Ralph J. Stephenson, P.E., P.C.
Consulting Engineer
July 24, 1996

To: Harold Varner
From: Ralph J. Stephenson

Dear Harold:

Enclosed is a packet of materials from our meeting on Tuesday, July 23, 1996. It includes in order the following:

Item A - A set of notes from our meeting #2 dated Tuesday, July 23, 1996 (2 pages).

Item B - A copy of Sheet PAE #1, issue #1 network model as monitored by us in the meeting. The underlined dates shown below the late starts and late finishes are the actual times the activities so notes started or completed (2 sheets).

Item C - A copy of Sheet FST #1, issue 2, dated July 23, 1996 showing the updated logic plan for the fast start projects work over the next few months.

Item D - A copy of Sheet FST #2, issue 2, dated July 23, 1996, showing a quantified logic plan for production of standards for the current seven fast start projects.

If you have any questions about the material please give me a call. I shall be in touch with you and Howard in the near future to plan the next step in our work.

Sincerely yours,

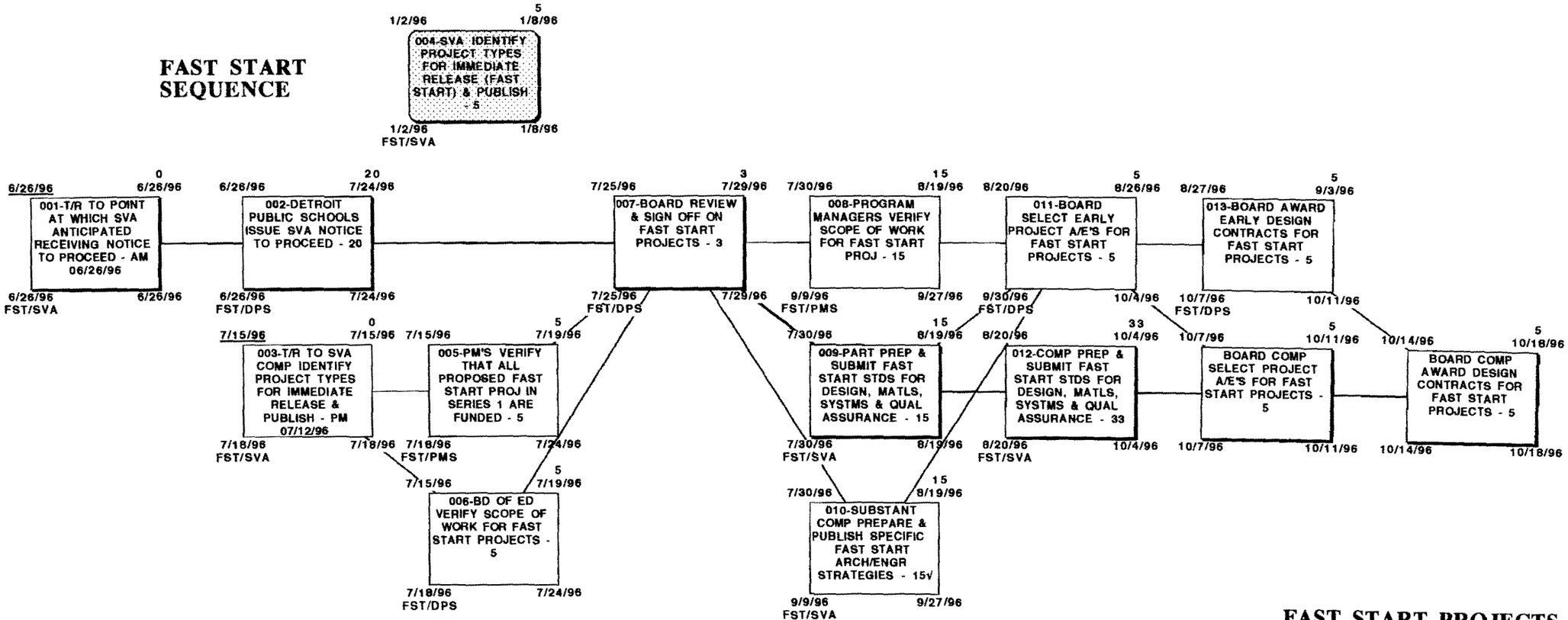
Ralph J. Stephenson
ph 517 772 2537

2. **Meeting #2 - Sims-Varner & Associates office - Tuesday, July 23, 1996**
    1. Date of meeting - Tuesday, July 23, 1996
    2. Time of meeting - 9:00 A.M.
    3. Location of meeting - SVA downtown Detroit office
    4. Those attending
        1. Howard Sims - Principal - in A.M. meeting
        2. Harold Varner - Principal & Project Director
        3. Earl Bright - Standards & Program Manager
        4. Edwin Corr - Standards & Program Development - in meeting part time
        5. Ralph J. Stephenson, P.E. - Consultant
    5. Agenda
        1. √ Recap work to date
        2. √ Monitor against sheet PAE #1 issue #1, dated July 2, 1996
        3. √ Update network models
    6. Words to be added to glossary
        1. Fast start projects
           Characteristics are
           1.) Stand-alone projects
           2.) Do not require programming, nor educational specifications
           3.) Require little or no Board or Area Superintendent approval
           4.) Are fully funded through construction under the Series 1 bond issue
        2. Stand alone projects
           Projects that do not affect other work to be done at any given facility.
    7. Fast start project types
       Fast start projects are
       1.) Stand-alone projects
       2.) Do not require programming, nor educational specifications
       3.) Require little or no Board or Area Superintendent approval
       4.) Are fully funded through construction under the Series 1 bond issue

        1. Exterior barrier-free ramps
        2. Exterior doors
        3. Exterior windows
        4. Playground equipment
        5. Roof replacement
        6. Fencing
        7. Site lighting
    8. A/E document standards
        1. Drawings
        2. Specifications

3. Documents
    1. Bulletins
    2. Certificates of occupancy
    3. Certificates of substantial completion
    4. Change orders
    5. Close out documentation
    6. Construction record documents
    7. Consultant lists
    8. Contract document packaging
    9. Contract document sign offs
    10. Cost estimates
    11. CSI coding
    12. Drawing preparation
    13. Field orders
    14. Field reports
    15. Guarantees
    16. Maintenace and operating manuals
    17. Meeting minutes
    18. Performance evaluation of designers, contractors, subcontractors, vendors, consultants and others
    19. Permit applications
    20. Project directories
    21. Project plans and schedules
    22. Punch lists
    23. Requests for change orders
    24. Requests for information
    25. Requests for payment
    26. Requests for proposals
    27. Schedule of values
    28. Shop drawing logs
    29. Specification preparation
    30. Testing reports
    31. Transmittals
    32. Waivers
    33. Warranties
    34. Work orders
4. etc.

