

PIKUL ENGINEERING

15 CHRISTINA DR., SCHENECTADY, N. Y. 12303
(518) 355-2622

APPENDIX # 64/1



August 12, 1994

Mr. Michael Kril
KRC International
612 Ardsleigh Dr
Westfield NJ 07090



RE: Construction Investigation
Building Renovations
Clifton Country Highway Department
Rte. 3, Plattsburgh, NY 12901
PE Project 94-12

Dear Mr. Kril:

Enclosed please find my report on the referenced construction project. If you have any questions on the report please contact me. If you need a set of photos and descriptions, I will compile the same and send color photocopies.

Very truly yours,
PIKUL ENGINEERING

[Redacted signature]

Dr. Richard R. Pikul, PE

RRP:ccl

Enclosure: Report

cc: Terry Chilton, Wand Electric Incorporated
P.O. Box 1273, Plattsburgh, NY 12901

Joel M. Howard III, Esq, CWBH&F
PO Box 22222, Albany, NY 12201-2222



PIKUL ENGINEERING

15 CHRISTINA DR., SCHENECTADY, N. Y. 12303
(518) 355-2622

APPENDIX # 66/2

August 12, 1994

Terry Chilton
Wand Electric Incorporated
P.O. Box 1273
Plattsburgh, NY 12901

RE: Construction Investigation
Building Renovations
Clifton Country Highway Department
Rte. 3, Plattsburgh, NY 12901
PE Project 94-12

Dear Mr. Chilton:

INTRODUCTION

At your request, I initiated an investigation into construction problems at the referenced project on 2/9/94. I accompanied Wand Electric and its subcontractors on a site visit to the referenced project on 2/22/94 at which time I received a copy of a "Deficiency List - January 14, 1994, Architects Project No. 9232", copy attached. (It is my understanding that this was prepared by the Project Architect or Owner to delineate perceived problems with the General Construction Contract). In addition, I have reviewed project plans and specifications prepared by Arvay Whitford Associates, Plattsburgh, NY, dated 2/22/92. I have also reviewed portions of the project communications and a videotape prepared by Wand Electric. My technical research into problem areas has included communications with manufacturers and technical associations.

The following material represents my opinions regarding various aspects of this construction project.

INVESTIGATIONAPPENDIX # 66/3GENERAL

The purpose of my site visit was to familiarize myself with the project, to observe the quality of construction, and to review the alleged deficiencies in construction as noted in the previously referenced "deficiency list". It is my understanding that final finish work on the first floor, including floor and wall coverings, were rushed to allow the Owner to occupy the space. Therefore, many "punch list" items were not completed before Owner occupancy. In addition, it is my understanding that deficiencies in the prime contract coordination on this project resulted in mechanical work being performed above the ceiling after the ceiling grids and tiles were completed by Wand Electric, resulting in disruption of the uniform grid elevation and requiring additional trimming of ceiling tiles.

Although the "deficiency list" presents information for each room, there are several "general" problem areas that repeat throughout the first floor construction. These "general" items are noted below followed by a discussion of other specific items for each room. Many of the items are typical "punch list" items that are normally completed at the end of any project.

PLYWOOD UNDERLAYMENT (Items B6, B7, C8, C10, 14, 15, J4, R1, S1)
Contract References: Section 1/GC6b; 3/GC6b; Finish Schedule, GC9a;
Detail 3/GC9c; Spec Sections 01400 1.05A; 06112

I observed plywood underlayment problems as noted in the deficiency list. Based on my observation of the second floor it appears that the plywood was attached to the existing floor using a construction adhesive and ballistic fasteners placed on a two foot spacing throughout the sheet. The contract documents did not specify a fastener size or spacing. Since the first floor installation was available for observation by the Owner's Representatives the installation technique was apparently accepted as being in conformance with the contract documents. The contract specifications make a general reference to the American Plywood Association (**APA**). However, the commonly available APA publication (i.e. APA "Construction Guide") only discusses installation of APA panels on treated sleepers over concrete floors and then only if a vapor barrier is present. No specific fastening details are provided to guide a contractor and/or design professional.

INVESTIGATION (CONT)PLYWOOD UNDERLAYMENT (CONT)

APPENDIX # 66/4

In my opinion, the lifting of the plywood edges (ghosting) may be due to warping of the plywood on the slab-on-grade due to moisture differentials that could be related to heating and drying of the office space. This warping is an indication that the installed system needs modifications that could range from simply additional fasteners to replacement with an alternate system such as the sleeper and plywood system over a vapor barrier.

In my opinion, the Contractor attempted to comply with a vague specification for a nonstandard plywood application using his best judgement. The installation was clearly visible for the Owner's Representatives to review before finish flooring materials were installed and apparently received tacit approval. The fact that the plywood over slab-on-grade system is not functioning as intended is not the fault of the Contractor who is not responsible for design aspects of the system.

Detail 3/GC9c notes a Zero #1675 threshold is to be installed under an exterior door to abut the plywood floor system. However, the Zero product catalog indicates the height of this unit is 1/2". Since the floor system height is 3/4", this specified threshold is incorrect. This resulted in the plywood floor "daylighting" at the entrance area. In my opinion, a new design detail is required to properly seal the floor system at this location.

