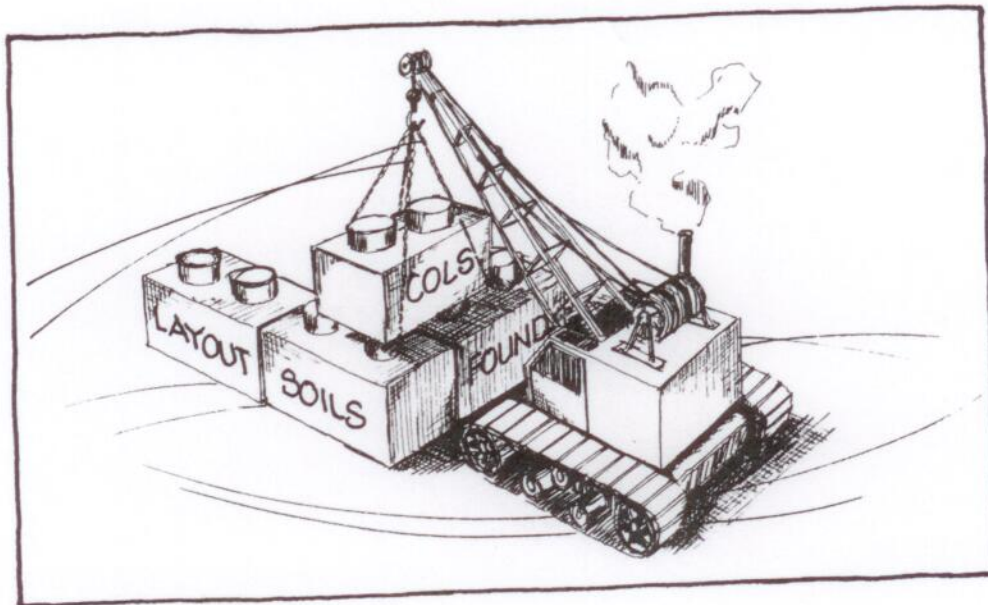


CHAPTER 1

DEFINITION AND BENEFITS OF REDICHECK

Many types of construction document reviews exist. Constructibility reviews, single discipline reviews, cost/budget reviews, value engineering, scope reviews, dimension reviews, and code reviews are frequently used during the preparation of plans and specifications. Equally important but often neglected are interdisciplinary coordination reviews. A major source of design errors and omissions is the point of interface between disciplines. REDICHECK is a construction document review system specifically designed to address points of interface, enabling production personnel or a quality assurance reviewer to locate coordination discrepancies between disciplines. It is a useful tool from early production to the 100% review stage.



Most design professionals have had a lack of formal education in the area of interdisciplinary coordination. Upon graduation from college they may even be intimidated by other discipline drawings. Architects tend to avoid electrical drawings; electrical engineers tend to avoid plumbing drawings, etc. Each has been taught to "trust" the other disciplines to produce drawings which will contribute to a standard of excellence in the final product. Structural engineers are able to come up with good structural drawings. Mechanical engineers produce good mechanical drawings. What happens

when the mechanical drawings indicate HVAC ducts in the same location as the concrete beams on the structural drawings? The structural engineer and the mechanical engineer may have both provided what appeared to be good documents, but the two disciplines were not coordinated.

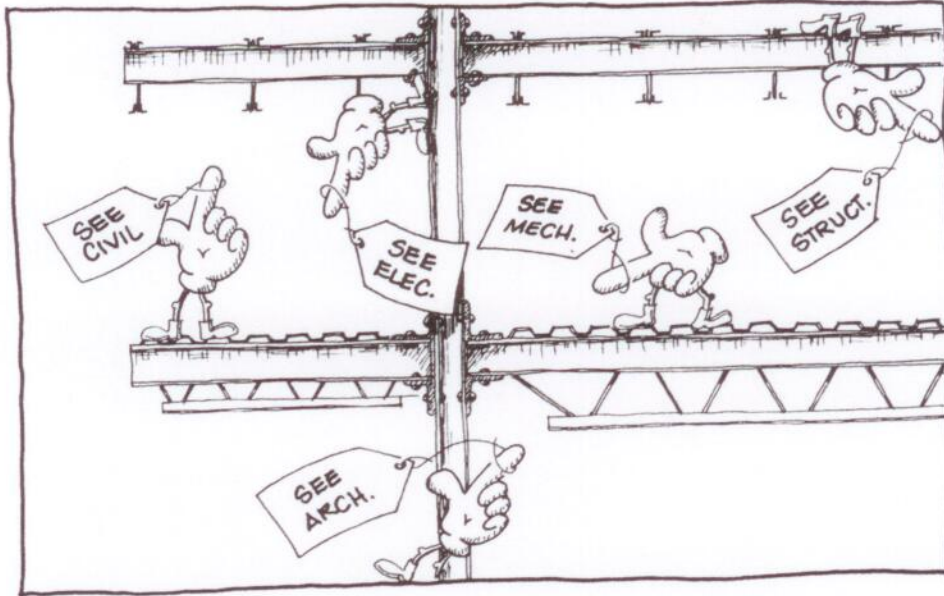
Some specific examples of the types of interdisciplinary coordination errors that can be eliminated with REDICHECK are listed below.

