Ralph J. Stephenson, P.E.
Consulting Engineer

+ **Draft #1 for Book A Introductions - disk 810 - August 29, 2001**
  - **Introduction #1**

"That is what learning is. You suddenly understand something you've understood all your life, but in a new way". -- Doris Lessing

Once upon a time I was with some good friends in the building profession having a free-for-all conversation about construction having to do with their profession and the work it has been their lot to do for their livelihood. As we went on about estimating, design-build, hard money, planning, CAD systems, etc., it became apparent that the world we were talking about continued to narrow down to a very small set of operational topics that centered on the field start up operations of a hard money contractor who was recently awarded a contract that had been competitively bid from a complete set of working documents.

As we narrowed an interesting conversation about good planning, design and practice down to a minuscule part of our vocational lives, I observed that we had conversationally passed over many of the critical features and elements of what I would like to rename, *"construction"* !

In my eyes, this is defined as the generic name for a profession, discipline, grouping, organization or other combination of elements that collectively make up an enterprise or effort ultimately resulting in a physical object that is useful to the society engaging in its *"construction"*.

Think about our conversation as being the contents of a large funnel into which we have poured immense quantities of resources: manpower, materials, talents, money, sweat, and others, that, as they pass through the funnel are gradually transformed into the final product, a building. All the contributions made during the passage of the resources through the funnel are part and parcel of our *"construction"* world.

I realized, - not suddenly like in a detective story - who, on bad jobs, had been the culprit. It was those in the whole cast of characters who knew too little about their role in the *"construction"* business. They were this weak link that had tainted the process, and caused critical failures from the start of the job through move in and operation of a project. The architect and contractor team merely had the privilege of completing and the responsibility of turning over a completed system package.

It is this series of critical links that I wish to address in this book through a series of essays, monologues, and exhortations for the serious *"construction"* professional.

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- **Introduction #2**

No matter how far you have gone down the wrong road, turn back -- Turkish Proverb

Once upon a time I was reviewing some old notes I had written in the mid 1980's when I was a youngster of 63. The notes, almost universally stressed how important is is for the new entry in high school or university (do you know the difference between a university and a college?) -- or out beyond, for the new entry in the actual world of practice to keep their mind active and open to its capacity.

Such sayings as that of Abraham Lincoln -- "Learn one new thing each day" -- or "Always be waiting for information -- never have it due from you" usually struck me as being a truth that was not understood until you learned why the aphorism was born and survived. For instance the saying --- "A good field superintendent is usually unpromotable" -- seems strange until you work with several excellent or good superintendents. You slowly find out their talents are rarely found in others, and that these abilities have been acquired through years of hard work, learning, and making good decisions, qualities that are especially hard to duplicate in others.

This line of thinking gradually led to trying to discover what keeps our design and building profession alive and well. The book you hold in your hands is an intermediate statement of the quality of fascination held by the physical construction of an environment that keeps the action alive.

However, the learning and experience that goes with the discovery of the engine that drives the construction industry seems recently to have become so complicated that it takes more and more people who know a lot about construction lore and practice to do a good job in the critical integration of all the knowledge that must be available to the master builder.

As I once asked myself and my budding construction students in a seminar subject outline -- "What do all of these people we know and deal with, do for a living, and what do they have to do with my project?"

That's the essence of what the excellent superintendent knows over and above the technical, professional and business knowledge he or she has and it is what this book is all about. So start reading and good luck in your future!!

- **Introduction #3**

"A mind, once expanded, never returns to its original shape."

In the dim, dark past, life in the construction business was simple. Designs were functional, systems were built of mechanical and electrical wiring, and the social impact on the environment was usually not as important as the strength of the structure. Regulation was straightforward, easily understood, and usually easy

to implement.

As we moved into and through World War II, the Korean War, the 1960's, Vietnam, the various political crisis of the 1900's, the expansion of communications by TV, e-mail, internet, fiberoptic materials, and in instant touch with places like Oman, Tibet, Siberia, Grayling, New Era, Whiskey Alley and others, times began to change.

Everything technical, social, or professional, and in all related to practically every human activity and discipline increased in complexity. The business of living in such astounding times of rockets, computers, medical advances and changing personal interrelations made our lives busy, busy, busy, our work more complicated, our recreation more expensive, and our learning harder and harder.

Voila! In a flash our nice, simple construction profession seems to have turned into a monster that threatens to swallow us in a morass of interfaces, communications, dependencies, and conflicts. In the United States today there are almost 12,000 different occupations, with nearly 8,000 alternate names. This gives a total of nearly 20,000 occupations from which to pick and choose your professional associates.

What does this mean to the construction industry? It means that the occupational options and choices of hundreds of people must be accommodated in our profession. That this number has increased in the last few years there can be little doubt.

So you must now be ready and able to work with many more factors than previously if you are to maintain pace and excellence in your work at the profession of contruction. You are now in the occupation of *"Construction"*.

"Construction" is the all encompassing name applied to a profession, discipline, grouping, organization or other combination of elements that collectively make up a building enterprise or effort ultimately resulting in all or part of a physical object that is useful to the society engaging in its creation.

This book explores how we must now improve our abilities in many new and sometimes strange disciplines in order to succeed in the planning, design and building business. What are these disciplines? How do you learn them? Where do you learn them? How can they help you and your profession improve performance?

That's what this book is all about!

- **Introduction #4**

"If you can't plan it you can't manage it."

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My search for the Golden Key to Construction seemed to have been successful, when in the early 1970's I began using a chart called the "Line of Action" (see figure 01.01) with my design and construction clients to illustrate the process of generic construction in my teaching and mentoring in the art of building.

With the help of many excellent professionals over several years this simple linear arrow evolved into a three dimensional matrix which once again seemed to represent the latest state of the art in the graphics of generic construction actions.

I underestimated the dynamic nature of our profession and business and soon was searching for – of all things -- a definition of the planning, design and construction process. What had started out as an elementary communications problem had grown into a complex semantics morass.

Along with the increased complexity came a huge increase in the number of way we conveyed our technical ideas until now as we express our thoughts and our management direction we have to define disciplines numbering in the dozens, job descriptions numbering in the hundreds, and construction-related actions numbering in the thousands.

It is time to step back -- look carefully at our business -- find out why Communications confusion is rated our Number 1 problem -- and then do something about correcting what is wrong. This is what I would like to do in this book!

- **Introduction #5**

"Every profession is governed by some set of rules --
generic construction is no exception."

In our institutions of higher learning we occasionally encounter an indivdual or group who writes off as inadequate the credentialling of trained construction professionals, or who debunks the theory that anyone trying to use sound experience and trade training as a tool in decision making doesn't really know what they are talking about when practicing the profession of "building".

Frequently such learned men and women are heard to say that we don't have to gain professional registration in order to be a good engineer or a good technician. "It is a waste of time to force credentials that are not needed".

Hogwash! The purposes of registration far transend just proving that the well trained and educated individual is capable of acting in the best interest of the public safety, health and welfare. The purposes go far beyond just indicating a level of learning that is adequate to protect the citizens of a State from inadequate designs, unfair and specious legal harassment, and inadequate decision making.

The process of credentialling an individual serves many masters including proof

of the professional's willingness to assume a liability position for his or her judgement in technical matters over which there is a dispute - this only if the professional believes their client is right and can prove without a shadow of a doubt the correctness of their decision; In other words prove to themselves that their cause is just.

Dorothy Sayers, the mystery writer, in one of her fine books, tells the story of the judge speaking in a criminal trial to the jury, when emphasizing guidelines to making judgments within the English law system. The judge stresses that

English law holds that the accused person is held to be innocent unless proved otherwise. It is not necessary for the accused to prove innocence. It is up to the accuser to prove guilt. This does not mean the prisoner has established innocence by proof. It means the accuser has failed to produce conviction of guilt in your minds beyond a "reasonable doubt." Reasonably doubt means just so much doubt as you might have in a day-to-day business transaction.

It does not matter how serious the crime is. The reasonable doubt must only mean that the proof of guilt must be such as you would accept as a plain matter of buying and selling, or some other such commonplace transaction.

You must not strain you belief in favor of the prisoner any more than you accept proof of guilt without the most careful scrutiny."

The professional in any branch of construction must take on the job of belief in behalf of his or her client. Thus do they prove they believe their knowledge matches their position taken in that matter. This is the essence and true mission and significance of credentialling.

Hopefully we can show what this means for the practicing construction professional in this book you hold in your hand.

d810 book "A" notes as of August 29, 2001 - rjs

I. **Internet search seqence**

A. Sequence of steps to be taken to get CMU library on line for reference information

1. Connect into internet
2. Pull up CMU library web **page www.cmich.edu**
3. Find Dictionary of occupational titles, online version
4. Use key word "construction" in the find box
5. Use menus to move from subject to subject.

2. **Sayings**

This little collection of terse sayings is meant to be a semi-humorous, semi serious approach to alerting the construction professional to some quick signs that things are good or bad on a job. The tips are not intended, nor should they ever be intended to be 100% accurate They but they are a straightforward effort by the authors to alert you to windows in the construction project that may provide a technical or management signal that you should heed.

Some of the saying are written with tongue-in-cheek but just might save you one or two embarrassing moments.

1. Patience is a virtue learned through meaningful experience.
2. A consultant is an expert who looks at your watch and tells you what time it is.
3. Someone on the project team should be made totally responsible for the first 3 to 5 months of procurement work.
4. A need on project "x" is for the "x" project staff to recognize that their client usually has relatively fixed idea of what the scope of work they, the client, can expect from their planning, design and construction experts. That scope of work may not be fully defined in the mind of the project "x" staff but it does exist

somewhere. The place may be the mind of the owner, the construction manager, the designer, a regulatory agency, the estimators from the various disciplines, or any of several other liable and not-at- risk parties.

The key to success on the job is to be able to reconcile what the various parties TO THE CONTRACT understand is the scope of work.

A secondary, but critical element, is the understanding and resolution of what the other parties to the project understand what is the scope of work. A further dimension to this comprehension is to insure that a full understanding exists as to what the various parties to the project feel they must leverage into the project for whatever reason they might have for this understanding or for their actions directed toward achieving the objectives generated by the understanding.

5. A good superintendent can build a job if he has all the materials and equipment available. It's the lack of these that most frequently produces a troubled construction project.

