

Submittal Comments

Item No: 232113.01
(CSI No:)

Item
Descript: Hydronic Piping

Re: **Submittal** Comments
Cascade Science Lab Renovation
2008-046.CSL 8.3

Architecture
Engineering
Technology
Interior Design
Landscape Architecture

Wil-Fra-Mar Building
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Reviewed and checked only for conformance with design concepts and with the information given in the Contract Documents. Approval does not release the Contractor from the responsibility to provide appropriate quantities, field measurements, dimensional stability, installation, anchorage, and coordination with other trades or release the Contractor from responsibility for deviations from the requirements of the Contract Documents or from responsibility for errors and omissions contained thereon.

	Not approved. Resubmit
	Approved as noted. Correct and resubmit
	Approved as noted. No resubmittal required
XX	Approved as submitted
By: Lennie Brim	
Date: May 6, 2009	

Comments

Copy: File

K.P. MEIRING CO
 CHECKED BY: KPM
 DATE CHECKED: April 20, 2009
 REVIEWED NO EXCEPTIONS: XX
 REVIEWED WITH EXCEPTIONS: _____
 REJECTED RESUBMIT: _____



The review is only for general conformance with design concepts given in the contract documents. Subcontractor is responsible for dimensions, quantities, coordination with other trades and performing his work in a safe manner. No change to contract requirements is intended.

ASTM A 53 TYPE F GRADE A PIPE

SCOPE

Covers black and hot-dipped galvanized furnace-butt welded (continuous welded) Grade A pipe. Pipe is intended for mechanical and pressure applications and is acceptable for ordinary uses in steam, water, gas and air lines. Meets and ASTM A 53 is UL Listed and FM Approved, sizes 1" through 6" nominal, for use in Fire Sprinkler Pipe Applications. Pipe is suitable for welding, threading, grooving and bending. Pipe is not intended for flanging. Produced to latest revisions of ASTM A53/A 53M, Federal Specification WW-P404 and ASME B36.10M.

HOT-DIPPED GALVANIZED

The average weight of zinc coating shall be not less than 1.8 oz. per sq. ft. of surface (inside and outside).

When galvanized pipe is bent or otherwise fabricated to a degree which causes zinc coating to stretch or compress beyond the limit of elasticity, some flaking of the coating may occur.

HYDROSTATIC TESTING

Hydrostatic test pressures for plain-end pipe are indicated below.

NPS	Standard Weight - PSI	Extra Strong Weight - PSI
1/8 through 3/8	700	850
1/2 through 1	1500	1500
1-1/4 - 1-1/2	2000	2000
2 through 3	2500	2500
3 1/2 - 4	2800	2800

END FINISH

Plain End:

NPS 1-1/2 and smaller, unless otherwise specified on order, end finish shall be at the option of the manufacturer.

NPS 2 and larger: STD and Sch 80 weights: ends beveled to angle of 30°, ±5°, 0° with a root face of 1/16" ± 1/32".

Threaded: To ANSI Standard B 1.20.1

Couplings: To ASTM Standard A 865.

CHEMICAL REQUIREMENTS

Composition, max. %

Carbon	Manganese	Phosphorus	Sulfur
30	1.20	.05	0.45

*Copper	*Nickel	*Chromium	*Molybdenum	*Vanadium
40	40	40	15	08

*The combination of these five elements shall not exceed 1.00%.

TENSILE REQUIREMENTS

Tensile Strength, min.	48 000 psi
Yield Strength, min.	30 000 psi
Elongation in 2"	Refer to A 53 Table x 4 1, latest revision - ASTM A53/A 53M

BENDING TEST (COLD) FOR NPS 2 and UNDER:

	Degree of Bend	Diameter of Mandrel
Standard	90°	12 x outside pipe diameter
Close Coiling	90°	8 x outside pipe diameter

FLATTENING TEST - NPS 2-1/2 and Greater

As a test for quality of the weld, position the weld at 90° from the direction of force and flatten until the OD is 3/4 of the original outside diameter. No cracks shall occur along the inside or outside surface of the weld.

