

THE FIRST JUDICIAL DISTRICT OF PENNSYLVANIA, PHILADELPHIA COUNTY  
IN THE COURT OF COMMON PLEAS

THE PHILADELPHIA REGIONAL  
PORT AUTHORITY

vs.

CARUSONE CONSTRUCTION CO.,  
SUMMIT STRUCTURES, LLC,  
PAUL E. REIMER, JR.,  
REIMER ASSOCIATES, INC.,  
MAJEK FIRE PROTECTION, INC.,  
TRIAD FIRE PROTECTION

: TRIAL DIVISION- CIVIL

:

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: JULY TERM, 2003

: NO. 2701

:

: Lead case 0502-1397

:

:

DOCKETED

MAY 14 2007

S. LONERGAN

ORDER

AND NOW, to wit, this **14<sup>th</sup>** day of May 2007, after having considered the parties' responses to the Court's Additional Findings docketed March 13, 2007, and after having considered the Motion for Reconsideration by Carusone and the response thereto, the following is entered as a Final Order, the docketing of which shall begin the running of the time period for filing Post Trial Motions.

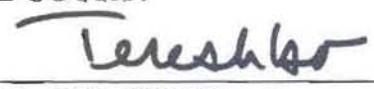
The Motion to Reconsider filed by Carusone on March 30, 2007 is Denied.

The Original Findings of the Court entered on December 7, 2006, and the Additional Findings of the Court entered March 13, 2007 are incorporated herein.

In addition to the compensatory damages awarded in the above-referenced Findings and the indemnification also awarded therein, Defendant Summit shall reimburse to Plaintiff PRPA 88% of the legal fees to Reed, Smith which is \$436,919.12 and 88% of the legal fees to the successor firm, (Wolf, Block) which was also Trial counsel, 88% of \$594,042.80 is \$522,757.86.

In addition, PRPA is found to be entitled to delay damages in the amount of \$747,413.00 as of March 31, 2007. The joint tortfeasors are liable for this amount in accordance with their respective degrees of negligence

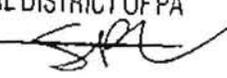
BY THE COURT:

  
ALLAN L. TERESHKO, J.

cc:  
William G. Frey  
Elizabeth Hornell  
John D. Lychak  
Bruce L. Phillips  
Fred M. Brehm  
Andrew J. Connolly

COPIES SENT  
PURSUANT TO Pa.R.C.P. 236(b)

MAY 14 2007

FIRST JUDICIAL DISTRICT OF PA  
USER I.D.: 



of the building. PRPA had a single vault frame supported fabric covered building on one of its other sites along the river and it wanted a similarly constructed building but with twice the capacity which would require a double vault. This would be accomplished by placing single vaults side by side to form the double vault<sup>1</sup>

Because time was of the essence, the proposed contract to plan and build the structure was to be on a "design build" basis, which meant that one contract would be awarded to one entity and that that successful bidder would have secured contracts with various subcontractors to accomplish all phases of designing, planning and constructing the facility. The building would be required to meet the performance specifications of the owner, PRPA.

The building of the facility was financed initially with a construction loan from Sovereign Bank; such loan would ultimately be converted into a mortgage<sup>2</sup>

### FINDINGS

1. The bid specifications were prepared by engineering firms which had an existing relationship with PRPA. The performance specifications were developed, taking into consideration, the history of the single vault building PRPA had on another of its properties and its current space needs for the planned building. Pennoni Associates was the civil engineer; W.D. Brown, was the electrical engineer and Triad Fire Protection, was the sprinkler system engineer. (N.T. 6/16/06, pgs 19-22. N.T. 6/22/06, pgs 84-85)
2. A bid package was produced which included all design documents prepared by the engineers (See #1) and the Contract general condition of PRPA. Section 13121 of the bid specification was dedicated to Frame Supported Membrane Structure (N.T. 6/16/06, p.25 and Exhibit P-146).
3. The PRPA had a frame supported membrane structure on another property and because of the distinct characteristics of such a building, it was necessary to have any bidders on the building to be qualified as an approved equal to the contractor who had erected the other building, (Rubb Building). (N.T. 6/22/06, pgs. 85-88).
4. Three of the named Defendants are Summit Structures, Summit Structures, LLC and Cover-All Building Systems. (N.T. 6/22/06, pg. 207).
5. Summit Structures, a Canadian based company, sells and installs fabric structures

1. The "vault" is also referred to as a hump throughout the testimony.  
2. The above background information is based upon uncontested facts.

made by Cover-All Building Systems; it is a division of Cover-All Building Systems. (N.T. 6/22/06, pgs. 181, 204-205).

6. Summit Structures, LLC, a Pennsylvania company, was a sales and construction company which purchased the subject building products from Cover-All Building Products. (N.T. 6/22/06, pg. 203).

7. Cover-All Building Systems, designed and manufactured the building that was sold to PRPA. (N.T. 6/22/06, pgs. 207-208).

8. The three (3) named entities in #4 and #7 were vertically and horizontally linked and the various officers, agents and representatives who were involved in the bidding, sale, manufacture and construction of the PRPA building were integrated into one or more of the three (3) entities, such that for purposes of liability in the instant action they will be treated as a single entity identified as Summit/Cover-All Building Systems (Summit). (N.T. 6/16/06, pgs. 60-63 and 6/22/06, pgs. 181, 182, 193, 202-211- Exhibit P-171).

9. During the pre-bid process, PRPA was seeking to insure that any subcontractors for the design and construction of the building would be approved as having the ability to complete the project. (N.T. 6/22/06, pgs. 87-88).

10. PRPA asked Summit to provide a preliminary plan and preliminary cross-sections of the building which was to be constructed, to fit the existing "footprint" at the established PRPA site. (N.T. 6/16/06, pg. 35).

11. During this pre-bid process, there continued to be an exchange of information between PRPA and Summit which PRPA would rely upon in determining that the Summit building would be an acceptable building design and construction. (This has been referred to as determining Summit to be an "approved equal." Explicit and implicit in this is the understanding that the term "equal" would be to the "Rubb" designed building on another PRPA site). (N.T. 6/16/06, pgs. 40, 42-44). (See also #3 above)

12. PRPA was specifically concerned about such local factors as wind speed and snow loads and wanted to insure that any bidder for the building was aware of same as expressed in its performance specifications and communicated this to Summit. (N.T. 6/16/06, pgs. 33, 35-38).

13. Summit represented to PRPA that it had adequate professional staff to address the structural and operational requirements of the proposed building. It further represented that the building would be designed and built in accordance with all referenced building codes applicable to the site location. (N.T. 6/16/06, pgs. 35, 41).

14. Although Summit had not previously constructed a building similar to the one it was bidding on, it represented that it could successfully complete the project. (N.T. 6/16/06, pg. 34; N.T. 6/23/06, pg. 35).

15. Subsequent to the pre-bid activity and communications, Carusone Construction Company, (Carusone), was awarded the Contract. This was transmitted through a letter of October 9, 2002, which is Exhibit P-66. The letter contained among other requirements, that the project be completed by December 31, 2002 and that Carusone was responsible for coordination of the work of the subcontractors participating in the design and construction of the project. (N.T. 6/16/06, pgs. 45-46, 52; N.T. 6/20/06, pgs. 101-102).

16. The Contract document, with all related subparts and addenda, was admitted as Exhibit P-111 (separate loose leaf binder) and contained certain subparts which follow (partial specific listings):

- a. Section 13121, Part 1, Section 1.2 called for a "complete turn key installation including all accessories."
- b. Section 13121, Part 1, Section 1.5.A.3 identified the fire suppression system as an accessory
- c. Section 13121 indicates that structure must comply with NFPA standards, including NFPA 13
- d. Section 13121, Part 1, Section 1.6.B.2 called for purlin spacing to provide for structural stability, to minimize unsupported membrane fabric, provide structure to support accessory items and provide lateral bracing in seven foot intervals.
- e. Section 13121 Section 6 (p.6) limits deflection to 1/180 of a clear span which means structural elements can not sag more than one inch for every fifteen linear feet of span.

