RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

August 17, 1977

Subject: Monitoring Report #1

Senior Citizen Housing, Port Huron, Michigan

Project: 77:51

Date of Monitoring: August 17, 1977 (working day 161)

Monitored from Issue #1 dated July 15, 1977

Approximate starting date: May 23, 1977 (working day 101)

Approximate Target Completion Date: (18 months from signing of contract)
mid November, 1978

Actions taken:

- Inspected project
- Conferred with Mr. Ed Beebe, field superintendent re job progress
- Evaluated current job status

General Summary

As of August 17, 1977, (working day 161) most back fill is in place at the first floor, as many underground utilities as can be placed presently are in at the west wing, all foundation walls are installed and forming is well along for the supporting columns and walls at the first floor. Present work is being concentrated on the south and west bearing walls of the structure.

Progress on above grade wall has been quite slow due to the difficult nature of the form work and the curved rebar. It appears at present that the job may be as much as 12 to 18 working days behind the anticipated Issue #1 plan of work, primarily in construction of first floor walls and columns.

It is presently expected to receive precast on the job about September 12, 1977 (working day 178) and to be able to start up with bearing masonry from the second to third floor in the west wing by September 15, 1977

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(working day 181).

Masonry was originally due to began at the west second floor no later than August 23, 1977 (working day 165). It will be critical to pick up as much time as possible over the next three months since this is the optimum weather period for erecting outside masonry and precast floors.

It is intended that the two wings of the building, the west and north, will proceed independently of each other moving up at about the same pace. Presently, it is expected that the bearing masonry cycle will take approximately 8 days per wing per floor with erecting and grouting the precast deck taking three days per floor per wing.

As much masonry as possible must be erected prior to the onset of cold weather because in a building of this type it is next to impossible to protect masonry erection operations on exposed walls.

Presently, precast is being fabricated and it is expected to cast in as many sleeves as possible at the plant. This will minimize core drilling on the site as risers are installed. The core drilling is particularly desirable to avoid since it is sometime a wet operation and in the winter it becomes a very difficult tool to do properly.

It is also important to attempt wherever possible to test piping systems from floor to floor or possibly in floor pairs. Essentially it is undesirable to have to wait for an entire piping system to be complete at all floors prior to testing. The reason for this is that sometime it is essential to began close-in of vertical shafts prior to completing the entire structure of the building. This matter is presently under study in the field.

It was our intent originally to continue diagraming interior work at the upper floors at this session, however, since the field sequence is just being worked out now and there are still some difficulties that have to be overcome, it was decided to concentrate on monitoring only.

I shall be in touch with Mr. Martinek regarding our next meeting.

Ralph J. Stephenson, P.E.

RJS
lrm

To: Mr. L.R. Martinek

RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

September 29, 1977

Subject: Monitoring Report #2

Senior Citizens Housing, Port Huron, Michigan

Project: 77:51

Date of Monitoring: September 23, 1977 (working day 187)

Monitored from Issue #1 dated July 15, 1977

Approximate starting date: May 23, 1977 (working day 101)

Approximate target completion date: Mid-November 1978

Actions taken:

- Conferred with project team re job progress
- Evaluated current job status
- Updated Issue #1 network to Issue #2, September 23, 1977 (working day 187)

General Summary:

As of September 23, 1977 (working day 187) first floor walls and columns are complete in the west wing and about one third done in the north wing. Precast is to be delivered to the job site for the west wing by September 29, 1977 (working day 191).

A major share of our discussion today concerned how to complete the west wing between now and the onset of cold weather so as to have a fully closed in building in which to work over the winter. It was finally decided that it would be advantageous to consider reductions in the precast grouting time by using only the squeeged-in grout on the first pass, and then come back at a later date and install the remainder of the floor finish. This, it was estimated, could save as much as 2 days per floor.