FAST START SEQUENCE



FAST START PROJECTS

NETWORK MODEL FOR 1994 BOND PROGRAM - PHASE 1, SERIES I THROUGH SERIES III

ABBREVIATIONS

DPS - DETROIT PUBLIC SCHOOLS
SVA - SIMS-VARNER & ASSOCIATES
PAE - PROGRAM ARCHITECT/ENGINEER
FST - FAST START PROJECTS
PM'S - PROGRAM MANAGERS

Reserved activity numbers for fast start (001 thru 199)

041 thru 050
091 thru 100
141 thru 150
191 thru 199

Issue #1 - July 2, 1996
Issue #1 - mtr July 23, 1996
Issue #2 - July 23, 1996
12 sht (FST 1) P A/E S1

Sims-Varner & Associates
Program Architect/Engineer
Detroit, Michigan

Ralph J. Stephenson, P.E.
Consultant
323 Hiawatha Drive
Mt. Pleasant, Michigan 48858
ph 517 772 2537

SHEET FST #1

IMMEDIATE RELEASE SEQUENCE

STANDARD RELEASE SEQUENCE

07/23/96 - Change name to Fast Start.

07/23/96 - ntp not yet issued by Bd of Ed. No word on status. (task 006).

07/23/96 - To be negotiated & executed week of 07/22/96. (task 002)

07/23/96 - SVA has not yet received ntp for work (task 004)

07/23/96 - Preparation of ed specs draft not yet started (task 005). Very critical to program progress. Must be kept on well identified time line.

07/23/96 - SVA has prepared & issue preliminary matrix identifying projects vs work scope. (task 007)

07/23/96 - SVA has mobilized & completed about 10% of the work (task 008)

07/23/96 - No word on progress on activity #003. Bd of Ed now involved in task.

07/23/96 - PM was instructed by Bd of Ed to verify all proposed fast start projects in Series 1 are funded. SVA has met with Board and PM's on this matter. (task 011). SVA was instructed by the Bd of Ed to stop work until a notice to proceed was issued or a contract is executed with SVA