17. As part of the Question and Answer addenda, the following was submitted:

- Q43 Spec section 13121, section 1.6, item B2 calls for purlin spacing not to exceed seven foot over the entire span. This seems to be a proprietary dimension. Is 8.25' spacing acceptable?
- A43 Actual purlin spacing shall be specified by the building manufacturer, to satisfy the engineering requirements for support of the fabric, lighting and sprinkler system, and for building stability. The spacing shall not exceed ten (10') feet.

18. In furtherance of its desire to insure that any subcontractor for the building structure and covering was fully aware of the performance specifications for the building that PRPA wanted and Summit would be bidding on as an approved equal, PRPA sent and received the following from Summit regarding the "snow load" capability of the Summit design.

4. Explain your company's design assumptions for snow loads. Do you or do you not apply a "sliding factor" in the sizing of your structural members? If so what is it and what percent of the roof is assumed to be clear of snow? Does it require that the facility manager remove snow to comply? Our design is done in accordance with applicable site specific building codes and does NOT require the sliding or shedding of snow to meet the requirements. The removal of the roof snow by any facility staff is not part of our design criteria at no time.

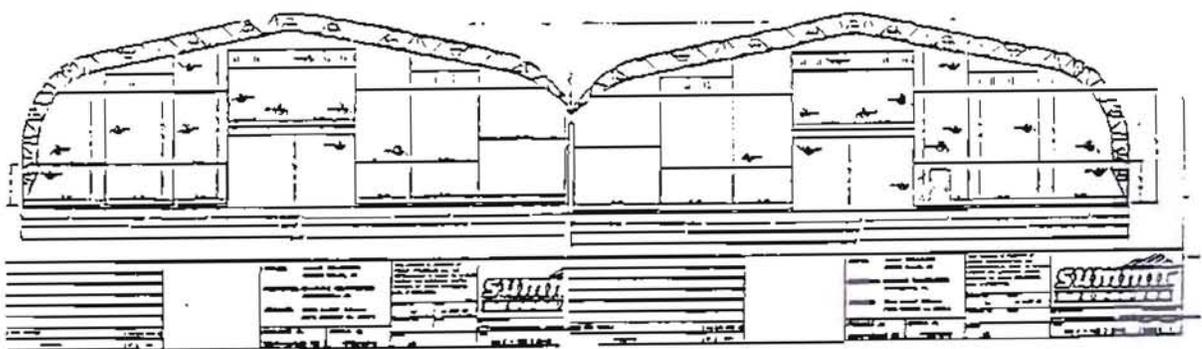
Exhibit P-69 (E-Mail between PRPA and Summit) (N.T. 6/16/06, pgs 36-37).

19. The calculation of the snow load capability of the building was part of the performance specification to be considered here, where the double vault being specified had never been built by Summit. (N.T. 6/16/06, pgs 34-36; N.T. 6/22/06, pgs 88-89).

20. The "Rubb" Building, was established as the design and construction standard, (See #3 and #11 above) setting the goal for other building subcontractors to be "equal" to the Rubb Building.

21. Summit's design was submitted for the purpose of becoming an "approved equal." (See #3, #11 and #14 above)

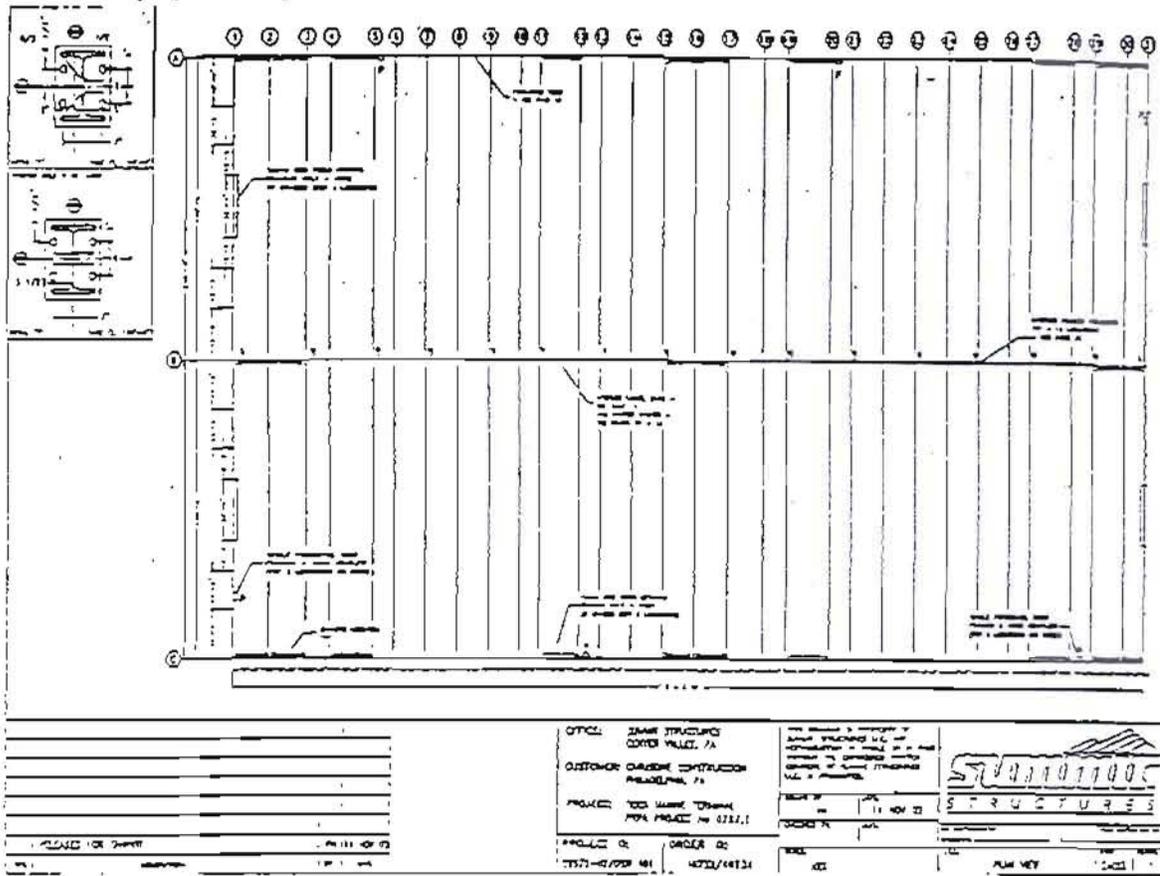
22. The basic design of the frame structure consisted of an unsupported frame which is at its simplest, an arch over a given space.



