution of Surveyors of Kenya (ISK)
30. Institution of Surveyors of Uganda (ISU)
31. International Cost Engineering Council (ICEC)
32. Italian Association for Total Cost Management (AICE)
33. Korean Institution of Quantity Surveyors (KIQS)
34. Fachverein für Management und Ökonomie im Bauwesen (MANECO)
35. New Zealand Institute of Quantity Surveyors (NZIQS)
36. Nigerian Institute of Quantity Surveyors (NIQS)
37. Pacific Association of Quantity Surveyors (PAQS)
38. Philippine Institute of Certified Quantity Surveyors (PICQS)
39. Property Institute of New Zealand (PINZ)
40. Quantity Surveyors International (QSi)
41. Real Estate Institute of Botswana (REIB)
42. Royal Institute of British Architects (RIBA)
43. Royal Institution of Chartered Surveyors (RICS)
44. Royal Institution of Surveyors Malaysia (RISM)
45. Singapore Institute of Building Limited (SIBL)
46. Singapore Institute of Surveyors and Valuers (SISV)
47. Sociedad Mexicana de Ingeniería Económica, Financiera y de Costos (SMIEFC)
48. Society of Chartered Surveyors Ireland (SCSI)

ICMS SSC members and co-authors of third edition

The SSC members and co-authors of ICMS, third edition are:

Alan Muse (UK)	Chairman
Malcolm Horner (UK)	Vice-Chairman and Technical Author
Gerard O'Sullivan (Republic of Ireland)	Executive Secretary
Chris Fry (UK)	Technical Author

Alexander Aronsohn (UK)
Dainna Baharuddin (Malaysia)
Peter Bredehoeft (USA)
Tolis Chatzisymeon (Greece)
Ruya Fadason (Nigeria)
Roger Flanagan (UK)
Andrew Green (UK)
Simon Hall (UK)
Roy Howes (Canada)
Tim de Jonge (Netherlands)
Nathan Kibwami (Uganda)
Gregory Kight (USA)
Patrick Manu (Ghana)
Brian McBurney (Canada)
Charles Mitchell (Republic of Ireland)
Philippe Moseley (Belgium)
Sinimol Noushad (UAE)
David Picken (Australia)
Anil Sawhney (USA)
Stacy Smedley (USA)
Koji Tanaka (Japan)
Tang Ki-Cheung (Hong Kong)

What is the ICMS framework?

ICMS framework

ICMS offers a high-level framework against which life cycle costs and carbon emissions can be classified, defined, measured, recorded, analysed, presented and compared. Part 2 sets out the hierarchical framework. It has four levels:

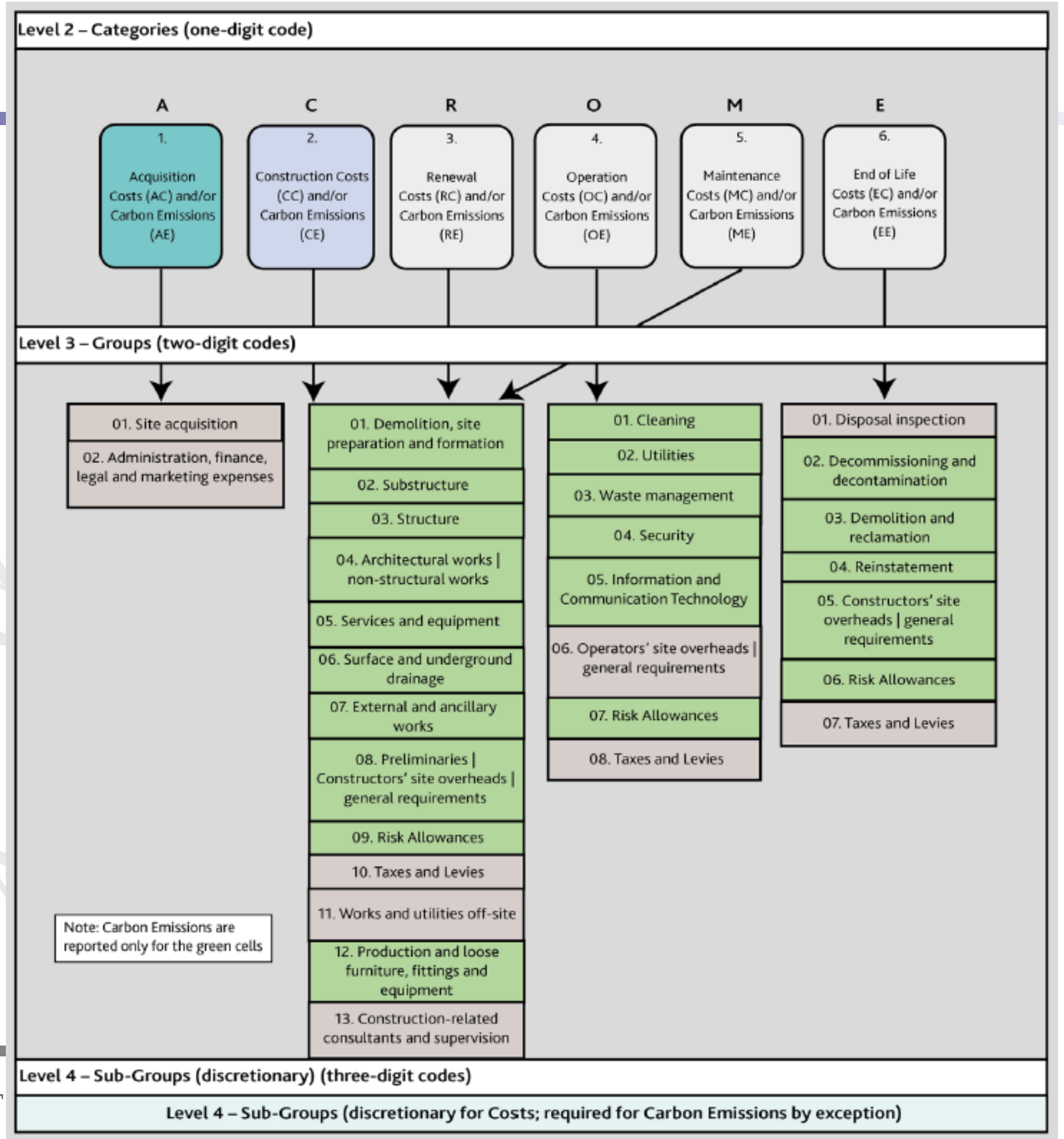
- Level 1: Projects or Sub-Projects
- Level 2: Categories
- Level 3: Groups
- Level 4: Sub-Groups.

Each Category, Group and Sub-Group is used to report costs and/or carbon emissions. The composition of Levels 2 and 3 is mandated for all Projects and Sub-Projects, although discretion is allowed at Level 4.

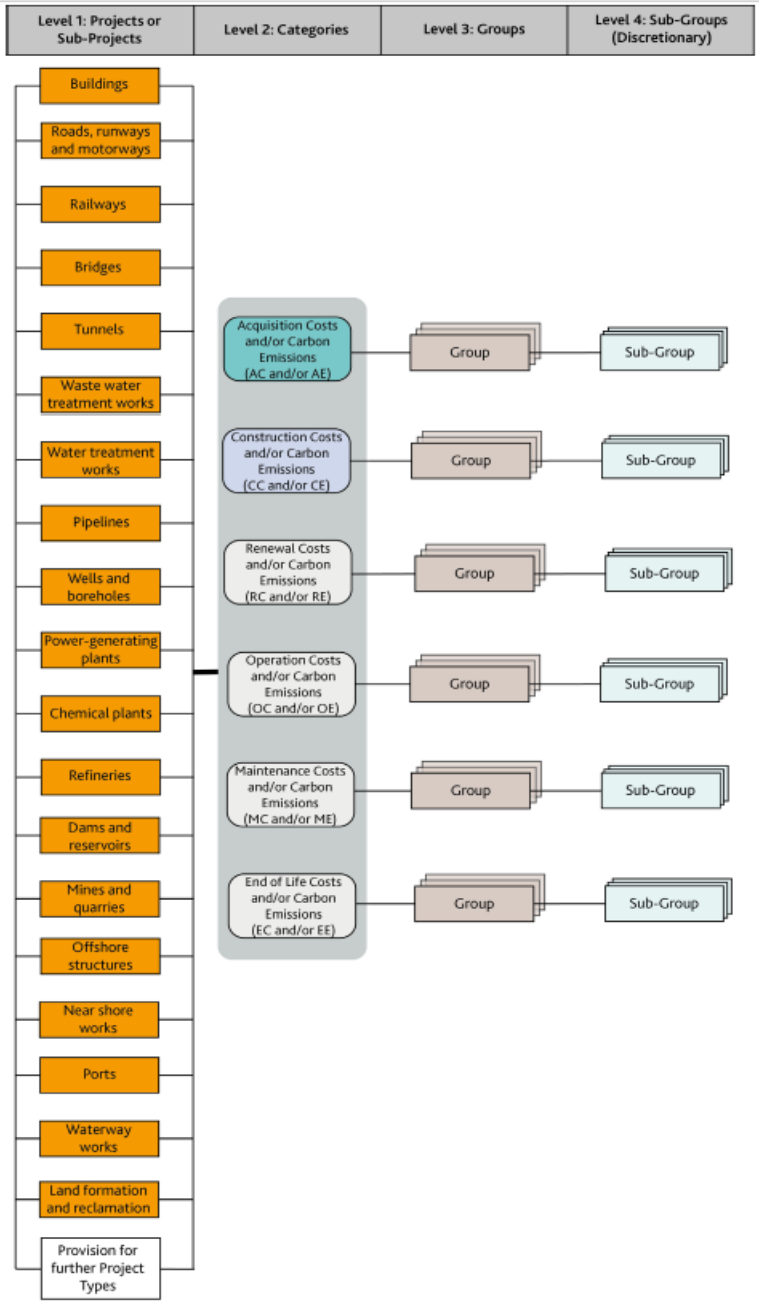
ICMS framework

Level 1 – Projects or Sub-Projects (two-digit codes)			
01.	Buildings	11.	Chemical plants
02.	Roads and runways	12.	Refineries
03.	Railways	13.	Dams and reservoirs
04.	Bridges	14.	Mines and quarries
05.	Tunnels	15.	Offshore structures
06.	Wastewater treatment works	16.	Near shore works
07.	Water treatment works	17.	Ports
08.	Pipelines	18.	Waterway works
09.	Wells and boreholes	19.	Land formation and reclamation
10.	Power-generating plants		

