tyco | Fire & Building Products

Technical Services: Tel: (800) 381-9312 / Fax: (800) 791-5500

Series RFII — 5.6 K-factor "Royal Flush II" Pendent Concealed Sprinklers Quick & Standard Response, Standard Coverage

General Description

The Series RFII Quick Response (3 mm bulb) & Standard Response (5 mm bulb), 5.6 K-Factor, "Royal Flush II" Concealed Pendent Sprinklers are decorative sprinklers featuring a flat cover plate designed to conceal the sprinkler. It is the best choice for architecturally sensitive areas such as hotel lobbies, office buildings, churches, and restaurants.

Each unit includes a Cover Plate Assembly that conceals the sprinkler operating components above the ceiling. The separable two-piece design of the Cover Plate and Support Cup Assemblies allows installation of the sprinklers and pressure testing of the fire protection system prior to installation of a suspended ceiling or application of the finish coating to a fixed ceiling. They also permit removal of suspended ceiling panels for access to building service equipment without having to first shut down the fire protection system and remove sprinklers.

Also, the separable two-piece design of the the Sprinkler provides for 1/2 inch (12,7 mm) of vertical adjustment, to reduce the accuracy to which the length of fixed pipe drops to the sprinklers must be cut.

The Series RFII Sprinklers are shipped with a Disposable Protective Cap. The Protective Cap is temporarily removed for installation, and then it can be replaced to help protect the sprinkler while the ceiling is being installed or finished. The tip of the Protective Cap can also be used to mark the center of the ceiling hole into plaster board, ceiling tiles, etc. by gently pushing the ceiling product against the Protective Cap. When the ceiling installation is complete the Protective Cap is removed and the Cover Plate Assembly installed.

As an option, the Series RFII Standard Response (5 mm bulb) "Royal Flush II" Concealed Pendent Sprinklers may be fitted with a silicone Air and Dust Seal (Ref. Fig. 5). The Air and Dust Seal is intended for sensitive areas where it is desirable to stop air and dust travel through the cover plate from the area above the ceiling.

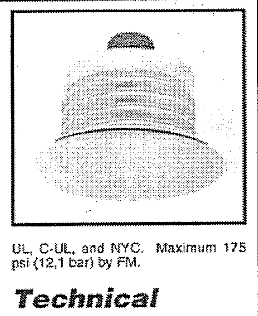
WARNINGS

The Series RFII Concealed Pendent Sprinklers described herein must be installed and maintained in compliance with this document, as well as with the applicable standards of the National Fire Protection Association, in addition to the standards of any other authorities having jurisdiction. ***Failure to do so may impair the performance of these devices.***

The owner is responsible for maintaining their fire protection system and devices in proper operating condition. The installing contractor or sprinkler manufacturer should be contacted with any questions.

IMPORTANT

Always refer to Technical Data Sheet TFP700 for the "INSTALLER WARNING" that provides cautions with respect to handling and installation of sprinkler systems and components. Improper handling and installation can permanently damage a sprinkler system or its components and cause the sprinkler to fail to operate in a fire situation or cause it to operate prematurely.



Model/Sprinkler Identification Numbers

TY3551 (5mm bulb) & **TY3531** (3 mm bulb): maximum 175 psi (12,1 bar) by UL, C-UL, FM, LPCB and NYC.
TY3504 (5 mm bulb) & **TY3505** (3 mm bulb): maximum 250 psi (17,3 bar) by UL, C-UL, and NYC. Maximum 175 psi (12,1 bar) by FM.

Technical Data

Approvals for Series RFII
UL and C-UL Listed. FM Approved. NYC under MEA 353-01-E. LPCB (Ref. No. 094a/09 for TY3551 & 094a/10 for TY3531) Approved.

The approvals apply only to the service conditions indicated in the Design Criteria section and maximum pressure ratings indicated in the Model/Sprinkler Identification Numbers section.

Approvals for Air & Dust Seal (Part #10908100)
UL and C-UL Listed for use with the RFII (TY3551 & TY3504) Standard Response Concealed Sprinkler.

Temperature Ratings
155F/68C Sprinkler - 135F/57C Plate
200F/93C Sprinkler - 165F/74C Plate

Discharge Coefficient
K = 5.6 GPM/psi$^{1/2}$ (80,6 LPM/bar$^{1/2}$)

Adjustment
1/2 inch (12,7 mm)

Finishes
Cover Plate: Chrome Plated, Brass Plated, or White Painted (Custom paint matches and colors other than white are available on request.)

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Technical Services: Tel: (800) 381-9312 / Fax: (800) 791-5500

Series TY-FRB — 2.8, 4.2, 5.6, and 8.0 K-factor Upright, Pendent, and Recessed Pendent Sprinklers Quick Response, Standard Coverage

General Description

The Series TY-FRB, 2.8, 4.2, 5.6, and 8.0 K-factor, Upright and Pendent Sprinklers described in this data sheet are quick response - standard coverage, decorative 3 mm glass bulb type spray sprinklers designed for use in light or ordinary hazard, commercial occupancies such as banks, hotels, shopping malls, etc.

The recessed version of the Series TY-FRB Pendent Sprinkler, where applicable, is intended for use in areas with a finished ceiling. It uses either a two-piece Style 10 (1/2 inch NPT) or Style 40 (3/4 inch NPT) Recessed Escutcheon with 1/2 inch (12,7 mm) of recessed adjustment or up to 3/4 inch (19,1 mm) of total adjustment from the flush pendent position, or a two-piece Style 20 (1/2 inch NPT) or Style 30 (3/4 inch NPT) Recessed Escutcheon with 1/4 inch (6,4 mm) of recessed adjustment or up to 1/2 inch (12,7 mm) of total adjustment from the flush pendent position. The adjustment provided by the Recessed Escutcheon reduces the accuracy to which the fixed pipe drops to the sprinklers must be cut.

Corrosion resistant coatings, where applicable, are utilized to extend the life of copper alloy sprinklers beyond that which would otherwise be obtained when exposed to corrosive atmospheres. Although corrosion resistant coated sprinklers have passed the standard corrosion tests of the applicable approval agencies, the testing is not representative of all possible corrosive atmospheres. Consequently, it is recommended that the end user be consulted with respect to the suitability of these coatings for any given corrosive environment. The effects of ambient temperature, concentration of chemicals, and gas/chemical velocity, should be considered, as a minimum, along with the corrosive nature of the chemical to which the sprinklers will be exposed.

An intermediate level versions of the Series TY-FRB Pendent Sprinklers are detailed in Technical Data Sheet TFP356, and Sprinkler Guards are detailed in Technical Data Sheet TFP780.

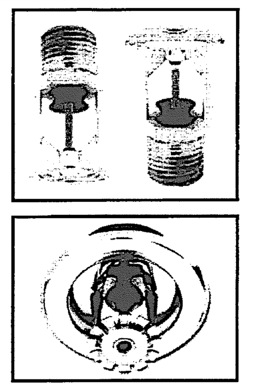
WARNINGS

The Series TY-FRB Sprinklers described herein must be installed and maintained in compliance with this document, as well as with the applicable standards of the National Fire Protection Association, in addition to the standards of any other authorities having jurisdiction. ***Failure to do so may impair the performance of these devices.***

The owner is responsible for maintaining their fire protection system and devices in proper operating condition. The installing contractor or sprinkler manufacturer should be contacted with any questions.

IMPORTANT

Always refer to Technical Data Sheet TFP700 for the "INSTALLER WARNING" that provides cautions with respect to handling and installation of sprinkler systems and components. Improper handling and installation can permanently damage a sprinkler system or its components and cause the sprinkler to fail to operate in a fire situation or cause it to operate prematurely.



Model/Sprinkler Identification Numbers

TY1131 - Upright 2.8K, 1/2"NPT
TY1231 - Pendent 2.8K, 1/2"NPT
TY2131 - Upright 4.2K, 1/2"NPT
TY2231 - Pendent 4.2K, 1/2"NPT
TY3131 - Upright 5.6K, 1/2"NPT
TY3231 - Pendent 5.6K, 1/2"NPT
TY4131 - Upright 8.0K, 3/4"NPT
TY4231 - Pendent 8.0K, 3/4"NPT

Technical Data

Approvals
UL and C-UL Listed.
FM, LPCB, and NYC Approved.
(Refer to Table A for complete approval information including corrosion resistant status.)

Maximum Working Pressure
175 psi (12,1 bar)

Discharge Coefficient
K = 2.8 GPM/psi$^{1/2}$ (40,3 LPM/bar$^{1/2}$)
K = 4.2 GPM/psi$^{1/2}$ (60,5 LPM/bar$^{1/2}$)
K = 5.6 GPM/psi$^{1/2}$ (80,6 LPM/bar$^{1/2}$)
K = 8.0 GPM/psi$^{1/2}$ (115,2 LPM/bar$^{1/2}$)

Temperature Ratings
Refer to Table A and B

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Technical Services: Tel: (800) 381-9312 / Fax: (800) 791-5500

Series TY-FRB — 5.6 K-factor Horizontal and Vertical Sidewall Sprinklers Quick Response, Standard Coverage

General Description

The Series TY-FRB, 5.6 K-Factor, Horizontal and Vertical Sidewall Sprinklers described in this data sheet are quick response - standard coverage, decorative 3 mm glass bulb type spray sprinklers designed for use in light and ordinary hazard, commercial occupancies such as banks, hotels, shopping malls, etc. They are designed for installation along a wall or the side of a beam and just beneath a smooth ceiling. Sidewall sprinklers are commonly used instead of pendent or upright sprinklers due to aesthetics or building construction considerations, where piping across the ceiling is not desirable.

The recessed version of the Series TY-FRB Horizontal Sidewall Sprinkler is intended for use in areas with a finished wall. It uses a two-piece Style 10 Recessed Escutcheon with 1/2 inch (12,7 mm) of recessed adjustment or up to 3/4 inch (19,1 mm) of total adjustment from the flush sidewall position, or a two-piece Style 20 Recessed Escutcheon with 1/4 inch (6,4 mm) of recessed adjustment or up to 1/2 inch (12,7 mm) of total adjustment from the flush sidewall position. The adjustment provided by the Recessed Escutcheon reduces the accuracy to which the fixed pipe nipples to the sprinklers must be cut.

Corrosion resistant coatings, where applicable, are utilized to extend the life of copper alloy sprinklers beyond that which would otherwise be obtained when exposed to corrosive atmospheres. Although corrosion resistant coated sprinklers have passed the standard corrosion tests of the applicable approval agencies, the testing is not representative of all possible corrosive atmospheres. Consequently, it is recommended that the end user be consulted with respect to the suitability of these coatings for any given corrosive environment. The effects of ambient temperature, concentration of chemicals, and gas/chemical velocity, should be considered, as a minimum, along with the corrosive nature of the chemical to which the sprinklers will be exposed.

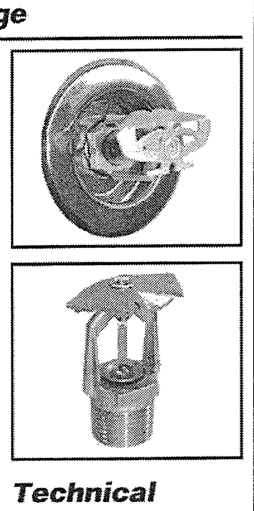
WARNINGS

The Series TY-FRB Sprinklers described herein must be installed and maintained in compliance with this document, as well as with the applicable standards of the National Fire Protection Association, in addition to the standards of any other authorities having jurisdiction. ***Failure to do so may impair the performance of these devices.***

The owner is responsible for maintaining their fire protection system and devices in proper operating condition. The installing contractor or sprinkler manufacturer should be contacted with any questions.

IMPORTANT

Always refer to Technical Data Sheet TFP700 for the "INSTALLER WARNING" that provides cautions with respect to handling and installation of sprinkler systems and components. Improper handling and installation can permanently damage a sprinkler system or its components and cause the sprinkler to fail to operate in a fire situation or cause it to operate prematurely.



Model/Sprinkler Identification Numbers

TY3331 - Horizontal
TY3431 - Vertical

Technical Data

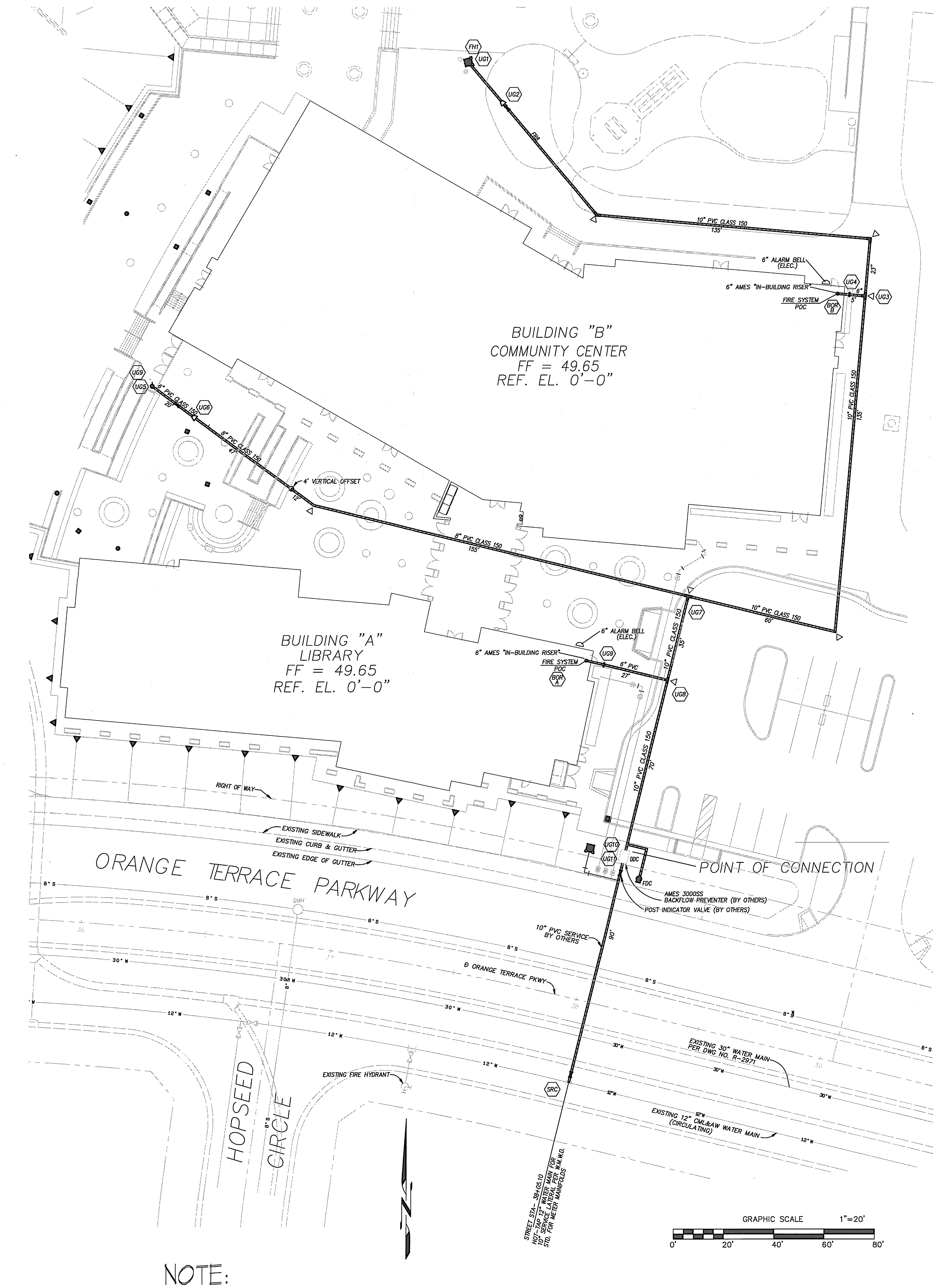
Approvals
UL and C-UL Listed.
FM, LPCB, and NYC Approved.
(Refer to Table A for complete approval information including corrosion resistant status.)

Maximum Working Pressure
Refer to Table B.

Discharge Coefficient
K = 5.6 GPM/psi$^{1/2}$ (80,6 LPM/bar$^{1/2}$)

Temperature Ratings
Refer to Table A.

Finishes
Sprinkler: Refer to Table A.
Recessed Escutcheon: White Coated, Chrome Plated, or Brass Plated.



NOTE:

ALL UNDERGROUND PIPING IS SHOWN ON THIS PLAN FOR HYDRAULIC REFERENCE ONLY. UNDERGROUND PIPING IS INSTALLED UNDER SEPERATE PERMIT.

MAXIMUM HANGER SPACING FOR STEEL PIPE

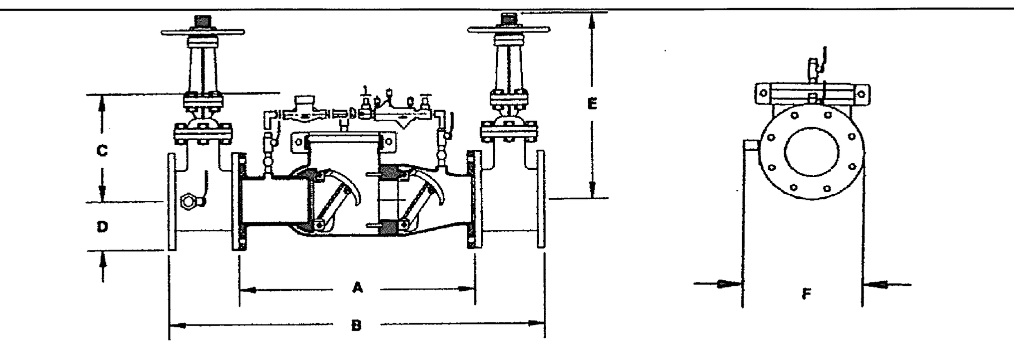
PIPE SIZE	HANGER SPACING
1 1/4"& SMALLER	12'-0"
1 1/2"& LARGER	15'-0"

THREADED LIGHTWALL PIPE SIZE	HANGER SPACING
ALL SIZES	12'-0"

FLOW TEST INFORMATION

STATIC:	60 PSI
RESIDUAL:	55 PSI
FLOW:	769 GPM
TEST DATE:	2-27-07
LOCATION:	20010 ORANGE TERRACE PARKWAY RIVERSIDE, CA
TESTED BY:	W.M.W.D.

NOTE: A 10% SAFETY FACTOR IS INCLUDED IN ALL HYDRAULIC CALCULATIONS.