6. When studying a construction photo in a contested claim always look most closely at the edges of the picture to see what is really going on.

7. Always be willing to teach anyone who listens everything you know about construction. It's the only way they'll learn properly.

8. Be the first to consider the new in planning,design and construction, and the last to discard the old.

9. Always be training someone to be take over your job. If you don't, you won't be promotable.
10. If you can't plan it you can't manage it.
11. 20% of the procurement items on a construction project will give you 80% of the procurement problems.
12. The conduit size for security wiring will always be too small.
13. Expect to have difficulty collecting the full value of work done under an unsigned change order.
14. A skylight will always leak.
15. If it looks like it will rain, it probably will.
16. Never do anything in circles.
17. If it's concrete, it'll crack.
18. A building will always move.
19. If you are a good construction superintendent you probably are unpromotable.
20. If you are a good superintendent you are probably happy at what you are doing.
21. A good project manager will ultimately have to travel to keep his job.
22. If a plan of work is hard to put together the job will be proportionally hard to build.

23. If you can't get cost and time data on your job you haven't arrived yet.

24. You don't miss the train because you didn't run fast enough, you miss it because you didn't leave early enough.

25. Beware of a subcontractor whose job tool boxes are not unlocked at least once a day.

26. Be wary of a project manager who shepherds you during a job inspection.

27. A contested claim on a job is predictable from the day the job is estimated.

28. The most difficult jobs are those for attorneys & churches.

29. The elements of a job that cause the most problems. in order of difficulty are you, your company and the designer.

30. A change will always be made within the first 15 working days of field work.

31. A potential roadblock to progress can always be identified by the statement that starts - "that's no problem we'll just....."

32. If you are a coach you teach your players how to play before the game, not during the game -- there is no substitute for good up-front planning properly timed.

33. An excellent manager tries to bring everyone in the organization to the level of the best in the organization within each persons perceived capacities.

34. Don't try to manage the impossible.

35. If you are thrown to the wolves, make friends with them.

36. A good construction advisor can save 90% of the potential savings on a job during the first 10% of the design period.

37. Most problems hit those who are most visible.

38. Those who receive and resolve the largest number, and the most difficult problems are those who achieve success.

39. Construction dollars are committed during the program and design period. They are only spent during the construction period.

40. If you don't know where you want to go you won't be able to get there.

41. People who tell you only what you want to hear will cost you money.

42. You can usually buy it cheaper than it will cost if you do it yourself.

43. North of the Ohio River and ease of the Mississippi, whatever exposed weather-sensitive work is not done before November 1st and must be done after November 1st will take about 1 1/2 times as long and cost about 2 times as much.

44. If any piece of equipment has the word control in it, assume it will provide a procurement problem.

45. ini
Launch a search and provide for the door frame that can be securely fastened, and be installed at the same time as the door and you will make your fortune.
46. pro, comm
Develop a workable electronic submittal technique that permits terminal to terminal transmission.
47. pro
Establish company- wide record keeping methods for planning data used repeatedly, such as:
Weather delays.
Procurement times for critical materials and equipment.
48.
Every profession is governed by some set of rules -- construction project management is no exception.
49.
Don't rely solely on weather forecasts to plan your concrete work -- look at other factors that influence the sequencing -- mix design, admixtures used, surface temperatures, protection available, etc.
50.
Install the ceiling before you hang the vinyl wall covering.
51.
Measure the surface temperature of the concrete slab to determine whether to continue the pour or not.
52.
Install as much of the food service ceiling before you set and align the food service equipment.
53.
From epson notes of 10/6/86 - check book on leadership.

Is there a trend toward using the leader manager management style - apparently this is a method that allows some of the management to be leaders instead of mangers and others to be managers with no leadership responsibilities. The concept

doesn't sound correctly stated to me. Find out more about the concept. The manager executes, the leader leads without management?.

54. The devil remains in the details.

55. A mind, once expanded, never returns to its original shape.

56. A computer can recognize what is meant when it is told to enter the symbols 2" x 4": but when it is told to enter 4" x 2" it does not recognize it as the same piece of lumber as the 2" x 4". This distinguishes the human mind from the computer memory.

57. If you can't plan it you can't manage it.

58. Always be waiting for information -- never have it due from you.

59. Smile frequently -- it is the scratch that feels so good when you itch.

60. Laugh occasionally -- it is the catharsis for the clouded mind.

61. You have only one chance to make a first impression.

62. Learning, to the active mind, is an unquenchable thirst

63. Learn at least one new thing a day. (Abraham Lincoln?)

64. A day without learning is like a day without food & water.

65. Oversimplification is merely an excuse for not thinking.

66. If you hear a strange noise outside your trailer, get out and find what caused it.

67.

He who takes meeting minutes controls the meeting.

68.

The obvious is not always, in fact is seldom, the basis upon which sound decisions are made. (Epson 01/04/86)

III. **Epson notes**

A. 01/04/86 - A discussion of factors which make situational thinking valuable to the project manager. from Lester Bittel.

1. Good project management requires consideration of a multitude of factors - technical, economic and sociological.
2. The good project manager must be possessed of several valuable attributes. Might want to identify what attributes are needed in other professions and practices to become outstanding in their understanding of *"construction"*.
3. Whatever the systems are that we define as a part of the generic construction profession the good project manager must adhere to 3 basic rules in the use of the systems
   a) He must be knowledgeable about the interrelations within each system.
   b) He must be skillful at manipulating the separate forces within each system,
   c) He must be skillful at adjusting to the impact of one system upon the other.
4. Improper filtering of irrelevancies in the systems structure are called noise or static. Filtering by a less-than-excellent project manager or improper filtering by an excellent project manager is a flaw in the feed loop system that must be eliminated.
5. A competent manager must develop skills in many disciplines.
6. The good project manager sizes up a situation not only from his own viewpoint but from that of other people.
7. Common failings of the manager in achieving situational thinking potential.

B. 01/09/86 - LIT freshman engineering class talk
   1. Stress credentialing as an integral part of successful management.
   2. Why credentials are important to the professional.
      a) Prequalify the professional
      b) Force learning of elements of the profession that fellow professionals feel are important.
      c) Provides proof of the seriousness with which the individual takes his technical responsibilities.
      d) Furnishes legal responsibility of the opinions of the credentialed individual.
      e) Provides entrance into the company of other professionals who generally believe as he does
      f) The lay public is better able to accept the registered professional as a qualified practitioner.
   3. The registered professional engages in a profitable profession

C. 01/26/86 - Conexpo seminar outline
   1. Subject - Project Planning and Scheduling
   2. Acceptance of the system
   3. Overview of planning and scheduling.
   4. Preparing the plan
   5. Translating the plan
   6. Using the plan and schedule
   7. The human factor in the use of network planning and scheduling.
   8. Automating the systems.

D. 09/28/86 - good to incorporate into the check list material in book ?
   1. Check list continuation of project manager check list ho 263 - front end work for the construction project manager - taken from the AIA project checklist and modified for the construction profession.

E. 10/18/86 - failure, good, humble, excellence
   The difference between true success and authentic failure is often the understanding of the relation(ship) of being good,

being excellent and being humble.

Being good is to achieve the ability to do something that is externally valid. Being excellent is to have the knack of being good and to also have the intrinsic quality of total worth.

Humility is the honest unawareness of either being good or being excellent. However an unawareness of being good (if you are good) is the first step toward achieving excellence.

The simple reason for this phenomenon is that because birds like to fly right side up with dead fish sitting on their stomach.

An interesting factor in success is that of transforming a mistake (in a physical sense) into a correct (albeit a lesser correct) action, i.e., discovering you are in the wrong meeting at a crucial morning time but turning to the mistaken meeting and controlling it, without a thought as to the meeting you were supposed to attend.

Meanwhile the meeting you were supposed to attend was dominated, after the initial shock of your not being there, by a man or woman who was well prepared, competent, and capable of taking over your job.

IV. **Glossary of terms**

A. Construction
The business or work of building. The way in which something is put together.

B. Construction heirarchy
A range of construction classifications from the smallest component through to the largest component .

Shown below are other selections of possible names for the class of construction.

1. Specialized construction - S construction
   The field of business practice that encompasses single phases of the construction profession. Examples of "S" construction organizations are architectural/engineering firms and departments, mechanical contractors, plastering contractors, and planning consultants, among others. Includes nearly any single organizational unit active in design, planning, construction or related fields.
   a) S construction
   b) Sub contracting
   c) Specialty contractors
2. Construction - C construction
   The immediate business, act, or process of building on or improving real estate so as to raise the value of the property. To convert a concept and its related plans and specifications into an actual physical environment. The act of using some or all of the specialized building occupations to build a facility that is under one general management responsibility.
   a) C construction
   b) General construction
   c) Construction
   d)
3. Generic construction - G construction
   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.)
   a) G construction
   b)
4. *Universal* "Construction" - U construction
   Universal construction (U construction) is the application of S, C and G construction in the full range of economic, business, technical, social, professional and other components that make up our world civilization.

The all encompassing name applied to a profession, discipline, grouping, organization or other combination of elements that collectively make up an enterprise or effort ultimately resulting in all, or part, of a physical object that is useful to the society engaging in its creation.

a)

C. Discrete management
The direction and leadership of sets of operations that, as a group, have a defined starting point and a defined ending point.

D. Glossary of terms
A list of difficult or specialized words with definitions.

E. Leverage
The effective use of vested and earned authority to solve problems and achieve goals and objectives.

F. Ongoing and discrete management - anecdotal definition
In the work that you and I do there are two fundamental forms of management -- ongoing and discrete.

Ongoing management is the direction or continuous operations in an organizational context.

Discrete management is the direction of sets of operations that, as a group have a defined starting point and a defined ending point. (notice I have not used the adjective "well" to describe points. The reason is that good definition of starting points and finishing points is a rarity). Thus preparation and use of a glossary of terms is an essential to effective participation in either basic form of management.

G. Ongoing organization
The arrangement and interrelationships of people charged with providing supportive action on an ongoing basis within the company. Examples of functions contained within the ongoing design or construction organization are estimating, administration, legal, marketing, sales, purchasing, and accounting.

H. Operative words
Those words, usually nouns, verbs, and some adjectives, which best, and most quickly, convey the true meaning of a sentence or thought to the reader or listener.