No transition details between the raised plywood floor system and the existing floor are noted at Corridor 113, or at Stairway 103. At 113, the plywood floor system requires a transition threshold to be designed/specified. The plywood floor system had been extended into the landing area at the top and bottom of the stair at the time of my site visit. However, this creates riser variations at the top and bottom of the stair that are not in accordance with the State Building Code requiring design modifications and details.

WALL SUBSTRATE & WALL COVERINGS (Items A4, A5, B5, C2, D1, D2, 13, J1, K3, L1, P1, Q1); Contract References: Partition Type 'G', Dwg GC6a; Finish Schedule, Dwg GC9a; Spec Sections 01045, 01120, 09220, 09260, 09955

I noted wall paper seam problems and uneven substrate surfaces. It is my understanding that this type of product is not seamless, especially in the uniform light color selected. In my opinion, uneven and unbonded seams needed to be repaired as punch list items. The isolated instances of uneven substrates need to have the wall covering removed, the substrate surface corrected and the new wall covering installed. It is my understanding that the subcontractor was rushed to allow Owner occupancy of the first level and at the time of my site visit, was prepared to correct problems as punch list items.

INVESTIGATION (CONT)

APPENDIX # 66/5

RESILIENT FLOOR TILES/VINYL BASE (Items A3, A6, D1, D6, J3, N1, N2, O1, T5, T6); Contract References: Finish Schedule, Dwg GC9a; Spec Section 09650

I noted resilient floor seam problems and isolated problems with the vinyl base installation. The floor seam problems appear to be related to the movement of furnishings into the 1st floor offices before the tile cement had properly set. Spec Section 09650,3.06A requires the prohibition of traffic on the finished floor for 48 hours. I do not know if 48 hours elapsed between the time of installation and use. Correction of this problem requires removal and installation of tiles that have shifted.

The vinyl base problems appear to be due to the difficulty in matching new materials to old surfaces. Where the workmanship is objectionable the base needs to be recut as a punch list item. The uneven vinyl base in Corridor 107 was apparently due to a wall finish problem at the base of the wall. This would have been similarly corrected as a punch list item. The sealing and waxing of the tiles is generally a final punch list item.

CARPET/CARPET TRANSITIONS (Items C7, C11, C12, D8, K4, K5, L3, N3, N4, O2); Contract References: Finish Schedule, Dwg GC9a; Spec Section 09688

Carpet installation concerns (C11) are punch list items. The problems with vinyl transition strips appear to be due to the incorrect style strip being used. No specific strip style was specified (Spec 09688 2.03C). I have not researched this item in great detail, but in my opinion the solution is a punch list item and requires the removal and replacement of vinyl strips.

Item K4 deals with carpet transitions at a column base in Office 114. An attempt to transition this area with a vinyl base is not appropriate. The contract documents or a change order should have requested that the column be boxed to provide a finished office space.

INVESTIGATION (CONT)

CERAMIC TILE WORK/THRESHOLDS (Items E2, D7, F1); Contract References: Finish Schedule & Door Schedule, Dwg GC9a; Detail 12/GC9c; Spec Section 09311

I observed transition problems between Corridor 107 and Toilet Rooms 105 and 106. The difference in finish floor elevations created by the plywood installation in the corridor has resulted in the need for a nonstandard marble threshold. In my opinion, the contract documents do not sufficiently indicate how the transition in floor elevations is to be accommodated. The "Finish Schedule" on Drawing GC9a indicates a cement board of unspecified thickness is to be used as a substrate. However, Specification 09311 does not discuss a cement board substrate and indicates the floor tile should be placed on a leveled existing substrate. This appears to be how the tile was installed in Toilet Rooms 105 and 106.

(In the second floor Toilet Rooms 119 and 120, I noted that a cement board had been installed to more nearly level corridor and toilet room substrate surfaces. The Contractor indicated the cement board installation was at his suggestion to avoid problems experienced at the first level). Because the first level corridor and toilet room finish substrates were at different elevations, the specified marble threshold (Spec. 09311 2.08C) was not appropriate. (Note that the Door Sill Detail (12/GC9c) does not recognize the difference in finish floor elevations or the marble threshold). The Contractor apparently installed the noted threshold to allow use of the facility until the transition problem could be resolved. The installed threshold is clearly an inappropriate width.

In my opinion the Toilet Room floors should either be brought to the same finish level as the Corridor floor to allow use of the specified threshold or a special threshold should be designed to accommodate the elevation differences. In either case, the correction of the problem should be by a Change Order to the Contract.

The other concerns with the installation are clearly punch list items.

INVESTIGATION (CONT)ALUMINUM TRIM/PANNING (Items A2, A8, H1, 18, R2)

These are all punch list items that the Subcontractor indicated he was prepared to correct.

CEILING TILES (Items A1, B1, B2, C1, E1, H3, ,11, 12 M1, T7);
Contract References: Finish Schedule, Dwg GC9a; Reflected Ceiling Plan, Dwg GC8; Spec Section 09511)

I noted problems with the ceiling system workmanship where the ceiling tiles were cut (i.e. field rabbet of panel edges) and problems with the flatness of the system where mechanical equipment had been installed after ceiling installation. In my opinion correction of the concerns would generally be a punch list item. The general orientation of the panels appeared to be consistent with the reflected ceiling plan.