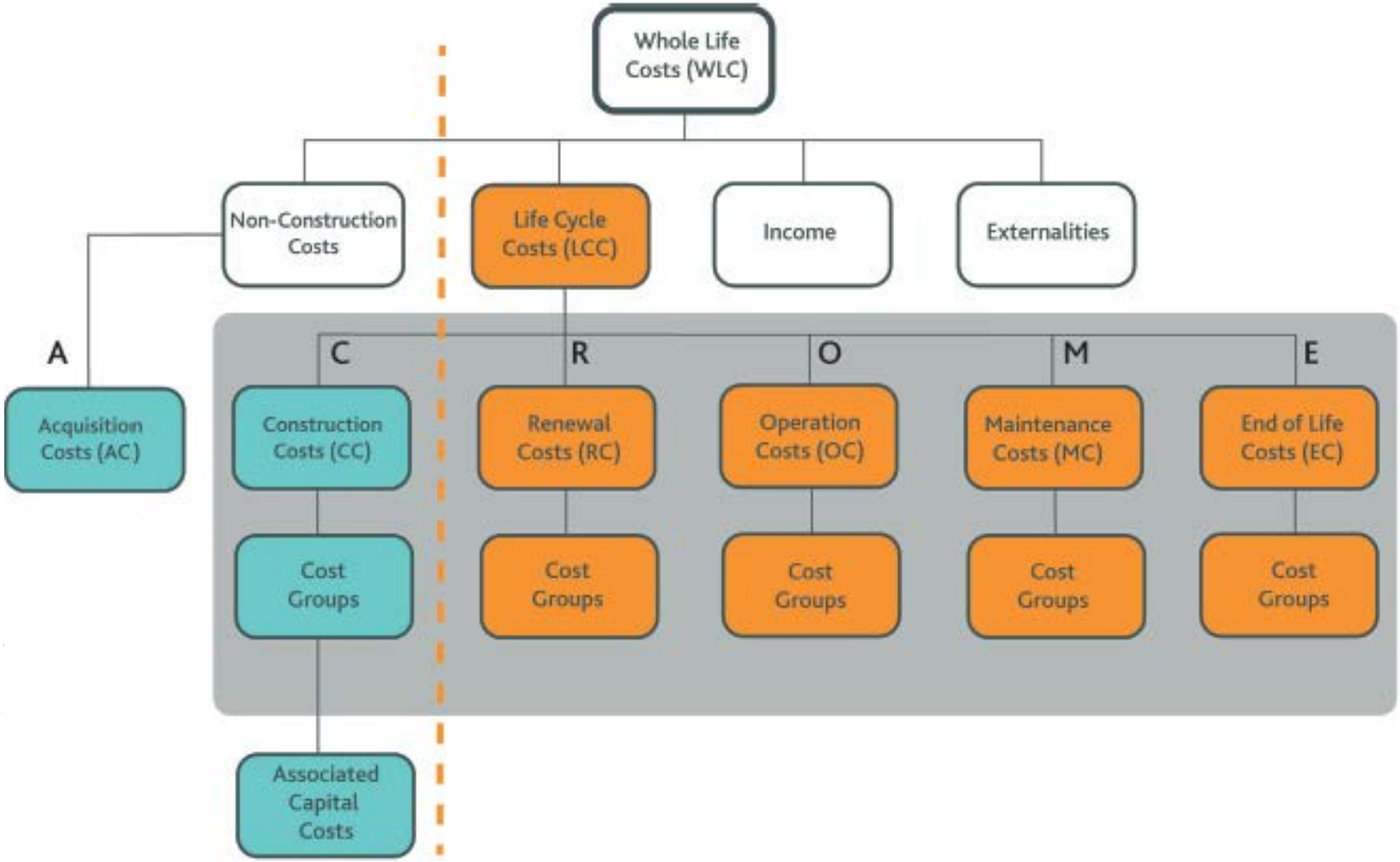
ICMS framework



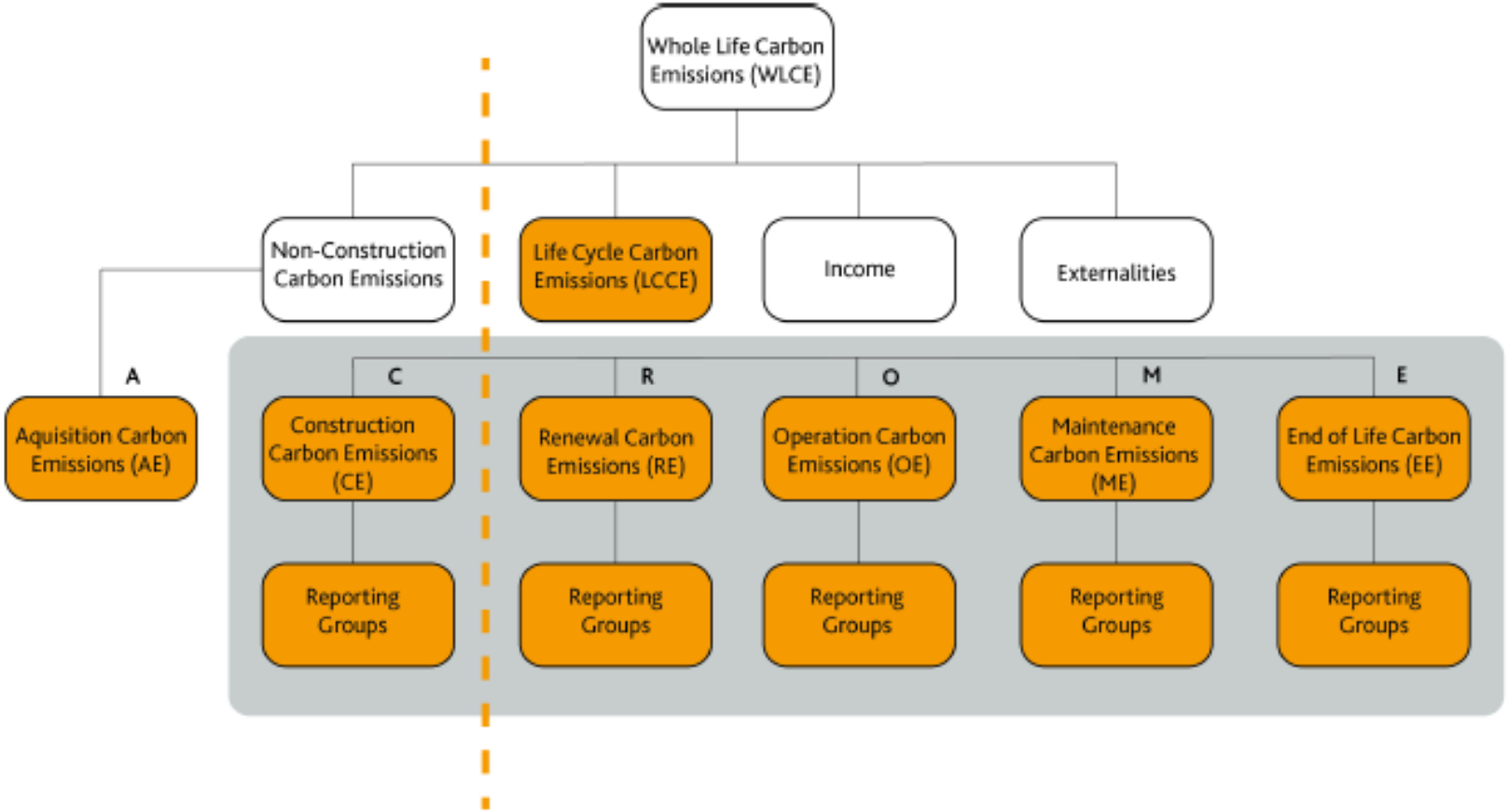
ICMS framework



Relationship between LCA (WLC), LCC, and ICMS

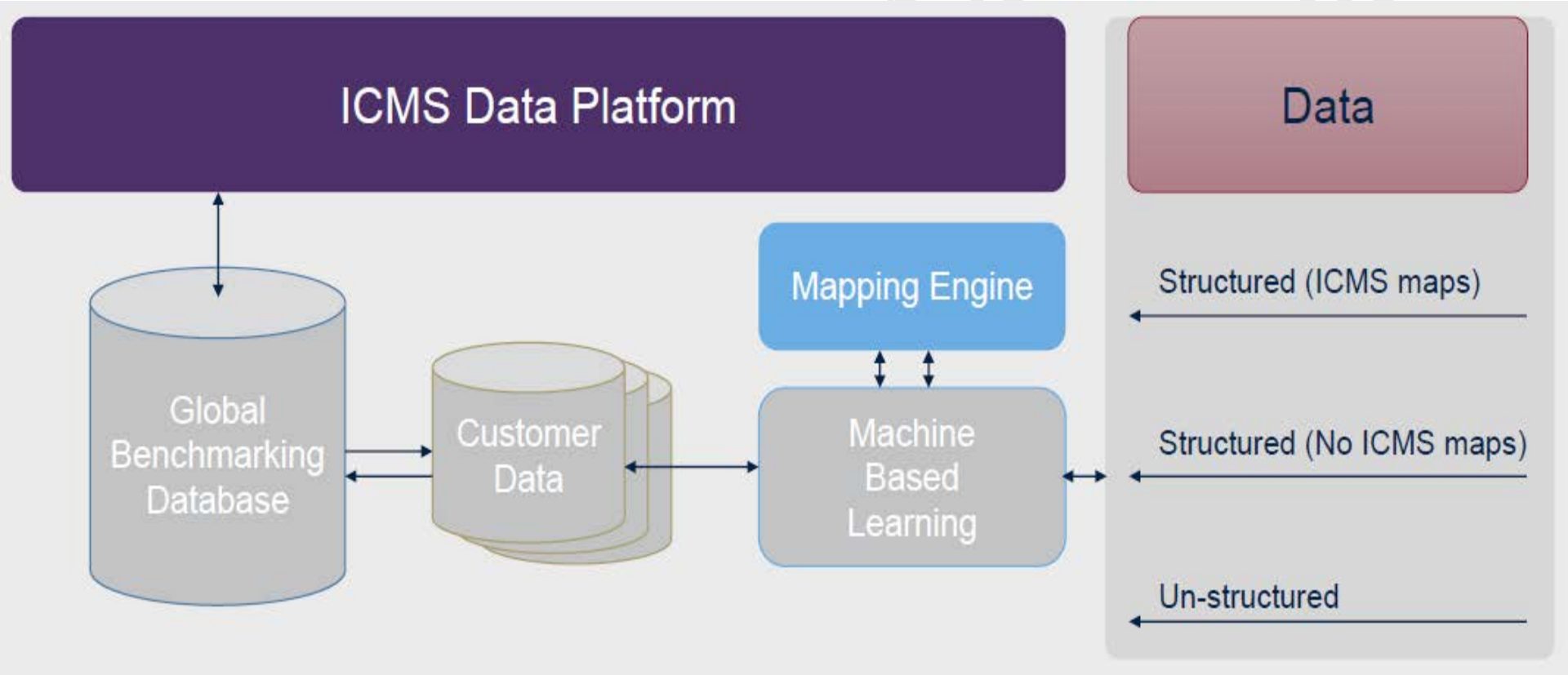


Relationship between LCA (WLC), LCC, and ICMS



Thus the reporting structures for costs and carbon emissions are identical.

ICMS Database



Job Cost Ledger

- **Cost accounts** define the **level of detail** at which job cost **information will be maintained**.
- **Cost accounts** can be very rudimentary or very detailed,
  - depending on the **complexity** of the project and the **needs** of management.
- The **more complex** the project, the **finer** the level of **detail** must be.
- The numerical or alphanumeric designations of **individual line items** defined for control purposes are called **cost codes**.

Therefore, cost accounts are defined in terms of a cost code or numbering system.

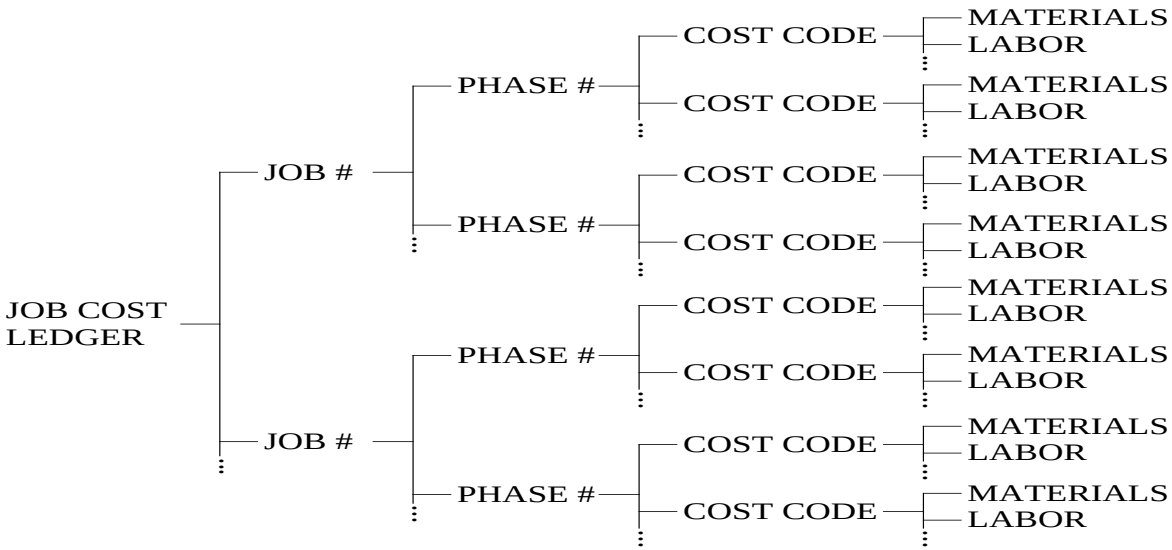
Job Cost Ledger

- Tracks the **costs** for **each project** as well as **individual components** within **each of the projects**
- Provides **breakdown of project costs**
  - **Tracks costs** using a **cost coding system** based on a company's **work breakdown structure (WBS)**.
- Costs are broken down by:
  1. **Project (Job)**
  2. **Phase or area (optional)**
  3. **Cost code**
  4. **Cost type**

May provide a **breakdown of revenues**

Job Cost Ledger

- **Project (Job)**
  - **First level** of breakdown
  - **Each project** is assigned a project **code** and is **tracked separately**
  - Using the **year project was started** and number (1 for first project and etc.) for coding.
    - ✓ 201901….201902