I. Professional
Having great skill or experience in a special contributive field of work that is gained by extensive training and education in those fields of effort requiring specific and related education.

J. 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.

K. Situational thinking
The ability to accurately evaluate a set of project influences by mentally moving from a long overview (macro) of them to a detailed picture (micro) and back, and being able to stop anywhere in between to consider other scale pictures of these influences and their relationships. See also Epson notes, 01/04/86.

L. Subcontract
A contract that assigns some of the obligations of a prior contract to another party.

M. System
An entity in which no single factor operates independently from another.

N. Technician
A person whose occupation requires training in a specific technical process.

O. Universal
The sphere or realm in which something exists or takes place.

V. **General ideas**

A. Notes from Dorothy Sayer's book about the trial of Harriet Vance (fiction - detective story). When using, point our that these sayings were represented as a guideline to making judgments within the English law system under which the American judicial system operates.

1. Patience is a virtue learned through meaningful experience.
2. Intelligence works with the tools at hand.
3. English law holds that the accused person is held to be innocent unless proved otherwise. It is not necessary for the accused to prove innocence. It is up to the accuser to prove guilt. (to the jury).
4. This does not mean the prisoner has established innocence by proof. It means the accuser has failed to produce conviction of guilt in your minds beyond a reasonable doubt. (to the jury).
5. Reasonably doubt means just so much doubt as you might have in a day-to-day business transaction.
6. It does not matter how serious the crime is. The reasonable doubt must only mean that the proof of guilt must be such as you would accept as a plain matter of buying and selling, or some other such commonplace transaction.
7. You must not strain you belief in favor of the prisoner any more than you accept proof of guilt without the most careful scrutiny.
8. A question asked on page 8 of the Dorothy Sayer's book is stimulating -- after the judge's statement "You may perhaps think that one step into the path of wrongdoing makes the next one easier, but you must not give too much consideration. You are entitled to take it into account but

you must not be too much prejudiced", Freddy Arbuthnot said "I should jolly well hope not. Damn it, if every little game led to murder, they'd be having half of us doing in the other half. Peter Wimsey asked Freddy "And which half would YOU be in? Victim - or - doer inner?"

9.

B. Epson notes 09/04/86 - some good observations re check lists and why some are good and some not so good.
C. Epson notes 09/17/86 - Good questions to answer - top management questions.
D. Epson 08/09/86 - Good points on development programs (Kirco), Opus criteria for project success, and ideas for case study work.
E. Epson 01/26/86 - Outline of seminar on planning and scheduling for Las Vegas seminar
F. Epson 01/09/86 - Outline of notes for LIT freshman engineering class talk.
G. Check on reference books that might list and describe different professions.
H. References (filed in loose leaf notebook, or in other places?).
    1. Cam Magazine - August 2001 - Mentor/Leader - Article about Bob Thompson.
    2. Crain's Detroit Business - June 25 - July 1, 2001 - Article on Bob Thompson and his selling of Thompson-McCully Company.
    3. ENR - August 6, 2001- Construction Schooling Stalled at a Crossroads of Issues -
I. Ideas from 'What Color is Your Parachute?' - abstracts re particular types of jobs. (from 1992 edition of Parachute)
    1. Directory of Occupational Titles (DOT) - Superintendent of Documents, U.S. Government Printing Office, Washington DC 20402
        a) A catalog of the 12,860 occupations known to exist in the U.S. at present (1993?)

2. Dictionary of Holland Occupational Codes - A Comprehensive Cross Index of Holland's RIASEC Codes with 12,000 DOT occupations.
3. Job Directories
   a) Directory of Occupational Titles (DOT) - Superintendent of Documents, U.S. Government Printing Office, Washington DC 20402
      (1) A catalog of the 12,860 occupations known to exist in the U.S. at present (1993?)
   b) Holland, John L. and Gottfredson, Gary D., Dictionary of Holland Occupational Codes - A Comprehensive Cross Index of Holland's RIASEC Codes with 12,000 DOT occupations. Psychological Assessment Resources, Inc. Odessa, Florida 33556.
   c) Selected Characteristics of Occupations Defined in the Dictionary of Occupational Titles.
      (1) US Department of Labor, Employment, and Training Administration.
      (2) Superintendent of Documents, US Government Printing Office, Washington, DC 20402.
   d) Job Selection Workbook for use with guide for occupational exploration. US Employment Service, Employment and Training Administration. Available from Superintendent of Documents, US Government Printing Office, Washington, DC 20402.
   e) Occupational Outlook Handbook, Bulletin 2300, Superintendent of Documents, Bureau of Labor Statistics. Available from US Government Printing Office, Washington, DC 20402.
      (1) Occupations organized by interest in job title.
      (2) Also published as America's Top 300 Jobs by JIST Works, Inc. 720 North park Ave., Indianapolis, IN 46202-3431.
      (3) Has some helpful indices and supplemental material.

f) Hopke, William E., ed., Encyclopedia of Careers and Vocational Guidance, 8th ed. 4 volumes. Garrett Park Press, PO Box 190 W., Garrett Park, MD 20896.
g) Sacharov, Al, Offbeat Careers: The Directory of Unusual Work. Ten Speed Press, P.O. Box 7123, Berkeley, CA 94707.
h) Cylkowski, Greg J., Developing A Lifelong Contract with a Career in Sports - Athletic Achievements, 3036 Ontario Road. Little Canada, MN 55117.
i) 200 Ways to Put Your Talent to Work in the Health Field. National Health Council, Inc., 350 Fifth Ave., Suite 1118, New York, NY 10118.
   (1) According to the US Department of Labor, 7 of the 10 fastest growing occupations in the 1990s are in the heath services field -- one of the largest occupational fields in the country -- which employs over 8.7 million people.

4. Selected Characteristics of Occupations Defined in the Dictionary of Occupational Titles.
5. Elements of the flower picture of your particular ideal job. (from1992 edition of Parachute)
   a) Physical setting I like to work in
      (1) General - geographical factors
         (a) The geographical area which would please me most, and therefore help me to do my most effective work, would have the following characteristics
      (2) The names of three places which fit these characteristics are:
      (3) Specific - working conditions
         (a) At my place of work I could be happiest and do my most effective work, i had the following working conditions (e.g. working indoors or not, not punching a time-clock, a boss who gave me

free rein to do my work, having my own office, etc.):

b) Spiritual or emotional setting I like to work in
   (1) My philosophy of life.
      (a) What I believe about life in general, and my life in particular (key ideas here)
   (2) In order to do my best work these are the factors from my philosophy(above) that are especially important to me to have at my work (or in my work):
c) Tasks and skills - what I like to do with things, people and/or information
   (1) In order to do my favorite tasks, I need to be using me favorite functional/tranfrable skills. These are: (list).
   (2) My style of doing them is: (list traits or self-management skills (i.e., "quickly," "thoroughly," "painstakingly," etc.).
d) My favorite kinds of people I like to use these skills with
   (1) Types of people I like to
      (a) serve or try to help
      (b) work with
   (2) As clients, customers, students, or others
e) My favorite kinds of information I like to use these skills with
   (1) Form
      (a) types of information I prefer to work with or help produce
      (b) types of information I like to collect or deal with
      (c) ways in which I like putting information to practical use
   (2) Content
      (a) Fields I have knowledge in
      (b) Which of these fields do I enjoy the most?
f) My favorite kinds of thing I like to use these skills with
   (1) Foods
   (2) Material

(3) Communications material
(4) Transportation material
(5) Electronics
(6) Medical, gardening, arts, or sports material
(7) etc.

g) Outcomes: Immediate and long range
   (1) Immediate outcomes
      (a) What work result am I aiming for? (i.e., product, service, or information)
      (b) Which product, service, or information?
      (c) What do I see as my central driving motivation in whatever job I take, or in whatever career I pursue?
   (2) Long-range outcomes
      (a) What do you want to achieve by the time you die? (As a result of all your work, specifically.)

h) Rewards, salary, level and other.
   (1) What are the minimum and maximum salaries you feel you would need for your job or career?
      (a) Minimum is what you need to survive
      (b) Maximum is what you would like to earn
   (2) What is the level of the position you aspire to (ie secretary, president, etc)?
   (3) In your ideal job, do you want to work
      (a) by yourself and for yourself
      (b) by yourself but for another person or organization
      (c) in tandem with one other person
      (d) as a member of a team of equals
      (e) as a member of a hierarhy where you are the boss or supervisor or owner
      (f) etc
   (4) What other rewards would you like your job to give you? (i.e. intellectual stimulation, social contact, chance to help others, influence, etc.)

J. Outline and describe the various steps in the line of action
K. etc.

VI. **Fields of business and organizational activities in which if competence was improved, would improve the *"construction"* industry, profession, business, organization and other functions of generic construction.**

1. Military operations
2. Military management
3. Accounting
4. Architecture
    1. Building
    2. Construction documents
    3. Rendering
    4. Landscaping
    5. Municipal
    6. Drafting
    7. Design
    8. Site work architecture
    9. Athletic facilities
    10. Recreational facilities
    11. Architectural management
    12. Furniture design
    13. Program writing
    14. Estimating architectural elements
    15. Value engineering
    16. Life cycle costing
5. Art
    1. Commercial art
    2. Painting
    3. Illustration
    4. Rendering
    5. Computer aided graphics
    6. Sculpture
    7. Silk Screening
6. Banking

7. Brokering
8. Building inspection
9. Building surveyor
10. Business management
    1. Relationships and how they influence business strength.
    2. Financial systems
    3. Probability
    4. Risk and its management
11. Civil servant (of what nature?)
12. Communication
    1. Writing
    2. Speaking
    3. Radio
    4. Television
    5. Movies
    6. Cartoons
    7. Photography
    8. Electronics
    9. Public speaking
    10. Presenting a program
    11.
13. Construction
    1. Athletic facilities
    2. Communications
    3. Computer aided drafting
    4. Construction management
    5. Controls
    6. Electrical contracting
    7. Electrical contracting
    8. Excavation
    9. General contracting
    10. Management of construction
    11. Mechanical contracting
    12. Mining
    13. Program management

