**SECTION III - PROJECT SCHEDULING**

**Los Angeles Lakers Headquarters**

**El Segundo, California**

**PREMISE**

The completion of the project is critical to the owner, as it impacts the ability of the owner to start utilizing the state-of-the-art facility in the hopes of improving the team’s on-court performance and results, which affects the overall status of the Laker’s organization. In addition, the completion is directly tied to the start of 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 the facility 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 on time for the start of the 2018-2019 NBA season.

With that in mind, the team has identified the following project management and schedule planning tools that they need you to create:

1. Project Summary CPM Schedule
2. Create a project schedule as required in the following section. Provide on 8-1/2” x 11” or 11” x17” format
3. Exterior Mock-up Detailed Schedule
4. Create a detailed schedule of activities required to construct the exterior façade mock-up based on the drawings provided
5. Provide in an 8-1/2” x 11” or 11” x17” format

The following exhibits are included in this section:

* Exhibit III.B.1 – Exterior Skin Mock-up Drawings

**A. PROJECT SUMMARY CPM SCHEDULE**

The project manager has asked you to assist the superintendent in developing the project schedule. The first step is to create a summary CPM schedule of the project’s major activities so the team can quickly get a preliminary understanding of the schedule.

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.

Based on the information provided above, create a complete CPM Summary Schedule for the Lakers Headquarters Project showing that the project can be completed within the most efficient time period possible. The owner is targeting issuing a Notice to Proceed with the start of construction on February 13, 2017. However, the team has incentives to finish the project early and your assignment is to utilize all the information to determine the most efficient construction schedule that complies with all the parameters provided.

1. Your assignment is to utilize all the information provided to determine the most efficient construction summary schedule that complies with all the parameters and provide the following:

a. Create a critical path network Project Summary Schedule including approx. 100 activities not including the Summary Section activities requested (it is acceptable to exceed the quantity but no extra credit for more than 100 activities!). Teams are to provide a CPM summary schedule 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; 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. The Owner has requested that the training equipment room and basketball court at the north end of the building be completed first so that it can be shown to potential recruits as soon as possible. Your team should decide the phasing/sequencing plan for the interior work by breaking into 4 areas and determining the sequence and direction of the work flow. The phasing/sequence areas should be identified in the schedule.
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. The following milestones need to be included as part of your final schedule: Job Start, Project Substantial Completion, and Project Final Completion Date.
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.
8. The schedule should be organized into the following sections:

Construction Phase

* Project Milestones
* Project Schedule Summary (see additional information below)
* Mobilization & Site Preparation
* Initial Sitework, Grading, Undergound MEPS
* Foundations & Slab On Grade…by area
* Building Steel Structure…by area
* Roof Work
* Building Exterior Work & Finishes…by elevation
* Building Interior Work & Finishes…by area and level

-Level 1

-Level 2

* Site Structures
* Landscaping & Sitework Completion
* Punchlist/Final Clean & Final Inspections

1. Include a Schedule Summary section in the project schedule with “level of effort” or “hammock activities” (an activity summarizing a group/category of activities) to be added to the beginning of the schedule. The following summary “hammocks” including total durations for each “hammock” must be included in your schedule:

* Total Building Construction Duration
* Initial Sitework & Grading
* Foundation & Slab On Grade
* Building Structural Steel
* Elevator Work
* Building Exterior & Roof Work
* Building Interior Finishes & Buildout
* Sitework Completion
* Punchlist & Final Inspections

1. Be sure to identify the TCO milestones in the Project Summary Schedule that corresponds to your teams sequencing and turnovers.
2. Include activities and durations for major hoisting items (i.e. cranes, manlift/material hoist, etc.)
3. Based on the Exterior Mock-up Detailed Schedule your team developed in Part B of this Section, include a summary activity with applicable duration for exterior façade mock-ups in the CPM Summary Schedule.
4. Based on the Exterior Façade Sequence your team developed in Section 5, the exterior work activities in the CPM Summary Schedule should reflect this sequence of the work for the exterior façade.

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

**B. EXTERIOR MOCK-UP DETAILED SCHEDULE**

Due to the complexities of the exterior skin finishes and details, the team will be constructing an exterior façade 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 exterior mock-up. Utilizing the exterior 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. The work is to occur Monday through Friday only and is based on working days (eight hours per day, five days per week). No work is to occur on Saturday or Sunday, or holidays per the original schedule premise. 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 exterior 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 from Part A, 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 structural steel.

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 - Exterior Skin Mock-up Drawings