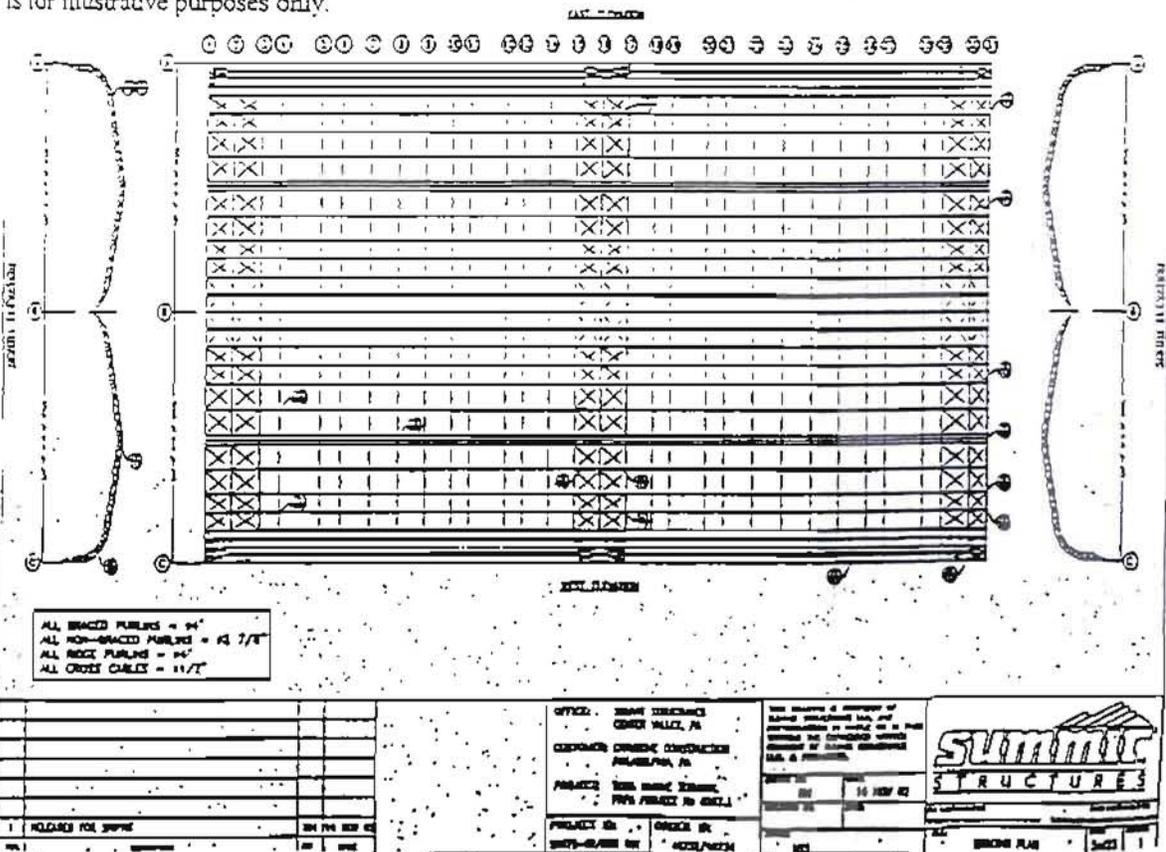
Note: The above drawings are excerpted from Exhibit P-15 and are used for illustrative purposes only.

The frame is supported independently at the ends of each separated frame and by a common support

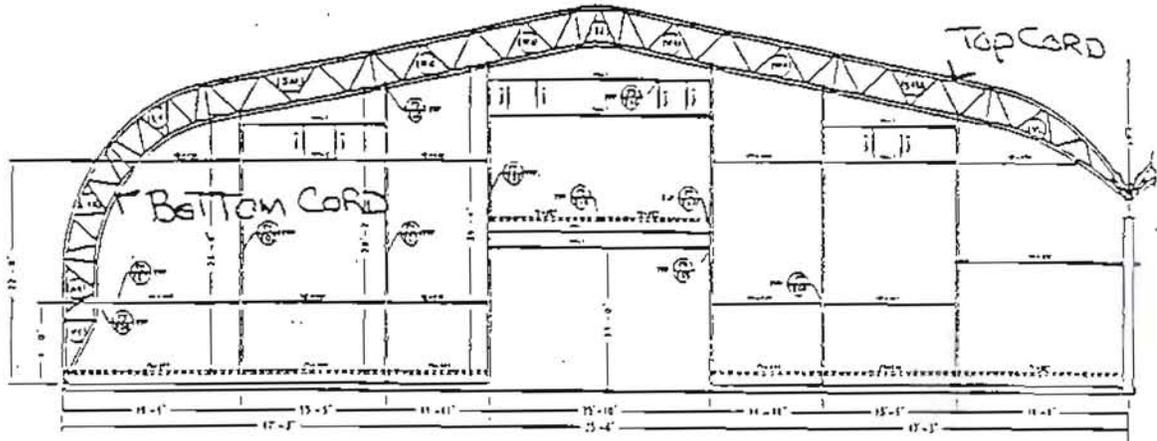
in the center where the frames meet. This is the double vault or "double hump" building.  
 23. The frames were to be spaced at specific intervals as represented below. This is for illustrative purposes only.



24. The individual frames were to be connected by other structural members called purlins which intersect the frames at ninety-degree angles. (N.T. 6/20/66, pg. 34). Note: The purlin placement shown below is for illustrative purposes only.



25. The fabric covering would go over the frames and purlins to complete the exterior of the building.
26. Summit represented to PRPA that the purlins were to support the fabric covering the lighting and sprinkler system. (See #17 above). (N.T. 6/20/06, pg. 59).
27. At the time Summit was designated an approved equal, PRPA believed that the purlins would be on top cord of the frame (top cord as compared to bottom cord of the frame as shown below for illustrative purposes only). (N.T. 6/20/06, pgs. 62-66).

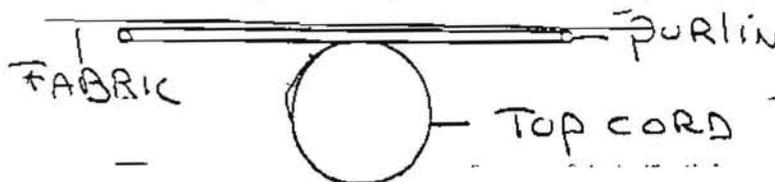


28. The position of the purlins on the top cord of the frame would have put the fabric covering in direct contact with the purlins and thus be supported by the purlins (N.T. 6/20/06, pgs. 5-10).
29. The top cord of the Summit frame differed significantly from the top cord in the Rubb design such that the Summit frame did not have purlins attached to the top cord as part of its design because of the proprietary nature of the top cord which had what is referred to as a C-Clip rather than being smoothly rounded. (N.T. 6/20/06, pgs 5-10).



Note: The above drawing is here for illustrative purposes only and represents the above-referred to "C-Clip" which is on the top cord of a Summit frame. The fabric on a Summit building would be laid into the "C" shaped opening and secured to the frame by means of a cylinder, inserted into the concave section. This was also to provide a certain degree of structural integrity to the Summit structure.

30. The "Rubb" building had a smooth round top cord to which a purlin could be attached and then the fabric covering laid on top of both members. (N.T. 6/20/06, pgs.5-10).



Note: For demonstrative purposes only.

31. The top mounted purlins were intended to provide support for the fabric covering in the otherwise unsupported areas between the frames. (N.T. 6/20/06, pgs. 5-10).

32. Section 13121- 1, 2, and 3 of the bid document, sets forth the requirements that the frames and the attached purlins are required to support the fabric covering. (Exhibit 5-111).

#### 1.2 Summary

A. This Section specifies the design, furnishing and installation of a structural frame supported membrane fabric covered roof and wall structure of the type described herein for a complete turn key installation including all accessories.

#### 1.6 DESIGN AND DIMENSION

B. Design Requirements-Structural Frame  
2. Purlin spacing: To provide for structural stability, to minimize unsupported areas of membrane fabric in the roof and to provide for installation of accessory items, the main structural trusses shall be laterally braced by metal purlins at intervals not to exceed seven feet over the entire arch span.  
(N.T. 6/20/06, pgs. 7-10).

32. The same bid document also included a requirement that the support structure for the fabric covering also support the weight of a fully charged sprinkler system. (N.T. 6/20/06, pgs 6-7).

33. Subsequent to the pre-bid and bid procedures and submissions, the PRPA received five (5) bids. (N.T. 6/22/06, pg. 89).

