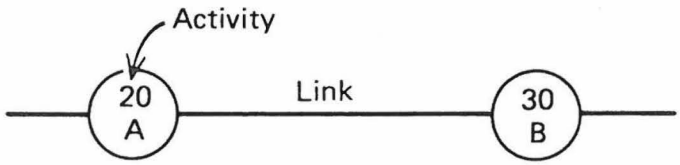
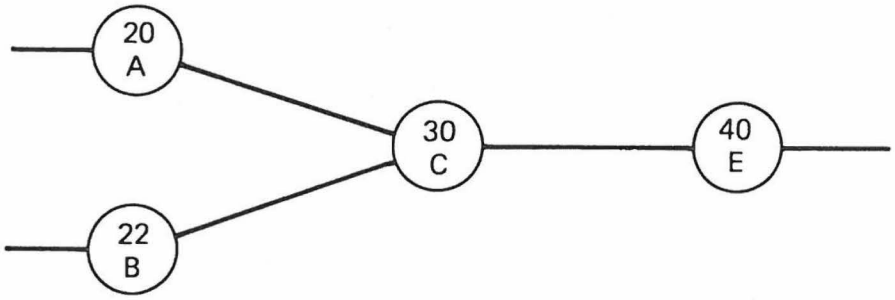


(a) Independent relationships

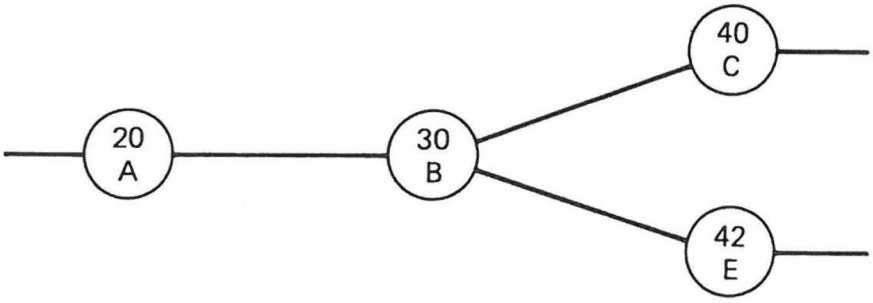


Activity B depends upon the completion of Activity A

(b) Dependent relationships

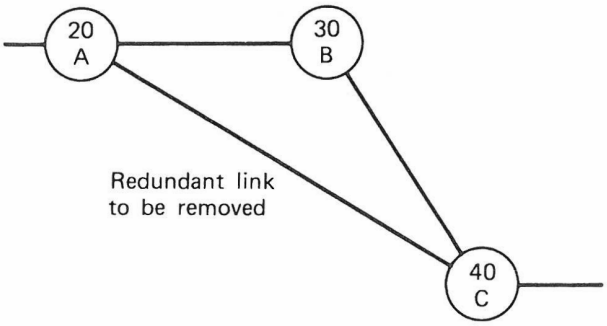


(c) Merging relationships

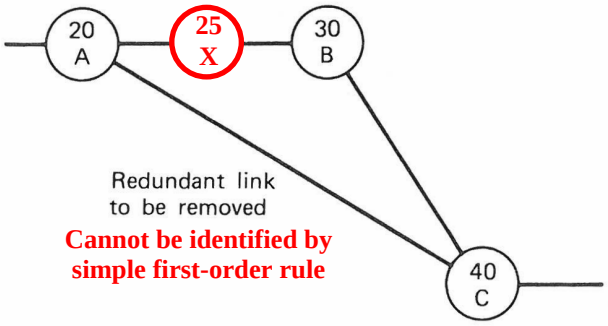


(d) Bursting relationships

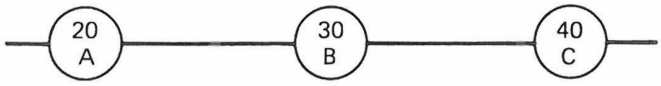
Figure 4.1 Basic logic patterns for precedence diagrams.