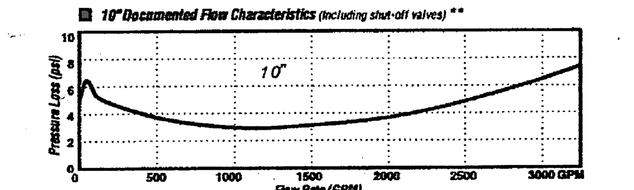
Ames 3000ss - Weights & Dimensions (inches)

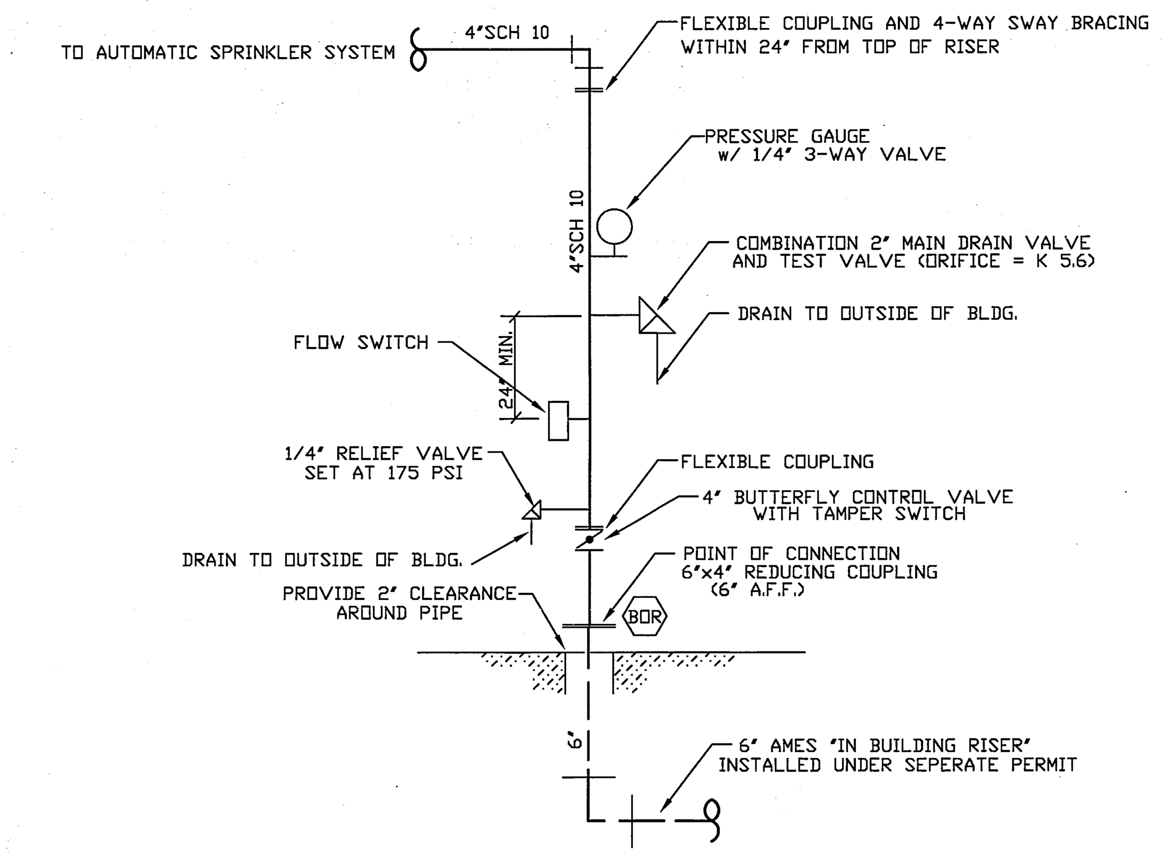
SIZE	A	B	C	D	E (Open)	F	Net Wt. (lb.) w/Gates	Net Wt. (lb.) w/o Gates
2 1/2"	22"	38"	10"	3 1/2"	16"	12 1/2"	155#	68#
3"	22"	38"	10"	3 3/4"	22"	13"	230#	70#
4"	22"	40"	10"	4 1/2"	23 1/2"	14 1/2"	240#	73#
6"	27 1/2"	48 1/2"	15"	5 1/2"	30"	15 1/2"	390#	120#
8"	29 1/2"	52 1/2"	15"	6 3/4"	37 3/4"	18 1/4"	572#	180#
10"	29 1/2"	55 1/2"	15"	8"	48"	19 1/2"	774#	190#
12"	29 1/2"	57 1/2"	15"	9 1/2"	54"	21"	1044#	220#

Physical Characteristics

Sizes - 2 1/2", 3", 4", 6", 8", 10", 12"
Rated working pressure - 175 psi
Hydrostatic Pressure - 350 psi
Temperature range - 32°F - 110°F
Body material - 300 series stainless steel
Flange dimension in accordance with AWWA Class D
Assembly shall be ASSE 1048 approved for vertical installations,

10" Documented Flow Characteristics (including shut-off valves) **





TYPICAL RISER DETAIL

GENERAL NOTES

SCOPE OF WORK IS TO PROVIDE SPRINKLERS TO NEW LIBRARY AND COMMUNITY CENTER

POINT OF CONNECTION TO BE 6" ABOVE FINISHED FLOOR

BUILDING DESIGN INFORMATION:
- Governing Building Code= **CBC, 2001**
- Building Occupancy= **LIBRARY, A-3**
  COMMUNITY CENTER, A-2.1, B
- Construction Type= **LIBRARY, VN**
  COMMUNITY CENTER, V-1 HR
- Building Areas= **LIBRARY, 13,640 SQ.FT.**
  COMMUNITY CENTER, 25,695 SQ.FT.
- Governing Fire Code= **NFPA 13 1999 EDITION**

DESIGN CRITERIA -
- Classification of Occupancy= *** LIGHT HAZARD**
- Design Density= **.10 GPM/SQ.FT.**
- Design Area= **1950 SQ.FT., DUR TO SLOPING CEILINGS**
- Construction Type= **UNOBSTRUCTED**
- Deflector Distance= **1" TO 12" BELOW CEILINGS**
- Head Spacing= **225 SQ.FT. MAXIMUM**

*** NOTE: LIBRARY BUILDING IS LIGHT HAZARD AS DEFINED BY NFPA 13 THERE ARE NO "LARGE STACK ROOMS"**

ALL DESIGN, FABRICATION AND INSTALLATION PER NFPA #13.

ALL MAIN AND GRID LINES 1 1/2" TO 4" SHALL BE DYNA-FLOW WITH ROLL GROOVED ENDS AND GROOVED FITTINGS.

ALL THREADED PIPING SHALL BE DYNA-THREAD WITH CUT THREADS AND CLASS 125 CAST IRON FITTINGS.

WHERE A "SLEEVE" IS CALLED OUT ON THE PLANS, CLEARANCE SHALL BE PROVIDED PER NFPA 13, SECTION 6-4.4.1.

A SPARE SPRINKLER CABINET SHALL BE INSTALLED NEAR THE RISER WITH THE QUANTITY OF SPARE SPRINKLERS REQUIRED BY NFPA 13, SECTION 3-2.9.3. (12 SPRINKLERS)

ALL DEVICES AND COMPONENTS TO BE EITHER LISTED BY A NATIONALLY RECOGNIZED TESTING LABORATORY FOR FIRE PROTECTION SERVICE OR APPROVED BY THE AUTHORITY HAVING JURISDICTION.

A HYDROSTATIC TEST SHALL BE PERFORMED FOR ALL SYSTEM PIPING AT NOT LESS THEN 200 PSI FOR TWO HOURS, OR 50 PSI ABOVE STATIC PRESSURE IN EXCESS OF 150 PSI FOR TWO HOURS, AND WITNESSED BY A LOCAL FIRE INSPECTOR.

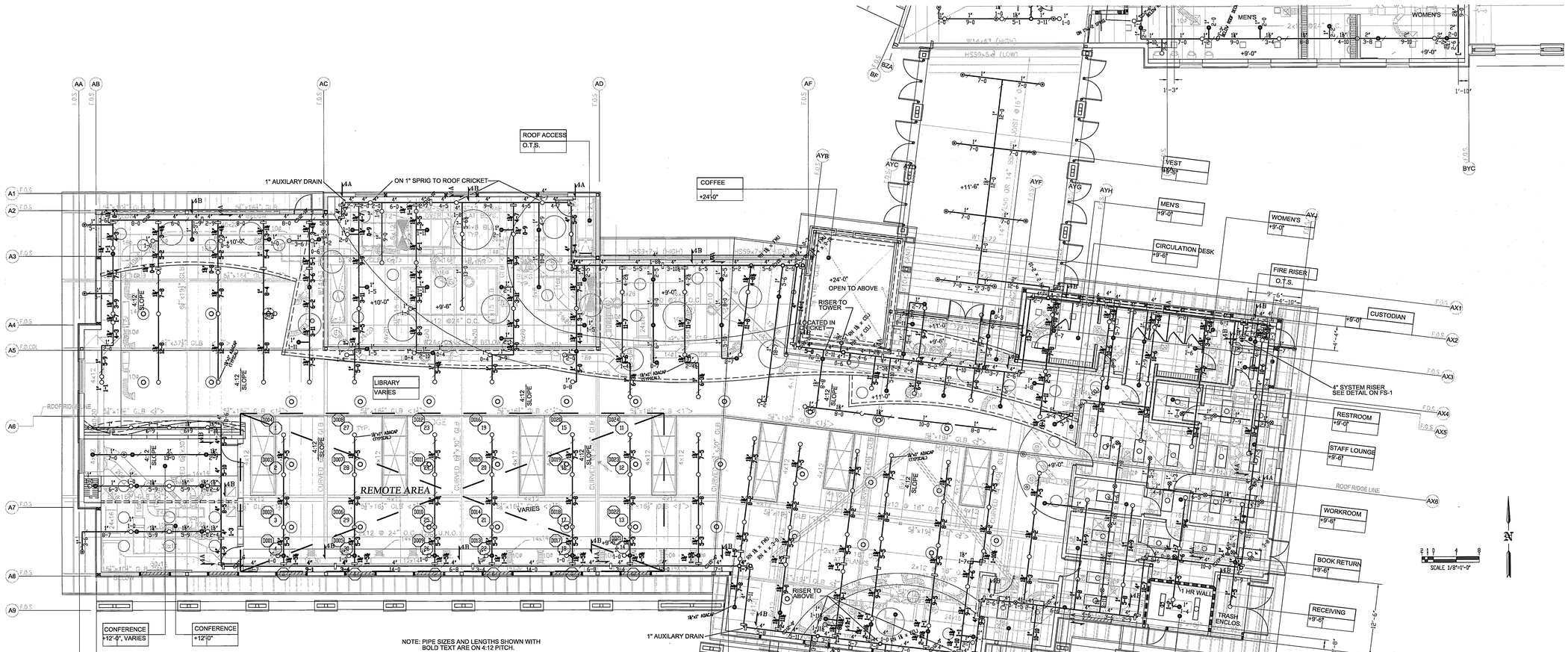
CITY OF RIVERSIDE FIRE DEPT.
This is to certify that these plans have been approved by the fire official and no change or deviation therefrom shall be permitted. However, this approval does not authorize violation or cancelation of any law of the city nor does it prevent requiring correction of any error on the plans. This is not an approval of any work requiring a separate permit under the laws of the city.
Engineer ______ Date 7-1-08

Received
OCT 14 2008
Diffenbaugh

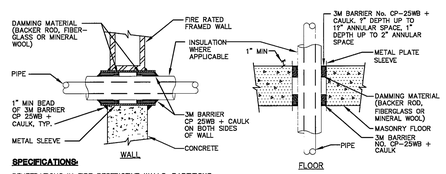
"AS-BUILT"

ORANGE TERRACE LIBRARY / COMMUNITY CENTER 20010 ORANGE TERRACE PARKWAY CITY OF RIVERSIDE, CALIFORNIA 92508 SITE PLAN	NORTH
	DESIGNER
	SCALE 1"= 20'-0"
UNIVERSAL FIRE PROTECTION, INC. 430 BAREBACK COURT NORCO, CA 92860	CHECK BY
	FILE NUMBER 70718
	APPROVAL
Professional Fire Protection Services, System Design and Installation PHONE (951) 340-3391 FAX (951) 340-0908 STATE LIC# 852547	DATE SEPT. 1, 2007
	DRAWING NO. FS-1

Drawing name: \\Ws3\c\CLIENT\Universal\70718 OTLCC\AS BUILT OTLCC.dwg TAB: FS-1 Jun 06, 2008 - 11:40am



"AS-BUILT"



SPECIFICATIONS:

PENETRATIONS IN FIRE RESTRICTIVE WALLS, PARTITIONS AND FLOORS WHERE PROTECTED OPENNGS ARE REQUIRED SHALL BE FIRE STOPPED USING APPROVED MATERIALS, SECURELY INSTALLED AND CAPABLE OF MAINTAINING THER INTEGRITY AND PREVENTING THE MOVEMENT OF FLAMES AND/OR GASES THROUGH THE VOID SPACES BETWEEN PENETRATING MATERIALS AND WALLS, PARTITIONS AND FLOORS WHEN TESTED IN ACCORDANCE WITH ASTM STANDARD E-814 OR UL STANDARD 1479 (UBC SECTIONS 709.6, 709.7 & 714).

PROVIDE DESIGN DETAILS ON DRAWINGS DEPICTING APPROVED (LISTED) METHODS AND MATERIALS USED TO PROTECT PENETRATIONS WALLS, PARTITIONS AND FLOORS.

DESIGNS ARE LISTED BY UNDERWRITER'S LABORATORIES (FIRE RESISTANCE DIRECTORY) AND THE CALIFORNIA STATE FIRE MARSHALL (BUILDING MATERIAL LISTINGS). SPECIFIC DESIGN INFORMATION IS AVAILABLE FROM UL CSFM OR THE PRODUCT MANUFACTURER.

NOTES:

3M FIRE BARRIER PRODUCTS:
CALIFORNIA STATE FIRE MARSHALL LISTING No. 4485-941:100

UNINSULATED PIPE:
U.L. DESIGN No. CAJ1001 (CONC. WALL OR FLOOR)
U.L. DESIGN No. WL1001 (STUD WALL)

INSULATED PIPE:
U.L. DESIGN No. CAJ5002 (CONC. WALL OR FLOOR)
U.L. DESIGN No. WL5001 (STUD WALL)

FIRESTOP ASSEMBLY FOR PIPE PENETRATIONS

This system as shown on UNIVERSAL FIRE PROTECTION company print No. FS-1 THRU 4 dated 9-1-07
for ORANGE TERRACE LIBRARY
at 20010 ORANGE TERRACE PARKWAY RIVERSIDE, CA contract No. 70718
is designed to discharge at a rate of .10 gpm/sq.ft.
(L/min/m) of floor area over a max. area of 1950
ft^2 (m^2) when supplied with water at a rate of 405.76
gpm (L/min) at 33.502 psi (bar) at the base of the riser.
Hose stream allowance of 100 gpm (L/min)
is included in the calculation.
Number of sprinklers calculated 24
Occupancy classification LIGHT HAZARD
Commodity classification N/A
Maximum storage height N/A

SYSTEM NAMEPLATE

SYMBOL	SPRINKLER DESCRIPTION	SIN	THREAD SIZE	TEMP.	K-FACTOR	TRIM	FINISH	QUANTITY
●	TYCO SERIES FRI CONCEALED PENDENT	TY3504	1/2"	155°	5.6	CONC.	WHITE	72
○	TYCO TY-FRB UPRIGHT	TY3131	1/2"	200°	5.6	—	BRASS	184
⊗	TYCO TY-FRB RECESSED PENDENT	TY3231	1/2"	155°	5.6	REC.	WHITE	14
⊕	TYCO TY-FRB PENDENT	TY3231	1/2"	200°	5.6	—	BRASS	17
◀	TYCO TY-FRB HORIZONTAL SIDEWALL	TY3331	1/2"	200°	5.6	—	BRASS	0
						TOTAL REQUIRED=		287

ORANGE TERRACE LIBRARY / COMMUNITY CENTER
20010 ORANGE TERRACE PARKWAY CITY OF RIVERSIDE, CALIFORNIA 92508
BUILDING "A"

UNIVERSAL FIRE PROTECTION, INC.
430 BAREBACK COURT NORCO, CA 92860
Professional Fire Protection Services, System Design and Installation
PHONE (951) 340-3381 FAX (951) 340-0008 STATE LIC# 852547

NORTH

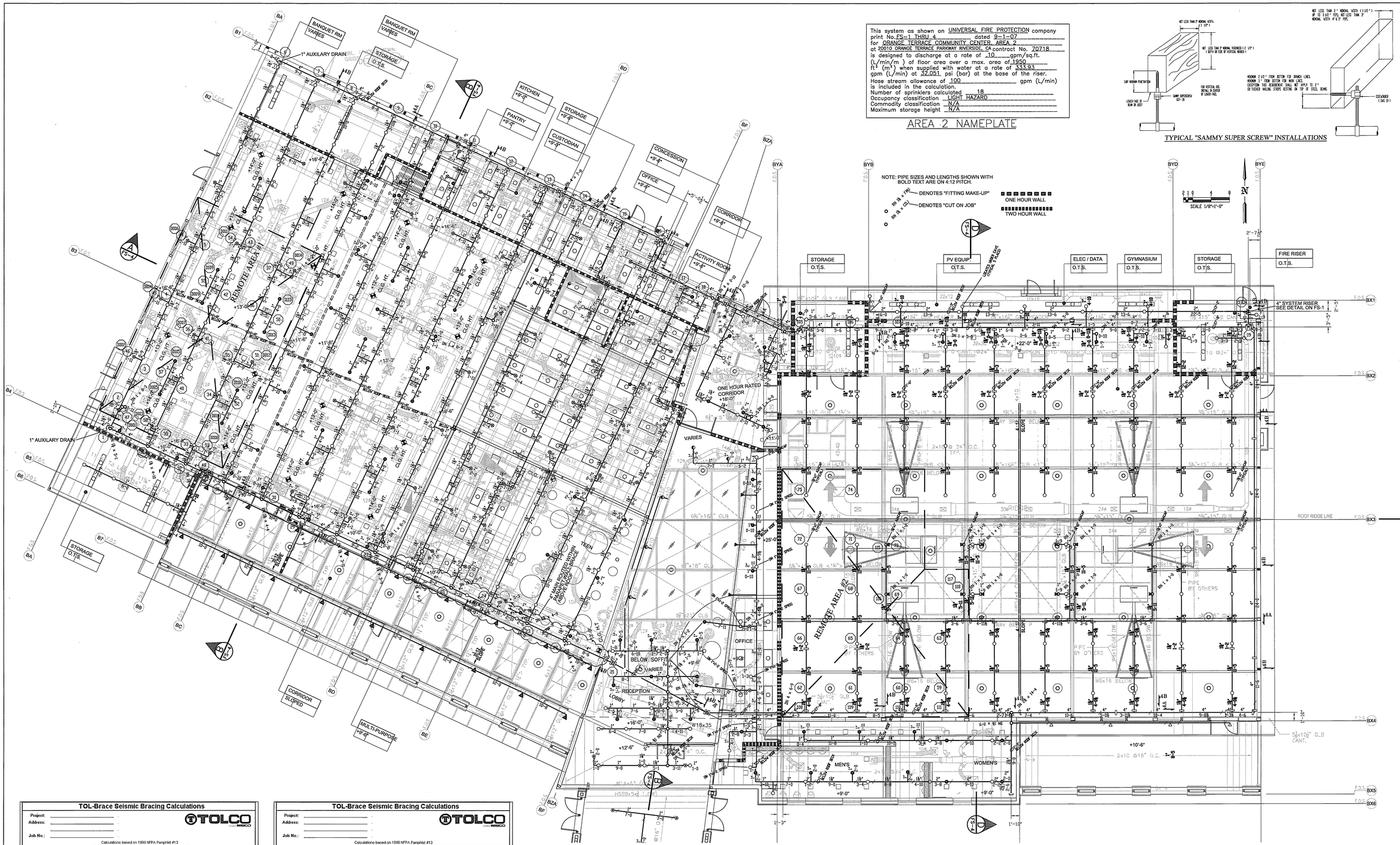
DESIGNER	
SCALE	1/8" = 1'-0"
CHECK BY	
FILE NUMBER	7071B
APPROVAL	
DATE	SEPT. 1, 2007
DRAWING NO.	FS-2

Drawing name: \\Ws3-1\CLIENT\Universal\70718 OTC\CAD\AS BUILT OTC.CAD.dwg Layout: FS-2 Jun 06, 2008 - 11:43am

This system as shown on UNIVERSAL FIRE PROTECTION company
print No.FS-1 THRU 4 dated 9-1-07
for ORANGE TERRACE COMMUNITY CENTER, AREA 2
at 20010 ORANGE TERRACE PARKWAY RIVERSIDE, CA contract No. 70718
is designed to discharge at a rate of .10 gpm/sq.ft.
(L/min/m) of floor area over a max. area of 1950
ft² (m²) when supplied with water at a rate of 333.93
gpm (L/min) at 32.031 psi (bar) at the base of the riser.
Hose stream allowance of 100 gpm (L/min)
is included in the calculation.
Number of sprinklers calculated 18
Occupancy classification LIGHT HAZARD
Commodity classification N/A
Maximum storage height N/A

AREA 2 NAMEPLATE

TYPICAL "SAMMY SUPER SCREW" INSTALLATIONS



This system as shown on UNIVERSAL FIRE PROTECTION company
print No.FS-1 THRU 4 dated 9-1-07
for ORANGE TERRACE COMMUNITY CENTER, AREA 1
at 20010 ORANGE TERRACE PARKWAY RIVERSIDE, CA contract No. 70718
is designed to discharge at a rate of .10 gpm/sq.ft.
(L/min/m) of floor area over a max. area of 1500
ft² (m²) when supplied with water at a rate of 436.55
gpm (L/min) at 44.278 psi (bar) at the base of the riser.
Hose stream allowance of 100 gpm (L/min)
is included in the calculation.
Number of sprinklers calculated 18
Occupancy classification LIGHT HAZARD
Commodity classification N/A
Maximum storage height N/A

AREA 1 NAMEPLATE

TOL-Brace Seismic Bracing Calculations

TOLCO Brand PHD

Project:
Address:
Job No.:

Calculations based on 1999 NFPA Pamphlet #13

Brace Information

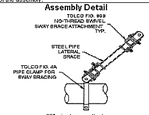
Maximum Spacing	40ft (12.2m)
Length of Brace	7'-0"
Bracing Material	1" Sch 40
Angle from Vertical	60° min.
Least Radius of Gyration	0.42
L/R Value	200
Maximum Horizontal Load	3060.6

TOLCO Brace Components

TOLCO Component Fig. Number	Adjusted Load
Fig.4A Clamp	1745
Fig.939 No-Thread Swivel	2395

*Calculation Based on CONCENTRIC Loading
*Please Note: These Calculations are for TOLCO components only. Use of any other components voids these calculations and the listing of the assembly.

