

RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

February 16, 1981

Subject: Monitoring Report #1
Office Building
State of Michigan
Flint, Michigan
R.N. West - general contractors

Project: 80:60

State of Michigan account number: #110-07-2799-083

Date of Monitoring: February 10, 1981 (working day 284)

Contract completion: June, 1982

Approximate start of field construction: December 9, 1980
(working day 241)

Monitored from Issue #4, dated February 10, 1981 (working day 284)

Actions taken:

- Reviewed network model for close in
- Continued diagramming interior finish work
- Checked mechanical and electrical durations with electrical and mechanical contractors

General Summary

As of February 10, 1981 (working day 284) pile driving is nearing completion and should be finished within the next five working days. Our current target for completing pile driving is February 16, 1981 (working day 288) and it is possible that this work will be completed by then.

Meanwhile, work continues on filling piling with concrete and constructing pile caps. The weather has recently turned very bad for field operations. Therefore, this operation is moving somewhat slower than had been hoped. However, work on piers and grade beams is just getting under way, and currently this work is meeting targets

between early and late starts measured against the network model Issue #3 dated January 26, 1981 (working day 267).

We are still planning for a start of structural steel field erection on April 6, 1981 (working day 323). I strongly recommend that a constant check be made of the fabricator to insure that work in the shop is progressing on schedule.

At earlier sessions we tabulated the turnaround time anticipated for processing shop drawings. These times are shown on sheet P-1 Issue #3, dated January 16, 1981 (working day 267). Turnaround times expected are:

- For normal processing, architect in-house - 26 working days
- For expedited processing, architect in-house - 18 working days
- For super-expedited processing, architect in-house - 9 working days
- For normal processing, consultant check - 28 working days
- For expedited processing, consultant check - 20 working days
- For super-expedited processing, consultant check - 10 working days

So far there has been no major problem with shop drawing processing although as the submittal tempo picks up and the volume of drawings to be reviewed and approved increases, turnaround times on shop drawings will become critical. Also to be watched is that submittals are made promptly so that timely processing of the shop drawings can be obtained. We have to this point identified on sheet P-1 only the major early items that are to be obtained. At subsequent monitoring sessions I suggest that we complete planning major procurement including such normally difficult elements to get as hollow metal frames, mechanical and electrical equipment, elevator sash and glass, special store front materials, revolving doors, and color and finish approvals on all materials, particularly hard tile. There are many other procurement items, of course, and we will isolate and concentrate on these as the project proceeds.

Our session focused today on completing the plan of work for interior trades, and we were able to determine that the project will move from the 2nd floor to the 7th on rough interior work including sheet metal, mechanical piping, sprinkler piping, and above ceiling electrical work. We

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also presently plan to move finish trades after the building is closed in up from the 2nd to the 7th floor. Work at the 1st floor is presently planned to be carried out concurrently with that of the upper floors. Work at the 1st floor is in many cases special and therefore will be ongoing.

Present plans are to have the building totally closed to weather by November 18, 1981 (working day 482). However, the roof is expected to be complete by November 12, 1981 (working day 478) and since some sash will be in at the upper floors finish trades could begin at that point. Plans are to complete the interior work at upper floors on a 15-working days turnover cycle. This means that once the 2nd floor is completed the third floor will be finished 15 working days later and on up. The network model Issue #4, dated February 10, 1981 (working day 284) shows the following tentative schedule of completion dates for each floor through cleanup and move out. Any subsequent work required must be added to these dates:

- 2nd floor - February 3, 1982 (working day 534)
- 3rd floor - February 24, 1982 (working day 549)
- 4th floor - March 17, 1982 (working day 564)
- 5th floor - April 7, 1982 (working day 579)
- 6th floor - April 28, 1982 (working day 594)
- 7th floor - May 19, 1982 (working day 609)

It is expected to complete the 1st floor on an ongoing basis as upper floor work proceeds, and we have set the date for its completion at a late finish the same as the 7th floor completion, May 19, 1982 (working day 609). Since building work is now finishing from the 2nd up through the 7th floor and work on the 1st floor will continue on out to completion of the 7th in all likelihood occupancy plans for the facility should consider that the building will not be available for tenant occupancy until full completion in late May or early June, 1982. This matter may be discussed further but presently no partial occupancy is considered in the planning of the facility.

We have now completed preparing the basic rough network model for the project although there still remains some items that are to be added to the network when more information is available. These include:

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- First floor exterior slab work (this has been held until later since the method of installing the slab has not yet been established)
- Store front and entries at the 1st floor will be planned when the process of installing the exterior slab work at the 1st floor has been determined
- Landscaping will be planned at a later date.
- Flag pole installation will be diagrammed along with installation of first floor exterior work.
- Special lighting standards and telephone standards will be incorporated into the diagram as the project is monitored and deliveries are determined.

I shall now have the network model drafted into final form, nodes numbered and the appropriate computer runs prepared. We shall plan to monitor the project on a regular basis and I shall maintain contact with Mr. Doug West to set future monitoring sessions. At each monitoring we should also plan to add additional information to the diagram as required by current conditions. Meanwhile, the manual computations on sheets #3 through #9 have been made and the sepias were sent to Mr. West for further reproduction and distribution.

I shall be in touch with Mr. West shortly to set the next monitoring and planning session.

Ralph J. Stephenson, P.E.

RJS:sps

To: Mr. Doug West
(original and one)

*Ernie Nurni
Bob McComb*

RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

April 3, 1981

Subject: Monitoring Report #2
Office Building
State of Michigan
Flint, Michigan
R.N. West - general contractor

Project: 80:60

State of Michigan account number: #110-07-2799-083

Date of Monitoring: March 23, 1981 (working day 313)

Contract completion: June, 1982

Approximate start of field construction: December 9, 1981
(working day 241)

Monitored from Issue #4, dated February 10, 1981 (working day 284)

Actions taken:

- Reviewed current network model with Mr. Doug West, Mr. Robert West, and Mr. Robert McComb
- Inspected project
- Evaluated current job status

General Summary

As of March 23, 1981 (working day 313), necessary foundation work for start of structural steel is well along with about another ten working days being required to bring it to a point where steel could be erected. It is desired to complete as much of this foundation work as possible prior to erection of steel but in any event present plans are to be ready to receive the first delivery of steel presently scheduled for arrival on the job site April 6, 1981 (working day 323).

There was some discussion at our session about the actual delivery expected of structural steel but we are holding an April 6, 1981 (working day 323) start date. It also is the intent to erect steel floor by floor so that a total floor area will be available for construction of the concrete floor deck.

At our review of the job on March 23, 1981 (working day 313) we added tasks to the Issue #4 network, dated February 10,

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1981 (working day 284). These will be incorporated into the Issue #5 network, dated March 23, 1981 (working day 313) for which the computer run is presently being prepared. It is the intent now to issue this drafted network along with the computer run sometime in the near future. Presently all concerned have rough updated copies of the Issue #4 network and are working from it.

At our session on March 23, 1981 (working day 313) we also began planning for the exterior work at the 1st floor including the slabs on grade, the above ceiling work and the metal slat ceilings. This plan was not issued at our session since there still remains considerable work to add to it. We shall plan to work on it at subsequent monitoring sessions and incorporate remaining work as a better handle is obtained on deliveries and installation. We, as yet, have not completed any additional detail work on procurement, and I recommend that at a near future session we identify all potentially difficult to acquire, long lead time items particularly for close in and interior finish work and incorporate them into the network model.

So far as close in and floor interior work completions, we are maintaining the target dates outlined on page 3 of Monitoring Report #1, dated February 16, 1981. The critical operation is still start of structural steel and every effort must be maintained to begin this work by April 6, 1981 (working day 323). Arrangements have been made with the city to acquire structural steel erection space on Harrison, and all efforts presently at the site are centered on getting ready to receive the first load of structural steel.