34. The Contract was awarded to Carusone Construction based upon its bid submissions which included Summit's submissions for completion of the building pursuant to the bid specifications. (N.T. 6/22/06, pgs. 90-91).

35. Because of the time frame for completion of the building, an Emergency Purchase Order was executed by PRPA. The Purchase Order was executed on or about 10/16/02 and sent to Carusone. It was signed by Carmen R. Carusone on 10/25/02 on behalf of Carusone Construction. (N.T. 6/22/06, pgs. 91-94; Exhibit P-111).

36. The Notice of Bid Acceptance and Emergency Purchase Order was sent to Carusone, who in turn notified the subcontractors which included Summit (building) and Majek (sprinkler system), also defendants herein. (N.T. 6/20/06, pgs. 100-102; Exhibit P-111).

37. The Purchase Order contained Carusone's bid document, building specifications and General Contract condition. It also contained a performance bond. (Exhibit P-111; N.T. 6/20/06, pgs. 102-103).

38. Section 13121 also requires that the "structure be designed by a licensed, registered Professional Engineer in the Commonwealth of Pennsylvania, in accordance with appropriate building code standards and local authorities having jurisdiction, using methodology from ASCE 7-93." (N.T. 6/21/06, pgs 17-18; Exhibit P-111).

39. The Purchase Order incorporated the General Conditions (Exhibit P-111), which contain the following pertinent provisions:

a. Carusone shall indemnify, defend and hold harmless the Port from any and all losses, costs (including litigation costs and counsel fees), claims, suits, actions, damage liability, and expenses in connection with loss or damage to tangible property to the extent it is occasioned wholly or in part by Carusone's act or omission or the act or omission of Carusone's agents, contractors (including subcontractors and suppliers), officers, employees, or servants pursuant to the contract. (Exhibit P-111.95 (§ 6));

b. The Port's review of shop drawings and samples is only for conformance with the design concept of the project and information in the specifications (Exhibit P-111.102 (§ 22(g)));

c. The Port's approval of shop drawings and samples will not relieve the contractor for any derivation of the contract's requirements (Exhibit P-111.102 (§ 22(i)));

d. Carusone was responsible for all of the work performed by subcontractors on this project (Exhibit P-111.106 (§ 28)), and

e. Carusone shall remove, at its own expense, any defective work and replace the same without any additional compensation. (Exhibit P-111.130 (§ 67)).

40. On October 9, 2002, Carusone issued a purchase order to Summit for the design and installation of a membrane structure at the PRPA site. The purchase order was signed by Carmen Carusone and Jim Kumpula of Summit. (N.T. 6/20/06, pg. 106; Exhibit P-156).

41. The purchase order between Carusone and Summit contained a provision that Summit shall be bound by the terms and conditions included in the Port's bid documents for the Tioga project. (N.T. 6/20/06, pg. 106, 123; Exhibits P-156, P-156A).

42. Carusone and Summit entered into a Material Sale Contract for the supply and

delivery of two of Summit Structure's Titan Series buildings to be configured side-by-side. The Contract also stated that Summit would provide shop drawings and engineering data, which would be signed and sealed by a Pennsylvania licensed professional engineer. (N.T. 6/20/06, pg.116; Exhibit P-53A).

43. The Material Sale Contract provided for, among other things, an extended five year warranty and signed and sealed shop drawings and engineering data on the Summit supplied structure by a Pennsylvania licensed professional engineer. (Exhibit P-53A).

44. Carusone and Summit also entered into an Installation Contract, which stated that Summit would install the warehouse and its accessories. (N.T. 6/20/06, pg. 116; Exhibit P-158A).

45. Summit submitted ten-year warranties for the steel structure and fabric covering of the warehouse to the Port. These warranties were made by Cover-All Building Systems and Summit Structures, LLC. (Exhibit P-167).

46. In addition to its agreement with Summit, Carusone subcontracted with Majek Fire Protection for design and installation of the building's sprinkler system (N.T. 6/20/06, pg. 102).

47. As a method of controlling the construction work in progress and the material to be used, the Contract provided that each item supplied be identified with a "submittal" which was logged by Michael Scott, PRPA's Project Engineer. (N.T. 6/16/06, pg. 69).

48. Mr. Scott's status as "project" engineer was limited to coordination of the ongoing work through the submittals and review of the work as conforming to the Contract requirements. Mr. Scott is not a registered professional engineer. (N.T. 6/16/06, pgs 113, 120).

49. Andrew Bennett, an employee of Summit, prepared the calculations of the building design and Enrique Tabak, also from Summit, supervised and verified the building design calculations. Neither of them were licensed Pennsylvania professional engineers. (N.T. 6/23/06, pgs. 6, 37-38, 58; 6/22/06, pg. 209; Exhibit P-18).

50. Section 13121 of the specification for the frame-supported fabric-covered structure required that the "structure shall be designed by a licensed, registered Professional Engineer in the Commonwealth of Pennsylvania, in accordance with appropriate building code standards and local authorities having jurisdiction, using methodology from ASCE [American Society of Civil Engineers] 7-93." (N.T. 6/16/06, pgs 112; Exhibit P-111.253).

51. To comply with the Section 13121 requirements that the structure be designed by a

51. To comply with the Section 13121 requirements that the structure be designed by a Pennsylvania licensed professional engineer, Summit/Cover-All used Paul Reimer to review and seal the plans and drawings. (N.T. 6/16/06, pg. 112; Exhibit P-165).

On October 30, 2002, Summit/Cover-All released the drawings and calculations to Mr. Reimer, and Mr. Reimer reviewed them prior to his sealing them the next day on November 1, 2002. (Reimer Dep. at pg. 26).

52. On November 1, 2002, Mr. Reimer signed and sealed Summit/Cover-All's drawings for the warehouse at Tioga. (Reimer Deposition ("Dep.") at pgs. 21-22, 25, Exhibit P-38)

On November 1, 2002, Mr. Reimer signed and sealed Summit/Cover-All's calculations for the design for the warehouse. (Reimer Dep. at pgs.22-24; Exhibit P-18)

Prior to signing and sealing them, Mr. Reimer reviewed the drawings and calculations to see if they matched his general experience with Summit/Cover-All's buildings. He did not do any independent calculations for Tioga. (Reimer Dep. at pgs. 19-20).

53. Carusone submitted an application to L&I for a Building Permit and a Certificate of Occupancy Permit, and the application was No. 021024027. In a letter dated October 3, 2002, L&I requested that Carusone provide the name and number of the Pennsylvania licensed professional engineer who will be "responsible for the erection of and the inspection of prefabricated buildings" and who will certify that the building was designed in accordance with the 1997 Philadelphia Building Use and Occupancy Code. (N.T., 6/16/06, pgs. 113-14; Exhibit P-41).

54. A fax, dated November 5, 2002 from Summit/Cover-All to Carusone, identified that Mr. Reimer would serve as the engineer of record for the building; that Mr. Reimer would be responsible for the inspection of the building; and that he would certify that it was designed in accordance with the Philadelphia Building Code. (N.T. 6/16/06, pgs. 111, Exhibit P-165).

55. In a letter in response to L&I's request, dated and sealed on November 18, 2002, Mr. Reimer stated that he "will inspect the construction of the 120 foot wide, twin low slope fabric covered building for PRPA to be erected at 3461 Delaware Ave., Philadelphia, PA, application No. 021024027." (N.T. 6/16/06, pg. 114; Exhibit P-43).

56. In another letter in response to L&I's request, dated and sealed on November 18, 2002, referencing Application No. 021024027, Mr. Reimer certified "on the basis of my knowledge, information, and belief that the 120 foot wide, twin low slope fabric covered building for PRPA to be erected at 3461 Delaware Ave., Philadelphia, PA., is designed in accordance with the 1997 Philadelphia Building Use and Occupancy Code." (N.T. 6/16/06,

pg. 117; Exhibit P-44).

