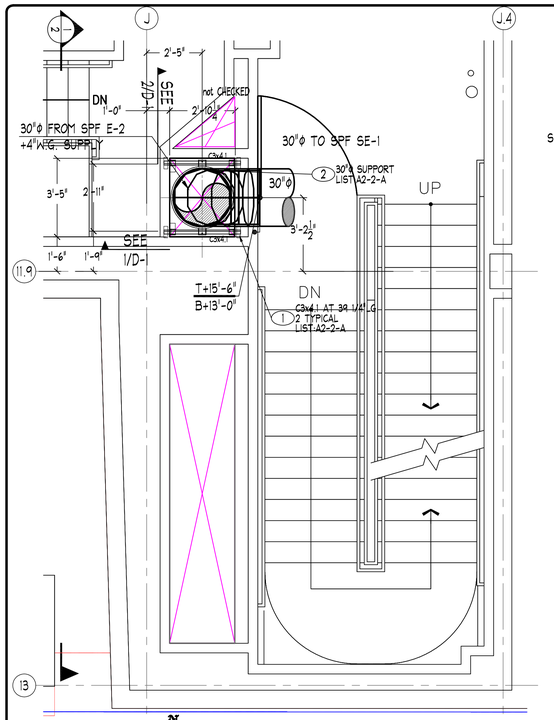
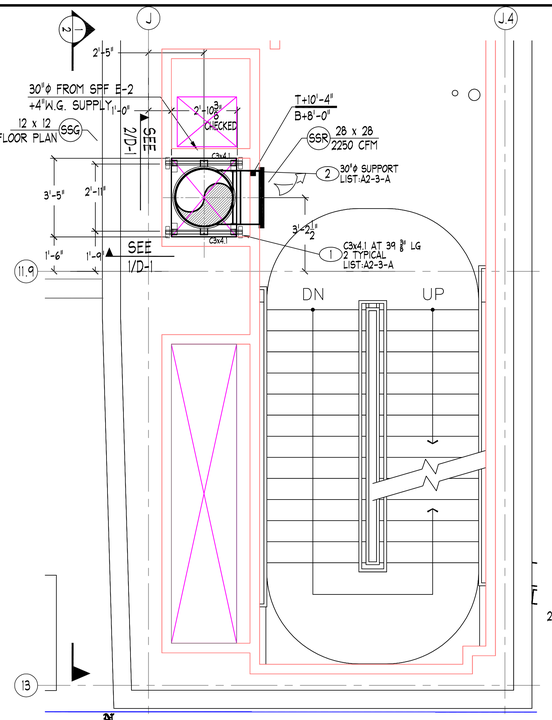


1ST FLOOR - AREA A

FINISHED FLOOR ELEVATION=17'-0"

A2-2-A — 3rd FLOOR RISER SUPPORTS NOTE 1-2 PI:01

A2-1-B — +4" W.G.SUPPLY DUCTWORK SPF E-2 NOTE 1-3 SEE DRAWING 2 PI:01



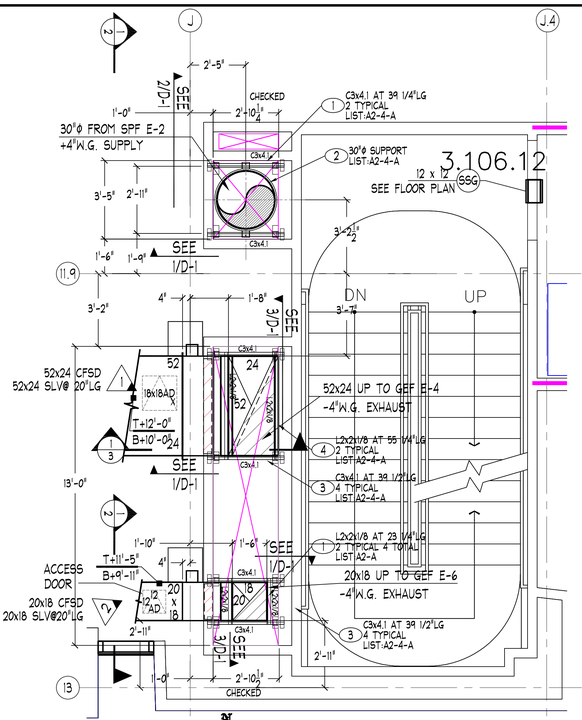
2ND FLOOR - AREA A

FINISHED FLOOR ELEVATION=35'-0"

A2-2-B — +4" W.G.SUPPLY DUCTWORK SPF E-2 NOTE 1-3 PI:01

A2-3-A — 3rd FLOOR RISER SUPPORTS NOTE 1-2 PI:01

A2-2-P — +4" W.G.SUPPLY DUCTWORK SPF E-2 NOTE 1-2



3RD FLOOR - AREA A

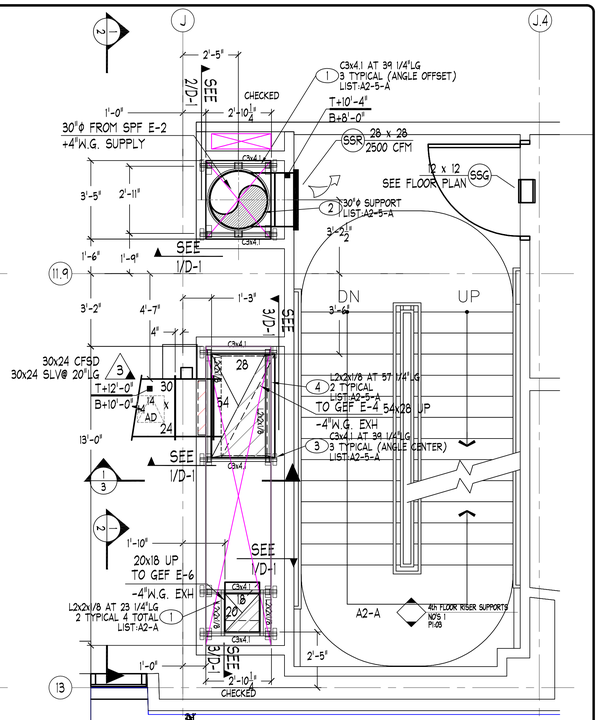
FINISHED FLOOR ELEVATION=50'-0"

A2-A — 4th FLOOR RISER SUPPORTS NOTE 1 PI:05

A2-4-A — 4th FLOOR RISER SUPPORTS NOTE 1-5 PI:01 VOID PC #5

A2-3-B — +4" W.G.SUPPLY DUCTWORK SPF E-2,EXH GEF E-5, E-6 NOTE 1-7 PI:01

A2-3-P — +4" W.G.SUPPLY DUCTWORK SPF E-2, EXH GEF E-6 NOTE 1-2 PI:01



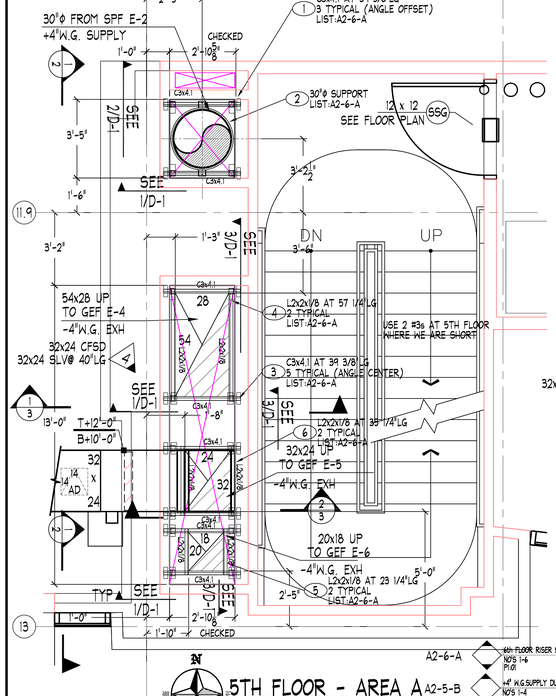
4TH FLOOR - AREA A

FINISHED FLOOR ELEVATION=65'-0"

A2-5-A — 5th FLOOR RISER SUPPORTS NOTE 1-5 PI:01 VOID PC #5

A2-4-B — +4" W.G.SUPPLY DUCTWORK SPF E-2,EXH GEF E-5, E-6 NOTE 1-7 PI:01

A2-4-P — +4" W.G.SUPPLY DUCTWORK SPF E-2, EXH GEF E-6 NOTE 1-3 PI:01



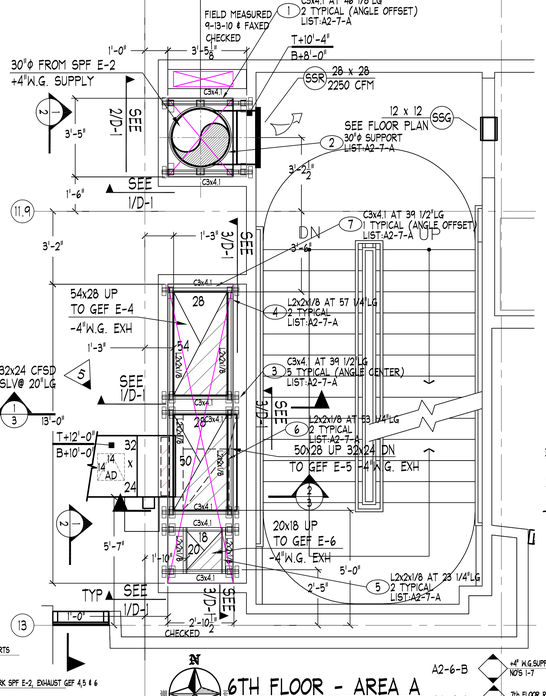
5TH FLOOR - AREA A

FINISHED FLOOR ELEVATION=80'-0"

A2-5-B

A2-6-A — 6th FLOOR RISER SUPPORTS NOTE 1-6 PI:01

A2-6-P — +4" W.G.SUPPLY DUCTWORK SPF E-2, EXHAUST GEF 4,5 & 6 NOTE 1-4 PI:01

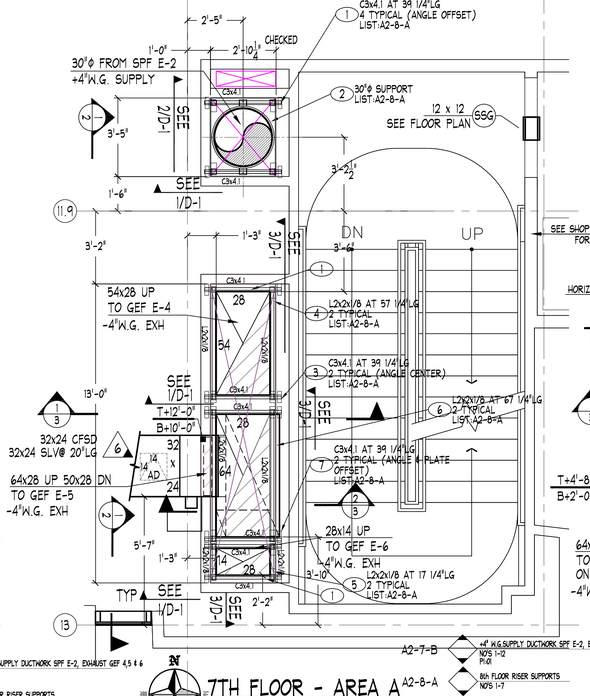


6TH FLOOR - AREA A

FINISHED FLOOR ELEVATION=95'-0"

A2-6-B — +4" W.G.SUPPLY DUCTWORK SPF E-2, EXHAUST GEF 4,5 & 6 NOTE 1-7

A2-7-A — 7th FLOOR RISER SUPPORTS NOTE 1-7 PI:01



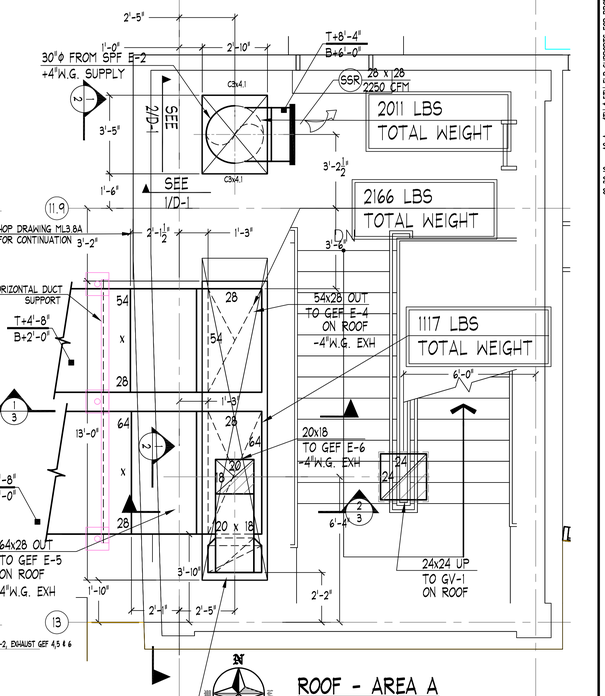
7TH FLOOR - AREA A

FINISHED FLOOR ELEVATION=110'-0"

A2-8-A

A2-7-B — +4" W.G.SUPPLY DUCTWORK SPF E-2, EXHAUST GEF 4,5 & 6 NOTE 1-2 PI:01

8th FLOOR RISER SUPPORTS NOTE 1-7



ROOF - AREA A

FINISHED FLOOR ELEVATION=125'-0"

5. All steel-to-steel bolted connections shall utilize A-307 bolts.
6. All steel shapes and plates shall be ASTM A-36.
7. All steel-to-steel welded connections shall use E-70XX electrodes. E-60XX electrodes may be used for welding light-gage metal ducts to steel.

A2-8-B — +4" W.G.SUPPLY DUCTWORK SPF E-2, EXHAUST GEF 4,5 & 6 NOTE 1-7 PI:01

A2-8-P — +4" W.G.SUPPLY DUCTWORK SPF E-2 NOTE 1-2

A2-7-B — +4" W.G.SUPPLY DUCTWORK SPF E-2, EXHAUST GEF 4,5 & 6 NOTE 1-2 PI:01

A2-7-P — +4" W.G.SUPPLY DUCTWORK SPF E-2 NOTE 1

A2-6-B — +4" W.G.SUPPLY DUCTWORK SPF E-2, EXHAUST GEF 4,5 & 6 NOTE 1-7 PI:01

A2-6-P — +4" W.G.SUPPLY DUCTWORK SPF E-2 NOTE 1-2

A2-5-B — +4" W.G.SUPPLY DUCTWORK SPF E-2, EXHAUST GEF 4,5 & 6 NOTE 1-4 PI:01

A2-5-P — +4" W.G.SUPPLY DUCTWORK SPF E-2 NOTE 1 PI:01

A2-8-A — 8th FLOOR RISER SUPPORTS NOTE 1-7

A2-7-A — 7TH FLOOR RISER SUPPORTS NOTE 1-7 PI:01

A2-6-A — 6th FLOOR RISER SUPPORTS NOTE 1-6 PI:01

A2-5-A — 5th FLOOR RISER SUPPORTS NOTE 1-5 PI:01 VOID PC #5

A2-4-A — 4th FLOOR RISER SUPPORTS NOTE 1-5 PI:01 VOID PC #5

A2-3-A — 3rd FLOOR RISER SUPPORTS NOTE 1-2 PI:01

A2-2-A — 2nd FLOOR RISER SUPPORTS NOTE 1-2 PI:01

A2-A — 3rd & 4TH FLOOR RISER SUPPORTS ADDED NOTE 1 PI:01

A2-4-B — +4" W.G.SUPPLY DUCTWORK SPF E-2,EXH GEF E-5, E-6 NOTE 1-7 PI:01

A2-4-P — +4" W.G.SUPPLY DUCTWORK SPF E-2, EXH GEF E-6 NOTE 1-3 PI:01

A2-3-B — +4" W.G.SUPPLY DUCTWORK SPF E-2,EXH GEF E-5, E-6 NOTE 1-7 PI:01

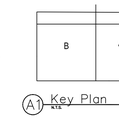
A2-3-P — +4" W.G.SUPPLY DUCTWORK SPF E-2, EXH GEF E-6 NOTE 1-2 PI:01

A2-2-B — +4" W.G.SUPPLY DUCTWORK SPF E-2 NOTE 1-3 PI:01

A2-2-P — +4" W.G.SUPPLY DUCTWORK SPF E-2 NOTE 1-2 PI:01

A2-1-B — +4" W.G.SUPPLY DUCTWORK SPF E-2 NOTE 1-3 SEE DRAWING 2 PI:01

NOTE: SUPPORTS SHOWN ARE LOCATED ON THE SLAB OF THE LEVEL ABOVE.



A1 Key Plan

"PROJECT RECORD DRAWING"

NOTES

1. EXISTING SHOWN ON THIS DRAWING ARE TO BE AS BUILT. ADJUSTMENTS SHALL BE MADE FOR TRANSFORMER CONNECTORS, PIPING, CONDUIT, DUCTWORK, ETC. AS REQUIRED FOR COORDINATING ELEVATIONS.

ABBREVIATIONS

AD, AP	ACCESS DOOR, ACCESS PLATE	S & D	S & DRAIN CONNECTOR
BL BOTT	BOTTOM	SI	SPIN-IN FITTING
CL	CENTERLINE	SLV	SLEEVE
CONN	CONNECTION	SP	STATIC PRESSURE
Dia, DN	DIAMETER, DUCTWORK CONNECTOR	T	TOP
F, FEM	FEMALE	TDC	TRANSVERSE DUCT CONNECTOR
FD	FIRE DAMPER	TH/OUT	THROAT
FD/RD	FIRE & SMOKE DAMPER	TR/ING	TRANSITION FITTING
FO	FLANGE OUT	TV	TURNING VANES
FOB	FLAT ON BOTTOM	U	UP
FOS	FLAT ON SIDE	VD	VERTICAL VOLUME DAMPER
FOT	FLAT ON TOP	VG	WITH GAUGE
H	HORIZONTAL	W	WATER GAUGE
M	MALE	WS	WELDED SEAM
R	RADIUS	F/C	FEMALE ANCHOR

SYMBOL LEGEND

SYMBOL	DESCRIPTION
	FIRE DAMPER OR COMBINATION FIRE & SMOKE DAMPER
	MANUAL VOLUME DAMPER WITH QUADRANT TYPE REGULATOR
	MANUAL VOLUME DAMPER WITH LOCKING QUADRANT TYPE REGULATOR
	MOTORIZED DAMPER
	DUCTWORK ACCESS DOOR OR PANEL
	DUCTWORK FIELD NO.
	INDICATOR
	TOP OF DUCT/BOTTOM OF DUCT ELEVATION INDICATOR

BRONCHOSCOPY RISER #1&2

DATE	NO.	DESCRIPTION
08-30-10	A2-1-B	+4" W.G. SUPPLY DUCTWORK
	A2-2-A	2nd FLOOR RISER SUPPORTS
	A2-2-B	+4" W.G. SUPPLY DUCTWORK
	A2-2-P	+4" W.G. PURCHASED SUPPLY DUCTWORK
	A2-3-A	3rd FLOOR RISER SUPPORTS
	A2-3-B	+4" W.G. SUPPLY & EXH DUCTWORK
	A2-3-P	+4" W.G. PURCHASED SUPPLY & EXH
	A2-4-A	4th FLOOR RISER SUPPORTS
	A2-4-B	+4" W.G. SUPPLY & EXH DUCTWORK
	A2-4-P	+4" W.G. PURCHASED SUPPLY & EXH
	A2-5-A	5th FLOOR RISER SUPPORTS

REVISIONS

DATE	NO.	DESCRIPTION
08-31-09	1	ROOF OPENINGS REVISED PER RFI #2
10-08-09	2	3RD FLOOR REVISED TO MATCH FLOOR PLANS
11-24-09	3	RESUBMITTED FOR APPROVAL
02-01-10	4	REV PER OSHPD REVIEW
04-30-10	6	BRONCHOSCOPY RISER ADDED
8-23-10	8	BRONCHOSCOPY RISER SUPPORTS LIST A2-4 ADDED
8-30-10	9	SPEC'S & TAG REVISED
9-08-10	10	SPEC'S & TAG REVISED
10-06-10	12	LISTS FOR 8 ADDED
10-29-10	13	AS-BUILT RECORD DRAWING

MATERIAL LISTS

DATE	NO.	DESCRIPTION
04-16-10	A2-1-B	+4" W.G. SUPPLY DUCTWORK
04-09-10	A2-2-A	2nd FLOOR RISER SUPPORTS
04-30-10	A2-2-B	+4" W.G. SUPPLY DUCTWORK
04-30-10	A2-2-P	+4" W.G. PURCHASED SUPPLY DUCTWORK
04-30-10	A2-3-A	3rd FLOOR RISER SUPPORTS
04-16-10	A2-3-B	+4" W.G. SUPPLY & EXH DUCTWORK
04-30-10	A2-3-P	+4" W.G. PURCHASED SUPPLY & EXH
04-30-10	A2-4-A	4th FLOOR RISER SUPPORTS
04-29-10	A2-4-B	+4" W.G. SUPPLY & EXH DUCTWORK
04-29-10	A2-4-P	+4" W.G. PURCHASED SUPPLY & EXH
04-09-10	A2-5-A	5th FLOOR RISER SUPPORTS

SHEET METAL CONTRACTORS & FABRICATORS
HARRIS & HART

HARRIS & HART INC.
1759 WEST 1200 SOUTH
OGDEN, UTAH. 84404
PHONE: (801) 731-0577
FAX NO: (801) 731-0580
WEBSITE: WWW.HARRIS-HART.COM
E-MAIL TO DETAILING DEPARTMENT:
ttaylor@harris-hart.com

JOB NO: 9507 PAY ITEM: 01

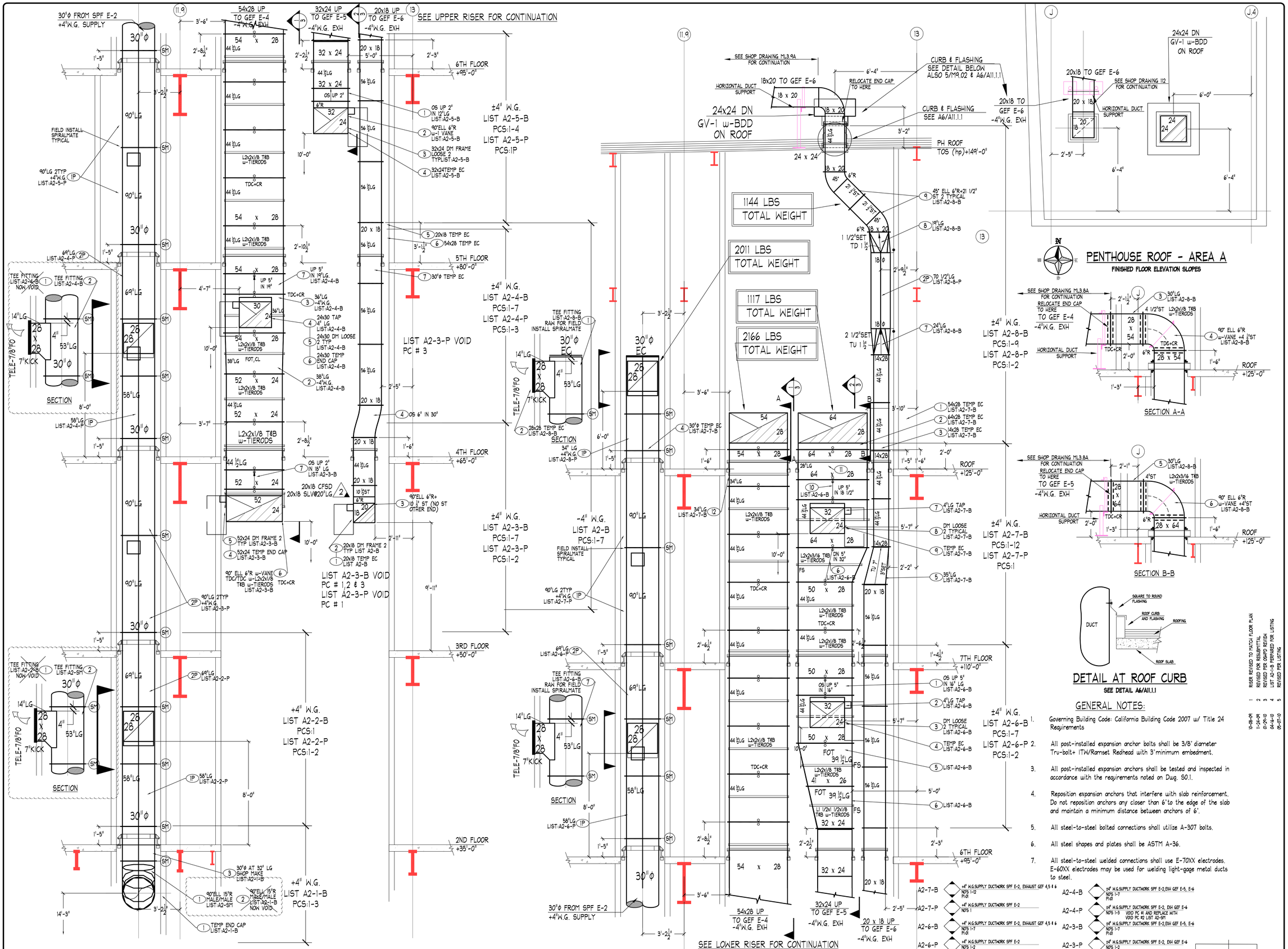
PROJECT: IL 0702072-30
CHOC HOSPITAL
ORANGE, CA

TITLE: DA #003
AREA A RISER SHAFT A2
HVAC SYSTEM LAYOUT

REFERENCE DRAWINGS
ARCH: STRUCT: MECH:

BY: R.FRESTON
DATE: 08-14-09
SCALE: 3/8" =1'-0"

DRAWING NO.
1 OF 115



1/2 AREA A SHAFT A2 RISERS (LOWER)

LOOKING EAST FROM GRIDLINE J

1/2 AREA A SHAFT A2 RISERS (UPPER)

LOOKING EAST FROM GRIDLINE J

"PROJECT RECORD DRAWING"

GENERAL NOTES:

1. Governing Building Code: California Building Code 2007 w/ Title 24 Requirements
2. All post-installed expansion anchor bolts shall be 3/8" diameter Tru-bolt+ ITW/Ramset Redhead with 3" minimum embedment.
3. All post-installed expansion anchors shall be tested and inspected in accordance with the requirements noted on Dwg. S0.1.
4. Reposition expansion anchors that interfere with slab reinforcement. Do not reposition anchors any closer than 6" to the edge of the slab and maintain a minimum distance between anchors of 6".
5. All steel-to-steel bolted connections shall utilize A-307 bolts.
6. All steel shapes and plates shall be ASTM A-36.
7. All steel-to-steel welded connections shall use E-70XX electrodes. E-60XX electrodes may be used for welding light-gage metal ducts to steel.

NOTES

1. ELEVATIONS INDICATED ON THIS DRAWING ARE TO BE USED AS A GUIDE ONLY. FIELD VERIFICATION MUST BE MADE FOR TRANSITIONS, CONNECTIONS, AND ALL OTHER CONSTRUCTION REQUIRED FOR COORDINATING ELEVATIONS.