001-T/R TO AM 07/02/96

002-COMPLETE DPS & SVA CONTRACT NEGOTIATIONS - 18

003-PROGRAM MANAGERS' ASSESS & VERIFY SCOPE OF WORK FOR INDIVIDUAL PROJECTS - 70

004-DETROIT PUBLIC SCHOOLS ISSUE SVA NOTICE TO PROCEED - 10

005-DPS PREPARE & PUBLISH ED SPECS DRAFT (SPACE REQUIREMENTS) -

006-DETROIT PUBLIC SCHOOLS ISSUE SVA NOTICE TO PROCEED - 10

007-SVA IDENTIFY PROJECT TYPES FOR IMMEDIATE RELEASE & PUBLISH - 5

008-SVA MOBILIZE STAFF & RESOUCES & PREPa & PUBL SEQUENCE OF PAE SERVICES -

009-PART PREPARE & PUBLISH ARCH/ENGR GENERAL STRATEGY - 10

010-DPS STAFF REVIEW & COMMENT ON ED SPECS DRAFT

011-BOARD REVIEW & SIGN OFF ON PROJECTS FOR IMMEDIATE RELEASE - 3

012-REVIEW PROGRM MGRS' ASSESSMENT OF INDIVIDUAL PROJECT SCOPE - 20

013-BOARD PART REVIEWS & SIGNS OFF ON GENERAL STRATEGY - 5

014-DPS REVISE & REISSUE ED SPECS DRAFT

015-SVA PRIORITIZE STANDARDS DEVELOPMENT - 5

016-SVA COMMENTS? ON PROG MGRS' ASSESSMENT OF INDIVIDUAL PROJECT SCOPE - 10

017-PROGRAM MANAGER VERIFY SCOPE OF WORK FOR IMMEDIATE RELEASE - 15

018-PREP & SUBMIT IMMED RELEASE STDS FOR DESIGN, MATLS, SYSTMS & QUAL ASSURANCE - 15

019-SVA REVIEW ED SPECS DRAFT AND COMMENT IN WRITING

020-PART PREP & SUBMIT STANDARD RELEASE STDS FOR DESIGN, MATLS, SYSTMS & QUAL ASSURANCE - 60

021-SUBSTANT COMP PREPARE & PUBLISH SPECIFIC ARCH/ENGR STRATEGIES - 30

022-SUBSTANT COMP PREPARE & PUBLISH SPECIFIC IMMEDIATE RELEASE ARCH/ENGR STRATEGIES - 5

023-DPS REVISE ED SPECS AND PUBLISH -

024-PART REVIEW, APPROVE, PUBLISH & DISTRIBUTE STANDARD RELEASE STDS - 20

025-CONT(1) PREP & SUBMIT STANDARD RELEASE STDS FOR DESIGN, MATLS, SYSTMS & QUAL ASSURANCE

026-BOARD SELECT PROJECT A/E'S FOR IMMEDIATE RELEASE PROJECTS - 5

027-PART PREPARE & PUBLISH INDIVIDUAL PROJECT(S) PROGRAMS

028-CONT(1) REVIEW, APPROVE, PUBLISH & DISTRIBUTE STANDARD RELEASE STDS - 20

029-CONT(2) PREP & SUBMIT STANDARD RELEASE STDS FOR DESIGN, MATLS, SYSTMS & QUAL ASSURANCE

030-PART COMMISSION A/E'S FOR SPECIFIC PROJECTS

031-CONT(1) PREPARE & PUBLISH INDIVIDUAL PROJECT(S) PROGRAMS

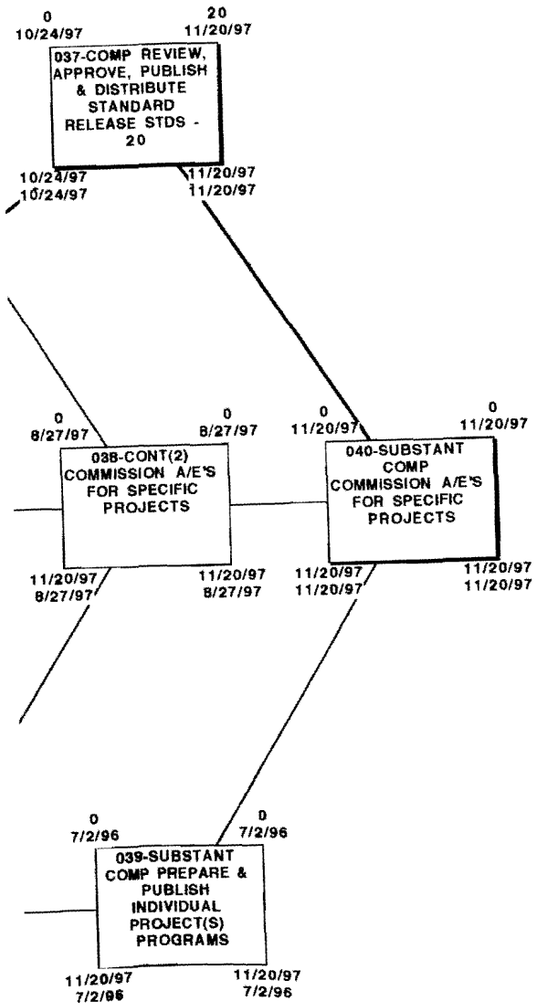
032-BOARD AWARD DESIGN CONTRACTS FOR IMMEDIATE RELEASE PROJECTS - 30

033-CONT(1) COMMISSION A/E'S FOR SPECIFIC PROJECTS

034-CONT(2) REVIEW, APPROVE, PUBLISH & DISTRIBUTE STANDARD RELEASE STDS - 20

035-COMP PREP & SUBMIT STANDARD RELEASE STDS FOR DESIGN, MATLS, SYSTMS & QUAL ASSURANCE - 60

036-CONT(2) PREPARE & PUBLISH INDIVIDUAL PROJECT(S) PROGRAMS



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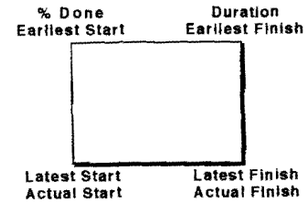