DIMENSIONS and WEIGHTS

BLACK PLAIN END					
Nominal Size	OD Inches	Sch. 40		Sch. 80	
		Wall Inches	Weight Lb./Ft.	Wall inches	Weight Lb./Ft.
1/8"	.405	.068	.24	.095	.31
1/4"	.540	.088	.43	.119	.54
3/8"	.675	.091	.57	.126	.74
1/2"	.840	.109	.85	.147	1.09
3/4"	1.050	.113	1.13	.154	1.48
1"	1.315	.133	1.68	.179	2.17
1-1/4"	1.660	.140	2.27	.191	3.00
1-1/2"	1.900	.145	2.72	.200	3.63
2"	2.375	.154	3.66	.218	5.03
2-1/2"	2.875	.203	5.80	.276	7.67
3"	3.500	.216	7.58	.300	10.26
3-1/2"	4.000	.226	9.12	.318	12.52
4"	4.500	.237	10.80	.337	15.00

PERMISSIBLE VARIATIONS IN WALL THICKNESS

Minimum wall thickness at any point shall not be more than 12.5% under nominal wall thickness specified.

PERMISSIBLE VARIATIONS IN OUTSIDE DIAMETER

NPS	1-1/2 and under	± .018"
NPS	2 and over	± 1%

PERMISSIBLE VARIATIONS IN WEIGHT PER FOOT

Pipe shall not vary more than ± 10% from the standard specified.

PRODUCT MARKING

Each length of pipe 1/2 NPS and larger is continuously stenciled to show the manufacturer, the grade of pipe (ASTM A 53), the kind of pipe (F for Continuous Weld, A for Grade A,) the size (Sch 80 for extra strong), and length. Stencil markings indicate UL Listing and FM Approval for sizes 1" through 6" nominal for use in Fire Sprinkler Pipe Applications. Bar Coding is acceptable as a supplementary identification method.

Standards and Specifications



	Dimensions	Material	Galvanizing	Thread	Pressure Rating	Federal/Other
M.I. Fittings						
Class 150/PN 20	ASME B16.3*	ASTM A-197	ASTM A-153	ASME B1.20.1+	ASME B16.3*	ASME B16.3**
Class 300/PN 50	ASME B16.3*	ASTM A-197	ASTM A-153	ASME B1.20.1+	ASME B16.3*	
M.I. Unions						
Class 150/PN 20	ASME B16.39*	ASTM A-197	ASTM A-153	ASME B1.20.1+	ASME B16.39*	ASME B16.39***
Class 250	ASME B16.39*	ASTM A-197	ASTM A-153	ASME B1.20.1+	ASME B16.39*	
Class 300/PN 50	ASME B16.39*	ASTM A-197	ASTM A-153	ASME B1.20.1+	ASME B16.39*	
Cast Iron Threaded Fittings						
Class 125	ASME B16.4*	ASTM A-126 (A)	ASTM A-153	ASME B1.20.1+	ASME B16.4*	ASME B16.4■
Class 250	ASME B16.4*	ASTM A-126 (A)	ASTM A-153	ASME B1.20.1+	ASME B16.4*	ASME B16.4■
C. 1. Plugs and Bushings						
	ASME B16.14*	ASTM A-126 (A)	ASTM A-153	ASME B1.20.1+	ASME B16.14*	WW-P-471
C. 1. Drainage Threaded Fittings						
	ASME B16.12*	ASTM A-126 (A)	ASTM A-153	ASME B1.20.1+	ASME B16.12*	
C. 1. Flanges and Flanged Fittings						
Class 125 (1"-12")	ASME B16.1*	ASTM A-126 (A) or (B)	ASTM A-153	ASME B1.20.1+	ASME B16.1	ASME B16.1*
Class 125 (14"-up)	ASME B16.1*	ASTM A-126 (B)	ASTM A-153	ASME B1.20.1+	ASME B16.1	ASME B16.1*
Class 250 (11"-12")	ASME B16.1*	ASTM A-126 (A) or (B)	ASTM A-153	ASME B1.20.1+	ASME B16.1	ASME B16.1*
Class 250 (14"-up)	ASME B16.1*	ASTM A-126 (B)	ASTM A-153	ASME B1.20.1+	ASME B16.1	ASME B16.1*
Forged Steel Threaded Fittings						
Class 2000, 3000, 6000	ASME B16.11*	ASTM A105, ASTM A182, ASTM A350		ASME B1.20.1+	ASME B16.11*	
Pipe Nipples						
Steel Pipe - Welded	ASTM A733	ASTM A53 Type F or Type E		ASME B1.20.1+		WWN 351
Steel Pipe - Seamless (High Temp.)	ASTM A733	ASTM A106 Gr B		ASME B1.20.1+		WWN 351
Brass		ASTM B43		ASME B1.20.1+		WWN 351
<p>*The standard *an American National standard (ANSI) +ASME B1.20.1 was ANSI 92.1 ■ Formerly WW-P-501 ** Formerly WW-P-521 *** Formerly WW-U-531</p>						