(a) Incorrect representation



(a) Incorrect representation

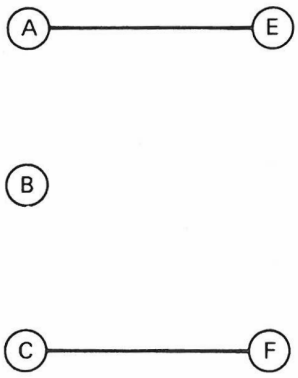


(b) Correct representation

Figure 4.2 Redundant linkages.

All networks should have:
a single beginning node, and
a single ending node.

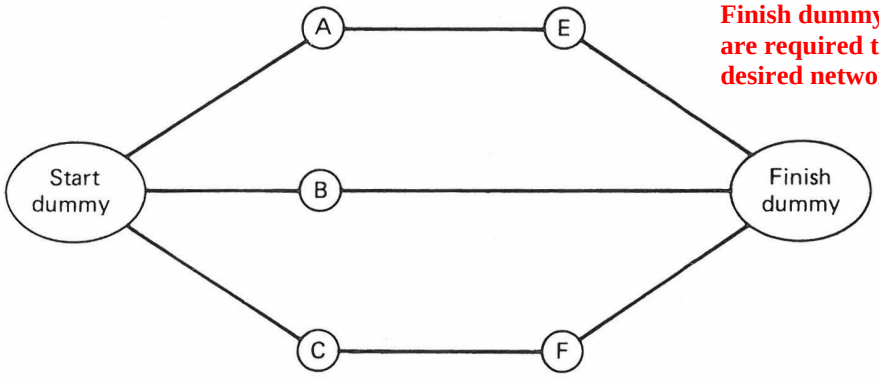
Beginning node: has no predecessor nodes (e.g., A, B, C).
Ending node: has no successor nodes (e.g., E, B, F).



This network has:
- Three beginning nodes (Activities A, B, C) and
- Three ending nodes (Activities E, B, F)

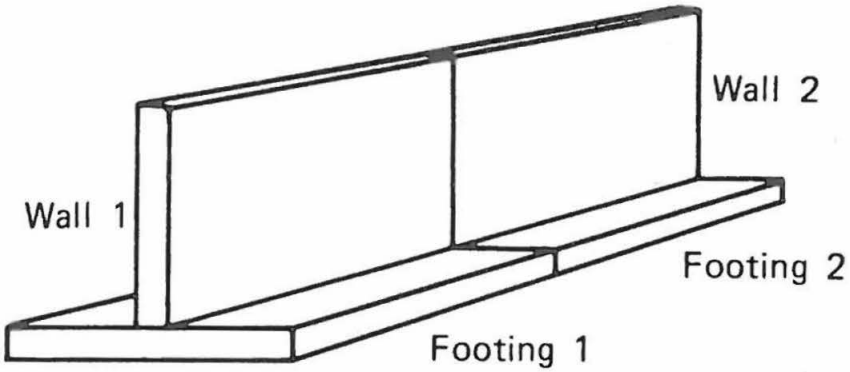
(a) Incorrect representation

Hence:
Start dummy and Finish dummy are required to express the desired network logic.



(b) Correct representation

Figure 4.3 Closing the network to give single beginning and ending nodes.