Legend for tasks

NETWORK MODEL FOR 1994 BOND PROGRAM - PHASE 1, SERIES I THROUGH SERIES III

Sims-Varner & Associates
Program Architect/Engineer
Detroit, Michigan

Issue #1 - July 2, 1996
Issue #1 - mtr July 23, 1996
11 sht P A/E S1

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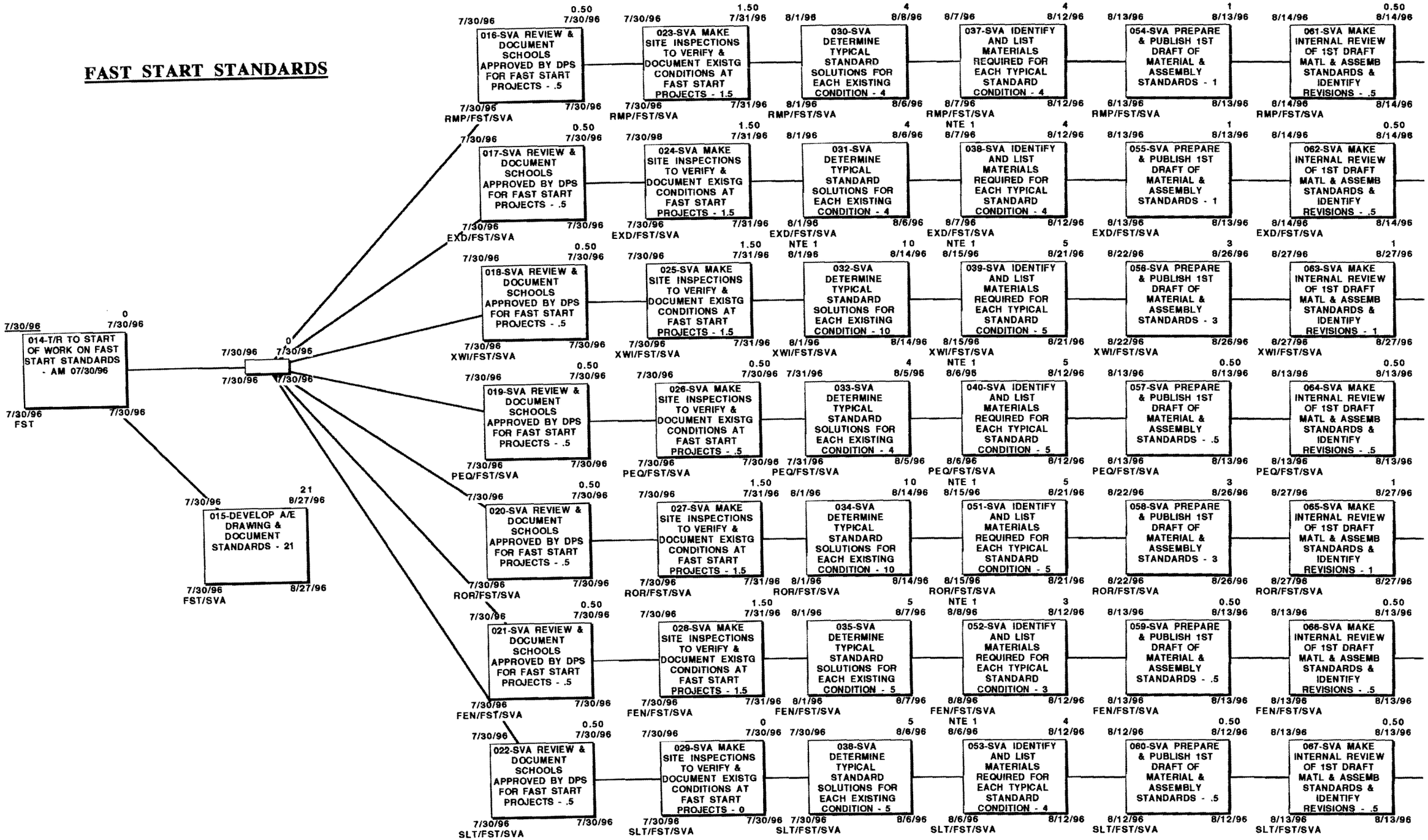
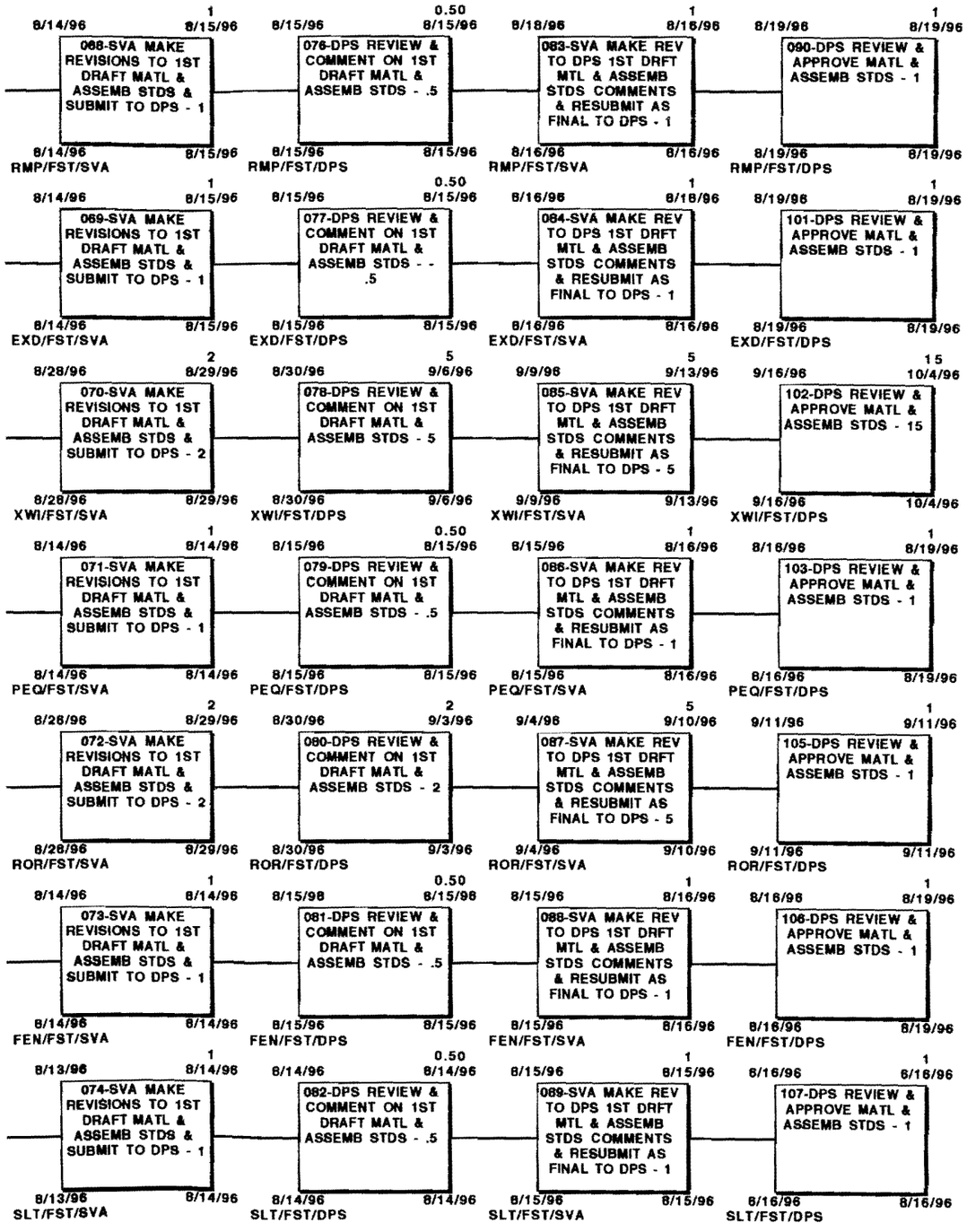
SHEET PAE #1

FAST START STANDARDS





Exterior barrier-free ramps (RMP)

Exterior doors (EXD)

Exterior windows (XWI)

Playground equipment (PEQ)

Roof replacement (ROR)

Fencing (FEN)

Site lighting (SLT)

Fast start projects are
1. Stand-alone projects
2. Do not require programming, nor educational specifications
3. Require little or no Board or Area Superintendent approval
4. Are fully funded through construction under the Series 1 bond issue

Preliminary fast start project types
1. Exterior barrier-free ramps (RMP)
2. Exterior doors (EXD)
3. Exterior windows (XWI)
4. Playground equipment (PEQ)
5. Roof replacement (ROR)
6. Fencing (FEN)
7. Site lighting (SLT)

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FAST START STANDARDS

NETWORK MODEL FOR 1994 BOND PROGRAM - PHASE 1, SERIES I THROUGH SERIES III

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Issue #1 - not used
Issue #2 - July 23, 1996
12 sht FST 2

SHEET FST #2

Ralph J. Stephenson, P.E.
Consulting Engineer

1. **Bond Series 1**
    1. **Meeting #1 - Sims-Varner & Associates office - Tuesday, July 2, 1996**
        1. Those involved
            1. Program Construction Manager
                1. Williams Corporation with Barton Malow - contract not yet approved by the Board
            2. Program Architect & Engineers
                1. Sims-Varner & Associates
                    1. Howard Sims
                    2. Harold Varner - Project Director
                    3. Earl Bright - Standards & Program Manager
                    4. Edwin Corr - Standards & Program Development
            3. Program Managers
                1. M2 International
                2. A Mac Sales & Service
            4. Detroit Public Schools
                1. School Board
                2. General Superintendent
                    1. Assistant Superintendent for Physical Plant
                        1. Architectural Services Division
                        2. Project Management Associates - Consulting Staff Supplement
                            1. Gui Ponce DeLeon - Principal
            5. Fiscal Monitor
                1. Pierce Monroe
                    1. Phillip Pierce
            6. State of Michigan
            7. School Board's insurance carrier
            8. School Board's bond consultant
            9. Project design and construction participants - under various project delivery systems
                1. Project Architects and Engineers of Record - for single or grouped projects
                2. Project Construction Managers - for single or grouped projects
                3. Project General Contractors - for single or grouped projects
        2. Agenda
            1. Prepare architect/engineer laundry list of activities to be accomplished in Series 1
            2. Prepare program architect/engineer summary plan of work for Series 1
            3. Prepare macro view plan of work for the entire Series 1 work
            4. Discuss how to select a project delivery system
            5. Discuss the monitoring, reporting, and updating process