ABBREVIATIONS

AD, AP	ACCESS DOOR, ACCESS PLATE	L & W PIPE CONNECTION	
B, BOTT	BOTTOM	SPIN-IN FITTING	S
CT, CN	CENTERLINE	SLEEVE	SLV
D, DN	DOWN	STATIC PRESSURE	SP
DI	DIFFUSER, DUCT CONNECTOR	TEMPERATURE	T
F, FLN	FLANGE	TRANSVERSE DUCT CONNECTOR	TDC
FD	FIRE DAMPER	THROAT	TH
FE	FLEXIBLE CONNECTION FITTING	TURNING VANES	TRVG
FO	FLANGE OUT	TV	
FOB	FLAT ON BOTTOM	U	
FOS	FLAT ON SIDE	UP	
FT	FLAT ON TOP	VERTICAL DAMPER	V
H	HORIZONTAL	WITH	W
M	WALL	WATER GAUGE	WG
SD	SMOKE DETECTOR	WELDED WIRE FABRIC	WWF
TOD	TOP OF DUCT/BOTTOM OF DUCT	FEMALE INDICATOR	F
TR	ELEVATION INDICATOR		

SYMBOL LEGEND

SYMBOL	DESCRIPTION
	FIRE DAMPER OR COMBINATION FIRE/SMOKE DAMPER
	MANUAL VOLUME DAMPER WITH DIAL OR QUADRANT TYPE REGULATOR
	MANUAL VOLUME DAMPER WITH LOCKING ROD AND CONCEALED REGULATOR
	ACCESS DOOR/DUCT CONCEALED DAMPER
	DUCTWORK ACCESS DOOR OR ACCESS PLATE
	FIRE/SMOKE DAMPER SIZE NO.
	INDICATOR
	TOP OF DUCT/BOTTOM OF DUCT ELEVATION INDICATOR

MATERIAL LISTS

NO.	DESCRIPTION	DATE
A2-1-B	+4"W.G. SUPPLY DUCTWORK	04-16-09
A2-2-P	+4"W.G. SUPPLY DUCTWORK	04-30-09
A2-2-P	+4"W.G. SUPPLY PURCHASED DUCTWORK	04-30-09
A2-3-B	+4"W.G. SUPPLY DUCTWORK	05-13-09
A2-3-P	+4"W.G. SUPPLY EXH PURCHASED	05-13-09
A2-4-B	+4"W.G. SUPPLY EXH DUCTWORK	06-18-09
A2-4-P	+4"W.G. SUPPLY EXH PURCHASED	06-18-09
A2-5P1	+4"W.G.SUPPLY DUCTWORK TAKEOFF FITTIES	07-14-09
A2-6-B	+4"W.G. EXHAUST DUCTWORK GEF E-6	08-30-09
A2-5-B	+4"W.G. SUPPLY EXH DUCTWORK	09-13-09
A2-5-P	+4"W.G. SUPPLY EXH PURCHASED	09-13-09

REVISIONS

NO.	DESCRIPTION	DATE
6	REVISED PER LISTING	05-06-09
7	REVISED PER LISTING	06-09-09
8	LIST A2-5P1 ADDED FOR NEW FITTINGS	07-17-09
9	BRONCHOSCOPY RISER ADDED	08-25-09
10	CO FOR BRONCHOSCOPY RISER A2-4.1 & A2-B ADDED	08-30-09
11	EQUIPMENT SPR E-2 TAG CHANGED	10-02-09
12	LISTS A2-5-B, P & 7-P ADDED	04-08-09
13	REVISED PER FABRICATION	11-5-09
14	REVISED PER INSTALLATION	10-06-09
15	8TH FLOOR LISTED	10-30-09
16	REVISED PER INSTALLATION	12-4-09
17	AS-BUILT RECORD DRAWING	05-27-10

1	RISER REVISED TO MATCH FLOOR PLAN	10-08-09
2	REVISED FOR RESUBMITTAL	11-24-09
3	REVISED PER OSHPD REVIEW	01-29-10
4	LIST A2-1B PREPARED FOR LISTING	04-16-10
5	REVISED PER LISTING	05-07-10

HARRIS & HART CONTRACTORS & FABRICATORS SHEET METAL

HARRIS & HART INC.
1759 WEST 1200 SOUTH
OGDEN, UTAH. 84404
PHONE: (801) 731-0577
FAX NO: (801) 731-0580
WEBSITE: WWW.HARRIS-HART.COM
E-MAIL TO DETAILING DEPARTMENT: ttaylor@harris-hart.com

JOB NO: 9507 PAY ITEM:01

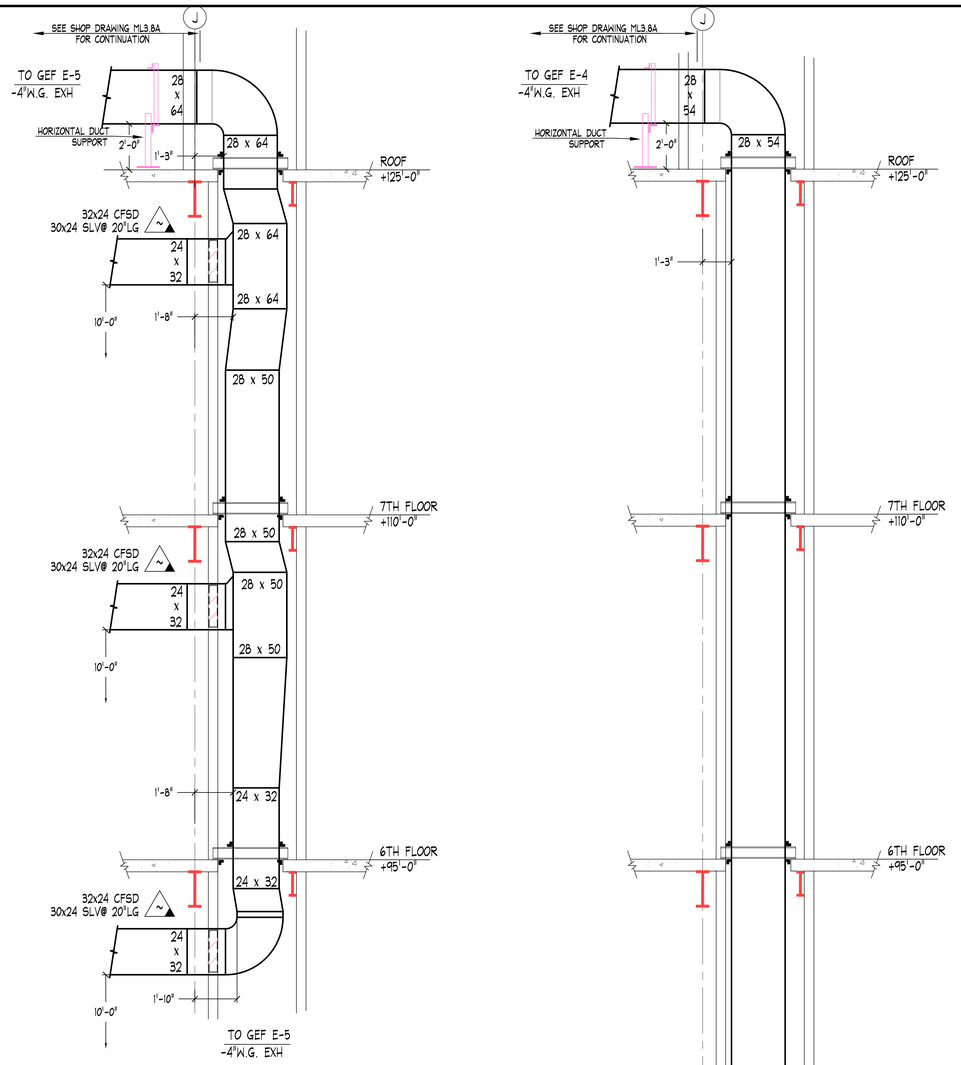
PROJECT: IL 0702072-30
CHOC HOSPITAL
ORANGE, CA

TITLE: DA #003
AREA A RISER SHAFT A2
HVAC SYSTEM LAYOUT

REFERENCE DRAWINGS
ARCH: STRUCT: MECH:

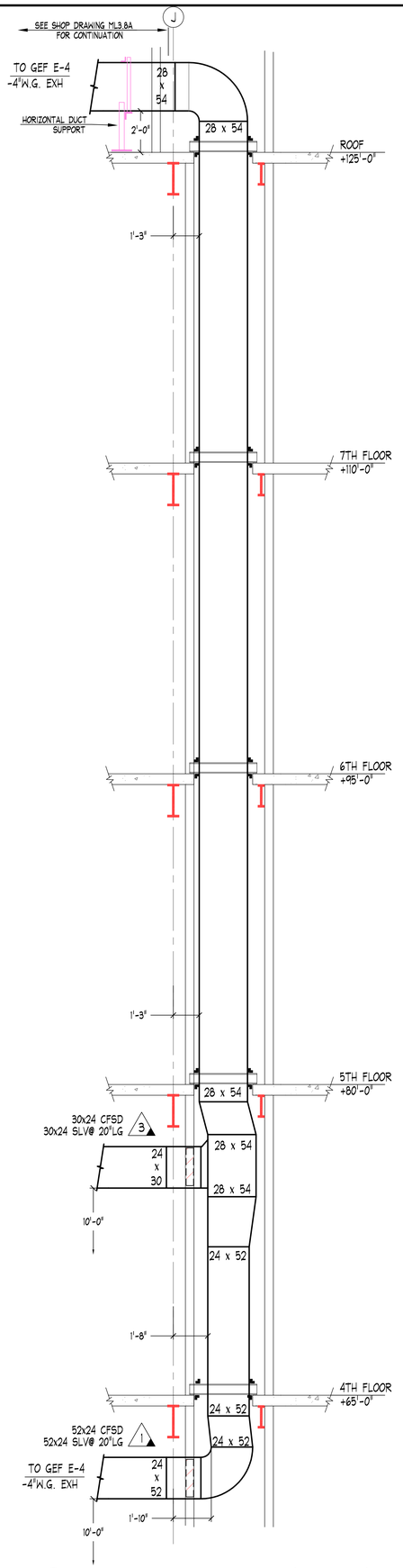
BY: R.FRESTON
DRAWING NO. 2 OF 115
DATE: 08-14-09
SCALE: 3/8" =1'-0"

A1 Key Plan



2/3 AREA A SHAFT A2 RISER (GEF E-5)

LOOKING NORTH FROM GRIDLINE 12

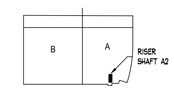


1/3 AREA A SHAFT A2 RISER (GEF E-4)

LOOKING NORTH FROM GRIDLINE 12

GENERAL NOTES:

1. Governing Building Code: California Building Code 2007 w/ Title 24 Requirements
2. All post-installed expansion anchor bolts shall be 3/8" diameter Tru-bolt+ ITW/Ramset Redhead with 3" minimum embedment.
3. All post-installed expansion anchors shall be tested and inspected in accordance with the requirements noted on Dwg. S0.1.
4. Reposition expansion anchors that interfere with slab reinforcement. Do not reposition anchors any closer than 6" to the edge of the slab and maintain a minimum distance between anchors of 6".
5. All steel-to-steel bolted connections shall utilize A-307 bolts.
6. All steel shapes and plates shall be ASTM A-36.
7. All steel-to-steel welded connections shall use E-70XX electrodes. E-60XX electrodes may be used for welding light-gage metal ducts to steel.



A1 Key Plan

"PROJECT RECORD DRAWING"

NOTES

1. ELEVATIONS INDICATED ON THIS DRAWING ARE TO THE CENTERLINE OF DUCT. ALLOW FOR TRANSITIONS, CONNECTORS, REINFORCING AND EXTERIOR INSULATION WHEN COORDINATING ELEVATIONS.

ABBREVIATIONS

AD, AP	ACCESS DOOR, ACCESS PLATE	S & D	S & DRIVE CONNECTOR
&, WITH	AND	SDT	SHEET METAL TEE
℄, ⊙, ON	CENTERLINE	SLV	SLEEVE
DN	DOWN	SP	STATIC PRESSURE
EC	ELECTRICAL CONNECTOR	TEMP	TEMPERATURE
EA FLEX	EXHAUST	TDC	TEMPERATURE DUCT CONNECTOR
FD	FIRE DAMPER	TH	THROAT
FI	FLANGE IN	TRANS	TRANSITION FITTING
FO	FLANGE OUT	TV	TURNING VANES
FDB	FLAT ON BOTTOM	U	UP
FDS	FLAT ON SIDE	V	VERTICAL
FDT	FLAT ON TOP	VD	VOLUME DAMPER
H	HEIGHT, HORIZONTAL	W	WIDTH
W	WALE	WG	WATER GAUGE
OS	OFFSET	↑	WALE INDICATOR
PANS	PANELS	↑D	TRANS INDICATOR

SYMBOL LEGEND

SYMBOL	DESCRIPTION
	FIRE DAMPER OR COMBINATION FIRE/SMOKE DAMPER NO.
	VOLUME FLAT BLADE SMOKE SEAL OR EQUIVALENT TYPE REGULATOR
	MANUAL VOLUME DAMPER WITH CEILING MOUNTED CONCEALED REGULATOR
	MOTORIZED DAMPER
	DUCTWORK ACCESS DOOR OR ACCESS PLATE
	DUCTWORK PRESS NO. INDICATOR
	TOP OF DUCT/BOTTOM OF DUCT ELEVATION INDICATOR

REVISIONS			MATERIAL LISTS		
DATE	NO.	DESCRIPTION	DATE	NO.	DESCRIPTION
11-24-09	1	REVISED FOR RESUBMITTAL			
02-25-10	2	REVISED PER OSHPD REVIEW			
4-15-10	3	REVISED PER FABRICATION			
5-7-12	4	AS-BUILT RECORD DRAWING			

HARRIS & HART INC.
1759 WEST 1200 SOUTH
OGDEN, UTAH. 84404
PHONE: (801) 731-0577
FAX NO: (801) 731-0580
WEBSITE: WWW.HARRIS-HART.COM
E-MAIL TO DETAILING DEPARTMENT:
ttaylor@harris-hart.com

JOB NO: 9507 PAY ITEM:

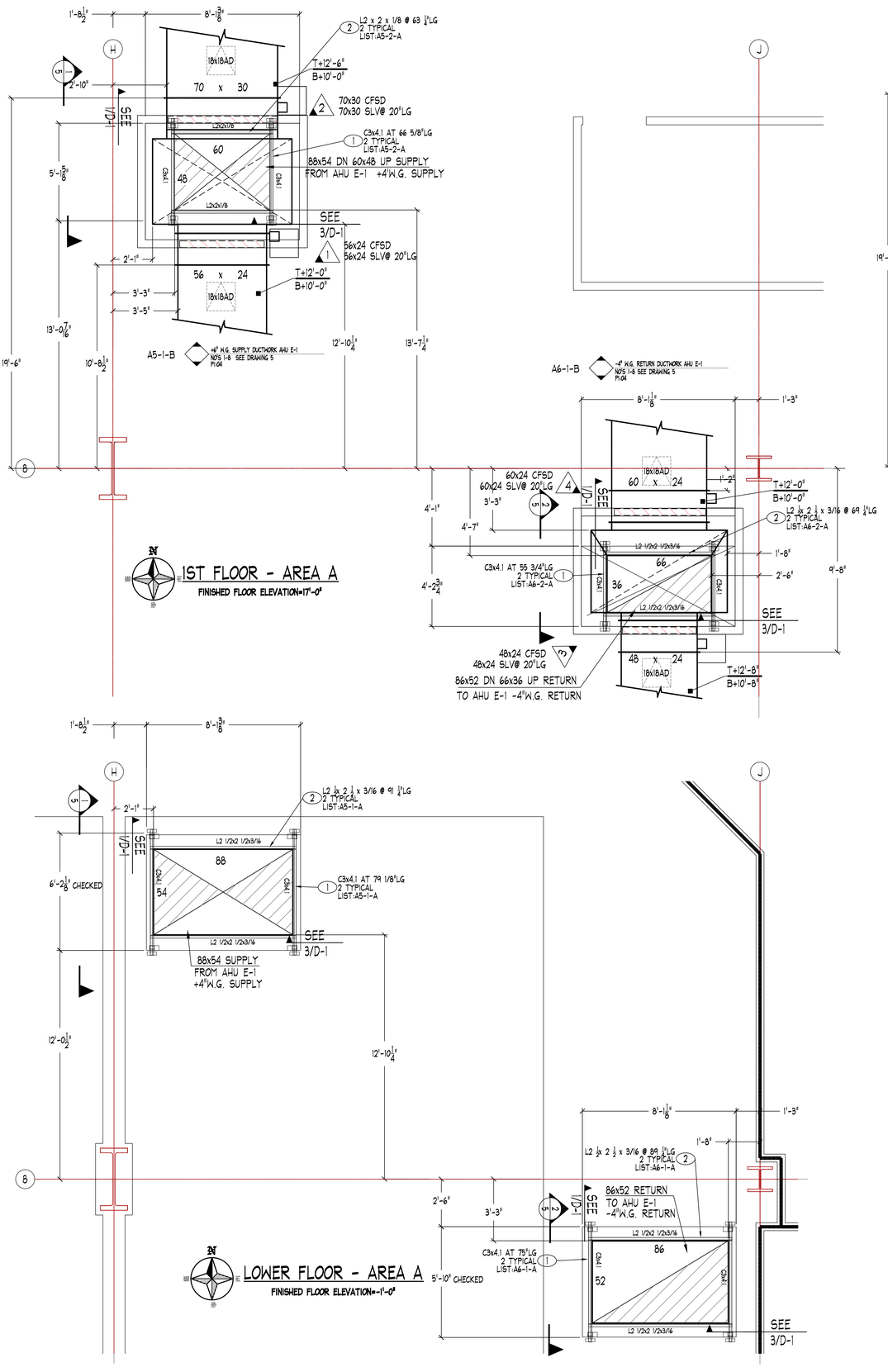
PROJECT: IL 0702072-30
CHOC HOSPITAL
ORANGE, CA

TITLE: DA #003
AREA A RISER SHAFT A2
HVAC SYSTEM LAYOUT

REFERENCE DRAWINGS
ARCH: STRUCT: MECH:

BY: R.FRESTON
DATE: 08-14-09
SCALE: 3/8" =1'-0"

DRAWING NO.
3 OF 115

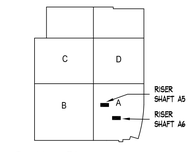


GENERAL NOTES:

1. Governing Building Code: California Building Code 2007 w/ Title 24 Requirements
2. All post-installed expansion anchor bolts shall be 3/8" diameter Tru-bolt+ ITW/Ramset Redhead with 3"minimum embedment.
3. All post-installed expansion anchors shall be tested and inspected in accordance with the requirements noted on Dwg. S0.1.
4. Reposition expansion anchors that interfere with slab reinforcement. Do not reposition anchors any closer than 6"to the edge of the slab and maintain a minimum distance between anchors of 6".
5. All steel-to-steel bolted connections shall utilize A-307 bolts.
6. All steel shapes and plates shall be ASTM A-36.
7. All steel-to-steel welded connections shall use E-70XX electrodes. E-60XX electrodes may be used for welding light-gage metal ducts to steel.

A5-2-A	RISER SUPPORTS NOTE 1-2 P1.04	A5-2-B	+8" W.G. SUPPLY DUCTWORK AHU E-1 NOTE 1-5 P1.04
A6-2-A	RISER SUPPORTS NOTE 1-2 P1.04	A6-2-B	+8" W.G. SUPPLY DUCTWORK AHU E-1 NOTE 1-9 P1.04
A5-1-A	RISER SUPPORTS NOTE 1-2 P1.04	A5-1-B	+8" W.G. SUPPLY DUCTWORK AHU E-1 NOTE 1-8 SEE DRAWING 5 P1.04
A6-1-A	RISER SUPPORTS NOTE 1-2 P1.04	A6-1-B	-4" W.G. RETURN DUCTWORK AHU E-1 NOTE 1-8 SEE DRAWING 5 P1.04

NOTE: SUPPORTS SHOWN ARE LOCATED ON THE SLAB OF THE LEVEL ABOVE.



"RECORD DRAWING"

"PROJECT RECORD"

NOTES

1. ELEVATIONS INDICATED ON THE DRAWING ARE TO THE DUCT BODY. ALLOWANCES MUST BE MADE FOR TRANSVERSE CONNECTORS, REINFORCING AND DUCT INSULATION WHEN COORDINATING ELEVATIONS.

ABBREVIATIONS

AD, AP	ACCESS DOOR, ACCESS PLATE	S	S & DRIVE CONNECTOR
B, BOTT	BOTTOM	SW	SPIN-IN FITTING
C	CENTERLINE	SLDE	SLIDE
D, DIA	DIAMETER	SP	STATIC PRESSURE
DM	DUCTMATE CONNECTOR	T	TOP
F, FTM	FEMALE	TDC	TRANSVERSE DUCT CONNECTOR
FA	FLOW ARROW	TM	TRANSITION
FD	FLANGE DOWN	TMFTG	TRANSITION FITTING
FI	FLANGE IN	TWNS	TURNING VANES
FO	FLANGE OUT	TV	TURNING VANES
FOB	FLAT ON BOTTOM	U	UP
FOS	FLAT ON SIDE	UF	UNIFORM
FOT	FLAT ON TOP	V	VOLUME DAMPER
H	HORIZONTAL	VD	WITH
M	MALE	W	WIDE, WIDTH
MD	MITER	WG	WATER GAUGE
O	OFFSET	WI	WATER INDICATOR
R	RADIUS	↑F	FEMALE INDICATOR
		↓M	MALE INDICATOR

SYMBOL LEGEND

SYMBOL	DESCRIPTION
	FIRE DAMPER OR COMBINATION FIRE/SMOKE DAMPER, NO.
	MANUAL VOLUME DAMPER WITH QUADRANT TYPE REGULATOR
	MANUAL VOLUME DAMPER WITH LOCKING QUADRANT TYPE REGULATOR
	MOTORIZED DAMPER
	DUCTWORK ACCESS DOOR OR ACCESS PANEL
	DUCTWORK PIECE NO. INDICATOR
	TOP OF DUCT/BOTTOM OF DUCT ELEVATION INDICATOR

MATERIAL LISTS

NO.	DESCRIPTION	DATE
A5-1-A	RISER SUPPORTS	06-30-10
A5-1-B	+8" W.G. SUPPLY DUCTWORK	06-30-10
A6-1-A	RISER SUPPORTS	06-30-10
A6-1-B	-4" W.G. RETURN DUCTWORK	06-30-10
A5-2-A	RISER SUPPORTS	06-30-10
A5-2-B	+8" W.G. SUPPLY DUCTWORK	06-30-10
A6-2-A	RISER SUPPORTS	06-30-10
A6-2-B	-4" W.G. RETURN DUCTWORK	06-30-10

REVISIONS

NO.	DESCRIPTION	DATE
1	REVISED PER PPNG DRAWINGS	09-16-09
2	REVISED FOR RESUBMITTAL	11-24-09
3	1ST FLOOR PREPARED FOR LISTING	04-16-10
4	REROUTED TO FIT PAPER	05-28-10
5	AS-BUILT RECORD DRAWING	5-7-12

HARRIS & HART INC.
1759 WEST 1200 SOUTH
OGDEN, UTAH. 84404
PHONE: (801) 731-0577
FAX NO: (801) 731-0580
WEBSITE: WWW.HARRIS-HART.COM
E-MAIL TO DETAILING DEPARTMENT:
ttaylor@harris-hart.com

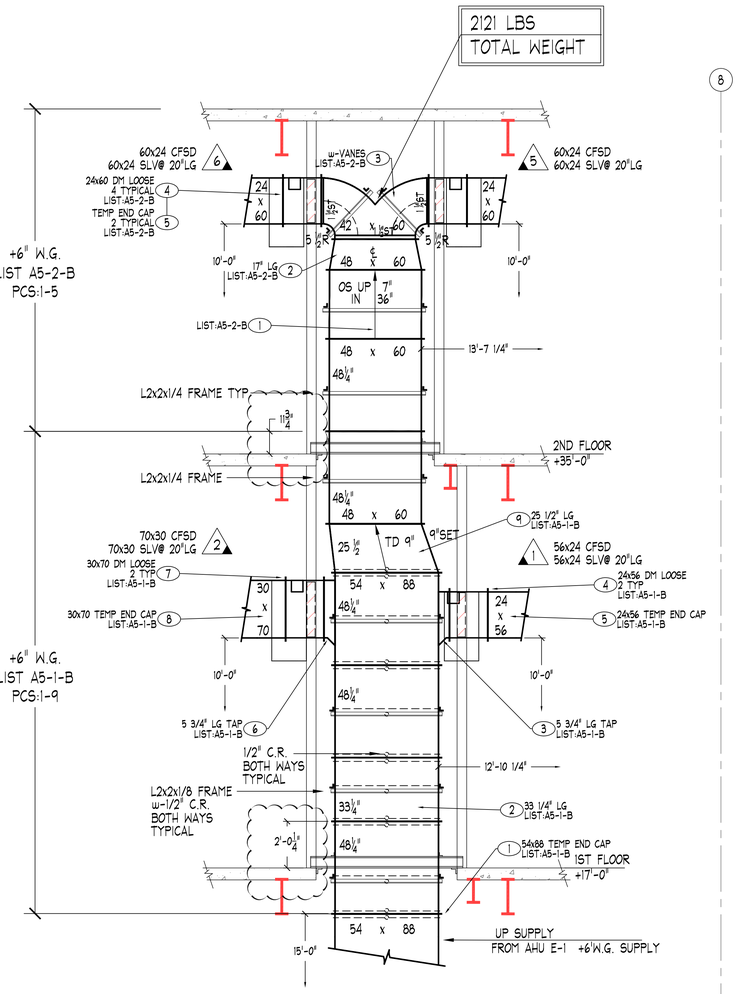
JOB NO: 9507 PAY ITEM:04

PROJECT: IL 0702072-30
CHOC HOSPITAL
ORANGE, CA

TITLE: DA #003
AREA A RISER SHAFT A5 & A6
HVAC SYSTEM LAYOUT

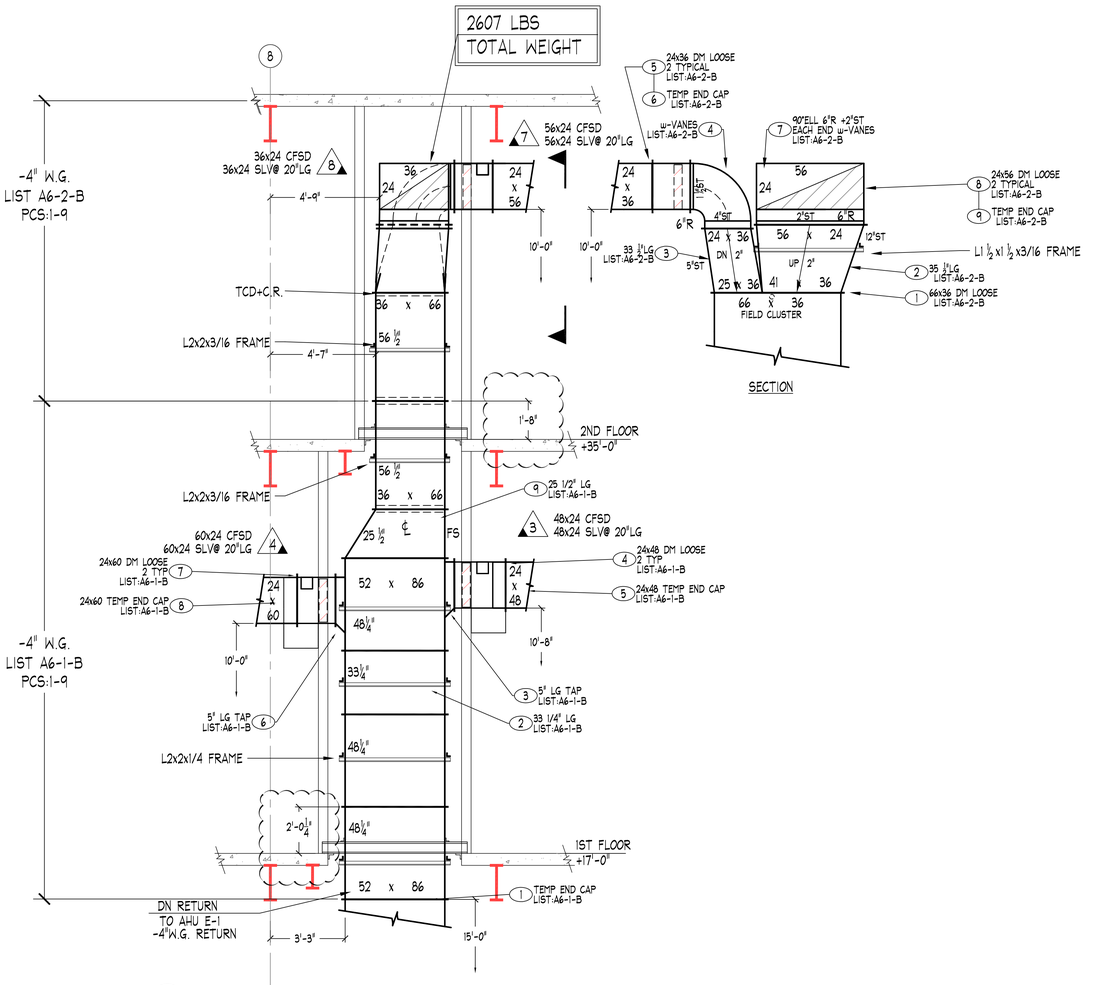
REFERENCE DRAWINGS
ARCH: STRUCT: MECH:

BY: R.FRESTON
DRAWING NO. 4 OF 115
DATE: 08-14-09
SCALE: 3/8" =1'-0"



1/5 AREA A SHAFT A5 RISER (AHU E-1 SUPPLY)

LOOKING EAST FROM GRIDLINE H



2/5 AREA A SHAFT A6 RISER (AHU E-1 RETURN)

LOOKING EAST FROM GRIDLINE H.5

GENERAL NOTES:

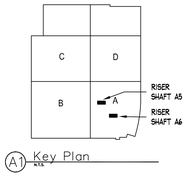
1. Governing Building Code: California Building Code 2007 w/ Title 24 Requirements
2. All post-installed expansion anchor bolts shall be 3/8" diameter Tru-bolt+ ITW/Ramset Redhead with 3" minimum embedment.
3. All post-installed expansion anchors shall be tested and inspected in accordance with the requirements noted on Dwg. S0.1.
4. Reposition expansion anchors that interfere with slab reinforcement. Do not reposition anchors any closer than 6" to the edge of the slab and maintain a minimum distance between anchors of 6".
5. All steel-to-steel bolted connections shall utilize A-307 bolts.
6. All steel shapes and plates shall be ASTM A-36.
7. All steel-to-steel welded connections shall use E-70XX electrodes. E-60XX electrodes may be used for welding light-gage metal ducts to steel.

A5-2-B — +8" W.G. SUPPLY DUCTWORK AHU E-1 NOTE 1-5 P1.04

A5-1-B — +8" W.G. SUPPLY DUCTWORK AHU E-1 NOTE 1-9 P1.04

A6-2-B — +8" W.G. SUPPLY DUCTWORK AHU E-1 NOTE 1-9 P1.04

A6-1-B — -4" W.G. RETURN DUCTWORK AHU E-1 NOTE 1-9 P1.04



A1 Key Plan N.T.S.