PAINTING/CAULKING (Items A7, B3, C6, D4, D9, H2, 16, 110, K2, L2, 03 , P2, Q2, T4)

I noted that painting and caulking was not complete. These are normally punch list items that the Subcontractors intended to complete.

DOORS/HARDWARE (Items C4, D3, D5, 19 J2, K1, L4, 04, P3, Q3)

The listed problems are either punch list items requiring adjustments and/or typical door warranty items (e.g. warping). These types of items are normally handled during final project closeout and the warranty period.

INVESTIGATION (CONT)SECRETARY ROOM 110, Item B4 - Plastic Laminate Sill

This item needs to be replaced. The original installation appears to have warped. This is a punch list/warranty item.

WAITING AREA 112, Item C5 - Closet Door Finish

The Subcontractor doing the wall finishes has indicated that the problem appears to be wallpaper paste that got on the door surface. This needs to be cleaned as a punch list item. If the surface is actually damaged, the door needs to be refinished. The Contractor was prepared to correct items as needed as part of a normal punch list operation.

ENGINEERING ROOM 101, Item 17 - Completion of Wall Finish

A closure piece is required along the side of the window. As before, this is a punch list item. The various Subcontractors were to be working at the second level. It is my understanding that items such as this one would have been corrected during final project completion.

BREAK ROOM 103, Item M2 - Block Wall Plumbness

I checked but did not observe any problems with the new masonry wall plumbness.

INVESTIGATION (CONT)

EXTERIOR, Item R3 - Archway Tile Contract Reference: Front Elevation, Dwg GC4; Elevation A/GC10)

The details for this item are confusing. Dwg GC4 shows 12 tiles across the width to develop the desired pattern, Dwg GC10 shows 10 tiles over a distance of 6 feet. The actual installation appears to be 14 tiles in width. I believe there is a **dimensional error on Dwg GC10** in that the 3'-0" dimension may be incorrect (i.e. should be 30" for 5 tiles @ 6"/tile). Regardless, the final installation appears to be acceptable from an appearance standpoint. I saw no reason for corrective actions.

SECOND FLOOR PHASE 2, Items S2 & S3 - Sheetrock & Studs

The sheetrock that I observed did not appear damaged and was functional as a wall surface. I noted one or two instances of twisted studs that needed to be straightened and refastened. The Contractor indicated that he was prepared to do the corrective action necessary to realign problem studs.

GENERAL, Items T1, T2, T3

T1 & T2 are cleaning items. Room cleaning appears irrelevant since the first floor rooms were occupied and normal office cleaning was being done. Window cleaning is generally done at the end of a project and would be a typical punch list item.

Item T3 discusses disturbed insulation above the ceiling. **It is my understanding that the insulation was disturbed by other Prime Contractors and/or other Owner's Contractors (e.g. communications). Correction of this item appears minor and could be done as part of a miscellaneous Change Order.**

CONCLUSIONS

In my opinion the majority of the items noted are related to workmanship or incomplete installations that would normally be corrected/completed as Punch List items at the end of a project. Some problem areas appear to be the result of incomplete and/or inconsistent contract documents and/or interface problems between new and existing materials. Additional problems have developed due to the multiple Prime Contractor system that often leads to inefficiencies and/or problems at areas where the trades interface. The rush to allow Owner occupancy of the first level resulted in additional problems.

The noted problems are not unusual for a renovation project and are generally handled by Punch List completion and/or Change Orders for unanticipated field conditions. In my opinion, the problems noted were not sufficient to justify contract termination.

I have documented many of my observations with photographs and, if requested, can provide them with descriptions as a supplement to this report.

If you have any questions on this report or if I can be of additional assistance, please contact me.

Very truly yours,
PIKUL ENGINEERING


Dr. Richard R. Pikul, PE

RRP:ccl



Attachments: 1/14/94 Deficiency List; Schematic Floor Plans

Notes from Pikul1.pdf

Page 1

Note 1; Label: Pikul Eng. Notes; Date: 3/14/97 8:46:38 AM

Dr. Pikul is a nationally reknown consulting professional engineer. His resume may be seen by clicking on the highlighted link.

His reaction at the arbitrator's determination was one of disbelief and incredulousness.

Note 2; Label: Pikul Eng. Notes; Date: 3/14/97 8:48:50 AM

Mr. Kril is an internationally reknown consultant and claims expert. His resume may be seen by clicking on the highlighted link.

His reaction at the arbitrator's determination was, "A travesty of justice has occurred".

Note 3; Label: Pikul Eng. Notes; Date: 3/14/97 8:51:30 AM

Mr. Howard is a partner in the law firm of Couch, White, Brenner, Howard and Feigenbaum. One of their specialties is construction law and their WWW home page may be seen by clicking on the highlighted link.

His reaction at the arbitrator's determination was that he was going to think long and hard about ever using the American Arbitration Association again for dispute resolution.