6. Identify and set preliminary milestones and end points
7. √Review background of program to date
8. √Review program characteristics and content

3. General notes - to be updated as the project proceeds
    1. Background of program to date
        1. Program definition lead to revisions in the delivery system
        2. Bonds passed by voters in 1994.
        3. Main foundation of work was developed after the vote
        4. First program efforts concerned anticipated capital costs for a simulated schools program
        5. Now that the program is to proceed the original program effort must be tailored to current needs and demands
        6. Selection of program managers was done by the Board in accordance with the recommendations of the General Superintendent
        7. Selection of the program a/e was done by the Board in accordance with the recommendations of the General Superintendent to insure that the macro program definition was accomplished without program bias.
        8.
    2. Program characteristics and content - the understanding of SVA
        1. The total program is a complex of many different sub programs and individual projects
        2. Within each bond issue there are different kinds of improvements that can be categorized as:
            1. Construction components
            2. Separate buildings
            3. Renovations
                1. ADA compliance
                2. General upgrades
                3. New uses
            4. New construction
            5. Additions
            6. Fixtures, furnishings, and equipment (FFE)
            7. Technology improvements
        3. Effective results can be achieved by developing a design services strategic process that results in implementation of an effective project delivery system and a successful set of projects.
        4. SVA is currently charged with preparing the design services strategic plan
        5. What does <u>project delivery system</u> mean?

6. Each party's scope of work has been defined by the Board.
7. All of the individual partys' scopes of work as defined by the Board have not yet been reviewed and accepted by all parties to the program.

3. Architect/engineer laundry list of activities to be accomplished in Series I and role of SVA
    1. 01.00- Management and Administration
        1. 01.02 - Bond Series II
            1. Review and comment
        2. 01.03 - Demographic study for Bond Series III
            1. Review and comment
        3. 01.04 - Bond Series III application
            1. Review and comment
        4. 01.17 - Land acquisition -
            1. Site selection evaluation reports
        5. 01.18 - Zoning and plan reviews
            1. Review and comment
        6. 01.20 - Public relations
            1. Tasks to be defined
        7. 01.22 - Partnering
            1. Tasks to be defined
        8. 01.23 - Project delivery method
            1. Develop an architectural strategy
    2. 02.00 - Predesign and design phases
        1. 02.01 - Educational specifications (individual space analysis)
            1. Review and comment
        2. 02.03 - Design materials, quality assurance, and systems standards
            1. Develop
            2. Publish
        3. 02.07 - Programming (formerly educational specifications)
            1. Develop final program statement
            2. Develop documentation of as-is conditions
        4. 02.08 - Site analysis
            1. Architect is assigned - review and comment on site analysis.
            2. Architect not assigned - prepare site analysis
        5. 02.10 - Schematic design
            1. Review and comment
        6. 02.11 - Design development construction documents
            1. Review and comment
        7. 02.15 - Quality assurance design review
            1. Review and comment

8. 02.18 - Special meetings
    1. Attendance
    2. Participation
3. 05.00 - Close out and correction phase
    1. 05.06 - Post contract evaluation
        1. Warranty inspection report
        2. Operational evaluations report
4. Matrix of responsibilties, authority, and organization

Ralph J. Stephenson, P.E.
Consulting Engineer

Detroit Public Schools - 1994 bond program phase 1, Series 1 through 3

1. Bond Series 1

1. Meeting #1 - Sims-Varner & Associates office - Tuesday, July 2, 1996

1. Those involved
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        1. Williams Corporation with Barton Malow - contract not yet approved by the Board
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    6. Discuss how to select a project delivery system
    7. Discuss the monitoring, reporting, and updating process
    8. Identify and set preliminary milestones and end points
3. General notes - to be updated as the project proceeds
    1. Background of program to date
        1. Program definition lead to revisions in the delivery system
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        3. Main foundation of work was developed after the vote

4. First program efforts concerned anticipated capital costs for a simulated schools program
5. Now that the program is to proceed the original program effort must be tailored to current needs and demands
6. Selection of program managers was done by the Board in accordance with the recommendations of the General Superintendent
7. Selection of the program a/e was done by the Board in accordance with the recommendations of the General Superintendent to insure that the macro program definition was accomplished without program bias.
8.

2. Matrix of responsibilties, authority, and organization
3. Glossary of terms - to be revised as needed throughout the projects
    1. Acceleration
    Contract work performed in a time period shorter than that originally contemplated by the contract; or contract work performed on time when the contractor is entitled to an extension of time for his performance.
    2. Alternative dispute resolution - adr
    In its generic form, is a method of resolving disputed construction claims outside the courtroom.

    Includes systems of resolving disputes in planning, design and construction by cooperative, internal, or third party assistance methods that are alternatives to conventional dispute resolution methods currently in common use. Conventional methods are usually considered to be litigation and binding arbitration.

    Alternative dispute resolution may make use of non traditional combinations of conventional dispute methods.

    3. Apparent Authority
    A situation in which one person or organization acts on behalf of another person or organization without the other person's or organization's formal authority.
    4. Authority
    The prerogatives, either vested or acquired over a long period of time, that allows an individual to carry out their responsibilities and duties. This includes the right to determine, adjudicate, or otherwise settle issues or disputes; the right to control, command, or determine.
    5. Basic Contractual Relations
    The interconnection of those parties bound by the initial contract to perform in a certain manner for certain considerations to be paid.
    6. Building Components
    The basic units into which most building construction projects can be divided. Usually the components represent distinct construction & construction related actions that have common characteristics.
        1. Front end work (few)
        All non construction project related work concerning real estate, financing and pre construction leasing.
        2. Design work (des)
        Project related work that concerns production and issuing of contract documents

3. Procurement (pro)
   Work related to solicitation of proposals, award of subcontracts, preparation of submittals, approval of submittals, and fabrication and delivery of materials & equipment to the job site.
4. On site work (osi)
   All project work outside the building line and inside the property or hoarding (contract boundary) line.
5. Off site work (ofs)
   All work outside the property or hoarding line that is included in the project contract scope of work.
6. Substructure work(sbw)
   All foundation work upon which the superstructure bears directly or indirectly. Also includes site preparation for start of field work on the building area.
7. Superstructure work (ssw)
   All major structural load carrying components that bear on the substructure directly or indirectly.
8. Exterior skin (esk)
   All elements required to close the building to weather.
9. Interior rough work (irw)
   All interior building components that can be exposed totally or in part to weather.
10. Interior finish work (ifw)
    All interior building components that must be protected totally or in part from weather.
11. Unit systems work (usy)
    All work that can be installed as a unit & is somewhat isolated during construction from other components of the building