I shall be in touch with Mr. West shortly to set the next planning session. We will probably be meeting for half day periods for the next few sessions and be devoting a portion of the meeting to continuing the planning of the remaining items of work. The rest of the time will be spent in inspecting the project at the job site and monitoring progress against the current network model.

Ralph J. Stephenson, P.E.

RJS:sps

cc: Mr. Doug West
(original and one)

RALPH J. STEPHENSON, P.E.
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June 9, 1981

Subject: Monitoring Report #3
Office Building
State of Michigan
Flint, Michigan
R.N. West - general contractor

Project: 80:60

State of Michigan account number: #110-07-2799-083

Date of Monitoring: June 3, 1981 (working day 364)

Contract completion date: June, 1982

Approximate start of field construction: December 9, 1981
(working day 241)

Monitored from Issue #5, dated March 23, 1981 (working day 313)

(Note: The computer run that was issued with the network model refers to Issue #4, dated March 28, 1981. Please revise this reference on your computer runs to Issue #5, dated March 23, 1981 (working day 313).

Actions taken:

- Inspected project
- Reviewed job status with Mr. Ernie Nurmi and Mr. Bob McComb
- Evaluated current project status
- Color coded networks
- Reviewed computer run use with Mr. Nurmi and Mr. McComb

General Summary

As of June 3, 1981 (working day 364) the plumbers are still on strike in Flint. The strike started May 1, 1981 (working day 342), and there is no current word on when it might be over, although there has been some discussion that it could extend on to mid-July, 1981. The importance of this strike relative to office building work is that no underground plumbing has been started at the first floor. This affects the floor slab on grade and to a certain extent the masonry

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foundations. At the upper floors the strike related problems become more serious because we will soon be ready to set in floor work (IFW) at the 2nd floor. The plumbers strike might make it difficult to properly chase or sleeve the floor as needed prior to floor pours.

Structural steel for the entire building has been raised and is bolted through the 5th floor. Detailing is now being done at the 3rd, 4th, 5th, 6th, and 7th floors and roof. The erection crane is being dismantled and probably will be off the site today or tomorrow. There is a sizable amount of detailing still to do, and it is probable that as much as a month remains before the steel frame can be considered completed.

Presently metal deck has been completely erected at the second and is nearly complete at the 3rd floor. Deck erection is just starting at the 4th floor and steel detailing presently is not restraining this work.

Ongoing deck fabrication has encountered serious problems and at present one of the major delaying items is a need to field cut holes for electrical outlet inserts. There are large numbers of inserts to be set at each floor and provision for a portion of these was not made in shop fabrication. At the 2nd floor the electrical inserts are just now being set with about 1/2 of one bay being completed. Header duct is to be shipped soon and should be available within the next few days. It appears presently we are as much as 15 working days from making the first pour on the 2nd floor deck. It is possible, if installation work proceeds well once material arrives, that this time could be compressed. However, for the current analysis we will use the 15 working day projection. This first pour at the 2nd floor was due to have been completed by June 9, 1981 (working day 368). Assuming it will be three weeks before we can make the first pour brings the date to June 24, 1981 (working day 379). This is a lag of approximately eleven working days.

The difficulty is that there is a sizable amount of work to be done on each floor on installing metal deck, header duct, inserts, shear studs, and conduit before a pour can be made. Our time allocations in the network model have been tight, but it is going to be essential that we begin picking up time particularly in the early floor pours at the 2nd, 3rd, and possibly 4th floors. These early floor pours must be made just as soon as possible so as to allow trades that follow floor decks to begin. Of special importance are spray on fireproofing, exterior studs and one side of the exterior board, followed by exterior masonry.

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At the 2nd floor spray on fireproofing was due to begin June 26, 1981 (working day 381). Exterior studs and one side of the board was due to begin July 7, 1981 (working day 387) with exterior masonry projected to begin at the 2nd floor on July 17, 1981 (working day 395). The masonry dates are particularly important to meet since the present desire is to complete all exterior masonry prior to the onset of cold, inclement winter weather.

It is possible that these dates can still be met but it will mean continuous expediting of deliveries and paying careful attention to getting early deck pours made.

In summary, the present lags on the project stem from a wide spread in the physical location of the steel detailing crews, fabrication and some erection problems with metal deck, and delivery of header duct, and its consequent installation. Another item that must be watched carefully will be shear studs. Shear stud installation traditionally is a slow process.

It would be wise to discuss with all contractors involved methods by which time can be picked up now on the small lags that presently exist.

At our session I reviewed with Mr. Nurmi, and Mr. McComb, techniques of monitoring the project from the early start, late start, and late finish computer sequences. I also color coded my record set and Mr. Nurmi's record set. These will be used at Mr. Nurmi's discretion as the basis of job discussions at the construction meetings.

In the near future I suggest we carefully evaluate all critical deliveries expected and needed within the next six to eight months and shall be in touch with Mr. West shortly to set the next planning and monitoring session.

Ralph J. Stephenson, P.E.

RJS:eps

To: Mr. Doug West
(original and one)

November 24, 1981

Subject: Monitoring Report #4
Office Building
State of Michigan
Flint, Michigan
R.N. West - general contractor

Project: 80:60

Date of Monitoring: November 19, 1981 (working day 483)

State of Michigan account number: #110-07-2799-083

Desired target completion by West - May 19, 1982 (working day 609)

Working days to completion date desired by West - 126 working days

Contract completion date: June, 1982

Approximate start of field construction: December 9, 1981
(working day 241)

Monitored from Issue #5, dated March 23, 1981 (working day 313)

Actions taken:

- Inspected project
- Reviewed current status with Mr. Ernie Nurmi and Mr. Bob McComb
- Evaluated current project status
- Color coded networks

General Summary

As of November 19, 1981 (working day 483) exterior masonry is nearly complete, exterior sash is about 80% complete, and the building is nearly closed in vertically. The major problem at present is start of roofing. The roofer has not been able to start due to various reasons dealing with insulation thickness; however, it appears now that the roofer will be on the job November 20, 1981 (working day 484) or Monday, November 23, 1981 (working day 485) to begin active work.

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The weather is now turning very bad and unfortunately installing the roof will depend to some extent upon having good weather in which to lay the materials. Roofing is presently very critical and could delay finish work particularly at upper floors.

There has been some thought of finishing the project from the top down instead of from the 2nd floor on up through the 7th as is planned at present. I suggest this matter be looked at very carefully and serious thought be given to maintaining the present sequence from the bottom since it appears that the lower floors presently are drier and somewhat further along in rough work restraining finish work than at the upper floors. This matter should be considered soon, and a decision made immediately since the trades are now gearing up for installation of interior work particularly gyp board.

Another element of concern is heat in the building. In order to properly install gyp board it will be necessary to provide warmer temperatures than are presently being encountered outside. There is some question as to whether the lower temperatures will affect hanging the board or taping and sanding. In any event, heat will be needed in the building shortly, and strong efforts must be made to get the building dried and warm.

The major critical interior area to close in is the 1st floor, and efforts are being made there to get the perimeter closed and all of the weather-sensitive work done before a full winter is here. However, it should be pointed out in our network model we have established a late finish at the 1st floor of March 15, 1982 (working day 562). This is somewhat earlier than our target completion date of May 19, 1982 (working day 609). However, as was discussed with Mr. Nurmi and Mr. McComb, allowing any of the floors which now have a staggered turnover sequence of one floor every 15 working days to extend past its current desired late finish means that more and more of the interior finish work will have to be done concurrently. This, in turn, means larger than desired crews and could pose serious manpower difficulties later in the job.

