**SECTION III - PROJECT SCHEDULING**

710 Wilshire Hotel

Santa Monica, California

**PREMISE**

The completion of the project is critical to the owner, as it impacts the ability of the owner to start booking rooms and generating income, which impacts future payoff of construction loans, and ultimately the bottom line of the project. Our contract for this project has significant liquidated damage penalties for each day a unit/room is not completed by the contract completion date. Our team must focus on planning the project and developing an accurate CPM schedule to complete the project and “get the heads in the beds” on time.

The project manager and superintendent have already developed a CPM Project Schedule for the 710 Wilshire Hotel of the project’s major activities so the team can quickly get a preliminary understanding of the schedule (reference Exhibit III.B.1). However, there are a few sections of the summary CPM schedule that do not have the detailed schedule and activities fully developed. The project manager has asked you to assist the superintendent in further developing and expanding these project schedule sections.

With that in mind, the team has identified the following project management and schedule planning tools that they need you to help create partial or “fragnet” detailed CPM schedules for:

1. Concrete Structure Detailed CPM Schedule
2. Create a detailed schedule of activities for the concrete structure work of the new hotel and parking levels based on the plans and specs provided.
3. Provide on 8-1/2” x 11” or 11” x17” format
4. Exterior Façade Phasing Plan & Detailed CPM Schedule
5. Create a detailed schedule of activities required to construct the exterior façade of the building based on the drawings provided.
6. Provide in an 8-1/2” x 11” or 11” x17” format
7. Landmark Building Detailed Demolition & Structural Retrofit Upgrades CPM Schedule
8. Create a detailed schedule of activities required to construct the mock-up based on the drawings provided.
9. Provide in an 8-1/2” x 11” or 11” x17” format
10. Mock-up Detailed Schedule
11. Create a detailed schedule of activities required to construct the mock-up based on the drawings provided.
12. Provide in an 8-1/2” x 11” or 11” x17” format

The following exhibits are included in this section:

* Exhibit III.B.1 – Detailed CPM Schedule for 710 Wilshire Hotel project

For the subsequent problem Parts A, B, C & D, utilize the information provided in Exhibit III.B.1 and above, and the following general instructions to develop the most efficient CPM detailed partial schedules that comply with all the parameters and provide the following:

a. Teams are to provide CPM detailed schedules on 8-1/2”x11” or 11”x17” paper.

b. The project’s activities have not been provided; your team needs to determine the activities to be included in the schedule.

1. The schedule logic and sequencing have not been provided for this section; your team is to determine all the schedule activities and all the parameters for the schedules logic and critical path. Your team should be prepared to defend and explain the schedule logic developed.
2. Phasing/Sequence of the Work Flow - on every project, the flow of the field work plan is critical to planning and scheduling of a project. This direction can be dictated by the design, Owner, or constraints as determined in execution of the work.
3. The schedule activities durations have not been provided; your team needs to determine the activity durations to be included in the schedule, except for any activities that are included in Part B of this Section. Your schedule should include the activity durations in the schedule as determined by your team’s calculations.
4. The schedule must clearly indicate the early start and early finish dates for all activities and all logic ties between activities, and durations for each activity.
5. All durations in this problem are in working days (8 hours per day, 5 days per week, Monday through Friday). No work is to occur on Saturday or Sunday. In addition, there will be no work on the standard government holidays.
6. While it is the responsibility of your team to determine relationships between activities, lags needed, etc., the relationships must be maintained so that the schedule flows with proper logic ties, lags, and overlapping of activities as your team seems reasonable for this type of project.
7. Your team should determine and show the project’s critical path.

**A. CONCRETE STRUCTURE DETAILED CPM SCHEDULE**

Based on the information provided in Exhibit III.B.1 and above, create a complete CPM detailed schedule for the concrete structure of the hotel and parking levels. The summary bars and dates shown in the Structure sections, need to be built out and expanded into a detailed schedule of activities showing that this section of the work can be completed within overall duration shown in CPM schedule and in the most efficient time period possible.

1. Your assignment is to utilize all the information provided to determine the most efficient concrete structure detailed CPM schedule that complies with all the parameters and provide the following additional information:
2. Create a critical path network detailed schedule including between 50 and 100 schedule activities.
3. The concrete structure schedule should start with “foundation excavation”. The last schedule activity for the concrete structure schedule should be “formwork removal” or “stripping of forms”.
4. This section of the schedule should be organized into the following sections:
	* Foundations & Slab On Grade…by area
* Concrete Structure…by floor level and/or deck pours

Deliverable – Provide the Concrete Structure Detailed CPM project schedule in 8-1/2” x 11” or 11” x17” format.