7. Cardinal Change
   A change that is outside the scope of the contract.
8. Claim
   A demand for something as due; an assertion of a right or an alleged right. In construction generally a demand for something as due, or in which the demand is disputed.
9. Claim Avoidance
   A technique and procedure for generation of situations in which the demand for what is due as a result of a contract agreement is honored without formal dispute, or in which the dispute is settled by an administrative settlement.
10. Claim Potential
    The measure of potential that any project has to encounter disputes during its implementation.
11. Claim prone job
    A design and construction project that has a relatively high potential for the generation of contested claims by or against any of the at risk parties to the project.

12. Closed Shop
    A work area in which only union workers can be employed on the job.

13. Closed System
    A system in which there is no import or export of information or physical materials, and in which, therefore, there is no change of components.
14. Committed costs
    Committed costs are promised funds for purposes, that if such purposes are aborted a penalty must be paid, and a loss is often incurred.

    Penalties and losses may include such items as:

    - Option costs
    - Right of first refusal costs
    - Legal fees
    - Early engineering fees
    - Legal fees
    - Early planning fees
    - Displeasure of political entities
    - Staff time expenditure lost
    - Loss of credibility
    - Loss of opportunity
15. Construction Management
    A system of attempting to better manage the construction process by providing expert construction knowledge and resources throughout all phases of the project. The goal of the process is to make available to the participants, information best provided by an expert skilled in construction practices, so that when the project moves into the field the managers can provide the owner with the highest potential for project success.
16. Constructive Change
    An owner's action or inaction that has the same effect as a written directive.
17. Contested claim
    A demand or claim in which the demand is disputed.
18. Contract Document Matrix
    A two dimensional grid in which the rows contain action items for the various project components and the columns usually designate the geographic location of the item. At the intersection of a row and a column is inserted the designation of the contract document package in which the information is contained.
19. Contractor
    The party, where there is a principal and a contractor, who agrees to the doing or not doing of some definite thing for a stipulated sum.
20. Control
    Maintaining firm, competent managerial direction of any given situation. Controlling leads to achievement. It is usually accomplished by the invisible use of leverage.
21. Critical Path Method
    A mathematical modeling technique which allows the user to establish ranges within which resources can or must be used.
22. Culture - business
    A way of doing business that has been generated by a group of human beings and is passed along from one business generation to another, generally by unstructured communication.

23. Decision Table
    A tabular display of information depicting a defined situation which permits alternative courses of action to be evaluated by yes or no answers to explicit questions.
24. Decision Tree
    A graphic device showing alternate courses of action from beginning a given situation point. The decision tree is used to graphically show the impact of various possible decisions at any given point in the decision process. It can be quantified or unquantified.
25. Decision-To-Action Time Span
    The amount of time required from the point at which a decision is made to the point where the decision is implemented. In a management structure it is important to insure that the full span of time from decision to action is covered, from shortest to longest.
26. Defective or Deficient Contract Documents
    Contract documents which do not adequately portray the true scope of work to be done under the contract.
27. Delay
    A problem or situation beyond the control of the contractor, and not resulting from the fault or negligence of the contractor, which prevents him from proceeding with part or all of the work.
28. Design / build
    A method of providing total design and construction services under one cost and liability umbrella. Usually a design / build contract is based on a scope of work performance specification prepared by the owner or user. The ultimate aim of the design and build system is to provide a single source management and liability for the total facility program.
29. Destructive conflict
    Animosity or disagreement which results in lowering the potential for an individual or organization to succeed.
30. Differing Site Conditions
    Where actual site conditions differ materially from those indicated in the contract documents; or where unknown physical conditions at the site differ materially from those ordinarily expected to be encountered in work of the nature contemplated by the contract.
31. Directed Change
    A written or verbal change that falls within the scope of the contract. The owner has the responsibility of paying for the change.
32. Document Control System
    A method of receiving, classifying, marketing, storing, and retrieving documents received and sent on a project.
33. Dysfunction - Organizational
    An organizational problem that hinders or prevents achieving objectives. May be temporary or permanent.
34. Enrichment
    Adding to the scope of work originally contracted for with the intent to avoid being charged or paying for the extra work. Often seen in as-noted remarks on submittals, or on inadequate identification of scope of work in a bulletin or change order.

35. Feedback Loop
The loop of communication around a project through which information is conveyed to and through the various components of the project.
36. Field Order
An official notice that the actions or changes described in the field order are to be done. The field order is usually issued only in emergency situations where the time between decision and action does not permit issuance of a bulletin followed by a change order. A method of payment is usually specified in the field order.
37. Functional - as related to management
Designed or adapted to perform some specialized activity or duties, usually concerned with the continuous operation of the company.
38. Functional component
A group designed or adapted to perform some specialized activity or duties, usually concerned with the continuous operation of the company.

39. Functional Operations
Management and staff direction of the application of resources to accomplish each specialized activity. Usually defined as a department or division of the company. Usually concerned with continuous operations of the organization. Contrasts with project operations.
40. Generic Construction (G)
The field of business practice that encompasses all phases of the construction industry, including programming, planning, designing, building, operating, and maintaining facilities. Described best as the full set of activities shown in the line of action. (See line of action.)
41. Line of Action
A sequential statement of activities necessary to conceive, design, build and operate an environment. Related to the generic (G) construction process.
42. Goals
The unquantified desires of an organization or individual expressed without time or other resources assigned. (See objectives for related definitions.)
43. Guaranteed Maximum Price (gmp)
The price for a specified scope of work to be provided by a contractor that contractually binds his performance to a specified guaranteed maximum price. Often the guaranteed maximum price is tied to a time and material performance with the price not to exceed the agreed upon maximum.
44. Hard Money
A total price agreed to for the entire work, and to be paid in a mutually satisfactory schedule of payments.
45. Interfaces
Points at which different but related activities exert direct influences upon each other. Interfaces are often the points where direct objective activities contact dependent objective activities. Poor management of interface situations usually causes problems and dysfunctions.
46. Laundry list
A list of items, usually at random, that are to be classified, rearranged and used to build specifically sequenced tabulations, network models, narrative schedules or other systems of which the items in the laundry list are a component.