14. Recreational facilities
15. Site work contracting
16. Subcontracting

14. Contractor
15. Craftsman
16. Developer
17. Distributor
18. Economics
19. Education
    1. Teaching
    2. Administration and management
    3. Teaching support subjects for *"construction"* professionals.
    4. Languages
    5. Technical subjects related to *"construction"*.
20. Engineering
    1. Automation engineering
    2. Chemical engineering
    3. Civil
    4. Computer aided drafting
    5. Drafting
    6. Electronic
    7. Electrical
    8. Engineering management
    9. Estimating engineering elements
    10. Financial planning
    11. Industrial engineering
    12. Life cycle costing
    13. Machine design
    14. Mechanical
    15. Planning and scheduling
    16. Program writing
    17. Technical support - technicians
    18. Vertical transportation engineering
21. Estimating

22. Fabrication
    1. Reinforcing steel
    2. Structural steel
    3. Aluminum
    4. Industrial management
    5.
23. History
24. Industrial designer
25. Interior designer
26. Labor leader
27. Labor relations
28. Land surveyor
29. Landscape architect
30. Legal
    1. Tort law
    2. Criminal law
    3. Corporate law
    4. Construction law
    5. Legal administration and management
    6. Labor relations
    7. Contract
    8.
31. Lender
32. Management by objective
33. Manufacturer
34. Manufacturing
    1. Steel
    2. Brass
    3. Aluminum
    4. Industrial management
    5.
35. Marketing
36. Medicine
    1. Psychologists
    2. Surgeons

3. Oculists
4. Optometrists
5. Legal
6. Stress relief
7. Physical conditioning

37. Planning
    1. Computer aided drafting
    2. Urban
    3. Rural
    4. Park planning
    5. Site work
    6. Recreational facilities
    7. Professional management
    8.
38. Political science
    1. Elective offices
    2. Administrative offices
    3. Civil service elements
    4. Regulator
39. Politics
40. Quantity surveyor
41. Realtor
42. Researcher
43. Retail operations
44. Sales
45. Sociology
46. Specification writer
47. Theater
48. Wholesale operations
49. etc.

VII. **Articles from Industrialization Forum on possible subjects for background information**
   A. Volume 8 (1977 - Number 1 - article A
      1. The IF Invisible College - job titles have been put in the subjects file below

B. Vol. 6 (1975 - No. 5 - 2843 - Some Ways of Thinking about the Future -- page 13
C. Vol. 6 (1975 - No. 5 - 2845 - Rewards and Tribulations of Interdisciplinary Futures -- page 41
D. Vol. 4 (1973) - No. 4 - 2556 - Performance Standards -- page 27
E. Vol. 4 (1973) - No. 4 - 2292 - Information About Building Systems II. --page 47
F. Copies of the IF table of contents are in the red loose leaf notebooks. The IF booklets are in box 81.

VIII. **Subjects to consider incorporating into book "A"**

1. Broker
2. Building inspector
3. Abbreviations - see ho 309.
    1. Epson notes for 11/03/86
    2. Epson notes for 07/20/86
    3. Seminar disk #3 - d 054
4. Accounting in the *"construction"* industry.
5. Add class outlines for various subjects in book A
6. Add selected definitions from "Administrative Guidelines for Minority and Women Business Enterprise under City Contracts (Grand Rapids, Michigan).
7. Alternative dispute resolution.
8. Bar charts.
9. Bid chopping.
10. Bid shopping.
11. Building a project history.
12. Building classification codes - check with AIA and AGC for other publications - AIA Time Data Bank, RIBA (?) Construction Index Manual.
13. Building components for various types of construction.
14. Business planning
15. Business, technical and personal cycles in *"contruction"*
16. Cash flow in the generic construction business.
17. Characteristics of a problem job.
18. Check lists.

19. Claim avoidance.
20. Commissioning.
21. Conceptual cost estimating.
22. Conflict & turmoil in the engineering profession - epson 03/24/86
23. Conflict resolution.
24. Contract document matrices.
25. Contractor dismissal from the work.
26. Contracts and how they are written.
27. Cost modeling - as defined by Dennis King of HarleyEllis.
28. Costing.
29. Project team building.
30. Project inspecting.
31. Project monitoring.
32. Project closeout.
33. Managing subcontracts.
34. Leading and motivating project personnel.
35. Design building - why use it?
36. Cost management and tracking
37. CSI construction codes.
38. CSI sections.
39. Data base management.
40. Decision making - (see epson notes for May 8, 1986) - get additional material.
41. Definition of lowest competitive bid.
42. Delegation
43. Differences between public and the private sector work
44. Discuss project information forms for collecting data about buildings and sites.
45. Documentation of critical elements of history - see epson 03/31/86
46. Easements
47. Eichlay formula discussed - epson 02/08/86
48. Financial analyses for *"construction"* related businesses
49. Hotel cycling of ffe installation.

50. How does the action background of the emerging project or field manager influence his current behavior and attitudes.
51. How should we focus on performance in *"construction"*?
52. How to monitor and report on a project - see Epson notes dated July 21, 1986 and seminar disk #3, disk 051.
53. How to use quizzes effectively in training and education.
54. Impact of pay when paid contract clauses
55. Improving the effectiveness of professional and technical manpower.
56. Include bibliography.
57. Iterative estimating to a guaranteed maximum cap.
58. Job descriptions
59. Job record keeping
    1. Job logs
    2. Daily reports
    3. Etc.
60. Job satisfaction.
61. Laundry lists.
62. Levels of documentation
63. Luck and good fortune.
64. Master check lists.
65. Matrix management.
66. MBE/WBE influences on job proposals and performance.
67. Methods of providing consulting services.
68. Monitoring the project - epson 02/02/86
69. Network modeling.
70. Outlines for various types of classes
    1. LIT project management class topic outline epson 03/02/86
71. Over generalization in discussing problems of the construction industry.
72. Payment practices.
73. Playing fair.
74. Pre construction services
75. Preparing check list for various kinds of projects.
76. Preparing impact networks.

77. Prequalifying bidders in hard money jobs.
78. Principals of alternative dispute resolution.
79. Processing revisions and changes to the work.
80. Procurement
81. Professional contract submittals.
82. Project budgeting and the types of budgets needed for excellence in the *"construction"* profession.
83. Project delivery systems
84. Public land considerations in *"construction"*
85. Punch lists and their characteristics.
86. Rebidding the job - its impact, influences, and consequences.
87. Reducing claim intensity in construction.
88. Registration and its effect on your career.
89. Relation of planning to individual stress levels.
90. Resource allocation.
91. Responsibilities of the manager.
92. Responsibility codes.
93. Retentions and payments - talk outline good starting point - see Epson notes on March 25, 86.
    1. epson - March 14, 1986
94. Rewards and penalties.
95. Segments of management in the construction industry.
96. Selecting a consultant.
97. Selecting an architect.
98. Selecting and engineer.
99. Starting your own company.
100. Statistics
101. Team operation and function.
102. The classification of building types.
103. The distinction between construction as a trade and construction as a profession. When is construction a profession - Epson 06/16/86.
104. The impact of foreign participation in the American marketplace.

105. The law and construction.
    1. Non legal.
    2. Legal.
106. The learning and retention curve.
107. The managerial grid
108. The nature of competition.
109. The relation of a CM to a project.
110. The relation of training and education to the construction profession.
111. The role of education and training in improving the health of the design and construction industry.
112. The role of the family in construction related companies - see Epson 06/30/86 for discussion of Azzarelli Company.
    1. Family owned businesses and their successes and failures.
        a) Barton and Barton
        b) Barton Malow
        c) Spence
        d) Other?
113. Things that work and things that don't work.
114. Time management.
115. Translations.
116. Turnover cycles.
117. Types of planning.
118. Types of translations.
119. Union shop, open shop, merit shop. What are they?
120. Use of case studies for training purposes.
121. Use of the word "cheapen" to describe the function of value engineering.
122. Value engineering and its plus and minuses
123. Waivers of minority and women business enterprise participation.
124. Where do managerial employees of construction profession firms migrate from and to?
125. Work attitudes.
126. Writing reports.

127. Zoning.
128. etc.

IX. **Codes for sayings**

A. Problem mentions

1. Total assignments of problem types from 2,855 partnering responses to the questions "What job difficulties are caused by us and by others?" Listed by frequency of appearance.

a) 01. 1146 - Job management.
b) 02. 0984 - Communicating with others.
c) 03. 0684 - Staff morale and attitudes.
d) 04. 0593 - Personnel quality and problems.
e) 05. 0475 - Being a good on-site neighbor.
f) 06. 0467 -Timely action.
g) 07. 0396 - Planning and scheduling.
h) 08. 0371 - Organization, authority, and responsibility.
i) 09. 0288 - Work site conditions.
j) 10. 0268 - Revision processing.
k) 11. 0267 - Construction document quality.
l) 12. 0233 - Program conditions.
m) 13. 0205 - Submittal processing.
n) 14. 0166 - Issue, conflict, and problem resolution.
o) 15. 0166 - User group interaction.
p) 16. 0145 - Equipment and material problems.
q) 17. 0141 - Documents and documentation.
r) 18. 0133 - Decision making.
s) 19. 0125 - Procurement of materials and equipment.
t) 20. 0116 - Project cost structure.
u) 21. 0112 - Closing out the project.
v) 22. 0097 - Contract interpretation.
w) 23. 0097 - Quality management.
x) 24. 0095 - Payment processing.
y) 25. 0092 - Paper and administrative work.
z) 26. 0090 - Approval processes.
aa) 27. 0088 - Being a good off-site neighbor.
ab) 28. 0073 - Time growth.

ac) 29. 0070 - Policies and procedures.
ad) 30. 0069 - Inspecting and testing.
ae) 31. 0069 - Staffing and manpower.
af) 32. 0064 - Cost growth.
ag) 33. 0058 - Substitutions and alternates.
ah) 34. 0052 - Maintaining regular project evaluations.
ai) 35. 0052 - Safety.
aj) 36. 0049 - Regulatory agency matters.
ak) 37. 0022 - Constructibility.
al) 38. 0022 - Training.
am) 39. 0022 - Value engineering.
an) 40. 0014 - Labor conditions.
ao) 41. 0014 - Legal matters.
ap) 42. 0011 - Backcharges.
aq) 43. 0011 - Financial problems.
ar) 44. 0010 - Weather conditions.
as) 45. 0005 - Warranty conditions

B. Operative words
   1. Innovation items - II
C. Lessing, Doris
   That is what learning is. You suddendly understand something you've understood all your life, but in a new way.

