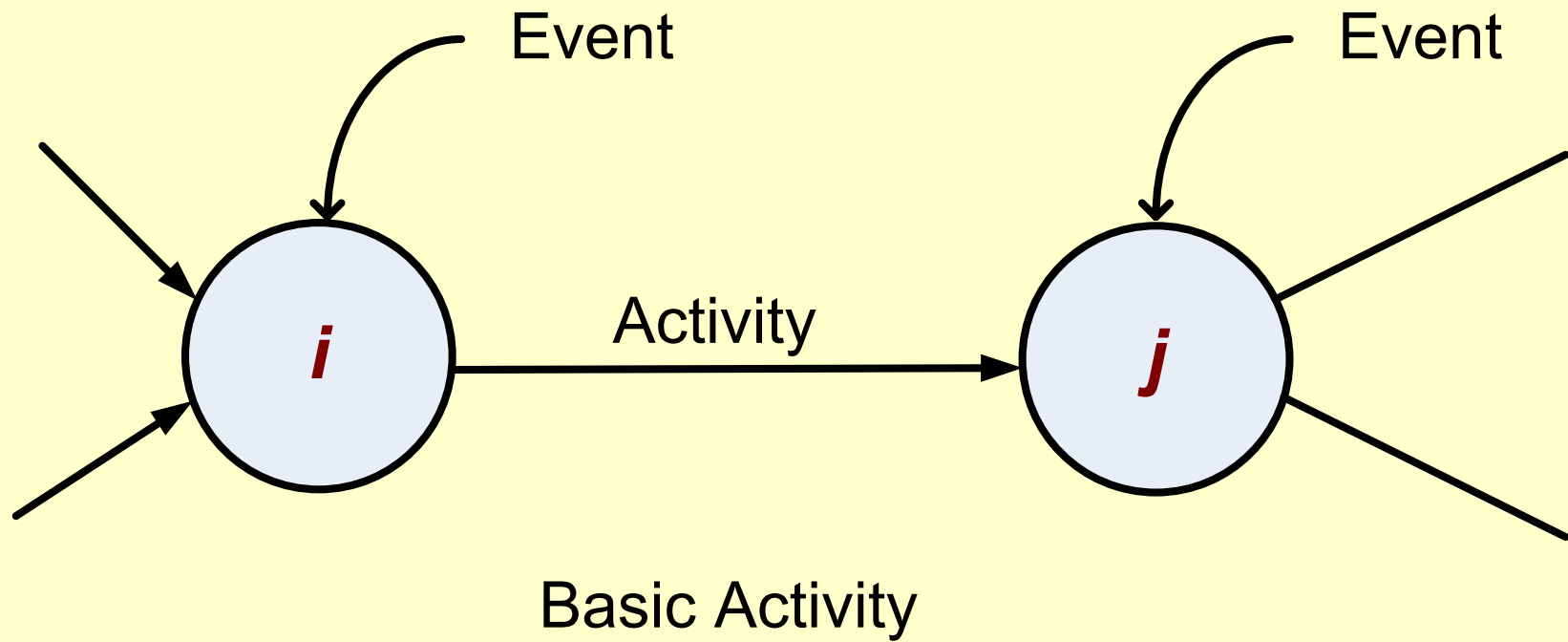




Network Diagramming

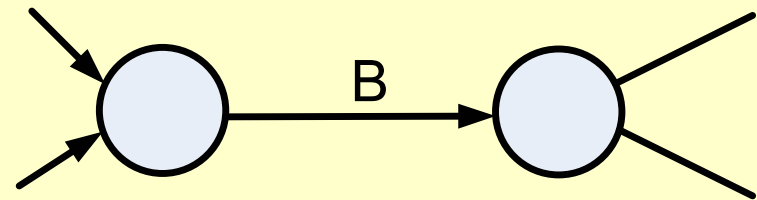
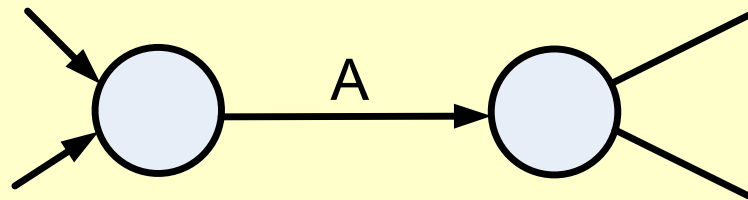
Basic Arrow Diagrams