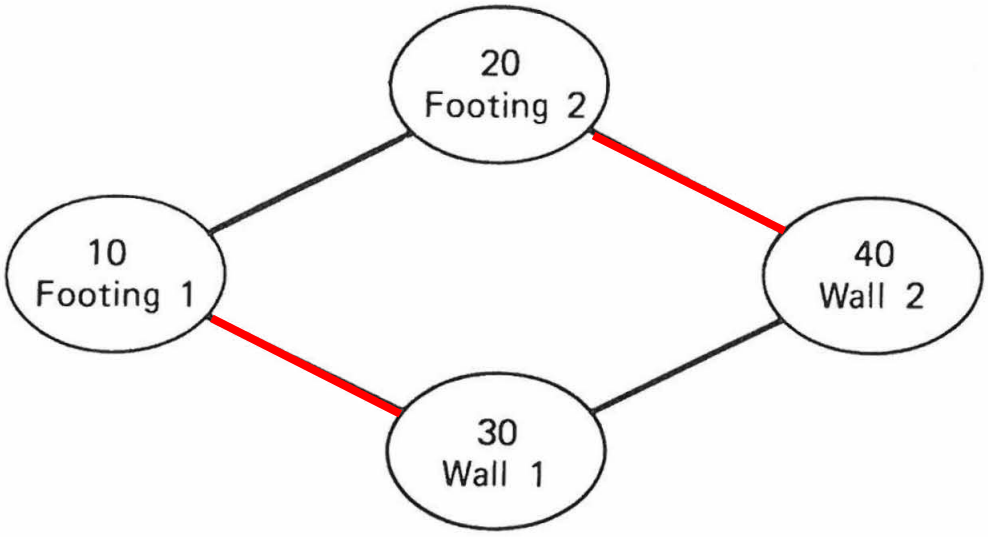


Figure 4.4 Retaining wall precedence diagram.

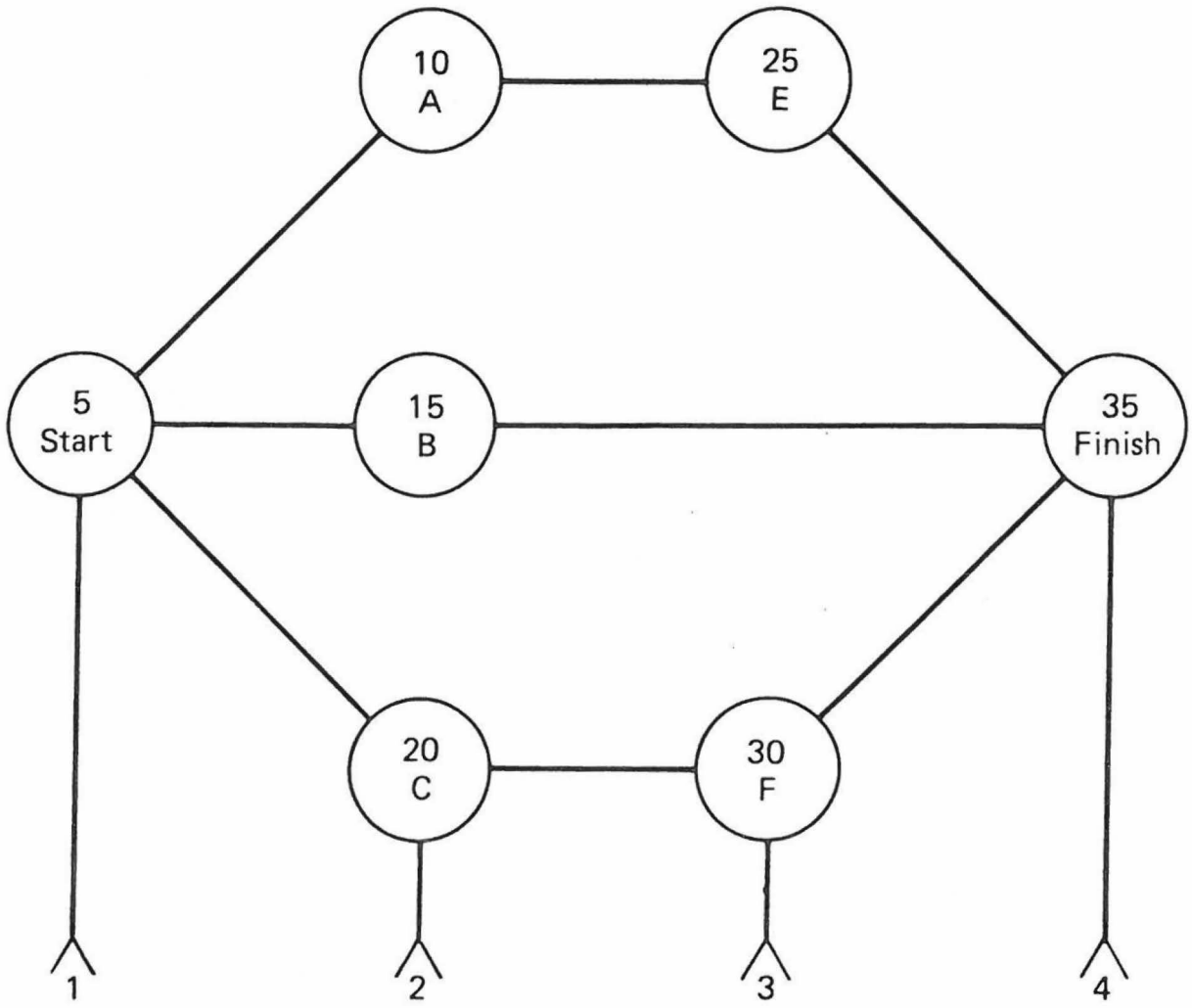
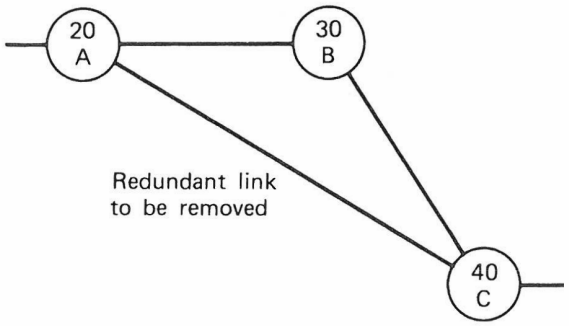
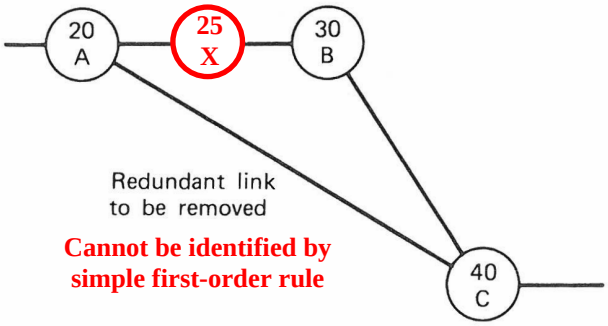


