

submittal review-fire sprinkler

Wallowa Memorial Hospital New Medical Office Building Construction			
SUBJECT / PROJECT	Documents - Enterprise, Oregon	DATE	October 6, 2011, November 14, 2011
		Review of Submittal #s: 100-211300-001 (Drawings), 300-211300-001 (Calcs), and 001-211300-001 (Product Data)	
PROJECT NO.	2010-0202.01	REF #	
CLIENT	Arthur Kjos, Partner	PHONE	X 203
Clark Kjos Architects			
333 NW 5th Avenue Portland, OR 97209			
REVIEWED BY	Kathleen Roach, CET, CFPS	@	Interface Engineering, Inc.

APPLIES TO Fire/Life Safety

Interface Engineering, Inc. is not the designer of the system and/or component reviewed. This review is only for the limited purpose of checking for general conformance with the performance concept expressed in the Contractor's Contract Documents. Any action shown below is subject to the requirements of the Plans and Specifications. Contractor is responsible for the dimensions and quantity which shall be confirmed and correlated at the job site, fabrication processes and techniques of construction, coordination of the work with that of all other trades, and the satisfactory performance of the work. Interface's review does not constitute approval of safety precautions, means and methods, approval of an assembly of which the item reviewed is a component, or approval of a component.

Basis of design manufacturers are listed on our equipment schedules and construction documents. Where a submitted manufacturer differs from the basis of design manufacturer, Contractor shall provide coordination drawings and provide modifications as necessary to provide access, clearance, and any other provisions for proper and acceptable installation of any equipment not listed as the basis of design equipment.

The following items were reviewed for conformance with the requirements of the Contract Documents.

Disposition Code

- N No exception taken.
- M Make corrections noted. Resubmittal not required if installation complies with notes.
- R Revise and resubmit.
 - 1 Manufacturer not approved.
 - 2 Does not meet requirements of Contract Documents.
 - 3 Insufficient information to review.
- F Forward specified item.

ITEM / COMMENTS	DISPOSITION					
	N	M	R			F
			1	2	3	
DRAWINGS						
1. Drawings are not signed and sealed by registered Professional Engineer per specification 210000.1.04.L.2.b and Oregon state law. 11/14/2011: "Sealed and signed by Franklin D. Callfas, PE."	X					
2. Provide method of forward flow testing of backflow prevention device. 11/14/2011: Provided through 2.5" drain line.	X					
3. Sheet FP-2 & FP-3: No sprinkler protection has been provided at combustible construction Exits at gridline 1 between gridlines C&D and between gridlines D&E. Please provide. 11/14/2011: Provided.	X					
4. Sheet FP-4: Dry system routing at Lobby 002 and Vestibule 001 does not coincide with dry system routing shown on sheet P2.11. Verify acceptability of routing with architect. 11/14/2011: Revised.	X					
5. No method of lateral and vertical branch line restraints (including, but not limited to end of branch line restraints) has been provided per NFPA 13-2007 section 9.3.6 and 9.3.6.3 and Table 9.3.6.4. Please provide. 11/14/2011: Provided for dry system, but not for wet system. Please provide. Since these are supposed to be installation drawings, how will the installer know where to put them if not on the drawings?		X				
6. Longitudinal & lateral sway bracing locations for the wet sprinkler system as required by are not shown on drawings. Please provide per sway brace calculations. 11/14/2011: Provided for dry system, but not for wet system. Please provide. Since these are supposed to be installation drawings, how will the installer know where to put them if not on the drawings?		x				
7. Grid system is not provided with pressure relief valve per NFPA 13. Please provide. 11/14/2011: Provided.	X					
8. Sprinklers have not been provided under combustible stairs. Please provide. 11/14/2011: Provided.	X					
9. No bell is shown. Please provide. 11/14/2011: Provided.	X					

Disposition Code

N No exception taken.

M Make corrections noted. Resubmittal not required if installation complies with notes.

R Revise and resubmit.

1 Manufacturer not approved.

2 Does not meet requirements of Contract Documents.

3 Insufficient information to review.

F Forward specified item.