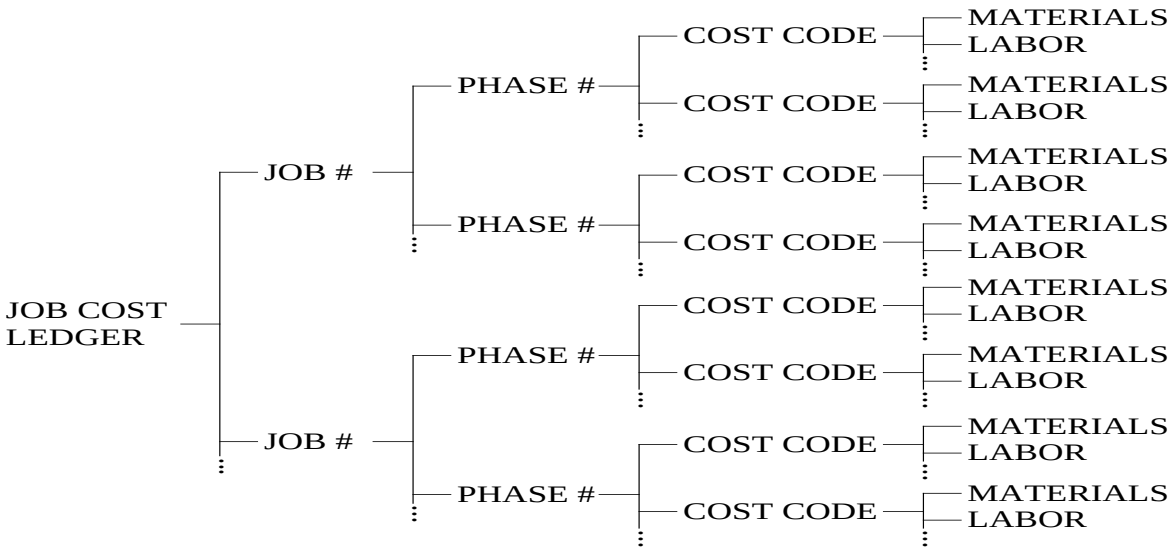


Job Cost Ledger

❑ Phase or area (optional)

- ❖ May be used to separate **different structures** (**e.g., apartment buildings**)
- ❖ May be used to separate costs into **groups** (e.g., **site costs vs. building costs**)

Some companies may not separate the projects into phases



Job Cost Ledger

❑ Cost code

1. **Once project cost accounts** are established,

   each account is then assigned an **identifying numeric or alphanumeric code** known as a **cost code**.

   a) **Once segregated** by associated cost centers,

      all the elements of expense constituting a work unit can be properly recorded by cost code.

   b) **Divide** the total project into significant **units of work** that can be **measured in the field**

A variety of cost-coding systems exists in practice

Job Cost Ledger

❑ Cost code

- ❖ Heavy construction contractors are interested in **earthwork-related accounts** such as grading, ditching, clearing and grubbing, and machine excavation.
  - ❖ References and information published by the **American Road and Transportation Builders Association (ARTBA)** emphasize these type of accounts.
- ❖ The **MasterFormat** published by the Construction Specifications Institute focuses on building or vertical construction accounts.
- ❖ National Association of Home Builders (NAHB),
- ❖ Associated General Contractors (AGC)
- ❖ Construction Specifications Institute (CSI)

Job Cost Ledger

❑ Cost code

- ❖ The **first two digits** representing a **group of codes (division)** and the **last three digits** representing a **cost category within that group**.
- ❖ Often based on the **Construction Specification Institute's MasterFormat** or **Uniformat**. used by (1) **Estimating department,** (2) **Accounting department,** and (3) **Scheduling department……** ***See the MasterFormat file***

Code	Description
01000	GENERAL REQUIREMENTS
01100	Supervision
01400	General Labor
01600	Temporary Facilities
01700	Temporary Utilities
01800	Temporary Phone
01900	Clean-Up
02000	EXISTING CONDITIONS
02050	Demolition
03000	CONCRETE
03200	Under-slab Gravel
03300	Footing & Found.—Labor
03400	Footing & Found.—Conc.

- ❖ **Modifications** may be made to **last three digits**
- ❖ **Not all** of these cost codes **used** for **every project**
  - ✓ **Only those** codes that have been **budgeted**

Job Cost Ledger

❑ Cost code

0 Conditions of the Contract		2 Site Work		2 Site Work (continued)		3 Concrete	
0000-0099.	unassigned	200	Alternates	260	Roads and Walks	300	Alternates
1 General Requirements		0210-0209.	unassigned	261	Paving	0301-0309.	unassigned
0.100.	Alternates of Projectscope	120	Clearing of Site	262	Curbs and gutters	310	Concrete Formwork
0.101-0109.	unassigned	211	Declination	263	Walks	0311-0319.	unassigned
110	Schedules and Reports	212	Structures moving	264	Road and parking Appurtenances	320	Concrete Reinforcement
0111-0119.	unassigned	213	Clearing and grubbing	0265-0269.	unassigned	0321-0329.	unassigned
120	Samples and Shop Drawings	0214-0219.	unassigned	270	Site Improvements	330	Cast-in-Place Concrete
0121-0129.	unassigned	220	Earthwork	271	Fences	331	Heavyweight aggregate concrete
130	Temporary Facilities	221	Site grading	272	Playing fields	332	Lightweight aggregate concrete
0131-0139.	unassigned	222	Excavating and backfilling	273	Fountains	333	Post-tensioned concrete
140	Cleaning Up	223	Dewatering	274	Irrigation systems	334	Nailable concrete
0141-0149.	unassigned	224	Subdrainage	275	Yard improvements	335	Specially finished concrete
150	Project closeout	225	Soil poisoning	0276-0279.	unassigned	336	Specially placed concrete
0151-0159.	unassigned	226	Soil compaction control	280	Lawns and Planting	0337-0339.	unassigned
160	Allowances	227	Soil stabilization	281	Soil Preparation	340	Precast Concrete
0161-0169.	unassigned	0228-0229.	unassigned	282	Lawns	341	Precast concrete panel
		230	Piling	283	Ground covers and other plants	342	Precast structural concrete
		0231-0234.	unassigned	284	Trees and shrubs	343	Precast prestressed concrete
		235	Caissons	0285-0289.	unassigned	0344-0349.	unassigned
		0236-0239.	unassigned	290	Railroad Work	350	Clementitious Decks
		240	Shoring and bracing	0291-0294.	unassigned	351	Poured gypsum deck
		241	Sheeting	295	Marine Work	352	Insulating concrete roof decks
		242	Underpinning	296	Boat Facilities	353	Cementitious unit decking
		0243-0249.	unassigned	297	Protective Marine Structures	0354-0399.	unassigned
		250	Site drainage	298	Dredging		
		0251-0254.	unassigned	299	unassigned		
		255	Site utilities				
		0256-0259.	unassigned				

Detailed codes for classification with CSI MasterFormat.

Job Cost Ledger

❑ Cost code

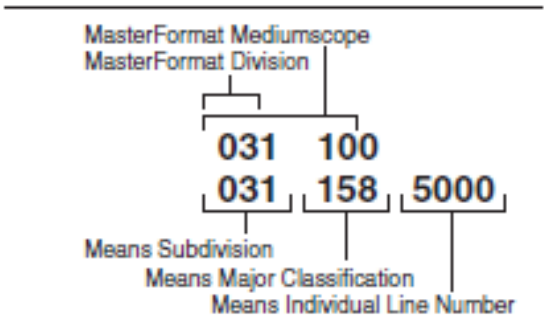
❖ **MasterFormat** code as used in the **R.S. Means** identifies **three levels of detail**.

1. Major work classification (030-level accounts pertain to concrete = 031 (concrete forming)
2. Physical component (three digits added (031158) indicates concrete forming costs for footings)
3. More precise definition of the physical subelement (5000 indicates forming concrete footings of a particular type)

Code	Description
01000	GENERAL REQUIREMENTS
01100	Supervision
01400	General Labor
01600	Temporary Facilities
01700	Temporary Utilities
01800	Temporary Phone
01900	Clean-Up
02000	EXISTING CONDITIONS
02050	Demolition
03000	CONCRETE
03200	Under-slab Gravel
03300	Footing & Found.—Labor
03400	Footing & Found.—Conc.

031 | Concrete Formwork

031	Struct C.I.P. Formwork	CREW	DAILY OUTPUT	LABOR-HOURS	UNIT	1996 BARE COSTS MAT.	LABOR	EQUIP.	TOTAL	TOTAL INCL. O&P
158	FORMS IN PLACE, FOOTINGS Continuous wall, 1 use C-1									
5000	Spread footings, 1 use		305	.105	SFCA	1.51	2.50	.09	4.10	5.75

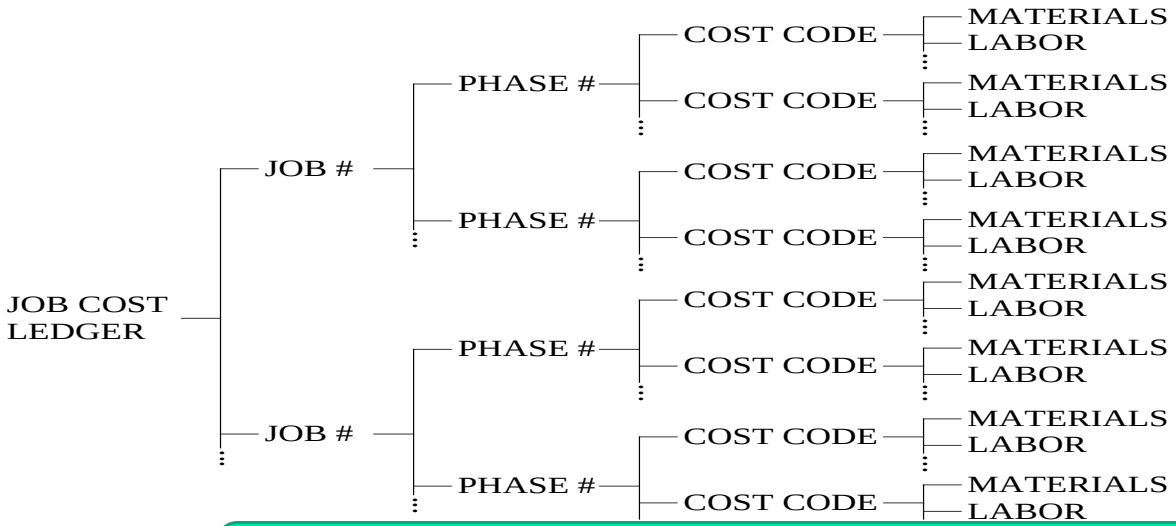


Cost (line item) structure in the MasterFormat code.

Job Cost Ledger

❑ Cost type

- ❖ Should **match** the **types used** on the **income statement**
  - ✓ Materials, Labor, Subcontract, Equipment, Other
- ❖ Use M, L, S, E, and O



This could also be more detailed in terms of the resources

Job Cost Ledger

❑ Cost type

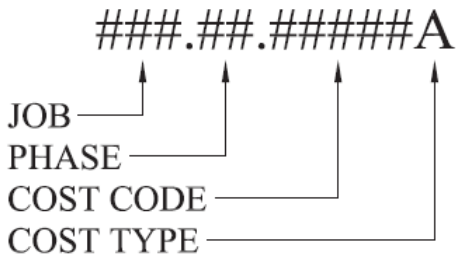
The distribution code establishes what type of resource is being costed to the work process (i.e., clearing), the physical subelement (i.e., foundations) in what area of which project. Typical distribution codes might be as follows:

1. Labor
2. Permanent materials
3. Temporary materials
4. Installed equipment
5. Expendables
6. Construction equipment
7. Supply
8. Subcontract
9. Indirect

Job Cost Ledger

❑ Cost type

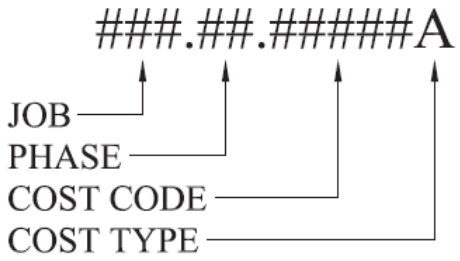
- ❖ The job cost code of **202002.01.07200L**
- ❖ The **system** must be **standardized**, follow a **common-sense format**, **match** the way the company **does business**, and allow for **expansion**
- ❖ **All parties**—estimators, field employees, the accounting department, and management— **must be using the same coding**.
- ❖ If **field employees** code framing hardware to a **different code** than the **estimators**, **tracking** the **project's costs** against the **estimator's budget**…….