Assembly Detail



Fastener Information

Fastener Orientation	NFPA Type I
Type	Wood
Diameter	1/2in. (13mm)
Length	3-5/8in. (92mm)
Maximum Load	626

Brace Identification on Plans	4A
Orientation of Brace	Longitudinal

Load Information

Size and Type of Pipe	Total Length	Total Calculated Load
4"(100mm) Schedule 7 Pipe	80 ft. (24.4m)	434 lbs. (198Kg.)
Percentage added for Fittings and Sprinklers	15%	65 lbs. (29.5Kg.)
Total Adjusted Load of all pipe within Zone of Influence		5008lbs.(227Kg.)

TOL-Brace Seismic Bracing Calculations

TOLCO Brand PHD

Project:
Address:
Job No.:

Calculations based on 1999 NFPA Pamphlet #13

Brace Information

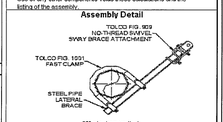
Maximum Spacing	40ft (12.2m)
Length of Brace	7'-0"
Bracing Material	1" Sch 40
Angle from Vertical	60° min.
Least Radius of Gyration	0.42
L/R Value	200
Maximum Horizontal Load	3060.6

TOLCO Brace Components

TOLCO Component Fig. Number	Adjusted Load
Fig.1001 Clamp	1386
Fig.939 No-Thread Swivel	2395

*Calculation Based on CONCENTRIC Loading
*Please Note: These Calculations are for TOLCO components only. Use of any other components voids these calculations and the listing of the assembly.

Assembly Detail



Fastener Information

Fastener Orientation	NFPA Type I
Type	Wood
Diameter	5/8in. (16mm)
Length	3-5/8in. (89mm)
Maximum Load	739

Brace Identification on Plans	4B
Orientation of Brace	Lateral

Load Information

Size and Type of Pipe	Total Length	Total Calculated Load
4"(100mm) Schedule 7 Pipe	40 ft. (12.2m)	217 lbs. (99Kg.)
1¼"(38mm) Schedule 7 Pipe	180 ft. (54.9m)	274 lbs.(125Kg.)
1"(25mm) Threadable Thinwall Pipe	100 ft. (30.5m)	50 lbs. (42Kg.)
Percentage added for Fittings and Sprinklers	15%	63 lbs. (37.5Kg.)
Total Adjusted Load of all pipe within Zone of Influence		624lbs.(283Kg.)

SPRINKLER SCHEDULE & LEGEND - TOTAL FOR BUILDING "A"									
SYMBOL	SPRINKLER DESCRIPTION	SIN	ORIFICE SIZE	TEMP.	K-FACTOR	TRIM	FINISH	QUANTITY
●	TYCO SERIES FRI CONCEALED PENDENT	TY3504	1/2"	155°	5.6	CONC.	WHITE	92
○	TYCO TY-FRB UPRIGHT	TY3131	1/2"	200°	5.6	--	BRASS	237
⊗	TYCO TY-FRB RECESSED PENDENT	TY3231	1/2"	155°	5.6	REC.	WHITE	55
⊕	TYCO TY-FRB PENDENT	TY3231	1/2"	200°	5.6	---	BRASS	13
◀	TYCO TY-FRB HORIZONTAL SIDEWALL	TY3331	1/2"	200°	5.6	---	BRASS	36
◁	TYCO TY-FRB EC HORIZONTAL SIDEWALL	TY4332	3/4"	200°	8.0	---	BRASS	4
◐	DENOTES UPRIGHT ○ OVER PENDENT ●							
							TOTAL REQUIRED=	428

"AS-BUILT"

ORANGE TERRACE LIBRARY / COMMUNITY CENTER
20010 ORANGE TERRACE PARKWAY CITY OF RIVERSIDE, CALIFORNIA 92508
BUILDING "B"

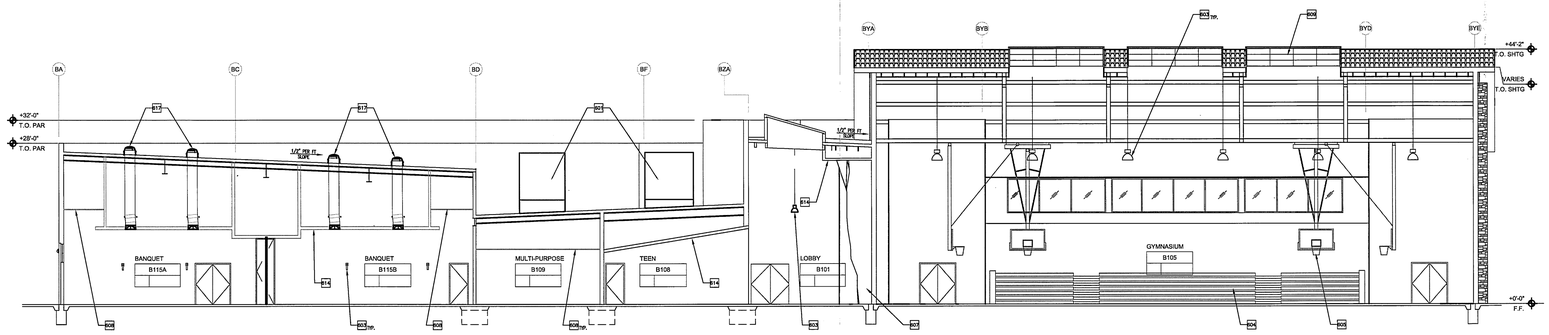
UNIVERSAL FIRE PROTECTION, INC.
430 BAREBACK COURT NORCO, CA 92860
Professional Fire Protection Services, System Design and Installation
PHONE (951) 340-3391 FAX (951) 340-0808 STATE LIC# 852547

NORTH

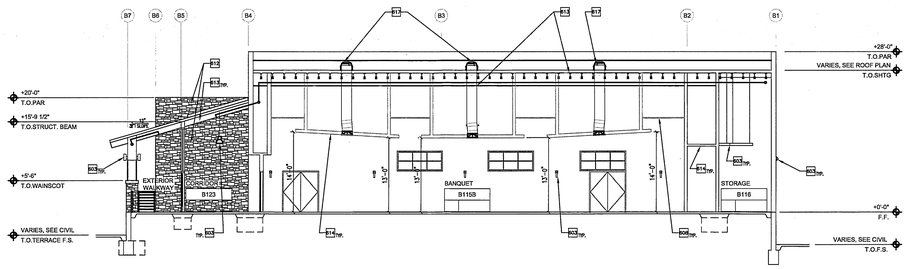
DESIGNER	
SCALE	1/8" = 1'-0"
CHECK BY	
FILE NUMBER	70718
APPROVAL	
DATE	SEPT. 1, 2007
DRAWING NO.	FS-3

Drawing name: \\Nas1-v3\CLIENT\Universal\70718 OTLCC\AS BUILT OTLCC.dwg TAB: FS-3 Jun 05, 2008 - 11:42am

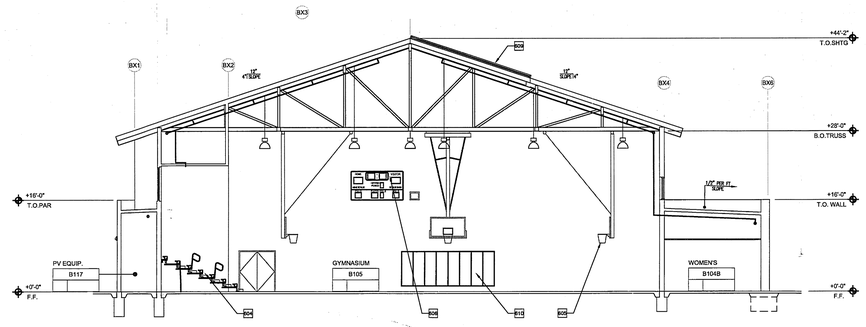
#	BUILDING "B" SECTION KEY NOTES
601	MECHANICAL UNITS
602	MECHANICAL DUCTWORK - PAINTED
603	ELECTRICAL LIGHTING FIXTURES
604	TELESCOPING BLEACHERS
605	BASKETBALL BACKSTOP
606	BASKETBALL SCORE CLOCK
607	CLIMBING WALL
608	SUSPENDED CEILING GRID
609	ASI-THRU PHOTOVOLTAIC GLASS SKYLIGHT
610	PROTECTIVE WALL PADDING
611	NOT USED
612	STONE VENEER
613	ROOF FRAMING - PER STRUCTURAL DWGS.
614	GYP. BD SOFFIT OR CEILING
615	EXPOSED STEEL COLUMN - PAINTED
616	WOOD TRELLIS - PER STRUCTURAL DWGS.
617	TUBULAR SKYLIGHT



BUILDING "B"
SECTION A-A
3/32" = 1'-0"

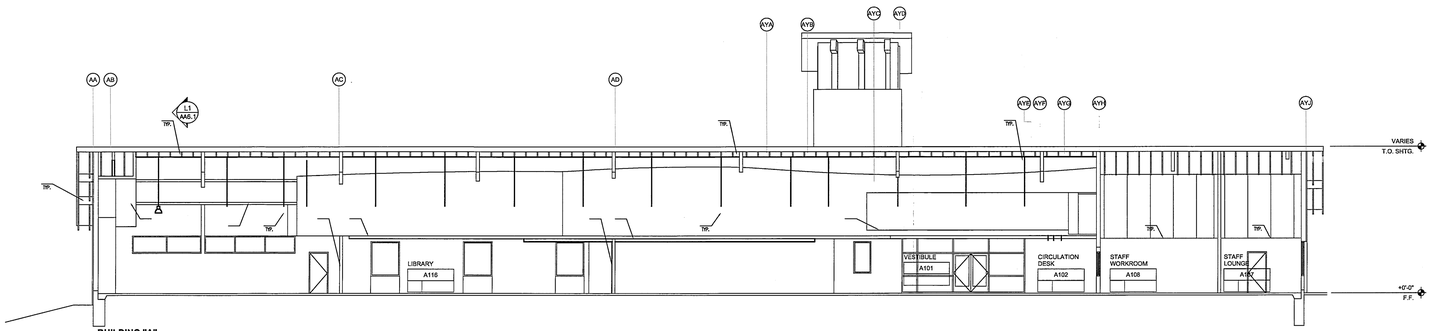


BUILDING "B"
SECTION B-B
3/32" = 1'-0"



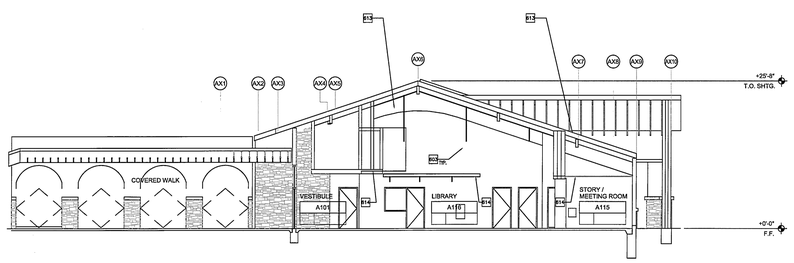
BUILDING "B"
SECTION D-D
3/32" = 1'-0"

#	BUILDING "A" SECTION KEY NOTES
601	MECHANICAL UNITS
602	MECHANICAL DUCTWORK - PAINTED
603	ELECTRICAL LIGHTING FIXTURES
604	TELESCOPING BLEACHERS
605	BASKETBALL BACKSTOP
606	BASKETBALL SCORE CLOCK
607	CLIMBING WALL
608	SUSPENDED CEILING GRID
609	ASI-THRU PHOTOVOLTAIC GLASS SKYLIGHT
610	PROTECTIVE WALL PADDING
611	NOT USED
612	STONE VENEER
613	ROOF FRAMING - PER STRUCTURAL DWGS.
614	GYP. BD SOFFIT OR CEILING
615	EXPOSED STEEL COLUMN - PAINTED
616	WOOD TRELLIS - PER STRUCTURAL DWGS.
617	TUBULAR SKYLIGHT



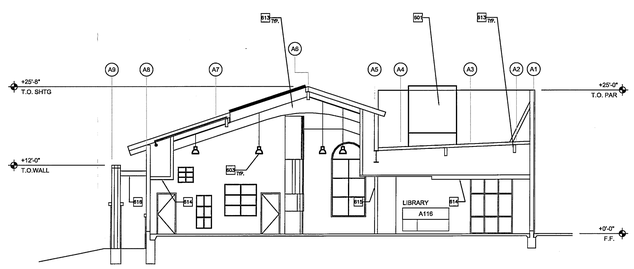
BUILDING "A"
SECTION (6)
3/32" = 1'-0"

SECTION (7)
3/32" = 1'-0"



BUILDING "A"
SECTION B-B
3/32" = 1'-0"

SCALE 3/32"=1'-0"



BUILDING "A"
SECTION C-C
3/32" = 1'-0"

tyco / Fire & Building Products

Technical Services: Tel: (800) 381-9312 / Fax: (800) 791-6500

Series TY-FRB — 5.6 and 8.0 K-factor Extended Coverage Horizontal Sidewall Sprinklers Quick & Standard Response (Light Hazard)

General Description

The Series TY-FRB, 5.6 and 8.0 K-factor, Extended Coverage Horizontal Sidewall Sprinklers are extended coverage, decorative 3 mm glass bulb type spray sprinklers designed for use in hydraulically calculated sprinkler systems in light hazard, commercial occupancies such as churches, restaurant seating areas, hotels, educational facilities, offices, etc. With their coverage up to 16 feet (4.9 m) wide by 24 feet (7.3 m) long, they are designed for installation along a wall or the side of a beam and just beneath a smooth and level ceiling. Horizontal sidewall sprinklers are commonly used instead of pendent or upright sprinklers due to aesthetics or building construction considerations, where piping across the ceiling is not desirable.

The fast response thermal sensitivity rating of the Series TY-FRB, 3 mm Bulb Type Sprinklers provides for a quick response extended coverage (QREC) rating for many of the coverage areas detailed in Tables B and C.

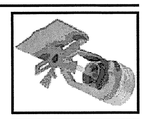
The recessed version of the Series TY-FRB Extended Coverage Horizontal Sidewall Sprinkler utilizes either a two-piece Style 10 (1/2 inch NPT) or Style 40 (3/4 inch NPT) Recessed Escutcheon with 1/2 inch (12.7 mm) of recessed adjustment or up to 3/4 inch (19.1 mm) of total adjustment from the flush sidewall position, or a two-piece Style 20 (1/2 inch NPT) or Style 30 (3/4 inch NPT) Recessed Escutcheon with 1/4 inch (6.4 mm) of recessed adjustment or up to 1/2 inch (12.7 mm) of total adjustment from the flush sidewall position. The adjustment provided by the Recessed Escutcheon reduces the accuracy to which the fixed pipe lengths to the sprinklers must be cut.

Corrosion resistant coatings, where applicable, are utilized to extend the life of copper alloy sprinklers beyond that which would otherwise be obtained when exposed to corrosive atmospheres. Although corrosion resistant coated sprinklers have passed the standard corrosion tests of the applicable approval agencies, the testing is not representative of all possible corrosive atmospheres. Consequently, it is recommended that the end user be consulted with respect to the suitability of these coatings for any given corrosive environment. The effects of ambient temperature, concentration of chemicals, and gas/chemical velocity, should be considered, as a minimum, along with the corrosive nature of the chemical to which the sprinklers will be exposed.

WARNINGS

The Series TY-FRB Sprinklers described herein must be installed and maintained in compliance with this document, as well as with the applicable standards of the National Fire Protection Association, in addition to the standards of any other authorities having jurisdiction. Failure to do so may impair the performance of these devices.

The owner is responsible for maintaining their fire protection system and devices in proper operating condition. The installing contractor or sprinkler manufacturer should be contacted with any questions.



Model/Sprinkler Identification Numbers

TY3332 - EC HSW, 5.6K, 1/2"NPT
TY4332 - EC HSW, 8.0K, 3/4"NPT

Technical Data

Approvals
UL and C-UL Listed.
FM, VdS, and NYC Approved.
(Refer to Table A for complete approval information including corrosion resistant status, as well as the Design Criteria Section pertaining to special design considerations.)

Maximum Working Pressure
Refer to Table B.

IMPORTANT
Always refer to Technical Data Sheet TFP700 for the "INSTALLER WARNING" that provides cautions with respect to handling and installation of sprinkler systems and components. Improper handling and installation can permanently damage a sprinkler system or its components and cause the sprinkler to fail to operate in a fire situation or cause it to operate prematurely.