Masonry on the west wing was given much serious consideration and if Saturday work is considered, along with the possibility of crewing up immediately, we felt that the masonry from the second floor on up could be done in about 7 working days per floor. This gives a cycle time of 9 working days for a total of approximately 56 working days, bringing completion of west roof precast to December 19, 1977 (working day 247). This is within working range of masonry relative to winter weather and will provide a complete unit at the west wing which could be roofed and in which rough and perhaps even interior finish work could be carried out throughout the winter. Undoubtedly temporary heat will be needed, although once the west wing is

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closed in, the allowance clause in the specification should allow temporary heat to be provided from units set on the individual floors. In any event, it is a distinct advantage to get this section of the building up and enclosed by the end of the year.

Sash will be arriving on the job next month so this closing in element will be available for installation at the appropriate time.

On the north wing, there are about 17 more working days before the building is ready for work at the second floor structural deck. Precast is expected to start there by October 21, 1977 (working day 207) and be complete, if weather allows, by January 13, 1978 (working day 264). It is understood, however, that quite possibly the upper two floors of the north wing might not be able to be completed continuously due to the difficulty of cold weather operations. This will be evaluated once some experience has been gained in the field on erection of masonry and precast.

In any event, the critical element is to insure that the west wing be completed as a unit to close-in.

To arrive at the above decisions, we consulted several of those people actually involved directly in the job and although there is some concern that the plan will be difficult to meet, everyone agreed to work to that end. Achieving closing in of the west wing by early January will require careful attention and excellent cooperation among all concerned.

We did not follow up on other work at the present time except to simulate what would happen if the north wing precast was erected by January 13, 1978 (working day 264). If this is the case and the crews are able to carry on the remaining close-in work, it is possible that the north wing would be closed in by the end of February or early March. This would also be desirable but again, is less probable than early closing in of the west wing.

The current lag on the project is about 29 working days compared to our Issue #1 network dated July 15, 1977. Construction of the second floor framing system has proven more difficult than anticipated and is one of the reasons for the delay. However, if procedures can be followed out as noted above, it is possible that a portion of this current lag will be picked up and considerable time gained by allowing work to proceed in the interior of the building throughout the entire winter.

I shall plan to review the job again shortly and will be in touch with Mr. Martinek to set the date firm.

Ralph J. Stephenson, P.E.

RJS
m

To: Mr. L. R. Martinek

RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

October 28, 1977

Subject: Monitoring Report #3

Senior Citizens Housing, Port Huron, Michigan

Project: 77:51

Date of Monitoring: October 24, 1977 (working day 208)

Monitored from Issue #2 dated September 23, 1977

Approximate starting date: May 23, 1977 (working day 101)

Approximate target completion date: Mid-November 1978

Notice to proceed 5/2/77
5/19/77 ( ) (BL)
86
+ 376
462 10/23/78

Actions taken:

- Inspected project
- Continued evaluation of close-in operations
- Continued diagramming on typical floor interior work

Note: No revisions were made to the network diagram although annotations were made on tracings, 1 and 2, therefore, these were given an Issue #3 number without changing actual calculations on the diagram.

General Summary

As of October 24, 1977 (working day 208) precast deck is being erected at the second floor of the north wing and has been erected at the second floor in the west wing. West wing masonry is erected to the third floor and precast will be erected there probably on October 25, 1977 (working day 209) or October 26, 1977 (working day 210).

Precast at the third floor west wing was due to be erected starting October 12, 1977 (working day 200) and thus, the west wing lag is currently 9 or 10 working days.

Second floor precast at the north wing was due to be erected starting October 21, 1977 (working day 207), thus, the lag there is one working day.

The reason for the long lag at the west wing is that a special reglet which had to be built into the masonry at the canopy was not available when needed. It took several days to get it on the job and this was almost directly accountable for the delay to masonry.

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As part of our work today we discussed how we might recapture a portion of the current lag. It appears it would be desirable to work masons at least one or two Saturdays to see if time can be picked up. It has been established that the cycle times shown - 7 days for masonry and 2 days for precast at the west wing and 9 days for masonry and 2 days for precast at the north wing - are acceptable. We now must find some way to insure that with the cycle we will get as much work done before cold weather as possible. If week end work is going to be used, it should be started immediately since there are only about 5 week ends remaining until cold weather will be upon us.