Sample Job Cost Code

Job Cost Ledger

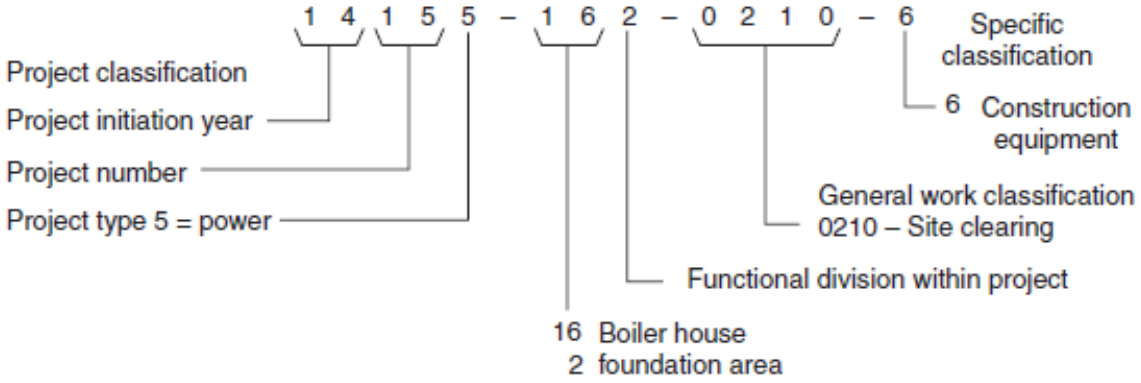
❑ Cost type



Sample Job Cost Code

VS.

1. Year in which project was started (2014).
2. Project control number (15).
3. Project type (5 for power station).
4. Area code (16 for boiler house).
5. Functional division (2, indicating foundation area).
6. General work classification (0210, indicating site clearing).
7. Distribution code (6, indicating construction equipment).



Which one?

Job Cost Ledger

❑ Cost type

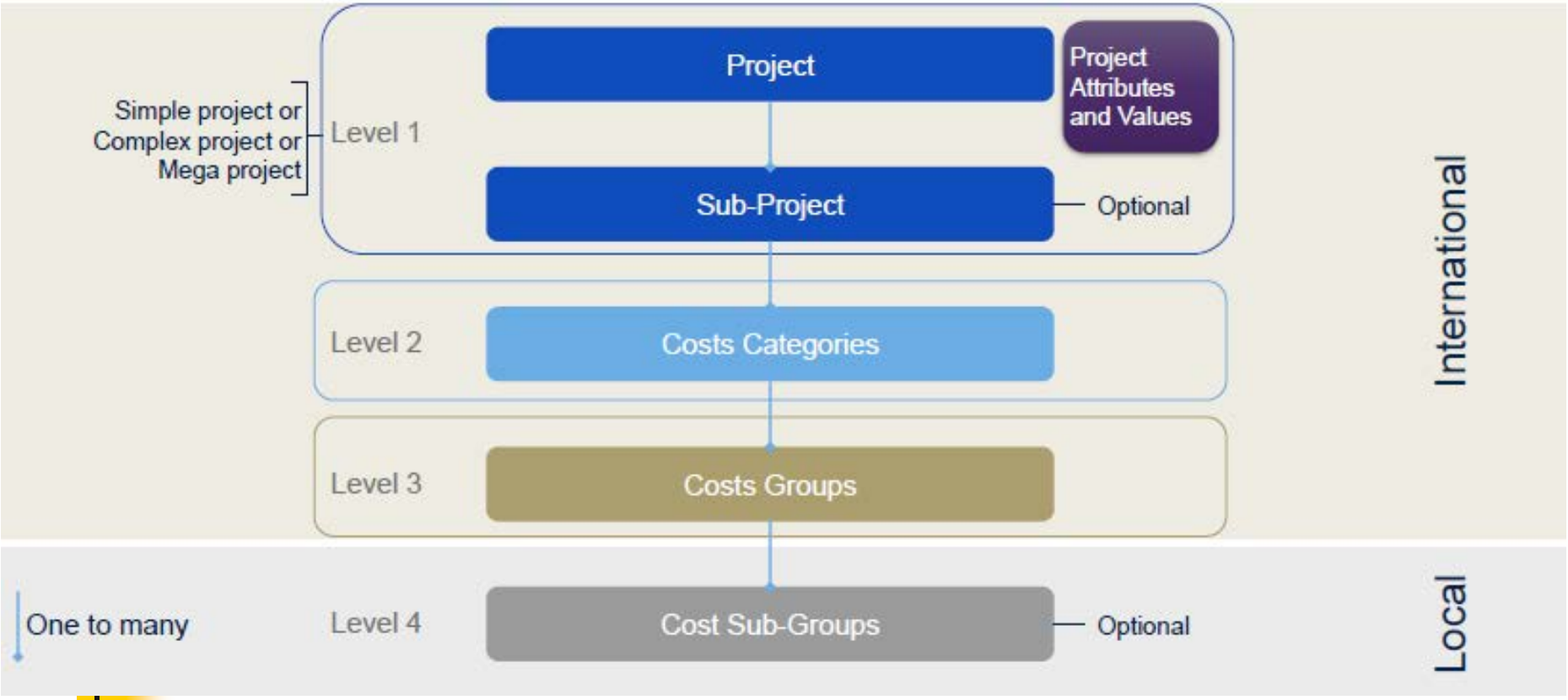
Clearly, these codes "slice and dice" the project into a very high level of detail. This makes the four cost folders used by Fudd Associates, Inc. look pretty paltry. An impressive concentration of information can be achieved by proper design of the cost code. Such codes are also ideally suited for data retrieval, sorting, and assembly of reports on the basis of selected parameters (e.g., all construction equipment costs for concrete forming on project 10 started in a given year). The desire to cram too much information into cost codes, however, can make them so large and unwieldy that they are confusing to upper-level management.

But the question is that how this cost code connected to **WBS** for integrated project control?

We will see when **budgeting** for the project

Job Cost Ledger in ICMS

- **Users of ICMS** may adopt a Cost Sub-Group classification based on **trades**, **work breakdown structure** or work results according to their **local practice**.
  - MasterFormat or UniFormat
  - Australian and New Zealand Standard Method of Measurement (ANZSMM)
  - Etc.



Job Cost Ledger

❑ General Notes

❖ The **coding systems** should be **set up** so that **only one vendor** or **subcontractor** is coded to **any one of the cost codes**,

thereby making it **easy** to determine **which** vendor or subcontractor is **responsible** for **costs overruns**.

✓ **Splitting** of **invoices** between **job codes** often **leads** to **errors** and **inaccurate historical costs** and should be **avoided**.

✓ **Cost codes** should be **designed** based on the way the **company does the business (e.g., invoices)**

1. **Two SCs do the same job** – separate each cost code based on SCs
2. **One invoice for two cost codes** – cost codes should be integrated

Job Cost Ledger

General Notes:

- **Budget** must be **recorded** for **each cost code**
  - Budgets **come** from the **cost estimate** **when** project was **bid** and **must** be **updated** when **changes occur**.
- **Cost is recorded** to both **general ledger** and **job cost ledger**
- **Revenues** and **committed cost** may be considered in **individual jobs in job cost ledgers**
  - If the job cost ledger **does not allow** for the **tracking** of **committed costs**, the **project's management team** should perform these calculations on a **regular basis.**

YOU WILL LEARN IN THIS COURSE HOW TO DO THAT

Job Cost Ledger

❑ Relationships

❖ Income Statement and Job Cost Ledger

- ✓ Revenue on Income Statement (**excludes interest received and other income**) = Revenues on Job Cost Ledger
- ✓ Construction Costs on Income Statement = Construction Costs on Job Cost Ledger (**excludes committed costs**)
  - ➢ **Committed costs** that have **not been recognized as expenses** are **not included** in these **calculations**.
    - o Materials = Materials
    - o Labor = Labor
    - o Equipment = Equipment
    - o Other = Other

Job Cost Ledger

❑ Relationships

❖ At the **end of each month** the **relationships** should be verified by **accounting department**.

Costs on the job cost ledger span multiple months or years (from the start of the projects to the end of the projects); therefore,

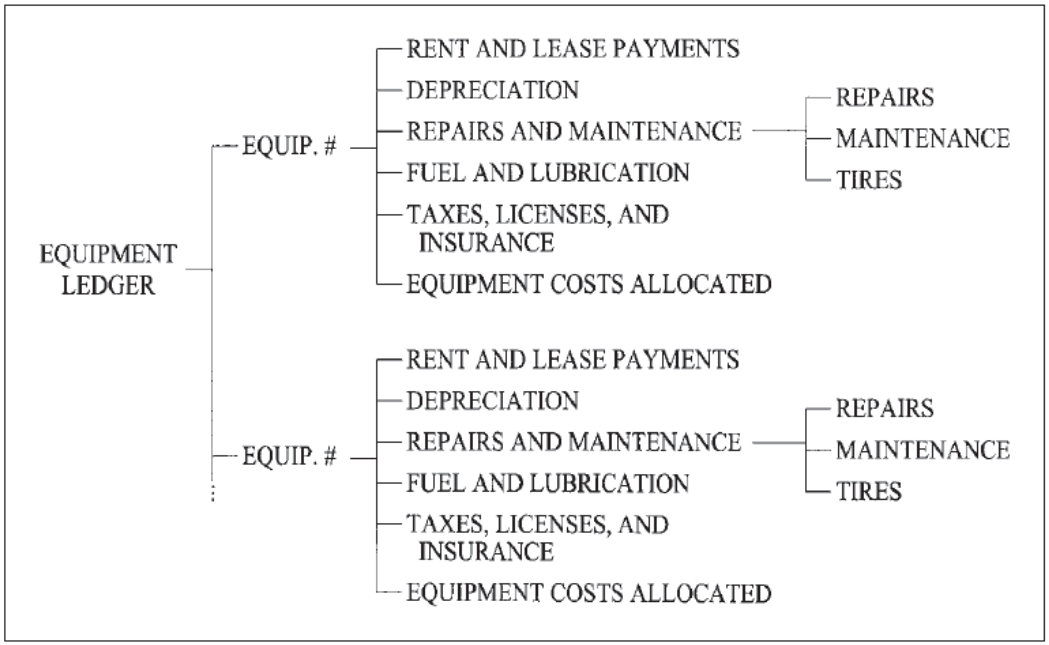
the cost comparison between the job cost ledger and the general ledger must only include the costs recorded during a specific accounting period (month, quarter, or year).

Equipment Ledger

- **Some equipment**, such as a **dump truck**, may be on **multiple jobs** during **one day**.
- To warrant the **investment in the equipment**, the **costs** and **billings** for **each piece of equipment must** be **tracked**.
- Provides **breakdown of "Equipment Costs"** on **income statement** by **piece of equipment**

Equipment Ledger

- **Usually** is broken down into **two** or **three levels**
- **May** provide **additional breakdown**
- **Costs allocated to jobs or employees** are **tracked** in the **equipment ledger** for **each piece of equipment**.
- The **second level** can be **more detail** and it causes **third level** (**e.g., Repairs and Maintenance**)



Breakdown of the Equipment Ledger

Equipment Ledger

❑ Relationships

❖ Income Statement and Equipment Ledger

1. Charged Costs on Income Statement (both Employees and Jobs) = Cost Allocated to jobs or employees on "Equipment Ledger"
2. Costs on Income Statement (excludes contra accounts) = Costs on the Equipment Ledger
   - Rent and Lease Payments = Rent and Lease Payments
   - Depreciation = Depreciation
   - Repairs and Maintenance = Repairs and Maintenance
   - Fuel and Lubrication = Fuel and Lubrication
   - Taxes, Licenses, and Insurance = Taxes, Licenses, and Insurance

Cost reporting versus cost control

❑ Cost reporting

- ❖ **Provides data <u>after</u>** the **opportunity has passed** for management to respond to and correct the problems
- ❖ When **companies wait** to **enter** the **cost of their purchases <u>until</u>** the **<u>bills are received</u>**
- ❖ **Companies <u>only</u>** look at the **costs and profit** for **each project** after the project is **<u>finished</u>**
- ❖ **<u>Cost reporting</u>** is characterized by **accounting reports** that **show** where a company has **been financially <u>without</u>** giving management an **opportunity** to **proactively** respond to the data.