57. Mr. Reimer did not review the Philadelphia Building Code for this project. Instead, Mr. Reimer assumed that Summit/Cover-All's design and calculations were correct and had been checked in accordance with the Code. He relied on that assumption in drafting the November 18, 2002 letter. (Reimer Dep. at pgs. 88-90).

58. On December 30, 2002, Mr. Reimer signed and sealed a Special Inspection and Final Compliance letter to L&I stating that he had provided special inspections of the Summit/Cover-All warehouse, including its "superstructure, bolts and nuts, welding, structural steel and bracing, foundations, footers, and anchor bolts." (N T 6/16/2006, pg. 120, Exhibit P-46). Mr. Reimer conducted a walk through of the Tioga warehouse prior to completing the Special Inspection and Final Compliance letter.

59. The Special Inspection letter also stated that Mr. Reimer's "professional opinion and in accordance with the accepted standards of my profession, the building has been constructed in compliance with the provisions of section 1308 0 of the 1990 B.O.C A. National Building Code." However, Mr. Reimer admitted that he did not examine the 1990 B O C.A. Code prior to signing the Special Inspection. (Reimer Dep., pgs.96-97).

60. The Special Inspection and Final Compliance letter is required by L&I at the closeout of a project. (N T. 6/16/06, pg. 119).

61. On December 31, 2002, in reliance upon Mr Reimer's Special Inspection and Final Compliance Letter, L&I issued a conditional temporary occupancy certificate for the Tioga warehouse. (N.T. 6/16/06, pgs. 88-89; Exhibit P-176) In addition, a sprinkler permit was issued on January 2, 2003 (N.T. 6/16/06, pgs. 86-87, Exhibit P-174). A certificate stating that the electrical system was properly inspected also was issued. (N T. 6/16/06, pg. 87)

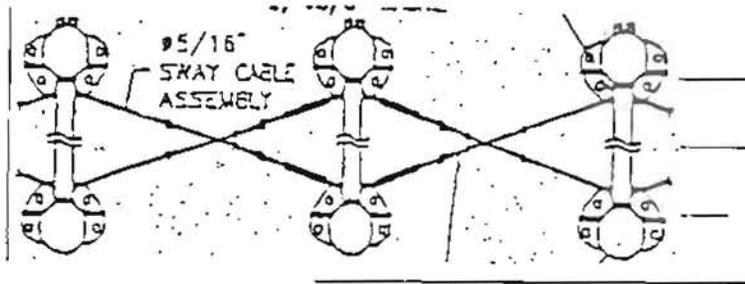
62. As noted above, the structural support for the buildings' covering, comes from the structural members most primary of which are the frames or trusses. There were 31 trusses in each of the side by side buildings making a total of 62 trusses. (N.T. 6/21/06, pgs.37-38, Exhibit P-15, p.2 and 3 of 23).

63. Each truss was approximately 120 feet long and was made of up to seven (7) segments which were connected or spliced by means of a flange on each end of the sections that were bolted together. (N.T. 6/21/06, pgs. 15, 37-38).

64. The flanges are welded to the ends of the pipe which make up the truss sections. The flanges cover 270° of the 360° of the circumference of the truss section leaving 90° of the diameter of the pipe making up the truss not covered with a flange. (N.T. 6/21/06, pgs. 36-

diameter of the pipe making up the truss not covered with a flange. (N.T. 6/21/06, pgs. 36-37; Exhibit P-15). (??¶ 14 of 23).

(Flange section enlarged below for demonstrative purposes).



65. The flange on the truss section is a design function to accommodate the "C-Clip" on top of the truss which is part of the structure integrity of the covered buildings. (See #29 and 30 above).

66. The "C-Clip" was intended to hold the fabric covering to the building and a full 360° flange would have been interfered with by the projecting connection represented by the flange. The flange connections have also been referred to as splices. (N.T. 6/21/06, pgs. 40-41).

67. The warehouse was functionally completed on 12/31/02 and put in service on 1/2/03. (N.T. 6/22/06, pg. 96).

68. PRPA presented its expert, Charles N. Timbie, (Timbie). He is a registered professional structural engineer in Pennsylvania as well as other states. He has an extensive background in forensic analysis of the cause of building failure. He was qualified by this Court to offer an opinion on the cause of the Tioga Building collapse. (N.T. 6/20/06, pgs. 171-182).

69. His opinion was accorded great weight by this Court.

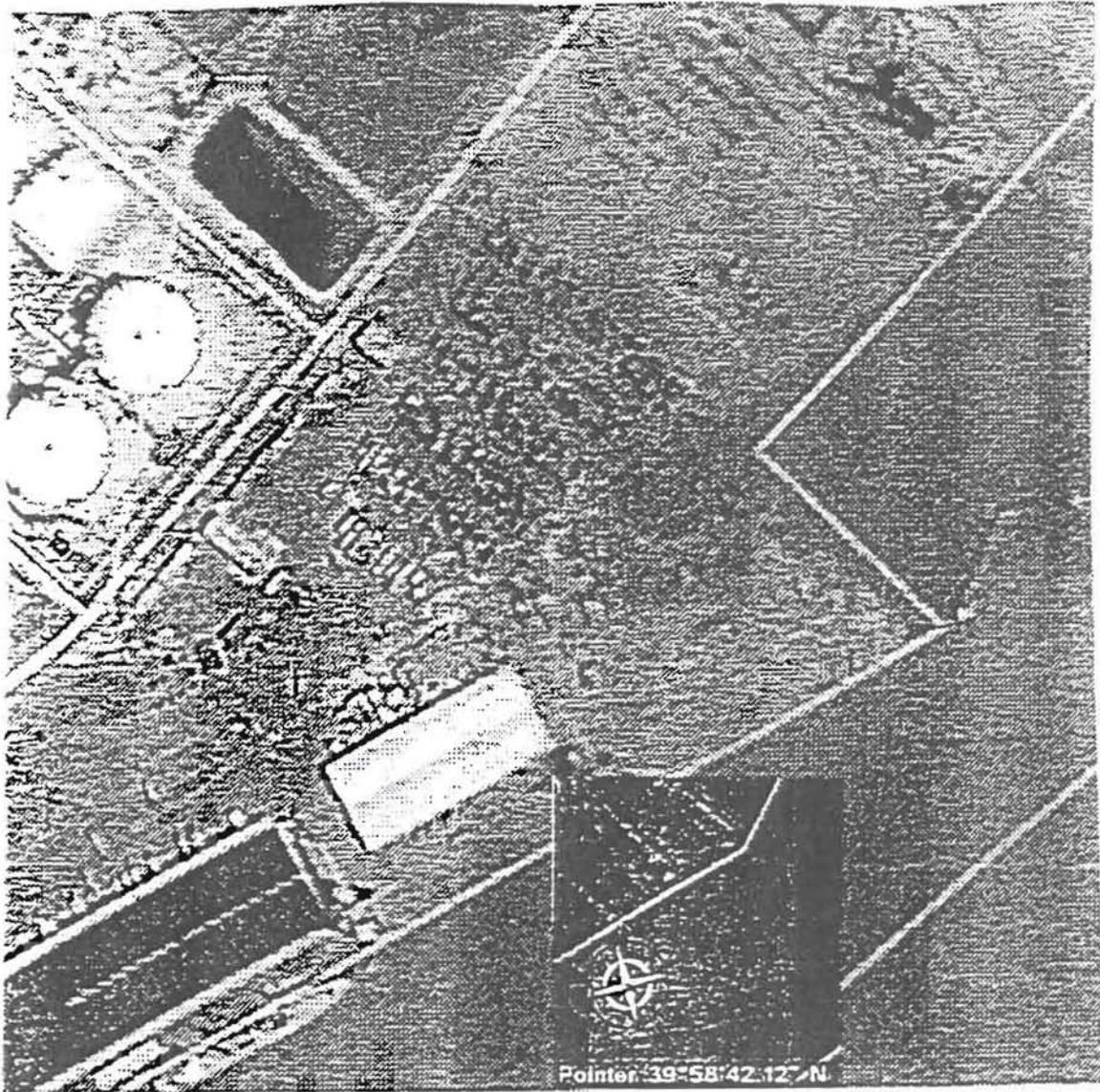
70. Timbie began his examination by reviewing appropriate building codes. He also reviewed depositions and other material identified in his Report. (N.T. 6/20/06, pgs. 182-185; Exhibit P-143).