"AS-BUILT"

ORANGE TERRACE LIBRARY / COMMUNITY CENTER
20010 ORANGE TERRACE PARKWAY CITY OF RIVERSIDE, CALIFORNIA 92508
BUILDING SECTIONS & DETAILS

UNIVERSAL FIRE PROTECTION, INC.
430 BAREBACK COURT NORCO, CA 92860
Professional Fire Protection Services, System Design and Installation
PHONE (951) 340-3391 FAX (951) 340-0908 STATE LIC# 832547

NORTH	
DESIGNER	
SCALE	AS NOTED
CHECK BY	
FILE NUMBER	70718
APPROVAL	
DATE	SEPT. 1, 2007
DRAWING NO.	FS-4

Drawing name: \\Web1\r0EBKR\Universal\70718 OTLCC\AS BUILT OTLCC.dwg TAB: FS-4 Jun 06, 2008 - 11:43am

SCOPE OF WORK

1. INSTALLATION OF NEW FIRE ALARM DEVICES AND EQUIPMENT AS INDICATED IN THE "EQUIPMENT LIST & LEGEND" AND SHOWN ON FLOOR PLANS OF THIS DRAWING PACKAGE.

GENERAL NOTES:

1.) ALL WIRING SHALL BE INSTALLED IN ACCORDANCE WITH N.E.C. ARTICLE 760, POWER LIMITED FIRE PROTECTIVE SIGNALING CIRCUITS.
2.) UPON COMPLETION OF THE INSTALLATION OF THE FIRE ALARM SYSTEM, A SATISFACTORY TEST OF THE ENTIRE SYSTEM SHALL BE MADE IN THE PRESENCE OF THE FIRE MARSHAL.
3.) A STAMPED SET OF APPROVED FIRE ALARM PLANS SHALL BE ON THE JOB SITE AND USED FOR INSTALLATION. ANY DEVIATION FROM APPROVED PLANS, INCLUDING THE SUBSTITUTION OF DEVICES, SHALL BE APPROVED BY THE FIRE MARSHAL.
4.) ANY DISCREPANCIES BETWEEN THE DRAWINGS AND THE CODE OR RECOGNIZED STANDARDS SHALL BE BROUGHT TO THE ATTENTION OF THE INSPECTOR OF RECORD.
5.) ALL DEVICES OF THE FIRE ALARM SYSTEM SHALL BE APPROVED AND LISTED BY THE CALIFORNIA STATE FIRE MARSHAL.
6.) FIRE ALARM DEVICES SHALL BE INSTALLED PER N.F.P.A. 72.
7.) ALL WIRING, ANNUNCIATING DEVICES AND ANNUNCIATOR SHALL BE SUPERVISED BY THE PRINCIPAL POINT OF ANNUNCIATION.
8.) WIRING SHALL NOT BE LOOPED THROUGH DEVICES; WIRE MUST BE CUT AT EACH DEVICE.
9.) N/A.
10.) ALL CONDUCTORS ARE COPPER.
11.) SYSTEMS POWER LIMITED.
12.) POINT AND COMMON ANNUCIATION AND T-TAPPING PROHIBITED.
13.) ALL DEVICES IN THE ALARM SYSTEM SHALL BE COMPATIBLE AND INSTALLED TO MANUFACTURERS SPECIFICATIONS.
14.) AUDIBILITY OF ALARM AND VOICE COMMUNICATION SHALL BE NOT LESS THAN 15 db ABOVE AMBIENT SOUND THROUGHOUT AREA OF ALARM.
15.) INITIATING DEVICE CIRCUIT (IDC) STYLE B, CLASS B; NOTIFICATION APPLIANCE CIRCUIT (NAC) STYLE Y, CLASS B; SIGNALING LINE CIRCUIT (SLC) STYLE 3, CLASS B.

APPLICABLE CODES AND REGULATIONS

1.) 2001 UNIFORM BUILDING CODE AND 2001 CALIFORNIA AMENDMENTS
2.) 2002 NATIONAL ELECTRICAL CODE AND 2004 CALIFORNIA AMENDMENTS
3.) 2001 UNIFORM MECHANICAL CODE AND 2001 CALIFORNIA AMENDMENTS
4.) 2001 UNIFORM PLUMMING CODE AND 2001 CALIFORNIA AMENDMENTS
5.) 2001 UNIFORM FIRE CODE AND CALIFORNIA AMENDMENTS
6.) 2001 BUILDING STANDARD CODE
7.) 2002 NFPA 72 WITH CALIFORNIA AMENDMENTS
8.) TITLE 19, C.C.R., PUBLIC SAFETY
9.) STATE FIRE MARSHALL REGULATIONS

SYMBOL LEGEND

SYMBOL	MANUFACTURER	CATALOG #	DESCRIPTION	C.S.F.M.	MOUNTING INFORMATION	QTY
FACP	SIEMENS	XLS	FIRE ALARM CONTROL PANEL	7300-0067:172	CUSTOM	1
FATC	--	--	--	--	--	--
PS-	SIEMENS	PAD-3	POWER SUPPLY	7135-0067:221	CUSTOM	2
	SIEMENS	HFP-11	SMOKE DETECTOR	7300-0067:203	MOUNTS TO DB-11 DETECTOR BASE	84
		DB-11	DETECTOR BASE	7300-0067:134	4"S SQUARE DEEP W/ 3-O RINGS	
ST	SIEMENS	U-MCS-W	30CD STROBE - CEILING MOUNTED	7125-0067:219	4"S SQUARE DEEP BOX	1
	SIEMENS	U-MCS-W	15CD STROBE - WALL MOUNTED	7125-0067:219	4"S SQUARE DEEP BOX	4
			30CD STROBE - WALL MOUNTED			4
			75CD STROBE - WALL MOUNTED			4
			110CD STROBE - WALL MOUNTED			1
HS	SIEMENS	U-MMT-MCS-W	30CD HORN STROBE- CEILING MOUNTED	7135-0067:210	4"S SQUARE DEEP BOX	1
	SIEMENS	U-MMT-MCS-W	15CD HORN STROBE - WALL MOUNTED	7135-0067:210	4"S SQUARE DEEP BOX	5
			30CD HORN STROBE - WALL MOUNTED			3
			75CD HORN STROBE - WALL MOUNTED			4
			110CD HORN STROBE - WALL MOUNTED			11
P	SIEMENS	HMS-S	PULL STATION	7150-0067:036	3"-1/2" in. DEEP SWITCH BOX	13
M2	SIEMENS	HTRI-D	DUAL MONITOR MODULE	7300-0067:242	4" SQUARE BOX W/ 2-1/4" DEEP BOX	3
S	SIEMENS	HCP	SIGNAL MODULE	7300-0067:172	4" SQUARE BOX W/ 2-1/4" DEEP BOX	1
	--	--	TAMPER SWITCH	--	PROVIDED BY OTHERS	-
	--	--	WATER FLOW SWITCH	--	PROVIDED BY OTHERS	-
OSY-	--	--	OSY VALVE	--	PROVIDED BY OTHERS	-
	--	--	BUTTERFLY VALVE	--	PROVIDED BY OTHERS	-
	EST	439D-10AWR	10 in. FIRE ALARM BELL	7136-1657:150	4" SQUARE BOX	2
H	--	--	DOOR HOLDER	--	PROVIDED BY OTHERS	-
B	HOCHIKI	SPB-24N	PROJECTED BEAM SMOKE DETECTOR (TRANSMITTER)	7260-0410:141	SINGLE GANG BOX	9
B	HOCHIKI	SPB-24N	PROJECTED BEAM SMOKE DETECTOR (RECIEVER)	7260-0410:141	SINGLE GANG BOX	9
	SIEMENS	HTRI-M	MONITOR MODULE	7300-0067:242	4" SQUARE BOX W/ 2-1/4" DEEP BOX	10
	SIEMENS	HTRI-R	RELAY MODULE	7300-0067:242	4" SQUARE BOX W/ 2-1/4" DEEP BOX	5
KNOX	--	--	KNOX BOX	--	PROVIDED BY OTHERS	-
ANN	SIEMENS	SSD	SYSTEM STATUS DISPLAY	7165-0067:222	CUSTOM	1

WIRE LEGEND

CALLOUT	USAGE	TYPE
A	ADDRESSABLE CIRCUIT	2#18 AWG SOLID
S	SIGNAL CIRCUIT	2#14 THHN
R	AUXILIARY CIRCUIT (CONSTANT POWER)	2#14 THHN
B	BELL CIRCUIT	2#14 THHN
D	DOOR HOLDER CIRCUIT	2#14 THHN
E	MODULE INTERFACE CIRCUIT	2#14 THHN
P	ANNUNCIATOR CIRCUIT	2#16 TSP

CONDUIT WIRE FILL CHART

CONDUIT SIZE	MAXIMUM CONDUCTORS		
INCHES	#18 AWG	#16 AWG	#14 AWG
1/2"	19	15	13
3/4"	34	26	24
1"	55	43	39
1 1/4"	97	76	69
1 1/2"	132	104	94
2"	216	169	154

* RECOMMENDATION FOR CONDUIT SIZE BY N.E.C

WIRE FILL CHART

MAXIMUM NUMBER OF CONDUCTORS IN ELECTRICAL METALLIC TUBING										
TYPE LETTERS	CONDUCTOR SIZE AWG/KCMIL	3/4	1	1-1/4	1-1/2	2	2-1/2	3	3-1/2	4
THHN	14	22	35	61	84	138	241	364	476	608
	12	16	26	45	61	101	176	266	347	443
THWN	10	10	16	28	38	63	111	167	219	279
	8	6	9	16	16	36	64	96	126	161

PS-1 SIGNAL POWER SUPPLY BATTERY CALCULATION

CIRCUIT #	QUANTITY	DEVICE TYPE	STAND BY	TOTAL STAND BY	ALARM	TOTAL ALARM	TOTAL OUTPUT PER CIRCUIT
		MAIN BOARD CURRENT	0.0320	0.0320	0.0320	0.0320	0.0320
V1	2	15CD U-MCS-W	0.0000	0.0000	0.0630	0.1260	
	2	30CD U-MCS-W	0.0000	0.0000	0.0840	0.1680	
	1	75CD U-MCS-W	0.0000	0.0000	0.1430	0.1430	
	2	30CD U-MMT-MCS-W	0.0000	0.0000	0.0840	0.1680	
	4	110CD U-MMT-MCS-W	0.0000	0.0000	0.1780	0.7120	1.3170
V2	2	15CD U-MCS-W	0.0000	0.0000	0.0630	0.1260	
	2	30CD U-MCS-W	0.0000	0.0000	0.0840	0.1680	
	1	75CD U-MCS-W	0.0000	0.0000	0.1430	0.1430	
	3	15CD U-MMT-MCS-W	0.0000	0.0000	0.0630	0.1890	
	2	110CD U-MMT-MCS-W	0.0000	0.0000	0.1780	0.3560	0.9820
V3	2	75CD U-MCS-W	0.0000	0.0000	0.1430	0.2860	
	1	110CD U-MCS-W	0.0000	0.0000	0.1780	0.1780	
	3	110CD U-MMT-MCS-W	0.0000	0.0000	0.1780	0.5340	0.9980
V4	1	15CD U-MCS-W	0.0000	0.0000	0.0630	0.0630	
	1	30CD U-MCS-W	0.0000	0.0000	0.0840	0.0840	
	1	15CD U-MMT-MCS-W	0.0000	0.0000	0.0630	0.0630	
	1	30CD U-MMT-MCS-W	0.0000	0.0000	0.0840	0.0840	
	3	75CD U-MMT-MCS-W	0.0000	0.0000	0.1430	0.4290	
	1	110CD U-MMT-MCS-W	0.0000	0.0000	0.1780	0.1780	0.9010
		TOTAL STAND BY	0.0320		TOTAL ALARM		4.2300
				TOTAL STAND BY X 24 HOURS =			0.7680
				TOTAL ALARM X .25 (15 MINUTES) =			1.0575
				TOTAL BATTERY A.H. REQUIRED =			1.8255
				TOTAL BATTERY A.H. PROVIDED =			TWO 7 A.H.

VOLTAGE DROP CALCULATION:

VOLTAGE DROP FOR A GIVEN LENGTH OF CONDUCTOR = $\frac{\text{AMP x FEET x 21.6}}{\text{C.M.}}$

WHERE:
AMP = Amperes per terminal of load
FEET = One way distance in feet measured from source of supply to load
21.6 = Constant(Resistance of conductor @ 10.8 ohms per L.M. for twice the length)
C.M. = Cross sectional area in circular Mils (see chart below)

WIRE SIZE (AWG)	12	14	16	18	20
CIRCULAR MILS (C.M.)	6530	4110	2580	1620	1020

VOLTAGE DROP CALCULATION

# OF DEVICE	CIRCUIT #	AMP X	FEET X	21.6	TOTAL AMPXFEETX21.6	V	%
11	V1	1.3170	379	21.6	10781.4888	2.62	9.71
10	V2	0.9820	450	21.6	9545.0400	2.32	8.60
7	V3	0.9980	480	21.6	10347.2640	2.52	9.32
8	V4	0.9010	500	21.6	9730.8000	2.37	8.76

PS-2 SIGNAL POWER SUPPLY BATTERY CALCULATION

CIRCUIT #	QUANTITY	DEVICE TYPE	STAND BY	TOTAL STAND BY	ALARM	TOTAL ALARM	TOTAL OUTPUT PER CIRCUIT
		MAIN BOARD CURRENT	0.0320	0.0320	0.0320	0.0320	0.0320
V5	2	15CD U-MMT-MCS-W	0.0000	0.0000	0.0630	0.1260	
	1	30CD U-MMT-MCS-W	0.0000	0.0000	0.0840	0.0840	
	2	75CD U-MMT-MCS-W	0.0000	0.0000	0.1430	0.2860	
	1	110CD U-MMT-MCS-W	0.0000	0.0000	0.1780	0.1780	0.6740
		TOTAL STAND BY	0.0320		TOTAL ALARM		0.7060
				TOTAL STAND BY X 24 HOURS =			0.7680
				TOTAL ALARM X .25 (15 MINUTES) =			0.1765
				TOTAL BATTERY A.H. REQUIRED =			0.9445
				TOTAL BATTERY A.H. PROVIDED =			TWO 7 A.H.

VOLTAGE DROP CALCULATION:

VOLTAGE DROP FOR A GIVEN LENGTH OF CONDUCTOR = $\frac{\text{AMP x FEET x 21.6}}{\text{C.M.}}$

WHERE:
AMP = Amperes per terminal of load
FEET = One way distance in feet measured from source of supply to load
21.6 = Constant(Resistance of conductor @ 10.8 ohms per L.M. for twice the length)
C.M. = Cross sectional area in circular Mils (see chart below)

VOLTAGE DROP CALCULATION

# OF DEVICE	CIRCUIT #	AMP X	FEET X	21.6	TOTAL AMPXFEETX21.6	V	%
6	V5	0.6740	400	21.6	5823.3600	1.42	5.24

SEQUENCE OF OPERATION:

ACTION \ DEVICE	MANUAL PULL STATION	AREA SMOKE DETECTOR	SPRINKLER WATER FLOW SWITCH	SPRINKLER VALVE TAMPER SWITCH	BUILDING POWER FAILURE	SPECIAL EXTINGUISHING SYSTEM	AREA BEAM DETECTOR	KNOX BOX
ANNUNCIATE AT FIRE CONTROL ROOM	YES	YES	YES	YES	YES	YES	YES	YES
ANNUNCIATE AT 24 HR. ATTENDED REMOTE LOCATION	YES	YES	YES	YES	YES	YES	YES	YES
ACTIVATE AUDIBLE/VISUAL ALARM SIGNAL ON TROUGHTOUT	YES	YES	YES	NO	NO	YES	YES	NO
RELEASE ALL ELECTRO-MAGNETICALLY HELD DOORS	YES	YES	YES	NO	YES	YES	YES	NO

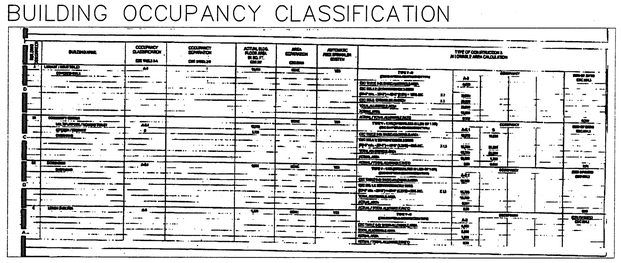
CENTRAL STATION INFORMATION

CRITICOM INTERNATIONAL
SUITE 300
96 CORPORATE PARK
IRVINE, CA 92714
CENTRAL STATION PHONE# 800-482-9800
RECEIVER# 800-221-2309
LOCAL POTTS LINE IT RINGS TO # 949-253-7289
UL LISTING# 749648-002

SHEET INDEX:

FA-0A COVER SHEET/CALCULATIONS
FA-0B RISER DIAGRAM/DETAILS
FA-01 BUILING A FLOOR PLAN
FA-02 BUILDING B FLOOR PLAN

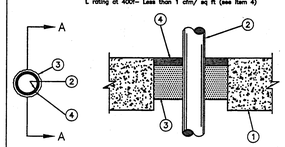
BUILDING OCCUPANCY CLASSIFICATION



FLOOR PENETRATION DETAIL

SYSTEM No. C-AJ-1063

(Formerly System No. 388)
F RATING – 3 Hr
T RATING – 1/2 Hr
L rating at Ambient– Less than 1 cfm/ sq ft (see Item 4)
L rating at 400F– Less than 1 cfm/ sq ft (see Item 4)



SECTION A–A

1. Floor or Wall Assembly– Min 4–1/2 in. thick reinforced lightweight or normal weight (100– 150 pcf) concrete. Wall may also be constructed of any UL Classified Concrete Blocks. Max diam. of opening is 6 in. See Concrete Block (CAZT) category in the Fire Resistance Directory for names of manufacturers.

2. Steel Pipe– Nom 2 in. diam. (or smaller) Schedule 5 (or heavier) steel spcae of 13/16 in. is required within the firestop system. Pipe to be rigidly supported on both sides of floor or wall assembly.

3. Packing Material– Min 3 in. thickness of min 4 pcf mineral wool batt insulation firmly packed into opening as a permanent form. packing material to be recessed from top surface of floor or from both surfaces of wall as required to accommodate the required thickness of fill material.

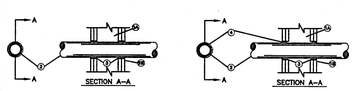
4. Fill, Void or Cavity Material– sealant– Min 1/2 in. thickness of fill material applied within the annulus, flush with top surface of floor or with both surfaces of wall. wall as required to accommodate the required thickness of fill material.