Cost reporting versus cost control

❑ Cost control

- ❖ Provides data in **timely manner** for management to **analyze**
- ❖ Companies that **enter costs** into their **accounting system** as **committed costs before issuing** the **purchase order** or **subcontract** **allow** management time to **address cost overruns**
  - o **For example**, when a contractor signs a **fixed-price subcontract**, **committed** to pay the **subcontractor a fixed price** once the work has been completed and, **short of any change orders**, knows what the work is going to cost.
- ❖ **Proactive**

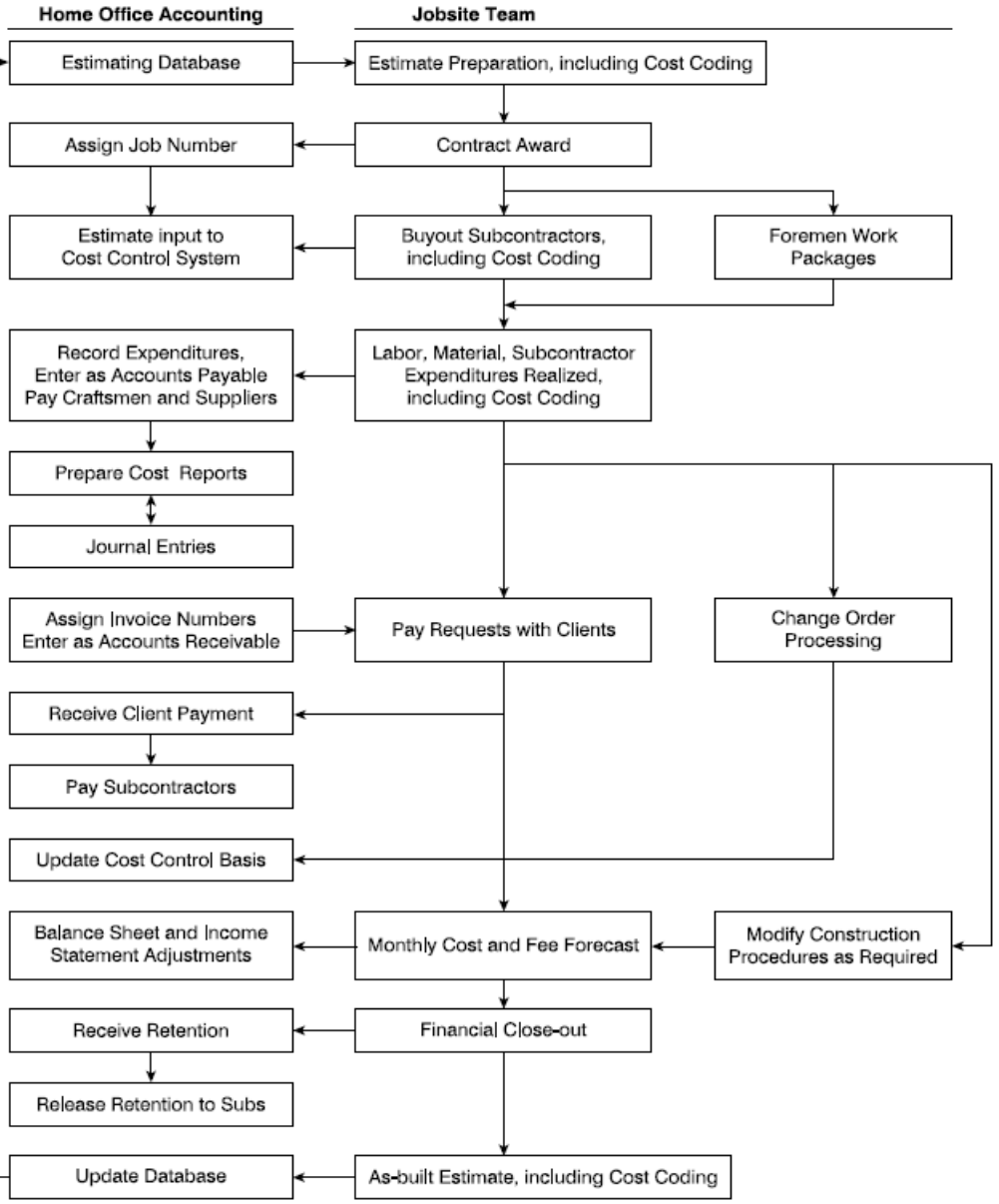
A lot of money can be saved

Components of a cost control system

- **Strong job cost and equipment tracking**
  - Costs must be **up to date**
- **Uses management by exception**
  - Bringing **issues** to the attention of **management** if results represent **substantial differences** from the budgeted or expected amount because **managers** could **easily get lost** in the **volumes of data** generated by accounting system.
- **Follows established procedures**
- **Data must readily be available**

Procedure of a cost control system

Very important!



مدیریت مالی، حسابداری و هزینه در پروژه ها و سازمان‌های پروژه‌محور

بخش چهارم:

مدیریت حسابداری: حسابداری عملیات مالی پروژه

ارائه دهنده:

سید محمدرضا علوی‌پور

(PhD, PMP, CMIT)

What you will learn?

- Purposes of the project accounting system
- Purchase of inventory
- Charging inventory to a job
- Invoice (materials and subcontractor) charged to a job without retainage
- Paying invoices
- Labor charged to a job and general overhead
- Paying employee's wages
- Paying payroll taxes
- Paying for benefits
- Vacation time for jobsite employees
- Recording office rent and office depreciation
- Recording general overhead invoices
- Billing a client and billing for retainage
- Receiving payment from a client
- Purchase of equipment with a loan
- Loan payment

موارد مورد بحث در این جلسه

- Equipment depreciation
- Leased equipment with an operating lease
- Leased equipment with a capital lease
- Leased payment on capital lease
- Invoice for equipment repairs
- Equipment charged to a job
- Equipment charged to an employee
- Sale of equipment
- Signing a construction loan
- Drawings funds from a construction loan
- Recording changes in costs and profits in excess of billing
- Recording changes in billings in excess of costs and profits

Purposes of the project accounting system

- A number of **unique transactions** in **construction accounting** that **do not occur** in **other industries**.

- **Understanding** these **transactions** is important for **three reasons**:
  1. **Some project costs** such as **labor burden** and **equipment costs** are **often generated** by the **accounting system** **rather than** an **invoice or time card**.
  2. **Financial managers** **must** **review** the **accounting reports** for **errors**.
  3. **Many construction companies** are using **substandard accounting systems** because **management** does **not understand** **how** **accounting systems** should be **structured**.

Invoice (materials) charged to a job without retainage

- **Zero = nothing changed**
- **(….) meaning negative number**

Assets = Liabilities + Equity

It is vital to recognize that recording an expense and paying an expense are two separate transactions, which occur at different points in time, often separated by weeks.

Invoice (materials) charged to a job without retainage

- **Two conditions for materials:**
  1. Purchased and kept in inventory
  2. Purchased and directly used in project

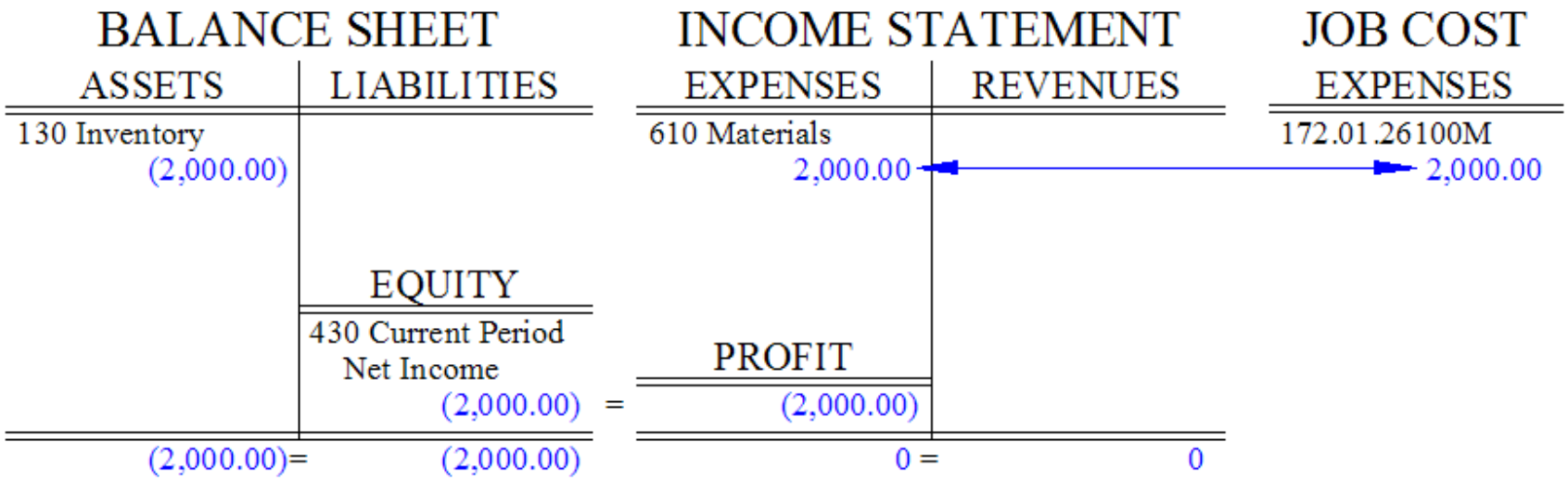
Purchase of inventory

- A company **purchases materials and places them in inventory until it is ready to use them**.
  - **When** the materials are **received** they are **recorded** as an **asset in the inventory** category.
    - ✓ Purchased by **cash (reduce asset)** or **credit (increase accounts payable-trade)**
    - ✓ **Equity not reduced** because material is **still in inventory** and **not used**

BALANCE SHEET			INCOME STATEMENT		JOB COST
ASSETS	LIABILITIES		EXPENSES	REVENUES	EXPENSES
130 Inventory 5,000.00	310 Accounts Payable - Trade 5,000.00				
	EQUITY				
	430 Current Period Net Income 0	=	PROFIT 0		
5,000.00 =	5,000.00		0 =	0	

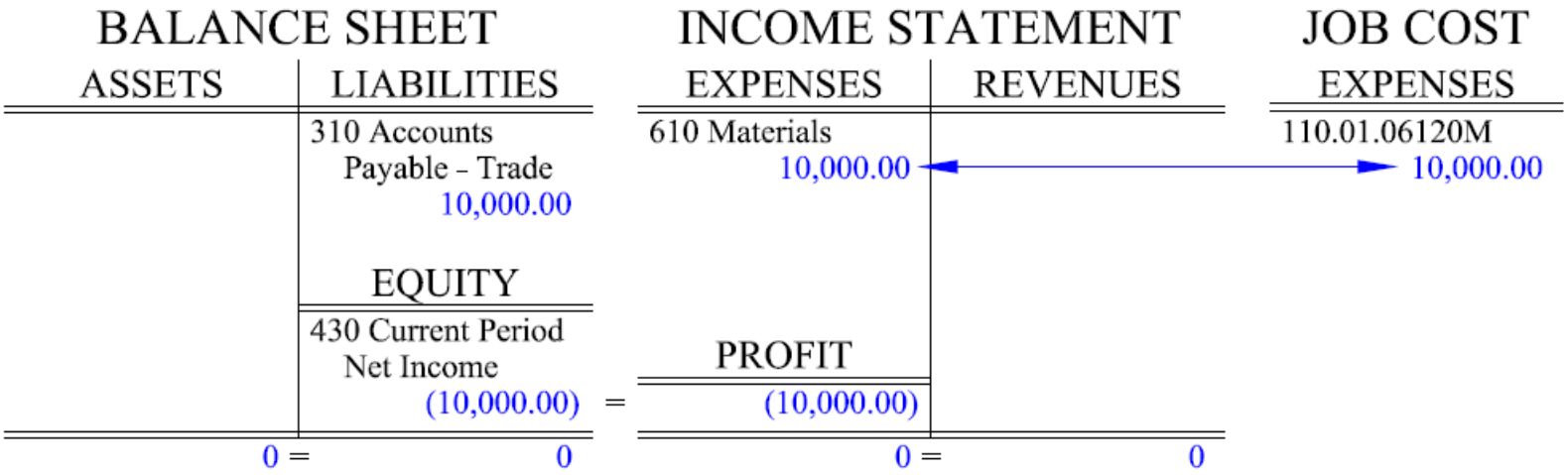
Charging inventory to a job

- **When materials used in project.**
  - **Equity reduced**
  - **Inventory reduced**