71. Timbie then went on to explain the effect of the snowfall on the Tioga Building which will be summarized here in narrative form:

The axis of the centerline of the building's gabled roof structure was in a primarily east/west direction which roughly paralleled the course of the Delaware River, which turns east at that point. The axis of the roofs were perpendicular to the direction of the wind

which was during the time of the snow storm in a northeast/southwest direction.'

3 There was some confusion about the use of geographic directions such as North, South, etc., produced in no small part by the Court's initial confusion. (N.T. 6/20/06, pgs.187-188). For purposes of these findings, the buildings, end to end ran East to West. The landward building was to the North and the riverward building was to the South. A representative building (current building) is shown below for illustrative purposes only with a "wind rose" embossed on the satellite photo by the Court.



The expert (Timbie) opined that just prior to the collapse there was a snowfall accompanied by windy conditions which would have produced a scouring effect on the roof such as to remove snow from the windward or northern side of the landward building and deposit it on the leeward or southern side of the landward building (away from the direction of the wind). The accumulation was more on the westward or down river side. In addition to the disproportionate weighting of the westward end of the landward building, there was a disproportionate weighting of the southern side of the landward building by the same scouring of the snow by the northerly component of the wind. This accumulation was along the axis of the building parallel with the valley between the buildings. The expert opined that this unbalanced loading was a causative factor in the collapse of the building because the snow buildup in or adjacent to the valley exceeded the design weight limit on the supporting truss frames which initiated the failure of the land side building. This opinion, which is given great weight, holds that the collapse began at the westward end of the southern (leeward) slope of the landside building and moved up river (eastward) within the same structure. This is consistent with the physical damage of the landward building.

The reason for the structural collapse was a failure of the design to use the appropriate values in calculating the snow load on the roof of the buildings. This collapse was also related to the use of eccentric flange connections in the truss structure and the failure to use a sufficient number of web members in the fabrication and erection of the trusses.

One design flaw related to the snow load which the structure could accommodate. If the building had been designed according to the specifications called for in the Contract which were in accordance with ASCE 7-93, the structure would have been able to carry a load of 63 pounds per sq. ft. The actual design was calculated to carry 35 pounds per sq. ft. One of the key factors in the under design was the failure to properly account for the accumulation of snow in the valley between the buildings which would produce an unbalanced snow load or an uneven distribution of the weight of the snow.

The other design flaw was in the eccentric flanges or splices in the truss member. As shown above, the flange attachments covered 270° of the diameter of the truss end. This proprietary design was utilized to accommodate the "C-Clip" on top of the truss which was used to hold the outer building fabric as an integral building structure (also discussed above). Because the flange did not have a connection over 360° of the diameter of the pipe section, it was proportionately weaker. The evidence supported the opinion that the unconnected 90°

section was a failure point of the truss section. Exhibit P-500 is a photo which is illustrative of this failure at the flange connection point. The witness opined that in the landward building that collapsed, there were catastrophic failures of the eccentric splice on the top cord of the truss at the ridgeline or high point of that building.

The third contributing cause of the building collapse was the failure to install the required number of load bearing members known as king pins. King pins are vertical struts intended to be placed between the top and bottom cord of the trusses. It was a load bearing member.

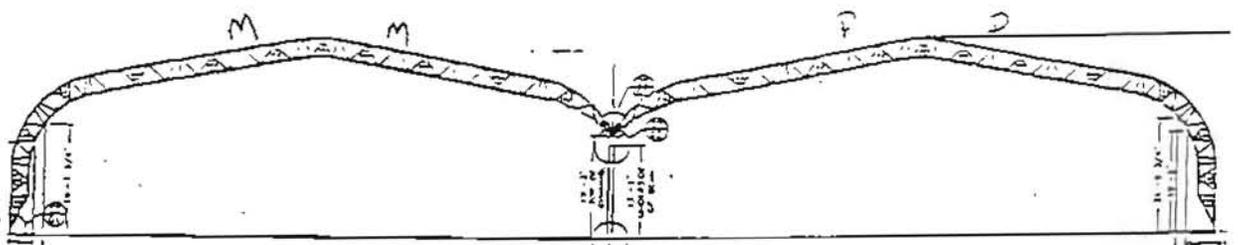
The evidence demonstrated that in each of the trusses, the vertical king pins were missing at two (2) locations. These locations corresponded to the locations of the splices of the truss where the eccentric flange sites were.

Although the design called for king pins at certain splice locations, the construction failed to incorporate one hundred twenty-four (124) such king pins which were to be located at the splice connections.

Although not every splice failed, the splices that did fail were at locations where king pins were included in the design but were not installed.

It appears that half of the missing king pins were designed into the truss but not installed. This is demonstrated on Page 3 of P-10 which is a signed and sealed, "as built" drawing.

This page is reduced in size from the original and included below for demonstrative purposes to show where the king pins were designed to be located. This is a clear design defect because the building was intended to be a symmetrical building and the missing king pins create an asymmetrical design. This Court added the letter "P" to indicate where the king pin was to be present and "M" where the king pin was missing.



The evidence shows that although the "P" king pins were designed to be in the truss, they were missing when the trusses were erected. This is verified in Exhibit P-450 which is a

photograph of an end truss showing two (2) kingpins missing at a splice location where for at least half the building, the design shows where two (2) struts are supposed to be when in the construction both are missing. An analysis of the failures in the trusses show a consistent pattern of failure at the locations where there were splices by means of the eccentric flange connection and the missing king pins. Exhibits P-482-484, 496 and 506 are just a few of the numerous photos demonstrating this.

72. The expert opined that the failure or buckling of the trusses were uniform at the locations where the king pins were not installed at the flange connections (N.T. 6/21/06, pgs. 54-55). This was given great weight by the Court.

73. Although the significant accumulation of the snow had been in the valley area between the buildings and not on the wind scoured ridge of the building, the uniform failure of the splices at the ridgeline was not inconsistent with the expert's theory of collapse because the accumulated unbalanced load present on the lowest part of the building would transmit the pressure of the load, causing at the splice connections, failure at the weakest point which was in the ridge of the roofline. This was deemed credible by the Court and accorded great weight. (N.T. 6/21/06, pgs. 160-162).

74. Considering the above and the record as a whole, this Court finds that the factual cause of the collapse of the Plaintiff's building was the failure of Defendant Summit to design a building that was in accordance with the requirements and duty created by the Contract between it and Carusone which was incorporated into the Contract entered into between Carusone and Plaintiff PRPA.

75. In addition to designing a building which was inadequate to perform under the conditions and requirements contracted for, Summit, further failed to construct the building in accordance with its own design requirements.

76. These two fundamental failures produced a building which simply collapsed under the weight of the first significant snowfall of the new year which were conditions that would have been easily tolerated by the building had it been properly designed and constructed.