As part of our monitoring, we discussed the overall sequence with the masonry foreman and clarified that it was expected both wings will be built concurrently. Thus, masonry at the north wing will be erected as soon as the precast deck from which it is based is installed and masonry at the north wing will be erected in the same manner as soon as north precast decks are available, both wings independent of each other. This is very important since apparently a misunderstanding had been generated about constructing the north wing. It is essential to move both wings up concurrently since total close-in of the building will depend upon them both being to the roof level.

We are still aiming to have the building closed in by late February 1978 and be able to begin our interior finish work shortly after as a protected and heated interior is available. This means that risers and run-out for exhaust ducts, plumbing and piping, rough electrical work, heating supply and return and sprinkler must be installed on the floor just as quickly as possible after the deck is erected. Again, it will also be important to provide means by which these lines can be tested as the building goes up so drywall at the ceilings and on walls can be installed immediately upon close-in.

If we can maintain a close-in pdnt of late February or very early March, there is still a good chance that the project can be completed at the upper floors by the present target completion date.

It should be pointed out that a very critical element of the job is completion of finish work at the first floor. This work will depend to a large extent upon the interior layout of the first floor. Presently this layout has not been firmed up although negotiations are proceeding with prospective tenants.

Another element of concern deals with the shortage of some key construction materials that will be needed in relatively early phases of the work. One of these is roof insulation and it might be wise to find an on-site storage area for insulation that can be locked and protected from weather; one that would allow the roofer to bring it on the job early to insure it being here when it is needed.

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In summary, the project currently lags by about 9 working days over the Issue #2 network dated September 23, 1977. This lag is basically in erection of masonry and precast at the west unit. The lag at the north unit is about 1 working day and apparently the cycle at the north unit is such that progress there can be maintained as planned in Issue #2. It was decided that every effort will be made to pick up as many days as possible on the west wing perhaps by working some Saturday or overtime work to reduce the total masonry cycle time at the west wing.

We continued planning the interior finish work for the building. Probably by the end of the next session we should have enough information available so it would be wise to discuss the interior finish diagrams with the specialty contractors involved.

I shall be in touch with Mr. Martinek regarding our next monitoring session.

Ralph J. Stephenson, P.E.

RJS
m

To: Mr. L. R. Martinek

RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

December 21, 1977

Subject: Monitoring Report #4

Senior Citizens Housing, Port Huron, Michigan

Project: 77:51

Date of Monitoring: December 19, 1977 (working day 247)

Monitored from Issue #3 dated October 24, 1977

Note: The calculations for Issues 3 and 4 are still being used from the Issue 2 analysis made on September 23, 1977. Changes to the network tracings in Issues 3 and 4 are notes to assist in evaluating project progress.

Date of notice to proceed: May 2, 1977 (working day 86)

Approximate starting date in field: May 19, 1977 (working day 99)

Number of days to completion: 540 calendar days or 376 working days

Contract target completion date: October 23, 1978 (working day 462)

Note: This information is updated from previous monitoring reports

Actions taken:

- Inspected project
- Conferred with Mr. Martinek and Mr. Ed Beebe, field superintendent re job progress
- Evaluated job status

Note: No revisions were made to the network diagram except for annotations made on tracings 1 and 2. These were given an Issue #4 number without changing calculations on the diagram.

General Summary

As of December 19, 1977 (working day 247) precast deck has been erected at the second, third, fourth and fifth floors in the west wing. Masonry is currently being erected from 5 to 6 with precast there due to be set at the sixth floor sometime this week. The current lag at the fifth floor is approximately 23 working days over the Issue #2 network dated September 23, 1977.

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At the north wing, precast has been erected at the second and third floors with masonry complete from 3 to 4 and precast due on the job tomorrow, December 20, 1977 (working day 248). The lag at the north wing is approximately 19 working days.

The major cause of the lags has been the very difficult weather over the past month. In one week recently, the full week was lost to weather delays.

Projecting from this lag, it appears presently that if we have fair weather from here on, we could have the building closed in sometime about the end of March. Allowing about 7 months to complete the facility from close-in (150 working days) brings completion of the job to early or mid-November. This is the target being used for field completion. It is based upon, as noted above, good weather holding in long enough spells so that masonry and precast erection can proceed for several days consecutively.