Arrow Diagram Networks Basic Patterns



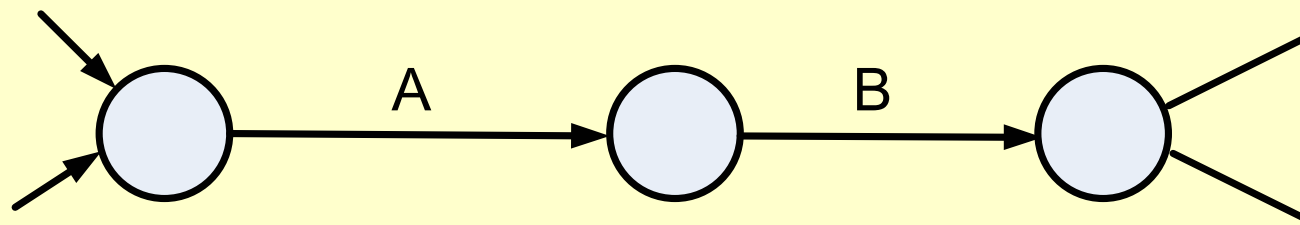
Arrow Diagram Networks

Basic Patterns



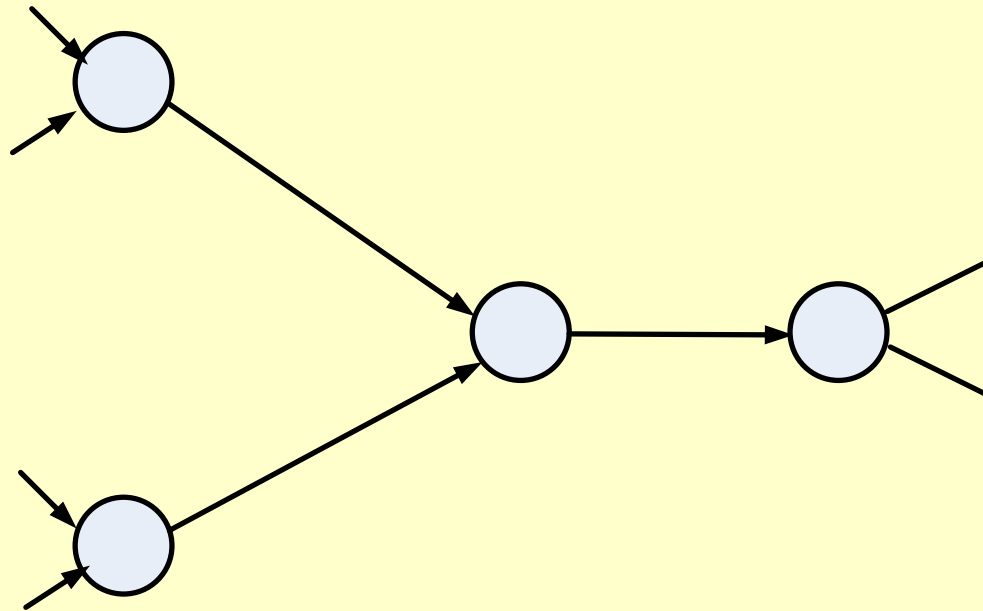
Independent Activities

Arrow Diagram Networks Basic Patterns



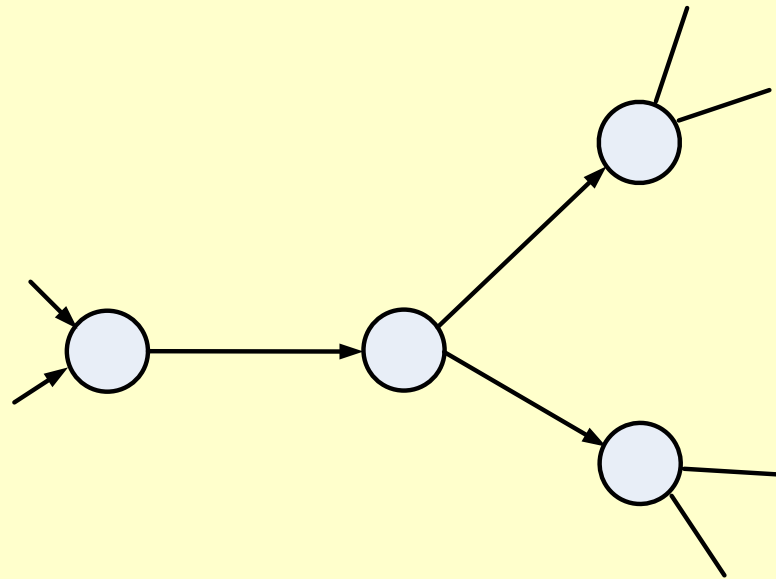
Dependent Activities


Arrow Diagram Networks Basic Patterns



Arrow Diagram Networks

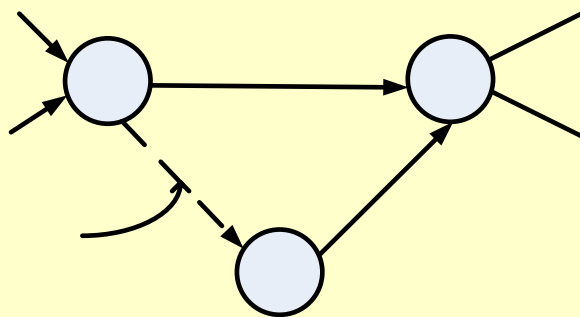
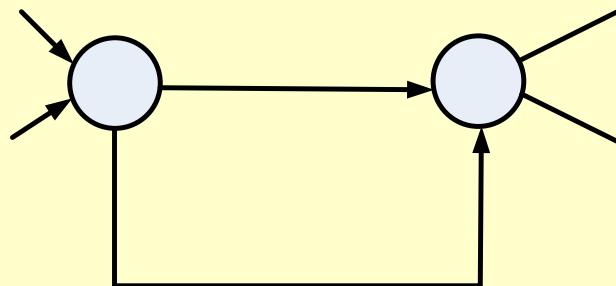
Basic Patterns