Minnesota Mining & Mfg. Co. — types FB–2000, FB–2000+, FB–2003 (floors only) (Note: L Ratings apply only when FB–2000+ is used.)
*Bearing the UL Classification Marking

WALL PENETRATION DETAIL

SYSTEM No. W-L-1082

F RATING – 2 Hr
T RATING – 0 Hr



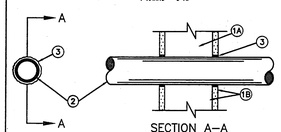
SECTION A–A SECTION A–A

1. Wall assembly – The fire rated gypsumwallboard/stud wall assembly shall be constructed of materials and in the manner specified in the individual U300 or U400 Series Wall and Partition designs in the UL fire Resistance Directory and shall include the following construction features:
   A. Studs–Wall framing may consist of either wood studs or steel channels studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. o.c. Steel studs to be min 3–1/2 in. wide and spaced max 24 in. o.c.
   B. Wallboard gypsum– Two layers of nom 5/8 in. thick gypsum wallboard, as specified in the individual Wall and Partition Design. diam. of opening is 1–1/2 in. larger than the outside diam. of pipe.
2. Through–Penetrant– One metallic pipe, conduit or tubing to be centered within the firestop system. An annular space of 3/4 in. is required within the firestop system. Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
   A. Steel Pipe– Nom 12 in. diam. (or smaller) Schedule 10 (or heavier) steel pipe.
   B. Conduit– Nom 6 in. diam. (smaller) steel conduit.
   C. Conduit– Nom 4 in. diam. (or smaller) steel electric metallic tubing
   D. Copper Tubing– Nom 6 in. diam. (or smaller) Type L (or heavier) copper tubing.
   E. Copper Pipe– Nom 6 in. diam. (or smaller) Regular (or heavier) copper pipe.
3. Forming Material– Nom 1 in. diam. polyethylene backer rod friction fitted into opening as a permanent form. Forming material to be recessed from both surfaces of wall as required to accommodate the required thickness of fill material.
4. Fill, Void or Cavity Material– Sealant– Min. 5/8 in. thickness of fill material applied within annulus, flush with both surfaces of wall assembly.
   Minnesota Mining & Mfg. Co. – FB – 2000+
   *Bearing the UL Classification Marking

WALL PENETRATION DETAIL

SYSTEM No. W-L-1084

F RATING – 1 Hr
T RATING – 0 Hr



SECTION A–A

1. Wall assembly – The fire rated gypsumwallboard/stud wall assembly shall be constructed of materials and in the manner specified in the individual U300 or U400 Series Wall and Partition designs in the UL fire Resistance Directory and shall include the following construction features:
   A. Studs–Wall framing may consist of either wood studs or steel channels studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. o.c. Steel studs to be min 3–5/8 in. wide and spaced max 24 in. o.c.
   B. Wallboard gypsum– nom 5/8 in. thick gypsum wallboard, as specified in the individual Wall and Partition Design. diam. of opening is 1–1/2 in. larger than the outside diam. of pipe.
2. Through–Penetrant– One metallic pipe, conduit or tubing to be centered within the firestop system. An annular space of 3/4 in. is required within the firestop system. Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
   A. Steel Pipe– Nom 12 in. diam. (or smaller) Schedule 10 (or heavier) steel pipe.
   B. Conduit– Nom 6 in. diam. (smaller) electric metallic tubing steel conduit.
   C. Copper Tubing– Nom 6 in. diam. (or smaller) Type L (or heavier) copper tubing.
   D. Copper Pipe– Nom 6 in. diam. (or smaller) Regular (or heavier) copper pipe.
3. Fill, Void or Cavity Material– Sealant– Min. 5/8 in. thickness of fill material applied within annulus, flush with both surfaces of wall assembly.
   Minnesota Mining & Mfg. Co. – FB – 2000+
   *Bearing the UL Classification Marking

SIEMENS XLS PANEL BATTERY CALCS.

Date 2/27/2008 | Project Name: Orange Terrace Library | Sales Outlet

XLS Power Supply & Battery Calculations

Power Supply - Supervisory Load Current

Module Part Number & Description		QTY	Module Current	EOL Current	Device Current	Total 24 VDC Standby Current
RMI	Person Machine Interface		230 mA			0.000 Amps
RMI-REM	Remote Annunciator		230 mA			0.000 Amps
PSC-12	Power Supply/Battery Charger	1	150 mA			0.150 Amps
	Active Relays	0			20 mA per active relay	0.000 Amps
PSX-12	Power Supply Extender	0	170 mA			0.000 Amps
CPC	Central Processor Card					
CRC-6	Controllable Relay Card	0	51 mA			0.000 Amps
	Active Relays	0			0.5 mA per active relay	0.000 Amps
DLC	Device Loop Card	1	145 mA			0.145 Amps
	Devices	70			1.8 mA per device	0.126 Amps
CDC-4	Conventional Detector Card					
NIC-C	Network Interface Card	0	120 mA			0.000 Amps
WAC	Wide Area Card					
RPM	Remote Printer Module	0	150 mA			0.000 Amps
	Zone Indicating Card	0	90 mA			0.000 Amps
ZIC-4A	Active Circuits	0		1 mA per circuit		0.000 Amps
	Devices	-				
ZIC-8B	Zone Indicating Card					
	Active Circuits					
	Devices					
ZAC-40	Zone Amplifier Card 40 Watts	0	150 mA			0.000 Amps
	Speaker Load Watts	N/A				
ZAM-80	Zone Amplifier Module 80 Watts					
	Speaker Load Watts					
ZAM-180	Zone Amplifier Module 180 Watts	0	280 mA			0.000 Amps
	Speaker Load Watts	N/A				
ARC	Audio Router Card					
AIC	Audio Interface Card (External Input	0	150 mA			0.000 Amps
DAC	Digital Audio Card	0	100 mA			0.000 Amps
DAC-NET	Digital Audio Card with Network	0	140 mA			0.000 Amps
LVM	Live Voice Microphone	0	25 mA			0.000 Amps
LPB	Local Page Board	0	100 mA			0.000 Amps
TRC	Tape Recorder Card					
FRC	Firefighter Reer Card					
RMT	Firefighter Master Telephone	0	150 mA			0.000 Amps
	Active Handsets	0			30 mA per handset	0.000 Amps
TZC-8	Telephone Zone Card	0	280 mA			0.000 Amps
	Active Zones	0			35 mA per zone	0.000 Amps
FCM-6	Fan Control Module	0	14 mA			0.000 Amps
	Active LEDs	0			1 mA per LED	0.000 Amps
LCM-8	LED Control Module	0	14 mA			0.000 Amps
	Active LEDs	0			1 mA per LED	0.000 Amps
SCM-8	Switch Control Module	0	14 mA			0.000 Amps
	Active LEDs	0			1 mA per LED	0.000 Amps
CSB	CAN Sounder Board					
OCM-16	Output Control Module	0	14 mA			0.000 Amps
	Active LEDs	0			10 mA per LED	0.000 Amps
SIM-16	Supervised Input Module	0	20 mA			0.000 Amps
	Active Outputs	0		1.2 mA/supv'd input		0.000 Amps
	Active Relays	0			10 mA per active relay	0.000 Amps
SSD	System Status Display	1	200 mA			0.200 Amps
					Total Supervisory Current	0.621 Amps

Power Supply - Active Load Current

Module Part Number & Description		QTY	Back Plane Per Card	Back Plane Total 1	Screw Terminal Per Card	Screw Terminal Total 2	24 VDC Current: Total 24 VDC Current (Total 1 + Total 2)	6.2 VDC Current: Per Card	6.2 VDC Current: Total
RMI	Person Machine Interface	0	230 mA	0.000			0.000		
RMI-REM	Remote Annunciator	0	230 mA	0.000			0.000		
CPC	Central Processor Card	0							
CRC-6	Controllable Relay Card	0	10 mA	0.000			0.000	120 mA	0.000
	Active Relays	0	20.5 mA	0.000			0.000		
DLC	Device Loop Card	1			95 mA	0.095	0.095	200 mA	0.200
	Devices	70			1.8 mA	0.126	0.126		
CDC-4	Conventional Detector Card	0							
NIC-C	Network Interface Card	0	120 mA	0.000			0.000		
WAC	Wide Area Card	0							
RPM	Remote Printer Module	0			150 mA	0.000	0.000		
	Zone Indicating Card	0	275 mA	0.000			0.000		
ZIC-4A	Active Circuits	0			1 mA	0.000	0.000		
	Devices	-			Total NAC		0.000		
ZIC-8B	Zone Indicating Card								
	Active Circuits								
	Devices								
ZAC-40	Zone Amplifier Card 40 Watts	0			150 mA	0.000	0.000		
	Speaker Load Watts	0			53 mA/W	0.000	0.000		
ZAM-80	Zone Amplifier Module 80 Watts	0							
	Speaker Load Watts								
ZAM-180	Zone Amplifier Module 180 Watts	0			280 mA	0.000	0.000		
	Speaker Load Watts	0			53 mA/W	0.000	0.000		
ARC	Audio Router Card	0							
AIC	Audio Interface Card (External Input	0	30 mA	0.000			0.000	200 mA	0.000
DAC	Digital Audio Card	0	100 mA	0.000			0.000		
DAC-NET	Digital Audio Card with Network	0	140 mA	0.000			0.000		
LVM	Live Voice Microphone	0			25 mA	0.000	0.000		
LPB	Local Page Board	0	50 mA	0.000			0.000	200 mA	0.000
TRC	Tape Recorder Card	0							
FRC	Firefighter Reer Card	0							
RMT	Firefighter Master Telephone	0			150 mA	0.000	0.000		
	Active Handsets	0			30 mA	0.000	0.000		
TZC-8	Telephone Zone Card	0			275 mA	0.000	0.000		
	Active Zones	0			35 mA	0.000	0.000		
FCM-6	Fan Control Module	0			14 mA	0.000	0.000		
	Active LEDs	0			1 mA	0.000	0.000		
LCM-8	LED Control Module	0			14 mA	0.000	0.000		
	Active LEDs	0			1 mA	0.000	0.000		
SCM-8	Switch Control Module	0			14 mA	0.000	0.000		
	Active LEDs	0			1 mA	0.000	0.000		
CSB	CAN Sounder Board	0							
OCM-16	Output Control Module	0			14 mA	0.000	0.000		
	Active LEDs	0			10 mA	0.000	0.000		
SIM-16	Supervised Input Module	0			20 mA	0.000	0.000		
	Active Relays	0			10 mA	0.000	0.000		
	Active Inputs	0			1.2 mA	0.000	0.000		
SSD	System Status Display	1			200 mA	0.200	0.200		
	Totals			0 Amps	0.221 Amps	0.221 Amps		0.200 Amps	
				2 Amps MAX		12 Amps MAX		2 Amps MAX	

Minimum Number of Power Supplies = 1

See ZIC-4A and ZIC-8B NAC worksheets for the details on the circuit loads.

Backup Battery Calculations

Total Supervisory Current	0.62 Amps	Standby Battery Model Supplied	75 AH
Standby Time Required	24 Hours	Standby Battery Size	75.000 AH
AMPHour Required	14.90 AH		
Standby Battery With Reserve	19.38 AH	Reserve Battery Power	55.625 AH

AS-BUILT

DCA
fire/life safety
DC ASSOCIATES, INC.
3671 INDUSTRY AVE., STE. A1
LAKEWOOD, CA 90712
PH: (562) 988-8525
FAX: (562) 988-0964
CA C7/C10 #441259
PREPARED BY

DC ASSOCIATES INC. STATE OF CALIFORNIA Exp. 6/09 LICENSE #441259-C7/C10 FIRE ALARM CONTRACTOR

LICENSE

#	REVISION	INTLS. DATE
1	FIRE MARSHAL CORRECTION	M.G. 1/10/08
2	FIELD CORRECTION	L.R. 2/28/08
3	AS-BUILT	V.M.B. 10-02-08
4		
5		
6		
7		
8		
9		
10		
11		
12		

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PROJECT NAME: **ORANGE TERRACE LIBRARY**
20010 ORANGE TERRACE
RIVERSIDE, CA

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SHEET TITLE: COVER SHEET/CALCULATIONS

DATE: 08/13/07
SCALE: NTS
MANAGERS APPROVAL:
ESTIMATORS APPROVAL:
DRAWN: L. Rico
JOB NUMBER: 07-7013
CAD FILE: G:/Current Projects/DCA/...
SHEET: **FA-0A**

SCOPE OF WORK

1. INSTALLATION OF NEW FIRE ALARM DEVICES AND EQUIPMENT AS INDICATED IN THE "EQUIPMENT LIST & LEGEND" AND SHOWN ON FLOOR PLANS OF THIS DRAWING PACKAGE.

GENERAL NOTES:

1.) ALL WIRING SHALL BE INSTALLED IN ACCORDANCE WITH N.E.C. ARTICLE 760, POWER LIMITED FIRE PROTECTIVE SIGNALING CIRCUITS.
2.) UPON COMPLETION OF THE INSTALLATION OF THE FIRE ALARM SYSTEM, A SATISFACTORY TEST OF THE ENTIRE SYSTEM SHALL BE MADE IN THE PRESENCE OF THE FIRE MARSHAL.
3.) A STAMPED SET OF APPROVED FIRE ALARM PLANS SHALL BE ON THE JOB SITE AND USED FOR INSTALLATION. ANY DEVIATION FROM APPROVED PLANS, INCLUDING THE SUBSTITUTION OF DEVICES, SHALL BE APPROVED BY THE FIRE MARSHAL.
4.) ANY DISCREPANCIES BETWEEN THE DRAWINGS AND THE CODE OR RECOGNIZED STANDARDS SHALL BE BROUGHT TO THE ATTENTION OF THE INSPECTOR OF RECORD.
5.) ALL DEVICES OF THE FIRE ALARM SYSTEM SHALL BE APPROVED AND LISTED BY THE CALIFORNIA STATE FIRE MARSHAL.
6.) FIRE ALARM DEVICES SHALL BE INSTALLED PER N.F.P.A. 72.
7.) ALL WIRING, ANNUNCIATING DEVICES AND ANNUNCIATOR SHALL BE SUPERVISED BY THE PRINCIPAL POINT OF ANNUNCIATION.
8.) WIRING SHALL NOT BE LOOPED THROUGH DEVICES; WIRE MUST BE CUT AT EACH DEVICE.
9.) N/A.
10.) ALL CONDUCTORS ARE COPPER.
11.) SYSTEMS POWER LIMITED.
12.) POINT AND COMMON ANNUCIATION AND T-TAPPING PROHIBITED.
13.) ALL DEVICES IN THE ALARM SYSTEM SHALL BE COMPATIBLE AND INSTALLED TO MANUFACTURERS SPECIFICATIONS.
14.) AUDIBILITY OF ALARM AND VOICE COMMUNICATION SHALL BE NOT LESS THAN 15 db ABOVE AMBIENT SOUND THROUGHOUT AREA OF ALARM.
15.) INITIATING DEVICE CIRCUIT (IDC) STYLE B, CLASS B; NOTIFICATION APPLIANCE CIRCUIT (NAC) STYLE Y, CLASS B; SIGNALING LINE CIRCUIT (SLC) STYLE 3, CLASS B.

APPLICABLE CODES AND REGULATIONS

1.) 2001 UNIFORM BUILDING CODE AND 2001 CALIFORNIA AMENDMENTS
2.) 2002 NATIONAL ELECTRICAL CODE AND 2004 CALIFORNIA AMENDMENTS
3.) 2001 UNIFORM MECHANICAL CODE AND 2001 CALIFORNIA AMENDMENTS
4.) 2001 UNIFORM PLUMMING CODE AND 2001 CALIFORNIA AMENDMENTS
5.) 2001 UNIFORM FIRE CODE AND CALIFORNIA AMENDMENTS
6.) 2001 BUILDING STANDARD CODE
7.) 2002 NFPA 72 WITH CALIFORNIA AMENDMENTS
8.) TITLE 19, C.C.R., PUBLIC SAFETY
9.) STATE FIRE MARSHALL REGULATIONS

SYMBOL LEGEND

SYMBOL	MANUFACTURER	CATALOG #	DESCRIPTION	C.S.F.M.	MOUNTING INFORMATION	QTY
FACP	SIEMENS	XLS	FIRE ALARM CONTROL PANEL	7300-0067:172	CUSTOM	1
FATC	—	—	—	—	—	—
PS-	SIEMENS	PAD-3	POWER SUPPLY	7135-0067:221	CUSTOM	2
2	SIEMENS	HFP-11	SMOKE DETECTOR	7300-0067:203	MOUNTS TO DB-11 DETECTOR BASE	84
		DB-11	DETECTOR BASE	7300-0067:134	4"S SQUARE DEEP W/ 3-0 RINGS	
ST	SIEMENS	U-IMCS-W	30CD STROBE - CEILING MOUNTED	7125-0067:219	4"S SQUARE DEEP BOX	1
	SIEMENS	U-IMCS-W	15CD STROBE - WALL MOUNTED	7125-0067:219	4"S SQUARE DEEP BOX	4
			30CD STROBE - WALL MOUNTED			4
			75CD STROBE - WALL MOUNTED			4
			110CD STROBE - WALL MOUNTED			1
HS	SIEMENS	U-IMMT-MCS-W	30CD HORN STROBE- CEILING MOUNTED	7135-0067:210	4"S SQUARE DEEP BOX	1
	SIEMENS	U-IMMT-MCS-W	15CD HORN STROBE - WALL MOUNTED	7135-0067:210	4"S SQUARE DEEP BOX	5
			30CD HORN STROBE - WALL MOUNTED			3
			75CD HORN STROBE - WALL MOUNTED			4
			110CD HORN STROBE - WALL MOUNTED			11
P	SIEMENS	HIMS-S	PULL STATION	7150-0067:036	3'-1/2" in. DEEP SWITCH BOX	13
M2	SIEMENS	HTRI-D	DUAL MONITOR MODULE	7300-0067:242	4" SQUARE BOX W/ 2-1/4" DEEP BOX	3
S	SIEMENS	HICP	SIGNAL MODULE	7300-0067:172	4" SQUARE BOX W/ 2-1/4" DEEP BOX	1
	—	—	TAMPER SWITCH	—	PROVIDED BY OTHERS	-
	—	—	WATER FLOW SWITCH	—	PROVIDED BY OTHERS	-
OSY-	—	—	OSY VALVE	—	PROVIDED BY OTHERS	-
	—	—	BUTTERFLY VALVE	—	PROVIDED BY OTHERS	-
	EST	43SID-10AWR	10 in. FIRE ALARM BELL	7136-1657:150	4" SQUARE BOX	2
H	—	—	DOOR HOLDER	—	PROVIDED BY OTHERS	-
B	HOCHIKI	SPIB-24N	PROJECTED BEAM SMOKE DETECTOR (TRANSMITTER)	7260-0410:141	SINGLE GANG BOX	9
B R	HOCHIKI	SPIB-24N	PROJECTED BEAM SMOKE DETECTOR (RECIEVER)	7260-0410:141	SINGLE GANG BOX	9
	SIEMENS	HTRI-M	MONITOR MODULE	7300-0067:242	4" SQUARE BOX W/ 2-1/4" DEEP BOX	10
	SIEMENS	HTRI-R	RELAY MODULE	7300-0067:242	4" SQUARE BOX W/ 2-1/4" DEEP BOX	5
KNOX	—	—	KNOX BOX	—	PROVIDED BY OTHERS	-
ANN	SIEMENS	SSID	SYSTEM STATUS DISPLAY	7165-0067:222	CUSTOM	1

WIRE LEGEND

CALLOUT	USAGE	TYPE
A	ADDRESSABLE CIRCUIT	2#18 AWG SOLID
S	SIGNAL CIRCUIT	2#14 THHN
R	AUXILIARY CIRCUIT (CONSTANT POWER)	2#14 THHN
B	BELL CIRCUIT	2#14 THHN
D	DOOR HOLDER CIRCUIT	2#14 THHN
E	MODULE INTERFACE CIRCUIT	2#14 THHN
P	ANNUNCIATOR CIRCUIT	2#16 TSP

CONDUIT WIRE FILL CHART

CONDUIT SIZE	MAXIMUM CONDUCTORS		
INCHES	#18 AWG	#16 AWG	#14 AWG
1/2"	19	15	13
3/4"	34	26	24
1"	55	43	39
1 1/4"	97	76	69
1 1/2"	132	104	94
2"	216	169	154