ITEM / COMMENTS	DISPOSITION					
	N	M	R			F
			1	2	3	
10. Sheet FP-1 does not show dry pipe valve trim, including gauges. Please provide full trim. 11/14/2011: Provided.	X					
11. No air compressor is shown for the dry pipe system. Please provide. 11/14/2011: Provided. Piping is not shown to automatically drain, as required by specification 211300.2.06.B. Please provide automatic drain.		X				
12. No spare sprinkler box is shown. Please provide. 11/14/2011: Provided.	X					
13. Fire department connection is not shown to have a ball drip valve for drainage. Please provide, with drain to sewer or daylight. 11/14/2011: Response letter says "Ball drip is shown on check valve", but in fact the riser detail does not show it. Please provide and show on As-Builts.		X				
14. Length of ½" thru bolt fastening longitudinal and lateral sway bracing is not provided. Please provide. Identify structural members on drawings showing that the member to which the fastener will be attached is thick enough to hold the entire required length of the thru bolt identified in sway brace calculations. 11/14/2011: Described on sway brace calcs, but not on drawings. The structural member is described as a "Minimum 4x wood member", but some sway braces are shown attaching to 2"x6" trusses. Coordinate location of sway braces with the correct size and type of structural member.		X				
15. Hanger detail #1 shows a 2" and a 2.5" Sammy Sidewinder in a 2x6 truss member. A 2x6 truss is actually 1.625" wide. The 2" and 2.5" Sidewinder will just have the excess length extending out the back which will not provide the intended support. Please utilize a hanger that will fit within the structural member it is attached to. 11/14/2011: Changed to Sammy SWG 10. No Exception Taken for use in hanging pipe up to 3 1/2-inches.		X				

Disposition Code

N No exception taken.

M Make corrections noted. Resubmittal not required if installation complies with notes.

R Revise and resubmit.

1 Manufacturer not approved.

2 Does not meet requirements of Contract Documents.

3 Insufficient information to review.

F Forward specified item.

ITEM / COMMENTS	DISPOSITION					
	N	M	R			F
			1	2	3	
16. Sheet FP-4, the last standard coverage sprinkler at the right-hand end of the canopy is more than 7'6" from the end of the canopy. This area does not meet the criteria of being a "small room" as described in NFPA 13-2007 3.3.15 and so no standard coverage sprinkler may exceed half the allowable distance between sprinklers. Please revise. 11/14/2011: Per Letter "The walkway is deleted from the fire sprinkler project scope."						
17. See comments under Hydraulic Calculations, below. If revised calculations require changes in pipe sizes, please provide the changes.		X				
18. 11/14/2011: No inspector's test connection is shown at most remote end of dry system. Please provide.		X				
19. 11/14/2011: No dry system auxiliary drains are provided. Please provide.		X				
HYDRAULIC CALCULATIONS						
1. Hydraulic calcs are not signed and sealed by registered Professional Engineer per specification 210000.1.04.L.2.b and Oregon state law. Please provide. 11/14/2011: "Sealed and signed by Franklin D. Callfas, PE."	X					
2. Roof pitch exceeds 2 in 12. Design areas are not increased for dry systems and sloped roofs per NFPA 13. Please revise. 11/14/2011: Design areas provided per product listing.		X				
3. Canopy calculation provides a minimum of 7 psi at 14.8 gpm. These sprinklers cover 191 sq. ft. each (assuming 13'10" apart x 13'10" wide). Using the area density method each sprinkler needs to provide 0.10 gpm per sq. ft. 191 sq. ft. x 0.10 = 19.1 gpm per sprinkler per NPFA 13-2007 section 22.4.4.5.3. The commentary in the Automatic Sprinkler Systems Handbook is helpful in understanding this concept. Please revise calculations to provide a full 0.10 gpm per sq. ft. of sprinkler coverage. 11/14/2011: Revised.	X					

Disposition Code

N No exception taken.

M Make corrections noted. Resubmittal not required if installation complies with notes.

R Revise and resubmit.

1 Manufacturer not approved.

2 Does not meet requirements of Contract Documents.

3 Insufficient information to review.

F Forward specified item.

ITEM / COMMENTS	DISPOSITION					
	N	M	R			F
			1	2	3	
4. Lower Wet calculation provides a minimum of 7 psi at 14.82 gpm at node 101 and 7.426 psi at 15.26 gpm at node 103. Node 103 is 12' to the next sprinkler and 6'10" from the wall and thus protects 163.92 sq. ft. Using the area density method each sprinkler needs to provide 0.10 gpm per sq. ft. 163.92 sq. ft. x 0.10 = 16.39 gpm per sprinkler per NFPA 13-2007 section 22.4.4.5.3. Please revise calculations to provide a full 0.10 gpm per sq. ft. of sprinkler coverage. 11/14/2011: Revised.	X					
5. 11/14/2011: Hydraulic calculations utilize interior diameters for two different types of 2 1/2" pipe (ID= 2.469" and ID=2.635") No cut sheet has been provided for pipe with an interior diameter of 2.469". How will installer know that the pipe segment represented by the Lower Wet Calcs nodes 91 to 52 and pipe segment from nodes 44 to 45 require pipe with an interior diameter of 2.469" whereas all the other 2 1/2" pipe can be schedule 10? Please coordinate hydraulic calculations pipe interior diameters with the pipe interior diameters actually intended to be used on the project and make all pipe types and sizes obvious on the drawings.		X				
6. 11/14/2011: Attic Dry Calcs utilize Tyco BB1, TY4180 sprinklers, which, per cut sheet, require a minimum of 22.6 psi when flowing a minimum of 38 gpm. Hydraulic calc nodes 201, 202, 203 and 204 provide the 38 gpm, but do not provide the full 22.6 psi. Attic Dry Calcs also utilize Tyco SD1 TY3183 sprinklers, which, per cut sheet, require a minimum of 39 psi when flowing a minimum of 35 gpm. Hydraulic calc nodes 205, 206 and 207 do not provide the minimum pressure and flow. Please revise calcs, per NFPA 13-2007 section 22.4.4.6.1, to provide the minimum pressure required per product listing. Revise pipe sizing and sway bracing as required by revised calcs.		X				