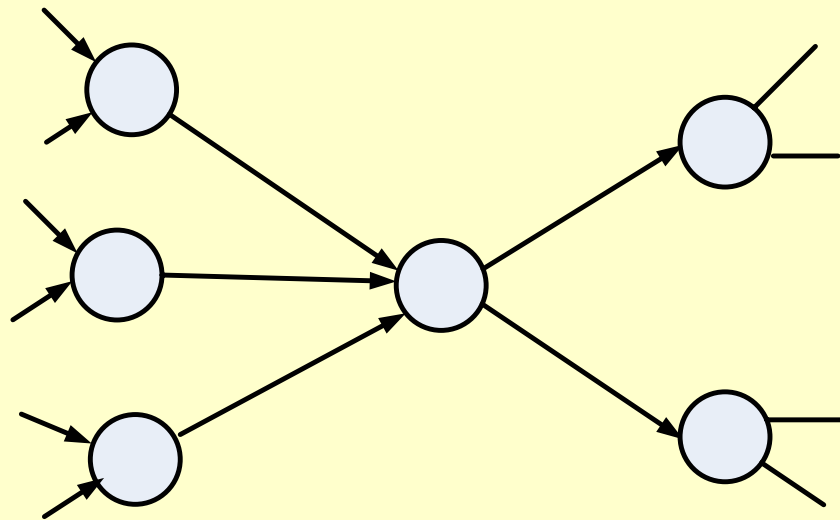
The Use of Dummy Activities

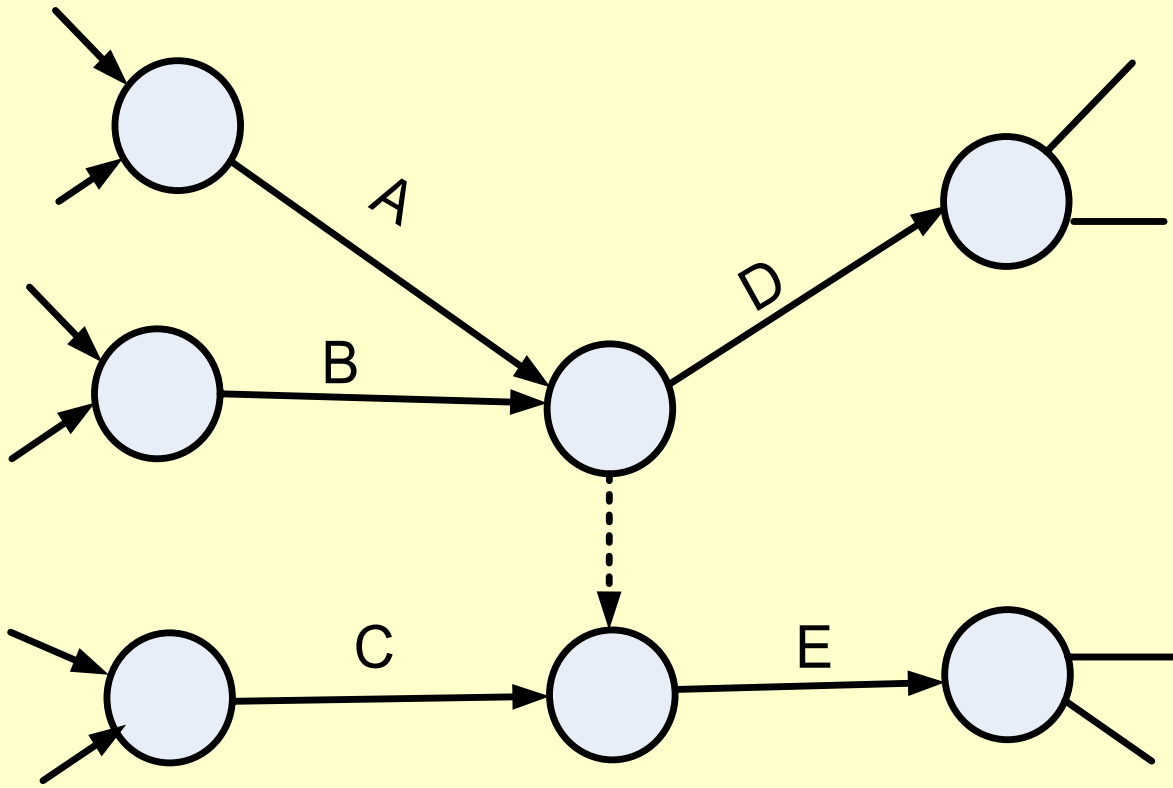
- There are two situations where we introduce a dummy activity in an arrow diagram network.
 1. To provide unique numbering for activities.
 2. To define correct logic.



Suppose you have the following project data:

Activity	A	B	C	D	E
Depends on	-	-	-	A, B	A, B, C







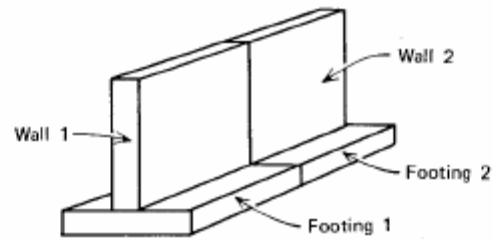
Rules for Arrow Diagram Networks

- Before an activity may begin, *ALL* activities preceding it must be completed. Activities, which have no predecessor, begin at the start of the project.
- The length of the arrow or its direction has no significance.
- Event numbers must be unique.
- No two events (nodes) can be connected by more than one activity [i.e. no two activities share the same two nodes]

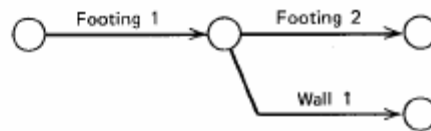


Rules for Arrow Diagram Networks (Continued)

- A network must start by only *one initial event* and must end in only *one end event*.
- Numbers should be numbered so that the node at the head has a higher number than the node at the tail.
- Dummies should be used only when necessary. Redundant dummies should be removed. Remember dummies are used for one of two reasons only: Maintain *unique numbering* and define *correct logic*.



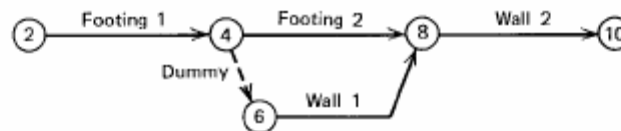
(a)



(b)



(c)



(d)

Figure 3.7 Retaining wall arrow diagram—start event approach.