In reviewing procurement with Mr. McComb and Mr. Nurmi there appears to be no major material or equipment problems except for porcelain store front materials. Apparently the supplier is no longer in business and therefore the contract will probably have to be re-let.

Installation of exterior sash and glass still remains to be done in part on every floor. However, by next Monday, November 23, 1981 (working day 485) most trades should be back from hunting and at nearly full strength. Glass and sash work will be picked up then.

A brief review of each floor is given below:

1st floor

The major effort now at the 1st floor is to close the various areas in to weather so finish work can proceed without cold weather delays. Above floor sheet metal duct work is well along as is rough mechanical piping and rough electrical work. Sprinkler piping is just starting at the 1st floor. Stud work is 90 - 95% complete and some board has been hung.

Overall, the key target at the 1st floor to keep in mind is that taping and sanding was due to begin no later than December 28, 1981 (working day 508). This analysis, however, should be tempered with the thought that the late completion shown on 1st floor work is March 15, 1982 (working day 562) which is considerably ahead of the actual completion date of the total facility. However, since the finishes at the 1st floor are more complex than at any of the other floors heavy efforts should be made early particularly during moderate weather to get as much of the interior finish installed as possible.

Work at the loading dock area is moving well, miscellaneous iron is nearly all installed, and the loading dock probably can be put into limited service use shortly. At outside areas, strong efforts are being made to get the perimeter sidewalk slab down and to get all lobby area rough work complete in the event that it is not possible to fully close in the lobby prior to winter. At the lobby the major difficulty is in getting the store front installed, and this, as noted above, may be complicated by the problem with delivery of porcelain-faced metal. Temporary closures may be necessary.

Consideration should be given of the installation of the linear ceilings at the dock and south entry. This linear ceiling is a finish item and is easily damaged. Therefore, careful planning should be done as to when it is best to have it installed to avoid replacement and repairs.

2nd floor

At the second floor sheet metal duct work and other above floor rough trades are in fair condition. Wall studs at the core have been installed and hard ceiling suspension is being put in place. No board has been hung at the perimeter areas of the building on any floor and only core board which is the fire-rated chase material has been installed at other areas. Regular drywall will await tighter closing of the building and probably provision of warmer temperatures inside.

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The target late completion date for the 2nd floor is February 3, 1982 (working day 534).

3rd floor

The target late finish of 3rd floor interior finish work is February 24, 1982 (working day 549). At the 3rd floor, sheet metal duct work is nearly complete as is other above ceiling work except for possibly rough electrical work. There is very little above ceiling electrical work to be installed on any of the floors except at the first and therefore, this work can be put in with very little difficulty at a slightly later date. Studs are well along and some board has been hung at the core areas. Work at the 3rd floor is currently meeting targets between early and late starts and finishes.

4th floor

The target late finish at the 4th floor is March 17, 1982 (working day 564). Above ceiling rough work is well along and studs are partially erected with some board hung. Work at the 3rd floor is currently meeting targets between early and late starts and finishes.

5th floor

The target late finish at five is April 7, 1982 (working day 579). Above ceiling rough work at the 5th floor is well along except for the rough electrical work which is nominal. Wall studs are started and some board has been hung. All interior work at the 5th floor is currently meeting targets between early and late starts and finishes.

6th floor

The target late completion at the 6th floor is April 28, 1982 (working day 594). Most mechanical piping is complete, sheet metal is about 60% complete, and sprinkler piping is about 90% complete. Some studs have been installed and some interior board surfaces are hung. Work here is currently meeting targets between early and late starts and finishes.

7th floor

The target late finish at the 7th floor is May 18, 1982 (working day 608). Sheet metal duct work is about 60% complete, rough mechanical piping is 70 to 80% complete, and sprinkler piping is about 80% complete. Again, as at other floors wall studs are installed in part at the floor and some board is hung. Interior work at the 7th floor is currently meeting targets between early and late starts and finishes.

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RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

General

Overall, the major delays to the project presently are in close in, most specifically in installation of roofing. If the weather holds fairly good for the next 10 to 15 working days probably the roof can be installed without too much difficulty and this, in turn, will allow much of the interior finish work to begin.

The major trade which must be gotten under way immediately in the interior is drywall at both core and perimeter surfaces. The job is in such position at present that the slight current lags in interior work can be picked up provided close in proceeds rapidly. This includes in addition to the roofing completion of the exterior sash and glazing.

It is imperative that the floors be completed at properly spaced intervals if excessive manpower buildup is to be avoided as the project moves into March and April of next year. Although in most cases a slight amount of float time is available to each floor, encroachment upon this float time brings the project closer to a point where it will be necessary to work on all floors at the same time.

A detailed evaluation was not made at this session of the current status of major equipment rooms. However, in the penthouse it appears that work is moving relatively well. It is felt by the field staff that if the building is closed to weather that a portion of the system can be put into operation immediately to provide nominal heat to the building.

Elevator shaft work is proceeding and rails are in the shafts with cab platforms set in two of the elevators at this time. The major effort now is to get a service elevator in operation for hoisting of interior finish materials.

Overall, the project can be considered in fair condition provided close in proceeds promptly from this point on. I shall be in touch with Mr. West shortly to set the date for the next monitoring.

Ralph J. Stephenson, P.E.

RJS:sps

To: Mr. Doug West

cc: Mr. Robert West

January 10, 1982

Subject: Monitoring Report #5

Office Building

State of Michigan

Flint, Michigan

R.N. West - general contractor

Project: 80:60

Date of Monitoring: January 5, 1982 (working day 513)

State of Michigan account number: #110-07-2799-083

West desired target completion - May 28, 1982 (working day 616)

Working days to completion date desired by West - 103

Contract completion date: Evening of June 30, 1982 (working
day 639)

Working days to contract completion date - 126

Approximate start of field construction: December 9, 1980
(working day 241)

Monitored from Issue #5, dated March 23, 1981 (working day 313)

Actions taken:

- Inspected project
- Reviewed current project status with Mr. Ernie Nurmi,
Mr. Bob West and Mr. Bob McComb
- Evaluated current project status
- Updated network model Issue #5, dated March 23, 1981
(working day 313) to Issue #6, dated January 5, 1982
(working day 513)

General Summary

As of January 5, 1982 (working day 513) the building is substantially closed to weather with the exception of some flashings and roofing trim the permanent heating system was fired up today January 5, 1982 (working day 513), and it will probably take two to four days for the building to be brought up to working temperatures where interior finish trades, particularly drywall, can be installed with ease.

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RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

It is the intent to begin production drywall installation next Monday, January 11, 1982 (working day 517) on the 2nd floor. Concurrently drywall is expected to start at the 1st floor which is the longest floor through to completion in the sequence. Probably 1st floor work will proceed concurrently with upper floor work. The pattern of work on finish trades will be from the 2nd floor to the third to four to five to six to seven. Drywall will start at each succeeding floor about 5 working days after starting at the floor previous.

As part of our work today we updated the network model, reviewing sequences, key durations, and identifying some of the potential problem areas. It has now been decided that we will use a turnover cycle on the floors of 10 working days (two weeks) as compared to the previous network model turnover of 15 working days (3 weeks). A careful review of the major tasks in the diagram indicated that this would be possible though tight. Present plans are to try and meet a target completion date of May 28, 1982 (working day 616) as desired by West Construction. The contract completion date is the evening of June 30, 1982 (working day 639). This allows a 23 working day cushion for the desired target as opposed to contract. Our analysis and updating today indicates it is feasible to meet these targets.