* RECOMMENDATION FOR CONDUIT SIZE BY N.E.C

WIRE FILL CHART

MAXIMUM NUMBER OF CONDUCTORS IN ELECTRICAL METALLIC TUBING										
TYPE LETTERS	CONDUCTOR SIZE AWG/KCMIL	3/4	1	1-1/4	1-1/2	2	2-1/2	3	3-1/2	4
THHN	14	22	35	61	84	138	241	364	476	608
	12	16	26	45	61	101	176	266	347	443
THWN	10	10	16	28	38	63	111	167	219	279
	8	6	9	16	16	36	64	96	126	161

PS-1 SIGNAL POWER SUPPLY BATTERY CALCULATION

CIRCUIT #	QUANTITY	DEVICE TYPE	STAND BY	TOTAL STAND BY	ALARM	TOTAL ALARM	TOTAL OUTPUT PER CIRCUIT
		MAIN BOARD CURRENT	0.0320	0.0320	0.0320	0.0320	0.0320
V1	2	15CD U-MCS-W	0.0000	0.0000	0.0630	0.1260	
	2	30CD U-MCS-W	0.0000	0.0000	0.0840	0.1680	
	1	75CD U-MCS-W	0.0000	0.0000	0.1430	0.1430	
	2	30CD U-MMT-MCS-W	0.0000	0.0000	0.0840	0.1680	
	4	110CD U-MMT-MCS-W	0.0000	0.0000	0.1780	0.7120	1.3170
V2	2	15CD U-MCS-W	0.0000	0.0000	0.0630	0.1260	
	2	30CD U-MCS-W	0.0000	0.0000	0.0840	0.1680	
	1	75CD U-MCS-W	0.0000	0.0000	0.1430	0.1430	
	3	15CD U-MMT-MCS-W	0.0000	0.0000	0.0630	0.1890	
	2	110CD U-MMT-MCS-W	0.0000	0.0000	0.1780	0.3560	0.9820
V3	2	75CD U-MCS-W	0.0000	0.0000	0.1430	0.2860	
	1	110CD U-MCS-W	0.0000	0.0000	0.1780	0.1780	
	3	110CD U-MMT-MCS-W	0.0000	0.0000	0.1780	0.5340	0.9980
V4	1	15CD U-MCS-W	0.0000	0.0000	0.0630	0.0630	
	1	30CD U-MCS-W	0.0000	0.0000	0.0840	0.0840	
	1	15CD U-MMT-MCS-W	0.0000	0.0000	0.0630	0.0630	
	1	30CD U-MMT-MCS-W	0.0000	0.0000	0.0840	0.0840	
	3	75CD U-MMT-MCS-W	0.0000	0.0000	0.1430	0.4290	
	1	110CD U-MMT-MCS-W	0.0000	0.0000	0.1780	0.1780	0.9010
			TOTAL STAND BY	0.0320		TOTAL ALARM	4.2300
					TOTAL STAND BY X 24 HOURS =		0.7680
					TOTAL ALARM X .25 (15 MINUTES) =		1.0575
					TOTAL BATTERY A.H. REQUIRED =		1.8255
					TOTAL BATTERY A.H. PROVIDED =		TWO 7 A.H.

VOLTAGE DROP CALCULATION:

VOLTAGE DROP FOR A GIVEN LENGTH OF CONDUCTOR = $\frac{\text{AMP x FEET x 21.6}}{\text{C.M.}}$

WHERE:
AMP = Amperes per terminal of load
FEET = One way distance in feet measured from source of supply to load
21.6 = Constant(Resistance of conductor @ 10.8 ohms per L.M. for twice the length)
C.M. = Cross sectional area in circular Mils (see chart below)

WIRE SIZE (AWG)	12	14	16	18	20
CIRCULAR MILS (C.M.)	6530	4110	2580	1620	1020

VOLTAGE DROP CALCULATION

# OF DEVICE	CIRCUIT #	AMP X	FEET X	21.6	TOTAL AMPXFEETX21.6	V	%
11	V1	1.3170	379	21.6	10781.4888	2.62	9.71
10	V2	0.9820	450	21.6	9545.0400	2.32	8.60
7	V3	0.9980	480	21.6	10347.2640	2.52	9.32
8	V4	0.9010	500	21.6	9730.8000	2.37	8.76

PS-2 SIGNAL POWER SUPPLY BATTERY CALCULATION

CIRCUIT #	QUANTITY	DEVICE TYPE	STAND BY	TOTAL STAND BY	ALARM	TOTAL ALARM	TOTAL OUTPUT PER CIRCUIT
		MAIN BOARD CURRENT	0.0320	0.0320	0.0320	0.0320	0.0320
V5	2	15CD U-MMT-MCS-W	0.0000	0.0000	0.0630	0.1260	
	1	30CD U-MMT-MCS-W	0.0000	0.0000	0.0840	0.0840	
	2	75CD U-MMT-MCS-W	0.0000	0.0000	0.1430	0.2860	
	1	110CD U-MMT-MCS-W	0.0000	0.0000	0.1780	0.1780	0.6740
			TOTAL STAND BY	0.0320		TOTAL ALARM	0.7060
					TOTAL STAND BY X 24 HOURS =		0.7680
					TOTAL ALARM X .25 (15 MINUTES) =		0.1765
					TOTAL BATTERY A.H. REQUIRED =		0.9445
					TOTAL BATTERY A.H. PROVIDED =		TWO 7 A.H.

VOLTAGE DROP CALCULATION:

VOLTAGE DROP FOR A GIVEN LENGTH OF CONDUCTOR = $\frac{\text{AMP x FEET x 21.6}}{\text{C.M.}}$

WHERE:
AMP = Amperes per terminal of load
FEET = One way distance in feet measured from source of supply to load
21.6 = Constant(Resistance of conductor @ 10.8 ohms per L.M. for twice the length)
C.M. = Cross sectional area in circular Mils (see chart below)

VOLTAGE DROP CALCULATION

# OF DEVICE	CIRCUIT #	AMP X	FEET X	21.6	TOTAL AMPXFEETX21.6	V	%
6	V5	0.6740	400	21.6	5823.3600	1.42	5.24

SEQUENCE OF OPERATION:

ACTION \ DEVICE	MANUAL PULL STATION	AREA SMOKE DETECTOR	SPRINKLER WATER FLOW SWITCH	SPRINKLER VALVE TAMPER SWITCH	BUILDING POWER FAILURE	SPECIAL EXTINGUISHING SYSTEM	AREA BEAM DETECTOR	KNOX BOX
ANNUNCIATE AT FIRE CONTROL ROOM	YES	YES	YES	YES	YES	YES	YES	YES
ANNUNCIATE AT 24 HR. ATTENDED REMOTE LOCATION	YES	YES	YES	YES	YES	YES	YES	YES
ACTIVATE AUDIBLE/VISUAL ALARM SIGNAL ON TROUGHTOUT	YES	YES	YES	NO	NO	YES	YES	NO
RELEASE ALL ELECTRO-MAGNETICALLY HELD DOORS	YES	YES	YES	NO	YES	YES	YES	NO

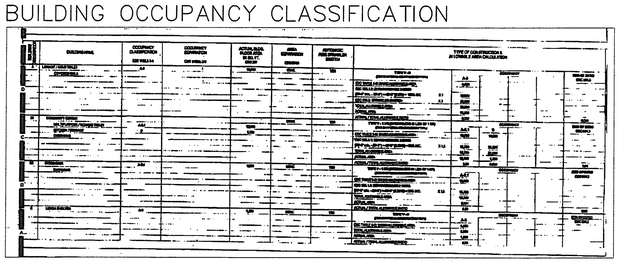
CENTRAL STATION INFORMATION

CRITICOM INTERNATIONAL
SUITE 300
96 CORPORATE PARK
IRVINE, CA 92714
CENTRAL STATION PHONE# 800-482-9800
RECEIVER# 800-221-2309
LOCAL POTTS LINE IT RINGS TO # 949-253-7289
UL LISTING# 749648-002

SHEET INDEX:

FA-0A COVER SHEET/CALCULATIONS
FA-0B RISER DIAGRAM/DETAILS
FA-01 BUILING A FLOOR PLAN
FA-02 BUILDING B FLOOR PLAN

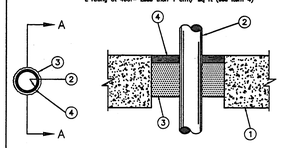
BUILDING OCCUPANCY CLASSIFICATION



FLOOR PENETRATION DETAIL

SYSTEM No. C-AJ-1063

(Formerly System No. 368)
F RATING – 3 Hr
T RATING – 1/2 Hr
L rating at Ambient– Less than 1 cfm/ sq ft. (see item 4)
L rating at 400F– Less than 1 cfm/ sq ft (see item 4)



SECTION A–A

1. Floor or Wall Assembly– Min 4–1/2 in. thick reinforced lightweight or normal weight (100– 150 pcf) concrete. Wall may also be constructed of any UL Classified Concrete Block. Max diam. of opening is 4 in. See Concrete Block (QAST) category in the Fire Resistance Directory for names of manufacturers.

2. Steel Pipe– Nom 2 in. diam. (or smaller) Schedule 5 (or heavier) steel pipe of 13/16 in. is required within the firestop system. Pipe to be rigidly supported on both sides of floor or wall assembly.

3. Packing Material– Min 3 in. thickness of min 4 pcf mineral wool batt insulation firmly packed into opening as a permanent form. packing material to be recessed from top surface of floor or from both surfaces of wall as required to accommodate the required thickness of fill material.

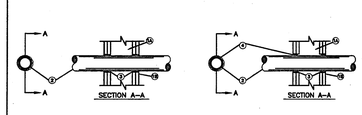
4. Fill, Void or Cavity Material– sealant– Min 1/2 in. thickness of fill material applied within the annulus, flush with top surface of floor or with both surfaces of wall.
wall as required to accommodate the required thickness of fill material.

Minnesota Mining & Mfg. Co. – types FB–2000, FB–2000+, FB–2003 (floors only) (Note: L Ratings apply only when FB–2000+ is used.)
*Bearing the UL Classification Marking

WALL PENETRATION DETAIL

SYSTEM No. W-L-1082

F RATING – 2 Hr
T RATING – 0 Hr



1. Wall assembly – The fire rated gypsumwallboard/stud wall assembly shall be constructed of materials and in the manner specified in the individual U300 or U400 Series Wall and Partition designs in the UL fire Resistance Directory and shall include the following construction features:

A. Studs–Wall framing may consist of either wood studs or steel channels studs. Wood studs to consist of num 2 by 4 in. lumber spaced 16 in. o.c. Steel studs to be min 3–1/2 in. wide and spaced max 24 in. o.c.

B. Wallboard gypsum– Two layers of nom 5/8 in. thick gypsum wallboard, as specified in the individual Wall and Partition Design. diam. of opening is 1–1/2 in. larger than the outsideodiam. of pipe.

2. Through–Penetrant– One metallic pipe, conduit or tubing to be centered within the firestop system. An annular space of 3/4 in. is required within the firestop system. Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:

A. Steel Pipe– Nom 12 in. diam. (or smaller) Schedule 10 (or heavier) steel pipe.

B. Conduit– Nom 6 in. diam. (smaller) steel conduit.
steel conduit.

C. Conduit– Nom 4 in. diam. (or smaller) steel electric metallic tubing

D. Copper Tubing– Nom 6 in. diam. (or smaller) Type L (or heavier) copper tubing

E. Copper Pipe– Nom 6 in. diam. (or smaller) Regular (or heavier) copper pipe.

3. Forming Material– NOm 1 in. diam. polyethylene backer rod friction fitted into opening as a permanent form. Forming material to be recessed from both surfaces of wall as required to accommodate the required thickness of fill material.

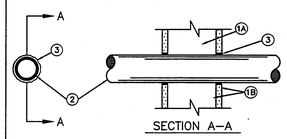
4. Fill, Void or Cavity Material– Sealant– Min. 5/8 in. thickness of fill material applied within annulus, flush with both surfaces of wall assembly.

Minnesota Mining & Mfg. Co. – FB – 2000+
*Bearing the UL Classification Marking

WALL PENETRATION DETAIL

SYSTEM No. W-L-1084

F RATING – 1 Hr
T RATING – 0 Hr



SECTION A–A

1. Wall assembly – The fire rated gypsumwallboard/stud wall assembly shall be constructed of materials and in the manner specified in the individual U300 or U400 Series Wall and Partition designs in the UL fire Resistance Directory and shall include the following construction features:

A. Studs–Wall framing may consist of either wood studs or steel channels studs. Wood studs to consist of num 2 by 4 in. lumber spaced 16 in. o.c. Steel studs to be min 3–5/8 in. wide and spaced max 24 in. o.c.

B. Wallboard gypsum– nom 5/8 in. thick gypsum wallboard, as specified in the individual Wall and Partition Design. diam. of opening is 1–1/2 in. larger than the outsideodiam. of pipe.

2. Through–Penetrant– One metallic pipe, conduit or tubing to be centered within the firestop system. An annular space of 3/4 in. is required within the firestop system. Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:

A. Steel Pipe– Nom 12 in. diam. (or smaller) Schedule 10 (or heavier) steel pipe.

B. Conduit– Nom 6 in. diam. (smaller) electric metallic tubing or steel conduit.

C. Copper Tubing– Nom 6 in. diam. (or smaller) Type L (or heavier) copper tubing.

D. Copper Pipe– Nom 6 in. diam. (or smaller) Regular (or heavier) copper pipe.

3. Fill, Void or Cavity Material– Sealant– Min. 5/8 in. thickness of fill material applied within annulus, flush with both surfaces of wall assembly.

Minnesota Mining & Mfg. Co. – FB – 2000+
*Bearing the UL Classification Marking

SIEMENS XLS PANEL BATTERY CALCS.

Date 2/27/2008 | Project Name: Orange Terrace Library | Sales Outlet

XLS Power Supply & Battery Calculations

Power Supply - Supervisory Load Current

Module Part Number & Description		QTY	Module Current	EOL Current	Device Current	Total 24 VDC Standby Current
PMI	Person Machine Interface		230 mA			0.000 Amps
RM-REM	Remote Annunciator		230 mA			0.000 Amps
RSC-12	Power Supply/Battery Charger	1	150 mA			0.150 Amps
	Active Relays	0			20 mA per active relay	0.000 Amps
PSX-12	Power Supply Extender	0	170 mA			0.000 Amps
CPC	Central Processor Card					
CRC-6	Controllable Relay Card	0	51 mA			0.000 Amps
	Active Relays	0			0.5 mA per active relay	0.000 Amps
DLC	Device Loop Card	1	145 mA			0.145 Amps
	Devices	70			1.8 mA per device	0.126 Amps
CDC-4	Conventional Detector Card					
NC-C	Network Interface Card	0	120 mA			0.000 Amps
WAC	Wide Area Card					
RPM	Remote Printer Module	0	150 mA			0.000 Amps
	Zone Indicating Card	0	90 mA			0.000 Amps
ZIC-4A	Active Circuits	0		1 mA per circuit		0.000 Amps
	Devices	-				
	Zone Indicating Card					
ZIC-8B	Active Circuits					
	Devices					
ZAC-40	Zone Amplifier Card 40 Watts	0	150 mA			0.000 Amps
	Speaker Load Watts	N/A				
ZAM-80	Zone Amplifier Module 80 Watts					
	Speaker Load Watts					
ZAM-180	Zone Amplifier Module 180 Watts	0	280 mA			0.000 Amps
	Speaker Load Watts	N/A				
ARC	Audio Router Card					
AIC	Audio Interface Card (External Input)	0	150 mA			0.000 Amps
DAC	Digital Audio Card	0	100 mA			0.000 Amps
DAC-NET	Digital Audio Card w ith Network	0	140 mA			0.000 Amps
LVM	Live Voice Microphone	0	25 mA			0.000 Amps
LPB	Local Page Board	0	100 mA			0.000 Amps
TRC	Tape Recorder Card					
FRC	Firefighter Riser Card					
FMT	Firefighter Master Telephone	0	150 mA			0.000 Amps
	Active Handsets	0			30 mA per handset	0.000 Amps
TZC-8	Telephone Zone Card	0	280 mA			0.000 Amps
	Active Zones	0			35 mA per zone	0.000 Amps
FCM-6	Fan Control Module	0	14 mA			0.000 Amps
	Active LEDs	0			1 mA per LED	0.000 Amps
LCM-8	LED Control Module	0	14 mA			0.000 Amps
	Active LEDs	0			1 mA per LED	0.000 Amps
SCM-8	Switch Control Module	0	14 mA			0.000 Amps
	Active LEDs	0			1 mA per LED	0.000 Amps
CSB	CAN Sounder Board					
OCM-16	Output Control Module	0	14 mA			0.000 Amps
	Active LEDs	0			10 mA per LED	0.000 Amps
SIM-16	Supervised Input Module	0	20 mA			0.000 Amps
	Active Outputs	0		1.2 mA/supv'd input		0.000 Amps
	Active Relays	0			10 mA per active relay	0.000 Amps
SSD	System Status Display	1	200 mA			0.200 Amps
					Total Supervisory Current	0.521 Amps

Power Supply - Load Current

Module Part Number & Description		QTY	24 VDC Current: Back Plane Per Card	Back Plane Total 1	Screw Terminal Per Card	Screw Terminal Total 2	Total 24 VDC Current (Total 1 + Total 2)	6.2 VDC Current Per Card	6.2 VDC Current Total
PMI	Person Machine Interface	0	230 mA	0.000			0.000		
RM-REM	Remote Annunciator	0	230 mA	0.000			0.000		
CPC	Central Processor Card	0							
CRC-6	Controllable Relay Card	0	10 mA	0.000			0.000	120 mA	0.000
	Active Relays	0	20.5 mA	0.000			0.000		
DLC	Device Loop Card	1			95 mA	0.095	0.095	200 mA	0.200
	Devices	70			1.8 mA	0.126	0.126		
CDC-4	Conventional Detector Card	0							
NC-C	Network Interface Card	0	120 mA	0.000			0.000		
WAC	Wide Area Card	0							
RPM	Remote Printer Module	0			150 mA	0.000	0.000		
	Zone Indicating Card	0	275 mA	0.000			0.000		
ZIC-4A	Active Circuits	0			1 mA	0.000	0.000		
	Devices	-			Total NAC		0.000		
	Zone Indicating Card								
ZIC-8B	Active Circuits								
	Devices								
ZAC-40	Zone Amplifier Card 40 Watts	0			150 mA	0.000	0.000		
	Speaker Load Watts	0			53 mA/W	0.000	0.000		
ZAM-80	Zone Amplifier Module 80 Watts	0							
	Speaker Load Watts								
ZAM-180	Zone Amplifier Module 180 Watts	0			280 mA	0.000	0.000		
	Speaker Load Watts	0			53 mA/W	0.000	0.000		
ARC	Audio Router Card	0							
AIC	Audio Interface Card (External Input)	0	30 mA	0.000			0.000	200 mA	0.000
DAC	Digital Audio Card	0	100 mA	0.000			0.000		
DAC-NET	Digital Audio Card w ith Network	0	140 mA	0.000			0.000		
LVM	Live Voice Microphone	0			25 mA	0.000	0.000		
LPB	Local Page Board	0	50 mA	0.000			0.000	200 mA	0.000
TRC	Tape Recorder Card	0							
FRC	Firefighter Riser Card	0							
FMT	Firefighter Master Telephone	0			150 mA	0.000	0.000		
	Active Handsets	0			30 mA	0.000	0.000		
TZC-8	Telephone Zone Card	0			276 mA	0.000	0.000		
	Active Zones	0			35 mA	0.000	0.000		
FCM-6	Fan Control Module	0			14 mA	0.000	0.000		
	Active LEDs	0			1 mA	0.000	0.000		
LCM-8	LED Control Module	0			14 mA	0.000	0.000		
	Active LEDs	0			1 mA	0.000	0.000		
SCM-8	Switch Control Module	0			14 mA	0.000	0.000		
	Active LEDs	0			1 mA	0.000	0.000		
CSB	CAN Sounder Board	0							
OCM-16	Output Control Module	0			14 mA	0.000	0.000		
	Active LEDs	0			10 mA	0.000	0.000		
SIM-16	Supervised Input Module	0			20 mA	0.000	0.000		
	Active Relays	0			10 mA	0.000	0.000		
	Active Inputs	0			1.2 mA	0.000	0.000		
SSD	System Status Display	1			200 mA	0.200	0.200		
	Totals		0 Amps	0.221 Amps		0.221 Amps	0.221 Amps	0.200 Amps	
			2 Amps MAX			12 Amps MAX		2 Amps MAX	

Minimum Number of Power Supplies = 1

See ZIC-4A and ZIC-8B NAC w orksheets for the details on the circuit loads.