"AS-BUILT" RECORD DRAWING

NOTES

1. ELEVATIONS INDICATED ON THIS DRAWING ARE TO THE DUCT BODY. ALLOWANCES MUST BE MADE FOR TRANSITIONS, ACCESS DOORS, REINFORCING AND EXTERIOR INSULATION WHEN COORDINATING ELEVATIONS.

ABBREVIATIONS

AD, AP	ACCESS DOOR, ACCESS PLATE	S & D	S & DRIVE CONNECTOR
B, BOTT	BOTTOM	SLIP	SLIP FITTING
C	CENTERLINE	SLIDE	SLIDE FITTING
D, DN	DOWN	SP	STATIC PRESSURE
DC	DUCTMATE CONNECTOR	T	TOP
DM	DRIVE METAL	TC	TRANSVERSE DUCT CONNECTOR
EA, ITEM	EACH	TH	THROAT
FD	FIRE DAMPER	TR	TRANSITION FITTING
FL	FLANGE IN	TRANS	TRANSFORMER
FLAT	FLAT OUTLET	TV	TURNING VANES
FOB	FLAT ON BOTTOM	UP	UP
FOS	FLAT ON SIDE	U	U
FOT	FLAT ON TOP	V	V
FS	FIELD SPLICE	VD	VERTICAL
H	HORIZONTAL	VOL	VOLUME DAMPER
LG	LONG	W	WIDE
OS	OFFSET	WG	WATER GAUGE
R	RADIUS	WI	WALL INDICATOR
		FI	FLOOR INDICATOR

SYMBOL LEGEND

SYMBOL	DESCRIPTION
	FIRE DAMPER OR COMBINATION
	FIRE/SMOKE DAMPER NO.
	MANUAL VOLUME DAMPER WITH QUADRANT LOCK
	MANUAL VOLUME DAMPER WITH LOCKING DEVICE
	CEILING MOUNTED CONCEALED REGULATOR
	MOTORIZED DAMPER
	DUCTWORK ACCESS DOOR OR ACCESS PLATE
	DUCTWORK PIECE NO.
	SLOPE DIRECTION
	WALL OPENING
	TOP OF DUCT/BOTTOM OF DUCT ELEVATION INDICATOR

REVISIONS

NO.	DESCRIPTION	DATE
1	REVISED PER PPNL DRAWINGS	08-16-09
2	REVISED FOR RESUBMITTAL	11-24-09
3	1ST FLOOR PREPARED FOR LISTING	04-16-10
4	REVISED PER LISTING	4-29-10
5	REVISED PER LISTING	5-7-10
6	DIMENSIONS ADDED	9-3-10
7	AS-BUILT RECORD DRAWING	5-7-12

MATERIAL LISTS

NO.	DESCRIPTION	DATE
A5-1-B	+8" W.G. SUPPLY DUCTWORK PCS:1-9	04-16-10
A6-1-B	-4" W.G. RETURN DUCTWORK PCS:1-9	04-16-10
A5-2-B	+8" W.G. SUPPLY DUCTWORK PCS:1-5	05-04-10
A6-2-B	-4" W.G. RETURN DUCTWORK PCS:1-9	05-04-10

HARRIS & HART INC.
1759 WEST 1200 SOUTH
OGDEN, UTAH. 84404
PHONE: (801) 731-0577
FAX NO: (801) 731-0580
WEBSITE: WWW.HARRIS-HART.COM
E-MAIL TO DETAILING DEPARTMENT:
ttaylor@harris-hart.com

JOB NO: 9507 PAY ITEM: 04

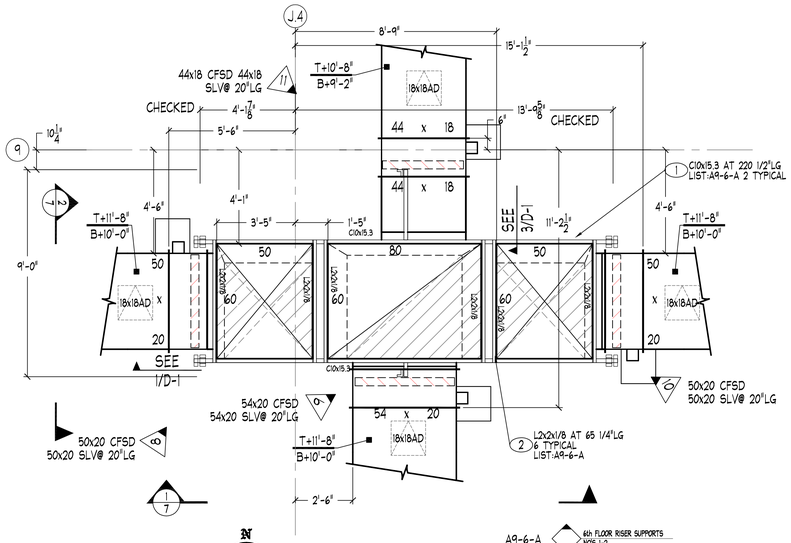
PROJECT: IL 0702072-30
CHOC HOSPITAL
ORANGE, CA

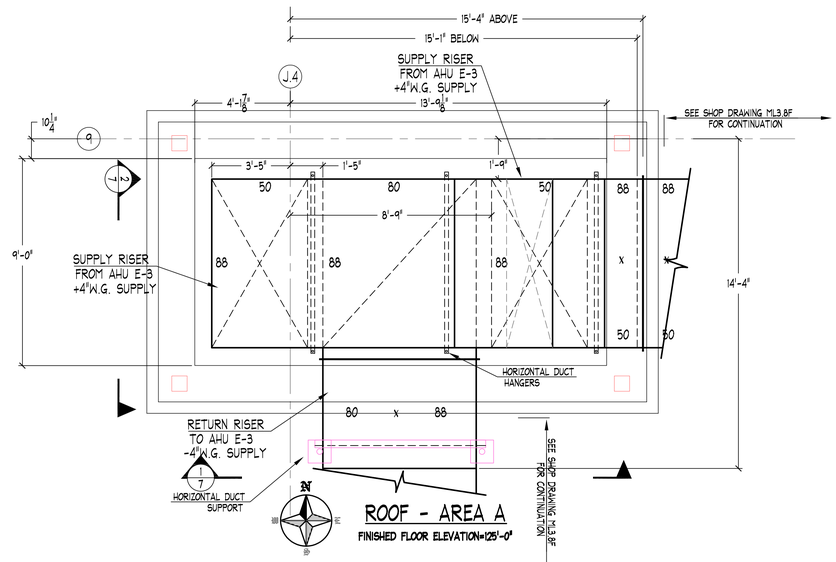
TITLE: DA #003
AREA A RISER SHAFT A5 & A6
HVAC SYSTEM LAYOUT

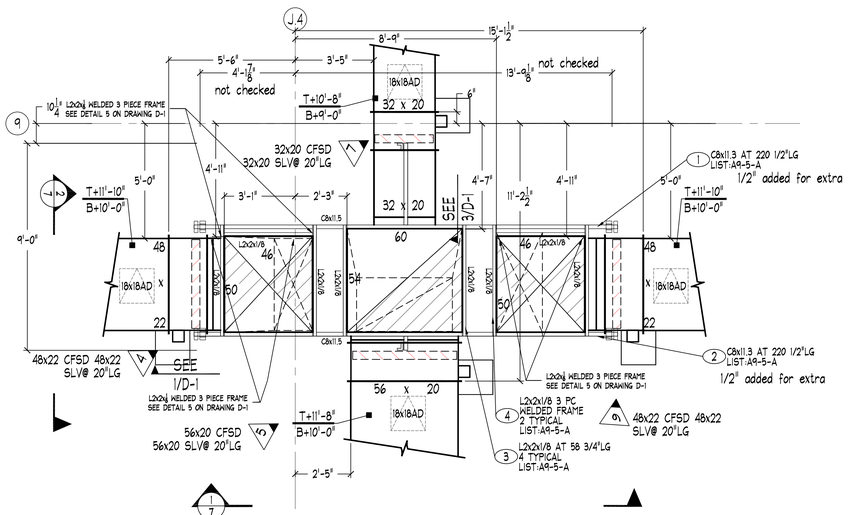
REFERENCE DRAWINGS
ARCH: STRUCT: MECH:

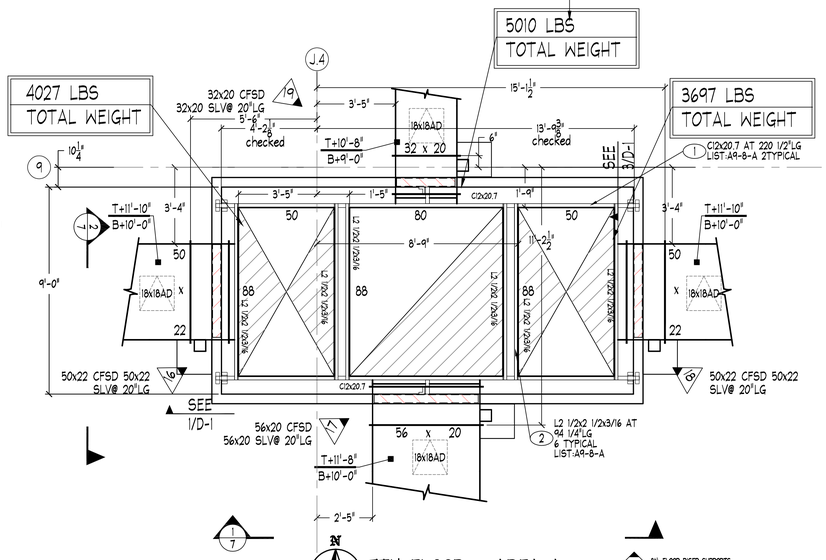
BY: R.FRESTON
DATE: 08-14-09
SCALE: 3/8" =1'-0"

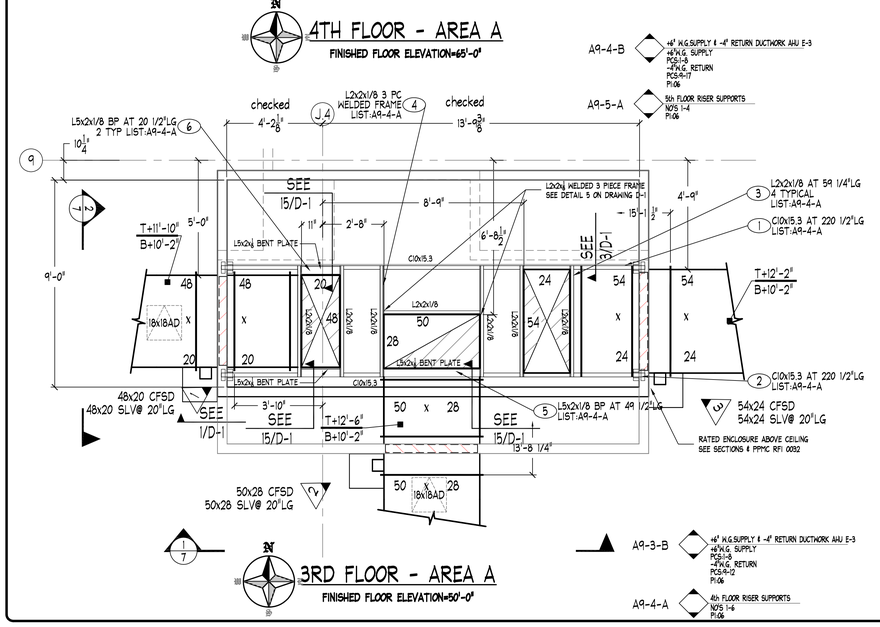
DRAWING NO.
5 OF 115

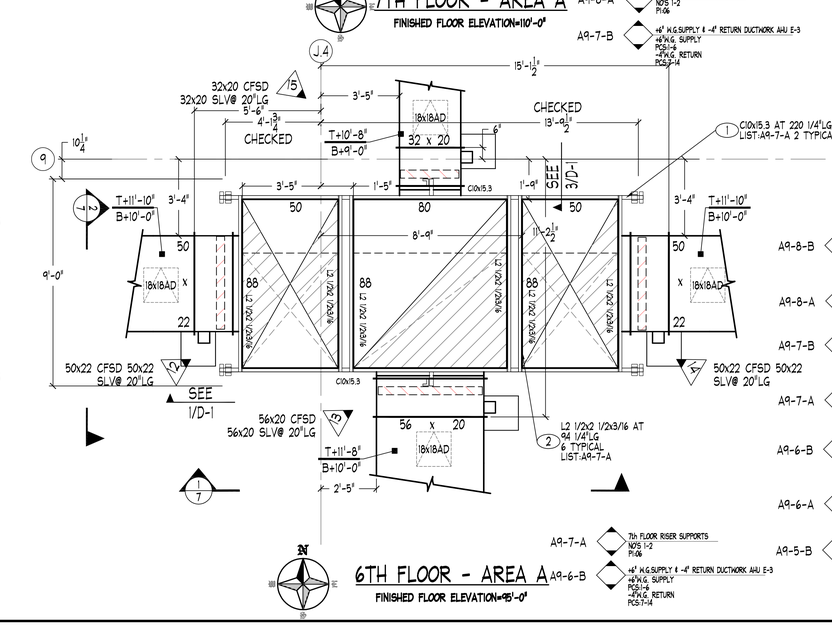








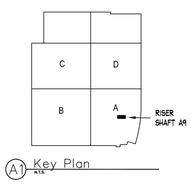




GENERAL NOTES:

1. Governing Building Code: California Building Code 2007 w// Title 24 Reqiirements
2. All post-installed expansion anchor bolts shall be 3/8" diameter Tru-bolt+ ITW/Ramset Redhead with 3" minimum embedment.
3. All post-installed expansion anchors shall be tested and inspected in accordance with the reqiirements noted on Dwg. S0.1.
4. Reposition expansion anchors that interfere with slab reinforcement. Do not reposition anchors any closer than 6" to the edge of the slab and maintain a minimum distance between anchors of 6".
5. All steel-to-steel bolted connections shall utilize A-307 bolts.
6. All steel shapes and plates shall be ASTM A-36.
7. All steel-to-steel welded connections shall use E-70XX electrodes. E-60XX electrodes may be used for welding light-gage metal ducts to steel.

NOTE: SUPPORTS SHOWN ARE LOCATED ON THE SLAB OF THE LEVEL ABOVE.



"PROJECT RECORD DRAWING"

NOTES

1. ELEVATIONS INDICATED ON THIS DRAWING ARE TO TOP OF DUCT. ALL ADJUSTMENTS TO BE MADE FOR TRANSVERSE CONNECTORS, FORDRIVING AND EXTERIOR INSULATION WHEN CONSTRUCTING DUCTWORK.

ABBREVIATIONS

ACCESS DOOR ACCESS PLATE	AD, AP	S	1. SPIRAL CONNECTOR
BOTTOM	BL, BOTT	SPR-IN	SPIN-IN FITTING
CENTERLINE	℄	SLV	SLEEVE
DOWN	D, DN	SP	STATIC PRESSURE
ESTIMATE CONNECTION	EST	T	T-BAR
FIRE DAMPER COMBINATION WITH SMOKE DAMPER	F, FSD	TDC	TRANSVERSE DUCT CONNECTOR
FLEXIBLE	FLEX	TH	THROAT
FIRE DAMPER	FD	TR	TRANSITION FITTING
FLANGE OUT	FO	TYP(S)	TYPICAL(S)
FLAT ON BOTTOM	FOB	TW	TRANSITION WIRES
FLAT ON SIDE	FOS	U	UP
FLAT ON TOP	FOT	V	VERTICAL
HORIZONTAL	H	VD	VOLUME DAMPER
INCH(ES)	IN	W	WITH
WALL	W	WG	WATER GAUGE
OFFSET	OFF	WB	WALL BRACKET
POUNDS	LBS	↑ ↓	PUMP, MOTOR

SYMBOL LEGEND

SYMBOL	DESCRIPTION
	FIRE DAMPER OR COMBINATION FIRE/SMOKE DAMPER W/ FUSIBLE LINK
	SMOKE DAMPER W/ FAIL OR AS INDICATED TYPE REGULATOR
	MANUAL VOLUME DAMPER WITH CEILING MOUNTED CONCEALED REGULATOR
	MOTORIZED DAMPER
	DUCTWORK ACCESS DOOR OR ACCESS PLATE
	DUCTWORK PIECE NO. INDICATOR
72"ø	TOP OF DUCT/BOTTOM OF DUCT ELEVATION INDICATOR

REVISIONS

NO.	DESCRIPTION	DATE
1	REVISED FOR RESUBMITTAL	11-24-09
2	REVISED PER OSHPD REVIEW	02-10-10
3	PREPARED FOR LISTING	05-17-10
4	LISTS A9-6-A, 7-A AND A9-8-A ADDED	04-09-10
5	PREPARED FOR LISTING	04-14-10
6	LIST A9-8-B ADDED	10-08-10
7	RISER BRACE ADDED	12-30-10
8	AS-BUILT RECORD DRAWING	9-7-12

MATERIAL LISTS

NO.	DESCRIPTION	DATE
A9-3-B	+6" W.G.SUPPLY & -4" RETURN	5-17-10
A9-4-A	4TH FLOOR RISER SUPPORTS	6-9-10
A9-4-B	+6" W.G.SUPPLY & -4" RETURN	6-08-10
A9-5-A	5TH FLOOR RISER SUPPORTS	6-9-10
A9-5-B	+6" W.G.SUPPLY & -4" RETURN	6-14-10
A9-6-A	6TH FLOOR RISER SUPPORTS	6-09-10
A9-6-B	+6" W.G.SUPPLY & -4" RETURN	6-14-10
A9-7-A	7TH FLOOR RISER SUPPORTS	6-09-10
A9-7-B	+6" W.G.SUPPLY & -4" RETURN	6-14-10
A9-8-A	8TH FLOOR RISER SUPPORTS	6-09-10
A9-8-B	+6" W.G.SUPPLY & -4" RETURN	6-14-10

HARRIS & HART INC.
1759 WEST 1200 SOUTH
OGDEN, UTAH. 84404
PHONE: (801) 731-0577
FAX NO: (801) 731-0580
WEBSITE: WWW.HARRIS-HART.COM
E-MAIL TO DETAILING DEPARTMENT:
ttaylor@harris-hart.com

JOB NO: 9507 PAY ITEM:
PROJECT: IL 0702072-30
CHOC HOSPITAL
ORANGE, CA
TITLE: DA #003
AREA A RISER SHAFT A9
HVAC SYSTEM LAYOUT
REFERENCE DRAWINGS:
ARCH: STRUCT: MECH:
BY: R.FRESTON
DATE: 08-14-09
SCALE: 3/8" =1'-0"
DRAWING NO. 6 OF 115

AREA A SHAFT A9 RISERS (AHU E-3)

LOOKING NORTH FROM GRIDLINE 9

1/7

AREA A SHAFT A9 RISERS (AHU E-3)

(UPPER RISER) LOOKING EAST FROM GRIDLINE J.4

2/7

AREA A SHAFT A9 RISERS (AHU E-3)

(LOWER RISER) LOOKING EAST FROM GRIDLINE J.4

2/7

GENERAL NOTES:

1. Governing Building Code: California Building Code 2007 w/ Title 24 Requirements
2. All post-installed expansion anchor bolts shall be 3/8" diameter Tru-bolt+ ITW/Ramset Redhead with 3" minimum embedment.
3. All post-installed expansion anchors shall be tested and inspected in accordance with the requirements noted on Dwg. S0.1.
4. Reposition expansion anchors that interfere with slab reinforcement. Do not reposition anchors any closer than 6" to the edge of the slab and maintain a minimum distance between anchors of 6".
5. All steel-to-steel bolted connections shall utilize A-307 bolts.
6. All steel shapes and plates shall be ASTM A-36.
7. All steel-to-steel welded connections shall use E-70XX electrodes. E-60XX electrodes may be used for welding light-gage metal ducts to steel.

NOTES

1. ELEVATIONS INDICATED ON THIS DRAWING ARE TO THE DUCT BODY. ALLOWANCES MUST BE MADE FOR INSULATION AND FINISH AS REQUIRED BY MECHANICAL AND EXTERIOR INSULATION WHEN COORDINATING ELEVATIONS.

ABBREVIATIONS

AD, AP	ACCESS DOOR, ACCESS PLATE	S & D	S & DRIVE CONNECTOR
B, BOTT	BOTTOM	SI	SPIN-IN FITTING
C, CL	CENTERLINE	SQ	SQUARE
D, DN	DOWN	SP, "	STATIC PRESSURE
DM	DUCTMATE CONNECTOR	T	TOP
F, FTM	FEMALE	TDC	TRANSVERSE DUCT CONNECTOR
FD	FIRE DAMPER	TH	TRAPEZE HANGER
FI	FLANGE IN	TRANS	TRANSITION FITTING
FO	FLANGE OUT	TV	TURNING VANES
FOB	FLANGE OUT BOTTOM	V	VERTICAL
FOS	FLAT ON SIDE	VD	VOLUME DAMPER
FOT	FLAT ON TOP	W	WITH
H	HORIZONTAL	WG	WATER GAUGE
M	MALE	WT	WALL TRUNCATOR
OS	OFFSET	∠	ANGLES
R	RADIUS	⌀	FEMALE INDICATOR

SYMBOL LEGEND

SYMBOL	DESCRIPTION
	FIRE DAMPER W/ COMBINATION FIRE/SMOKE DAMPER W/O.
	MANUAL VOLUME DAMPER WITH DIAL OR QUADRANT TYPE REGULATOR
	MOTORIZED DAMPER W/ CEDAC ACTUATED CONTROLLED REGULATOR
	MOTORIZED DAMPER
	DUCTWORK ACCESS DOOR OR ACCESS PLATE
	DUCTWORK PIECE NO. INDICATOR
	DIRECTION OF FLOW OF DUCT ELEVATION INDICATOR

MATERIAL LISTS

NO.	DESCRIPTION	DATE
A9-2-B	+6" W.G. SUPPLY & -4" RETURN DUCTWORK	5-17-10
A9-4-B	+6" W.G. SUPPLY & -4" RETURN DUCTWORK	6-28-10
A9-5-B	+6" W.G. SUPPLY & -4" RETURN DUCTWORK	6-29-10
A9-6-B	+6" W.G. SUPPLY & -4" RETURN DUCTWORK	9-14-10
A9-7-B	+6" W.G. SUPPLY & -4" RETURN DUCTWORK	9-14-10
A9-8-B	+6" W.G. SUPPLY & -4" RETURN DUCTWORK	10-08-10

REVISIONS

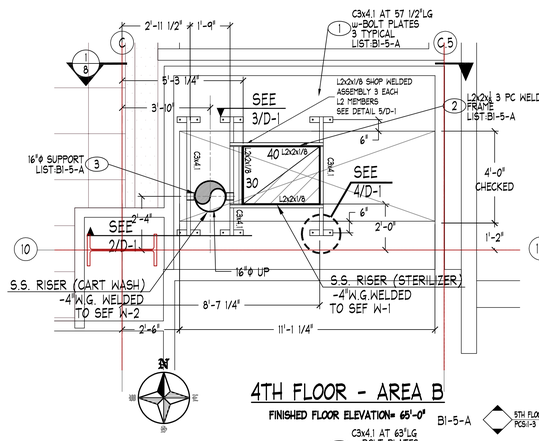
NO.	DESCRIPTION	DATE
1	REVISED FOR RESUBMITTAL	1-24-06
2	REVISED PER OSHPD REVIEW	05-17-10
3	PREPARED FOR LISTING	05-26-10
4	REVISED PER LISTING	06-09-10
5	REVISED PER LISTING	09-14-10
6	REVISED PER LISTING	09-14-10
7	REVISED PER FABRICATION	4-5-10
8	LIST A9-8-B ADDED	10-08-10
9	REVISED PER LISTING	10-27-10
10	RISER BRACES ADDED	12-30-10
11	AS-BUILT RECORD DRAWING	5-7-12

HARRIS & HART INC.
1759 WEST 1200 SOUTH
OGDEN, UTAH. 84404
PHONE: (801) 731-0577
FAX NO: (801) 731-0580
WEBSITE: WWW.HARRIS-HART.COM
E-MAIL TO DETAILING DEPARTMENT:
ttaylor@harris-hart.com

A1 Key Plan

JOB NO:	9507
PAY ITEM:	06
PROJECT:	IL 0702072-30 CHOC HOSPITAL ORANGE, CA
TITLE:	DA #003 AREA A RISER SHAFT A9 HVAC SYSTEM LAYOUT
REFERENCE DRAWINGS ARCH:	STRUCT: MECH:
BY:	R.FRESTON
DATE:	08-14-09
SCALE:	3/8" =1'-0"
DRAWING NO.	7 OF 115

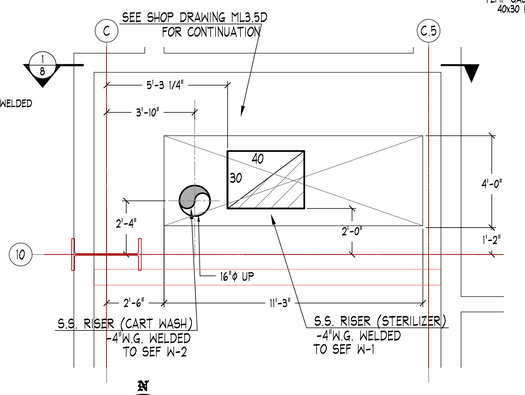
"PROJECT RECORD DRAWING"



4TH FLOOR - AREA B

FINISHED FLOOR ELEVATION= 65'-0"

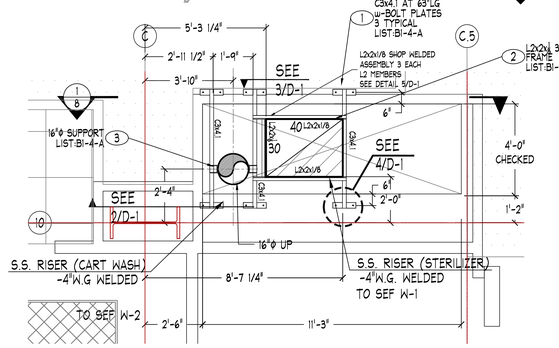
BI-5-A — 5TH FLOOR RISER SUPPORTS PCS1-3



5TH FLOOR (ROOF) - AREA B

FINISHED FLOOR ELEVATION= 80'-0"

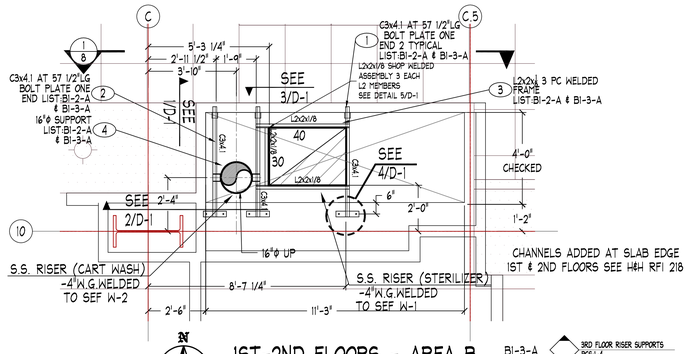
BI-5-B — -4" W.G. EXHAUST DUCTWORK SEF W-1 & W-2 3I6L 2B WELDED EXHAUST SEE DISHWASHER EXHAUST SECTION IN THE DCS NOTS 1-4



3RD FLOOR - AREA B

FINISHED FLOOR ELEVATION= 50'-0"

BI-4-A — 4TH FLOOR RISER SUPPORTS PCS1-3

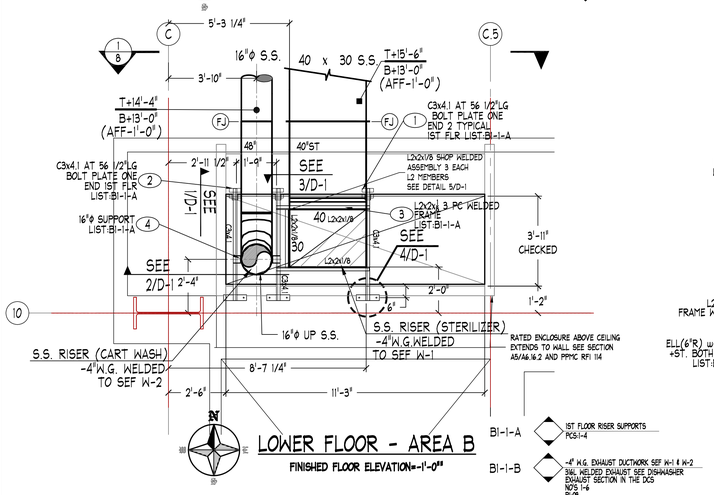


1ST-2ND FLOORS - AREA B

FINISHED FLOOR ELEVATION (SEE SECTION)