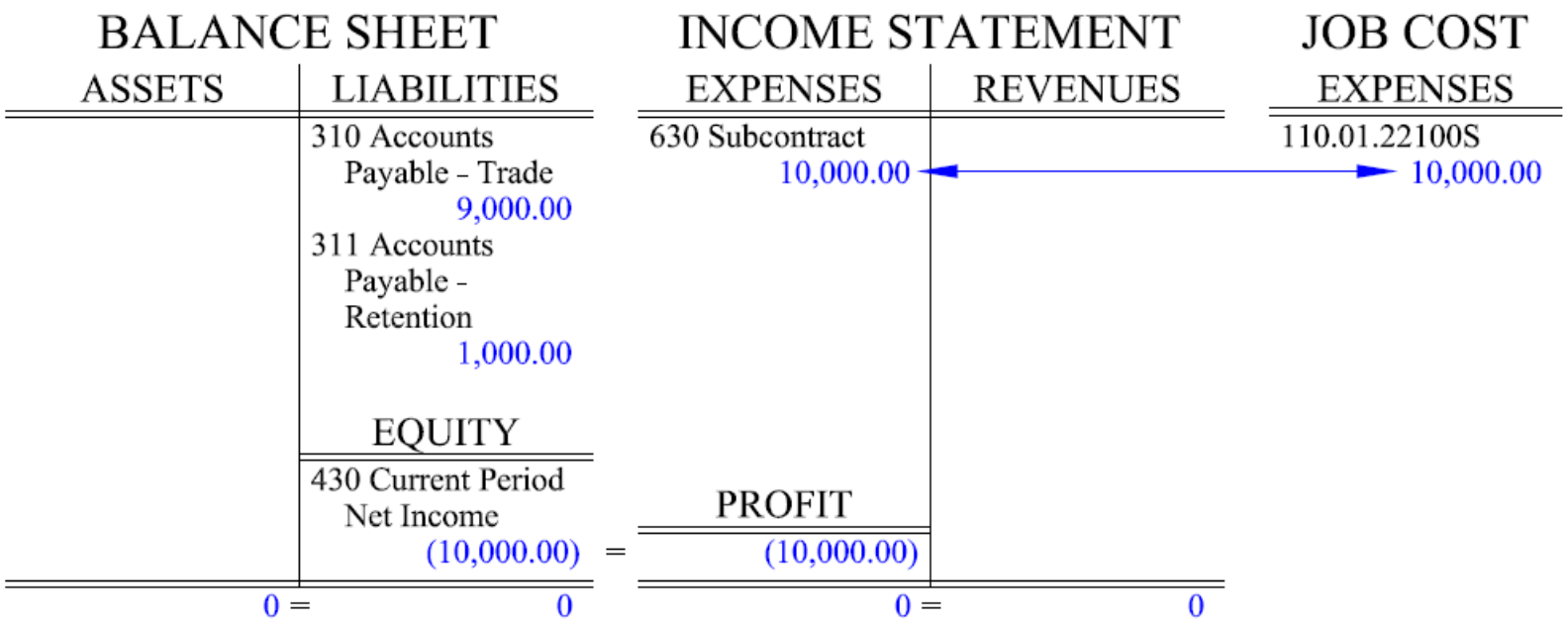
Invoice (materials) charged to a job without retainage

- Material **purchased** and **directly** goes to the **work**
- **Recording an expense**



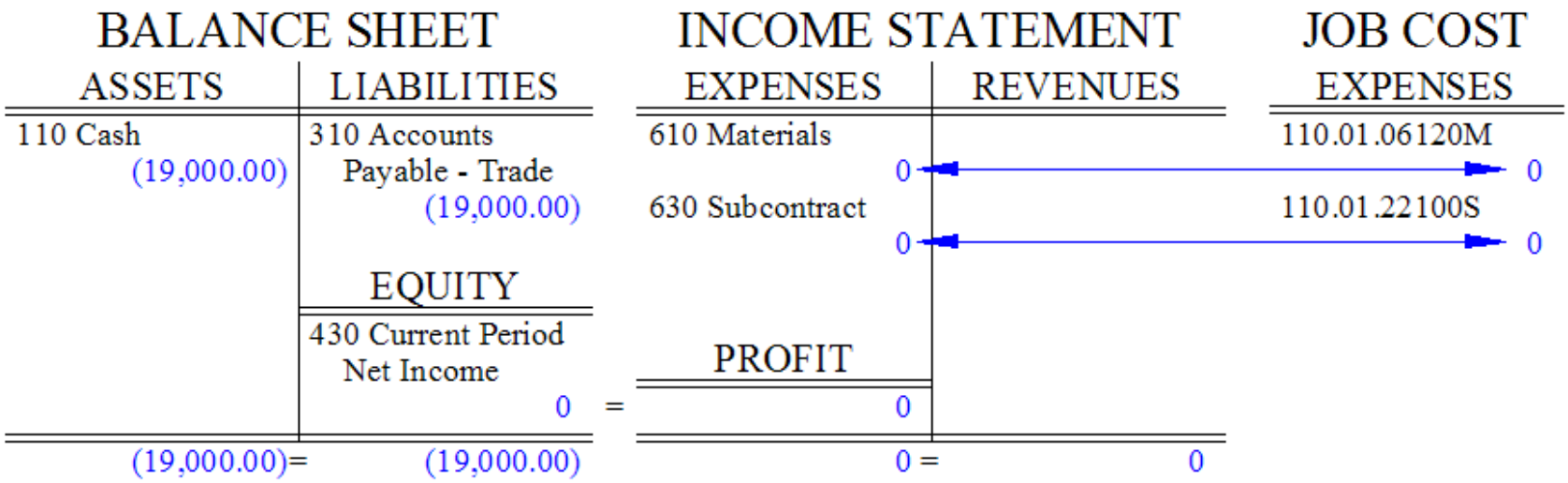
Invoice (subcontractor) charged to a job with retainage

❑ Recording an expense



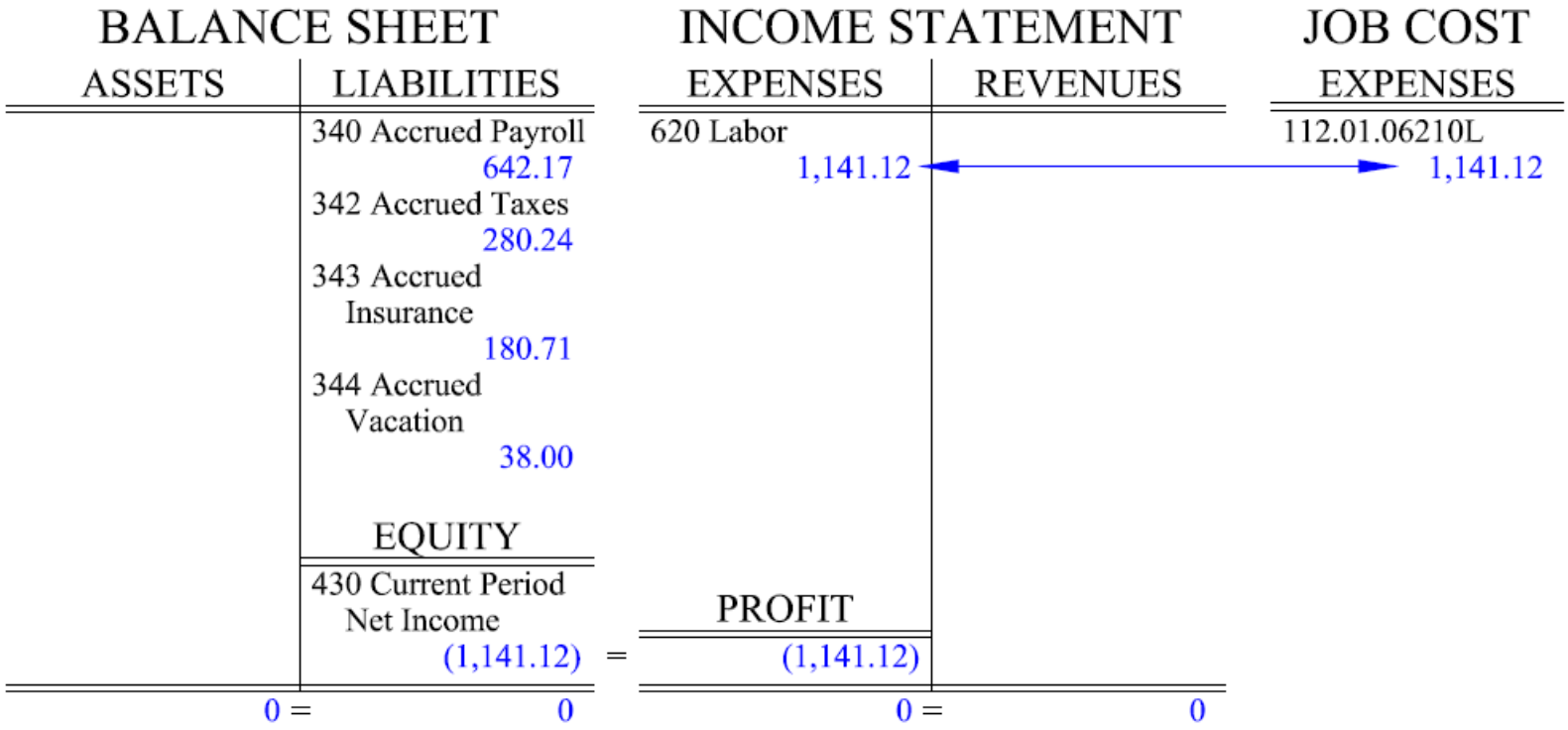
Paying invoices

❑ Paying an expense



Labor charged to a job

Recording an expense



Labor charged to general overhead

Recording an expense

BALANCE SHEET			INCOME STATEMENT	
ASSETS	LIABILITIES		EXPENSES	REVENUES
	340 Accrued Payroll 642.17		820 Employee Wages and Salaries 895.90	
	342 Accrued Taxes 280.24		821 Employee Benefits 62.00	
	343 Accrued Insurance 180.71		825 Employee Taxes 102.59	
	344 Accrued Vacation 38.00		830 Insurance 80.63	
	EQUITY		PROFIT	
	430 Current Period Net Income (1,141.12)	=	(1,141.12)	
0 =	0		0 =	0

General overhead <u>not included</u> in Job Cost Ledger

Paying employee's wages

❑ Paying an expense

BALANCE SHEET			INCOME STATEMENT	
ASSETS	LIABILITIES		EXPENSES	REVENUES
110 Cash	340 Accrued Payroll			
(642.17)	(642.17)			
	EQUITY			
	430 Current Period Net Income		PROFIT	
	0	=	0	
(642.17) =	(642.17)		0 =	0

Paying payroll taxes

❑ Paying an expense

BALANCE SHEET				INCOME STATEMENT	
ASSETS		LIABILITIES		EXPENSES	REVENUES
110 Cash		342 Accrued Taxes			
	(219.50)		(219.50)		
		EQUITY			
		430 Current Period Net Income		PROFIT	
			0 =	0	
	(219.50) =		(219.50)	0 =	0

Paying for benefits

❑ Paying an expense

BALANCE SHEET			INCOME STATEMENT	
ASSETS	LIABILITIES		EXPENSES	REVENUES
110 Cash	343 Accrued Insurance			
(433.68)	(433.68)			
	EQUITY			
	430 Current Period Net Income		PROFIT	
	0	=	0	
(433.68) =	(433.68)		0 =	0

Vacation time for jobsite employees

- **Paying** even if the employee is on vacation, but should **not be included in job cost**
- Should be **subtracted** from **accrued vacation budget** has been **set** for an **employee**

BALANCE SHEET			INCOME STATEMENT		JOB COST
ASSETS	LIABILITIES		EXPENSES	REVENUES	EXPENSES
	340 Accrued Payroll 642.17		620 Labor		112.01.06210L
	342 Accrued Taxes 280.24		0		0
	343 Accrued Insurance 180.71				
	344 Accrued Vacation (1,103.12)				
	EQUITY			PROFIT	
	430 Current Period Net Income 0	=		0	
0 =	0		0 =	0	

This was done because it would be unfair to charge all of an employee's vacation to the job he or she was working on when his or her vacation was taken. For example, if an employee worked on a job for one day, then took a week's vacation and returned to the job for one day, it would distort the project costs to charge the job for seven days of work when only two days of work had been performed.

Recording office rent

❑ Recording an expense

BALANCE SHEET			INCOME STATEMENT	
ASSETS	LIABILITIES		EXPENSES	REVENUES
	310 Accounts Payable - Trade 2,000.00		842 Office Rent 2,000.00	
	EQUITY			
	430 Current Period Net Income (2,000.00)	=	PROFIT (2,000.00)	
0 =	0		0 =	0

Recording office depreciation

- **Recording an expense**
- **General overhead – not included in the job cost ledger**

BALANCE SHEET			INCOME STATEMENT	
ASSETS	LIABILITIES		EXPENSES	REVENUES
250 Less Acc. Depreciation 1,800.00			819 Depreciation 1,800.00	
	EQUITY			
	430 Current Period Net Income (1,800.00)	=	PROFIT (1,800.00)	
(1,800.00) =	(1,800.00)		0 =	0

Because 250 Less Acc. Depreciation is a contra account, it is subtracted rather than added when totaling the column.