**B. EXTERIOR FAÇADE PHASING PLAN & DETAILED CPM SCHEDULE**

Based on the information provided in Exhibit III.B.1 and above, create a complete CPM detailed schedule for the exterior facade work of the hotel. The summary bars and dates shown in the Exterior Finishes sections, need to be built out and expanded into a detailed schedule of activities showing that this section of the work can be completed within overall duration shown in CPM schedule and in the most efficient time period possible.

1. Your assignment is to utilize all the information provided to determine the most efficient exterior facade detailed CPM schedule that complies with all the parameters and provide the following:

a. Create a critical path network detailed schedule including approx. 50 schedule activities Teams are to provide a CPM detailed schedule on 8-1/2”x11” or 11”x17” paper.

1. The exterior facade schedule should start with “erect scaffolding” and/or “layout” on each floor level. The last schedule activity for the exterior façade schedule should be “exterior punchlist work and approvals”.
2. The schedule should be organized into the following sections:
* Building Exterior Work & Finishes…by elevations and/or floors

Deliverable – Provide the Exterior Façade Detailed CPM project schedule in 8-1/2” x 11” or 11” x17” format.

**C. LANDMARK BUILDING DEMOLITION & STRUCTURAL RETROFIT UPGRADES DETAILED CPM SCHEDULE**

Based on the information provided in Exhibit III.B.1 and above, create a complete CPM detailed schedule for the demolition and structural retrofit upgrades work of the existing Landmark Historical Building. The summary bars and dates shown in the Demolition & Abatement, Foundation, and Structural Renovation sections, need to be built out and expanded into a detailed schedule of activities showing that this section of the work can be completed within overall duration shown in CPM schedule and in the most efficient time period possible.

1. Your assignment is to utilize all the information provided to determine the most efficient demolition and structural work detailed CPM schedule that complies with all the parameters and provide the following:
2. Create a critical path network detailed schedule including approx. 50 schedule activities Teams are to provide a CPM detailed schedule on 8-1/2”x11” or 11”x17” paper
3. The detailed schedule for the demolition and structural retrofit upgrades work should start with demolition activities by level. The last schedule activity for the Landmark demolition and structural retrofit schedule should be placing concrete at the last area/level.
4. The schedule should be organized into the following sections:
	* Demolition…by area/by floor
	* Foundations & Slab On Grade…by area
* Concrete Structure…by floor

Deliverable – Provide the Landmark Building Demolition & Structural Retrofit Upgrades CPM project summary schedule in 8-1/2” x 11” or 11” x17” format.

**D. MOCK-UP DETAILED SCHEDULE**

Due to the complexities of the structure, exterior skin, and interior finishes and details, the team will be constructing a full scale mock-up to coordinate the various conditions. The Owner has also stipulated that they will not provide approvals of any finish materials selections prior to reviewing the completed mock-up.

1. The project manager has asked you to develop a detailed schedule for the construction of the mock-up. Utilizing the mock-up drawings provided and your knowledge of the construction documents, your team is to develop a detailed critical path network schedule including 15 to 20 activities (no extra credit for more than 20 activities!). Indicate the critical path, all logic ties, early start and finish date, and duration for each activity. Be sure to include schedule activities for all work including major elements shown on the drawings.

Deliverable - Your team is to provide a separate detailed mock-up schedule on 8-1/2”x11” or 11”x17” paper.

1. Your team needs to also analyze and make a recommendation to the project team as to the timing of the mock-up construction. The mock-up must be completed with enough time for Owner/Architect approvals and allow for fabrication and delivery of materials to the jobsite to maintain the project’s schedule. Utilizing the CPM Summary Schedule information provided, your team will need to establish the actual start date and completion date for the mock-up based on building either a stand alone offsite mock-up or built within the project after the completion of the structure.

Deliverable - In the space below, provide your recommendation including a brief summary explaining your team’s decision.

ANSWER:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**III. PROJECT SCHEDULING**

**Los Angeles Lakers Headquarters**

**El Segundo, California**

**EXHIBITS**

The following exhibits are included in this section:

* Exhibit III.B.1 – Detailed CPM Schedule for 710 Wilshire Hotel project