BI-3-A — 3RD FLOOR RISER SUPPORTS PCS1-4

BI-2-A — 2ND FLOOR RISER SUPPORTS PCS1-4



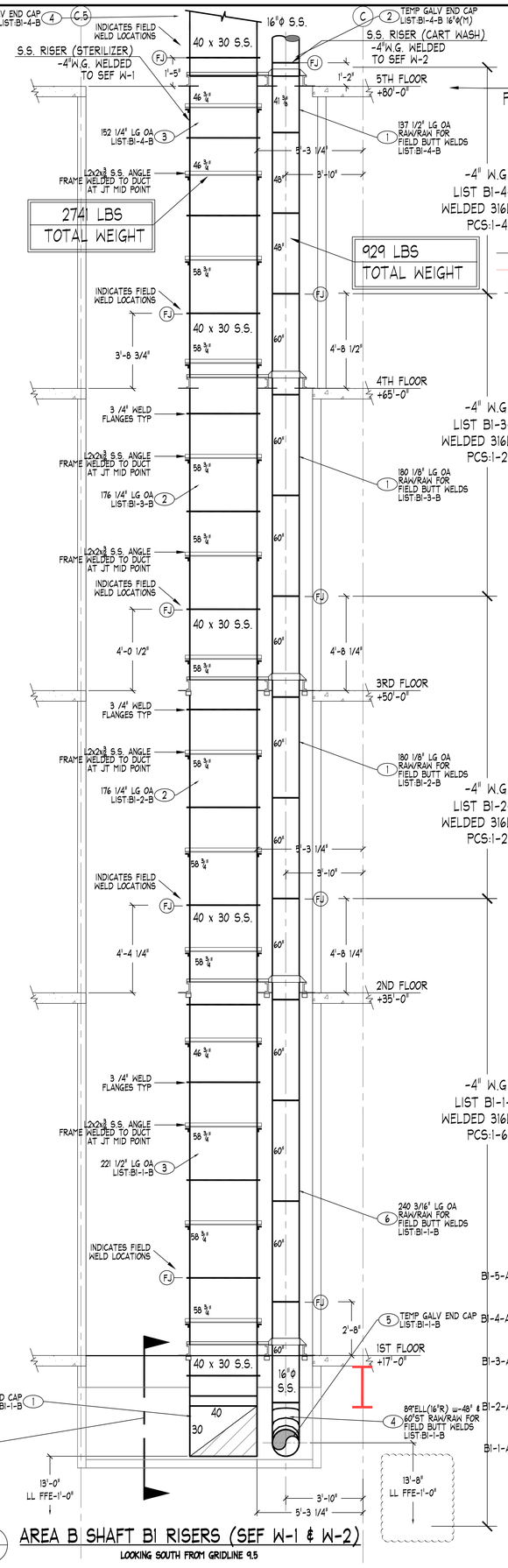
LOWER FLOOR - AREA B

FINISHED FLOOR ELEVATION=-1'-0"

BI-1-A — 1ST FLOOR RISER SUPPORTS PCS1-4

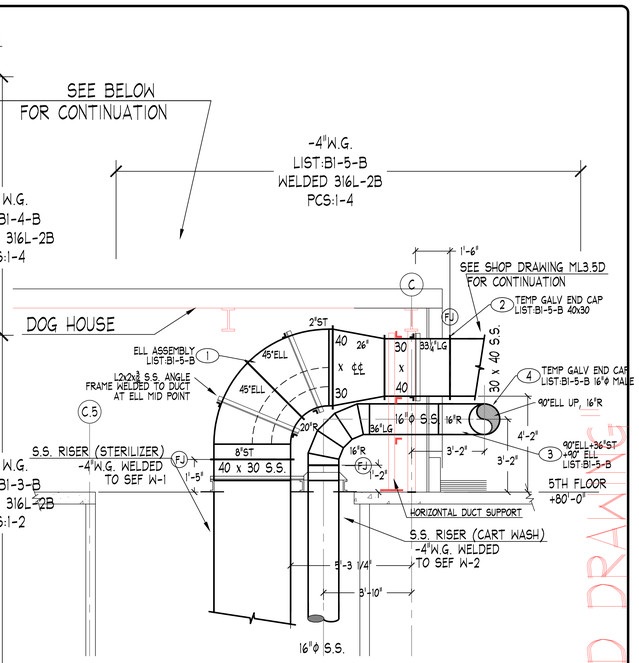
BI-1-B — -4" W.G. EXHAUST DUCTWORK SEF W-1 & W-2 3I6L WELDED EXHAUST SEE DISHWASHER EXHAUST SECTION IN THE DCS NOTS 1-6 PI:08

SECTION AT RISER BOTTOM



AREA B SHAFT BI RISERS (SEF W-1 & W-2)

LOOKING SOUTH FROM GRIDLINE 9.5



AREA B SHAFT BI RISERS (SEF W-1 & W-2)

LOOKING SOUTH FROM GRIDLINE 9.5

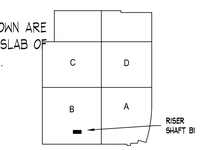
BI-5-A	5TH FLOOR RISER SUPPORTS PCS1-3	BI-5-B	-4" W.G. EXHAUST DUCTWORK SEF W-1 & W-2 3I6L 2B WELDED EXHAUST SEE DISHWASHER EXHAUST SECTION IN THE DCS NOTS 1-4 PI:08
BI-4-A	4TH FLOOR RISER SUPPORTS PCS1-3	BI-4-B	-4" W.G. EXHAUST DUCTWORK SEF W-1 & W-2 3I6L 2B WELDED EXHAUST SEE DISHWASHER EXHAUST SECTION IN THE DCS NOTS 1-4 PI:08
BI-3-A	3RD FLOOR RISER SUPPORTS PCS1-4	BI-3-B	-4" W.G. EXHAUST DUCTWORK SEF W-1 & W-2 3I6L WELDED EXHAUST SEE DISHWASHER EXHAUST SECTION IN THE DCS NOTS 1-2 PI:08
BI-2-A	2ND FLOOR RISER SUPPORTS PCS1-4	BI-2-B	-4" W.G. EXHAUST DUCTWORK SEF W-1 & W-2 3I6L WELDED EXHAUST SEE DISHWASHER EXHAUST SECTION IN THE DCS NOTS 1-2 PI:08
BI-1-A	1ST FLOOR RISER SUPPORTS PCS1-4	BI-1-B	-4" W.G. EXHAUST DUCTWORK SEF W-1 & W-2 3I6L WELDED EXHAUST SEE DISHWASHER EXHAUST SECTION IN THE DCS NOTS 1-4 PI:08

RISER SHAFT BI

GENERAL NOTES:

1. Governing Building Code: California Building Code 2007 w/ Title 24 Requirements
2. All post-installed expansion anchor bolts shall be 3/8" diameter Tru-bolt+ ITW/Ramset Redhead with 3"minimum embedment.
3. All post-installed expansion anchors shall be tested and inspected in accordance with the requirements noted on Dwg. S0.1.
4. Reposition expansion anchors that interfere with slab reinforcement. Do not reposition anchors any closer than 6"to the edge of the slab and maintain a minimum distance between anchors of 6".
5. All steel-to-steel bolted connections shall utilize A-307 bolts.
6. All steel shapes and plates shall be ASTM A-36.
7. All steel-to-steel welded connections shall use E-70XX electrodes. E-60XX electrodes may be used for welding light-gage metal ducts to steel.

NOTE: SUPPORTS SHOWN ARE LOCATED ON THE SLAB OF THE LEVEL ABOVE.



A1 Key Plan

"AS-BUILT RECORD DRAWING"

NOTES

1. ELEVATIONS INDICATED ON THIS DRAWING ARE TO THE DUCT BODY. ALLOWANCES MUST BE MADE FOR DUCT INSULATION WHEN REINFORCING AND EXTERIOR INSULATION WHEN COORDINATING ELEVATIONS.

ABBREVIATIONS

S & D	S & DRAK CONNECTOR	SV	STATIC PRESSURE
AD, AP	ACCESS DOOR, ACCESS PLATE	SP	TOP
&, BOTT	AND, BOTTOM	T	TEMPERATURE DUCT CONNECTOR
CL	CENTERLINE	TH	THROAT
D, DN	DOWN	TRANS	TRANSITION FITTING
DM	DUCTMATE CONNECTOR	TV	TURNING VANES
EA	EACH	U	UP
FD	FIRE DAMPER	V	VERTICAL
FI	FLANGE IN	VD	VOLUME DAMPER
FO	FLANGE OUT	W	WIDE
FOB	FLAT ON BOTTOM	WG	WATER GAUGE
FOS	FLAT ON SIDE	WI	WALL INDICATOR
FOT	FLAT ON TOP	WT	TEMPLE INDICATOR
H	HEIGHT/VERTICAL	-D	OFFSET RADIUS
MAU	MAKE UP AIR UNIT		
MD	MOTORIZED DAMPER		

SYMBOL LEGEND

SYMBOL	DESCRIPTION
	FIRE DAMPER OR COMBINATION FIRE/SMOKE DAMPER NO.
	MANUAL VOLUME DAMPER WITH DIAL LOCATED AT DUCT SURFACE
	MANUAL VOLUME DAMPER WITH CEILING MOUNTED CONCEALED REGULATOR
	MOTORIZED DAMPER
	DUCTWORK ACCESS DOOR OR ACCESS PLATE
	DUCTWORK PIECE NO.
	DIRECTION OF DUCT RISE/DROP
	TOP OF DUCT/BOTTOM OF DUCT ELEVATION INDICATOR

MATERIAL LISTS

NO.	DESCRIPTION	DATE	
BI-1-A	1ST FLOOR RISER SUPPORTS	7-13-10	PCS1-4
BI-2-A	2nd FLOOR RISER SUPPORTS	7-13-10	PCS1-4
BI-3-A	3rd FLOOR RISER SUPPORTS	7-13-10	PCS1-4
BI-4-A	4th FLOOR RISER SUPPORTS	7-13-10	PCS1-3
BI-5-A	5th FLOOR RISER SUPPORTS	7-13-10	PCS1-3
BI-1-B	-4" W.G. 3I6L WELDED EXHAUST	4-14-10	PCS1-6
BI-2-B	-4" W.G. 3I6L WELDED EXHAUST	5-24-10	PCS1-2
BI-3-B	-4" W.G. 3I6L WELDED EXHAUST	5-24-10	PCS1-2
BI-4-B	-4" W.G. 3I6L WELDED EXHAUST	5-24-10	PCS1-4
BI-5-B	-4" W.G. 3I6L WELDED EXHAUST	10-1-10	PCS1-4

REVISIONS

NO.	DESCRIPTION	DATE
1	CFSDA DELETED BY RFP# DRAWINGS	9-25-09
2	REVISED FOR RESUBMITTAL	11-24-09
3	1ST FLOOR PREPARED FOR LISTING	4-14-10
4	REVISED PER LISTING	4-29-10
5	REVISED PER LISTING	5-24-10
6	REVISED PER LISTING	6-10-10
7	REVISED TO MATCH FLOOR PLAN	7-8-10
8	RISER SUPPORT LISTS ADDED	9-2-10
9	5TH FLOOR ADDED	10-1-10
10	REVISED PER LISTING	10-27-10
11	AS-BUILT RECORD DRAWING	5-7-12

SHEET METAL CONTRACTORS & FABRICATORS
HARRIS & HART
HARRIS & HART INC.
1759 WEST 1200 SOUTH
OGDEN, UTAH. 84404
PHONE: (801) 731-0577
FAX NO: (801) 731-0580
WEBSITE: WWW.HARRIS-HART.COM
E-MAIL TO DETAILING DEPARTMENT:
ttaylor@harris-hart.com

JOB NO: 9507 PAY ITEM: 08

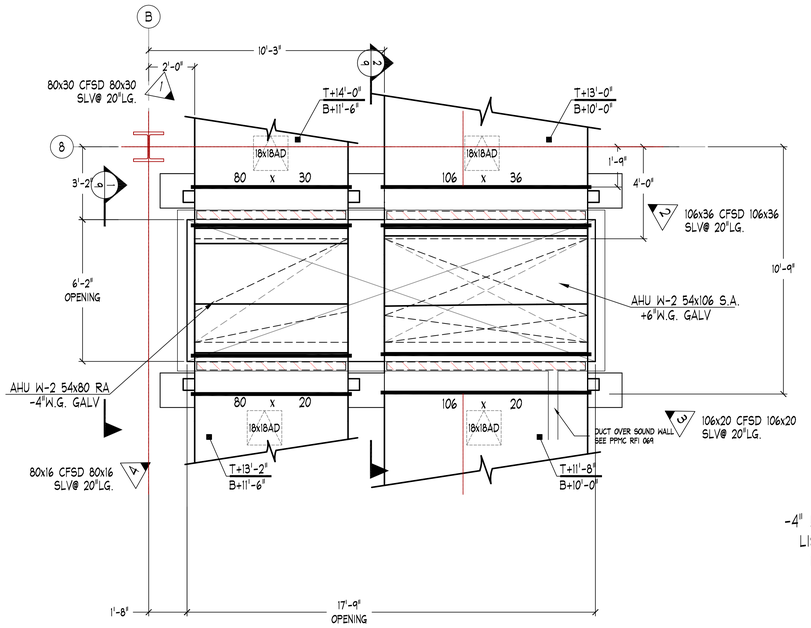
PROJECT: IL 0702072-30
CHOC HOSPITAL
ORANGE, CA

TITLE: DA #003
AREA B RISER SHAFT B1
HVAC SYSTEM LAYOUT

REFERENCE DRAWINGS:
ARCH: STRUCT: MECH:

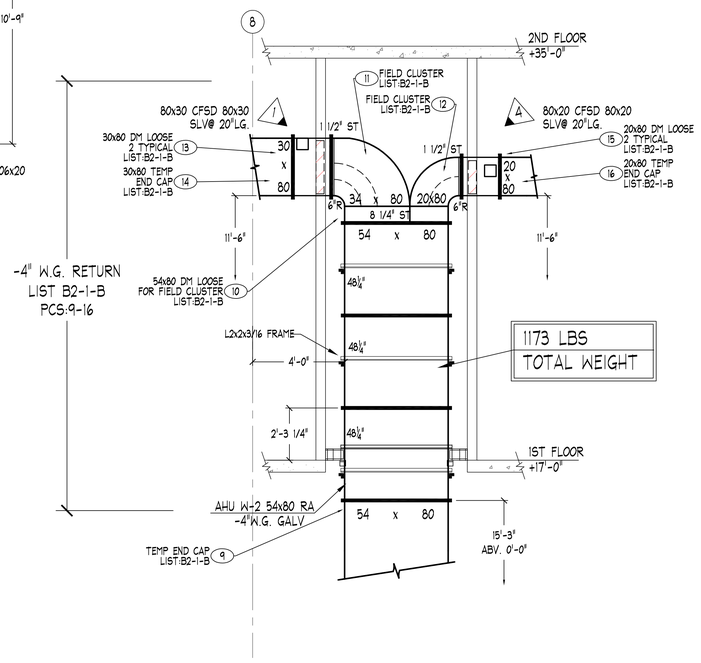
BY: R.FRESTON
DATE: 08-14-09
SCALE: 3/8" =1'-0"

DRAWING NO.
8 OF 115



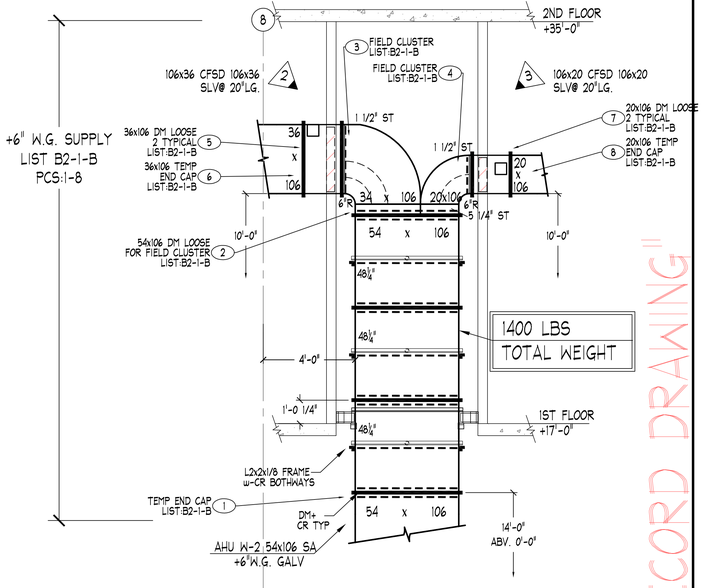
1ST FLOOR - AREA B

FINISHED FLOOR ELEVATION=17'-0"



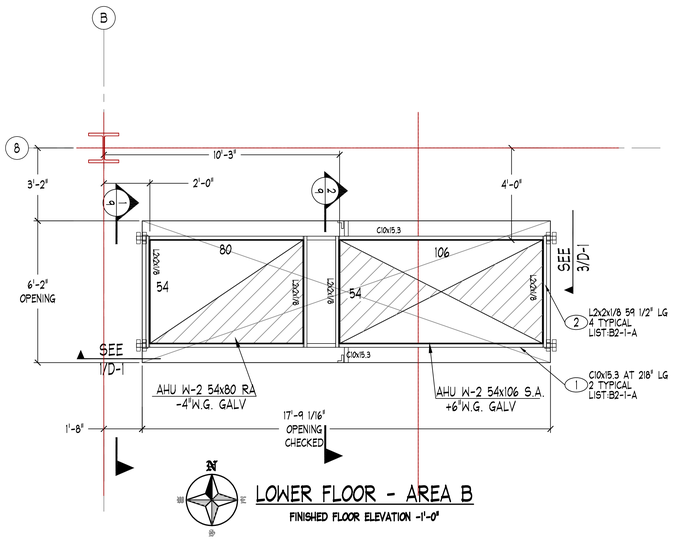
1/9 AREA B SHAFT B2 RISERS (AHU W-2 RETURN)

LOOKING EAST FROM GRIDLINE B



2/9 AREA B SHAFT B2 RISERS (AHU W-2 SUPPLY)

LOOKING EAST FROM GRIDLINE B



LOWER FLOOR - AREA B

FINISHED FLOOR ELEVATION -1'-0"

RISER SHAFT B2

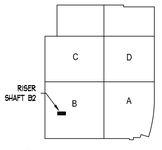
B2-1-B — -4" & +6"W.G. DUCTWORK FROM AHU W-1
NOTES 1-16
+6" W.G. SUPPLY PCS:1-8
-4" W.G. RETURN PCS:9-16
P1.09

B2-1-A — 1ST FLOOR RISER SUPPORTS
NOTES 1-2

GENERAL NOTES:

1. Governing Building Code: California Building Code 2007 w/ Title 24 Requirements
2. All post-installed expansion anchor bolts shall be 3/8" diameter Tru-bolt+ ITW/Ramset Redhead with 3" minimum embedment.
3. All post-installed expansion anchors shall be tested and inspected in accordance with the requirements noted on Dwg. S0.1.
4. Reposition expansion anchors that interfere with slab reinforcement. Do not reposition anchors any closer than 6" to the edge of the slab and maintain a minimum distance between anchors of 6".
5. All steel-to-steel bolted connections shall utilize A-307 bolts.
6. All steel shapes and plates shall be ASTM A-36.
7. All steel-to-steel welded connections shall use E-70XX electrodes. E-60XX electrodes may be used for welding light-gage metal ducts to steel.

NOTE: SUPPORTS SHOWN ARE LOCATED ON THE SLAB OF THE LEVEL ABOVE.



A1 Key Plan

"PROJECT RECORD DRAWING"

NOTES

1. ELEVATIONS INDICATED ON THIS DRAWING ARE TO TOP OF FLOOR SLAB. ALLOWANCE SHALL BE MADE FOR TRANSVERSE CONSTRUCTION, REINFORCING AND EXTERIOR INSULATION WHEN COORDINATING ELEVATIONS.

ABBREVIATIONS

A/C, AP	ACCESS DOOR, ACCESS PLATE	S & D	S & DRIVE CONNECTION
ALT. DUCT	ALTERNATE DUCTWORK	SD	SMOKE DETECTOR
C, CL	CENTERLINE	SLV	SLEEVE
D, DN	DOWN	SP	STATIC PRESSURE
DC	DUCT SMOKE DETECTOR	T	TEMPERATURE
F, FTM	FLANGE TO MATCH DIM. ON OPPOSITE SIDE OF DAMPER	TDC	TRANSVERSE DUCT CONNECTION
FD	FIRE DAMPER	TH	THROAT
FL	FLANGE IN	TRANS	TRANSITION FITTING
FSD	FIRE/SMOKE DAMPER	TW	TURNING VANES
FDS	FLAT OVAL BOTTOM	U	UP
FOS	FLAT ON SIDE	V	VERTICAL
FOT	FLAT ON TOP	VD	VOLUME DAMPER
FPC	FIRE PROTECTION	W	WEST
M.A.T.	MANUAL VOLUME DAMPER WITH CEILING MOUNTED CONCEALED REGULATOR	WG	WATER GAUGE
MD	MOTORIZED DAMPER	WI	WALL INDICATOR
	DUCTWORK ACCESS DOOR OR ACCESS PLATE	WP	WALL PENETRATION
	DUCTWORK PIECE NO.		
	TOP OF DUCT/BOTTOM OF DUCT ELEVATION INDICATOR		

SYMBOL LEGEND

SYMBOL	DESCRIPTION
	FIRE DAMPER OR COMBINATION FIRE/SMOKE DAMPER W/O SMOKE DETECTOR
	FIRE/SMOKE DAMPER WITH SMOKE DETECTOR AND SOLENOID TYPE REGULATOR
	MANUAL VOLUME DAMPER WITH CEILING MOUNTED CONCEALED REGULATOR
	MOTORIZED DAMPER
	DUCTWORK ACCESS DOOR OR ACCESS PLATE
	DUCTWORK PIECE NO.
	TOP OF DUCT/BOTTOM OF DUCT ELEVATION INDICATOR

MATERIAL LISTS

DATE	NO.	DESCRIPTION
07-27-10	B2-1-A	RISER SUPPORTS PCS:1-2
04-20-10	B2-1-B	-4" & +6" W.G. DUCTWORK PCS:1-16

REVISIONS:

DATE	NO.	DESCRIPTION
11-24-09	1	REVISED FOR RESUBMITTAL
04-20-10	2	PREPARED FOR LISTING
4-29-10	3	REVISED PER LISTING
6-03-10	4	CFSD NUMBERS ADDED
6-10-10	5	RISER SUPPORTS ADDED
12-30-10	6	RISER BRACES ADDED
5-7-12	7	AS-BUILT RECORD DRAWING

SHEET METAL CONTRACTORS & FABRICATORS
HARRIS & HART

HARRIS & HART INC.
1759 WEST 1200 SOUTH
OGDEN, UTAH. 84404
PHONE: (801) 731-0577
FAX NO: (801) 731-0580
WEBSITE: WWW.HARRIS-HART.COM
E-MAIL TO DETAILING DEPARTMENT:
ttaylor@harris-hart.com

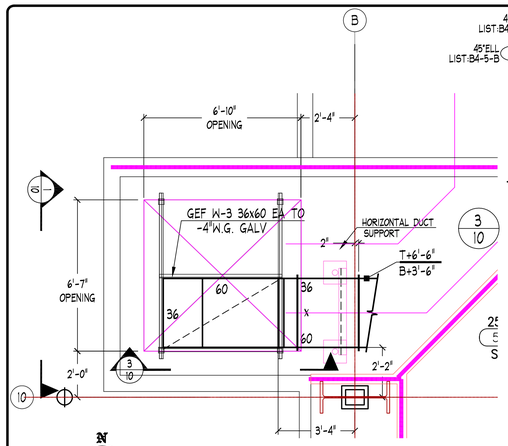
JOB NO: 9507 PAY ITEM:

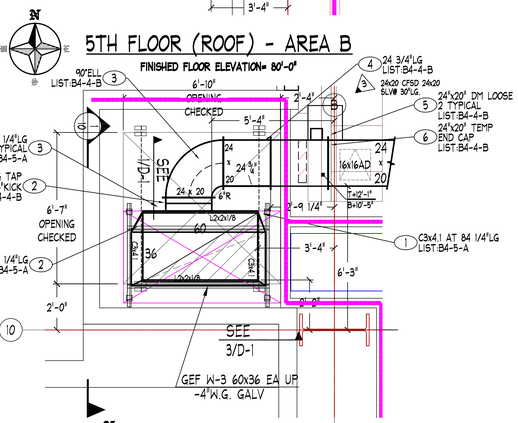
PROJECT: IL 0702072-30
CHOC HOSPITAL
ORANGE, CA

TITLE: DA #003
AREA B RISER SHAFT B2
HVAC SYSTEM LAYOUT

REFERENCE DRAWINGS
ARCH: STRUCT: MECH:

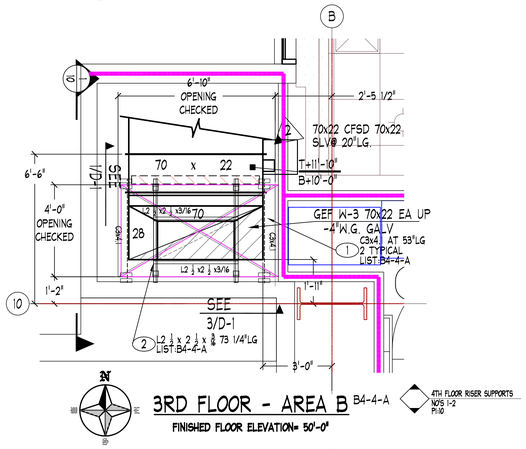
BY: R.FRESTON DRAWING NO.
DATE: 08-14-09 9 OF 115
SCALE: 3/8" =1'-0"





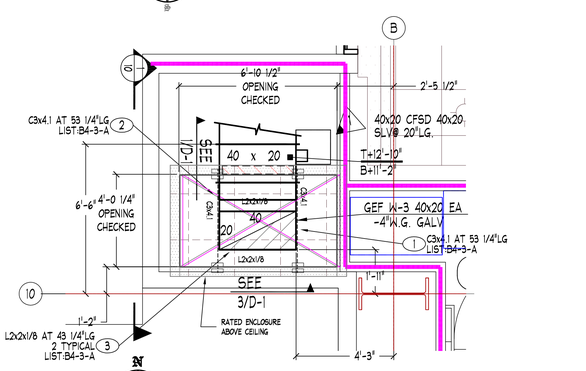
4TH FLOOR - AREA B
FINISHED FLOOR ELEVATION= 65'-0"

B4-5-A — 5TH FLOOR RISER SUPPORTS NOS 1-3 PI:10



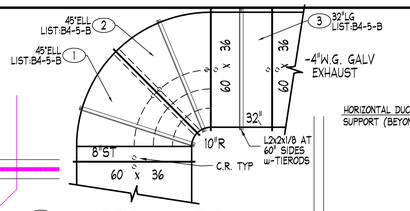
3RD FLOOR - AREA B
FINISHED FLOOR ELEVATION= 50'-0"

B4-4-A — 4TH FLOOR RISER SUPPORTS NOS 1-2 PI:10

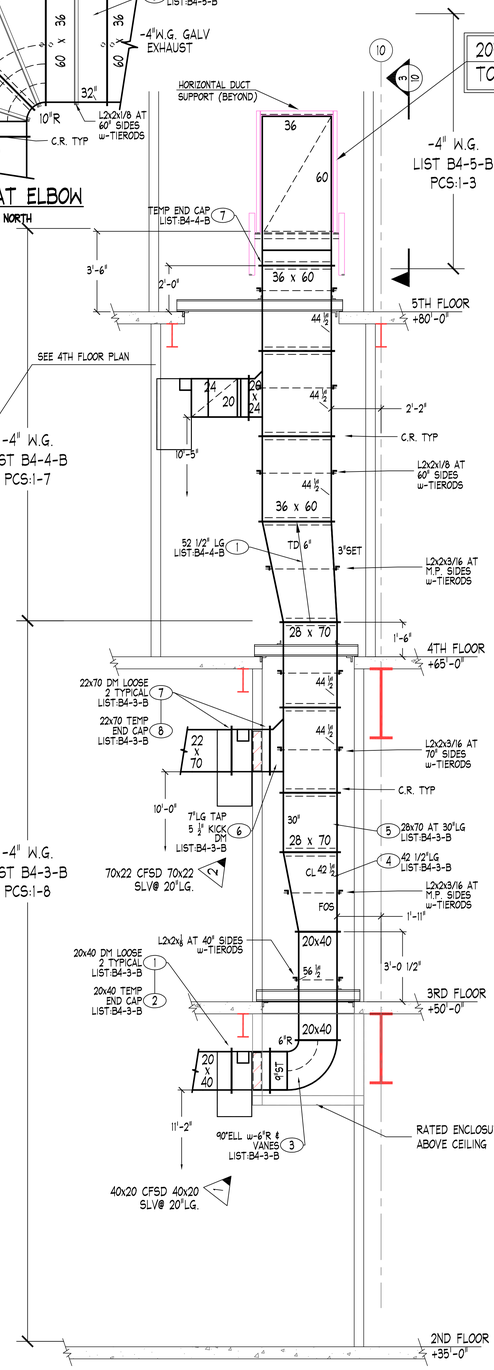


2ND FLOOR - AREA B
FINISHED FLOOR ELEVATION= 35'-0"

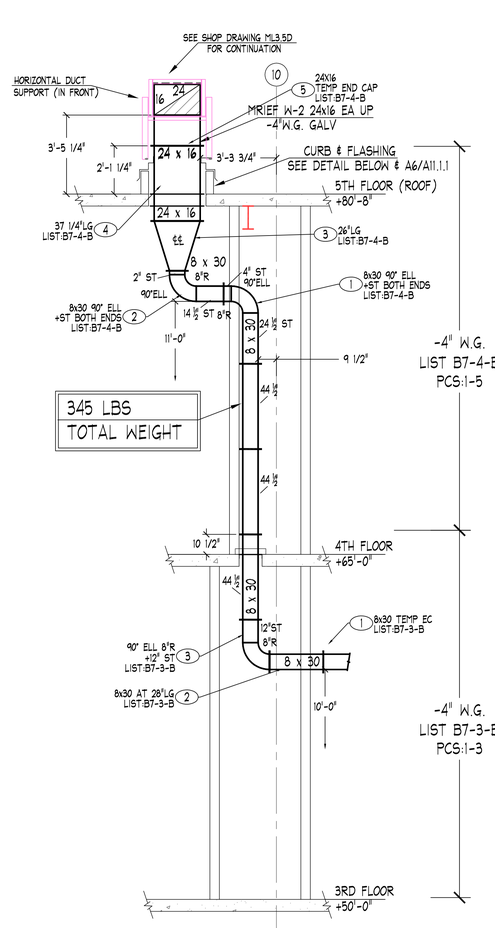
B4-3-A — 3RD FLOOR RISER SUPPORTS NOS 1-3 PI:10



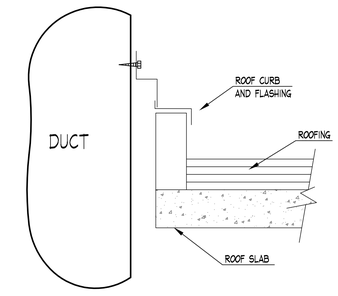
SECTION AT ELBOW
LOOKING NORTH



1/10 AREA B SHAFT B4 RISER (GEF W-3)
LOOKING EAST FROM GRIDLINE A.5



2/10 AREA B SHAFT B7 RISER (MRIEF W-2)
LOOKING EAST FROM GRIDLINE D

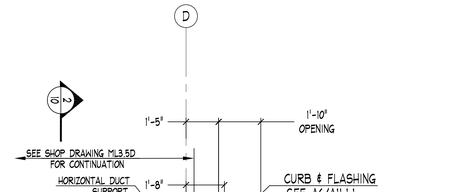


DETAIL AT ROOF CURB
SEE DETAIL A6/A11.1.1

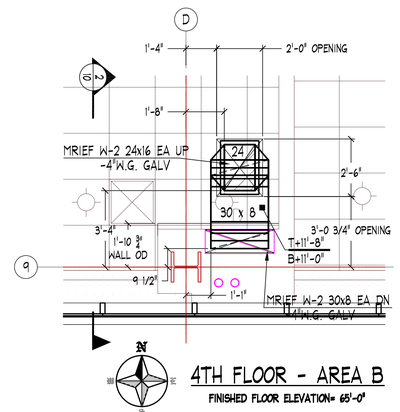
RISER SHAFT B4

B4-3-A	3RD FLOOR RISER SUPPORTS NOS 1-3 PI:10	B4-5-B — -4" EXHAUST DUCTWORK MRIEF GEF W-3 NOS 1-3 PI:10
B4-4-A	4TH FLOOR RISER SUPPORTS NOS 1-2 PI:10	B7-4-B — -4" EXHAUST DUCTWORK MRIEF W-2 NOS 1-5 PI:10
B4-5-A	5TH FLOOR RISER SUPPORTS NOS 1-3 PI:10	B4-4-B — -4" EXHAUST DUCTWORK MRIEF GEF W-3 NOS 1-7 PI:10
B7-4-A	4TH FLOOR RISER SUPPORTS NOS 1-2 PI:10	B7-3-B — -4" EXHAUST DUCTWORK MRIEF W-2 NOS 1-3 PI:10
		B4-3-B — -4" EXHAUST DUCTWORK GEF W-3 NOS 1-8 PI:10

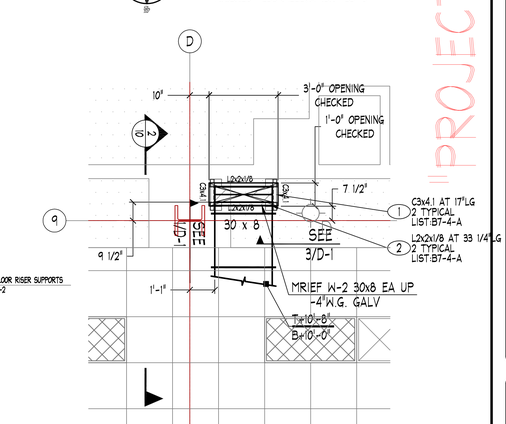
NOTE: SUPPORTS SHOWN ARE LOCATED ON THE SLAB OF THE LEVEL ABOVE.