Disposition Code

N No exception taken.

M Make corrections noted. Resubmittal not required if installation complies with notes.

R Revise and resubmit.

1 Manufacturer not approved.

2 Does not meet requirements of Contract Documents.

3 Insufficient information to review.

F Forward specified item.

ITEM / COMMENTS	DISPOSITION					
	N	M	R			F
			1	2	3	
7. No hydraulic calcs have been received for areas protected by Tyco BB1 TY3180 sprinklers (shown along approx. gridline 2.7 between C and F). Per cut sheet submitted, these sprinklers require a minimum of 46 psi at a flow of 38 gpm. No other calculations provided show the system is capable of providing this high pressure and flow. Please perform additional hydraulic calcs for this area, which may be the most hydraulically demanding, per NFPA 13-2007 section 22.4.4.6.1 and NFPA 13-2007 section A.22.4.4.6 and specification 210000.1.04.L.1.d to provide the minimum pressure required per product listing. Revise pipe sizing and sway bracing as required by revised calcs.		X				
SWAY BRACE CALCULATIONS						
1. No sway brace calculations have been provided. When provided they will be evaluated per the following items, which will contain dispositions at that time. Please provide. 11/14/2011: Provided.						
2. Sway brace calcs are/are not signed and sealed by registered Professional Engineer per specification 210000.1.04.L.2.b and Oregon state law. 11/14/2011: "Sealed and signed by Franklin D. Callfas, PE.	X					
3. Building Code chapter 16 calcs determining force factor used in NFPA 13 calcs are/are not provided per specification 210000. 11/14/2011: Calcs use a force factor of 0.40 Cp. This meets code minimum but does not meet requirements of specification 210000.3.02.B.1 which requires a minimum of 0.50. No Exception Taken if acceptable to Owner.		X				
4. Pipe type included in calculations matches/ does not match pipes shown on plans. 11/14/2011: Hydraulic calculations use interior diameters for Schedule 40 pipe in diameters up to 2" (in most instances- see comments under hydraulic calcs, above) but sway brace calcs use Schedule 10 for all pipe sizes. This may not accurately represent the pipe type installed and may result in an inadequately braced system. Please revise sway brace calcs to use the pipe type which correlates with hydraulic calcs, drawings and submittal cut sheets. Revise sway brace locations, details and components if revised calcs require closer spacing.		X				

Disposition Code

N No exception taken.

M Make corrections noted. Resubmittal not required if installation complies with notes.

R Revise and resubmit.

1 Manufacturer not approved.

2 Does not meet requirements of Contract Documents.

3 Insufficient information to review.

F Forward specified item.

ITEM / COMMENTS	DISPOSITION					
	N	M	R			F
			1	2	3	
5. Bracing details shown on plans do/do not match components and configuration used in calculations. 11/14/2011: Lateral and longitudinal calculations call for “Dual Through-Bolts – Figure 906.” However, these are not shown on drawing details. How will installer know that the Tolco figure 906 with two ½” through-bolts will need to be used if details do not show them? Please revise details and installation to match sway brace requirements.		X				
MATERIALS						
1. Allied Tube and Conduit – Schedule-10/Schedule-40 – ABFII Sprinkler Pipe	X					
2. Ames Fire & Waterworks – Colt Series C200, C200N Double Check Valve Assemblies	X					
3. Nibco – 300lb. WWP UL/FM Butterfly Valves	X					
4. Nibco – 250 PSI CWP Iron Body Grooved Silent Check Valve	X					
5. The Reliable Automatic Sprinkler Co., Inc. – Model CR Commercial Riser - Riser Manifold for Commercial Applications with pressure relief, flow switch and test-drain.	X					
6. Tyco Fire & Building Products – Model DPV-1 Dry Pipe Valve, External Resetting 2-1/2 thru 6 inch (DN65 thru DN150) 250 psi (17,2bar)	X					
7. Tyco Fire & Building Products – Series TY-FRB –5.6 K-factor Upright, Pendent, and Recessed Pendent Sprinklers – Quick Response, Standard Coverage; 200 degree TY3131; 155 degree TY3231	X					
8. ARGCO – Fire Department Connections (Groove Outlet): No Exception Taken for 2-way straight pattern single clapper model. Two-way 90 degree pattern single clapper REJECTED because it is not UL Listed or FM Approved. 11/14/2011: Straight pattern cut sheet provided.	X					
9. Sprinklers:						
a. Tyco Attic, K5.6 and K8.0, model BB1, brass, 200 degree, TY4180 and TY3180. No cut sheet provided. Please provide. 11/14/2011: Provided.	X					
b. Tyco Attic, K5.6, model SD1, brass, 200 degree, TY3183. No cut sheet provided. Please provide. 11/14/2011: Provided.	X					

Disposition Code

N No exception taken.