Activity List with Dependency

	Activity Description	Depends on
1	Strip Room	
2	Repair Walls & Ceilings	5,7
3	Repair Floor	5
4	Lay Vinyl Floor	12,13,14
5	Rough-in Plumbing & Electrical	1
6	Finish Plumbing & Electrical	10,11,19
7	Replace Existing Fume Duct	1
8	Install New Fume Hood	2,3,16
9	Install 1/3 Base Cabinet	8,15
10	Install Wall Cabinets	2,3,15
11	Install Chemical Sink	9,17
12	Paint Cabinet	6,18
13	Paint Walls & Ceiling	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 Cabinet	9

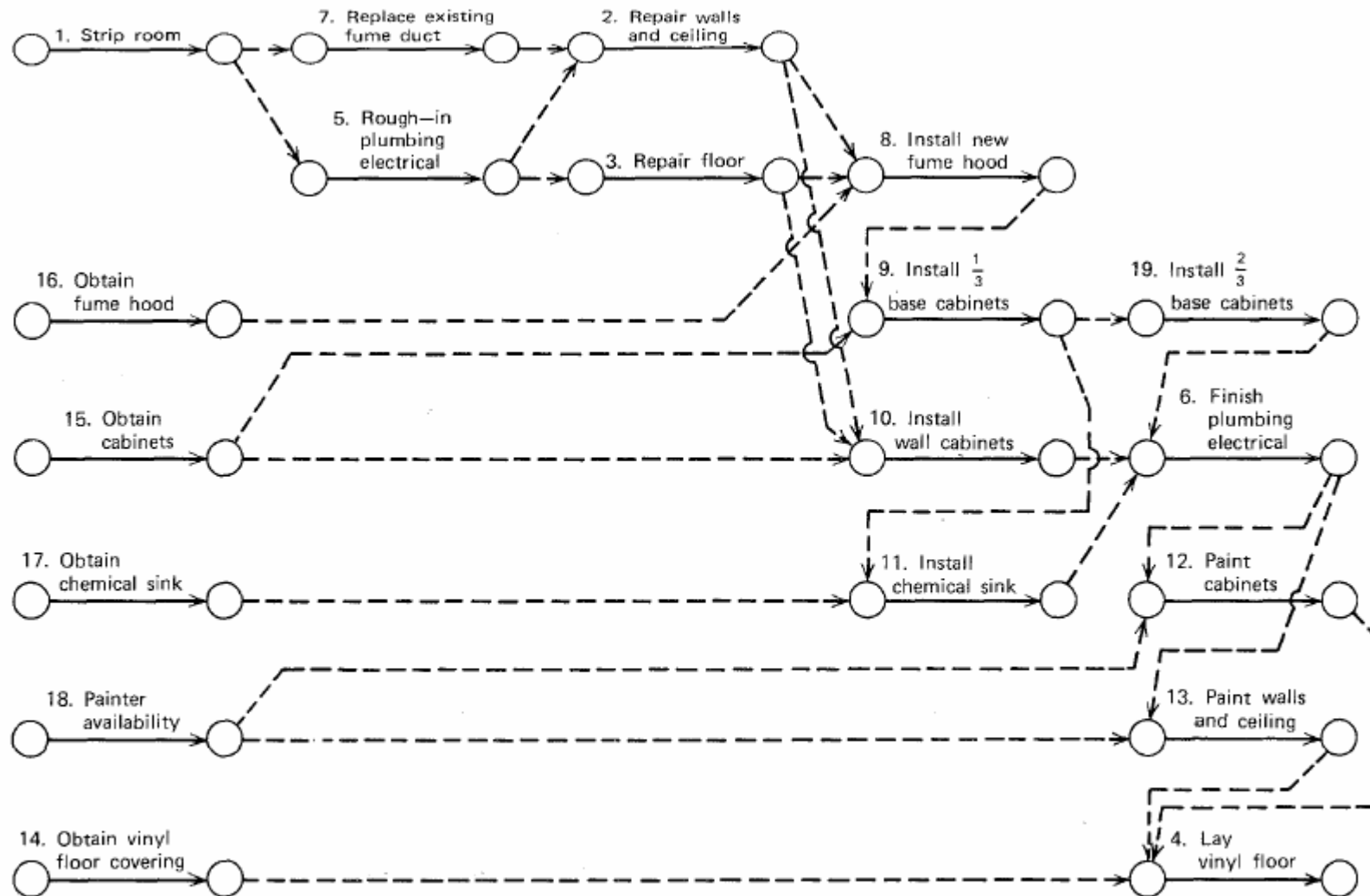


Figure 3.8 Preliminary arrow diagram—*independent activity approach*—remodeling chemical laboratory.