Figure 4.5 Precedence diagram—sequence stepped and numbered.



(a) Incorrect representation



(a) Incorrect representation

TABLE 4.1 **Activity List**

Augmented Activity List with Redundant Dependencies Removed—Remodeling Chemical Laboratory

No.	Activity	Seq. Step	Depends upon
0	Start	1	---
1	Strip room	2	~~+~~ 0
2	Repair walls and ceiling	4	~~1~~, 5, 7
3	Repair floor	4	~~1~~, 5
4	Lay vinyl floor	10	~~3~~, 12, 13, 14
5	Rough-in plumbing & electrical	3	1
6	Finish plumbing & electrical	8	~~2~~, ~~3~~, ~~5~~, ~~9~~, 10, 11, 19
7	Replace existing fume duct	3	1
8	Install new fume hood	5	2, 3, 16
9	Install 1/3 base cabinets	6	~~2~~, ~~3~~, 8, 15
10	Install wall cabinets	5	2, 3, ~~7~~, 15
11	Install chemical sink	7	~~2~~, ~~3~~, ~~5~~, 9, 17
12	Paint cabinets	9	6, ~~8~~, ~~9~~, ~~10~~, ~~11~~, 18
13	Paint walls and ceiling	9	~~2~~, ~~3~~, 6, ~~8~~, ~~9~~, ~~10~~, 18
14	Obtain vinyl floor covering	2	~~+~~ 0
15	Obtain cabinets	2	~~+~~ 0
16	Obtain fume hood	2	~~+~~ 0
17	Obtain chemical sink	2	~~+~~ 0
18	Painter availability	2	~~+~~ 0
19	Install 2/3 base cabinets	7	~~2~~, ~~3~~, 9, ~~15~~

