RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

June 24, 1976

Subject: Monitoring Report #1

Apartment Complex

King Faisal Medical City

Riyadh, Saudi, Arabia

Contractor: Cofiocomex - Cencon
Geneva, Switzerland

Project: 76:23

Date of Monitoring: June 18, 1976 (working day 120)
at Charlotte, North Carolina

Actions taken:

- Reviewed manifest content for sailings
- Briefly reviewed architectural, structural and electrical progress drawings
- Evaluated current job status

General Summary

As of June 18, 1976 (working day 120) the first sailing has left port and will arrive and discharge its contents on July 22, 1976 (working day 143). It will generally take seven working days to get material from the arrival port to the near site storage area. This near site storage area is 3 to 5 miles from the job location. It is expected that critical material on sailing #1 should arrive at the near site storage area by August 2, 1976 (working day 150). A detailed tabulation was made of key dates for each remaining sailing. This information is shown below:

Sailing No.	Port Departure	Port Arrival	Near Site Storage Area Arrival
1	has left	July 22, 1976 (working day 143)	August 2, 1976 (working day 150)
1A	June 28, 1976 (working day 126)	July 22, 1976 (working day 143)	August 2, 1976 (working day 150)
2	August 9, 1976 (working day 155)	September 14, 1976 (working day 180)	September 23, 1976 (working day 187)
3	October 25, 1976 (working day 209)	December 10, 1976 (working day 242)	December 21, 1976 (working day 249

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Sailing No.	Port Departure	Port Arrival	Near Site Storage Area Arrival
4	January 15, 1977 (working day 266)	March 3, 1977 (working day 299)	March 14, 1977 (working day 306)
Roll on / Roll off #A (RO/RO A)	July 15, 1976 (working day 138)	August 9, 1976 (working day 155)	August 18, 1976 (working day 162)
Roll on/ Roll off #B (RO/RO B)	October 29, 1976 (working day 213)	November 12, 1976 (working day 223)	November 23, 1976 (working day 230)

Using the above information, we checked the shipping content to confirm whether or not the proposed shipping dates would meet target requirements of the project as outlined on summary diagram, Issue P1, dated April 2, 1976. There are some potential problem areas. These are outlined briefly below.

- Structural steel and erection tools will presently be on the job in shipment #2 on September 23, 1976 (working day 187). It was desired to start erecting and trimming out structural steel no later than September 22, 1976 (working day 186). These dates are close together but it should be pointed out that getting structural steel to the job to meet our current schedule will be a very important initial move. It is presumed, of course, that by the time structural steel gets to the job that most substructure work will be available to receive steel without double handling.

- Stonehenge panels and fascia are presently scheduled for sailing #3. Sailing #3 is due to arrive at the near site storage area by December 21, 1976 (working day 249). It is possible, if we can adhere to our present erection program we could need the stonehenge panels as early as November 24, 1976 (working day 231). However, it may be difficult to get any panels on sailing #2 and therefore, it is currently possible we will have to move our panel erection schedule to a later date.

  It could be, because of the dry, warm weather conditions in Saudi, Arabia that exterior panels will not prove to be a major difficulty. This matter should be checked soon.

- It was noted that job vertical lifting equipment to be used is a mobile crane and a hoist. I strongly recommend a reconsideration of this. Distances around the job are great and the amount of vertical hoisting and horizontal travel may make it profitable to increase hoisting capacity over present plans.

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- Insulation (soundproofing). Insulation is due to arrive on December 21, 1976 (working day 249). It is possible that insulation which presumably goes in stud walls could be started shortly after stud walls are put in work. Presently studs are due to arrive on the job in shipment (RO/RC #B) from France on November 23, 1976 (working day 230). Thus, it would be desirable to watch carefully the site arrival relationship between studs and insulation since it is not possible to start hanging board until some insulation is in place.