X. **Abbreviations**

XI. **To do items**
A. Print problem items. (7/26/01)
B. List words to beware of using. (7/26/01)
C. Consider dating the construction sayings. (7/26/01)
D. Consider using dwi's Epson notes of Monday November 3, 1986 for incorporation in project manager's manual. (7/26/01)
E. Would a sample outline for a project manager's manual be a good subject for a chapter in one of the books? (7/26/01)
F. Begin narrowing down the subject of the various lettered books (7/26/01)
G. Check Drucker Construction material - handout 132.

H. Check LIT network class material (date probably about September 1, 1986
I. Break the Epson notebooks up into smaller packages.
J. Collect as many project manger notebooks as possible.
K. Talk to construction professionals whenever possible about meaningful *"construction"* subjects.
L. Get list of building types from AIA and other associations.

XII. **Progressive outlines of book "A"**

A. Outline #1
   1. Introduction
   2. A global view of development, planning, programming, design, translate for construction, construction, property management, financing, ...
   3. A brief summary of the main subjects to be covered in book A.

B. Outline #2
   1. Table of contents.
   2. Introduction.
      a) Case studies - each must tell a story.
      b) Who is this book written for?
   3. Fundamentals of *"construction"* for the new entry.
      a) Case studies.
      b) What do we mean when we talk about "construction"?
      c) What are the elements of "construction"?
      d) Key words to be used in defining "construction"
      e) Words to be avoided when describing construction.
      f) etc.
   4. Factors in considering *"construction"* as a career.
      a) Case studies.
      b) The career matrix role when planning your *"construction"* future.
      c) What do you want to build?
      d) Who do you want as your friends and associates in your profession?
      e) Other?

5. *"Construction"* delivery systems.
   a) Case studies
   b) Types of *"construction"*.
      (1) Must research this material
      (2) Should provide a basis for classifying construction types
   c) What is a delivery system?
   d) What is management when applied to *"construction"*?
   e) What kinds of management are used in delivering a project?
      (1) Supportive
      (2) Ex'e'cutive
      (3) Staff
      (4) Line
      (5) Other?
   f) The role of management in *"construction"*.
   g) What are the elements of a *"construction"* career that demand a minimum (or maximum?) level of education?
   h) What are the elements of a *"construction"* career that demand a mixed level of education and training?
   i) What are the elements of a *"construction"* career that demand a training curriculum?
6. Management as applied to " *construction"* and construction.
   a) The changing face of construction as related to *"construction"*.
   b) The demands of a *"construction"* career and that of a "construction" career.
7. Supplements to management.
   a) Techniques of importance.
      (1) Types of techniques.
      (2) Cross training in techniques.
      (3) Leadership principles.
8. Outlines for seminars in various subjects
   a) Project Management
   b) Program Management

c) Estimating Management
d) Design Build Management
e) Marketing Management
f) Sales Management
g) etc.

9. Management software programs
10. Indexes
11. Appendices
    a) Abbreviations
    b) Definitions
12. Definitions
13. Case Studies for various purposes

C. Outline #3

1. Table of contents
2. Introduction
3. Fundamental management principles in a capitalistic s
4. The role of *construction"* in a free economy.
5. Classifications of construction.
6. Fundamental management principles of design, planni and *"construction".*
7. Specific techniques to be applied to the logistics of ma *"construction".*
8. Educational requirements to achieve excellence in mar construction.
9. Training requirements to achieve excellence in managi construction.
10. The role of technical, trade, professional, and business associations in managing *nstruction"* well.
11. Leadership principles
12. Planning your career *"nstruction".*
13. Indexes
14. Management software programs
15. Surveys of various elements of construction.
16. Appendices
    a) Abbreviations

b) Definitions

n i f 17. D
e s a18. C

D. **Outline #4 - August 26, 2001**

1. **Table of contents**
2. **Introduction**
   a) Choose from the four different introductions.
3. **Chapter 1 - The role of "construction" in the market place.**
   a) Key definitions to understanding what the word
r t s n o c means.
      (1) Specialized construction
      The field of business practices that encompass single or closely related 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 or small multiple organizational unit active in design, planning, construction or related fields.
      (2) Construction
      The immediate act or process of building on or improving real estate so as to raise the value of the property.

      To convert a concept and its related plans and specifications into an actual physical environment.
      (3) Generic construction
      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 as shown in the line of action. (See line of action.)

(4) *"Construction"*
"Construction" is the role that generic construction plays in the full range of economic, business, technical, professional and other components that make up our world civilization.

The all encompassing name applied to a profession, discipline, grouping, organization or other combination of elements that collectively make up an enterprise or effort ultimately resulting in all, or part, of a physical object that is useful to the society engaging in its creation.

b) The elements and evolution of the *"Construction"* Profession in assigning occupational titles to occupational categories

- - ..... at one time in our civilization's societies these words were considered adequate to define practically all the elements of construction. As the world experienced an increasing awareness of the value of certain technologies, the definitions of construction became more and more inclusive.

As a preliminary effort I listed the occupations I knew, from my own consulting work, regularly made meaningful use of construction technology and professional technical skills in the improvement of their processes, facilities, training and education. I discovered nearly 50 occupations that depended routinely on the profession and trade of *"construction"*.

Looking still further I found about 127 different items and actions that required attention from technicians and

professionals familiar with the proper use of contruction-related skills.

Today there are, very roughly, nearly _____occupations that can be identified as being at least an idenifiable part of the *"construction"* business.

How did we get to this sizeable use of a discipline that started out using just clay, wood, cement and stone with a liberal dose of experiential freedom in the use of materials and processses?

Let us examine what happened and what it means in today's civilized regions.

(1) D - The various ways in which *"construction"* is considered a part of our various societies - these societies are often considered to be those defined as belonging to one or more of the 12 interest groups defined in the Dictionary of Occupational Titles:
   (a) Artistic
   (b) Scientific
   (c) Plants and animals
   (d) Protective
   (e) Mechanical
   (f) Industrial
   (g) Business detail
   (h) Selling
   (i) Accomodating
   (j) Humanitarian
   (k) Leading - influencing
   (l) Physical performing

(2) - Another classification list is contained in the Occupational Group Arrangement edited by Michae Farr. This

grouping appears to list occupations in a nine-item classification system. The nine items are:
(a) 0/1 - Professional, technical and managerial occupations
(b) 2 - Clerical and sales occupations.
(c) 3 - Service occupations.
(d) 4 - Agricultural, fishery, forestry, and related occupations.
(e) 5 - Processing occupations.
(f) 6 - Machine trade occupations.
(g) 7 - Benchwork occupations.
(h) 8 - Structural work occupations.
(i) 9 - Miscellaneous occupations.

c) Suggested approach to classifying the various *"construction"* elements of the 12,000 job titles.
(1) Identify which set of classifications you want to use
(2) Pick out the construction elements that are part of each classification and begin a master list of each of these.

d) Classifications of construction in the world stage -- what is the role that "construction" plays in our world.
(1) United States
(2) Canada
(3) Europe
(4) Asia
(5) Other

e) Introduction to the logistics of generic construction in our various economies.
(1) Why do we consider that parts of the construction occupation are a profession?
(2) What are some of the various *"construction"* occupational elements that constitute parts of the 12 interest groups defined in the Dictionary of Occupational Titles?

(a) The various ways in which *"construction"* is considered a part of our various societies - these societies are generally considered to be those defined as belonging to one or more of the 12 interest groups defined in the Dictionary of Occupational Titles
i) Artistic
ii) Scientific
iii) Plants and animals
iv) Protective
v) Mechanical
vi) Industrial
vii) Business detail
viii) Selling
ix) Accomodating
x) Humanitarian
xi) Leading - influencing
xii) Physical performing

(3) Why do we consider construction a profession.

f) Statistics from "What Color is Your Parachute?"

4. **Chapter 2 - Fundamental management principles of design, planning and *"construction"*.**
   a) Fundamental management principles in a capitalistic system.
      (1) Leadership principles
   b) Chapter 2 - How *"construction"* is managed.
      (1) The hierarchy of management in the generic construction business.
      (2) Specific techniques to be applied to the logistics of managing *"construction"*.
      (3) Specific techniques to be applied to the logistics of managing generic construction.
      (4) The role of the functions of generic construction in our world systems.

5. **Chapter 3 - An overview of training and educational requirements for achieving excellence in the four classes of the construction profession: specialized construction, construction, generic construction and univeral construction.**
6. **Training and educational requirements to achieve excellence in managing specialized construction.**
7. **Training and educational requirements to achieve excellence in managing construction.**
8. **Training and educational requirements to achieve excellence in managing generic construction.**
9. **Training and educational requirements to achieve excellence in managing universal construction.**
10. **The role that technical, trade, professional, and business associations play in managing *"Construction"* or *U Construction.***
11. **Planning your career in *"U Construction"*.**
12. **Indexes**
13. **Management software programs**
14. **Surveys of various elements of construction.**
15. **Appendices**
    a) Abbreviations
    b) Definitions
16. **Definitions**
17. **Case Studies for various purposes**

XIII. **Graphics to be considered**

A. Depiction of management in relation to
   1. Ongoing management (staff, grouped)
   2. Program management
   3. Project management.
   4. Sub management forms.

B. Updated matrix of the construction profession.

C. Flow charts for various processes
   1. Alternative dispute resolution
   2. Decision tree preparation

3. Development process in the office
4. Development process with the client
5. Line of action - conventional
6. Line of action - development
7. Partnering process
8. Preparing for arbitration
9. Preparing for litigation
10. Preparing for mediation
11. Preparing laundry lists
12. Preparing network models
13. Selecting scale of the network model
14.

XIV. **People to talk to re book**

A. Bob Avendt
B. Dick Brunvand
C. Steve Duczynski
D. Curt Hacias
E. Dave Hamilton
F. Richard King
G. Tony Kulick
H. Tom Peters
I. Ozzie Pffafmann
J. Mike Polsinelli
K. Mel Remus
L. Ghassan Saab
M. Richard Sly
N. Don Templin
O. Bob Thompson
P. Rich Tilmann
Q. Ray Vyvyan
R. Tom Williams
S. etc.