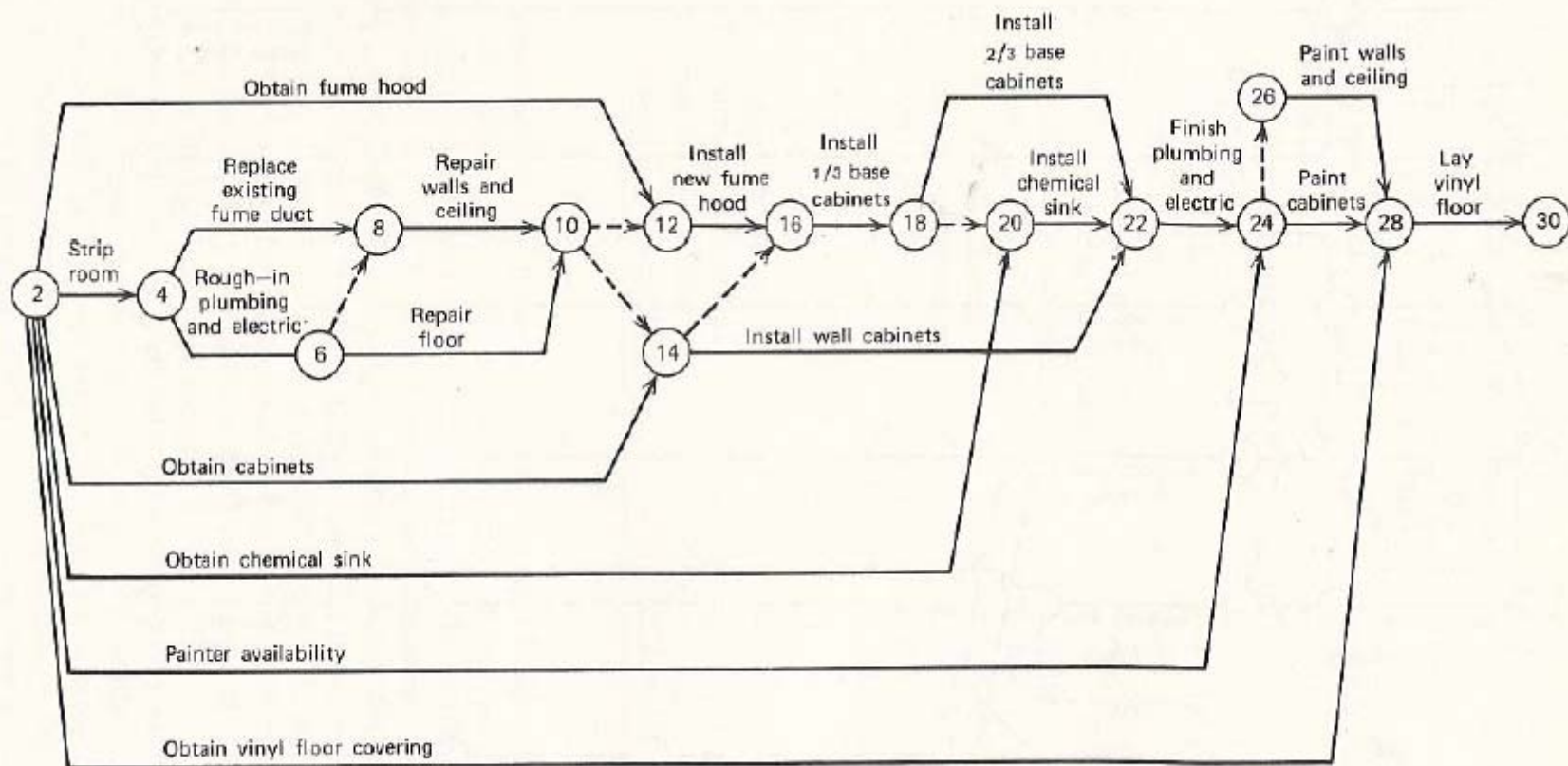


Figure 3.9 Arrow diagram—remodeling chemical laboratory.