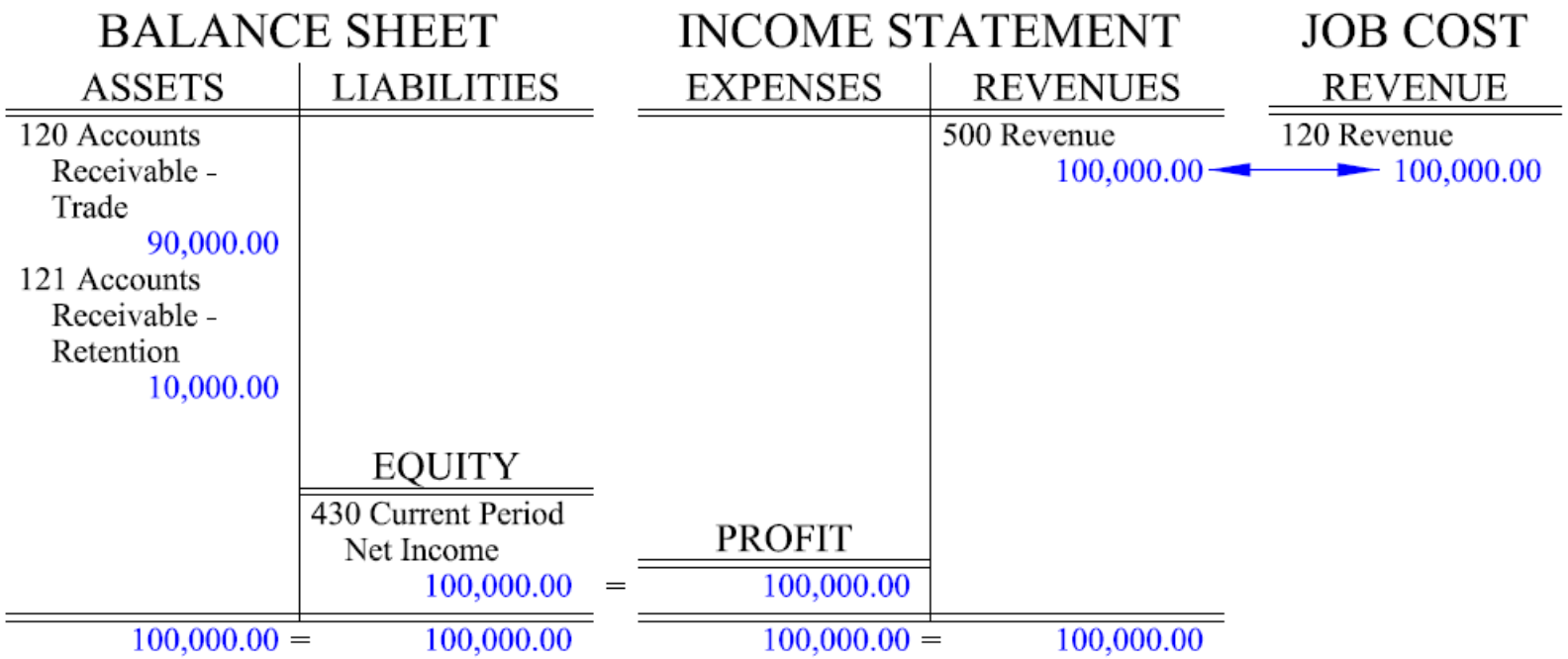
Recording general overhead invoices

❑ Recording an expense

BALANCE SHEET			INCOME STATEMENT	
ASSETS	LIABILITIES		EXPENSES	REVENUES
	310 Accounts Payable - Trade 500.00		846 Telephone 500.00	
	EQUITY			
	430 Current Period Net Income (500.00)	=	PROFIT (500.00)	
0 =	0		0 =	0

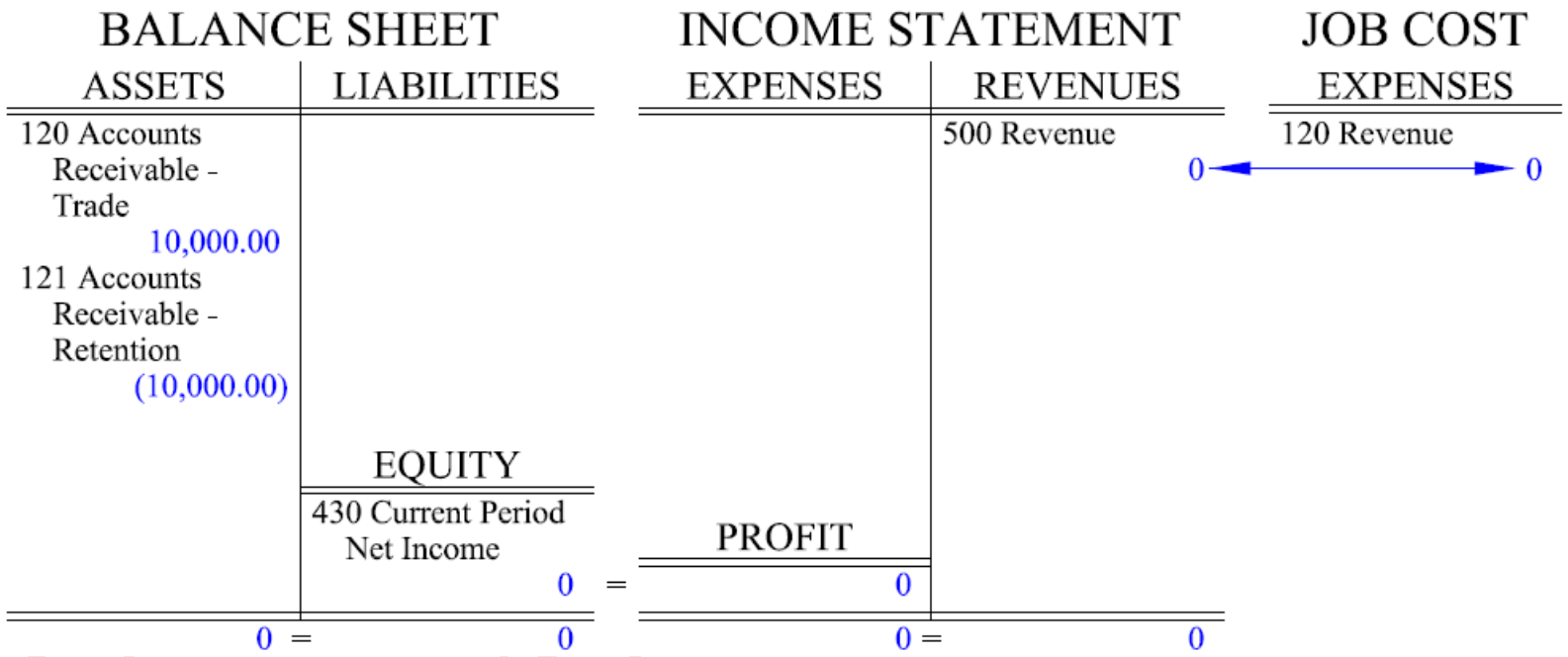
Billing a client

❑ Recording a payment



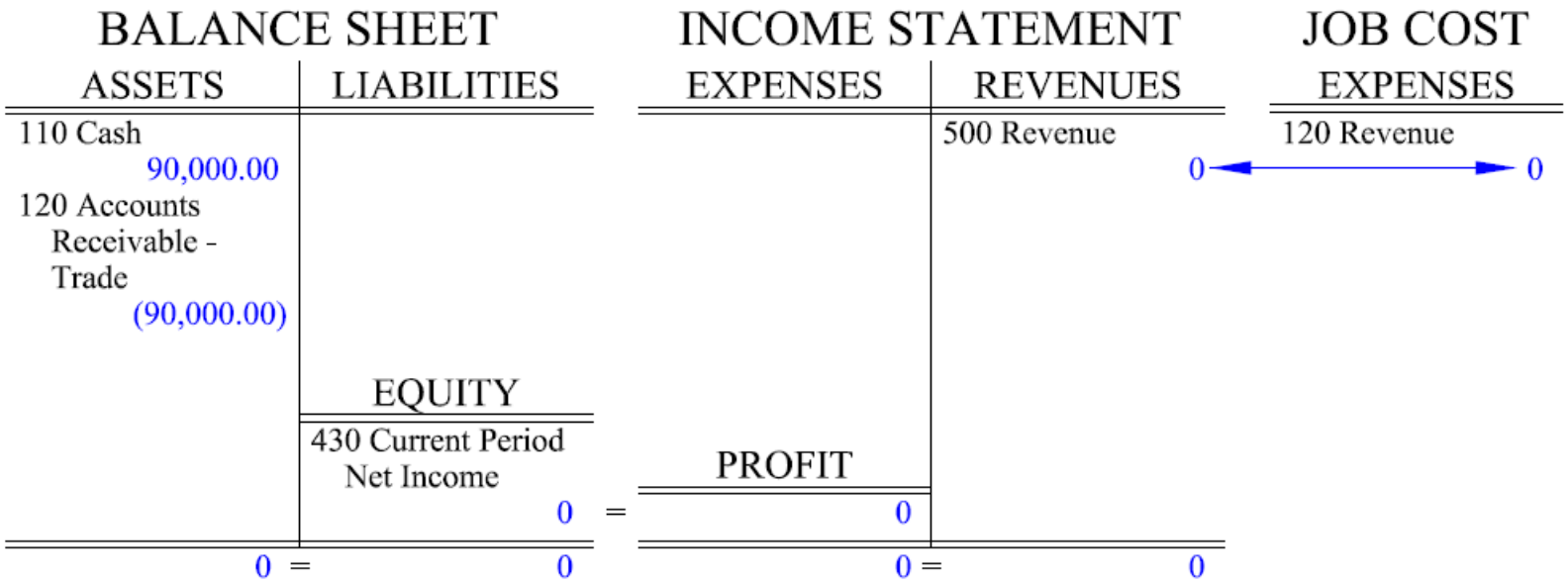
Billing for retainage (retainage can be released)

❑ Recording a payment



Receiving payment from a client

❑ Receiving a payment



Purchase of equipment with a loan

- $10,000,000 prepaid

BALANCE SHEET			INCOME STATEMENT		EQUIPMENT
ASSETS	LIABILITIES		EXPENSES	REVENUES	EXPENSES
110 Cash (10,000.00)	380 Long-Term Liabilities 110,000.00				
220 Construction Equipment 120,000.00	EQUITY				
	430 Current Period Net Income 0		PROFIT		
			0		
110,000.00	= 110,000.00		0 =	0	

Loan payment

❑ Paying an expense

BALANCE SHEET			INCOME STATEMENT		EQUIPMENT
ASSETS	LIABILITIES		EXPENSES	REVENUES	EXPENSES
110 Cash	380 Long-Term Liabilities		881 Interest Expense		
(2,230.40)	(1,497.07)		733.33		
	EQUITY				
	430 Current Period Net Income		PROFIT		
	(733.33)	=	(733.33)		
(2,230.40)	(2,230.40)	=	0	0	

Equipment depreciation

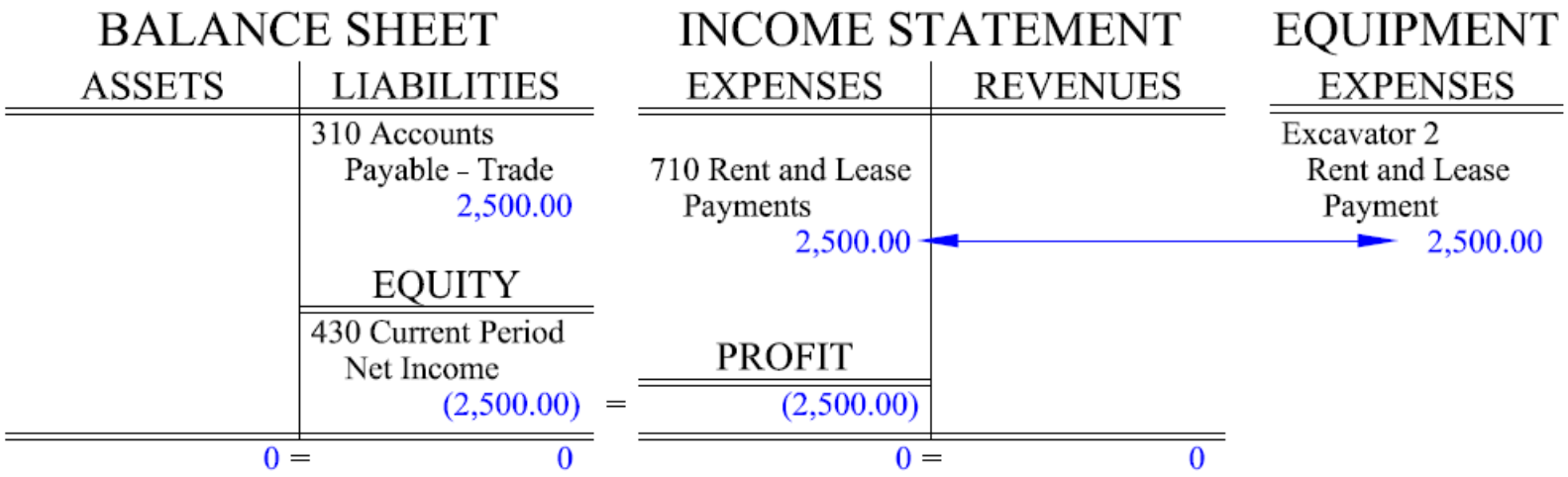
❑ Recording an expense

BALANCE SHEET			INCOME STATEMENT		EQUIPMENT
ASSETS	LIABILITIES		EXPENSES	REVENUES	EXPENSES
250 Less Acc. Depreciation 2,000.00			720 Depreciation 2,000.00		Excavator 1 Depreciation 2,000.00
	EQUITY				
	430 Current Period Net Income (2,000.00)		PROFIT (2,000.00)		
(2,000.00) =	(2,000.00)		0 =	0	

Because 250 Less Acc. Depreciation is a contra account, it is subtracted rather than added when totaling the column.