XV. **Possible titles of book "A"**

A. Project Delivery Systems
B. *"Construction"* as a prime career?

C. *"Construction"* as a secondary career?
D. *"Construction"* as a tertiary career?
E. Types of *"construction:"*.
F. An Overview of *"Construction"* Management.
G. What is involved in becoming a *"construction* professional"?
H. So you want to become a professional constructor?
I. *"Construction"* and its related fields.
J. The Line of *"Construction Action"*
K. A Starting Point for New Entries in the Construction Industry.
L. What Did You Expect From the Construction Profession?
M. etc.

XVI. **Handouts to be assembled or prepared**
A. Project Management Software Programs - see ho 2.00a in efa 2001.
B. ho 360 - Effective Record Keeping for *"Construction"* Management.
C. Record Types and Their Uses - list of records - see ho 202 and 203 in efa 2001.
D. Critical Transition Point - make up new handout
E. Etc.

XVII. **Bibliography**
A. Dictionary of Construction
B. What Color is My Parachute?
C. Mind Prober manual
D. Risk
E. Probability
F. Appraising real estate.
G. Means estimating books
H. Presentations books
I. Case study elements
1. Set design - discussion with Sara
a) Deciding how the set will look
b) Set plans
c) Set details
d) Material listings

e) Location
f) Obtain material
g) Move on site
h) Adjusting the dimensions of the set to fit the stage
i) Adjusting the design to the space available
j) Changing materials to fit procurement.
k) Elements of set construction
(1) Flats - Modular pieces of fabricated materials used to create stage settings - stage scenery on a movable wooden frame.
l) Etc.

J. Nine Master Keys to Management - Lester Bittel
K. Leadership
L. etc.

XVIII. **Updated August 29, 2001**

d810 book "A" notes - rjs

1. **Sayings**

This little collection of terse sayings is meant to be a semi-humorous, semi serious approach to alerting the construction professional to some quick signs that things are good or bad on a job. The tips are not intended, nor should they ever be intended to be 100% accurate They but they are a straightforward effort by the authors to alert you to windows in the construction project that may provide a technical or management signal that you should heed.

Some of the saying are written with tongue-in-cheek but just might save you one or two embarrassing moments.

1. A consultant is an expert who looks at your watch and tells you what time it is.
2. Someone on the project team should be made totally responsible for the first 3 to 5 months of procurement work.
3. A need on project "x" is for the "x" project staff to recognize that their client usually has relatively fixed idea of what the scope of work they, the client, can expect from their planning, design and construction experts. That scope of work may not be fully defined in the mind of the project "x" staff but it does exist somewhere. The place may be the mind of the owner, the construction manager, the designer, a regulatory agency, the estimators from the various disciplines, or any of several other liable and not-at- risk parties.

   The key to success on the job is to be able to reconcile what the various parties TO THE CONTRACT understand is the scope of work.

   A secondary, but critical element, is the understanding and resolution of what the other parties to the project understand what is the scope of work. A further dimension to this comprehension is to insure that a full understanding exists as to what the various parties to the project feel they must leverage into the project for whatever reason they might have for this understanding or for their actions directed toward achieving the objectives generated by the understanding.
4. A good superintendent can build a job if he has all the materials and equipment available. It's the lack of these that most frequently produces a troubled construction project.
5. When studying a construction photo in a contested claim always look most closely at the edges of the picture to see what is really going on.
6. Always be willing to teach anyone who listens everything you know about construction. It's the only way they'll learn properly.

7. Be the first to consider the new in planning,design and construction, and the last to discard the old.
8. Always be training someone to be taking over your job. If you don't, you won't be promotable.
9. If you can't plan it you can't manage it.
10. 20% of the procurement items on a construction project will give you 80% of the procurement problems.
11. The conduit size for security wiring will always be too small.
12. Expect to have difficulty collecting the full value of work done under an unsigned change order.
13. A skylight will always leak.
14. If it looks like it will rain, it probably will.
15. Never do anything in circles.
16. If it's concrete, it'll crack.
17. A building will always move.
18. If you are a good construction superintendent you probably are unpromotable.
19. If you are a good superintendent you are probably happy at what you are doing.
20. A good project manager will ultimately have to travel to keep his job.
21. If a plan of work is hard to put together the job will be proportionally hard to build.
22. If you can't get cost and time data on your job you haven't arrived yet.
23. You don't miss the train because you didn't run fast enough, you miss it because you didn't leave early enough.

24. Beware of a subcontractor whose job tool boxes are not unlocked at least once a day.

25. Be wary of a project manager who shepherds you during a job inspection.

26. A contested claim on a job is predictable from the day the job is estimated.

27. The most difficult jobs are those for attorneys & churches.

28. The elements of a job that cause the most problems. in order of difficulty are you, your company and the designer.

29. A change will always be made within the first 15 working days of field work.

30. A potential roadblock to progress can always be identified by the statement that starts - "that's no problem we'll just....."

31. If you are a coach you teach your players how to play before the game, not during the game -- there is no substitute for good up-front planning properly timed.

32. An excellent manager tries to bring everyone in the organization to the level of the best in the organization within each persons perceived capacities.

33. Don't try to manage the impossible.

34. If you are thrown to the wolves, make friends with them.

35. A good construction advisor can save 90% of the potential savings on a job during the first 10% of the design period.

36. Most problems hit those who are most visible.

37. Those who receive the largest number, and the most difficult problems are those who achieve success.

38. Construction dollars are committed during the program and design period. They are only spent during the construction period.

39. If you don't know where you want to go you won't be able to get there.

40. People who tell you only what you want to hear will cost you money.

41. You can usually buy it cheaper than it will cost if you do it yourself.

42. North of the Ohio River, whatever weather sensitive work is not done before November 1 and must be done after November 1 will take about 1 1/2 times as long and cost about 2 times as much.

43. If any piece of equipment has the word control in it, assume it will provide a procurement problem.

44. ini
Launch a search and provide for the door frame that can be securely fastened, and be installed at the same time as the door and you will make your fortune.

45. pro, comm
Develop a workable electronic submittal technique that permits terminal to terminal transmission.

46. pro
Establish company- wide record keeping methods for planning data used repeatedly, such as:
    Weather delays.
    Procurement times for critical materials and equipment.

47. Every profession is governed by some set of rules -- construction project management is no exception.

48. Don't rely solely on weather forecasts to plan your concrete work -- look at other factors that influence the sequencing -- mix design, admixtures used, surface temperatures, protection available, etc.

49. Install the ceiling before you hang the vinyl wall covering.

50. Measure the surface temperature of the concrete slab to determine whether to continue the pour or not.

51. Install as much of the food service ceiling before you set and align the food service equipment.

52. From epson notes of 10/6/86 - check book on leadership.

    Is there a trend toward using the leader manager management style - apparently this is a style that allows some of the management to be leaders instead of mangers and others to be managers with no leadership responsibilities. This concept doesn't sound correctly stated to me. Find out more about the concept. The manager executes, the leader leads (without management?).

53.
The devil remains in the details.

54.
A mind, once expanded, never returns to its original shape.

II. **General ideas**

A. Notes from Dorothy Sayer's book about the trial of Harriet Vance (fiction - detective story). When using, point our that these sayings were represented as a guideline to making judgments within the English law system under which the American judicial system operates.

1. Patience is a virtue learned through meaningful experience.
2. Intelligence works with the tools at hand.
3. English law holds that the accused person is held to be innocent unless proved otherwise. It is not necessary for the accused to prove innocence. It is up to the accuser to prove guilt. (to the jury).
4. This does not mean the prisoner has established innocence by proof. It means the accuser has failed to produce conviction of guilt in your minds beyond a reasonable doubt. (to the jury).
5. Reasonably doubt means just so much doubt as you might have in a day-to-day business transaction.
6. It does not matter how serious the crime is. The reasonable doubt must only mean that the proof of guilt must be such as you would accept as a plain matter of buying and selling, or some other such commonplace transaction.
7. You must not strain you belief in favor of the prisoner any more than you accept proof of guilt without the most careful scrutiny.
8. A question asked on page 8 of the Dorothy Sayer's book is stimulating -- after the judge's statement "You may perhaps think that one step into the path of wrongdoing makes the next one easier, but you must not give too much consideration. You are entitled to take it into account but you must not be too much prejudiced", Freddy Arbuthnot said "I should jolly well hope not. Damn it, if every little game led to murder, they'd be having half of us doing in the other half. Peter Wimsey asked Freddy "And which half would YOU be in? Victim - or - doer inner?"
9.

B. From Epson notes 10/18/86
The difference between true success and authentic failure is often the understanding of the relation(ship) of being good, being excellent and being humble.

Being good is to achieve the ability to do something that is externally valid. Being excellent is to have the knack of being good and to also have the intrinsic quality of total worth.

Humility is the honest unawareness of either being good or being excellent.

However an unawareness of being good (if you are good) is the first step toward achieving excellence.

The simple reason for this phenomenon is that because birds like to fly right side up with dead fish sitting on their stomach.

An interesting factor in success is that of transforming a mistake (in a physical sense) into a correct (albeit a lesser correct) action, i.e., discovering you are in the wrong meeting at a crucial morning time but turning to the mistaken meeting and controlling it, without a thought as to the meeting you were supposed to attend.

Meanwhile the meeting you were supposed to attend was dominated, after the initial shock of your not being there, by a man or woman who was well prepared, competent, and capable of taking over your job.

C. From Epson notes 09/28/86 - good to incorporate into the check list material in book ?
   1. Check list continuation of project manager check list ho 263 - front end work for the construction project manager - taken from the AIA project checklist and modified for the construction profession.

D. Epson notes 09/04/86 - some good observations re check lists and why some are good and some not so good.

E. Epson notes 09/17/86 - Good questions to answer - top management questions.

F. Epson 08/09/86 - Good points on development programs (Kirco), Opus criteria for project success, and ideas for case study work.