- HVAC equipment is due to arrive on December 21, 1976 (working day 249). It is possible some of this equipment might have to be set at an early date to avoid leaving walls and other access points open. We should check setting of major mechanical and electrical equipment to insure it will be arriving at a time where it can be brought into the building without major difficulties. If it cannot be brought in, we must leave adequate access in exterior and interior walls so entry to the various equipment rooms is not blocked.

- Air duct materials are scheduled to arrive on the job site by December 21, 1976 (working day 249). It is entirely possible that if structural steel and deck pours move well the job might be in such condition that ducts could be started by November 3, 1976 (working day 216). It has been decided that flexible duct will be used at the living units. However, it may be necessary to use either sheet metal or fiberglas duct at areas such as the commercial area where longer and larger runs will be required. A decision on duct type should be made at an early date.

- Furnishings are presently all scheduled for sailing #4 which will bring them to the job site by March 15, 1976 (working day 307). (Note: There was an error in the Issue P1 calculations on receipt of sailing #4 materials at the site. We showed them arriving at 273 - that number should have been 283.) The present delivery date of furnishings to the job site is quite late relative to the originally planned date. What this does is move start of installation of furnishings in the first tower to a later date of March 14, 1976 (working day 306). It has a slight impact upon early furnishing work at the lower and middle third of the initial tower but does not necessarily affect the end date for each tower unit. A thorough evaluation of the later sailing on furnishings should be made at our next monitoring session.

I recommend a revised shipping schedule be prepared that incorporates up to date information for all sailings. In addition, as working drawings are brought to completion, it would be wise to pick up all of the smaller items that have not yet been specified to insure we do not miss any critical deliveries that will be needed, particularly on the third or fourth sailings.

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Generally I recommend that all items necessary to complete the building proper be put into sailings 1A, 2 or 3. This to reduce the probability of not having something when it is needed on the job. It will also allow any missed items to be brought to the job on sailing #4.

A part of our discussion today dealt with spray-on fireproofing, its shelf life and equipment requirements. The matter was discussed in detail with Mr. McConnell and Mr. Taylor and caution was advised relative to exceeding the guaranteed shelf life of the spray-on. Conversations with spray-on contractors indicate a good share of the success in applying spray-on and maintaining productivity is found in the proper equipment, the proper operator and fresh material. Therefore, careful attention should be given to selecting the proper equipment to go with the spray-on material selected. This will be an early trade that should be focused on quite soon so it is resolved in timely fashion.

As a side note here, I would like to suggest that everyone in the Cencon office become familiar with a very simple principle known as Pareto's Law, sometimes called the Law of the Vital Few. This rule simply stated says that about 20% of the items in a given economic value situation account for about 80% of the total worth. Essentially it says that about 20% of the items on any given job will account for 80% of the cost. The remaining, about 80% of the items that account for 20% of the cost, are called the trivial many. It would be wise to concentrate on the vital few and spend less time on the trivial many to insure true cost savings really are achieved.

Working Drawings

As a part of my work today I reviewed the current progress prints of working drawings and specifications dated June 15, 1976 (working day 117). It appears that these documents are still far from being complete and therefore, the comments below should be taken in that light. It is a matter of importance, however, that the drawings be brought quickly into usable form since there remain only 51 working days until the start of active work on foundations. This 51 working days incidentally is to the late start of foundation work. It would be wise to make a heavy effort to begin correlating the buying-out process with the drawings to insure that what is being bought is properly shown on the working drawings and other contract documents. This will become increasingly important as more and more material commitments are made and the sailings are filled. I recommend immediate attention be given this matter at a high level and with a heavy focus of attention.

A brief review of comments that might be appropriate is given below.

- The structural footings are at the same elevation as the basement floor slab. This matter should be brought continually to the attention of the mechanical and electrical engineers to insure that underground lines are not run close to columns where they cannot be installed or where they might cause footings to have

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to be dropped in the field. The reason for bringing the footings up was obviously to save excavation and to allow the top of the footing to act as a part of the basement floor slab.

- We should make certain that the pool details do not require special devices and equipment difficult to get and install. Pool details should be screened carefully since a swimming pool and its attendant accessories sometimes can cause delivery problems on long lead time items.