5TH FLOOR (ROOF) - AREA B
FINISHED FLOOR ELEVATION= 80'-0"



4TH FLOOR - AREA B
FINISHED FLOOR ELEVATION= 65'-0"

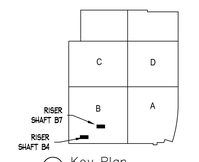


B7-4-A — 4TH FLOOR RISER SUPPORTS NOS 1-2 PI:10

RISER SHAFT B7

GENERAL NOTES:

1. Governing Building Code: California Building Code 2007 w/ Title 24 Requirements
2. All post-installed expansion anchor bolts shall be 3/8" diameter Tru-bolt+ ITW/Ramset Redhead with 3" minimum embedment.
3. All post-installed expansion anchors shall be tested and inspected in accordance with the requirements noted on Dwg. S0.1.
4. Reposition expansion anchors that interfere with slab reinforcement. Do not reposition anchors any closer than 6" to the edge of the slab and maintain a minimum distance between anchors of 6".
5. All steel-to-steel bolted connections shall utilize A-307 bolts.
6. All steel shapes and plates shall be ASTM A-36.
7. All steel-to-steel welded connections shall use E-70XX electrodes. E-60XX electrodes may be used for welding light-gage metal ducts to steel.



A1 Key Plan

NOTES

1. ELEVATIONS INDICATED ON THE DRAWING ARE TO THE DUCT BODY. ALLOWANCES MUST BE MADE FOR DUCT SUPPORTS, SEALANT, REINFORCING AND EXTERIOR INSULATION WHEN COORDINATING ELEVATIONS.

ABBREVIATIONS

AD, Ø	ACCESS DOOR, ACCESS PLATE	S & D	S & D DRIVE CONNECTOR	TDF	TRANSVERSE DUCT CONNECTOR	VD	VOLUME DAMPER
B, BOT	BOTTOM	SI	STAINLESS STEEL	TG	TURNING VANES	W	WIDTH, GAUGE
C, CH	CEILING, CHANNEL	SM	SHEET METAL	TV	TURNING VANES	WG	WIRE GUIDE
D, DN	DOWN	SP	STATIC PRESSURE	V	VERTICAL	WI	WALL INDICATOR
DM	DUCTMATE CONNECTOR	T	TOP	VD	VOLUME DAMPER	(F)	FEMALE INDICATOR
F, FTM	FEMALE, FLANGE TO MALE	TDC	TRANSVERSE DUCT CONNECTOR	W	WIDTH, GAUGE	(M)	MALE INDICATOR
FD	FIRE DAMPER	TF	TRANSITION FITTING	WG	WIRE GUIDE	(F/M)	FEMALE / MALE INDICATOR
FI	FLANGE IN	TG	TURNING VANES	WI	WALL INDICATOR		
FO	FLANGE OUT	V	VERTICAL	(F)	FEMALE INDICATOR		
FOB	FLAT OBLONG BOTTOM	VD	VOLUME DAMPER	(M)	MALE INDICATOR		
FOS	FLAT ON SIDE	W	WIDTH, GAUGE	(F/M)	FEMALE / MALE INDICATOR		
FOT	FLAT ON TOP	WG	WIRE GUIDE				
H	HORIZONTAL	WI	WALL INDICATOR				
L	LENGTH	(F)	FEMALE INDICATOR				
OS	OFFSET	(M)	MALE INDICATOR				
R	RADIUS	(F/M)	FEMALE / MALE INDICATOR				

SYMBOL LEGEND

SYMBOL	DESCRIPTION
	FIRE DAMPER OR COMBINATION FIRE/SMOKE DAMPER W/D.
	MANUAL VOLUME DAMPER WITH SEAL OR EQUIVALENT TYPE REGULATOR
	CEILING MOUNTED CONCEALED REGULATOR
	ACCESS DOOR, ACCESS DOOR OR ACCESS PLATE
	DUCTWORK PIECE NO.
	INDICATOR
	ELEVATION INDICATOR

MATERIAL LISTS

NO.	DESCRIPTION	DATE
B4-3-A	3RD FLOOR SUPPORTS	7-28-10
B4-4-A	4TH FLOOR SUPPORTS	7-28-10
B4-5-A	5TH FLOOR SUPPORTS	7-28-10
B4-3-B	-4"W.G. EXHAUST DUCTWORK	05-14-10
B7-3-B	3RD FLOOR SUPPORTS	7-28-10
B7-4-B	4TH FLOOR SUPPORTS	05-14-10
B4-4-B	-4"W.G. EXHAUST DUCTWORK	06-07-10
B7-4-B	-4"W.G. EXHAUST DUCTWORK	06-07-10
B4-5-B	-4"W.G. EXHAUST DUCTWORK	10-12-10

REVISIONS

NO.	DESCRIPTION	DATE
1	REVISED FOR RESUBMITTAL	11-24-09
2	REVISED PER OWNER REVIEW	01-26-10
3	PREPARED FOR LISTING	04-14-10
4	REVISED PER LISTING	05-24-10
5	REVISED PER LISTING	06-09-10
6	REVISED PER LISTING	04-02-10
7	RISER SUPPORTS ADDED	10-12-10
8	RISER LIST B4-5-B ADDED	10-27-10
9	AS-BUILT RECORD DRAWING	5-7-12

"AS-BUILT RECORD DRAWING" PROJECT

SHEET METAL CONTRACTORS & FABRICATORS
HARRIS & HART INC.
1759 WEST 1200 SOUTH
OGDEN, UTAH. 84404
PHONE: (801) 731-0577
FAX NO: (801) 731-0580
WEBSITE: WWW.HARRIS-HART.COM
E-MAIL TO DETAILING DEPARTMENT:
ttaylor@harris-hart.com

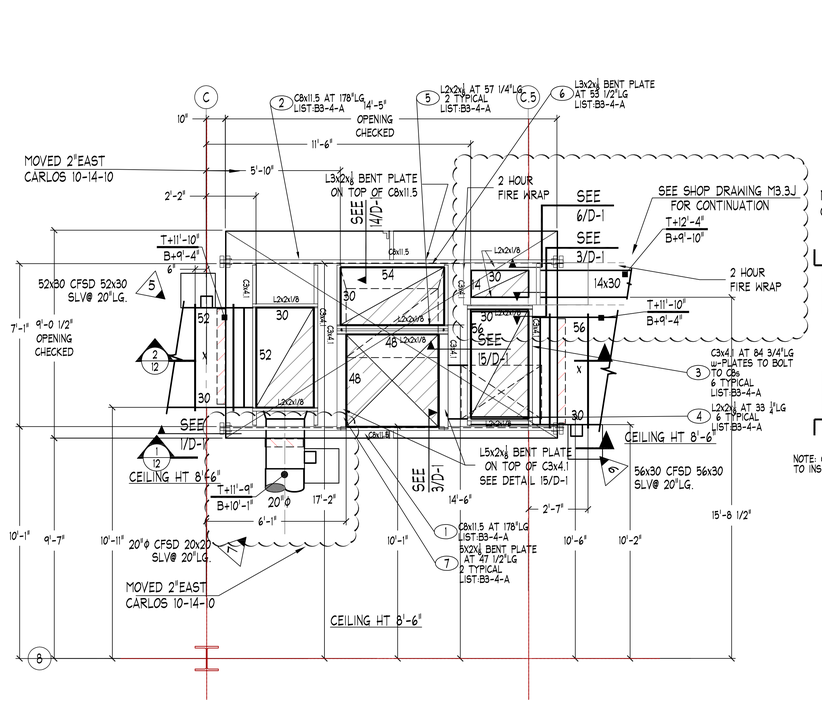
JOB NO: 9507 PAY ITEM: 10

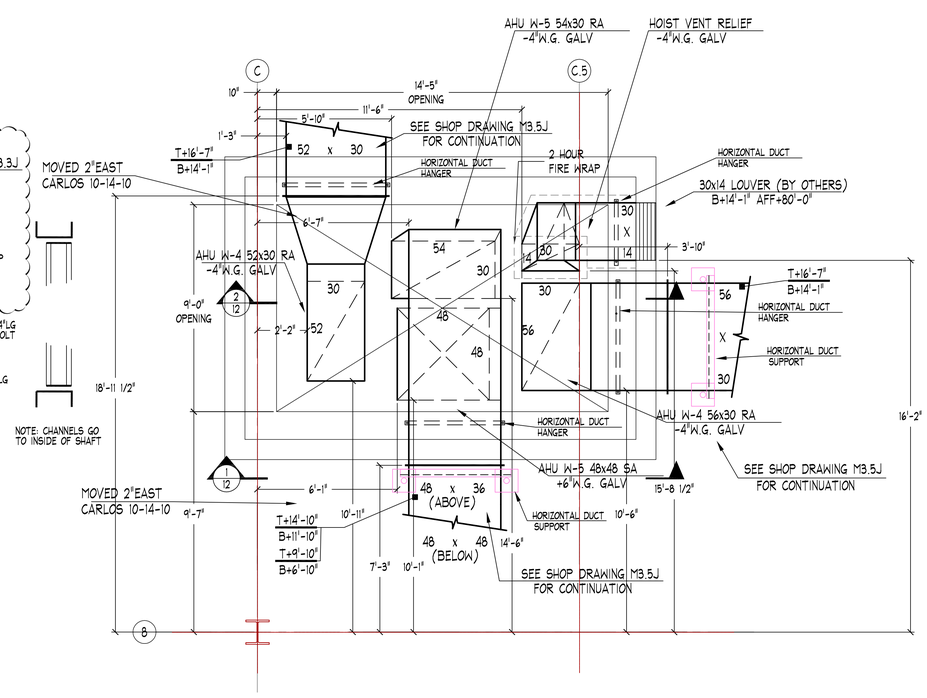
PROJECT: IL 0702072-30
CHOC HOSPITAL
ORANGE, CA

TITLE: DA #003
AREA B RISER SHAFT B4 & B7
HVAC SYSTEM LAYOUT

REFERENCE DRAWINGS
ARCH: STRUCT: MECH:

BY: R.FRESTON DRAWING NO.
DATE: 08-14-09 10 OF 115
SCALE: 3/8" =1'-0"





3RD FLOOR - AREA B

FINISHED FLOOR ELEVATION= 50'-0"

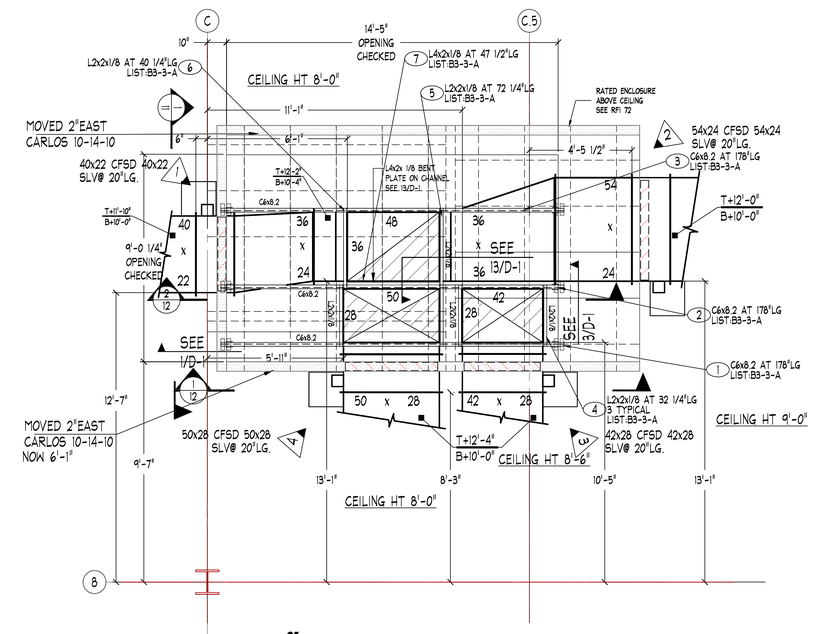
B3-3-B: +6" W.G.SUPPLY & -4"W.G. RETURN DUCTWORK AHU W-5 +6"W.G. SUPPLY NOTS 1-4 SEE DRAWING 12 -4"W.G. RETURN NOTS 5-15 NOTS 1-14 P1.11

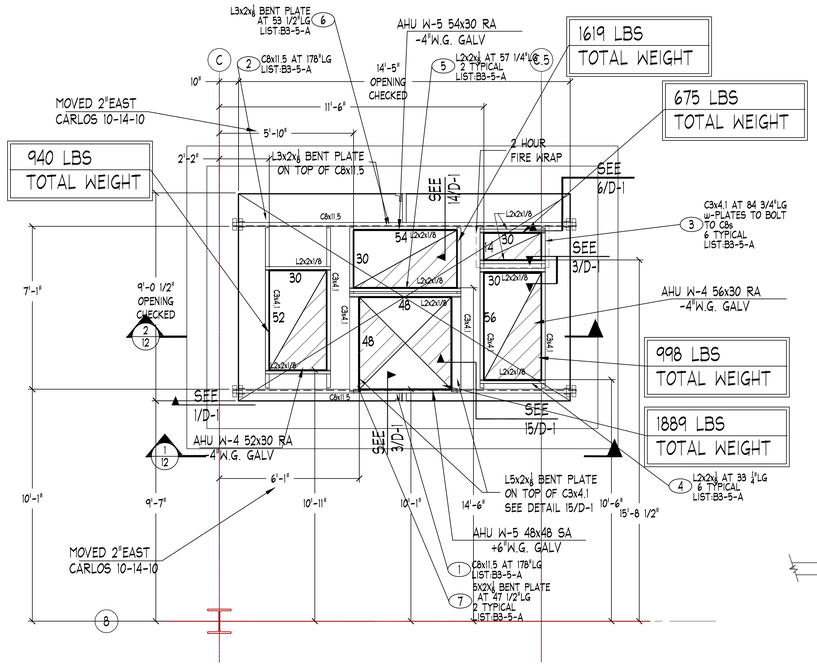
B3-4-A: 4TH FLOOR RISER SUPPORTS NOTS 1-7 P1.11

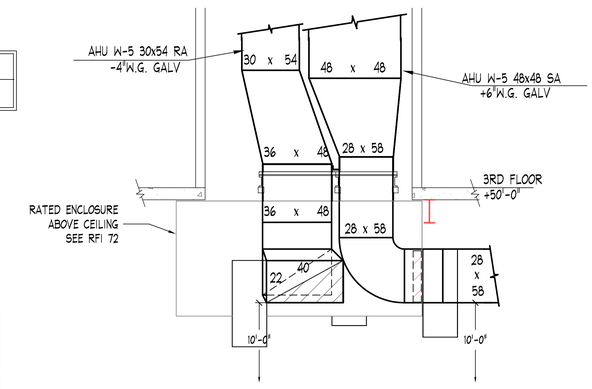
5TH FLOOR (ROOF) - AREA B

FINISHED FLOOR ELEVATION= SLOPES ±80'-3"

B3-5-B: +6" W.G.SUPPLY & -4"W.G. RA & SA DUCTWORK AHU W-5 +6"W.G. SUPPLY NOTS 1-4 ±4"W.G. RA & SA NOTS 5-16 NOTS 1-16 P1.11







2ND FLOOR - AREA B

FINISHED FLOOR ELEVATION= 35'-0"

B3-2-B: +6" W.G.SUPPLY & -4"W.G. RETURN DUCTWORK AHU W-5 +6"W.G. SUPPLY NOTS 1-8 SEE DRAWING 12 -4"W.G. RETURN NOTS 6-14 NOTS 1-14 P1.11

B3-3-A: 3RD FLOOR RISER SUPPORTS NOTS 1-7 P1.11

4TH FLOOR - AREA B

FINISHED FLOOR ELEVATION= 65'-0"

B3-4-B: +6" W.G.SUPPLY & -4"W.G. RA & SA DUCTWORK AHU W-5 +6"W.G. SUPPLY NOTS 1-2 ±4"W.G. RA & SA NOTS 3-7 NOTS 1-7 P1.11

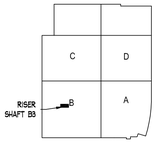
B3-5-A: 5TH FLOOR RISER SUPPORTS NOTS 1-7 P1.11

AREA B SHAFT B3 RISER (PARTIAL VIEW)

LOOKING NORTH FROM GRIDLINE 8

(1/11)

NOTE: SUPPORTS SHOWN ARE LOCATED ON THE SLAB OF THE LEVEL ABOVE.



(A1) Key Plan

GENERAL NOTES:

1. Governing Building Code: California Building Code 2007 w/ Title 24 Requirements
2. All post-installed expansion anchor bolts shall be 3/8" diameter Tru-bolt+ ITW/Ramset Redhead with 3" minimum embedment.
3. All post-installed expansion anchors shall be tested and inspected in accordance with the requirements noted on Dwg. S0.1.
4. Reposition expansion anchors that interfere with slab reinforcement. Do not reposition anchors any closer than 6" to the edge of the slab and maintain a minimum distance between anchors of 6".
5. All steel-to-steel bolted connections shall utilize A-307 bolts.
6. All steel shapes and plates shall be ASTM A-36.
7. All steel-to-steel welded connections shall use E-70XX electrodes. E-60XX electrodes may be used for welding light-gage metal ducts to steel.

"PROJECT RECORD DRAWING"

NOTES

1. ELEVATIONS INDICATED ON THIS DRAWING ARE MINIMUM. ROOF ALLOWANCES MUST BE MADE FOR ROOF SLOPE, ROOF FRAMING, REINFORCING AND EXTERIOR INSULATION WHEN COORDINATING ELEVATIONS.

ABBREVIATIONS

AD, AP	ACCESS DOOR, ACCESS PLATE	S & D	S & DRIVE CONNECTION
B, BOT	BOTTOM	SCFM	STANDARD CFM
CL	CENTERLINE	SLD'G	SLIDING
D, DN	DOWN	SP	STATIC PRESSURE
DC	DUCTWORK CONNECTION	TEMP	TEMPERATURE
EA	EACH	TDC	TURNBUCKLE DUCT CONNECTION
F, FPM	FEET, FEET PER MINUTE	THRT	THROAT
FD	FIRE DAMPER	TR	TRANSITION FITTING
FL	FLANGE IN	TRANS	TRANSFER GRILLE
FLEX	FLEXIBLE DUCT	TV	TURNING VANES
FD	FIRE DOOR	U	UP
FOB	MOTORIZED DAMPER	V	VERTICAL
FOS	DUCTWORK ACCESS DOOR OR ACCESS PLATE	VD	VOLUME DAMPER
FOT	DUCTWORK PIECE NO.	W	WIDE
H	HORIZONTAL	WG	WATER GAUGE
M	WALL	WS	WALL SLEEVE
OS	OFFSET	WT	WALL THICKNESS
R	RADIUS		

SYMBOL LEGEND

SYMBOL	DESCRIPTION
	FIRE DAMPER OR COMBINATION
	FIRE/SMOKE DAMPER NO.
	MANUAL VOLUME DAMPER WITH SPECIAL QUADRANT TYPE REGULATOR
	MANUAL VOLUME DAMPER WITH CEILING MOUNTED CONCEALED REGULATOR
	MOTORIZED DAMPER
	DUCTWORK ACCESS DOOR OR ACCESS PLATE
	DUCTWORK PIECE NO.
	FLAT ON BOTTOM
	FLAT ON SIDE
	FLAT ON TOP
	RISE/DROP
	TOP OF DUCT/BOTTOM OF DUCT ELEVATION INDICATOR

MATERIAL LISTS

NO.	DESCRIPTION	DATE
B3-3-A	3RD FLOOR RISER SUPPORTS	7-27-10
B3-4-A	4th FLOOR RISER SUPPORTS	7-27-10
B3-5-A	5th FLOOR RISER SUPPORTS	7-27-10
B3-2-B	+6" & -4" W.G. DUCTWORK AHU W-5	5-9-10
B3-3-B	+6" & -4" W.G. DUCTWORK AHU W-5	5-9-10
B3-4-B	+6" & -4" W.G. DUCTWORK AHU W-5	5-9-10
B3-5-B	+6" & -4" W.G. DUCTWORK AHU W-5	10-13-10

REVISIONS

NO.	DESCRIPTION	DATE
1	REVISED FOR RESUBMITTAL	11-24-09
2	REVISED PER OSHPD REVIEW	01-28-10
3	REVISED PER CONSTRUCTION RFI 225-VENTS ADDED	03-24-10
4	RISER SUPPORTS ADDED	04-02-10
5	5TH FLOOR DUCT LISTED	10-13-10
6	RISER BRACES ADDED	12-30-10
7	AS-BUILT RECORD DRAWING	5-7-12

SHEET METAL CONTRACTORS & FABRICATORS
HARRIS & HART
HARRIS & HART INC.
1759 WEST 1200 SOUTH
OGDEN, UTAH. 84404
PHONE: (801) 731-0577
FAX NO: (801) 731-0580
WEBSITE: WWW.HARRIS-HART.COM
E-MAIL TO DETAILING DEPARTMENT:
ttaylor@harris-hart.com

JOB NO: 9507 PAY ITEM:

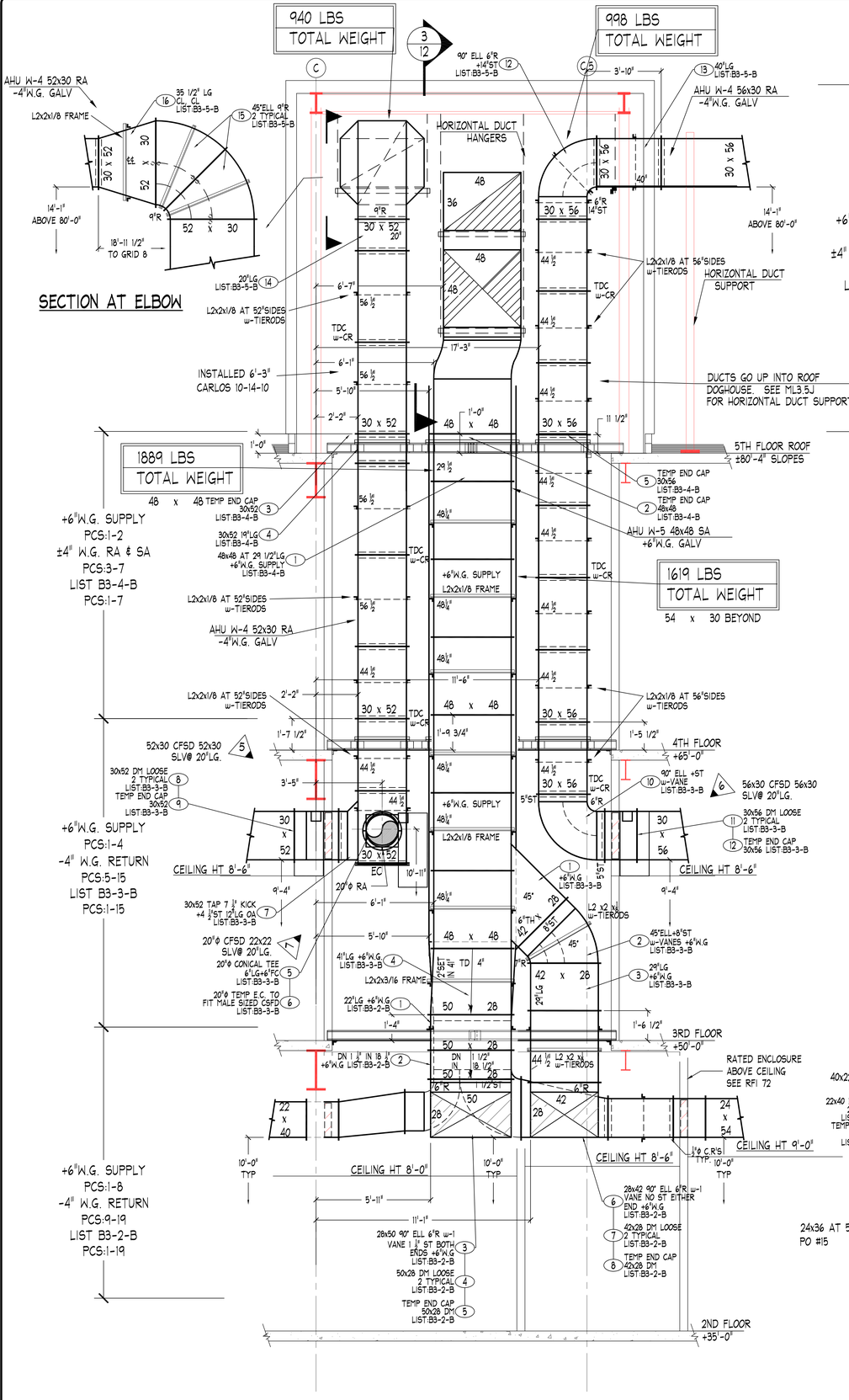
PROJECT: IL 0702072-30
CHOC HOSPITAL
ORANGE, CA

TITLE: DA #003
AREA B RISER SHAFT B3
HVAC SYSTEM LAYOUT

REFERENCE DRAWINGS
ARCH: STRUCT: MECH:

BY: R.FRESTON
DATE: 08-17-09
SCALE: 3/8" =1'-0"

DRAWING NO.
11 of 115



1/12 AREA B SHAFT B3 RISER (AHU W-4,W-5)

LOOKING NORTH FROM GRIDLINE 8

2/12 AREA B SHAFT B3 RISER (AHU W-5 RETURN)

LOOKING NORTH FROM GRIDLINE 8

NOTES

1. ELEVATIONS INDICATED ON THIS DRAWING ARE TO BE USED AS A GUIDE ONLY. CONTRACTOR SHALL MAKE FOR TRANSVERSE CONNECTORS, OFFSETS AND OTHER FIELD CONDITION RESOLUTION WHEN COORDINATING ELEVATIONS.