M Make corrections noted. Resubmittal not required if installation complies with notes.

R Revise and resubmit.

1 Manufacturer not approved.

2 Does not meet requirements of Contract Documents.

3 Insufficient information to review.

F Forward specified item.

ITEM / COMMENTS	DISPOSITION					
	N	M	R			F
			1	2	3	
c. Tyco Concealed, K5.6, TY3531, model RFII, unknown response, white finish, 155 degree. No cut sheet provided. Please provide. 11/14/2011: Provided.	X					
d. Tyco Extended Coverage Pendant, white, model DS-ECC, 155 degree, K5.6, TY3539. No cut sheet provided. Please provide. 11/14/2011: Provided.	X					
10. Pipe:						
a. Underground: No cut sheet provided. Please provide. 11/14/2011: Per Letter underground is by others.						
11. Fittings:						
a. Grooved: No cut sheet provided. Please provide. 11/14/2011: AnvilStar.	X					
b. Threaded: No cut sheet provided. Please provide. 11/14/2011: Star Pipe.	X					
c. Flanged: No cut sheet provided. Please provide. 11/14/2011: Anvil Star fig 7012 Gruvlok Flange.	X					
12. Couplings:						
a. Rigid: No cut sheet provided. Please provide. 11/14/2011: Anvil Star fig 7400 Rigidlite coupling. Use Gruvlok Xtreme lubricant for dry pipe system.		X				
b. Flexible: No cut sheet provided. Please provide. 11/14/2011: Anvil Star fig 7000 lightweight flexible coupling. Use Gruvlok Xtreme lubricant for dry pipe system.		X				
13. Valves:						
a. Automatic Ball Drip: No cut sheet provided. Please provide. 11/14/2011: Provided. Viking model D-x automatic drip check and Viking automatic ball drip model B-1.	X					
b. Pressure Relief: No cut sheet provided. Please provide. 11/14/2011: Part of riser manifold. See above.	X					
14. Hangers: No cut sheet provided. Please provide. 11/14/2011: Tolco fig 200 Trimline adjustable band hanger.	X					
15. Fasteners for Hangers: No cut sheet provided. Please provide. 11/14/2011: Sammy SWG 10	X					

Disposition Code

N No exception taken.

M Make corrections noted. Resubmittal not required if installation complies with notes.

R Revise and resubmit.

1 Manufacturer not approved.

2 Does not meet requirements of Contract Documents.

3 Insufficient information to review.

F Forward specified item.

ITEM / COMMENTS	DISPOSITION					
	N	M	R			F
			1	2	3	
16. Sway Brace Fittings: No cut sheet provided. Please provide. 11/14/2011: Tolco fig 909 No-Thread Swivel sway Brace Attachment. Tolco fig 1000 Fast Clamp sway brace attachment. Tolco Fig 4 Standard Pipe Clamp. Tolco fig 906 Sway Brace Multi-Fastener Adapter.	X					
17. Sway Brace Fasteners: No cut sheet provided. Please provide. 11/14/2011: Through bolts.	X					
18. Bells: No cut sheet provided. Please provide. 11/14/2011: System Sensor.	X					
19. Connections:						
a. Inspector's Test Connection: No cut sheet provided. Please provide. 11/14/2011: Provided as part of wet system riser manifold.	X					
20. Dry Systems:						
a. Air Compressor: No cut sheet provided. Please provide. 11/14/2011: General Oilless tank mounted. No model number provided. Please provide proper size for dry system capacity volume. Please provide with automatic drain.		X				
b. Accelerator: No cut sheet provided. Please provide. 11/14/2011: Per Letter: "Accelerator not required."						
c. Air Pressure Maintenance Device: No cut sheet provided. Please provide. 11/14/2011: Per Letter: "See submittal-General Air 231.45 Gallon Air Capacity".	X					
21. Spare sprinkler box: FPPI	X					

Disposition Code

N No exception taken.

M Make corrections noted. Resubmittal not required if installation complies with notes.

R Revise and resubmit.

1 Manufacturer not approved.

2 Does not meet requirements of Contract Documents.

3 Insufficient information to review.

F Forward specified item.