It should be noted that we will be using a late finish at each floor the same as the projected early finish at the floor so as to space trades out and help prevent excessive manpower buildup requirements near the end of the job. At the 1st floor we have set a target late finish date of May 19, 1982 (working day 609) to allow adequate time to clean up and punch out. These dates will be reflected in the updated network to be issued shortly. The process of updating will be preceded by issuance of the rough updated network, calculated manually with working days on early starts and early finishes only. This will be followed shortly after by a full network calculated with early and late starts and finishes shown in calendar dates. A computer run does not appear to be required for the amount of work remaining, and I suggest the network, manually computed should give an adequate standard of performance from which to measure field performance.

There are some problem areas that should be addressed quickly. These are noted below in numbered points for ease of future reference.

1. One of the most important problems facing the project at present is the resolution of material to be used as a cladding for the revolving steel door shell. Originally this material was to be supplied by a contractor in

Michigan who has subsequently gone out of business. Strong efforts have been made by all parties to find an alternate source with little success to date. There is a possibility that a Minnesota supplier might be able to provide such material, and availability is being checked. However, since time is short, it is imperative an answer be found to this very difficult problem immediately.

If we are to assume that it is desired to complete the 1st floor by an early finish of April 28, 1982 (working day 594) and a late finish no later than May 19, 1982 (working day 609) then by checking the amount of time required for field measurements, preparation and submittal of shop drawings, approval of shop drawings, and subsequent fabrication and delivery of material that an answer must be found within the next 10 to 15 working days so the contract can be revised if necessary. It is critical to remember that if any major project change is made it probably will be necessary to issue a bulletin, have the bulletin priced, converted to a change order, after which a contract would have to be awarded. This is a time consuming process and if there is to be a change order issued for this work it will probably not be possible to have the material on the job in adequate time to have it installed before the opening of the building.

Every effort is going to be made to resolve this particular problem but it should be understood that if the material cannot be on the job in time to be installed prior to opening that work may have to extend on past the completion date to insure that these doors are properly protected and covered. Therefore, the matter is urgent to address immediately, and I strongly recommend it be given top priority attention now.

2. Plastic laminate sills are sometimes difficult to procure. Mr. Nurmi does not foresee a problem but he will check.
3. Toilet room partitions - Partitions have been ordered, the color selected, and partitions should be available as needed. This item is always difficult to get in a timely fashion, and it should be remembered that expediting is important to insure they are on the job when needed.
4. There still remain some decisions to make on the hand dryers, basically completion of issue of change order. Since it is expected to begin drywall on a production

basis at the 2nd floor next Monday, January 11, 1982 (working day 517) it becomes very important to release this item so in-wall wiring and blocking can be properly installed.

5. Acoustic tile is on the job but the grid is not apparently yet delivered; however, Mr. Nurmi said that he thinks it is in town and there should be no problem bringing it to the job site.
6. Metal slat ceiling - There is no current word on the location of materials. Since there is only a small amount of metal ceiling on the job it would be wise to insure that it will be available when needed.
7. Light fixtures - About 90% of the light fixtures are said to be on the job site. Steps should be taken to insure that this is the case since once ceiling work begins light fixtures will follow closely behind.
8. The state is to provide carpet to the contractor as required. Delivery will be made in two shipments on order. Therefore, planning should begin now for the dates by which the contractor would like the carpet to arrive.
9. Store front glass is still being awaited from an overseas shipment. It is supposedly on its way to the job site and should be here soon.
10. To completely finish the exterior work it will be necessary to caulk the building. Due to various problems, and to some extent the weather, this work has not been completed. It will have to be given attention because as the building moves to completion it becomes more difficult to gain access to the areas where caulking is required. Also, dampness on exterior walls can be somewhat detrimental to installation of drywall.
11. Elevator work is moving fairly well. Cabs have not yet been started but as the shafts are enclosed and the fireproofing applied, cab work will proceed concurrently.
12. Exterior glass - All exterior glass is not yet installed but it is arriving by bits and pieces. Those openings that are not glazed are protected temporarily with drywall.

A brief review of each floor is given below:

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RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

1st floor

First floor work is probably the most complex of that at any level, and is presently awaiting heat so drywall and other interior trades can proceed. In order for ceiling work to be started at the 1st floor it will also be necessary to complete sprinkler piping which should be able to start up within the next few days. Drywall at the 1st floor probably will start about Tuesday, January 12, 1982 (working day 518) or shortly after.

The target at the 1st floor is to complete it by an early finish of April 28, 1982 (working day 594) with a late finish of May 19, 1982 (working day 609). Because the floor is somewhat complex and access to upper floors will have to be maintained continuously through the 1st floor additional time may be needed at the end of the floor work to final clean up and punch this floor out. Therefore, it is desirable to identify early the pattern for construction access and to keep this corridor separate from areas that are finished.

Work in the truck well is being held generally until better weather but most of the work there now deals with installation of remaining overhead work and metal slat ceiling along with lighting and other ceiling trim work. This work will probably continue on out to near the end of the 1st floor construction.

Of major importance at the 1st floor is to resolve the material to be used at the revolving door closure. This particular problem, as noted above, is very important, and critical to address immediately. It is expected that within the next few days an answer will be found so that whatever revisions are necessary can be made. Also to be watched is delivery of glass, and I suggest that the current location of the shipment be determined immediately.

2nd floor

Drywall work is to begin at the 2nd floor on January 11, 1982 (working day 517) and will then proceed continuously on through the various critical items at the floor. To be noted here is that present critical activities include work at the toilet rooms which means it will be necessary to resolve the hand dryer revision immediately. The sequence followed is generally to hang, tape, and sand drywall after which ceramic tile is installed and then the vanities and plumbing fixtures are put in place followed by toilet partitions and accessories. Since these items are critical it can be seen that an answer is needed now on the hand dryer problem.

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CONSULTING ENGINEER

Current desires are to finish the 2nd floor by early and late finish of March 17, 1982 (working day 564). This date is to be checked by additional calculations but currently appears to be a valid end target.

3rd floor

Drywall is due to start one week later than at the 2nd floor January 18, 1982 (working day 522). However, because of the fact that tasks further on in the diagram require slightly longer than drywall, the turnover cycle at succeeding floors from 2 on through 7 will be maintained at 10 working days. This is compared with the 15-working day turnover cycle assumed in the initial issue. All agreed to try and maintain the 10 working days cycle, and it does appear feasible at this time.

4th floor

Fourth floor work is currently at the same field position as is 2nd and 3rd floors. Drywall is expected to begin there on January 25, 1982 (working day 527).

5th floor

At the 5th floor there still remains some above ceiling sheet metal duct work to be installed and raw stud work. However, there should be no difficulty getting this installation complete and ready for drywall material and hard ceilings.

6th floor

The 6th floor is about at the same position as at the 5th floor with some sheet metal duct work and stud work to be done.

7th floor

Spray on fireproofing is not yet complete at the 7th floor, and Mr. Nurmi expects that the spray on contractor will be back to complete his work about January 11, 1982 (working day 517). Spray on should take 3 or 4 working days to complete at the 7th floor and perhaps another day to complete at the equipment penthouse. This work is very important to progress at the 7th floor and should be completed as quickly as possible.

At the 7th floor also it will be necessary to close all minor openings that remain where flashings and trim on roofing are not complete. The roofer is presently working on the job and trying to complete his miscellaneous work so the building will be completely closed to weather soon.

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CONSULTING ENGINEER

There still remain some sheet metal duct work and stud work to be installed before board can begin at the 7th floor. However, this work should be able to be completed prior to the present projected start of drywall based on the 5 working day per floor starting sequence.

8th floor

The mechanical equipment room is being brought to completion and the heating system was turned on today, January 5, 1982 (working day 513). It will be used to pump warm air on an uncontrolled basis into the building. This should provide adequate heat to insure that finish trades can proceed from now on without interruption.