- Encasement of columns at the basement appears to be from the floor to 3' above the floor. A note on sheet S2 showing the next floor indicates that the encasement there is to be from the floor to 5' above the floor. This probably is merely an oversight but it should be checked.

- It is noticed that a very large exhaust duct extends around the perimeter of the basement parking areas. It appears that bumpers are placed so that cars will stop short of the duct. However, clearances should be checked carefully since this particular duct work would be susceptible to damage.

- At the toilet rooms the exhaust runs seem to be quite long and discharge onto the balcony areas. I suggest this matter be reviewed for possible shortening of the runs and relocation.

- It will be necessary to carefully define what will be given to the tenants in the tenant space. This work is usually called the tenant allowance work and it should be very meticulously described so no misunderstandings as to what is to be included in the basic tenant space are encountered.

- There are many penetrations of risers through rental apartments. It would be wise to locate each of these carefully so risers and vents are not encountered in embarrassing positions.

- It was noticed that there is a floor drain in the utility room of each rental unit. This might be reviewed to see if it is truly necessary.

- Exit requirements from electrical equipment rooms should be checked carefully since occasionally there is a hazardous condition. This is primarily a code and safety matter.

- The use of difficult to get castings and special extrusions and shapes should naturally be avoided. This is especially true since it will be necessary to maintain short turn-around times on shop drawings, fabrication and delivery of special items.

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- Adequate provision must be made for gaining setting access for large equipment at equipment rooms. This is especially true of electrical equipment to be used on this job.

- Elevator door frames, particularly for the concrete elevator shaft, might pose some delivery problems. Details should insure that the shafts can be built and the frames set later, if necessary.

- Any special life safety and support system elements should be taken care of early since they are generally long lead time items. It is understood that the contractor presently working on the hospital will probably install these and therefore, it may not pose any difficulty.

- At the lobby area on the ground floor there is little in the way of amenities such as toilet facilities. It might be proper to consider occupancy of this space and what,if there are full time occupants, will be needed for their convenience.

- Furring strips at party wall beams are shown with a spray-on detail at the bottom. Since studs may not be available at as early a date as spray-on is going on, this detail should be reviewed to see if it can be shown so spray-on material can be applied at a convenient and appropriate date.

- It might be proper to insure that offset outlets are used in party walls. This is, of course, to reduce noise transmission.

- Will we have to have door frames on the job at the same time studs are being erected? Door frames are sometimes difficult to get quickly and we should give this matter special attention if it has not been considered to date.

- Will the balcony drainage which is to the outside edge cause difficulty with water leakage and staining of stoneshenge panels?

- What material is to be used for exterior balcony soffits? Is it the same as the inside ceiling materials or is it a weather resistant material?

- Will noise be a problem at the underside of the penthouse equipment rooms? It is noted that equipment bolts are to be anchored directly into the slab. Will this cause any noise transmission problem?

- Will we have any delivery difficulties with special items such as louvers and louver frames?

- Is the elevator contractor aware of the need to sink the hydraulic shaft in hard sub-grade material?

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- I suggest that Mr. Perry Marshall be given updated progress prints concurrently with receipt in the Charlotte office. This will allow him to mark up, comment, and become familiar with the job progressively as working drawings and specifications proceed.

- Of importance is to very quickly insure that the working drawings are being brought into concurrence with the buying out of various items. This is absolutely critical to job success.

Punching Out and Turnover Procedures

Very briefly we discussed the necessary punching out and turnover procedures if sequential occupancy of the buildings is desired. I suggest this matter be given a high priority of discussion attention in the near future to insure that all aspects of owner occupancy are covered. Turnover is normally an area in which a large share of the profit on a good job can be lost. This should not happen here.

Future Network Planning

In the near future we should plan to diagram each tower in more detail, if appropriate. I shall discuss this with the Concon staff.

Ralph J. Stephenson, P.E.

RJS/m

To: Mr. Neil McConnell (Orig. & 2 copies)
Concon Products