47. Life Cycle Cost
The total cost of a system over its entire defined life.
48. Maladministration
The interference of the owner in the right of the contractor to develop and enjoy the benefits of least cost performance.
49. Manage
To define, assemble and direct the application of resources.
50. Management
The act and manner of managing.
51. Managerial Grid
A numerical grid which positions a manager in a matrix by defining his concern for people as compared to his concern for production. This grid has been highly developed by Blake and Mouton and is useful in establishing managerial systems that are desirable and needed.
52. Matrix Management
A management technique that employs a multiple command system. Usually results in one employee having two or more bosses on a time to time basis.
53. Merit Shop
A work area in which the workers may be either union or not, and in which there are no major jurisdictional boundaries governing assignment of work.
54. Mission
A statement of the most important result to be achieved by the project being successfully completed.
55. Monitoring
Measurement of current project conditions and position against the standards of performance set for the job.
56. Must list
Those items that must be included in the scope of work to make the project a go. If any of the items in the must list are not able to be included the project is a no-go.
57. Network Plan
A graphic statement of the action standard of performance to be used in achieving project objectives.
58. Network Planning
A graphic technique of showing necessary and desired actions needed to achieve end, intermediate and peripheral objectives.
59. Objectives
Quantified targets derived from established goals (see goals). The most commonly used resources in converting goals to objectives are money, time, human abilities, human actions, equipment, and space.
60. Objectives - Dependent
Objectives to be achieved that are affected by major influences beyond the manager's direct control. The dependent goal may be predictable or unpredictable.

Dependent goals, while usually beyond the manager's control, may well be within the company's ability to reach. Lack of correlation between company and individual effort to achieve a manager's goals that are affected by others, may cause severe dysfunctions.

61. Objectives - Direct
    Objectives that can be achieved by managing conditions within the manager's direct influence.
62. Objectives - End
    Objectives realized from and upon total completion of the defined project work.
63. Objectives - Intermediate
    Objectives achieved at specific and identifiable stages of the project, i.e. partial occupancy of a building, turnover of a mechanical system for temporary heat, or completion and issuance of foundation plans for early start of construction.
64. Objectives - Peripheral
    Objectives realized on an ongoing basis through the life of the project and achieved as an indirect result of project activities. Peripheral objectives may be personal, professional, technical, financial or social. Peripheral objectives might include staff promotion, profitable subcontractor operations, specialized experience, or achievement of design excellence in a special field.
65. Open Shop
    A work area in which both union and non union workers can be employed on similar tasks.
66. Organizational Structure
    The categories of parties to planning/design/construction/operation process and how they are organized for the work. The organizational structure is shown by a set of relations between the parties that identifies the responsibility and authority lines along which the project is to be implemented.
67. Owner Furnished Items
    Those items furnished by the owner according to the contract documents.
68. Partnering - Associated General Contractors
    A way of achieving an optimum relationship between a customer and a supplier. A method of doing business in which a person's word is their bond, and where people accept responsibility for their actions.

    Partnering is not a business contract, but a recognition that every business contract includes an implied covenant of good faith.
69. Partnering - Construction Industry Institute
    A long term commitment between two or more organizations for the purpose of achieving specific business objectives by maximizing the effectiveness of each participant's resources.

    This requires changing traditional relationships to a shared culture without regard to organizational boundaries. The relationship is based upon trust, dedication to common goals, and an understanding of each other's individual expectations and values. Expected benefits include improved efficiency and cost effectiveness, increased opportunity for innovation, and the continuous improvement of quality products and services.
70. Partnering - suggested base statement
    A method of conducting business in the planning, design, and construction profession without the need for unnecessary, excessive and/or debilitating external party involvement.

71. Partnering charter
The basic manual for operating a partnering system. Contains at a minimum, the mission of the project team, and their objectives for the project. Usually is signed by those writing the document.

The charter is an agreement in principle and must not supersede or supplant the design and construction contracts in place or to be written.

72. Prime Contractor
A contractor whose business agreement is directly with the organization providing primary financing for the project.
73. Pro Forma - in real estate development
A financial model unusually built early in a construction program to show by projecting income and expenses, how the money flow to and from the project will occur. It is often used to establish the capital amount to be allocated to a project based on simulated operating conditions. The term pro forma means according to form.
74. Problem
A deviation from an accepted and/or approved standard of performance.
75. Program - as defining a step in the design process
A narrative oriented statement of the needs and character of the proposed user operation, the requirements of the user and owner, the nature of the environment to be planned, designed and built, and the corresponding characteristics of the space that will satisfy these needs and requirements. Sometimes called the brief.
76. Program - as defining a generic construction effort
A major planning, design, constrution, and operational construction effort made up of several projects
77. Project - as a set of work actions
A set of work actions having identifiable objectives, and a beginning and an end.
78. Project - as related to management
A specific management assignment to achieve a set of objectives by accomplishing a group of related, discrete operations which have a defined beginning & end.
79. Project component - as related to management
Project compontent - as related to management
A group established to achieve a set of objectives by accomplishing a set of related, discrete operations which have a defined beginning & end.

80. Project Delivery System
A method of assembling, grouping, organizing & managing project resources so as to best achieve project goals & objectives.
81. Project Director
The individual responsible for implementation of several projects upon which his company is engaged.
82. Project Manager
One who helps establish objectives generated by a need, plans how these objectives are to be reached through a set of work actions, and then assembles and directs the application of available resources to achieve the objectives on one or more projects.

Usually the project manager is most concerned with supportive actions which bring resources to the point of effective use.

83. Project Organization
The arrangement and interrelations of people charged with actually achieving project objectives. (See organizational structure.)
84. Project Schedule Report
A narrative listing of network activities and the corresponding data re each action. The project schedule report is normally developed in a data base format from which selective reports and arrays can be prepared.
85. Project Stages
The groupings of actions that make up the entire project work sequence.
86. Relations - Formal Functional
Organizational connections that concern distribution and use of data, information and decisions that flow along formally defined transmission lines. Formal functional communications are usually written and are normally both from and to individuals and groups.