Spray on fireproofing remaining to be applied will, to some extent, interfere with finish operations, but at present does not appear to be a serious problem. Columns at the penthouse are to be fireproofed with gyp board, and I suggest this work be done just as quickly as possible also.

Elevator equipment rooms are partially installed but not yet enclosed.

General

Overall, it appears the project can be completed by about May 28, 1982 (working day 616). This is still within the major contract completion target and if work can proceed aggressively as planned once heat is in the building, there should be little, if any, difficulty aside from the current delay problems mentioned above in finishing on time. I shall rough date manually, and in working days, the early starts and early finishes on a network model sepia and send it to Mr. West for distribution at an early basis with his sub-contractors. Concurrently we shall make the final revisions to the network as discussed above and recalculate the dates in calendar early and late starts and finishes. This will be issued at a later date.

I have also planned with Mr. West, Mr. Nurmi, and Mr. McComb to monitor the project in February, 1982 so that monitoring reports can be submitted prior to the construction meetings for those trades. I shall be in touch with Mr. West to confirm each of the monitoring session dates.

Ralph J. Stephenson, P.E.

RJS:sps

To: Mr. Doug West

cc: Mr. Robert West

February 7, 1982

Subject: Monitoring Report #6
Office Building
State of Michigan
Flint, Michigan
R.N. West - general contractor

Project: 80:60

Date of Monitoring: February 3, 1982 (working day 534)

State of Michigan account number: #110-07-2799-083

West desired target completion - May 28, 1982 (working day 616)

Working days to completion date desired by West - 82

Contract completion date: Evening of June 30, 1982 (working day 639)

Working days to contract completion date - 105

Approximate start of field construction: December 9, 1980
(working day 241)

Monitored from Issue #6, dated January 5, 1982 (working day 513)

Actions taken:

- Inspected project
- Reviewed current project status with Mr. Ernie Nurmi, Mr. Bob West, Mr. Robert McComb, and Mr. Tom Kowalski
- Evaluated current project status

General Summary

As of February 3, 1982 (working day 534) the building is heated adequately for all interior trades to proceed on upper floors. At the 1st floor, close in of major lobby areas is still by temporary visqueen partitions and the temperatures there are slightly lower than at the building interior, although not hindering installation of store front work.

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CONSULTING ENGINEER

The work pattern throughout the building is still somewhat erratic and at present completion of spray on fireproofing particularly at the utility core areas is disrupting other finish work. However, very little spray on remains to be done, and should be completed within the next five working days.

Cleanup has been somewhat of a problem primarily because of the need to complete rough trades such as spray on. But once the wet and dirty trades are out of the building cleanup will be able to be maintained on an ongoing basis.

Another rough trade item that should be addressed soon is the corrective work to be done on certain of the floor slabs. To be started in the very near future are several finish trades that could be affected by this work. One is installation of the electrical floor monuments, another is start of painting, and another which is somewhat later in the job is installation of carpet. Corrective action on the floor slabs will probably be a dirty job creating considerable dust and residue. Therefore, it would be wise to get this task completed early so damage to finish work can be minimized.

Drywall installation at upper floors did begin on a production basis in mid-January, 1982, but it does not appear that the job was manned to as great an extent as had been hoped, with tapers and sanders particularly. However, the pattern of work is now definitely moving from lower floors to upper floors and it appears that the job is being manned on an increased basis. This higher manning level is essential to maintain the floor turnover spacing.

In the Issue #6 network, dated January 5, 1982 (working day 513) we established a 10-working day turnover cycle, which is the distance in working days between completing one floor and completing the following floor. It is imperative that this turnover cycle be maintained to avoid bunching up trades near the end of the job. Since as can be seen from a brief inspection of the network model there are many finish trades remaining to be done on the job. It would be wise to re-establish this 10-day interval between the upper floors again as quickly as possible. It should be kept in mind further that first floor work will have to be completed concurrently with the upper floors. This means that avoiding bunching of these upper floor trades is imperative particularly since the job is now only

82 to 105 working days from completion. A brief review of the points covered in Monitoring Report #5, on pages #2, #3, and #4 is given below using the same numbers used in that monitoring report for reference.

1. Resolution of material to be used as a cladding for the revolving steel door shell has not yet been accomplished. Efforts are still being made to find an alternate source but there is no firm decision made as yet. It should be noted that the cladding to be used at the revolving doors will have to be on the job in time to be installed followed by completion of whatever work it restrains at that first floor area.

We mentioned in Monitoring Report #5 that the steps in procuring the cladding are taking field measurements, preparing and submitting shop drawings, approving shop drawings, and fabrication and delivery of materials. If field measurements are to be made on the installation as it is now then they can be taken now; however, if field measurements will have to be made once the revolving door is set in place then this may complicate the problem.

Overall, the entire process of detail, approval, fab, and deliver is a long one, and we have already passed the point in time at which a comfortable framework of operations can be maintained. Again, I recommend that this matter be given top priority attention now.

2. Plastic laminate sills are not yet on the job. Mr. Nurmi said that he would continue to check on their status.
3. Toilet room partitions - Fabrication field measurements have been made and there does not appear to be a problem. However, the item, as has been pointed out, is always difficult to get on time. Since partitions are an essential ingredient for a certificate of occupancy I strongly recommend that their status be determined now.
4. Decisions have been made on the hand dryers electrical, the electricians were given the information, and rough in for the dryers is installed at some of the floors. The state will procure the hand dryers.

5. Acoustic ceiling tile and the grid is now on the job.
6. Metal slat ceiling - There is no current word on delivery of this ceiling material. Since there is only a small amount of area in metal slat construction and since it is normally a difficult item to obtain, its current status should be determined quickly.
7. Light fixtures - Many are on the job now.
8. Carpet deliveries are still to be made as required by the contractor. Carpet is due to be shipped out of Georgia the week of February 22, 1982. Currently no problems are anticipated.
9. Store front glass is on the job.
10. Caulking of the exterior of the building is completed.
11. Elevator work has lagged primarily because of progress on drywall to enclose the shafts. Efforts are being made by the drywaller to concentrate on the west bank of elevators but progress has been slow in hanging board particularly at the fronts of the shafts. This work should be focussed on so continued hoisting can be maintained with the operating elevators. Doors are to be installed shortly although there may be problems with procurement of hardware for the installation. This matter is being checked now.
12. Exterior glass - Most exterior glass except at the 1st floor is installed.

A brief review of each area of the building is given below:

1st floor

Work at the 1st floor is still moving somewhat slow than would be desirable and hanging of wall board presently lags late starts and late finishes by two to five working days. There appears to be some difficulty obtaining enough room in which the contractor can carry out his work continuously. There had been a delay in installation of above floor fire protection piping, but this work is now completed and the drywaller should be able to start shortly at the 1st floor.

Installation of sash is under way, and probably terrazzo work will be deferred until after the glass is installed. Again, however, the problem of procurement of the porcelain

enamel panels must be addressed if we are to keep this part of the building in a deliverable stage by our presently projected desired and contract end dates. There is some confusion about whether field measurements can be made now from the material in place or whether they have to be made later when the revolving doors are erected. This is a very important point since the submittal and fabrication normally does not proceed until after field measurements have been completed. I again urge that immediate attention be given this problem.

So far as terrazzo is concerned the selection of materials is imminent, and there does not appear to be any unresolved difficulties with installation proceeding as soon as the sash erector at the first floor has completed his work. Shop drawings will be needed for terrazzo installation, and I recommend that these be prepared now so that there will be no delay to moving immediately into installation once the space is available. It should be remembered that there are only 82 to 105 working days left on the job and terrazzo is an element that could very well cause a serious bottleneck if the work does not proceed in a timely fashion.