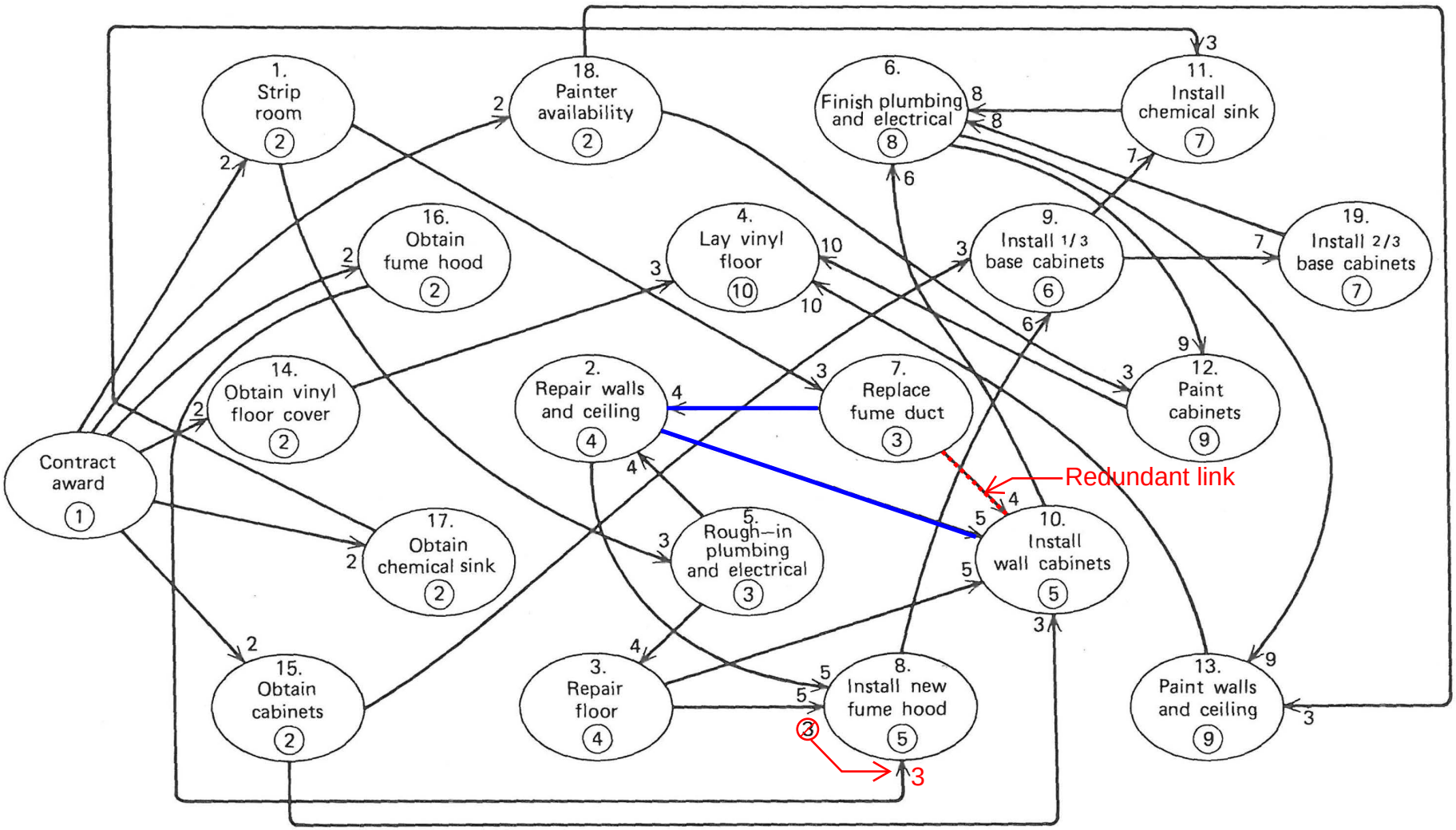


Figure 4.6 Ball-of-string diagram—remodeling chemical laboratory.