G. Epson 01/26/86 - Outline of seminar on planning and scheduling for Las Vegas seminar

H. Epson 01/09/86 - Outline of notes for LIT freshman engineering class talk.

I. Check on reference books that might list and describe different professions.

J. Ideas from 'What Color is Your Parachute?' - abstracts from page 330 to ?? re particular types of jobs.
   1. Directory of Occupational Titles (DOT) - Superintendent of Documents, U.S. Government Printing Office, Washington DC 20402
      a) A catalog of the 12,860 occupations known to exist in the U.S. at present (1993?)
   2. Dictionary of Holland Occupational Codes - A Comprehensive Cross Index of Holland's RIASEC Codes with 12,000 DOT occupations.
   3. Job Directories
      a) Directory of Occupational Titles (DOT) - Superintendent of Documents, U.S. Government Printing Office, Washington DC 20402
         (1) A catalog of the 12,860 occupations known to exist in the U.S. at present (1993?)

b) Holland, John L. and Gottfredson, Gary D., Dictionary of Holland Occupational Codes - A Comprehensive Cross Index of Holland's RIASEC Codes with 12,000 DOT occupations. Psychological Assessment Resources, Inc. Odessa, Florida 33556.
c) Selected Characteristics of Occupations Defined in the Dictionary of Occupational Titles.
   (1) US Department of Labor, Employment, and Training Administration.
   (2) Superintendent of Documents, US Government Printing Office, Washington, DC 20402.
d) Job Selection Workbook for use with guide for occupational exploration. US Employment Service, Employment and Training Administration. Available from Superintendent of Documents, US Government Printing Office, Washington, DC 20402.
e) Occupational Outlook Handbook, Bulletin 2300, Superintendent of Documents, Bureau of Labor Statistics. Available from US Government Printing Office, Washington, DC 20402.
   (1) Occupations organized by interest in job title.
   (2) Also published as America's Top 300 Jobs by JIST Works, Inc. 720 North park Ave., Indianapolis, IN 46202-3431.
   (3) Has some helpful indices and supplemental material.
f) Hopke, William E., ed., Encyclopedia of Careers and Vocational Guidance, 8th ed. 4 volumes. Garrett Park Press, PO Box 190 W., Garrett Park, MD 20896.
g) Sacharov, Al, Offbeat Careers: The Directory of Unusual Work. Ten Speed Press, P.O. Box 7123, Berkeley, CA 94707.
h) Cylkowski, Greg J., Developing A Lifelong Contract with a Career in Sports - Athletic Achievements, 3036 Ontario Road. Little Canada, MN 55117.
i) 200 Ways to Put Your Talent to Work in the Health Field. National Health Council, Inc., 350 Fifth Ave., Suite 1118, New York, NY 10118.
   (1) According to the US Department of Labor, 7 of the 10 fastest growing occupations in the 1990s are in the heath services field -- one of the largest occupational fields in the country -- which employs over 8.7 million people.

4. Selected Characteristics of Occupations Defined in the Dictionary of Occupational Titles.
5. Elements of the flower picture of your particular ideal job. Page 224.
   a) Physical setting I like to work in
      (1) General - geographical factors
         (a) The geographical area which would please me most, and therefore help me to do my most effective work, would have the following characteristics

(2) The names of three places which fit these characteristics are:
(3) Specific - working conditions
(a) At my place of work I could be happiest and do my most effective work, i had the following working conditions (e.g. working indoors or not, not punching a time-clock, a boss who gave me free rein to do my work, having my own office, etc.):

b) Spiritual or emotional setting I like to work in
(1) My philosophy of life.
(a) What I believe about life in general, and my life in particular (key ideas here)
(2) In order to do my best work these are the factors from my philosophy(above) that are especially important to me to have at my work (or in my work):

c) My favorite skills - what I like to do with things, people and/or information
d) My favorite kinds of people I like to use these skills with
e) My favorite kinds of information I like to use these skills with
f) My favorite kinds of thing I like to use these skills with
g) Outcomes: Immediate and long range
h) Rewards, salary, level and other.

6. etc.

III. **Codes for sayings**

A. Problem mentions

1. Total assignments of problem types from 2,855 partnering responses to the questions "What job difficulties are caused by us and by others?" Listed by frequency of appearance.

a) 01. 1146 - Job management.
b) 02. 0984 - Communicating with others.
c) 03. 0684 - Staff morale and attitudes.
d) 04. 0593 - Personnel quality and problems.
e) 05. 0475 - Being a good on-site neighbor.
f) 06. 0467 -Timely action.
g) 07. 0396 - Planning and scheduling.
h) 08. 0371 - Organization, authority, and responsibility.
i) 09. 0288 - Work site conditions.
j) 10. 0268 - Revision processing.
k) 11. 0267 - Construction document quality.
l) 12. 0233 - Program conditions.
m) 13. 0205 - Submittal processing.
n) 14. 0166 - Issue, conflict, and problem resolution.
o) 15. 0166 - User group interaction.
p) 16. 0145 - Equipment and material problems.
q) 17. 0141 - Documents and documentation.

r) 18. 0133 - Decision making.
s) 19. 0125 - Procurement of materials and equipment.
t) 20. 0116 - Project cost structure.
u) 21. 0112 - Closing out the project.
v) 22. 0097 - Contract interpretation.
w) 23. 0097 - Quality management.
x) 24. 0095 - Payment processing.
y) 25. 0092 - Paper and administrative work.
z) 26. 0090 - Approval processes.
aa) 27. 0088 - Being a good off-site neighbor.
ab) 28. 0073 - Time growth.
ac) 29. 0070 - Policies and procedures.
ad) 30. 0069 - Inspecting and testing.
ae) 31. 0069 - Staffing and manpower.
af) 32. 0064 - Cost growth.
ag) 33. 0058 - Substitutions and alternates.
ah) 34. 0052 - Maintaining regular project evaluations.
ai) 35. 0052 - Safety.
aj) 36. 0049 - Regulatory agency matters.
ak) 37. 0022 - Constructibility.
al) 38. 0022 - Training.
am) 39. 0022 - Value engineering.
an) 40. 0014 - Labor conditions.
ao) 41. 0014 - Legal matters.
ap) 42. 0011 - Backcharges.
aq) 43. 0011 - Financial problems.
ar) 44. 0010 - Weather conditions.
as) 45. 0005 - Warranty conditions

B. Operative words
1. Innovation items - II

IV. **Abbreviations**

V. **Definitions**

A. Operative words

B. Ongoing and discrete management

1. In the work that you and I do there are two fundamental forms of management -- ongoing and discrete.
   a) Ongoing management is the direction or continuous operations in an organizational context.
   b) Discrete management is the direction of sets of operations that, as a group have a defined starting point and a defined ending point. (notice I have not used the adjective "well" to describe points. The reason is that good definition of starting points and finishing points is a rarity). Thus preparation and use of a glossary of terms is an essential to effective participation in either basic form of management.

C. Glossary of terms
D. Leveraging
E. Leverage
F. Professional
G. Technician
H. *"Construction"*
The generic name applied to a profession, discipline, grouping, organization or other combination of elements that collectively make up an enterprise or effort ultimately resulting in a physical object that is useful to the society engaging in its *"Construction"*.

I. Construction

VI. **To do items**
A. Print problem items. (7/26/01)
B. List words to beware of using. (7/26/01)
C. Consider dating the construction sayings. (7/26/01)
D. Consider using dwi's Epson notes of Monday November 3, 1986 for incorporation in project manager's manual. (7/26/01)
E. Would a sample outline for a project manager's manual be a good subject for a chapter in one of the books? (7/26/01)
F. Begin narrowing down the subject of the various lettered books (7/26/01)
G. Check Drucker Construction material - handout 132.
H. Check LIT network class material (date probably about September 1, 1986
I. Break the Epson notebooks up into smaller packages.
J. Collect as many project manger notebooks as possible.
K. Talk to construction professionals whenever possible about meaningful *"construction"* subjects.
L. Get list of building types from AIA and other associations.

VII. **Progressive outlines of book "A"**
A. Outline #1
1. Introduction
2. A global view of development, planning, programming, design, translate for construction, construction, property management, financing, ...
3. A brief summary of the main subjects to be covered in book A.
B. Outline #2
1. Table of contents.
2. Introduction.
a) Case studies - each must tell a story.
b) Who is this book written for?
3. Fundamentals of *"construction"* for the new entry.
a) Case studies.

b) What do we mean when we talk about "construction"?
c) What are the elements of "construction"?
d) Key words to be used in defining "construction"
e) Words to be avoided when describing construction.
f) etc.

4. Factors in considering *"construction"* as a career.
   a) Case studies.
   b) The career matrix role when planning your *"construction"* future.
   c) What do you want to build?
   d) Who do you want as your friends and associates in your profession?
   e) Other?
5. *"Construction"* delivery systems.
   a) Case studies
   b) Types of *"construction"*.
      (1) Must research this material
      (2) Should provide a basis for classifying construction types
   c) What is a delivery system?
   d) What is management when applied to *"construction"*?
   e) What kinds of management are used in delivering a project?
      (1) Supportive
      (2) Ex'e'cutive
      (3) Staff
      (4) Line
      (5) Other?
   f) The role of management in *"construction"*.
   g) What are the elements of a *"construction"* career that demand a minimum (or maximum?) level of education?
   h) What are the elements of a *"construction"* career that demand a mixed level of education and training?
   i) What are the elements of a *"construction"* career that demand a training curriculum?
6. Management as applied to *"construction"* and construction.
   a) The changing face of construction as related to *"construction"*.
   b) The demands of a *"construction"* career and that of a "construction" career.
7. Supplements to management.
   a) Techniques of importance.
      (1) Types of techniques.
      (2) Cross training in techniques.
      (3) Leadership principles.
8. Outlines for seminars in various subjects
   a) Project Management
   b) Program Management
   c) Estimating Management

d) Design Build Management
e) Marketing Management
f) Sales Management
g) etc.

9. Management software programs
10. Indexes
11. Appendices
    a) Abbreviations
    b) Definitions
12. Definitions
13. Case Studies for various purposes

C. Outline #3

1. Table of contents
2. Introduction
3. Fundamental management principles in a capitalistic system.
4. The role of *"construction"* in a free economy.
5. Classifications of construction.
6. Fundamental management principles of design, planning and *"construction"*.
7. Specific techniques to be applied to the logistics of managing *"construction"*.
8. Educational requirements to achieve excellence in managing construction.
9. Training requirements to achieve excellence in managing construction.
10. The role of technical, trade, professional, and business associations in managing *"construction"* well.
11. Leadership principles
12. Planning your career in *"construction"*.
13. Indexes
14. Management software programs
15. Surveys of various elements of construction.
16. Appendices
    a) Abbreviations
    b) Definitions
17. Definitions
18. Case Studies for various purposes

VIII. **Subjects to consider incorporating into book "A"**

1. Abbreviations - see ho 309.
    1. Epson notes for 11/03/86
    2. Epson notes for 07/20/86
    3. Seminar disk #3 - d 054
2. Accounting in the *"construction"* industry.
3. Add class outlines for various subjects in book A
4. Add selected definitions from "Administrative Guidelines for Minority and Women Business Enterprise under City Contracts (Grand Rapids, Michigan).