- Civil drawings with site plans that have underground utilities such as water, sewer, or storm lines interfering with locations of electrical substations, power poles, or underground conduit, duct banks, or storage tanks.
- Landscape drawings with trees in the same location as sewer manholes and sewer lines, or in the middle of drainage swales on civil drawings.
- Structural drawings with column locations and grid lines that vary with architectural locations.
- Architectural floor plans that do not match other discipline floor plans.
- Plumbing drawings with riser diagrams that do not match plumbing fixtures on architectural floor plans.
- Mechanical drawings that read "see structural drawings for additional roof supports" while the structural drawings do not indicate such supports.
- Electrical drawings that indicate items of equipment with different horsepower ratings, voltages, and phases than mechanical drawings and/or specifications.
- Specification sections which refer to other sections that do not exist or that say to install something "as indicated" or "where indicated" when there is no indication of the item on the contract drawings.

An average project contains five coordination errors per contract drawing. The number of coordination errors can be staggering on a large project. A project of 500 drawings will typically contain 2,500 coordination errors.

The REDICHECK interdisciplinary concept is based on the sequence of construction. In a typical construction contract the contractor will work from the civil drawings first, structural drawings second, plumbing drawings third, electrical and mechanical drawings fourth, and the architectural drawings last. If the architectural drawings indicate a mens room with water closets in certain locations while the plumbing drawings indicate the water closets in other locations, chances are the plumbing service and drain lines will be located as per the plumbing drawings. Even though the architect is

the project manager, he or she cannot assume that the architectural drawings will govern during construction.



REDICHECK is not intended to be a technical review. It should not replace or be confused with single discipline technical reviews. Items such as the adequacy of structural members and design calculations for HVAC equipment are not influenced by REDICHECK. Single discipline reviews are essential for assuring such technical accuracies. REDICHECK is not intended to be a safeguard against technical discipline errors or omissions, code violations, or inadequate site investigations.

When proper interdisciplinary coordination occurs, everyone wins. Owners, contractors, A/E liability insurance firms, and A/E's are all affected by a reduction of change orders, time extensions, and liability claims. Suppose that in a set of drawings one detail indicates that the exterior finish is to be brick and another detail indicates that it is to be wood siding. The contractor may bid on the less expensive siding, install siding, and experience a delay while he negotiates a change order for brick and tears out work in place. The owner may be involved with a change order and liability determination, may not be able to use the building at the time he had planned, or may accept a building that has wood siding where he wanted brick. The liability insurance company may pay a claim, a service for which A/E firms are paying increasingly higher fees. The A/E may be liable for rework and time extension costs. In dealing with such errors the A/E's work on other projects may be affected. Current design project time schedules and deadlines are much easier to meet when work doesn't have to be interrupted to "fight fires" such as change orders, telephone calls, letters of clarification, or redesign work for a previous project. The entire problem could have been prevented with an effective coordination check.



RediCheck International, Inc.

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June 7, 2011

Dr. Norbert Kennerknecht
Director of Buildings & Grounds Services
Warren County School District
185 Hospital Drive
North Warren, PA 16365

Dear Dr. Kennerknecht:

We can perform a RediCheck© coordination review of the Eisenhower School project. The RediCheck coordination review will consist of an intra- and inter-disciplinary coordination review of the drawings and specifications. The deliverables will consist of a spread sheet report listing the more significant discrepancies, the marked up drawings and electronic copies of all reviewed drawings and specifications that clearly identify the errors, omissions, conflicts, and ambiguities we have discovered. The review will be in accordance with our *RediCheck Interdisciplinary Coordination Review Manual*, Third Edition; and as described at our website www.redicheck-review.com

RediCheck International, Inc. will perform the review for a fee not to exceed \$37,500.00. In the event the number of drawings is less than the estimated 270 sheets, the fee will be reduced at a rate of \$130.00 per sheet. It is understood that all schedules and details will be on the drawings and not in the specifications. These include the door schedule, finish schedule, catalogue cuts, and electrical panel board schedules.

RediCheck will print and distribute all documents required for the review.

For a project of this size our clients find a debriefing of great value. At the debriefing we will meet with the owner, designer, and construction manager to “walk” everyone through the RediCheck process, discussing the critical items that were discovered in the review. An internet debriefing can be provided free or a personal debriefing at your location can be provided for reimbursement of travel expenses.

Providing we have a signed contract by June 16, 2011 and disks containing black and white pdf files of the drawings and searchable, combined pdf files of the specifications before noon on June 27, 2011, RediCheck can return the reviewed documents to you by July 25, 2011.

Payment for the review services shall be made no later than thirty (30) days after receipt of the RediCheck reviewed documents and scans. RediCheck International, Inc. works as a corporation and our EIN is 54-1903352.

RediCheck International, Inc. Proposal – page two

Acceptance of this proposal acknowledges that RediCheck International, Inc. is not the designer of record and therefore is indemnified and is held harmless from any and all claims, damages, losses, and expenses alleged to arise out of or result from the RediCheck review services, including reasonable attorneys' fees therefore. This indemnification is intended to be complete and cover all acts or omissions of RediCheck International, Inc. If, the above indemnification notwithstanding, RediCheck International, Inc. is adjudged to be negligent and is held responsible for proportionate costs and damages resulting therefrom, such judgment against RediCheck International, Inc. shall be limited to the extent of the RediCheck fee. Signing this document and returning it to RediCheck International, Inc. acknowledges this hold harmless agreement.



June 7, 2011

Dennis A. Fewell, President, RediCheck International, Inc.

Date

All conditions stated in this document agreed to and authorization to proceed with a RediCheck review:

(Signature and title)

Date