ABBREVIATIONS

AD, AP	ACCESS DOOR, ACCESS PLATE	S & P	S & P PIPE CONNECTION
B, BOT	BOTTOM	SA	SPIN-IN FITTING
CL	CENTERLINE	SLEEVE	SLEEVE
DA, DIA	DIAMETER	SP	STATIC PRESSURE
DC	DUCTWORK CONNECTOR	T	TEE
F	FLANGE	TDC	TRANSVERSE DUCT CONNECTOR
FD	FIRE DAMPER	TH	THROAT
FE	FLEXIBLE ELBOW	TR	TRANSITION FITTING
FO	FLANGE OUT	TW	TURNING VANES
FOB	FLAT ON BOTTOM	TV	UP
FOS	FLAT ON SIDE	U	VOLUME DAMPER
FOT	FLAT ON TOP	V	WITH
H	HORIZONTAL	W	WATER GAUGE
M	MALE	WG	WIRE MESH GUARD
MD	MOTORIZED DAMPER	WP	FEMALE INDICATOR
R	RADIUS		

SYMBOL LEGEND

SYMBOL	DESCRIPTION
	FIRE DAMPER OR COMBINATION FIRE/SMOKE DAMPER
	MANUAL VOLUME DAMPER WITH DIAL OR QUADRANT TYPE REGULATOR
	MANUAL VOLUME DAMPER WITH REMOTE CONTROLLED REGULATOR
	MOTORIZED DAMPER
	DUCTWORK ACCESS DOOR OR ACCESS PLATE
75 / 24"	DUCTWORK SIZE NO. INDICATOR
75 / 24"	TOP OF DUCTWORK or DUCT ELEVATION INDICATOR

MATERIAL LISTS

NO.	DESCRIPTION	DATE
B2-2-B	+6" W.G.SUPPLY & -4"W.G. RA & SA DUCTWORK AHU W-5	5-10-10
B3-3-B	+6" W.G.SUPPLY & -4"W.G. RETURN DUCTWORK AHU W-5	5-18-10
B3-4-B	+6" W.G.SUPPLY & -4"W.G. RA & SA DUCTWORK AHU W-5	6-04-10
B3-5-B	+6" W.G.SUPPLY & -4"W.G. RA & SA DUCTWORK AHU W-5	10-13-10

REVISIONS

NO.	DESCRIPTION	DATE
1	REVISED FOR RESUBMITTAL	11-24-09
2	HOISTWAY DUCT ADDED	3-24-10
3	2ND FLOOR PREPARED FOR LISTING	5-10-10
4	2ND FLOOR REVISED PER LISTING	5-11-10
5	REVISED PER LISTING	5-28-10
6	REVISED PER LISTING	6-15-10
7	REVISED PER LISTING	10-13-10
8	REVISED PER LISTING	10-26-10
9	RISER SHAKES ADDED	12-29-10
10	AS-BUILT RECORD DRAWING	3-7-12

GENERAL NOTES:

1. Governing Building Code: California Building Code 2007 w/ Title 24 Requirements
2. All post-installed expansion anchor bolts shall be 3/8" diameter Tru-bolt+ ITW/Ramset Redhead with 3" minimum embedment.
3. All post-installed expansion anchors shall be tested and inspected in accordance with the requirements noted on Dwg. S0.1.
4. Reposition expansion anchors that interfere with slab reinforcement. Do not reposition anchors any closer than 6" to the edge of the slab and maintain a minimum distance between anchors of 6".
5. All steel-to-steel bolted connections shall utilize A-307 bolts.
6. All steel shapes and plates shall be ASTM A-36.
7. All steel-to-steel welded connections shall use E-70XX electrodes. E-60XX electrodes may be used for welding light-gage metal ducts to steel.

B3-5-B +6" W.G.SUPPLY & -4"W.G. RA & SA DUCTWORK AHU W-5 — +6"W.G. SUPPLY NOTES 1-4, ±4"W.G. RA & SA NOTES 5-16, NOTES 1-16, PI:II

B3-4-B +6" W.G.SUPPLY & -4"W.G. RA & SA DUCTWORK AHU W-5 — +6"W.G. SUPPLY NOTES 1-2, ±4"W.G. RA & SA NOTES 3-7, NOTES 1-7, PI:II

B3-3-B +6" W.G.SUPPLY & -4"W.G. RETURN DUCTWORK AHU W-5 — +6"W.G. SUPPLY NOTES 1-4, -4"W.G. RETURN NOTES 5-15, NOTES 1-19, PI:II

B3-2-B +6" W.G.SUPPLY & -4"W.G. RETURN DUCTWORK AHU W-5 — +6"W.G. SUPPLY NOTES 1-8, -4"W.G. RETURN NOTES 9-19, NOTES 1-19, PI:II

RISER SHAFT B3

A1 Key Plan N.T.S.

"PROJECT RECORD DRAWING"

HARRIS & HART INC.
1759 WEST 1200 SOUTH
OGDEN, UTAH. 84404
PHONE: (801) 731-0577
FAX NO: (801) 731-0580
WEBSITE: WWW.HARRIS-HART.COM
E-MAIL TO DETAILING DEPARTMENT:
ttaylor@harris-hart.com

JOB NO: 9507 PAY ITEM: 11

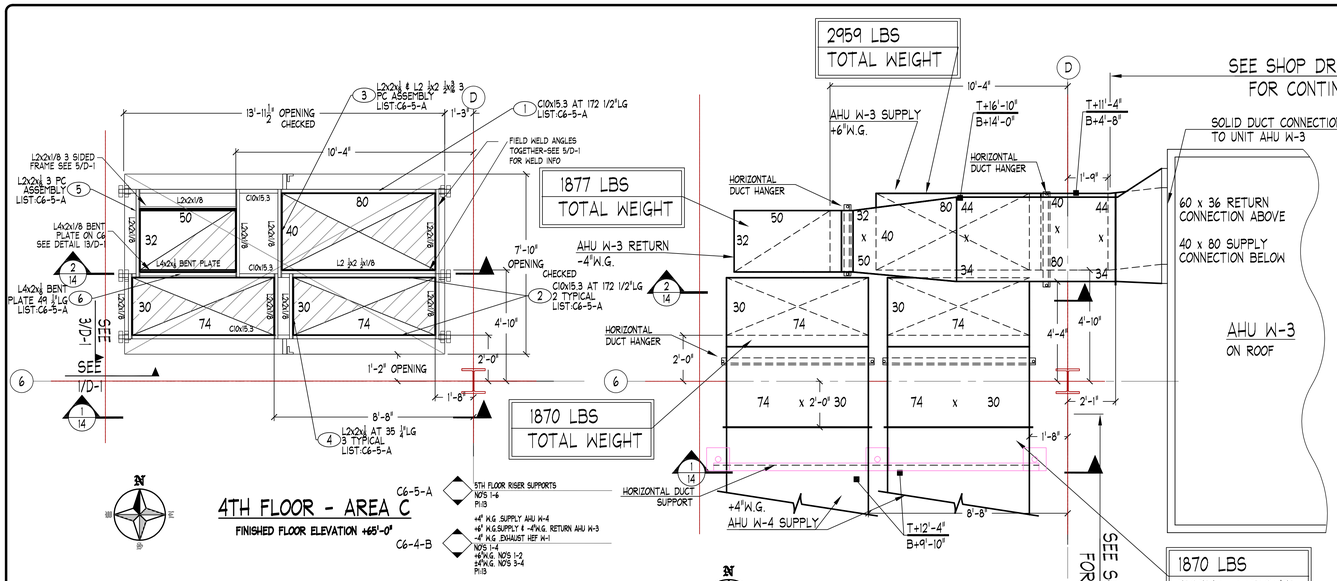
PROJECT: IL 07020Z2-30
CHOC HOSPITAL
ORANGE, CA

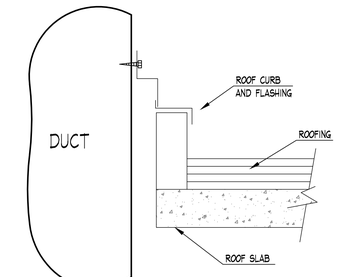
TITLE: DA #003
AREA B RISER SHAFT B3
HVAC SYSTEM LAYOUT

REFERENCE DRAWINGS
ARCH: STRUCT: MECH:

BY: R.FRESTON
DATE: 08-17-09
SCALE: 3/8" =1'-0"

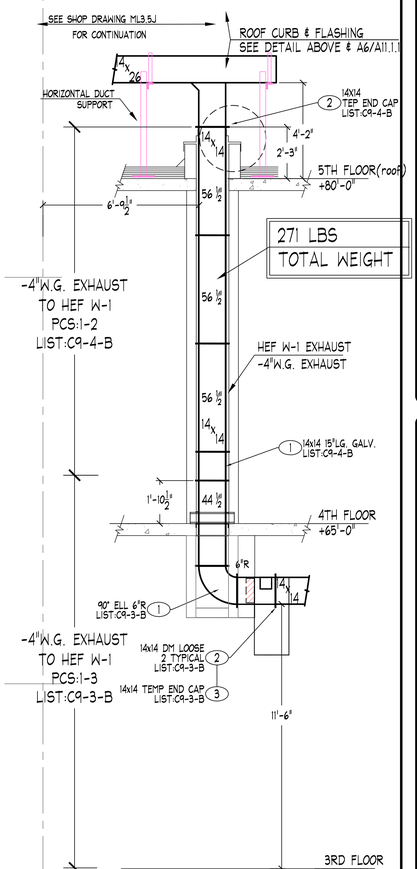
DRAWING NO.
12 of 115

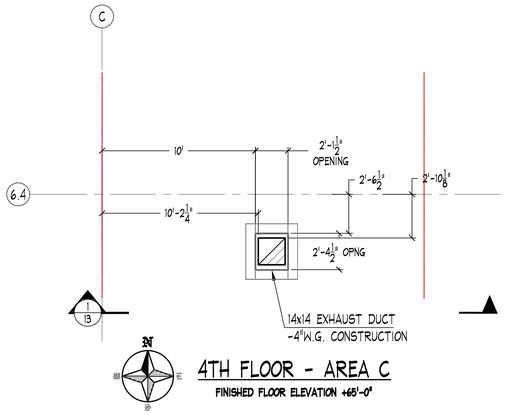


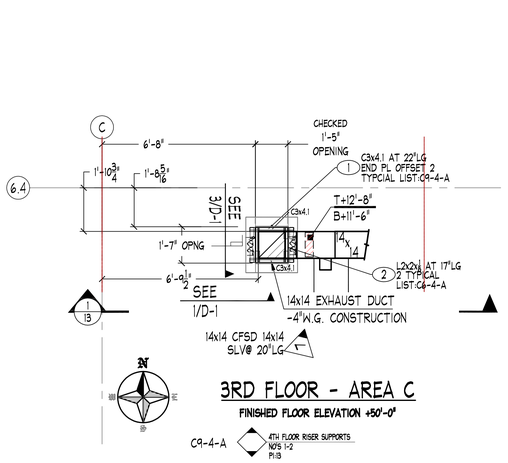


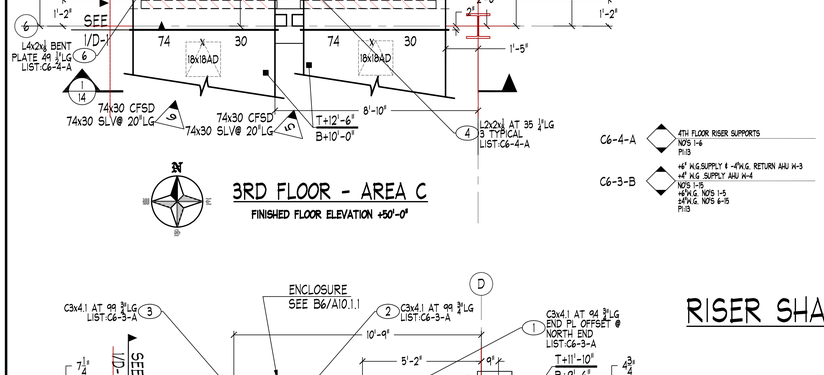
DETAIL AT ROOF CURB

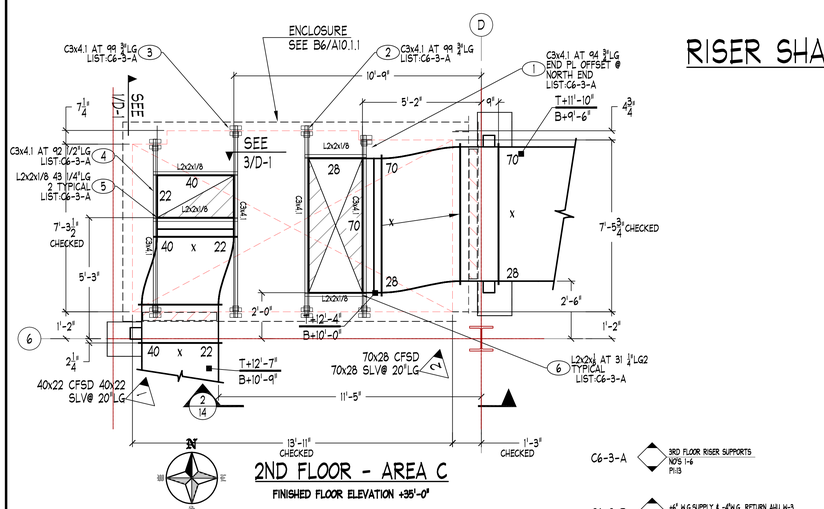
SEE DETAIL A6/A11.1.1











RISER SHAFT C6

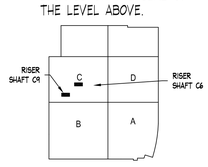
RISER SHAFT C9

GENERAL NOTES:

1. Governing Building Code: California Building Code 2007 w/ Title 24 Requirements
2. All post-installed expansion anchor bolts shall be 3/8" diameter Tru-bolt+ ITW/Ramset Redhead with 3" minimum embedment.
3. All post-installed expansion anchors shall be tested and inspected in accordance with the requirements noted on Dwg. S0.1.
4. Reposition expansion anchors that interfere with slab reinforcement. Do not reposition anchors any closer than 6" to the edge of the slab and maintain a minimum distance between anchors of 6".
5. All steel-to-steel bolted connections shall utilize A-307 bolts.
6. All steel shapes and plates shall be ASTM A-36.
7. All steel-to-steel welded connections shall use E-70XX electrodes. E-60XX electrodes may be used for welding light-gage metal ducts to steel.

C6-5-A 5TH FLOOR RISER SUPPORTS NOTES 1-6 PI:13
C6-4-A 4TH FLOOR RISER SUPPORTS NOTES 1-6 PI:13
C6-3-A 3RD FLOOR RISER SUPPORTS NOTES 1-6 PI:13
C9-4-B -4" W.G. EXHAUST TO HEF W-1 NOTES 1-2 PI:13
C9-3-B -4" W.G. EXHAUST TO HEF W-1 NOTES 1-3 PI:13
C9-4-A 4TH FLOOR RISER SUPPORTS NOTES 1-2 PI:13

NOTE: SUPPORTS SHOWN ARE LOCATED ON THE SLAB OF THE LEVEL ABOVE.



A1 Key Plan

AREA C SHAFT C9 RISERS

1/13

LOOKING NORTH FROM GRIDLINE 7

"PROJECT RECORD DRAWING"

NOTES

1. ELEVATIONS INDICATED ON THIS DRAWING ARE TO THE DUCT BODY. ALLOWANCES MUST BE MADE FOR DUCT FLANGES, REINFORCING AND EXTERIOR INSULATION WHEN COORDINATING ELEVATIONS.

ABBREVIATIONS

AD, AP	ACCESS DOOR, ACCESS PLATE	S & D	S & DRAK CONNECTOR
BL, BOTT	BOTTOM	SFM	SPIN-IN FITTING
C	CEILING LINE	SG	SLIP-G
D, DN	DOWN	SP	STATIC PRESSURE
DC	DUCTMATE CONNECTOR	T	TOP
EA	EACH	TDC	TRANSVERSE DUCT CONNECTION
FD	FIRE DAMPER	TH	THROAT
FI	FLANGE IN	TRANS	TRANSITION FITTING
FO	FLANGE OUT	TP	TURNING PANES
FOS	FLAT ON SIDE	TV	TV
FOT	FLAT ON TOP	V	VERTICAL
H	HORIZONTAL	VD	VOLUME DAMPER
MD	MOTORIZED DAMPER	W	WATER GAUGE
OS	OFFSET	WI	WALL INDICATOR
R	RADIUS	↑↓	FEMALE INDICATOR

SYMBOL LEGEND

SYMBOL	DESCRIPTION
	FIRE DAMPER OR COMBINATION FIRE/SMOKE DAMPER NO.
	MANUAL VOLUME DAMPER WITH DIAL
	MANUAL VOLUME DAMPER WITH LOCK
	MANUAL VOLUME DAMPER BOOT
	CEILING MOUNTED CONCEALED REGULATOR
	MOTORIZED DAMPER
	DUCTWORK ACCESS DOOR OR ACCESS PLATE
	DUCTWORK PIECE NO.
	INDICATOR
	DIRECTION OF FLOW/TYPE OF DUCT ELEVATION INDICATOR

MATERIAL LISTS

NO.	DESCRIPTION	DATE
3-B	-4"W.G. EXHAUST DUCTWORK HEF W-1	05-29-09
4-B	-4"W.G. EXHAUST DUCTWORK HEF W-1	05-29-09
2-B	6" ø 4"W.G. SUPPLY & RETURN	06-09-09
3-B	6" ø 4"W.G. SUPPLY & RETURN	06-09-09
4-B	6" ø 4"W.G. SUPPLY & RETURN	06-09-09
5-B	6" ø 4"W.G. SUPPLY & RETURN	06-09-09
3-A	G RISER SUPPORTS 3RD FLOOR	09-15-09
4-A	G RISER SUPPORTS 4TH FLOOR	09-15-09
5-A	G RISER SUPPORTS 5TH FLOOR	09-15-09
2-A	G RISER SUPPORTS 5TH FLOOR	09-15-09

REVISIONS

NO.	DESCRIPTION	DATE
1	REVISED FOR RESUBMITTAL	1-24-08
2	REVISED PER OSHPD REVIEW	01-29-10
3	ADDED CFSD TO LEVEL 3 WELDED S.S. DUCT	05-11-10
4	PREPARED FOR LISTING	05-20-10
5	REVISED PER LISTING	05-26-10
6	REVISED PER LISTING	06-09-10
7	RISER SUPPORTS LISTED	09-15-10
8	5TH FLOOR DUCT LISTED	09-15-10
9	RISER BRACES ADDED	09-15-10
10	CFSDs REMOVED	09-15-10
11	AS-BUILT RECORD DRAWING	5-7-12

SHEET METAL CONTRACTORS & FABRICATORS
HARRIS & HART

HARRIS & HART INC.
1759 WEST 1200 SOUTH
OGDEN, UTAH. 84404
PHONE: (801) 731-0577
FAX NO: (801) 731-0580
WEBSITE: WWW.HARRIS-HART.COM
E-MAIL TO DETAILING DEPARTMENT:
ttaylor@harris-hart.com

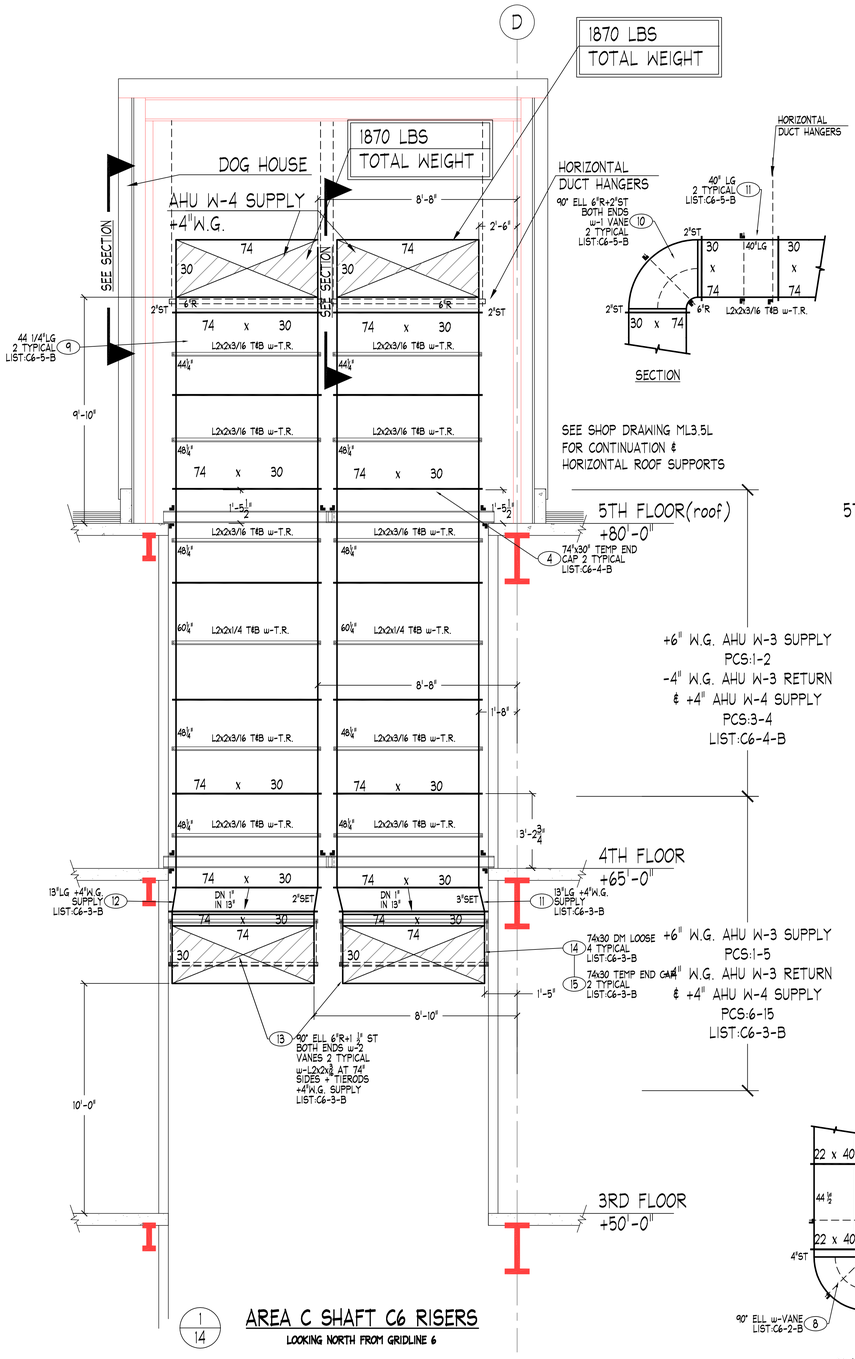
JOB NO: 9507 PAY ITEM: 13

PROJECT: IL 0702072-30
CHOC HOSPITAL
ORANGE, CA

TITLE: DA #003
AREA C RISER SHAFT C6, C9
HVAC SYSTEM LAYOUT

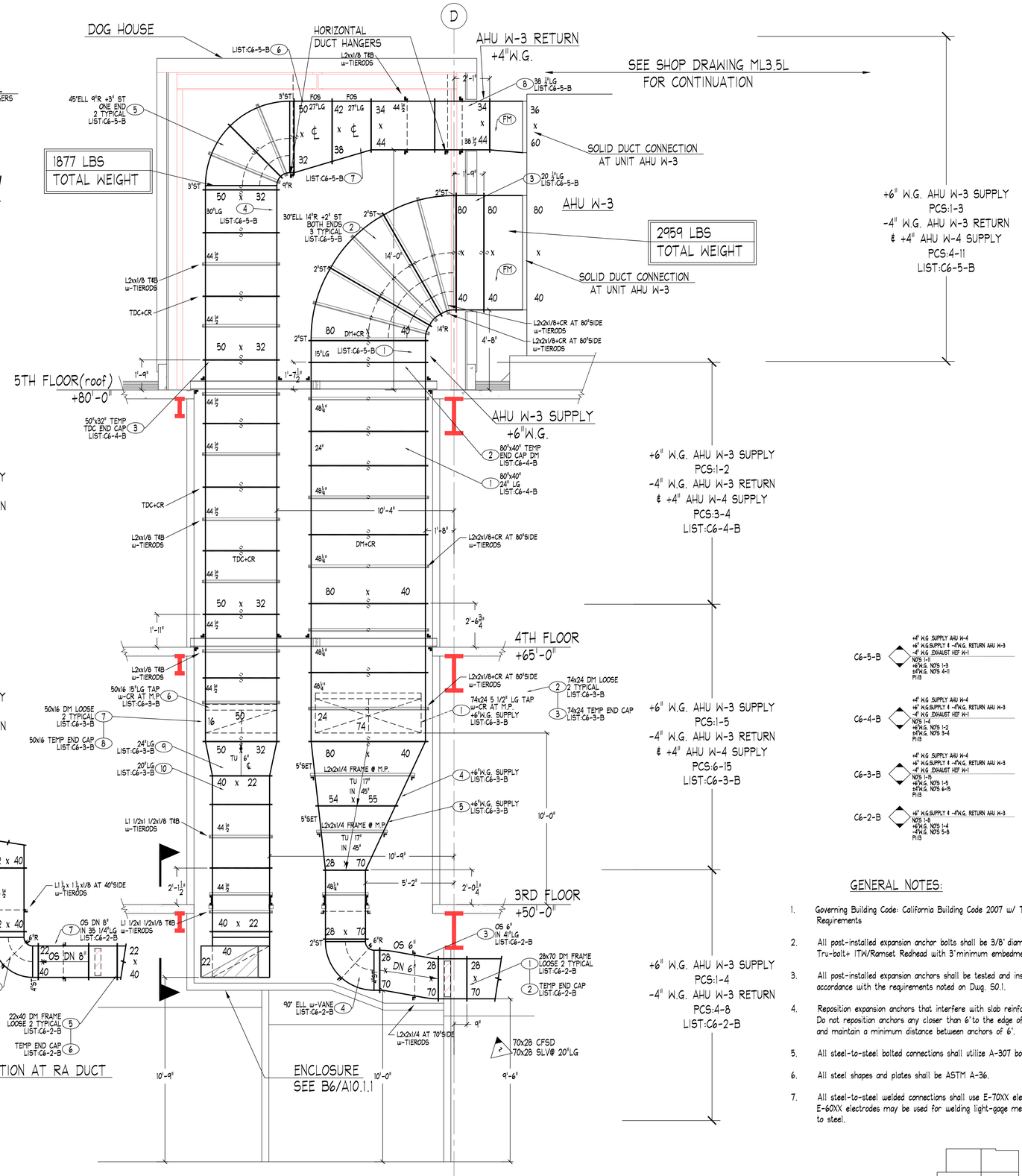
REFERENCE DRAWINGS
ARCH: STRUCT: MECH:

BY: R.FRESTON
DRAWING NO. 13 of 115
DATE: 08-18-09
SCALE: 3/8" =1'-0"



1/14 AREA C SHAFT C6 RISERS

LOOKING NORTH FROM GRIDLINE 6



2/14 AREA C SHAFT C6 RISERS

LOOKING NORTH FROM GRIDLINE 6

NOTES

1. ELEVATIONS INDICATED ON THIS DRAWING ARE TO THE BOTTOM OF DUCT. ADJUSTMENTS MUST BE MADE FOR TRANSVERSE CONNECTORS, REINFORCEMENT AND DUCT INSULATION WHEN COORDINATING ELEVATIONS.