77. Various Defendants, as Counter-Claimants, maintained that the modified sprinkler system installed by Defendant Majek, was responsible for the collapse of the trusses. The alleged mechanical forces at work under this theory would have exerted pressure to the tops of the sprinkler heads via the outer fabric covering of the building which was, in turn, receiving pressure from the weight of the unbalanced snow accumulation. As theorized, this weight then pressured the sprigs (sprinkler pipe extensions, which placed the sprinkler heads

within the required distance from the fabric covering), which in turn caused the trusses to distort away from a vertical plane which then caused the truss system failure.

78. This Court finds as a matter of fact that the credible evidence fails to lend any support whatsoever to this theory of causation. The credible evidence shows: (in part cited here)

a. Rather than bearing the weight of the snow and in turn causing distortion in the truss alignment, the sprigs penetrated the roof fabric and relieved the pressure thereon;

b. The catastrophic failure of the truss occurred while the trusses remained in vertical plane. Any trusses that came out of vertical plane were a result of the total distortion caused by the roof collapse and, consequential to the roof collapse,

c. The sprinkler system played no role in compromising the roof structure as a causal element in the roof collapse.

79. Summit Structures brought an action against Triad Fire Protection, which is one of the consolidated actions here. Triad was a fire suppressor system expert that did specifications which were incorporated into the bid project. (Exhibit P-111, General Conditions; P-146 Bid Drawings) (Scott N.T., Day 2, pg. 24, Ins. 17-25, pg.25, Ins. 10-23, Kampmeyer N.T., Day 7, pg. 157, Ins. 22-25, pg. 158, line 1, Scott N.T., Day 4, pg. 44, lines 13-17).

80. Triad's duty was to PRPA, the parameters of which were to ensure that the subcontractor, (Majek) who designed and built the sprinkler system, was familiar with the applicable Philadelphia Building Code requirements and NFPA 13 (N.T. 6/20/06, pg. 44)

81. This Court finds that the Drawings and Specifications of Triad were in compliance with all applicable requirements and codes.

82. This Court further finds that since the design and construction of the sprinkler system played no role in the building collapse, it follows a fortiori, that Triad's Drawings and Specifications played no role in the collapse of the building.

83. As noted, a Material Sale Contract was entered into between Summit and Carusone. This Contract provided that the shop drawings and engineering data for the building be approved by a licensed professional Engineer. (Exhibit P-53A.).

84. The Contract provided that a Pennsylvania licensed professional Engineer (PE), sign and seal the design and construction plans as conforming to the local code requirements and conforming to the design requirements to satisfy all performance requirements. (N.T. 6/19/06, pg. 36; 6/16/06, pgs. 41, 55-56).

85. Carusone submitted an application to L&I for a Building Permit and a Certificate of Occupancy Permit, and the application was No. 021024027. In a letter dated October 31, 2002, L&I requested that Carusone provide the name and number of the Pennsylvania licenses professional engineer who will be "responsible for the erection of and the inspection of prefabricated buildings" and who will certify that the building was designed in accordance with the 1997 Philadelphia Building Use and Occupancy Code. (N.T. 6/16/06, pgs. 113-114, Exhibit P-41).

86. A fax, dated November 5, 2002 from Summit/Cover-All to Carusone, identified that Mr. Reimer would serve as the engineer of record for the building; that Mr. Reimer would be responsible for the inspection of the building; and that he would certify that it was designed in accordance with the Philadelphia Building Code. (N.T. 6/16/06, pg. 111; Exhibit P-165)

87. In a letter in response to L&I's request, dated and sealed on November 18, 2002, Mr. Reimer stated that he "will inspect the construction of the 120 foot wide, twin low slope fabric covered building for PRPA to be erected at 3461 Delaware Ave., Philadelphia, PA , Application No 021024027." (N.T. 6/16/06, pg. 114, Exhibit P-43).

88. In another letter in response to L&I's request, dated and sealed on November 18, 2002, referencing Application No. 021024027, Mr Reimer certified "on the basis of my knowledge, information, and belief that the 120 foot wide, twin low slope fabric covered building for PRPA to be erected at 3461 Delaware Ave., Philadelphia, PA is designed in accordance with the 1997 Philadelphia Building and Occupancy Code " (N T. 6/16/06, pg. 117, Exhibit P-44).

89. Mr. Reimer did not review the Philadelphia Building Code for this project. Instead, Mr. Reimer assumed that Summit/Cover-All's design and calculations were correct and had been checked in accordance with the Code. He relied on that assumption in drafting the November 18, 2002 letter. (Reimer Dep. at Philadelphia, PA.88-90).

90. On December 30, 2002, Mr. Reimer signed and sealed a Special Inspection and Final Compliance letter to L&I stating that he had provided special inspections of the Summit/Cover-All warehouse, including its "superstructure, bolts and nuts, welding structural steel and bracing, foundation, footers, and anchor bolts." Mr. Reimer conducted a walk-through of the Tioga warehouse prior to completing the Special Inspection and Final Compliance letter. (N.T. 6/16/06, pgs. 119-120; Exhibit P-46).

91. The Special Inspection letter also stated that in Mr. Reimer's "professional opinion and in accordance with the accepted standards of my profession, the building has been

constructed in compliance with the provisions of section 1308.0 of the 1990 B.O.C.A. National Building Code.” However, Mr. Reimer admitted that he did not examine the 1990 B.O.C.A. Code prior to signing the Special Inspection.. (Reimer Dep. pgs. 96-97).

92. The Special Inspection and Final Compliance letter is required by L&I at the closeout of a project. (N.T. 6/16/06, pg. 119).

93. On December 31, 2002, in reliance upon Mr. Reimer’s Special Inspection and Final Compliance Letter, L&I issued a conditional temporary occupancy certificate for the Tioga warehouse. In addition, a sprinkler permit was issued on January 2, 2003. A certificate stating that the electrical system was properly inspected also was issued. (N.T. 6/16/06, pgs. 86-89; Exhibits P-174, 176).

94. Mr. Reimer additionally did sign and seal the “as built” drawings for the project on 2/10/2003. (Reimer Dep. at 48, Exhibit P-10).

95. Mr. Reimer is found to be negligent for failure to exercise the ordinary skill, care and diligence which an ordinary engineer would use under these circumstances. He is further found to have negligently represented that the structure was in compliance with all applicable codes and operational requirements, such that the building was ultimately certified for occupancy. His negligence and negligent misrepresentation are found to be a factual cause of the building collapse.

96. Having found that the various forms of negligence in designing and constructing the building committed by Summit and the combined negligence of Reimer were factual causes of the collapse of the building, the Court assesses causal negligence at 88% for Summit and 12% causal negligence for Reimer.

97. Summit is found to be in breach of its Contract with Carusone to design and construct the building which was to be functional more than six (6) weeks. PRPA is found to be a third-party beneficiary of this Contract.

98. Because of the contractual relationship between Summit and Carusone, which Carusone would be responsible for the design and delivery of the building which was guaranteed and warranted to perform for a period substantially in excess of the approximately six (6) week period it remained functional, Carusone is found to have breached one or more provisions of the Contract. (See #45 above).

99. PRPA is found to be entitled to recover as compensatory damages, the amounts actually paid to stabilize, demolish the collapsed warehouse and construct a new warehouse in substantially the same form as originally contracted for. PRPA is found to have taken all

reasonable steps in mitigation of its losses. PRPA is found to be entitled to claim as part of its reasonable and foreseeable losses, the additional interest paid on its construction loan for the period of time it was deprived of the use of the building contracted for. These damages are found to be \$3,955,447.00 (N.T. 6/22/06, pgs. 122-123; Exhibit P-242A.).