This is not totally unreasonable since there are warm spells that do occur during the winter season. Heavy snows, of course, and sub-freezing weather may cause work to stop. The problem in a facility of this type is that it is difficult and sometimes impossible to protect the masonry as it would be normally in a framed building. Therefore, heating the space in which masonry is being erected is not feasible.

We decided at this session to defer further planning on interior work until our next monitoring and at that time hopefully we will have a better picture of the total close-in point.

I shall be in touch with Mr. Martinek regarding the date of our next session shortly.

Ralph J. Stephenson, P.E.

RJS/m

To: Mr. L. R. Martinek

RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

June 12, 1978

Subject: Monitoring Report #5

Senior Citizens Housing, Port Huron, Michigan

Project: 77:51

Date of Monitoring: June 8, 1978 (working day 367)

Monitored from Issue #4 dated December 19, 1977

Note: The network was updated to Issue #5 June 8, 1978 and close-in calculations redone. These are indicated by being circled on sheets 1 and 2.

Date of notice to proceed: May 2, 1977 (working day 86)

Approximate starting date in field: May 19, 1977 (working day 99)

Number of days to completion: 95 working days.

462
367
95

Contract target completion date: October 23, 1978 (working day 462)

Note: The contract target completion date will probably have to be revised due to the current lag on the project

Actions taken:

- Inspected project
- Conferred with Mr. Martinek, Mr. Beebe and Mr. Davis re job progress
- Evaluated current job status
- Continued diagramming interior finish work

General Summary

As of June 8, 1978 (working day 367) all precast deck has been erected with the exception of some minor roofs. Masonry is being completed at the 7th floor of the north wing, structural steel and metal deck have been erected

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at the north wing and the west wing is presently ready for roofing. Studs have been installed at the second floor, west and north wings. At the third floor runners have been installed at the floor and ceiling with studs just beginning in the west tower.

In-wall work has proceeded well at the second floor but has not yet begun at the third.

The present intent is to start roofing on June 20, 1978 (working day 375) at the west wing and then to move directly to the north wing. It is expected that roofing will be substantially completed by July 12, 1978 (working day 390). Meanwhile wall board will be arriving on the job June 20, 1978 (working day 375) and Mr. Beebe estimates the building will be dried in well enough to start hanging board by July 5, 1978 (working day 385).

Using our previous assumptions of 70 working days to finish a floor from the time board work begins, and assuming a floor turnover every 15 working days, brings the new projected completion to 145 working days from the start of board work or to January 30, 1979 (working day 530).

Efforts will be made to shorten the amount of time it takes to complete one floor and more importantly to reduce the turnover cycle. However, for present estimating purposes regarding completion dates, it is best to be on the conservative side.

We began reviewing again in detail the interior work needed for each floor. However, for several reasons we were not able to complete the work today since there was no current information available. We shall work on this again at our next session.

One matter discussed in detail at our planning session was when caulking and topping should be applied to the precast. No topping has yet begun on precast and it will be necessary to install a 3/8" epoxy finish. There has been some discussion that this finish would be applied after board was hung and prior to taping and sanding. However, there are several concerns about this sequence. First, the topping is a wet trade and could possibly damage the board. Second, the building will be cut up into extremely small spaces and therefore, continuity of installation of the topping will be severely hampered. Also, it was generally felt better practice to install wall systems off of the topping, particularly where stud and board walls are used. Mr. Martinek will be in touch with the contractor responsible for installing the topping and discuss this in detail with him. In

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CONSULTING ENGINEER

addition, before painting and fixturing can begin, the precast joints at ceilings must be caulked. This will begin after the roofing is on.

Efforts are now being made to complete work at the 7th floor of the north wing. This is going to be a complex area to close in since there are many special details. Thus, it probably would be wise to review how temporary closures can be provided to make the building weather-tight and allow work to proceed at the lower floors on interior finish trades.