Backup Battery Calculations

Total Supervisory Current	0.62 Amps	Standby Battery Model Supplied	75 AH
Standby Time Required	24 Hours	Standby Battery Size	75.000 AH
AMPHour Required	14.90 AH		
Standby Battery With Reserve	19.38 AH	Reserve Battery Power	55.625 AH

AS-BUILT

DCA
fire/life safety
DC ASSOCIATES, INC.
3671 INDUSTRY AVE., STE. A1
LAKEWOOD, CA 90712
PH: (562) 988-8525
FAX: (562) 988-0964
CA C7/C10 #441259
PREPARED BY

DCA ASSOCIATES, INC. STATE OF CALIFORNIA Exp. 6/09 LICENSE #441259-C7/C10 FIRE ALARM CONTRACTOR

LICENSE

#	REVISION	INTLS. DATE
1	FIRE MARSHAL CORRECTION	M.G. 1/10/08
2	FIELD CORRECTION	L.R. 2/28/08
-	AS-BUILT	V.M.B. 10-02-08

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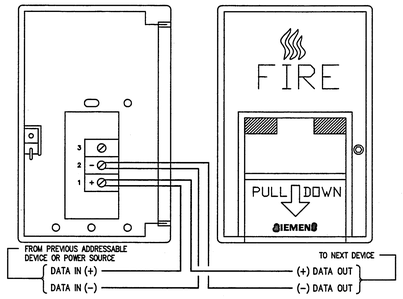
PROJECT NAME: **ORANGE TERRACE LIBRARY**
20010 ORANGE TERRACE
RIVERSIDE, CA

SHEET TITLE: COVER SHEET/CALCULATIONS

DATE: 08/13/07
SCALE: NTS
MANAGER'S APPROVAL:
ESTIMATOR'S APPROVAL:
DRAWN: L. Rico
JOB NUMBER: 07-7013
CAD FILE: G:/Current Projects/DCA/...
SHEET: **FA-0A**

NOTE: FOR ADDITIONAL SPECIFICATIONS SEE PRODUCT DOCUMENTATION.

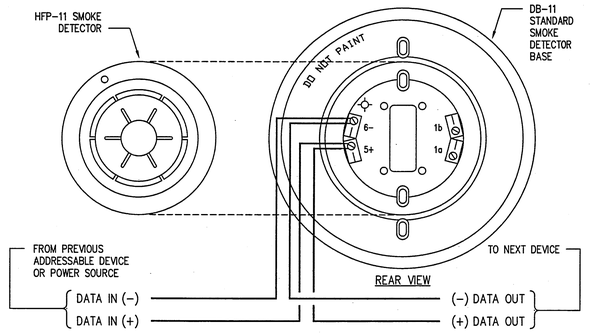


TYPICAL HMS-S MANUAL PULL STATION - WIRING DETAIL
SCALE: NONE

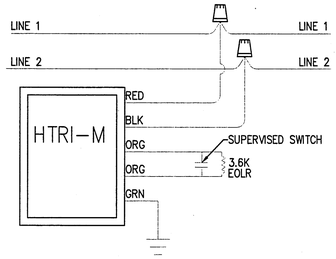
NOTE: FOR ADDITIONAL SPECIFICATIONS SEE PRODUCT DOCUMENTATION.

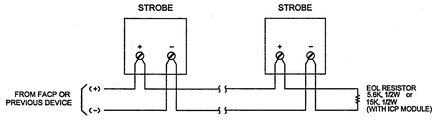
OPERATING TEMPERATURE:
+32° F (0° C) TO 100° F (38° C)
HUMIDITY: 0–93% RELATIVE HUMIDITY,
NON-CONDENSING

DEVICE IS LISTED FOR AIR VOLOCITY APPLICATIONS OF 300–4000 FT/MIN WHEN USED IN CONJUNCTION WITH DUCT HOUSINGS AD-11P OR AD-11XPR

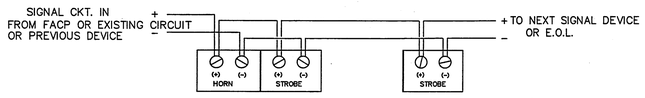


TYPICAL HFP - 11 SMOKE DETECTOR & DB-11 DETECTOR BASE - WIRING DETAIL
SCALE: NONE



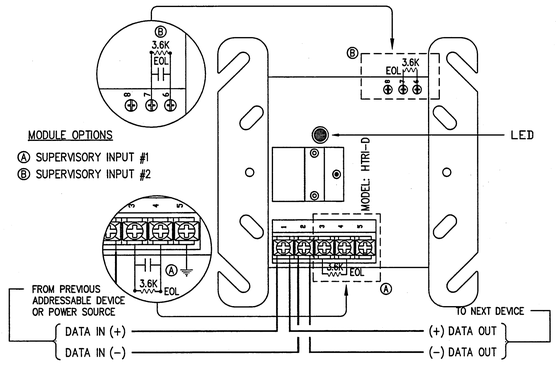


TYPICAL STROBE CIRCUIT WIRING
NO SCALE

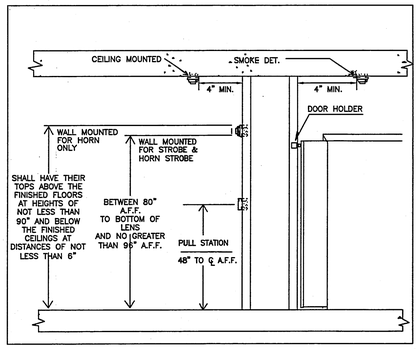


TYPICAL HORN/STROBE CIRCUIT WIRING
NO SCALE

NOTE: FOR ADDITIONAL SPECIFICATIONS SEE PRODUCT DOCUMENTATION.



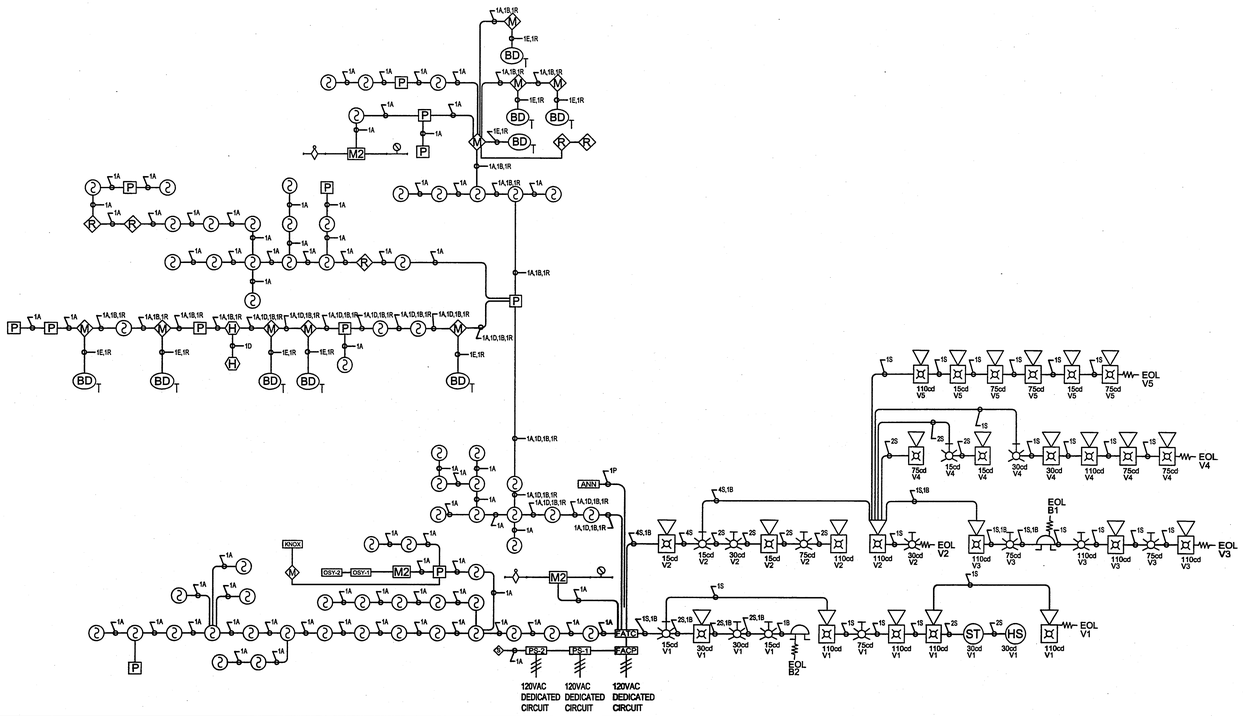
TYPICAL HTRI-D DUAL INPUT MONITOR MODULE - WIRING DETAIL
SCALE: NONE



MOUNTING HEIGHTS DETAIL
NO SCALE

DETAILS

SCALE
⅛"=1'-0"



RISER DIAGRAM

SCALE
⅛"=1'-0"

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LAKEWOOD, CA 90712
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FAX: (562) 988-0964
CA C7/C10 #441259
PREPARED BY

DC ASSOCIATES INC. STATE OF CALIFORNIA Exp. 6/09 LICENSE #441259-C7/C10 FIRE ALARM CONTRACTOR
LICENSE

#	REVISION	INTLS. DATE
1	FIRE MARSHAL CORRECTION	M.G. 1/10/08
2	FIELD CORRECTION	L.R. 2/28/08
3	AS-BUILT	V.M.B. 10-02-08
4		
5		
6		
7		
8		
9		
10		
11		
12		

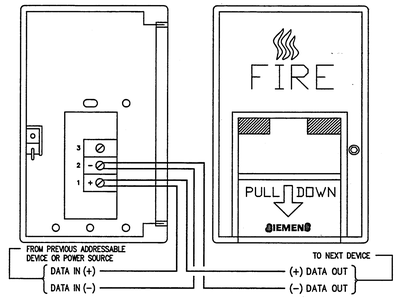
PROJECT NAME
ORANGE TERRACE LIBRARY
20010 ORANGE TERRACE
RIVERSIDE, CA

SHEET TITLE
DETAILS/RISER DIAGRAM

AS-BUILT

DATE:	08/13/07
SCALE:	NTS
MANAGER'S APPROVAL:	
ESTIMATOR'S APPROVAL:	
DRAWN:	L. Rico
JOB NUMBER:	07-7013
CAD FILE:	G:/Current Projects/DCA/...
SHEET:	**FA-0B**

NOTE: FOR ADDITIONAL SPECIFICATIONS SEE PRODUCT DOCUMENTATION.

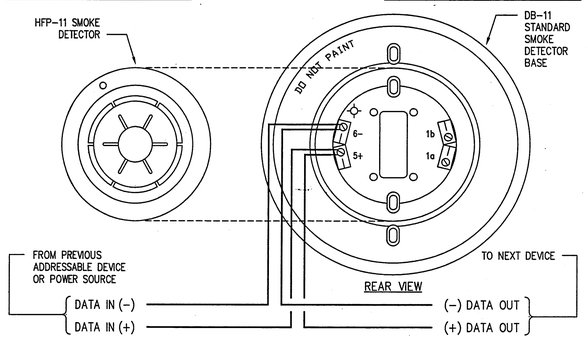


TYPICAL HMS-S MANUAL PULL STATION - WIRING DETAIL
SCALE: NONE

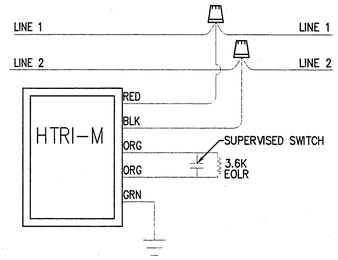
NOTE: FOR ADDITIONAL SPECIFICATIONS SEE PRODUCT DOCUMENTATION.

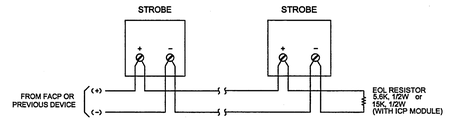
OPERATING TEMPERATURE: +32° F (0° C) TO 100° F (38° C)
HUMIDITY: 0-93% RELATIVE HUMIDITY, NON-CONDENSING

DEVICE IS LISTED FOR AIR VOLOCITY APPLICATIONS OF 300-4000 FT/MIN WHEN USED IN CONJUNCTION WITH DUCT HOUSINGS AD-11P OR AD-11XPR

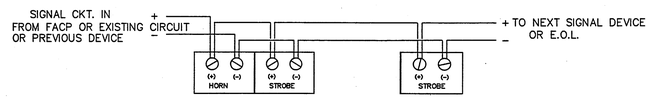


TYPICAL HFP - 11 SMOKE DETECTOR & DB-11 DETECTOR BASE - WIRING DETAIL
SCALE: NONE



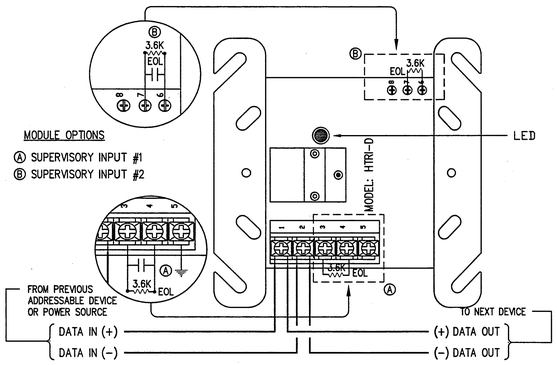


TYPICAL STROBE CIRCUIT WIRING
NO SCALE

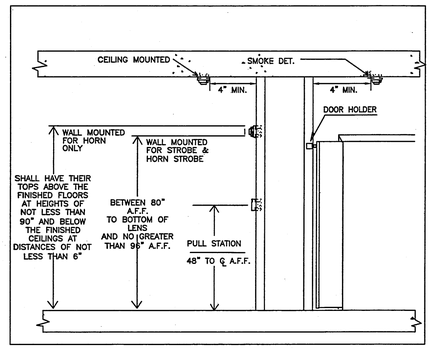


TYPICAL HORN/STROBE CIRCUIT WIRING
NO SCALE

NOTE: FOR ADDITIONAL SPECIFICATIONS SEE PRODUCT DOCUMENTATION.



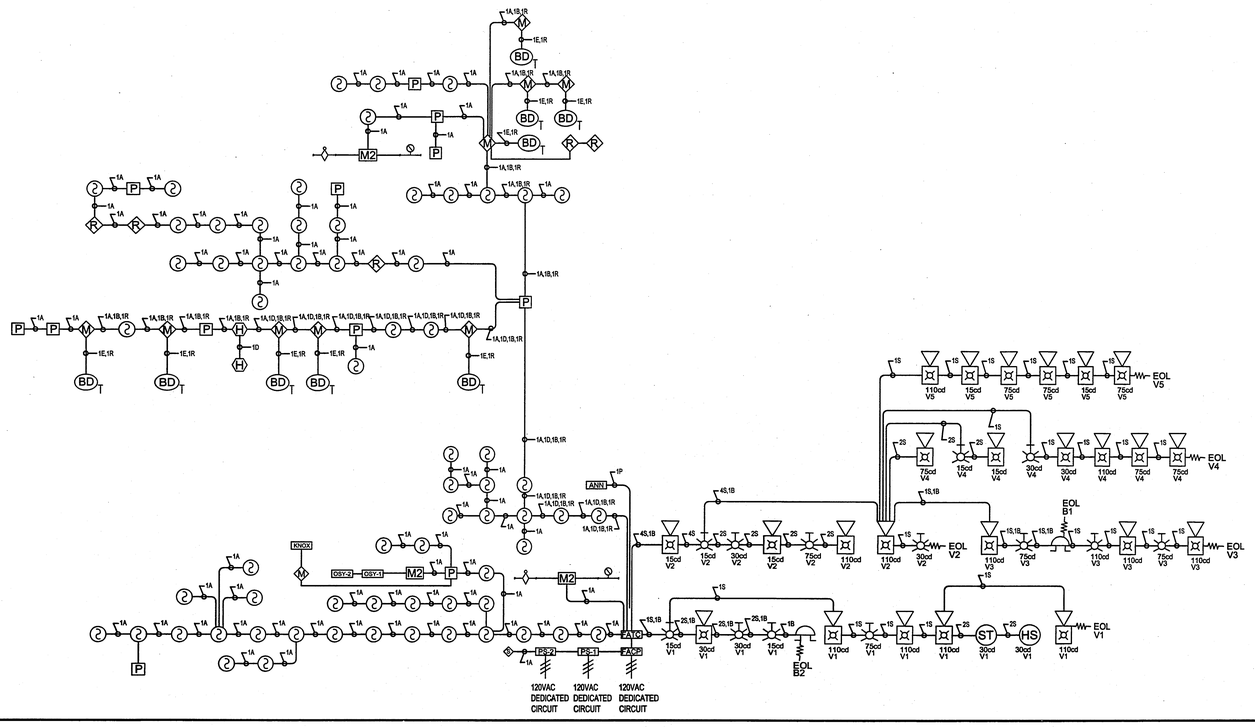
TYPICAL HTRI-D DUAL INPUT MONITOR MODULE - WIRING DETAIL
SCALE: NONE



MOUNTING HEIGHTS DETAIL
NO SCALE

DETAILS

SCALE
⅛"=1'-0"



RISER DIAGRAM

SCALE
⅛"=1'-0"