2nd floor

Drywall is hung at the 2nd floor and taping and sanding is well along. Taping was due to have been completed by January 27, 1982 (working day 529). It has not yet been finished and probably lags by a projected 5 to 10 working days. This is a fairly significant lag since drywall taping and sanding is critical, and the present lag will tend to encroach upon the turnover cycle we had planned between the second and third floor. This turnover cycle was set at 10 working days, and it can be seen that a good portion of the period has been taking up by the current 2nd floor behind position. There apparently will be more manpower assigned than presently to taping and sanding. This may help to expedite work, both at 2 and 3.

Also as has been noted correcting floor slabs where necessary should be scheduled just as quickly as possible to avoid disruption to finish trades by dirt and dust created by this operation.

3rd floor

Board is nearly complete at the 3rd floor except at the elevators and at small miscellaneous areas. Taping and sanding is well along and presently just meeting target

late start/late finish dates. There has been some float time available in taping and sanding but this has now been used completely. The trend there is toward the later dates, and it is important that this work be now given attention so it does not reflect in a domino effect of delaying subsequent floors. It should be kept in mind that we are measuring the floor system position against target late finish dates that are spaced at 10 working day intervals. The 2nd floor late finish was set at March 16, 1982 (working day 564), the 3rd floor target late finish was set at March 30, 1982 (working day 574). These are the dates against which we are measuring the current status of the floor system.

4th floor

Board work is in progress and about 60% complete and currently meeting targets between early and late starts and finishes. There does not appear to be any major problems here at the present time.

5th floor

Board work is about 25% complete and meeting targets between early and late starts and finishes.

6th floor

Board is just getting under way well at the 6th floor and meeting targets between early and late starts and finishes.

7th floor

Most studs are complete and board work is just about ready to start. Work at the 7th floor is still meeting targets between early and late starts and finishes.

Mechanical equipment rooms

The permanent heating system is operating and keeping the building in a finish trade working condition. There still remains considerable work to be done at the mechanical equipment rooms, but there does not appear to be any major problems in completing this work by the present target end dates. Some confusion exists about responsibility for pouring out machine room floors at the two elevator banks. This matter should be cleared soon since forming and pouring of these machine room floors will become increasingly difficult as the shafts are closed in and finish work in the shafts nears completion.

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RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

General

Overall, the project is moving in a moderately fair fashion toward the contractor target of May 28, 1982 (working day 616). However, there has been some slippage in certain key work primarily taping and sanding board that attention should be given the trend as soon as possible.

The network model Issue #6, dated January 5, 1982 (working day 513) was issued to West Construction for his distribution a short time ago. I suggest that everyone involved in a managerial or monitoring position on the job be provided with a copy. We made this monitoring evaluation from that issue sheets #3 through #9.

I shall be in touch with Mr. West shortly to set the next monitoring session. Meanwhile I shall presume that the date discussed last month of March 3, 1982 (working day 554) will be held as the desired monitoring target.

Ralph J. Stephenson, P.E.

RJS:sps

To: Mr. Doug West

cc: Mr. Robert West

RALPH J. STEPHENSON, P. E.
CONSULTING ENGINEER

March 8, 1982

Subject: Monitoring Report #7
Office Building
State of Michigan
Flint, Michigan
R.N. West - general contractor

Project: 80:60

Date of Monitoring: March 3, 1982 (working day 554)

State of Michigan account number: #110-07-2799-083

West desired target completion - May 28, 1982 (working day 616)

Working days to completion date desired by West - 62

Contract completion date: Evening of June 30, 1982 (working day 639)

Working days to contract completion date - 85

Approximate start of field construction: December 9, 1980
(working day 241)

Monitored from Issue #6, dated January 5, 1982 (working day 513)

616
577
39

639
577
62

Actions taken:

- Inspected project
- Reviewed current project status with Mr. Ernie Nurmi, Mr. Robert McComb, and Mr. Tom Kowalski
- Evaluated current project status

General Summary

As of March 3, 1982 (working day 554) the lower three floors of the building lag late starts and finishes by from five to twenty working days. Upper floors, however, are currently meeting targets between early and late starts and finishes. There still remains some project difficulties that should be addressed, and in discussions with Mr. Nurmi he said that all parties are aware of these problem areas and concentrating upon them. The various areas of the building that should be given very careful attention over the next two or three weeks include:

- A. Completion of drywall work in the elevator shafts. This work is proceeding as conditions will allow and should be finished within another five to ten days. *a*
- B. Finishes at the stairwells. Drywall work at the stairwells will proceed as the work in the elevator shafts nears completion. There is considerable amount of finish work in the stairwells, and I suggest that this area be addressed just as quickly as possible. Considerable cleanup is yet to be done prior to start of drywall work, and it might be wise to begin this as soon as conditions in the stairwell allow. *a*
- C. Floor correction work - Is now under way, and it is expected that within two or three days the second floor will be available for the electrician to start installation of his knock outs and pulling wire. Present estimates by the electrical contractor are that it will require about 10 working days per floor for a two man crew to complete the work up through to a point where carpet can be laid. ~~It may be that additional manpower will be required to complete this work on all floors within our desired time frame.~~ *Moving*
- D. Carpet delivery - Carpet is due on the job March 29, 1982 (working day 572). Since carpet is a difficult item to store safely on the project it would be well to consider installing it as it arrives. Consideration will be given to the scheduling of this work by the project team over the next couple of days. *a*
- E. Acoustic tile panels - Lay in ceiling tile has been rejected and must be all replaced due to faulty adhesion of the skin layer and subsequent delamination. Replacement of this material is now in work and the first shipment of new panels is expected on the job about April 5, 1982 (working day 577).

Although it probably will not require a great amount of time to install the lay in panels, it would be wise not to delay installing the replacement elements any longer than absolutely necessary.

- F. Metal slat ceiling - There is no current authentic word on delivery of the slat ceiling. I suggest since this is a small element in the building and materials are sometimes difficult to obtain, that we continually check the current status of the work. *dist/ra
On
just
the
work*

- C. Porcelain panels at revolving doors. The manufacturing problem has been resolved and a fabrication contract has been awarded. However, the problems of field measurements, shop drawings, approvals, color selection, fabrication, and installation still must be coped with. There was no authentic word from those at the monitoring session as to the current status of the work nor were any projections able to be made about when shop drawings would be available. I suggest the owner be notified that there is a possibility, if such is the case, that these panels could possibly not be installed by the time the building is complete and ready to be turned over. It would also be well now to set whatever field measurements must be taken to insure timely delivery of the panels.
- H. Spray on fireproofing - Spray on at the 7th floor is not yet complete. The equipment is on the floor and work is about ready to start. Since spray on is a wet, dirty trade and since finish work is close to moving up to the 7th floor it would be well to complete all production spray on as rapidly as possible.
- I. Sills and vanity tops - Not yet on the job site. Again, since sills are often a procurement problem it would be wise to assure they do arrive in a timely fashion.
- J. Clean up - Proceeding reasonably well but will have to be continued at a relatively high level since there are many finish trades including painting and acoustic grid that are going ahead in many areas of the project.
- K. Installation of white sound devices - Work has been stopped at the second floor and on upper floors until clarification of the shop drawings and the type of device being used is provided by the electrical contractor. This documentation is to be available very soon and should help resolve the problem. A release on this equipment will be forthcoming until the documentation is available.