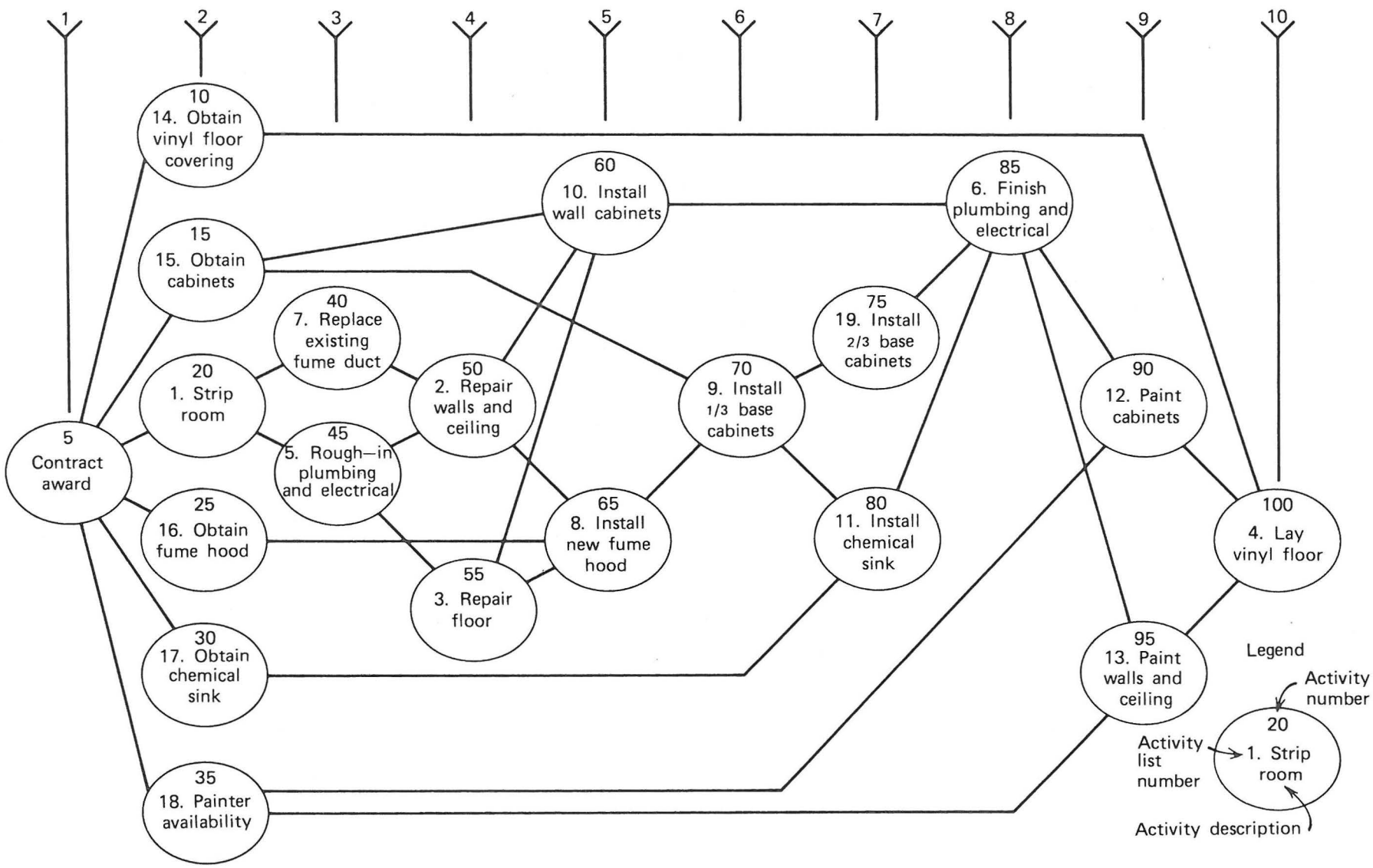


Figure 4.7 Precedence diagram—remodeling chemical laboratory.