AS-BUILT

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3	AS-BUILT	V.M.B. 10-02-08
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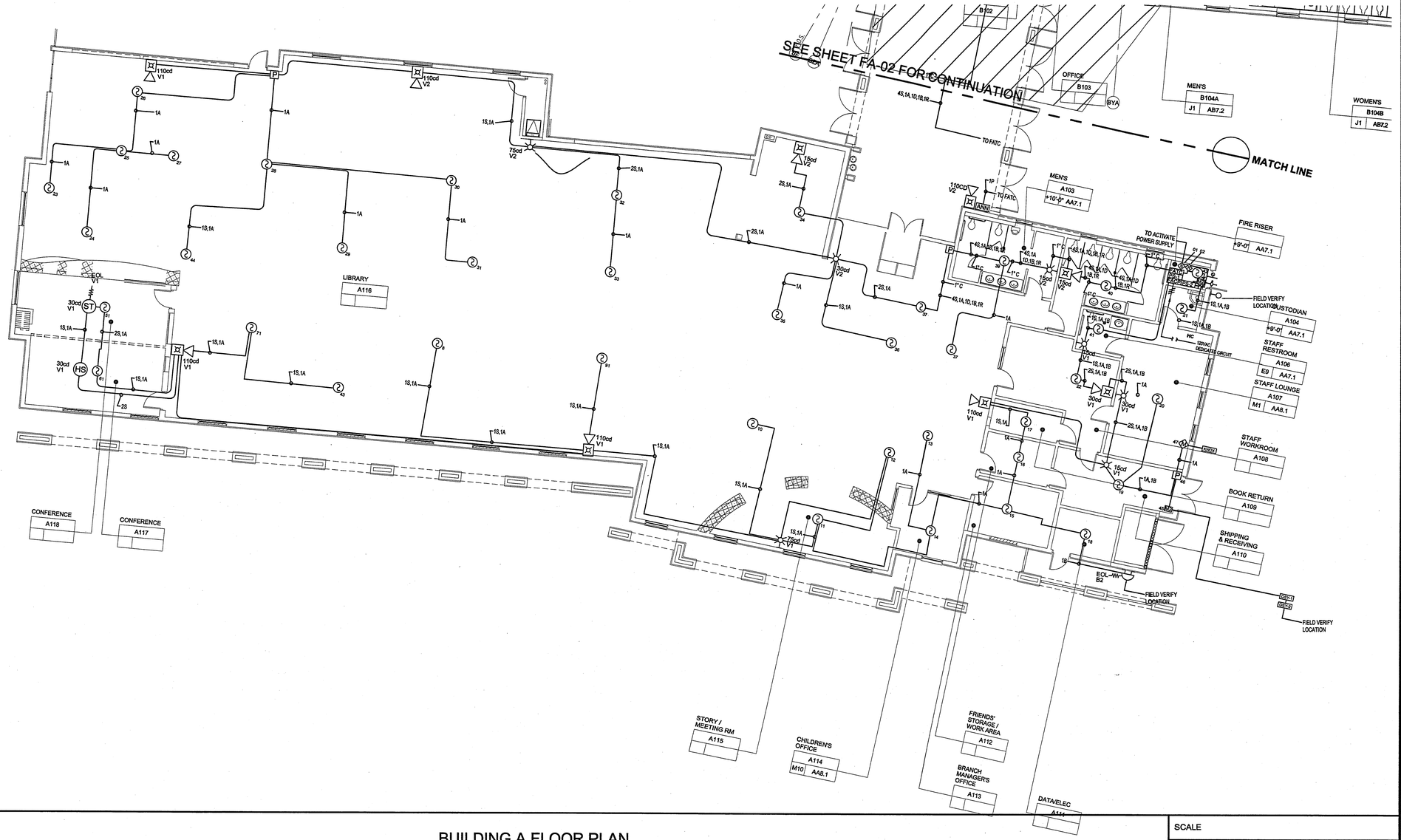
13		

PROJECT NAME
ORANGE TERRACE LIBRARY
20010 ORANGE TERRACE
RIVERSIDE, CA

SHEET TITLE
DETAILS/RISER DIAGRAM

DATE: 08/13/07
SCALE: NTS
MANAGER'S APPROVAL:
ESTIMATOR'S APPROVAL:
DRAWN: L. Rico
JOB NUMBER: 07-7013
CAD FILE: G:/Current Projects/DCA/...
SHEET: **FA-0B**

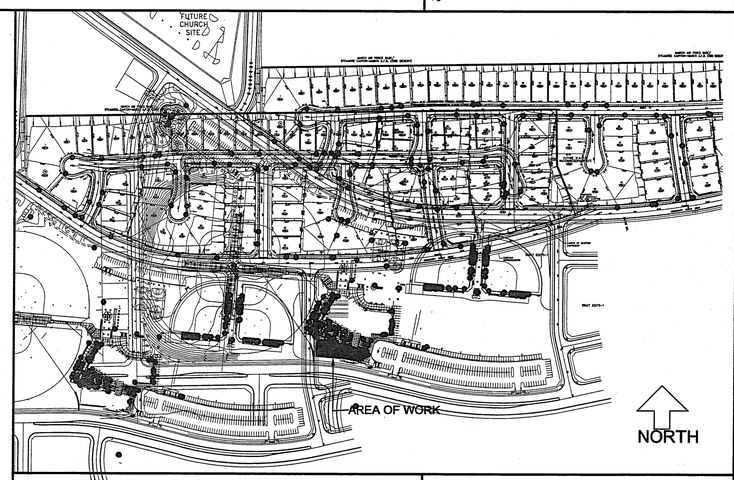


BUILDING A FLOOR PLAN

SCALE

1/8"=1'-0"

AS-BUILT



SITE MAP

SCALE

NTS

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ORANGE TERRACE LIBRARY
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RIVERSIDE, CA

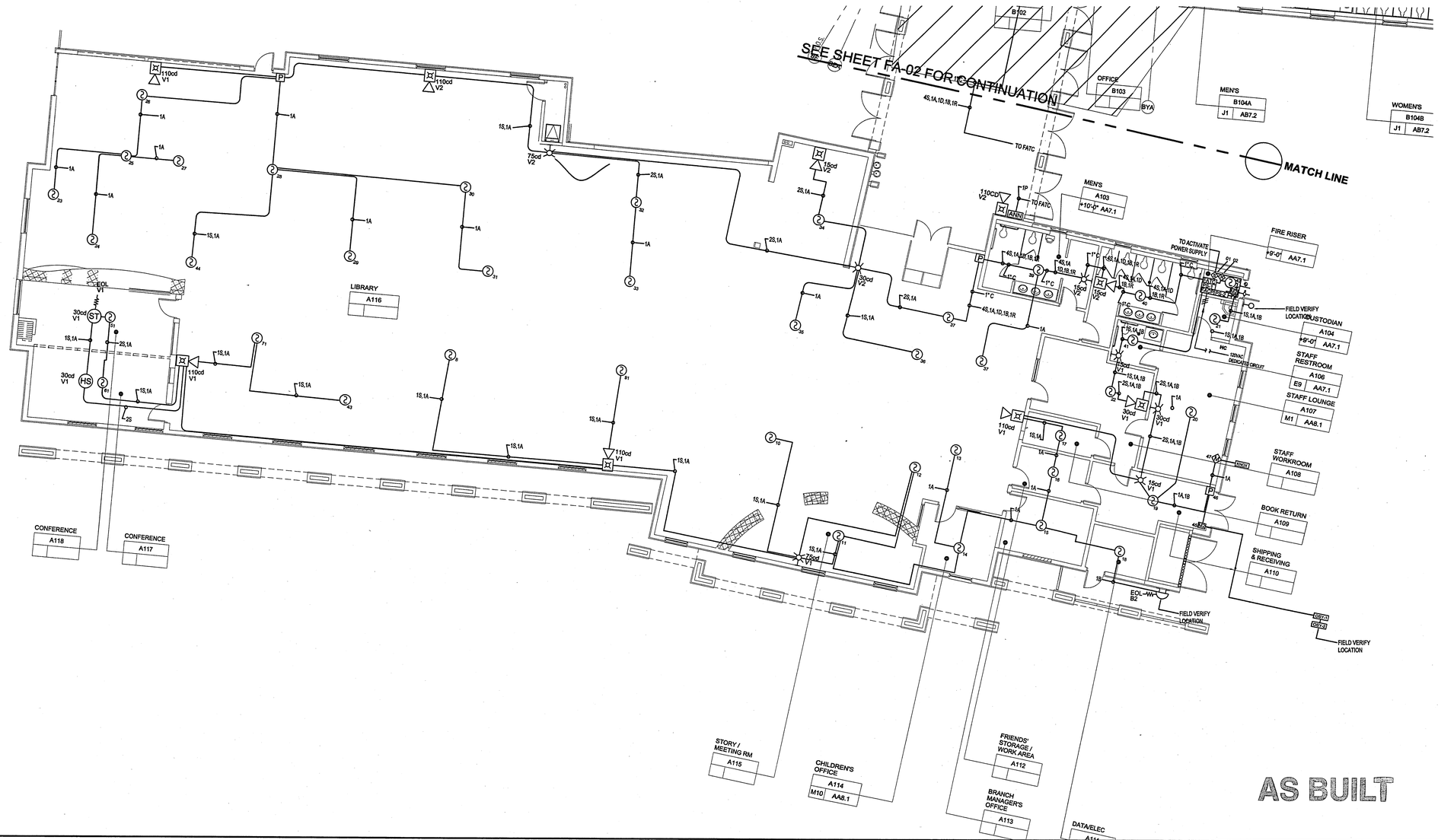
PROJECT NAME

BUILDING A FLOOR PLAN

SHEET TITLE

DATE: 08/13/07
SCALE: 1/8"=1'-0"
MANAGER'S APPROVAL:
ESTIMATOR'S APPROVAL:
DRAWN: L. Rico
JOB NUMBER: 07-7013
CAD FILE: G:/Current Projects/DCA/...
SHEET:

FA-01

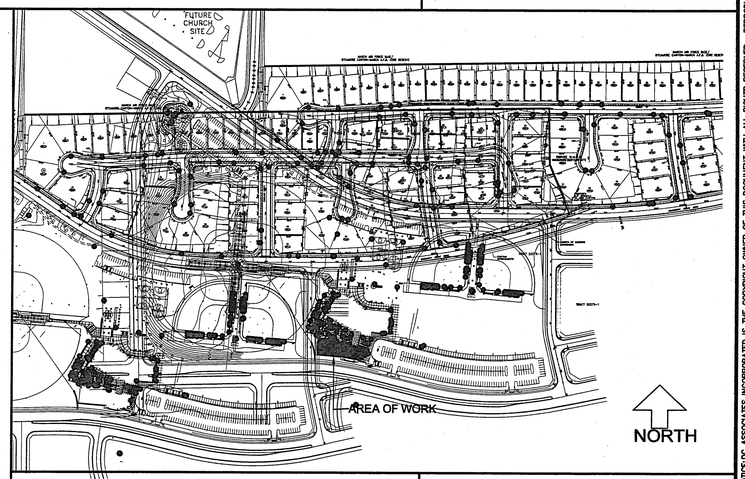


BUILDING A FLOOR PLAN

SCALE

1/8"=1'-0"

AS-BUILT



SITE MAP

SCALE

NTS

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ORANGE TERRACE LIBRARY
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SHEET TITLE
BUILDING A FLOOR PLAN

DATE: 08/13/07
SCALE: 1/8"=1'-0"
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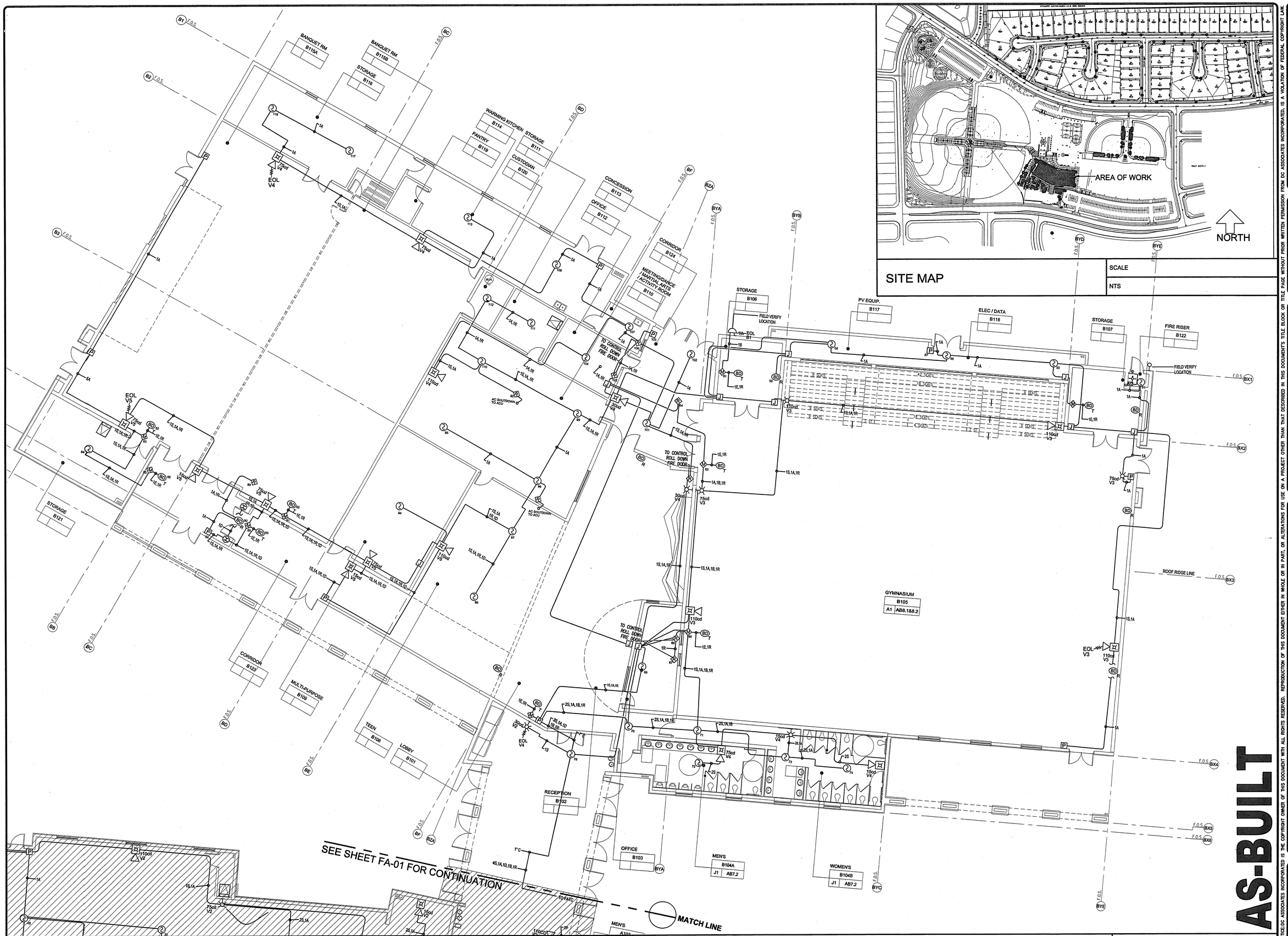
ESTIMATOR'S APPROVAL:
DRAWN: L. Rico
JOB NUMBER: 07-7013
CAD FILE: G:/Current Projects/DCA/...
SHEET:
FA-01



SITE MAP

SCALE NTS

BUILDING B FLOOR PLAN

SCALE ⅛"=1'-0"

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PROJECT NAME

ORANGE TERRACE LIBRARY
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RIVERSIDE, CA

SHEET TITLE

BUILDING B FLOOR PLAN

AS-BUILT

DATE:	08/13/07
SCALE:	1/8"=1'-0"
MANAGER'S APPROVAL:	
ESTIMATOR'S APPROVAL:	
DRAWN:	L. Rico
JOB NUMBER:	07-7013
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SHEET:	**FA-02**

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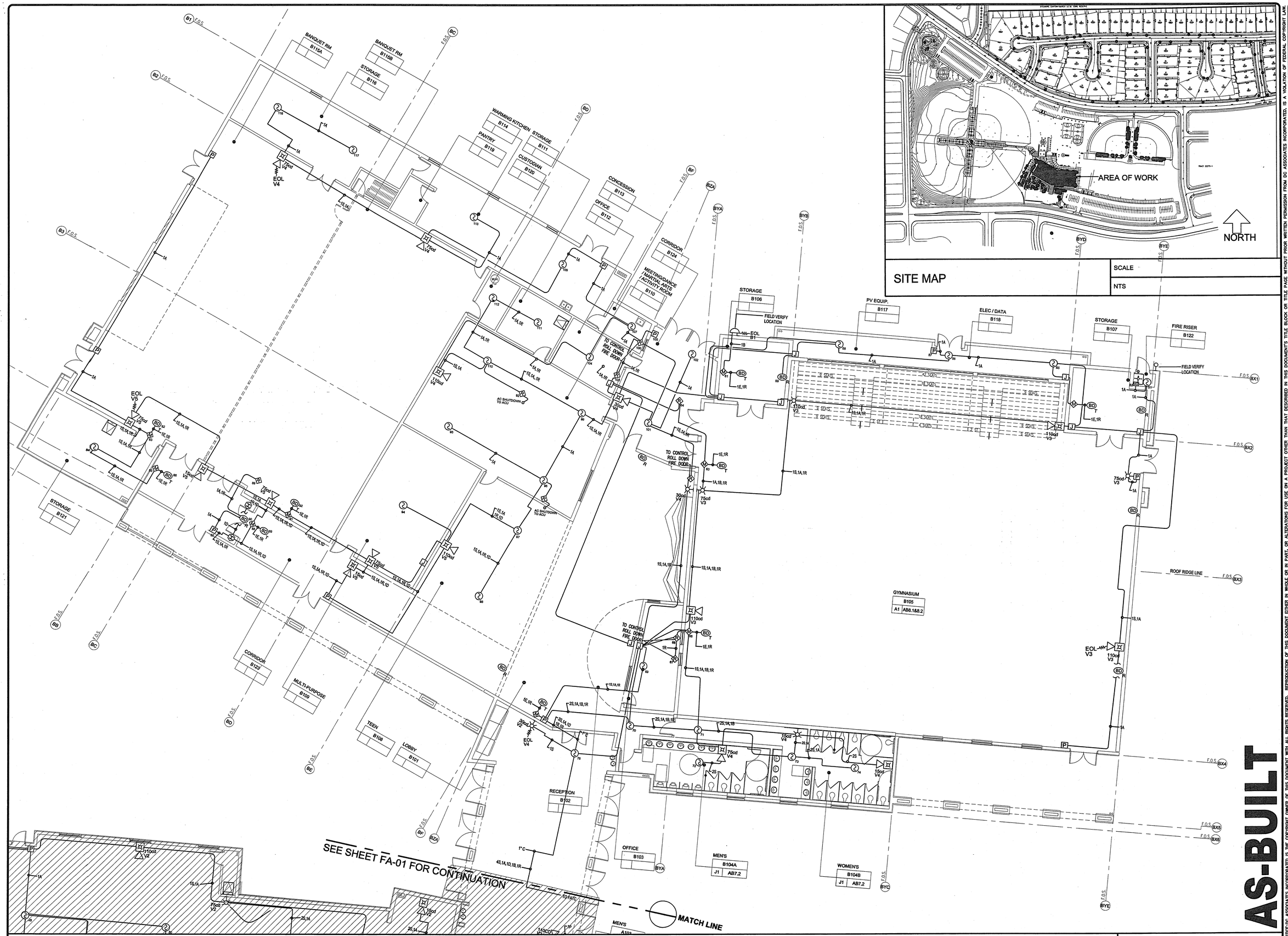

SITE MAP

SCALE

NTS

BUILDING B FLOOR PLAN

SCALE

1/8"=1'-0"

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PROJECT NAME

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RIVERSIDE, CA

SHEET TITLE

BUILDING B FLOOR PLAN

DATE:	08/13/07
SCALE:	1/8"=1'-0"
MANAGER'S APPROVAL:	
ESTIMATOR'S APPROVAL:	
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