5. Alternative dispute resolution.
6. Bar charts.
7. Bid chopping.
8. Bid shopping.
9. Building a project history.
10. Building classification codes - check with AIA and AGC for other publications - AIA Time Data Bank, RIBA (?) Construction Index Manual.
11. Building components for various types of construction.
12. Business planning
13. Business, technical and personal cycles in *"contruction"*
14. Cash flow in the generic construction business.
15. Characteristics of a problem job.
16. Check lists.
17. Claim avoidance.
18. Commissioning.
19. Conceptual cost estimating.
20. Conflict & turmoil in the engineering profession - epson 03/24/86
21. Conflict resolution.
22. Contract document matrices.
23. Contractor dismissal from the work.
24. Contracts and how they are written.
25. Cost modeling - as defined by Dennis King of HarleyEllis.
26. CSI construction codes.
27. CSI sections.
28. Data base management.
29. Decision making - (see epson notes for May 8, 1986) - get additional material.
30. Definition of lowest competitive bid.
31. Delegation
32. Differences between public and the private sector work
33. Discuss project information forms for collecting data about buildings and sites.
34. Documentation of critical elements of history - see epson 03/31/86
35. Easements
36. Eichlay formula discussed - epson 02/08/86
37. Financial analyses for *"construction"* related businesses
38. Hotel cycling of ffe installation.
39. How does the action background of the emerging project or field manager influence his current behavior and attitudes.
40. How should we focus on performance in *"construction"*?
41. How to monitor and report on a project - see Epson notes dated July 21, 1986 and seminar disk #3, disk 051.
42. How to use quizzes effectively in training and education.
43. Impact of pay when paid contract clauses
44. Improving the effectiveness of professional and technical manpower.

45. Include bibliography.
46. Iterative estimating to a guaranteed maximum cap.
47. Job descriptions
48. Job record keeping
    1. Job logs
    2. Daily reports
    3. Etc.
49. Job satisfaction.
50. Laundry lists.
51. Levels of documentation
52. Luck and good fortune.
53. Master check lists.
54. Matrix management.
55. MBE/WBE influences on job proposals and performance.
56. Methods of providing consulting services.
57. Monitoring the project - epson 02/02/86
58. Network modeling.
59. Outlines for various types of classes
    1. LIT project management class topic outline epson 03/02/86
60. Over generalization in discussing problems of the construction industry.
61. Payment practices.
62. Playing fair.
63. Pre construction services
64. Preparing check list for various kinds of projects.
65. Preparing impact networks.
66. Prequalifying bidders in hard money jobs.
67. Principals of alternative dispute resolution.
68. Processing revisions and changes to the work.
69. Procurement
70. Professional contract submittals.
71. Project budgeting and the types of budgets needed for excellence in the *"construction"* profession.
72. Project delivery systems
73. Public land considerations in *"construction"*
74. Punch lists and their characteristics.
75. Rebidding the job - its impact, influences, and consequences.
76. Reducing claim intensity in construction.
77. Registration and its effect on your career.
78. Relation of planning to individual stress levels.
79. Resource allocation.
80. Responsibilities of the manager.
81. Responsibility codes.

82. Retentions and payments - talk outline good starting point - see Epson notes on March 25, 86.
    1. epson - March 14, 1986
83. Rewards and penalties.
84. Segments of management in the construction industry.
85. Selecting a consultant.
86. Selecting an architect.
87. Selecting and engineer.
88. Starting your own company.
89. Statistics
90. Team operation and function.
91. The classification of building types.
92. The distinction between construction as a trade and construction as a profession. When is construction a profession - Epson 06/16/86.
93. The impact of foreign participation in the American marketplace.
94. The law and construction.
    1. Non legal.
    2. Legal.
95. The learning and retention curve.
96. The managerial grid
97. The nature of competition.
98. The relation of a CM to a project.
99. The relation of training and education to the construction profession.
100. The role of education and training in improving the health of the design and construction industry.
101. The role of the family in construction related companies - see Epson 06/30/86 for discussion of Azzarelli Company.
    1. Family owned businesses and their successes and failures.
        a) Barton and Barton
        b) Barton Malow
        c) Spence
        d) Other?
102. Things that work and things that don't work.
103. Time management.
104. Translations.
105. Turnover cycles.
106. Types of planning.
107. Types of translations.
108. Union shop, open shop, merit shop. What are they?
109. Use of case studies for training purposes.
110. Use of the word "cheapen" to describe the function of value engineering.
111. Value engineering and its plus and minuses
112. Waivers of minority and women business enterprise participation.

113. Where do managerial employees of construction profession firms migrate from and to?
114. Work attitudes.
115. Writing reports.
116. Zoning.

IX. **Graphics to be considered**
- A. Depiction of management in relation to
  1. Ongoing management (staff, grouped)
  2. Program management
  3. Project management.
  4. Sub management forms.
- B. Updated matrix of the construction profession.
- C. Flow charts for various processes
  1. Partnering process
  2. Alternative dispute resolution
  3. Decision tree preparation
  4. Preparing network models
  5. Preparing laundry lists
  6. Development process in the office
  7. Development process with the client
  8. Selecting scale of the network model
  9. Preparing for litigation
  10. Preparing for mediation
  11. Preparing for arbitration
  12.

X. **People to talk to re book**
- A. Bob Avendt
- B. Steve Duczynski
- C. Curt Hacias
- D. Dave Hamilton
- E. Richard King
- F. Tony Kulick
- G. Tom Peters
- H. Mike Polsinelli
- I. Mel Remus
- J. Ghassan Saab
- K. Richard Sly
- L. Don Templin
- M. Rich Tilmann
- N. Ray Vyvyan
- O. Tom Williams
- P. etc.

XI. **Possible titles of book "A"**
- A. Project Delivery Systems

B. *"Construction"* as a prime career?
C. *"Construction"* as a secondary career?
D. *"Construction"* as a tertiary career?
E. Types of *"construction:"*.
F. An Overview of *"Construction"* Management.
G. What is involved in becoming a *"construction* professional"?
H. So you want to become a professional constructor?
I. "Construction" and its related fields.
J. The Line of "Construction Action"
K. etc.

XII. **Handouts to be assembled or prepared**
A. Project Management Software Programs - see ho 2.00a in efa 2001.
B. ho 360 - Effective Record Keeping for *"Construction"* Management.
C. Record Types and Their Uses - list of records - see ho 202 and 203 in efa 2001.
D. Critical Transition Point - make up new handout
E. Etc.

XIII. **Case study elements**
A. Set design - discussion with Sara
1. Deciding how the set will look
2. Set plans
3. Set details
4. Material listings
5. Location
6. Obtain material
7. Move on site
8. Adjusting the dimensions of the set to fit the stage
9. Adjusting the design to the space available
10. Changing materials to fit procurement.
11. Elements of set construction
a) Flats - Modular pieces of fabricated materials used to create stage settings - stage scenery on a movable wooden frame.
12. Etc.

XIV. **Fields of business in which if competence was improved would improve the *"construction"* industry, profession, and business**
A. Architecture
1. Building
2. Construction documents
3. Rendering
4. Landscaping
5. Municipal
6. Drafting
7. Design
8. Site work architecture
9. Athletic facilities

10. Recreational facilities
11. Architectural management
12. Furniture design
13. Program writing
14. Estimating architectural elements
15. Value engineering
16. Life cycle costing

B. Art
1. Commercial art
2. Painting
3. Illustration
4. Rendering
5. Computer aided graphics

C. Business management
1. Relationships and how they influence business strength.
2. Financial systems
3. Probability
4. Risk and its management

D. Communication
1. Writing
2. Speaking
3. Radio
4. Television
5. Movies
6. Cartoons
7. Photography
8. Electronics
9. Public speaking
10. Presenting a program
11.

E. Construction
1. Athletic facilities
2. Communications
3. Computer aided drafting
4. Construction management
5. Controls
6. Electrical contracting
7. Electrical contracting
8. Excavation
9. General contracting
10. Management of construction
11. Mechanical contracting
12. Mining
13. Program management

14. Recreational facilities
15. Site work contracting
16. Subcontracting

F. Economics
G. Education
   1. Teaching
   2. Administration and management
   3. Teaching support subjects for *"construction"* professionals.
   4. Languages
   5. Technical subjects related to *"construction"*.

H. Engineering
   1. Automation engineering
   2. Chemical engineering
   3. Civil
   4. Computer aided drafting
   5. Drafting
   6. Electronic
   7. Electrical
   8. Engineering management
   9. Estimating engineering elements
   10. Financial planning
   11. Industrial engineering
   12. Life cycle costing
   13. Machine design
   14. Mechanical
   15. Planning and scheduling
   16. Program writing
   17. Technical support - technicians
   18. Vertical transportation engineering

I. Fabrication
   1. Reinforcing steel
   2. Structural steel
   3. Aluminum
   4. Industrial management
   5.

J. History
K. Labor relations
L. Legal
   1. Tort law
   2. Criminal law
   3. Corporate law
   4. Construction law
   5. Legal administration and management
   6. Labor relations

7. Contract
8.

M. Management by objective
N. Manufacturing
   1. Steel
   2. Brass
   3. Aluminum
   4. Industrial management
   5.
O. Marketing
P. Medicine
   1. Psychologists
   2. Surgeons
   3. Oculists
   4. Optometrists
   5. Legal
   6. Stress relief
   7. Physical conditioning
Q. Planning
   1. Computer aided drafting
   2. Urban
   3. Rural
   4. Park planning
   5. Site work
   6. Recreational facilities
   7. Professional management
   8.
R. Political science
   1. Elective offices
   2. Administrative offices
   3. Civil service elements
   4. Regulator
S. Retail operations
T. Sales
U. Sociology
V. Wholesale operations

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D. Risk
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F. Appraising real estate.
G. Means estimating books

H. Presentations books
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