

+ **Draft #1 for Book A Introductions - disk 810 - September 5, 2001 - transferred to book outline**

- **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 was being narrowed 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 down an interesting conversation about good planning, design and practice 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 other essential ingredients--so that as they pass through the funnel they 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 the 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.

- **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 it 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 related to nearly 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.

Voile! 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 construction. 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. These elements

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."

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 ways we conveyed our technical ideas. 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 individual or group who writes off as inadequate the credentialling of trained construction professionals. Other individuals debunk 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 transcend 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 judgment 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." Reasonable 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 your 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.

- **Introduction #6**

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 that 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 program to the construction manager, the imagination of the designer, a code of the regulatory agency, the cost determined by the estimators from the various disciplines, or any of several other at-risk, and not-at-risk parties.

During one of many case studies my class and I were studying at the University of Wisconsin Project Management Seminar, I asked the class to define when the case study project, a speculative office building could be considered complete. Some of the class said, "when the final payment on the construction loan is made by the speculating developer." Another team defined completion of the building as being when the final punch list was prepared and all corrective work was completed and paid for.

Others in the group felt strongly that completion was reached when the architect/engineer of record had applied for and received a certificate of occupancy from the local building department. Still others felt the completion point was marked by the end of the warranty period on the building and site construction.

The variety of answers both by the attendees and, for that matter, myself, led to a question from the class -- "well Ralph, what is the answer??" This reverse question evoked the fuzzy answer "it all depends..." and another revolving series followed. "Depends on what?" somebody asked, and the circular discussion continued its merry and unresolved way until the case study time had run out.

In the real world of conceiving, planning, design, construction, financing, closing out, and warranting, there is no time limit on a case study. Thus it is usually desirable -- no, essential -- to clearly define when the project team has reached a point that can be called "COMPLETION!"

It is crucial for all parties to clearly articulate when the end of the program for them and the other participants, will have been reached! As I have thought about this group dynamics problem since the seminar, the old question of who, what, when, where, how, and why have repeatedly plagued our industry and the people who populate it? The question is at the very base of this book and what it seeks to accomplish -- "to review in detail what constitutes the four basic scales of construction - specialized, general, generic, and universal." The purpose of the book is to help all the millions of people who work in the building industry to better understand and enjoy the practice of what was for many, their first choice of a vocation and a career.

It is for their good reading and better understanding that this document was written. Let us hope you enjoy both in your excursion through the exciting world of construction!