100. PRPA is found to be entitled to reasonable attorney's fees because of the various breaches of its Contract by Carusone and Summit. The attorney's fees are found to be \$496,499.00 due to Reed, Smith. This is based upon the amount reasonably incurred and actually paid by PRPA. (N.T. 6/22/06, pgs. 124-125; Exhibit P-240A.). PRPA is also entitled to be compensated for the amount paid to the successor law firm, Wolf, Block, Schorr & Solis-Cohen which was trial counsel. Preliminarily, this is found to be \$305,238.00 and is found to be based upon amounts reasonably incurred or paid by PRPA. (N.T. 6/22/06, pgs. 124-125; Exhibit P-240B.).

WolfBlock may supplement the record with appropriate Affidavits of the final amount of its legal fees.

The above findings resolve the issues of causation and factual cause. There are issues of indemnification which must now be sorted out and resolved through additional findings. Accordingly, present entry of judgments are not now appropriate.

Parties seeking indemnification must file additional Memoranda of Law and suggested Findings of Fact and Conclusions of Law. A thirty (30) day period is allowed for Reply Briefs and Suggested Findings of Fact and Conclusions of Law.

These findings are a partial resolution of all open issues and therefore not a final verdict. Therefore, Post Trial Motions are not now appropriate.

101. As a related but subordinate action to the above, Majek Fire Protection, Inc., has an unpaid balance of \$51,991.00 for the work it performed on the sprinkler system installed in the building prior to its collapse. Carusone is found to be contractually obligated to pay this amount. It may be entitled to either contribution or indemnification for the other breaching parties or from the negligent parties herein. This issue shall also be briefed by the liable parties within the timetable above.

BY THE COURT:

Dec 7th 2006

Date

Tereshko

ALLAN L. TERESHKO, J.



### *Supplemental Findings*

**A. As a Matter of Contract Carusone is Entitled to be Fully Indemnified by Summit/Cover-All for all Liability which Carusone has been found to have to the PRPA.**

102.<sup>1</sup> The precipitating event in this chain of events was the pre-bid process which was time sensitive and in recognition of same required that the Contract to plan and build the building would be on a "design build" basis. This would require one contractor with one builder who was then expected to sub-contract for all phases of designing, planning and constructing the building. Because of the unique nature of the building, PRPA sought to insure that any sub-contractor responsible for design, plan, construction and operating approval would be able to complete the project within its specifications. (See, *Findings of 12/7/2006* at 1, 2, 3 and 9).

103. During the pre-bid phase, there was substantial communication directly between PRPA and Summit in order to demonstrate Summit's capacity to perform adequately within the requirements of what would ultimately be the performance contract. (*Findings*, at 10, 11, 12, 13 and 14).

104. Carusone was awarded the Contract on October 9, 2002 by letter.

105. The Contract which was admitted into evidence as P-111, included an indemnification provision found in Section II, ¶ 6.

Indemnification: The Contractor shall indemnify, defend, and hold harmless the Authority, the agent of the Authority acting as Construction Manager, the Commonwealth, and the tenants of any facilities affected by the Work, and their officers, employees, and agents, from and against any and all losses, costs (including litigation costs and counsel fees); claims, suits, actions, damages, liability, and expenses in connection with loss of life, bodily injury, personal injury, or damage to tangible property to the extent occasioned wholly or in part by the Contractor's act or omission or the act or omission of the Contractor's agents, contractors (including Subcontractors and suppliers), officers, employees, or servants pursuant to the Contract.

106. October 9, 2002, Carusone and Summit entered into a Contract for the design and construction of the building. The Contract specified that the subcontractor (Summit)

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<sup>1</sup> The numbering of these Findings are consecutive with the Findings of 12/7/2006.

would be bound by the terms of the Contract between the contractor (Carusone) and PRPA. (See, *Findings*, at 40 and 41).

107. In addition to the above provision for indemnity in ¶ 105 above, the Contract also contained a provision in Section IV, ¶ 33 of the *General Provisions Section*, which addressed the responsibilities, duties and obligations of a Subcontractor under the Contract.

Subcontracts: (a) The Contractor shall not assign the Contract or any part thereof, and the Contractor shall not assign any right to any monies to be paid to the Contractor under the Contract without prior written consent of the Authority. The Contract as a whole shall not be sublet. No portion of the Work shall be sublet without the approval of the Engineer, and no Subcontractor shall be employed unless, in the opinion of the Engineer, the Subcontractor is reliable, responsible, and competent to perform the Work in compliance with the Contract Documents. All entities so employed shall be bound by the terms and provisions of the Contract, and neither the Contractor nor the Contractor's sureties will be relieved from the terms and conditions of the Contract or their duties or responsibilities under the same by reason of such employment.

108. This Court has previously found the cause of the building failure to be Summit's act and omissions (See, *Findings* at 74, 75 and 76).

74. Considering the above and the record as a whole, this Court finds that the factual cause of the collapse of the Plaintiff's building was the failure of Defendant Summit to design a building that was in accordance with the requirements and duty created by the Contract between it and Carusone which was incorporated into the Contract entered into between Carusone and Plaintiff PRPA.

75. In addition to designing a building which was inadequate to perform under the conditions and requirements contracted for, Summit, further failed to construct the building in accordance with its own design requirements.

76. These two fundamental failures produced a building which simply collapsed under the weight of the first significant snowfall of the new year which were conditions that would have been easily tolerated by the building, had it been properly designed and constructed.

109. Under Finding 98 above, Carusone breached its Contract with PRPA for failing to deliver a serviceable building intended to have a reasonable life span.

110. The factual cause of the collapse of the building was allocated between Summit and Reimer. (See Finding 96 above).

111. Carusone was not negligent but is still liable to PRPA because of its contractual obligations and breach thereof.

112. Considering the plain language of the Contract entered into between Carusone and Summit which incorporated the Contract between Carusone and PRPA, Summit must indemnify Carusone for its liability to PRPA.

113. The indemnity provision, (Finding 105 above), provides that the parameter of Summit's obligation to Carusone is based upon the "extent" of its acts or omissions which is 88% of the damages and legal fees incurred by PRPA and would also include 88% of Carusone's legal fees. Therefore, through the indemnity provision, Summit owes PRPA \$3,480,793.36 in damages. Summit also owes Reed Smith \$436,919.12 for PRPA legal fees. Wolf Block shall calculate its final reasonable and necessary legal fees and submit an appropriate affidavit within ten (10) days. Summit's further obligation will be 88% of this amount. Carusone shall also submit its affidavit of counsel fees within ten (10) days, 88% of which shall be the obligation of Summit.

114. Carusone is indemnified by Summit for its liability to PRPA based upon the extent of Summit's negligence which is 88% of the damages and costs of prosecuting the action.

115. Carusone is not entitled to indemnification by Reimer for its liability to PRPA for the remaining 12% of the damages and costs of prosecution because there is no contractual relationship which would require this, and there are no cross-claims or joined actions of contribution or indemnification which would give this Court the jurisdiction to make such a finding.

116. Carusone is liable to Majek Fire Protection for the balance of the work performed and yet unpaid. (See Finding 101 above). Carusone is not entitled to contractual indemnification. There are no cross-claims or joined actions of contribution or indemnity which would give this Court jurisdiction to make such findings under common law principles.

CONCLUSION

Once the additional Affidavits of Counsel Fees are filed, if accepted by the Court, a Final Order will be entered on those issues. Until that time, Post-Trial Motions are not to be filed.

BY THE COURT:

March 13, 2007

DATE

Tereshko

ALLAN L. TERESHKO, J.

COPIES SENT  
PURSUANT TO Pa.R.C.P. 236(b)  
MAR 13 2007  
FIRST JUDICIAL DISTRICT OF PA  
USER I.D.: PLC

cc:  
William G. Frey  
Elizabeth Horneff  
John D. Lychak  
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