Leased equipment with an operating lease

❑ Recording an expense



Leased equipment with a capital lease

❑ Recording an expense

BALANCE SHEET			INCOME STATEMENT		EQUIPMENT
ASSETS	LIABILITIES		EXPENSES	REVENUES	EXPENSES
260 Capital Leases 120,000.00	350 Capital Lease Payable 120,000.00				
	EQUITY				
	430 Current Period Net Income 0		PROFIT 0		
120,000.00	120,000.00	=	0	0	= 0

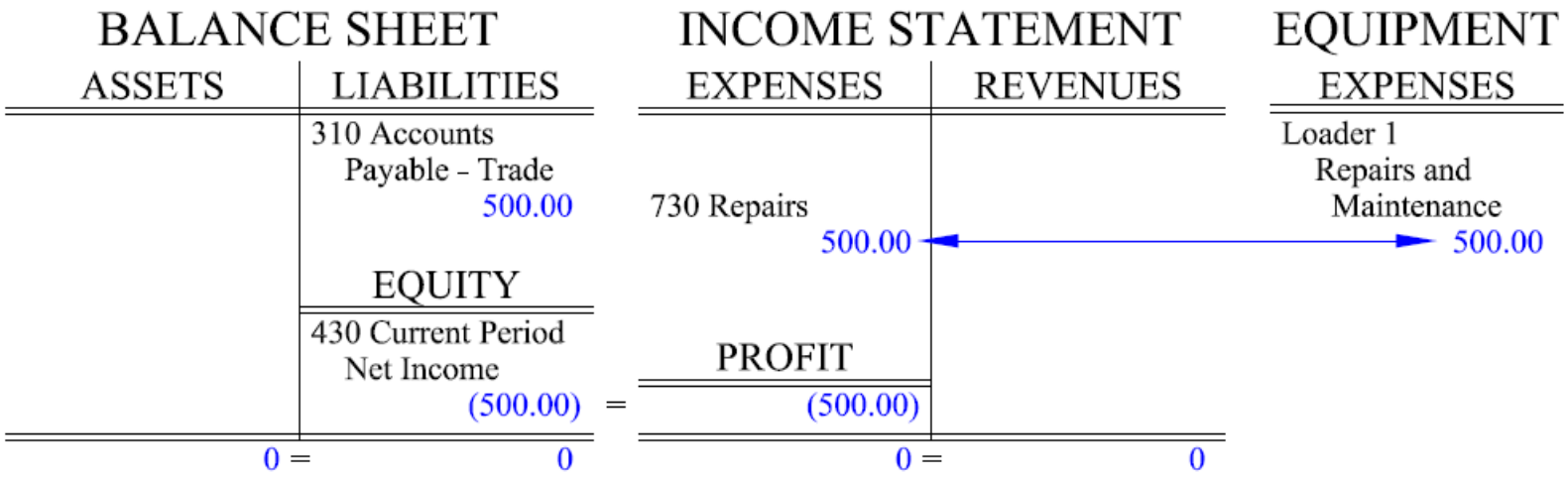
Leased payment on capital lease

- **Paying an expense**

BALANCE SHEET			INCOME STATEMENT		EQUIPMENT
ASSETS	LIABILITIES		EXPENSES	REVENUES	EXPENSES
110 Cash	350 Capital Lease Payable		881 Interest Expense		
(2,433.17)	(1,633.17)		800.00		
	EQUITY				
	430 Current Period Net Income		PROFIT		
	(800.00)	=	(800.00)		
(2,433.17)	(2,433.17)		0	0	

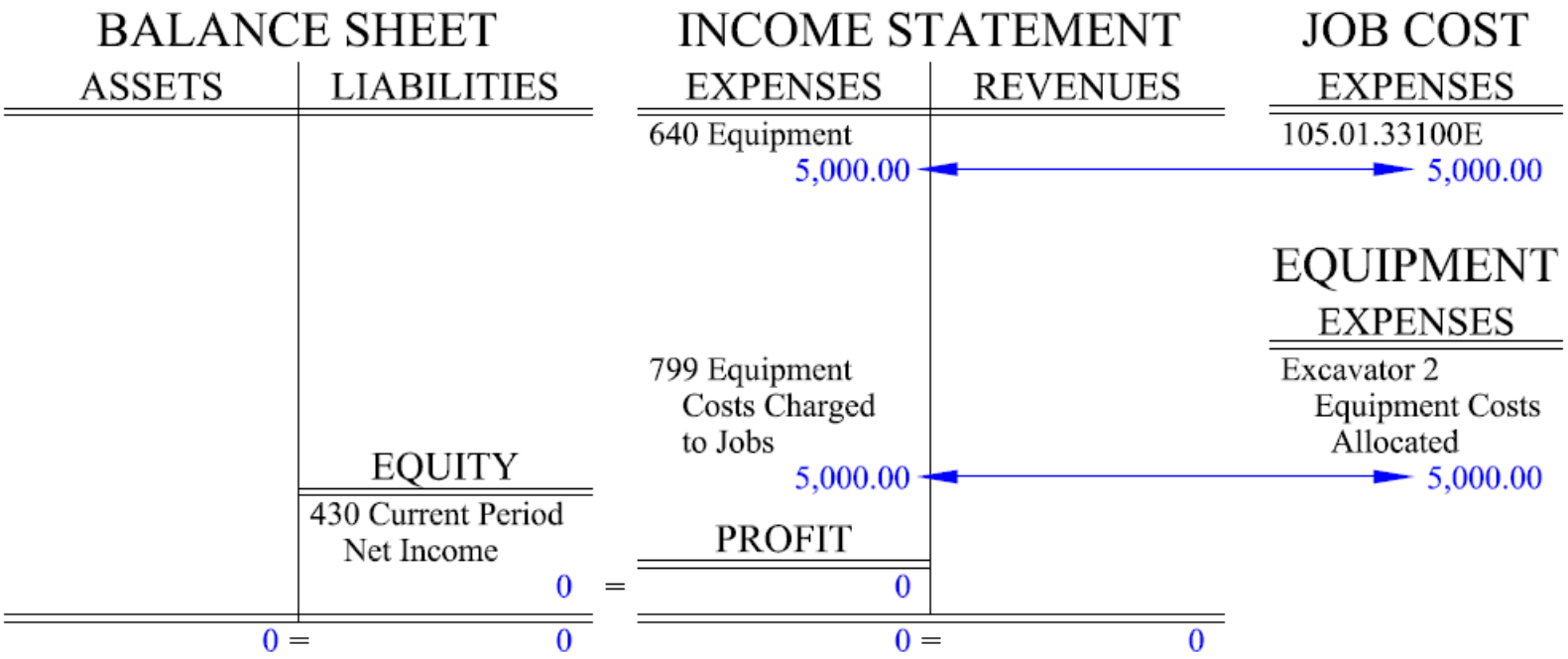
Invoice for equipment repairs

❑ Recording an expense



Equipment charged to a job

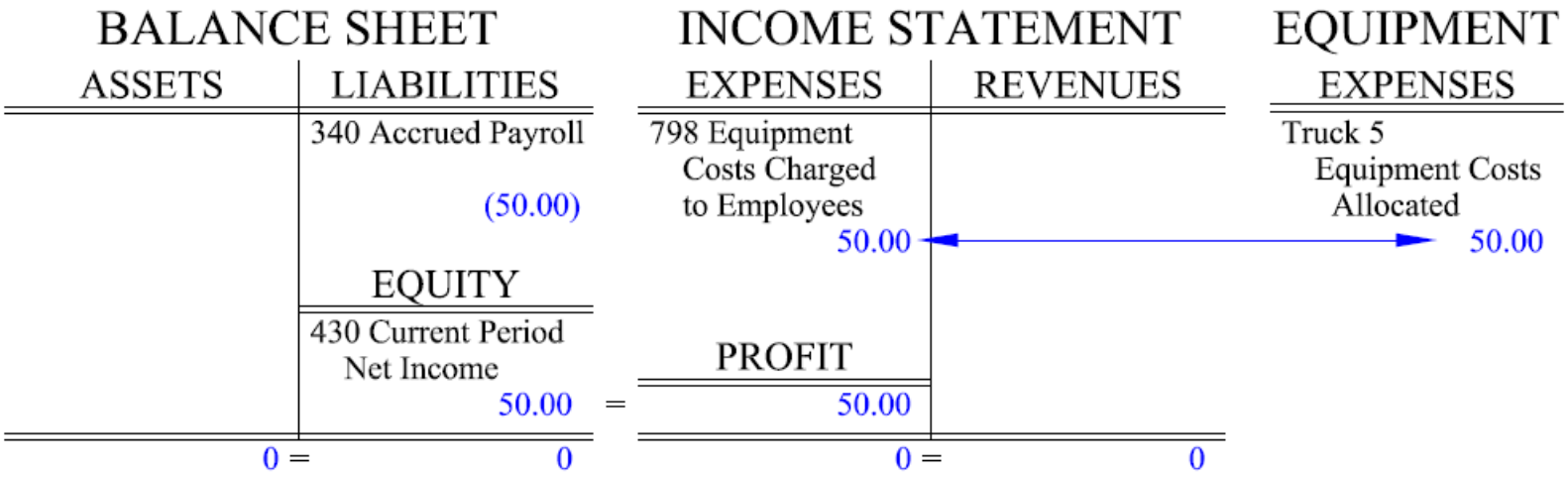
- The goal at the **end** of the **fiscal year** is for **all equipment costs** to be charged to the **individual jobs** or **employees**.
- Equipment charges may be made to jobs based on the **number of hours** a piece of equipment was **operated** on a job **or** based on the **number of days** a piece of equipment was **on a job**, **whether or not it was operating**.



Because 799 Equipment Costs Charged to Jobs is a contra account, it is subtracted rather than added when totaling the column.

Equipment charged to an employee

Recording an expense



Because 798 Equipment Costs Charged to Employees is a contra account, it is subtracted rather than added when totaling the column.

Sale of equipment

- We should have sold for $57,600 ($120,000 - $62,400), Profit = $2,400

BALANCE SHEET			INCOME STATEMENT		EQUIPMENT
ASSETS	LIABILITIES		EXPENSES	REVENUES	EXPENSES
110 Cash 60,000.00				910 Other Income 2,400.00	
220 Construction Equipment (120,000.00)	EQUITY				
250 Less Acc. Depreciation (62,400.00)	430 Current Period Net Income 2,400.00	=	PROFIT 2,400.00		
2,400.00 =	2,400.00		2,400.00 =	2,400.00	

Because 250 Less Acc. Depreciation is a contra account, it is subtracted rather than added when totaling the column.

Signing a construction loan

BALANCE SHEET			INCOME STATEMENT	
ASSETS	LIABILITIES		EXPENSES	REVENUES
155 Due from Construction Loans	330 Notes Payable			
500,000.00	500,000.00			
	EQUITY			
	430 Current Period Net Income		PROFIT	
	0	=	0	
500,000.00 =	500,000.00		0 =	0

Drawings funds from a construction loan

BALANCE SHEET			INCOME STATEMENT	
ASSETS	LIABILITIES		EXPENSES	REVENUES
110 Cash 100,000.00				
155 Due from Construction Loans (100,000.00)	EQUITY		PROFIT	
	430 Current Period Net Income 0	=	0	
0	= 0		0 =	0

Recording changes in costs and profits in excess of billings

BALANCE SHEET			INCOME STATEMENT	
ASSETS	LIABILITIES		EXPENSES	REVENUES
140 Cost and Profits in Excess of of Billings 5,000.00				500 Revenue 5,000.00
	EQUITY			
	430 Current Period Net Income 5,000.00	=	PROFIT 5,000.00	
5,000.00 =	5,000.00		5,000.00 =	5,000.00

Recording changes in billings in excess of costs and profits

BALANCE SHEET			INCOME STATEMENT		
ASSETS	LIABILITIES		EXPENSES	REVENUES	
	320 Billings in Excess of Costs and Profits 1,500.00			500 Revenue (1,500.00)	
	EQUITY				
	430 Current Period Net Income (1,500.00)	=	PROFIT (1,500.00)		
0 =	0		(1,500.00) =	(1,500.00)	

موسسه مهندسی و مدیریت ساخت علوی پور (ACEMI)

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