A brief review of each area of the building is given below:

1st floor

The lag at 1st floor interior work is basically in installation of gypsum drywall and subsequent finishing of the area. Drywall was due to have been completed by the morning of February 18, 1982 (working day 545). There probably remain between four and six working days to complete hanging board, which gives a lag of 12 to 15 working days. Since most of the trades coming off from rough work

follow hanging of board it can be considered this is the lag over the target end date at the 1st floor of May 19, 1982 (working day 609).

If we assume the lag to be 14 working days over May 19, 1982 (working day 609) the new projected completion date is about June 9, 1982 (working day 623). This is exclusive of the porcelain panels at the revolving door.

Store front work and erection of glass is moving well and currently meeting targets between early and late starts and finishes. Installation of terrazzo should be planned now so that once the area is clear the work can start. All colors and materials have been selected and there apparently are no major difficulties in bringing them to the job site.

2nd floor

Painting is well along at the 2nd floor and the acoustic ceiling grid is nearly complete. Ceramic tile has been installed at the toilet rooms, and air boot installation is in progress on the main office floor.

The lag at the 2nd floor is primarily in work at the core. Vanities and plumbing fixtures were due to begin no later than February 10, 1982 (working day 539) but have not yet begun. They currently lag the Issue #6 network, dated January 5, 1982 (working day 513) by 15 working days. It is important to remember that this lag is measured against a target completion of March 17, 1982 (working day 564) for the entire 2nd floor. However, as has been pointed out previously the difficulty in missing target late starts and finishes is that it tends to force a buildup of trades at the end of the job.

At the 2nd floor, as was noted previously, floor correction work is starting and will be followed in close sequence by installation of floor outlets, pulling wire, and clean up, all of which are essential to complete before installing carpet. Carpet will begin arriving on the job site March 29, 1982 (working day 572).

3rd floor

Board is substantially complete at the 3rd floor and taping and sanding is also substantially complete. Painting is well along at all areas of the floor, ceramic tile is installed, and toilet rooms are ready for installation of vanities and plumbing fixtures. Air boots are presently being placed at the ceiling grid. The lag at the 3rd floor

is about five working days at the core area. The current lag is measured against a total completion at the 3rd floor of March 31, 1982 (working day 574).

4th floor

Board is substantially complete, taped, and sanded at the 4th floor. Painting is in work and ceramic tile is installed. Ceiling grid is to start momentarily. The late start planned for the acoustic grid was March 8, 1982 (working day 557) so this trade is meeting targets between early and late starts and finishes. Ceramic tile at the toilet rooms was due to be done no later than March 10, 1982 (working day 559). Overall, the floor is presently meeting desired dates between their early and late starts and finishes measured against a target floor completion of April 14, 1982 (working day 584).

5th floor

Board work, taping and sanding, and some painting are complete at the 5th floor. Ceramic tile is in work at this level. There is no present lag at the floor over late starts and late finishes, and we are currently holding a desired completion date of April 28, 1982 (working day 594).

6th floor

Board has been substantially completed and taping and sanding is being brought to completion. All tasks are currently meeting targets between early and late starts and finishes. The target completion of the floor is May 12, 1982 (working day 604).

7th floor

Board is being hung now, and work there is meeting targets between early and late starts and finishes. The target completion of the floor is May 26, 1982 (working day 614).

At the 7th floor spray on fireproofing is not yet complete and probably will follow completion of all spray on at the stairwells. However, it is going to be increasingly important to complete spray on fireproofing soon since board work and the trades that follow are not able to begin until spray on is complete at the floor.

Mechanical equipment rooms

Work is continuing at the equipment rooms and apparently most parties to the project are satisfied that good temperature working conditions are being maintained at the interior of the building.

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RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

Machine room floors at the two elevator banks have now been poured out, and work on the elevators is being brought to completion as quickly as possible.

General

The project continues to move in a fair manner toward the contractor target completion of May 28, 1982 (working day 616). There has been some slippage noted above at the 1st, 2nd, and 3rd floors; however, it is at this point a relatively straightforward task to recapture most of the lost time that might be reflected in upper floors. Nevertheless, since there is only 85 working days remaining to contract completion, all loose ends of the project must be tied together quickly to insure timely completion.

I shall be in touch with Mr. West shortly to set the next monitoring session. This will be probably early in April, and is tentatively set for April 5, 1982 (working day 577).

Ralph J. Stephenson, P.E.

RJS:eps

To: Mr. Robert West

cc: Mr. Doug West

RALPH J. STEPHENSON, P. E.
CONSULTING ENGINEER

April 12, 1982

Subject: Monitoring Report #8
Office Building
State of Michigan
Flint, Michigan
R.N. West - general contractor

Project: 80:60

Date of Monitoring: April 5, 1982 (working day 577)

State of Michigan account number: #110-07-2799-083

West desired target completion - May 28, 1982 (working day 616)

Working days to completion date desired by West - 39

Contract completion date: Evening of June 30, 1982

Working days to contract completion date - 62

Approximate start of field construction: December 9, 1980
(working day 241)

Monitored from Issue #6, dated January 5, 1982 (working day 513)

Actions taken:

- Inspected project
- Reviewed current job status with Mr. Ernie Nurmi, Mr. Robert McComb, Mr. Tom Kowalski, and Mr. Lee Mamola of the Kenneth Newman office

General Summary

As of April 5, 1982 (working day 577) the lag in building work over late starts and finishes has tended to increase at major areas. This represents, of course, a problem since the trend, as pointed out previously, will be to bunch similar trades at each floor and possibly make manning of the job more difficult.

In addition, strikes and work stoppages now seem to be a distinct possibility. The sprinkler fitters went on strike April 1, 1982 (working day 575). At the end of April, 1982 contracts expire for laborers, sheet metal workers, and

electricians. In mid-July, 1982 the carpenters agreement expires. Plumbers have already settled. Thus, it can be seen that if there are major work stoppages in any of the trades it could seriously affect progress on the project since we are now in the finish phases of work at practically every floor. There is no way of anticipating whether or not strikes will occur. The economic situation even though it is currently somewhat depressed has proven to be an unreliable barometer of whether or not strikes will occur. Thus, the uncertainty makes it desirable that as much time as possible be recaptured prior to the end of April, 1982.

There are still isolated problems which should be given ongoing attention. These are discussed below:

- A. Drywall work is now complete in the elevator shafts and at the east stairwell. The west stairwell remains to be boarded, and it is expected this work will be put into the field shortly, probably within the next week. It should only require 2 to 4 working days to complete board at the west stairwell.
- B. Floor correction work is in process at the 5th floor and some rough work on correcting floor elevations has been started on 6 and 7. The electricians are installing floor outlets on 3 and 4. It will be desirable to complete as much of the floor correction work as possible before electricians move up to 5, 6, and 7.
- C. Carpet has been delivered and is on the job except for the colored panels. These panels are due in this week.
- D. Acoustic tile panel procurement is still proving very difficult. Previously the acoustic panels were found to be totally unusable and were returned to the factory. Replacement panels are proving to be, in part, defective and it is necessary to immediately resolve how the replacement of these unacceptable panels is to be handled. Since it is a major installation item and since, in addition, the hoisting of these very large panels interferes seriously with use of the vertical transportation it is imperative this problem be taken care of now.
- E. Metal slat ceiling materials are supposedly being shipped today, April 5, 1982 (working day 577). However, there is no confirmation of this and thus, at present it is conjecture as to whether they are actually on the way. It is wise to get this material on the job site early to insure it is satisfactory and acceptable.

- F. Porcelain panel shop drawings at the revolving doors have apparently been submitted although there is no indication that the architect/engineer has yet received the submittals. Apparently field measurements are yet to be taken and since time is growing short I suggest this matter be given high priority of attention.
- G. Spray on fireproofing is still not complete at the 7th floor. Apparently there has been some serious material shortage problems and approximately 15 to 20 bags of material are still required for completion of spray on work at the 7th floor. Mr. McComb says that there will probably be another 10 bags required to complete spray on at mechanical penthouse areas.