ABBREVIATIONS

AD, AP	ACCESS DOOR, ACCESS PLATE	S & P	S & P SPIN-IN FITTING
B, BOTT	BOTTOM	SD	SLIDE
CL	CENTERLINE	SP	STATIC PRESSURE
DN, SM	DOWN, SMOKE	T	TDF
DC, TDC	DUCTWORK CONNECTOR	TDC	TRANSVERSE DUCT CONNECTOR
F, FSM	FSMACO	TH	THROAT
FD	FIRE DAMPER	TF	TRANSITION FITTING
FSD	FIRE SMOKE DAMPER	TURN	TURNING VANES
FO	FLANGE OUT	TV	TV
FOB	FLAT ON BOTTOM	U	UP
FOS	FLAT ON SIDE	VD	VOLUME DAMPER
FOT	FLAT ON TOP	W	WITH
H	HORIZONTAL	WG	WATER GAUGE
MJC	MULLION JOINT COVER	WP	WEATHERPROOF
R	RADIUS	F/I	FEMALE INDICATOR

SYMBOL LEGEND

SYMBOL	DESCRIPTION
	FIRE DAMPER OR COMBINATION FIRE SMOKE DAMPER W/ SD
	MANUAL VOLUME DAMPER WITH DIAL OR QUADRANT TYPE REGULATOR
	MANUAL VOLUME DAMPER WITH EXTENDED CONTROLLED REGULATION
	MOTORIZED DAMPER
	DUCTWORK ACCESS DOOR OR ACCESS PANEL
	ACCESS DOOR NO. INDICATOR
	TOP OF DUCT/BOTTOM OF DUCT ELEVATION INDICATOR

REVISIONS

NO.	DATE	DESCRIPTION
1	11-24-08	REVISED FOR RESUBMITTAL
2	01-29-10	REVISED PER OSHPD REVIEW
3	05-05-10	PREPARED FOR LISTING
4	05-28-10	REVISED PER LISTING
5	08-10-10	REVISED PER LISTING
6	10-20-10	5TH FLOOR ADDED
7	10-28-10	REVISED PER LISTING
8	12-29-10	RISER BRACES ADDED
9	3-11-11	45°-90LT RECORD DRAWING

MATERIAL LISTS

NO.	DESCRIPTION	DATE
G4-2-B	+6" W.G. SUPPLY & -4"W.G. RETURN AHU W-3 -4" W.G. EXHAUST HEF W-1 NOTE 1-2 +5"W.G. NOTE 1-3 ±5"W.G. NOTE 4-11 PI:13	05-05-10
G4-3-B	+6" W.G. SUPPLY & -4"W.G. RETURN AHU W-3 -4" W.G. EXHAUST HEF W-1 NOTE 1-5 +5"W.G. NOTE 1-5 ±5"W.G. NOTE 6-15 PI:13	05-18-10
G4-4-B	+6" W.G. SUPPLY AHU W-4 +6" W.G.SUPPLY & -4"W.G. RETURN AHU W-3 -4" W.G. EXHAUST HEF W-1 NOTE 1-2 ±5"W.G. NOTE 3-4 PI:13	06-09-10
G4-5-B	+6" W.G. SUPPLY AHU W-4 +6" W.G.SUPPLY & -4"W.G. RETURN AHU W-3 -4" W.G. EXHAUST HEF W-1 NOTE 1-5 +5"W.G. NOTE 1-5 ±5"W.G. NOTE 6-15 PI:13	10-20-10

C6-5-B — +4" W.G. SUPPLY AHU W-4; +6" W.G.SUPPLY & -4"W.G. RETURN AHU W-3; -4" W.G. EXHAUST HEF W-1; NOTE 1-2; ±5"W.G. NOTE 3-4; PI:13

C6-4-B — +4" W.G. SUPPLY AHU W-4; +6" W.G.SUPPLY & -4"W.G. RETURN AHU W-3; -4" W.G. EXHAUST HEF W-1; NOTE 1-5; +5"W.G. NOTE 1-5; ±5"W.G. NOTE 6-15; PI:13

C6-3-B — +4" W.G. SUPPLY AHU W-4; +6" W.G.SUPPLY & -4"W.G. RETURN AHU W-3; -4" W.G. EXHAUST HEF W-1; NOTE 1-5; +5"W.G. NOTE 1-5; ±5"W.G. NOTE 6-15; PI:13

C6-2-B — +4" W.G.SUPPLY & -4"W.G. RETURN AHU W-3; NOTE 1-6; +5"W.G. NOTE 1-4; +6"W.G. NOTE 5-8; PI:13

GENERAL NOTES:

1. Governing Building Code: California Building Code 2007 w/ Title 24 Requirements
2. All post-installed expansion anchor bolts shall be 3/8" diameter Tru-bolt+ ITW/Ramset Redhead with 3"minimum embedment.
3. All post-installed expansion anchors shall be tested and inspected in accordance with the requirements noted on Dwg. S0.1.
4. Reposition expansion anchors that interfere with slab reinforcement. Do not reposition anchors any closer than 6"to the edge of the slab and maintain a minimum distance between anchors of 6".
5. All steel-to-steel bolted connections shall utilize A-307 bolts.
6. All steel shapes and plates shall be ASTM A-36.
7. All steel-to-steel welded connections shall use E-70XX electrodes. E-60XX electrodes may be used for welding light-gage metal ducts to steel.

SHEET METAL CONTRACTORS & FABRICATORS — HARRIS & HART

HARRIS & HART INC.
1759 WEST 1200 SOUTH
OGDEN, UTAH. 84404
PHONE: (801) 731-0577
FAX NO: (801) 731-0580
WEBSITE: WWW.HARRIS-HART.COM
E-MAIL TO DETAILING DEPARTMENT:
ttaylor@harris-hart.com

JOB NO: 9507 PAY ITEM: 13

PROJECT: IL 0702072-30
CHOC HOSPITAL
ORANGE, CA

TITLE: DA #003
AREA C RISER SHAFT C6
HVAC SYSTEM LAYOUT

REFERENCE DRAWINGS
ARCH: STRUCT: MECH:

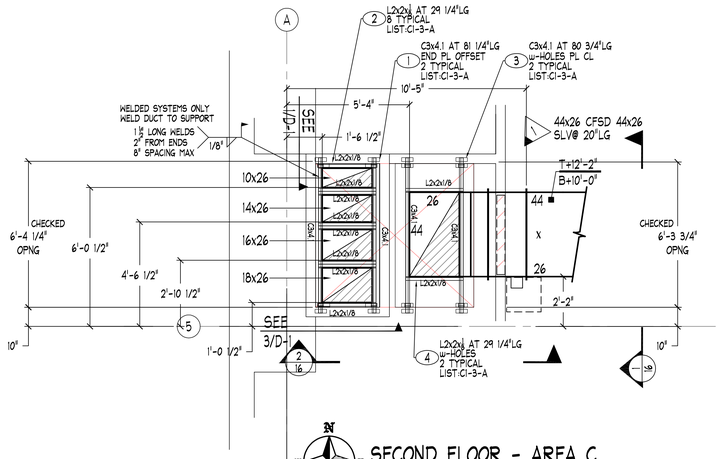
BY: R.FRESTON
DATE: 08-18-09
SCALE: 3/8" =1'-0"

DRAWING NO. 14 of 115

C | D | B | A — RISER SHAFT C6

A1 Key Plan

"PROJECT RECORD DRAWING"

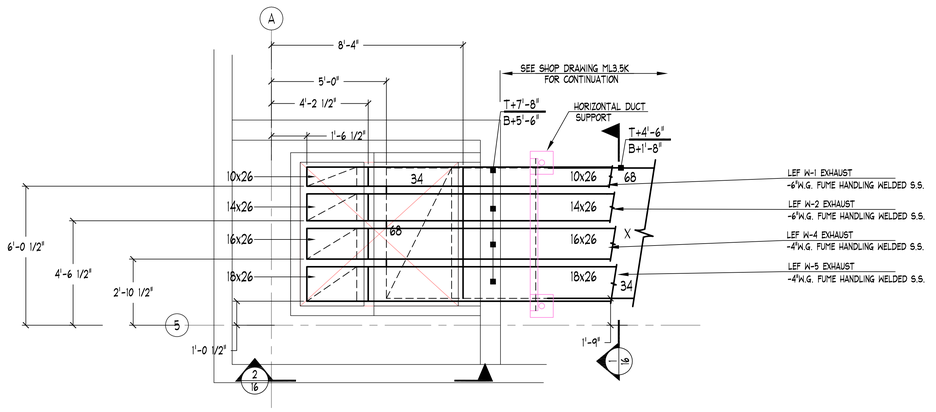


SECOND FLOOR - AREA C

FINISHED FLOOR ELEVATION=35'-0"

CI-3-A — 3RD FLOOR RISER SUPPORTS
NOTS 1-4
PI:15

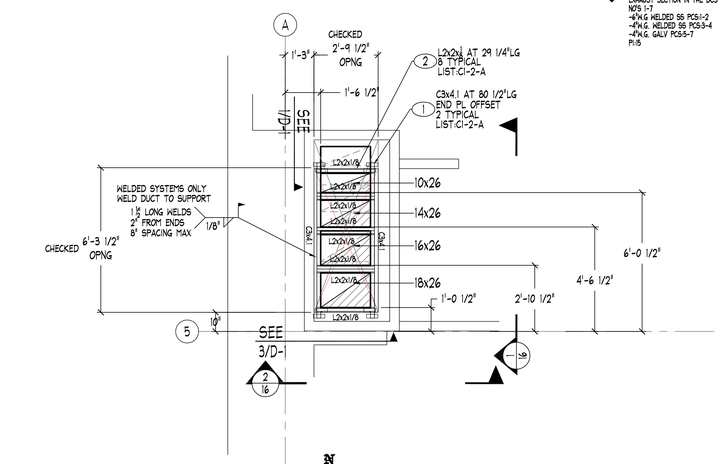
CI-2-B — -4" ℓ -6"W.G. LABORATORY EXHAUST DUCTWORK LEF W-1, W-2, W-4 ℓ W-5
-4" ℓ W.G. GALV EXHAUST DUCTWORK GEF W-4
3&L WELDED EXHAUST SEE LABORATORY EXHAUST SECTION IN THE DCS
NOTS 1-7
-6"W.G WELDED SS PCS1-2
-4"W.G. WELDED SS PCS3-4
-4"W.G. GALV PCS5-7
PI:15



FIFTH FLOOR (ROOF)- AREA C

FINISHED FLOOR ELEVATION=80'-8" (SLOPES)

CI-5-B — -4" ℓ -6"W.G. LABORATORY EXHAUST DUCTWORK LEF W-1, W-2, W-4 ℓ W-5
-4" ℓ W.G. GALV EXHAUST DUCTWORK GEF W-4
3&L WELDED EXHAUST SEE LABORATORY EXHAUST SECTION IN THE DCS
NOTS 1-11
-6"W.G WELDED SS PCS1-2
-4"W.G. WELDED SS PCS3-4
-4"W.G. GALV PCS5
PI:15

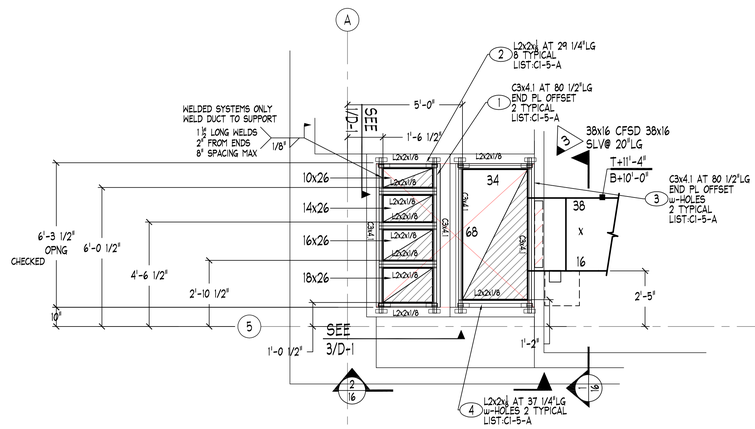


FIRST FLOOR - AREA C

FINISHED FLOOR ELEVATION=17'-0"

CI-2-A — 2ND FLOOR RISER SUPPORTS
NOTS 1-2
PI:15

CI-1-B — -4" ℓ -6"W.G. LABORATORY EXHAUST DUCTWORK LEF W-1, W-2, W-4 ℓ W-5
3&L WELDED EXHAUST SEE LABORATORY EXHAUST SECTION IN THE DCS
NOTS 1-12
PI:15

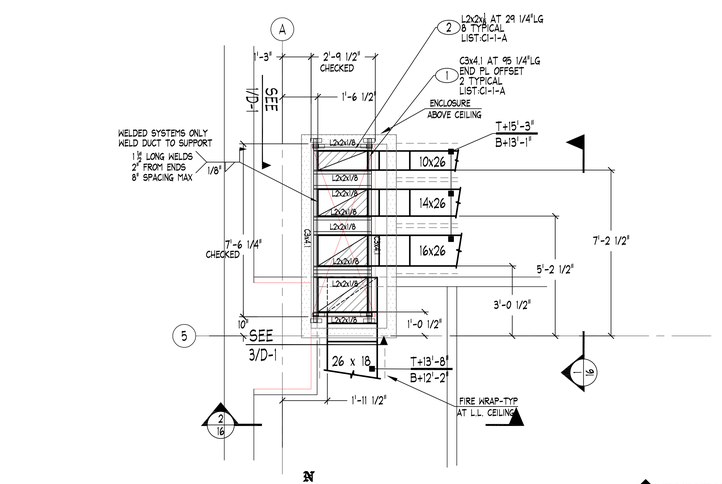


FOURTH FLOOR - AREA C

FINISHED FLOOR ELEVATION=65'-0"

CI-5-A — 5TH FLOOR RISER SUPPORTS
NOTS 1-4
PI:15

CI-4-B — -4" ℓ -6"W.G. LABORATORY EXHAUST DUCTWORK LEF W-1, W-2, W-4 ℓ W-5
-4" ℓ W.G. GALV EXHAUST DUCTWORK GEF W-4
3&L WELDED EXHAUST SEE LABORATORY EXHAUST SECTION IN THE DCS
NOTS 1-11
-6"W.G WELDED SS PCS1-2
-4"W.G. WELDED SS PCS3-4
-4"W.G. GALV PCS5
PI:15

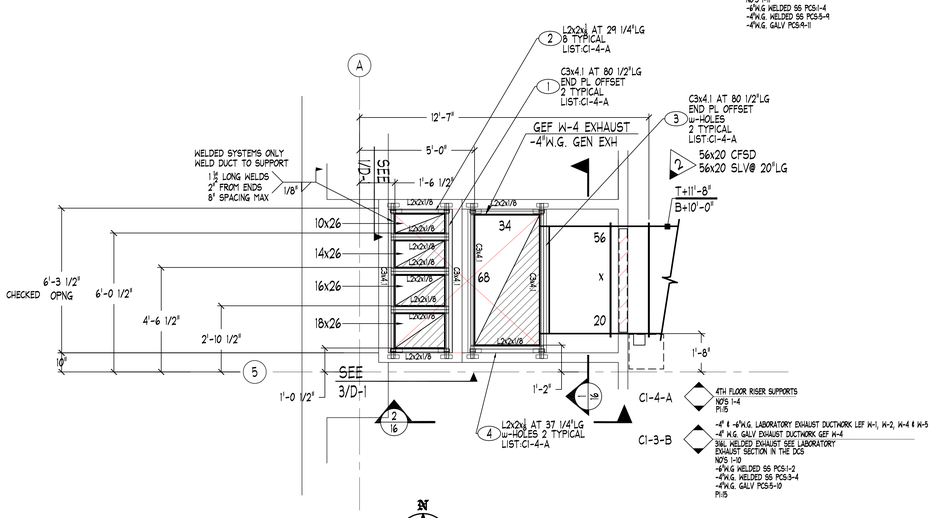


LOWER FLOOR - AREA C

FINISHED FLOOR ELEVATION=0'-0"

CI-1-A — 1ST FLOOR RISER SUPPORTS
NOTS 1-2
PI:15

CI-1-B — -4" ℓ -6"W.G. LABORATORY EXHAUST DUCTWORK LEF W-1, W-2, W-4 ℓ W-5
3&L WELDED EXHAUST SEE LABORATORY EXHAUST SECTION IN THE DCS
NOTS 1-12
PI:15



THIRD FLOOR - AREA C

FINISHED FLOOR ELEVATION=50'-0"

CI-4-A — 4TH FLOOR RISER SUPPORTS
NOTS 1-4
PI:15

CI-3-B — -4" ℓ -6"W.G. LABORATORY EXHAUST DUCTWORK LEF W-1, W-2, W-4 ℓ W-5
-4" W.G. GALV EXHAUST DUCTWORK GEF W-4
3&L WELDED EXHAUST SEE LABORATORY EXHAUST SECTION IN THE DCS
NOTS 1-10
-6"W.G WELDED SS PCS1-2
-4"W.G. WELDED SS PCS3-4
-4"W.G. GALV PCS5-10
PI:15

CI-5-A — 5TH FLOOR RISER SUPPORTS
NOTS 1-4
PI:15

CI-4-A — 4TH FLOOR RISER SUPPORTS
NOTS 1-4
PI:15

CI-3-A — 3RD FLOOR RISER SUPPORTS
NOTS 1-4
PI:15

CI-2-A — 2ND FLOOR RISER SUPPORTS
NOTS 1-2
PI:15

CI-1-A — 1ST FLOOR RISER SUPPORTS
NOTS 1-2
PI:15

CI-5-B — -4" ℓ -6"W.G. LABORATORY EXHAUST DUCTWORK LEF W-1, W-2, W-4 ℓ W-5
-4" ℓ W.G. GALV EXHAUST DUCTWORK GEF W-4
3&L WELDED EXHAUST SEE LABORATORY EXHAUST SECTION IN THE DCS
NOTS 1-11
-6"W.G WELDED SS PCS1-2
-4"W.G. WELDED SS PCS3-4
-4"W.G. GALV PCS5
PI:15

CI-4-B — -4" ℓ -6"W.G. LABORATORY EXHAUST DUCTWORK LEF W-1, W-2, W-4 ℓ W-5
-4" W.G. GALV EXHAUST DUCTWORK GEF W-4
3&L WELDED EXHAUST SEE LABORATORY EXHAUST SECTION IN THE DCS
NOTS 1-10
-6"W.G WELDED SS PCS1-4
-4"W.G. WELDED SS PCS5-9
-4"W.G. GALV PCS4-11
PI:15

CI-3-B — -4" ℓ -6"W.G. LABORATORY EXHAUST DUCTWORK LEF W-1, W-2, W-4 ℓ W-5
-4" W.G. GALV EXHAUST DUCTWORK GEF W-4
3&L WELDED EXHAUST SEE LABORATORY EXHAUST SECTION IN THE DCS
NOTS 1-10
-6"W.G WELDED SS PCS1-2
-4"W.G. WELDED SS PCS3-4
-4"W.G. GALV PCS5-10
PI:15

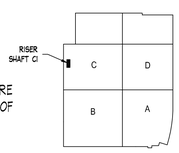
CI-2-B — -4" ℓ -6"W.G. LABORATORY EXHAUST DUCTWORK LEF W-1, W-2, W-4 ℓ W-5
-4" W.G. GALV EXHAUST DUCTWORK GEF W-4
3&L WELDED EXHAUST SEE LABORATORY EXHAUST SECTION IN THE DCS
NOTS 1-7
-6"W.G WELDED SS PCS1-2
-4"W.G. WELDED SS PCS3-4
-4"W.G. GALV PCS5-7
PI:15

CI-1-B — -4" ℓ -6"W.G. LABORATORY EXHAUST DUCTWORK LEF W-1, W-2, W-4 ℓ W-5
3&L WELDED EXHAUST SEE LABORATORY EXHAUST SECTION IN THE DCS
NOTS 1-12
PI:15

GENERAL NOTES:

1. Governing Building Code: California Building Code 2007 w/ Title 24 Requirements
2. All post-installed expansion anchor bolts shall be 3/8" diameter Tru-bolt+ ITW/Ramset Redhead with 3" minimum embedment.
3. All post-installed expansion anchors shall be tested and inspected in accordance with the reqiirements noted on Dwg. S0.1.
4. Reposition expansion anchors that interfere with slab reinforcement. Do not reposition anchors any closer than 6" to the edge of the slab and maintain a minimum distance between anchors of 6".
5. All steel-to-steel bolted connections shall utilize A-307 bolts.
6. All steel shapes and plates shall be ASTM A-36.
7. All steel-to-steel welded connections shall use E-70XX electrodes. E-60XX electrodes may be used for welding light-gage metal ducts to steel.

NOTE: SUPPORTS SHOWN ARE LOCATED ON THE SLAB OF THE LEVEL ABOVE.



A1 Key Plan

"PROJECT RECORD DRAWING"

NOTES

1. ELEVATIONS INDICATED ON THIS DRAWING ARE TO THE BOTTOM OF DUCT. ALL CONNECTS MUST BE MADE TO BOTTOM OF DUCT. REINFORCING AND EXTERIOR INSULATION WHEN REQUIRED. COORDINATE ELEVATIONS.

ABBREVIATIONS

AD, AP	ACCESS DOOR, ACCESS PLATE	S & D	S & DRAKE CONNECTOR
B, BOTT	BOTTOM	SD	SMOKE DETECTOR
C, CL	CENTERLINE	SLV	SLEEVE
D, DN	DOWN	SP	STATIC PRESSURE
DC	DUCTWORK CONNECTION	TEMP	TEMPERATURE
DM, FTM	DUCTWORK FLANGE TRANSITION SEAL OR ALUMINUM TAPE REQUIRED	TOC	TEMPERATURE DUCT CONNECTOR
FD	FIRE DAMPER	TH	THROAT
FL	FLANGE IN	TRANS	TRANSITION FITTING
FO	FLANGE OUT	TW	TURNING VANES
FOB	FLAT ON BOTTOM	U	UP
FOS	FLAT ON SIDE	V	VERTICAL
FOT	FLAT ON TOP	VD	VOLUME DAMPER
H	HEATING	W	WIDE
OS	OFFSET	WG	WATER GAUGE
P	PANEL	↑↑	WALL INDUCTION
		↑↑	TRANE INDUCTION

SYMBOL LEGEND

SYMBOL	DESCRIPTION
	FIRE DAMPER OR COMBINATION FIRE/SMOKE DAMPER NO.
	FIRE DAMPER WITH FUSIBLE LINK SEAL OR ALUMINUM TAPE REQUIRED
	MANUAL VOLUME DAMPER WITH LOCKING QUADRANT
	CEILING MOUNTED CONCEALED REGULATOR
	MOTORIZED DAMPER
	DUCTWORK ACCESS DOOR OR ACCESS PLATE
	DUCTWORK PIECE NO.
	TRANSITION
	WALL OFFSET
	TOP OF DUCT/BOTTOM OF DUCT ELEVATION INDICATOR

MATERIAL LISTS

NO.	DESCRIPTION	DATE
CI-5-B	-4"ℓ-6"W.G. LAB EXHAUST WELDED 3&L SS PCS1-12	04-20-10
CI-2-B	-4"ℓ-6"W.G. EXHAUST DUCTWORK PCS1-7	09-16-10
CI-3-B	-4"ℓ-6"W.G. EXHAUST DUCTWORK PCS1-10	05-20-10
CI-4-B	-4"ℓ-6"W.G. EXHAUST DUCTWORK PCS1-11	04-20-10
CI-5-B	-4"ℓ-6"W.G. EXHAUST DUCTWORK PCS1-5	10-21-10
CI-1-A	1ST FLOOR RISER SUPPORTS PCS1-2	09-15-10
CI-2-A	2ND FLOOR RISER SUPPORTS PCS1-2	09-15-10
CI-3-A	3RD FLOOR RISER SUPPORTS PCS1-4	09-16-10
CI-4-A	4TH FLOOR RISER SUPPORTS PCS1-4	09-16-10
CI-5-A	5TH FLOOR RISER SUPPORTS PCS1-4	09-16-10

REVISIONS

NO.	DESCRIPTION	DATE
1	REVISED FOR RESUBMITTAL	11-24-09
2	REVISED PER OSHPD REVIEW	02-08-10
3	1ST FLOOR PREPARED FOR LISTING	04-20-10
4	RISER SUPPORT LISTS ADDED	09-16-10
5	5TH FLOOR ADDED	10-21-10
6	AS-BUILT RECORD DRAWING	5-7-12

HARRIS & HART INC.
1759 WEST 1200 SOUTH
OGDEN, UTAH. 84404
PHONE: (801) 731-0577
FAX NO: (801) 731-0580
WEBSITE: WWW.HARRIS-HART.COM
E-MAIL TO DETAILING DEPARTMENT:
ttaylor@harris-hart.com

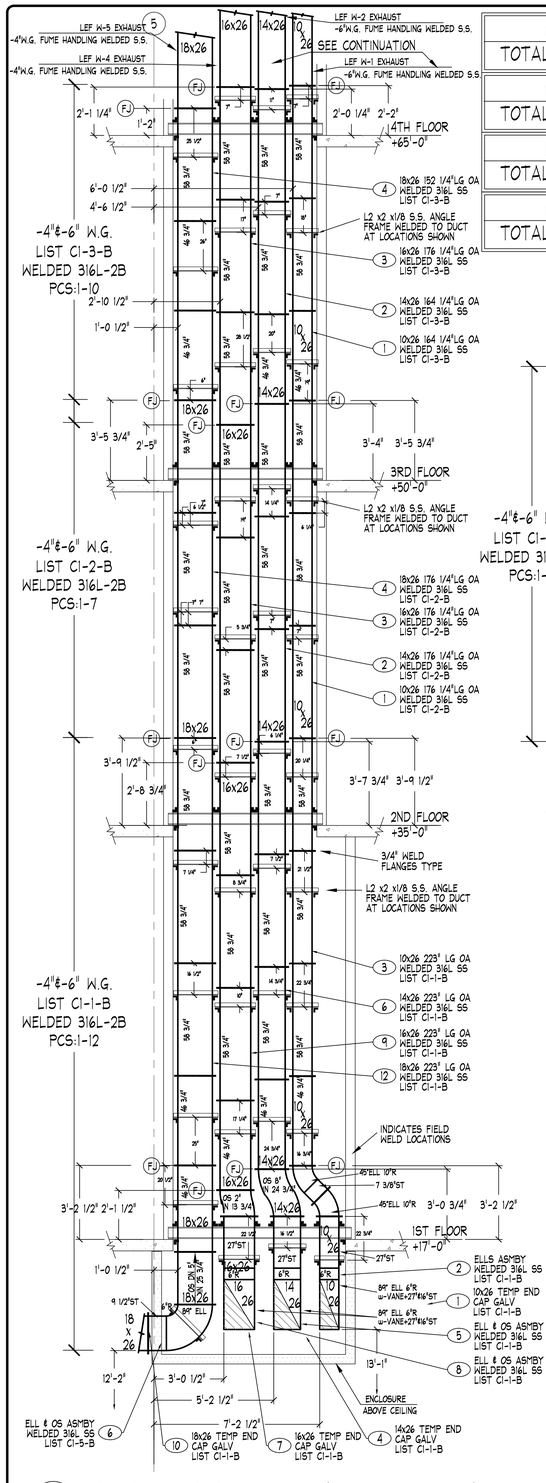
JOB NO: 9507 PAY ITEM:
PROJECT: IL 0702072-30
CHOC HOSPITAL
ORANGE, CA

TITLE: DA #003
AREA C RISER SHAFT C1
HVAC SYSTEM LAYOUT

REFERENCE DRAWINGS
ARCH: STRUCT: MECH:

BY: R.FRESTON
DATE: 08-18-09
SCALE: 3/8" =1'-0"

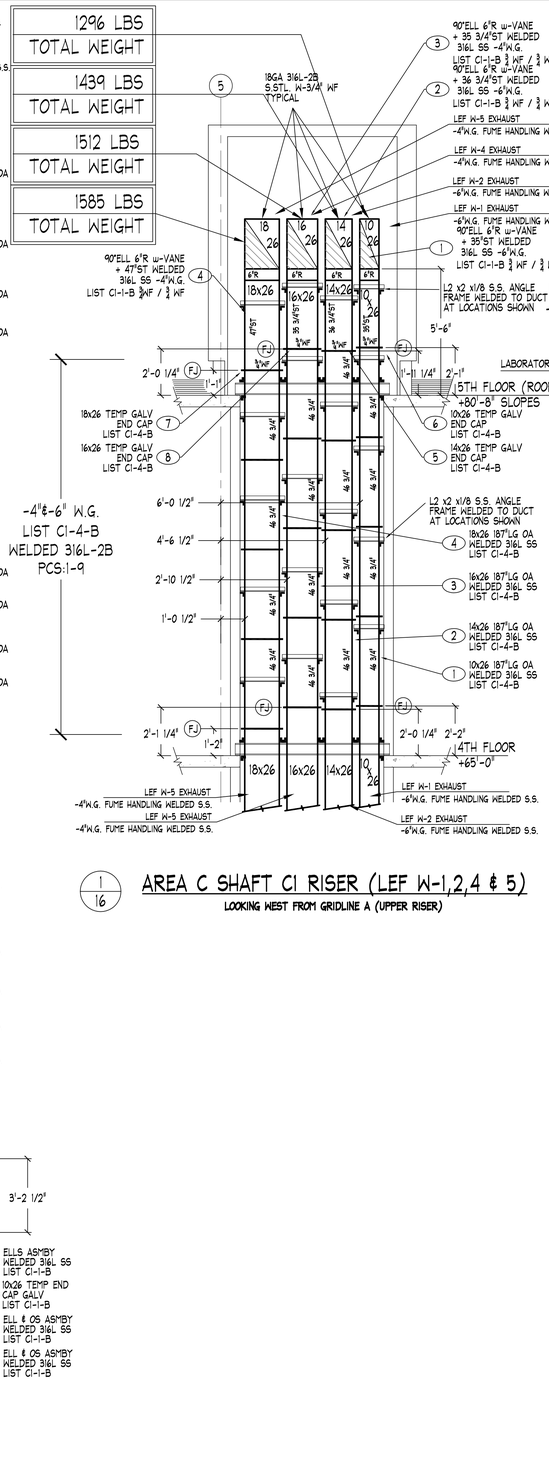
DRAWING NO.
15 of 115



1/16 AREA C SHAFT C1 RISER (LEF W-1,2,4 & 5)

