

Project Breakdown

PROJECT BREAKDOWN

- Construction stages can be broken down into many operations that define the major elements to be performed
- The Single Relationship
 - Finish-to-start relationship
 - Each activity must be selected so that all the previously required activities must be completed before the chosen one can begin and all the following activities cannot be started until the chosen one is complete

PROJECT BREAKDOWN (cont.)

■ Activity Definition

- An activity is a unique unit of the project which can be described within prescribed limits of time

■ Dummy Activities

An activity having a zero duration used:

1. To establish proper logic
2. To maintain the numbering system
3. To mark milestones

DEVELOP ACTIVITY SEQUENCE

Activity sequencing needs to take into account the relationships between activities. There are four types of relationships that need to be taken into account.

- Physical

Exists between two (or more) activities when one cannot start until another is partially or totally complete (i.e. cannot pour footings until they have been formed)

DEVELOP ACTIVITY SEQUENCE (cont.)

- Safety

Exists when simultaneous performance of two activities can result in a safety hazard (i.e. in multi-story construction it is at times unsafe for crews to be working under another.)

- Resource

Due to limited resource availability, two activities may not be able to use a resource at the same time (i.e. A crane cannot be used for both pouring walls and erecting steel.)

- Preferential

How the contractor wishes certain activities to be sequenced

TYPES OF ACTIVITIES

1. Production Activities

Those that can be taken directly from plans and specifications

2. Procurement Activities

Procurement of material and equipment

3. Management Decision Activities

Activities that can be created by management to avoid certain situations

- Delay Concrete
- Company Vacation
- Deer Hunting

Initial Activity List -Remodeling Chemical Laboratory

■ Activity list

- Strip room
- Repair floor
- Lay vinyl floor
- Rough-in plumbing and electrical
- Finish plumbing and electrical
- Replace existing fume duct
- Install new fume hood
- Install base cabinets
- Install wall cabinets
- Install chemical sink
- Paint cabinets
- Paint walls and ceiling

Preliminary Activity List - Remodeling Chemical Laboratory

■ Activity List

- Strip room
- repair walls and ceilings
- Repair floor
- lay vinyl floor
- rough-in plumbing and electrical
- finish plumbing and electrical
- replace existing fume duct
- install new fume hood
- install base cabinets
- install wall cabinets
- install chemical sink
- paint cabinets
- paint walls and ceiling
- obtain vinyl floor covering
- obtain cabinets
- obtain fume hood
- obtain chemical sink
- painter availability

Activity List with Dependencies - Remodeling Chemical Laboratory

<u>No.</u>	<u>Activity list</u>	<u>Depends Upon</u>
1	Strip room	—
2	Repair walls and ceilings	1,5,7
3	Repair floor	1,5
4	Lay vinyl floor	3,12,13,14
5	Rough-in plumbing and electrical	1
6	Finish plumbing and electrical	2,3,5,9,10,11,19
7	Replace existing fume duct	1
8	Install new fume hood	2,3,16
9	Install base cabinets	2,3,8,15
10	Install wall cabinets	2,3,7,15
11	Install chemical sink	2,3,5,9,17
12	Paint cabinets	6,8,9,10,11,18
13	Paint walls and ceiling	2,3,6,8,9,10,18
14	Obtain vinyl floor covering	—
15	Obtain cabinets	—
16	Obtain fume hood	—
17	Obtain chemical sink	—
18	Painter availability	—
19	Install 2/3 base cabinets	2,3,9,15