Sash at the upper floors is almost completely erected in the west wing and probably will be starting in the north wing as soon as rough exterior operations on the building have been substantially completed. At that time it will also be possible to install sash at the first floor in both the west and north wings. No first floor information is available yet regarding the use of the rental spaces. Thus, the floors there have not been poured except at toilet rooms, service areas and in the elevator lobby and equipment rooms. Elevator rails are being installed as the structure is taken up and a working platform has been installed in the shafts so that immediately upon close-in the elevator contractor can complete his rail work and begin installing the elevator.

I strongly recommend that the project be monitored again sometime within the next four to eight weeks. I shall be in touch with Mr. Martinek regarding this matter.

Ralph J. Stephenson, P.E.

RJS
m

To: Mr. L. R. Martinek

RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

October 13, 1978

Subject: Monitoring Report #6

Senior Citizens Housing, Port Huron, Michigan

Project: 77:51

Date of Monitoring: September 25, 1978 (working day 442)

Monitored from Issue #5 dated June 8, 1978 (working day 367)

Date of notice to proceed: May 2, 1977 (working day 86)

Approximate starting date in field: May 19, 1977 (working day 99)

Contract target completion date: October 23, 1978 (working day 462)

Number of days to contract target completion date: 20

Note: The contract target completion date will be revised. Actual projected completions are discussed in the report below.

Actions taken:

- Inspected project
- Conferred with Mr. Martinek, Mr. Beebe and Mr. Davis re job progress
- Evaluated current job status
- Continued diagramming typical interior floor finish work

General Summary

As of September 25, 1978 (working day 442) roofing has been installed except at the canopies; glazing is well along up to the 7th floor; 1st and 7th floor sash is presently being installed and textured exterior panel work is in progress. At this time closing in of the project is not delaying interior work on finish trades.

In all likelihood, completion of close-in will be done in adequate time to allow all interior finish work to proceed without breaking continuity once it develops a floor to floor sequence.

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CONSULTING ENGINEER

Site work is moving relatively well and paving is anticipated to begin in the near future. The intent is to complete all exterior work on paving and site work prior to the onset of cold weather to be available for occupancy of the project next spring.

At the floors board has been hung and much of it taped and sanded at the second floor; at the third floor board is almost completely hung with taping and sanding in work. At the 4th floor, a portion of the board has been hung and some taping and sanding has started; insulation is being installed on corridor walls. At the 5th floor board is being hung and no insulation work has started as yet.

As part of our monitoring, we completed preparation and analysis of the typical floor interior work diagram. It appears that from start of installing and connecting bath tubs to the cleanup and move-out point on a floor is about 48 working days. We applied these projections to each floor and compared it to an alternate completion projection assuming a turnover cycle for each floor of 15 working days. The turnover cycle analysis is the more conservative of the two and also probably most accurate since work on the project will have to proceed from floor to floor.

The turnover schedule discussed below is based upon completing a floor 15 working days or three weeks after the floor below has been completed. With the present analysis, it appears that the second floor could be finished in approximately 33 working days from September 25, 1978 (working day 442). This brings projected completion of the second floor to November 9, 1978 (working day 475). A tabulation of the following expected completion dates is given below beginning from the second floor.

Complete second floor	-	November 9, 1978 (W/D 475)
Complete third floor	-	December 1, 1978 (W/D 490)
Complete fourth floor	-	December 22, 1978 (W/D 505)
Complete fifth floor	-	January 16, 1979 (W/D 520)
Complete sixth floor	-	February 6, 1979 (W/D 535)
Complete seventh floor	-	February 27, 1979 (W/D 550)

Thus, it appears probable that by early March 1979 we should be able to complete and turn over the entire project. There is some concern that this is too rapid a turnover cycle; however, it is my recommendation that we work to this plan and evaluate on an ongoing basis how closely we

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are adhering to it. It is certainly reasonable and in a project of this type the 15 working day turnover is within achievable limits.

Mr. Martinek, Mr. Davis and I discussed the above analysis and it was agreed it would be the current goal to attain.

I shall be in touch with Mr. Martinek shortly to set the next monitoring review.

Ralph J. Stephenson, P.E.

RJS
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To: Mr. L. R. Martinek