Formal relations are precisely defined and most day to day business is accomplished within the formal relation framework. The line expressing a formal functional relation usually has an arrowhead at each end to show a mutual exchange of responsibility and authority. If there is a higher authority to be implied a single arrowhead can be used pointing to the superior party.
87. Relations - Informal
The natural channels along which organizationally related material is most easily and comfortably transmitted. The informal relation exists by mutual consent of the parties to the relation, and is stimulated to maximum effectiveness by a mutual profit gained from the relation.

Little, if any, authority normally is expressed in informal relations. Communications are usually oral and one to one. Often informal relations define the hidden organization structure. A line defining an informal relation is usually shown dotted with an arrowhead at each end.
88. Relations - Reporting
The official channels through which each individual conveys, or is given raises, appraisals and evaluations; is fired, assigned or is provided professional, vocational and personal identity in the organization. The true organizational superior of an employee is usually that individual with whom he maintains a reporting relation. The line expressing reporting relations has an arrowhead at one end pointing to the superior.
89. Relations - Staff
The business patterns through which a person or group provides consulting services necessary to achieve goals and objectives. Staff personnel usually have little or no authority over those outside the staff group. The line expressing staff relations has an arrowhead at each end.
90. Relations - Temporary
Those relations created when extraordinary or unusual management demands must be met. The temporary relation is usually unstable and should be kept active for only short periods of time. The line expressing a temporary relation

can have an arrowhead at one or both ends depending on the nature of the relations.

Extensive use of temporary relations creates business dysfunctions, breaks down morale and causes internal tensions.

91. Resource Allocation
The assignment of project resources such as money, time, space, people and equipment to activities that must be done to achieve project objectives. Usually resource allocation is done to achieve effectiveness in project work measures such as profitability, timely completion and quality of work.
92. Resource Leveling
The use of resource allocation to even out the use of resources within a given set of time, money, space, people or equipment conditions. Resource leveling is a special form of resource allocation with its prime use being to maintain a nearly equal assignment of resources to activities and projects for their entire duration.
93. Resources
The tools of the supportive and ex'e'cutive manager. Resources include time, talent, tools, equipment, time, money, experience, space, materials, as well as intangibles, such as enthusiasm, morale and leverage.
94. Responsibility
The assignment, spoken or understood, that a person in an organization has as his part in maintaining the organization's health and vitality.
95. Risk
Any exposure to the possiblity of harm, danger, loss or damage to people, property, or other interest. To expose to a chance of loss or damage.

96. Schedule
A graphic or written tabulation of project activities showing where the activities are to start and finish. The schedule is derived from the plan of action and the network model by locking the tasks and the resources they require into a specific time position.
97. Shop Drawing
A submittal in the form of a drawing, usually made specially for the application shown. Shop drawings usually show details of fabrication and installation.
98. Specialized Construction (S)
The field of business practice that encompasses single phases of the construction profession. Examples of "S" construction organizations are architectural / engineering offices, mechanical contractors, plastering contractors, and planning consultants, among others. Includes nearly any single organizational unit active in design, planning, construction or related fields.
99. Specification
A narrative description of the various materials and systems to be incorporated in the work. The specification concentrates on identifying quality of materials, source of materials, allowable practices, and general requirements and conditions of the contract performance.
100. Standard of Performance
A well defined, explicitly stated, approved and accepted statement of the measurements to be used as a gage of performance, and goal and objective achievement.

101. Superior Knowledge
The owner's withholding specific data on matters of substance not known to contracting parties during the pre contract period.
102. Suspension
An owner's or owner's agent action of stopping all or a part of the work.
103. System
An assemblage or combination of things or parts forming a complex or unitary whole.
104. Termination
The dismissal of a contractor, from a project, for convenience, resulting from factors beyond the contractor's control, or for default when the contractor's performance is not acceptable.
105. Third Party
A party to a contract or agency agreement other than the principal or agent.

Also refers to an individual or group that is not primarily engaged in facilities programming, design, construction, or operations.
106. Time and Material Contract
An agreement in which payment for services and material is made only for those services and materials actually furnished. There may, or may not, be imposed a not-to-exceed amount on the total cost.
107. Total quality management (TQM)*
The managing process which helps insure that the quality of all components, and of the final product in the planning, design and construction of any facility is maintained at a level which meets the client's program performance requirements.
108. Translation
Recasting standard of performance information and data into graphic, narrative, mental, oral or other forms, to insure optimum use by those involved.
109. Turnover Cycle
In the construction or fabrication of several similar units, the amount of time required from the completion of one unit to the completion of the succeeding unit.
110. Ultimate Decision Maker (UDM)
The individual or group at the lowest management level that has the authority to make a final binding decision in any job related matter.
111. Unilateral Meetings
A decision meeting at which only a portion of the parties affected are invited to participate.
112. Updating
The process of revising and reissuing a project network model to bring it into conformance with a current desired and necessary plan of action. Updating often, but not always, results from monitoring and evaluating the project. Usually the updating is done when it is found that the current plan of work does not adequately depict the actual conditions under which the project is being executed.
113. Upset Price
A guaranteed maximum price agreed to in a time and material contract. (See time and material contract.)

114. Value
The increase in worth of an open system to which an item of value has been added. Often multiplied by the weight of a factor to give the weight & value rating of a factor to help determine a choice of alternatives.
115. Value added
The improvement in the worth of anything that results from the efforts, contribution and involvement of specific people, processes, materials and ideas.
116. Vested Authority
The endowing of privileges, strength and leverage from a superior, usually to a subordinate. Generally gained quickly, rather than being earned by long and proven service in a related field within the organization.
117. Want list
Those items that are wanted and can be included in the scope of work, over and above the must list items, since they provide a definable and acceptable rate of return on their cost.
118. Weight
The relative importance of a factor being used to help evaluate a choice. The importance is frequently measured by a numeric scale from 1 to 10, in which a very high positive influence is indicated by a rating of 10. A very low influence is indicated by a rating of 01.

Degrees of importance between the highest and the lowest are indicated by number ratings from 02 through 09. The weight of a factor multiplied by the value added by the decision choice being considered gives a weight & value rating of a factor to help determine a choice of alternatives.
119. Wish list
Those items that the owner and the user wish they could include but might not be able to due to budgetary or other reasons. Wish list items are best added, not deleted, as the project moves into construction.
120. Working Drawings
The set of contract drawings that pictorially show the intended appearance of a job when complete.