It would be well, if this material proves difficult to get for whatever reason, to consider alternative methods of completing the fireproofing. Apparently some have been suggested but none have proven acceptable to this point. However, the condition of the 7th floor is such that if any sizable delay to spray on fireproofing is encountered it may affect our ability to finish the work at this floor in a timely and effective fashion.

- H. Sills were delivered to the job site but minus a strip of laminate at the bottom edge. The sills have been shipped back to the factory, and there is no current word on when we will receive them back on the job site.

Vanity tops were corrected in the field and are installed except at the 7th floor.

- I. Installation of white sound devices has resumed since the shop drawings and cuts were clarified by the manufacturer. Most above ceiling alarm and sound installation work will be complete by early May, 1982.
- J. At the 8th floor there remains several items that should be given immediate attention since time is now growing short to final turnover of the entire building. Among the items to be considered there according to Mr. McComb and Mr. Kowalski are:
- The air flow measuring devices - The device must be opened, examined, and corrective action taken due to damaged installation.
 - Duct work installation along with pipe work to the chillers must be completed.

- Clean up which is a sizable item in an area of this type should be initiated as soon as possible.
- Fans must be final wired and made operational. There still is considerable work to be done on these.
- Spray on fireproofing, as noted below, must yet be completed at the 8th floor.

A brief review of each area of the building is given below:

1st floor

At the 1st floor most board except for some miscellaneous ceilings has been hung and taping and sanding is well along. A little bit of painting has been done and some ceramic tile has been installed. The lag presently is about 14 working days primarily in the finish trades which follow installing, taping, and sanding of drywall. Terrazzo work is due to begin this week. It originally was scheduled to start at a late start of March 19, 1982 (working day 566). Thus, its current lag is about 11 working days.

Fire protection work has been installed at the truck well and other work on the perimeter of the building will proceed as weather permits. Most of the glass store front installation is complete. However, again, as has been pointed out previously we can expect delays in completion of the revolving door installation unless we are able to get the porcelain panel skin on the job in the near future. The status of these panels is still somewhat obscure, and it would be wise to clear the matter as quickly as possible so a better picture can be gained of how the panels and the revolving door installation relate to each other.

Overall, the 1st floor work lag appears over the past month to have remained somewhat constant with perhaps a gain of one or two working days in the position of the job compared to the monitoring as of March 3, 1982 (working day 554).

2nd floor

Most interior finish trades are well along at the 2nd floor. Floor outlets are installed although there probably will have to be some patching done around the edges. The lay in ceiling grid is complete, and most above ceiling work is at a point where it is not restraining installation of acoustic ceiling tile.

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The major problem is that the acoustic panels which were resupplied to the job have proven unacceptable and there is no current word on when replacement panels for this second batch will be available. Acoustic panels were due to begin no later than February 24, 1982 (working day 549). There are a few panels installed thus the lag can probably be considered about 27 working days over the target late finish on the floor of March 16, 1982 (working day 563). Adding the lag to this desired completion point brings floor completion now to about April 22, 1982 (working day 590). This, of course, is based on finding a solution to the acoustic panel problem.

Also restraining completion is installation of the plastic laminate window sills. These have been sent back for some revisions and must be brought to the job and installed prior to completion.

Since carpet is on the job and since most of the floor outlets have been installed it appears that the 2nd floor does not pose any major difficulties in completing by the desired target completion of May 28, 1982 (working day 616). The problem brought on by the current lag is that there will be a tendency to bunch the trades at all floors into similar activities.

3rd floor

The lag at the 3rd floor is currently about 17 working days primarily in work on plastic laminate sills, toilet partitions and accessories, and installation of acoustic lay in panels. All of these items had a late start at a point which as of today lags about 15 to 18 working days.

Floor outlet work is about 90% complete at the 3rd floor, and it is the intent of the electrician to move shortly to the 5th and 6th floors. He is currently working on the 3rd and 4th floors.

The lag as of this monitoring is greater than that at the previous monitoring and indicates a slippage primarily due in this case to problems of fabrication. The lags, it should be kept in mind however, are over a target late finish at the floor of March 31, 1982 (working day 574). Thus, the projected finish is still well ahead of the contract completion date.

4th floor

The lag at the 4th floor is basically in installation of air boots and completion of work that affects lay in acoustic panels. Air boots were due to begin no later

than March 15, 1982 (working day 562) and although some miscellaneous work has started on the ceiling slots, full production has not yet begun. The lag currently at the 4th floor is 15 working days.

I strongly recommend that the sheet metal contractor be encouraged to return to increased staffing on the project since there is a possibility of a strike as of the end of April, 1982. This could become serious if above ceiling work has not been completed by that time.

5th floor

Work at the 5th floor for the most part is meeting targets between early and late starts and finishes with the exception of air boot installation. Air boots were due to begin no later than March 29, 1982 (working day 572). They have not yet started in production. Thus, the lag in these boots is 5 working days. This again is measured against a desired late finish target of April 28, 1982 (working day 594) for the floor. Thus, if duct work installation is resumed soon the lag could probably be picked up provided the acoustic lay in panel problem is also resolved.

6th floor

All major tasks at the 6th floor are currently meeting targets between early and late starts and finishes. There is no lag over these at the present time. Installation of air boots is due to begin no later than April 12, 1982 (working day 582) and thus, this is the amount of time remaining before a lag will be felt at the floor. The current desired target for completion at the 6th floor is May 12, 1982 (working day 604).

7th floor

The major holdup at the 7th floor is completion of spray on fireproofing. Although there remains a relatively small amount of fireproofing to be done it still must be accomplished in a relatively small space and is a very disruptive, wet, and dirty trade.

Taping and sanding of drywall was to start in production as of March 30, 1982 (working day 596) and some taping and sanding has been done. However, shortly the entire finishing operation will have to be halted until spray on is complete. Thus, there is currently a lag of about 3 or 4 working days.

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General

Overall, the project has tended to lose additional time since the previous monitoring on March 3, 1982 (working day 554). It should be pointed out, however, that this lost time has primarily been due to difficulties, some unexpected and some unpredictable, in obtaining materials. The most difficult of these has proven to be the acoustic ceiling panels. These have already been rejected once and twice in some cases. There is no current information about when we can expect a free and unrestricted delivery of these materials to the job site. Since they are critical to every floor they then will soon become very important to total building completion.

Spray on fireproofing is also another material problem although it affects only the 7th and 8th levels.

It should be remembered that the lags described for each level above deal with lags over a projected target completion of May 28, 1982 (working day 616) which was the desired completion point by West Construction. The lags also represent delays over a staggered floor delivery which maintained a turnover cycle of 10 working days. Thus, although present delays may tend to reduce the amount of this turnover cycle and require concurrent work it could be accomplished within the desired framework.

Another major problem moving on the horizon is the possibility of strikes in key trades. This, of course, is what we were trying to avoid by using an earlier desired completion target than the contract target date. If any of the trades which have contract expiration dates in the near future go on strike it could conceivably be a serious delay element to the job. Overall, however, with no major work stoppages and with prompt resolution of material problems for acoustic panels, spray on fireproofing, and window sills along with the ever present concern with the porcelain panels at the revolving door on the 1st floor it is possible to complete the project by the contract target completion date.

I shall be in touch with Mr. West shortly to set the date of the next monitoring if appropriate. Probably this session will be in late April or early May, 1982.

Ralph J. Stephenson, P.E.

RJS:sps

To: Mr. Robert West

cc: Mr. Doug West