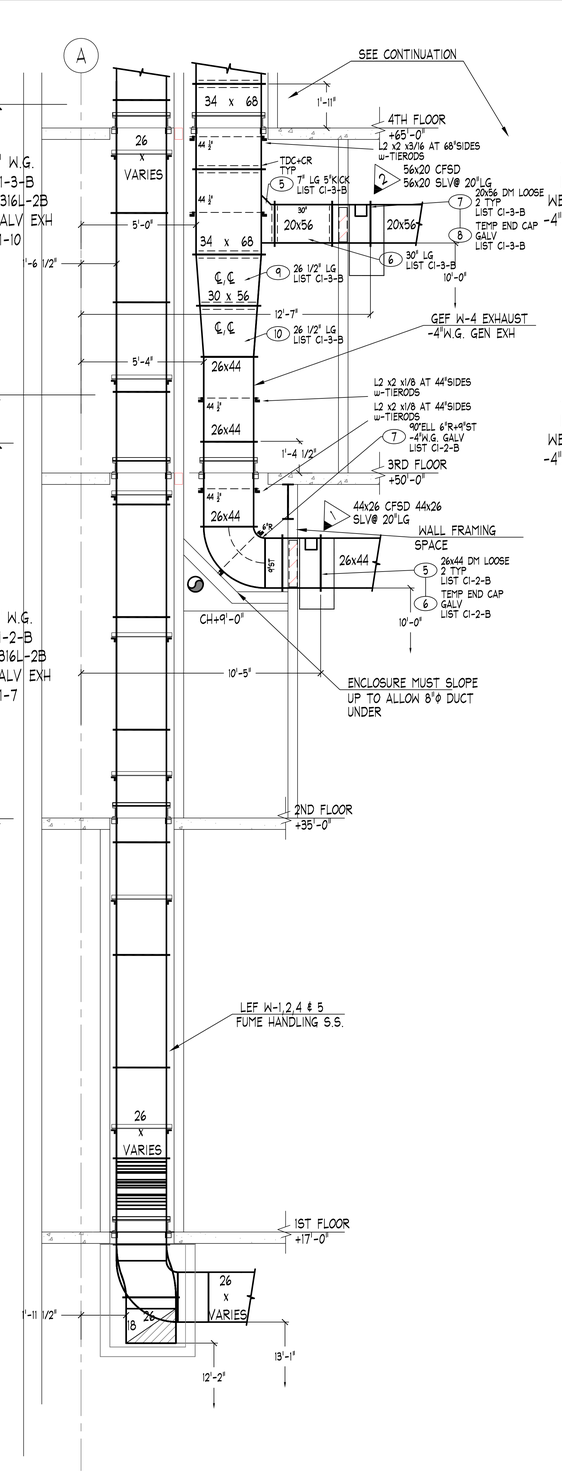
LOOKING WEST FROM GRIDLINE A (LOWER RISER)

1296 LBS TOTAL WEIGHT
1439 LBS TOTAL WEIGHT
1512 LBS TOTAL WEIGHT
1585 LBS TOTAL WEIGHT



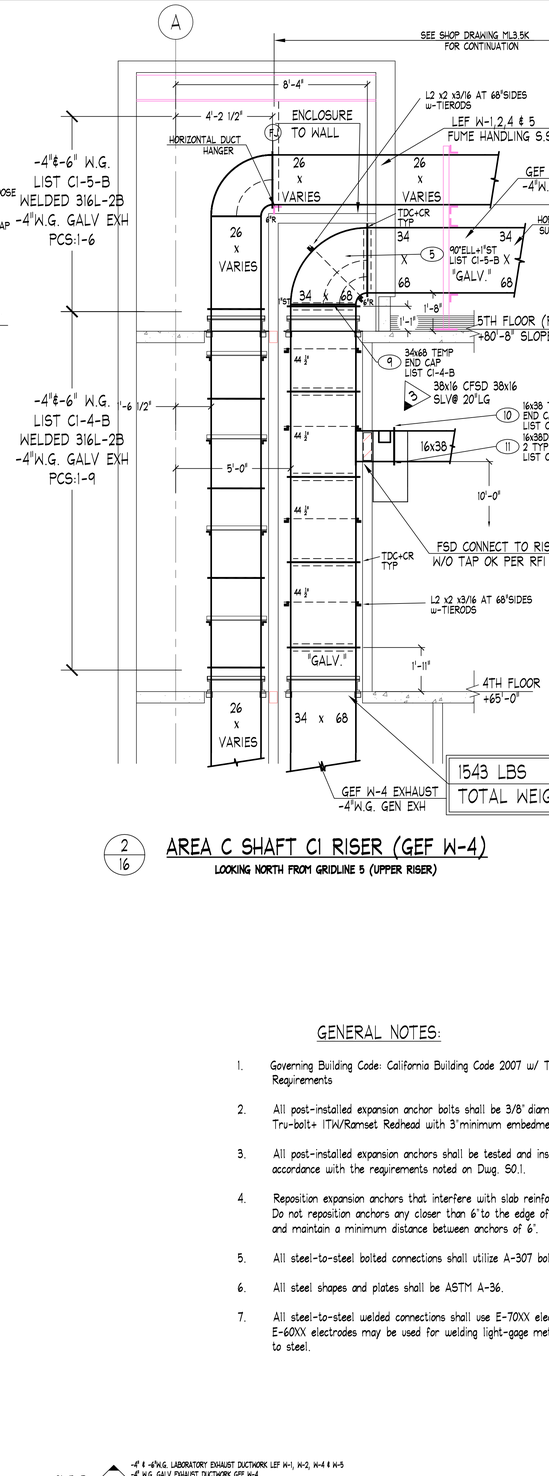
1/16 AREA C SHAFT C1 RISER (LEF W-1,2,4 & 5)

LOOKING WEST FROM GRIDLINE A (UPPER RISER)



2/16 AREA C SHAFT C1 RISER (GEF W-4)

LOOKING NORTH FROM GRIDLINE 5 (LOWER RISER)



1543 LBS TOTAL WEIGHT

2/16 AREA C SHAFT C1 RISER (GEF W-4)

LOOKING NORTH FROM GRIDLINE 5 (UPPER RISER)

GENERAL NOTES:

1. Governing Building Code: California Building Code 2007 w/ Title 24 Requirements
2. All post-installed expansion anchor bolts shall be 3/8" diameter Tru-bolt+ ITW/Ramset Redhead with 3" minimum embedment.
3. All post-installed expansion anchors shall be tested and inspected in accordance with the requirements noted on Dwg. S0.1.
4. Reposition expansion anchors that interfere with slab reinforcement. Do not reposition anchors any closer than 6" to the edge of the slab and maintain a minimum distance between anchors of 6".
5. All steel-to-steel bolted connections shall utilize A-307 bolts.
6. All steel shapes and plates shall be ASTM A-36.
7. All steel-to-steel welded connections shall use E-70XX electrodes. E-60XX electrodes may be used for welding light-gage metal ducts to steel.

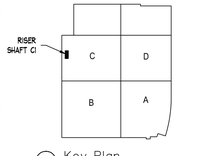
C1-5-B
-4" ø -6"W.G. LABORATORY EXHAUST DUCTWORK LEF W-1, W-2, W-4 & W-5
-4" W.G. GALV EXHAUST DUCTWORK GEF W-4
316L WELDED EXHAUST SEE LABORATORY EXHAUST SECTION IN THE DCS
NOTE 1-6
-6"W.G WELDED SS PCS:1-2
-4"W.G. WELDED SS PCS:3-4,6
-4"W.G. GALV PCS:5
PI:15

C1-2-B
-4" W.G. LABORATORY EXHAUST DUCTWORK LEF W-1, W-2, W-4 & W-5
-4" W.G. GALV EXHAUST DUCTWORK GEF W-4
316L WELDED EXHAUST SEE LABORATORY EXHAUST SECTION IN THE DCS
NOTE 1-7
-6"W.G WELDED SS PCS:1-2
-4"W.G. WELDED SS PCS:3-4
-4"W.G. GALV PCS:5-7
PI:15

C1-1-B
-4" W.G. LABORATORY EXHAUST DUCTWORK LEF W-1, W-2, W-4 & W-5
316L WELDED EXHAUST SEE LABORATORY EXHAUST SECTION IN THE DCS
NOTE 1-12
-6"W.G PCS:1-6
-4"W.G. PCS:6-12
PI:15

C1-4-B
-4" ø -6"W.G. LABORATORY EXHAUST DUCTWORK LEF W-1, W-2, W-4 & W-5
-4" W.G. GALV EXHAUST DUCTWORK GEF W-4
316L WELDED EXHAUST SEE LABORATORY EXHAUST SECTION IN THE DCS
NOTE 1-11
-6"W.G WELDED SS PCS:1-4
-4"W.G. WELDED SS PCS:5-9
-4"W.G. GALV PCS:9-11
PI:15

C1-3-B
-4" ø -6"W.G. LABORATORY EXHAUST DUCTWORK LEF W-1, W-2, W-4 & W-5
-4" W.G. GALV EXHAUST DUCTWORK GEF W-4
316L WELDED EXHAUST SEE LABORATORY EXHAUST SECTION IN THE DCS
NOTE 1-10
-6"W.G WELDED SS PCS:1-2
-4"W.G. WELDED SS PCS:3-4
-4"W.G. GALV PCS:5-10
PI:15



A1 Key Plan

NOTES

1. ELEVATIONS INDICATED ON THE DRAWING ARE TO THE DUCT BODY. ALLOWANCES MUST BE MADE FOR DUCT FLANGES, DUCT REINFORCING AND EXTERIOR INSULATION WHEN COORDINATING ELEVATIONS.

ABBREVIATIONS

AD, AP	ACCESS DOOR, ACCESS PLATE	S & D	SUPPLY & RETURN DUCT CONNECTOR
B, BOTT	BOTTOM	SI	SPIN-IN FITTING
C, CON	CONDENSATE DRAIN	SS	STAINLESS STEEL
C, CN	DUCTMATE CONNECTOR	SP	STATIC PRESSURE
DM	FEMALE	T	TDF
F / FEM	FEMALE CONNECTOR	TDC	TRANSVERSE DUCT CONNECTOR
FI	FLANGE IN	TR	TRANSFER GRILLE
FO	FLANGE OUT	TRANS	TRANSITION FITTING
FOB	FLAT OFFSET BOTTOM	TV	TURNING VANES
FOS	FLAT ON SIDE	V	VERTICAL
FOT	FLAT ON TOP	VD	VOLUME DAMPER
H	HORIZONTAL	W	WITH
M	MALE	WG	WATER GAUGE
OS	OFFSET	WI	WALL INDICATOR
R	RADIUS	"ø	FEMALE INDICATOR

SYMBOL LEGEND

SYMBOL	DESCRIPTION
	FIRE DAMPER OR COMBINATION FIRE/SMOKE DAMPER W/ SMA
	MANUAL VOLUME DAMPER WITH QUADRANT TYPE REGULATOR
	CEILING MOUNTED CONCEALED REGULATOR
	MOTORIZED DAMPER
	ELECTRONIC ACCESS DOOR OR ACCESS PLATE
	ELECTRONIC FREEZE NO.
	INDICATOR
	AIR PATTERN OF DUCT ELEVATION INDICATOR

MATERIAL LISTS

NO.	DESCRIPTION	DATE
C1-1-B	-4"ø-6" LAB EXH 316L-2B DUCTWORK PCS:1-12	04-29-09
C1-2-B	-4"ø-6" LAB EXH 316L-2B DUCTWORK PCS:1-7	05-04-09
C1-3-B	-4"ø-6" LAB EXH 316L-2B DUCTWORK PCS:1-10	05-29-09
C1-4-B	-4"ø-6" LAB EXH 316L-2B DUCTWORK PCS:1-11	04-09-09
C1-5-B	-4"ø-6" LAB EXH 316L-2B DUCTWORK PCS:1-6	10-2-09

REVISIONS

NO.	DESCRIPTION	DATE
1	RE-ISSED FOR RESUBMITTAL	11-24-08
2	RE-ISSED PER CHIPO REVIEW	02-10-10
3	1ST FLOOR PREPARED FOR LISTING	04-29-10
4	1ST FLOOR RE-ISSED PER LISTING	05-11-10
5	RE-ISSED PER LISTING	5-24-10
6	RE-ISSED PER LISTING	6-25-10
7	CFSD TAG ADDED	9-28-10
8	5TH FLOOR ADDED	10-2-10
9	RE-ISSED PER LISTING	10-26-10
10	AS-BUILT RECORD DRAWING	5-7-12

HARRIS & HART INC.
1759 WEST 1200 SOUTH
OGDEN, UTAH. 84404
PHONE: (801) 731-0577
FAX NO: (801) 731-0580
WEBSITE: WWW.HARRIS-HART.COM
E-MAIL TO DETAILING DEPARTMENT:
ttaylor@harris-hart.com

JOB NO: 9507 PAY ITEM: 15

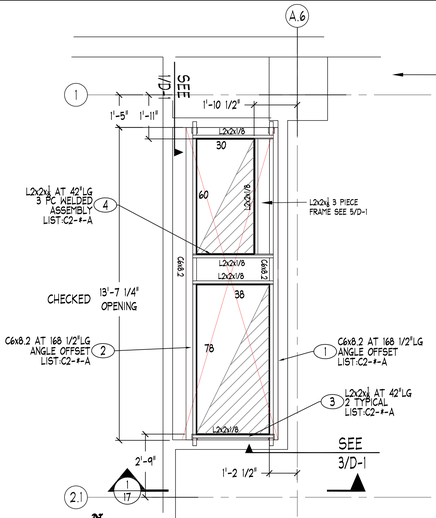
PROJECT: IL 0702072-30
CHOC HOSPITAL
ORANGE, CA

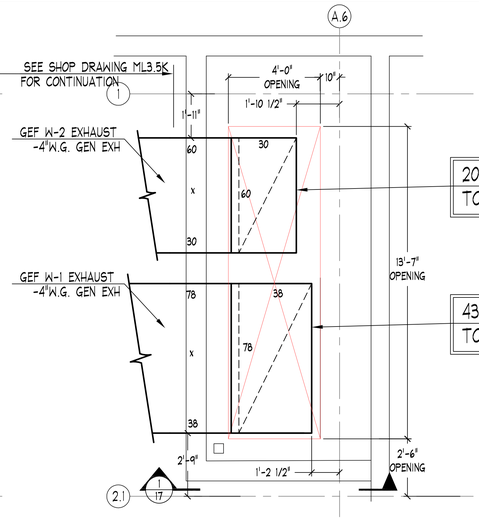
TITLE: DA #003
AREA C RISER SHAFT C1
HVAC SYSTEM LAYOUT

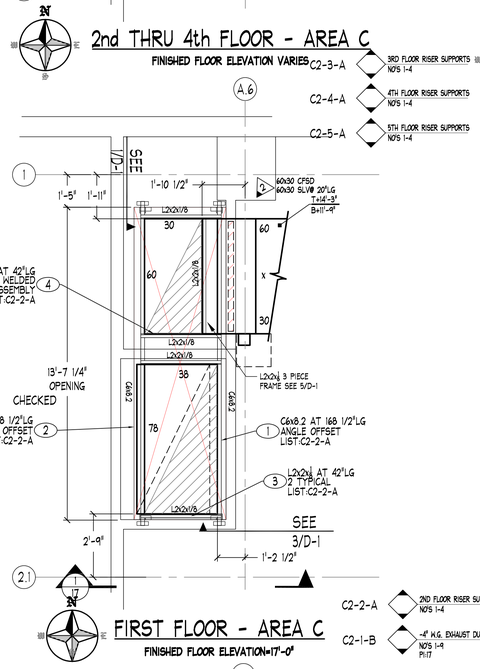
REFERENCE DRAWINGS
ARCH: STRUCT: MECH:

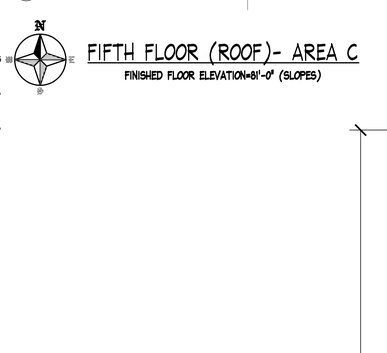
BY: R.FRESTON DRAWING NO.
DATE: 08-18-09 16 of 115
SCALE: 3/8" =1'-0"

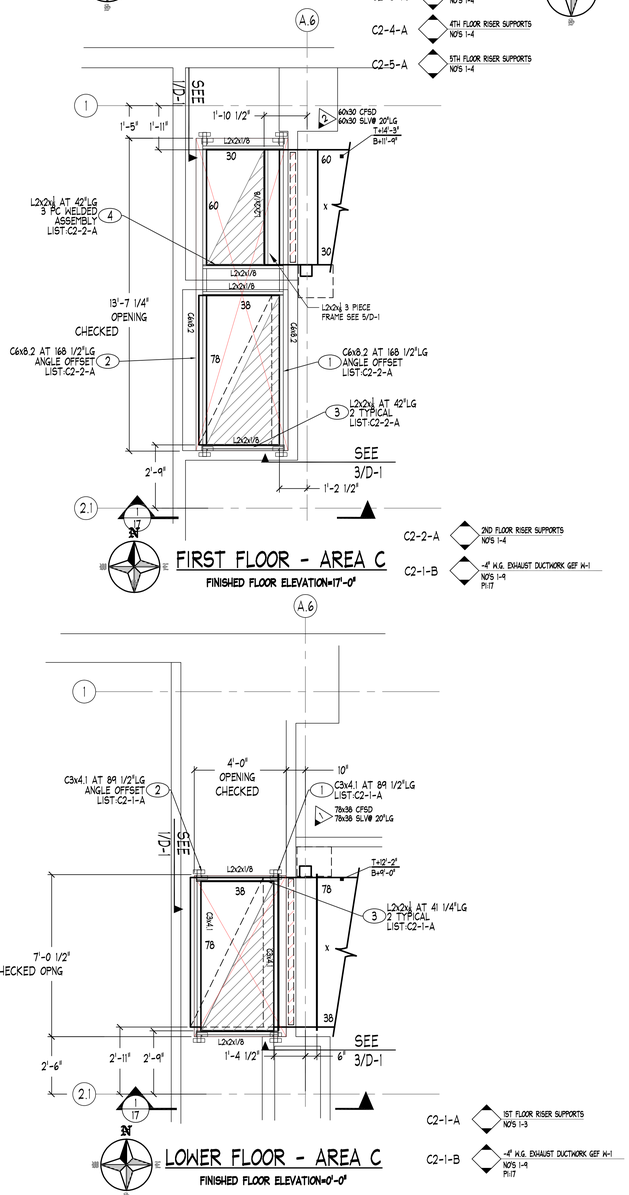
"PROJECT RECORD DRAWING"

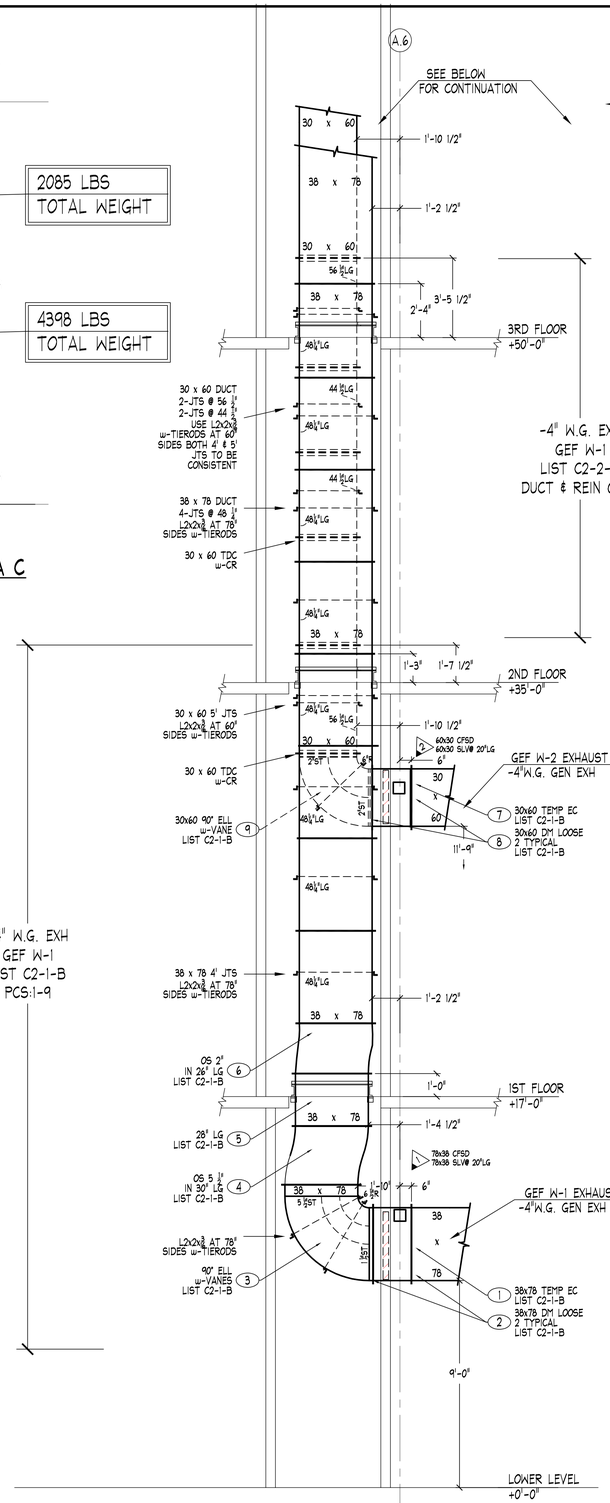


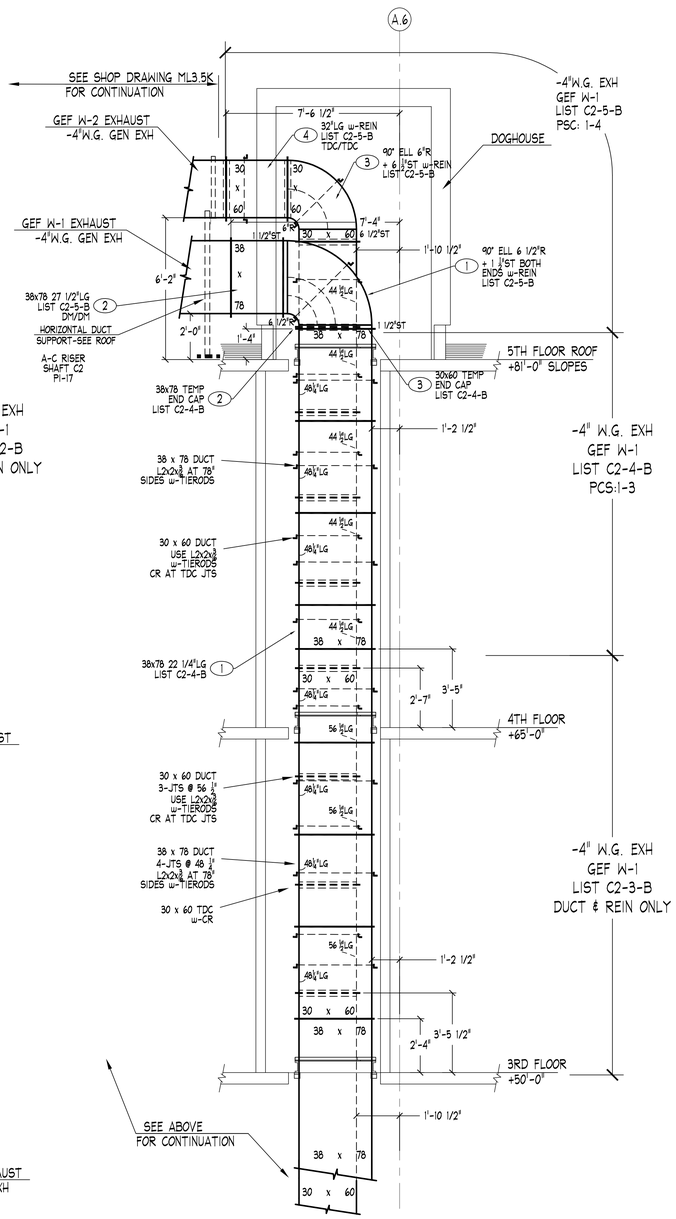












1/17 AREA C SHAFT C2 RISER (GEF W-1, W-2)

LOOKING NORTH FROM GRIDLINE 2.1

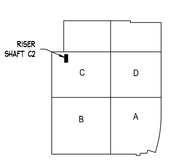
3RD FLOOR TO 5TH FLOOR-ROOF

C2-5-A 5TH FLOOR RISER SUPPORTS NOTS 1-4
C2-3-A 3RD FLOOR RISER SUPPORTS NOTS 1-4
C2-4-A 4TH FLOOR RISER SUPPORTS NOTS 1-4
C2-2-A 2ND FLOOR RISER SUPPORTS NOTS 1-4
C2-1-A 1ST FLOOR RISER SUPPORTS NOTS 1-3

C2-5-B -4" W.G. EXHAUST DUCTWORK GEF W-1 & W-2 PCS:1-4
C2-4-B -4" W.G. EXHAUST DUCTWORK GEF W-1 & W-2 PCS:1-3
C2-3-B -4" W.G. EXHAUST DUCTWORK GEF W-1 & W-2 DUCT & REINFORCING ONLY PI:17
C2-2-B -4" W.G. EXHAUST DUCTWORK GEF W-1 & W-2 DUCT & REINFORCING ONLY PI:17
C2-1-B -4" W.G. EXHAUST DUCTWORK GEF W-1 NOTS 1-9 PI:17

GENERAL NOTES:

1. Governing Building Code: California Building Code 2007 w/ Title 24 Requirements
2. All post-installed expansion anchor bolts shall be 3/8" diameter Tru-bolt+ ITW/Ramset Redhead with 3" minimum embedment.
3. All post-installed expansion anchors shall be tested and inspected in accordance with the requirements noted on Dwg. S0.1.
4. Reposition expansion anchors that interfere with slab reinforcement. Do not reposition anchors any closer than 6" to the edge of the slab and maintain a minimum distance between anchors of 6".
5. All steel-to-steel bolted connections shall utilize A-307 bolts.
6. All steel shapes and plates shall be ASTM A-36.
7. All steel-to-steel welded connections shall use E-70XX electrodes. E-60XX electrodes may be used for welding light-gage metal ducts to steel.



A1 Key Plan

NOTE: SUPPORTS SHOWN ARE LOCATED ON THE SLAB OF THE LEVEL ABOVE.

1/17 AREA C SHAFT C2 RISER (GEF W-1, W-2)

LOOKING NORTH FROM GRIDLINE 2.1

LOWER LEVEL TO 2ND FLOOR

"PROJECT RECORD DRAWING"

NOTES

1. ELEVATIONS INDICATED ON THE DRAWING ARE TO THE DUCT BODY. ALLOWANCES MUST BE MADE FOR TRANSITIONS CONNECTORS, FLANGES AND INSULATION WHEN COORDINATING ELEVATIONS.

ABBREVIATIONS

A/D, A/P	ACCESS DOOR, ACCESS PANEL	S & S	SIDE & SIDE CONNECTOR
B, BOTT	BOTTOM	SI	SPIN-IN FITTING
C	CENTERLINE	SLDK	SLIDE DAMPER
E, EN	ENTRANCE	SP	STATIC PRESSURE
DM	DOGHOUSE CONNECTOR	T	TOP
F, FEM	FEMALE	TDC	TRANSVERSE DUCT CONNECTOR
FCU	FAN COIL UNIT	TEMP	TEMPERATURE
FD	CEILING MOUNTED CONCEALED REGULATOR	TRANS	TRANSITION FITTING
FI	FLANGE IN	TV	TURNING VANES
FO	FLANGE OUT	U	UP
FOB	FLAT ON BOTTOM	V	VERTICAL
FOS	FLAT ON SIDE	VD	VOLUME DAMPER
FOT	FLAT ON TOP	W	WITH
H	HORIZONTAL	WG	WATER GAUGE
M	MALE	WI	WALL INDICATOR
OFFSET	OFFSET	FI	FEMALE INDICATOR
R	RADIUS	CI	CEILING INDICATOR

SYMBOL LEGEND

SYMBOL	DESCRIPTION
	FIRE DAMPER W/ COMBINATION FIRE/SMOKE DAMPER W/
	MANUAL VOLUME DAMPER WITH QUADRANT OR EQUIVALENT TYPE REGULATOR
	CEILING MOUNTED CONCEALED REGULATOR
	MOTORIZED DAMPER
	SOUTHWIND ACCESS DOOR OR EQUIVALENT
	DUCTWORK PIECE NO.
	INDICATOR
	TOP OF INSULATION OF DUCT UNLESS NOTED

MATERIAL LISTS

NO.	DESCRIPTION	DATE
C2-5-B	-4"W.G. EXHAUST DUCTWORK GEF W-1	4-28-10
C2-4-B	-4"W.G. EXHAUST DUCTWORK GEF W-1 (3 SIDES)	5-06-10
C2-3-B	-4"W.G. EXHAUST DUCTWORK GEF W-1	5-07-10
C2-2-B	-4"W.G. EXHAUST DUCTWORK GEF W-1	5-07-10
C2-1-B	-4"W.G. EXHAUST DUCTWORK GEF W-1	10-21-10
C2-1-A	1ST FLOOR RISER SUPPORTS	9-16-10
C2-2-A	2ND FLOOR RISER SUPPORTS	9-16-10
C2-3-A	3RD FLOOR RISER SUPPORTS	9-16-10
C2-4-A	4TH FLOOR RISER SUPPORTS	9-16-10
C2-5-A	5TH FLOOR RISER SUPPORTS	9-16-10

REVISIONS

NO.	DESCRIPTION	DATE
1	RELEASED FOR RESUBMITTAL	11-24-09
2	RELEASED PER GSA/PD REVIEW	01-29-10
3	1ST FLOOR RELEASED PER LISTING	04-21-10
4	1ST FLOOR RELEASED PER LISTING	05-14-10
5	RELEASED PER LISTING	5-26-10
6	RISER SUPPORTS ADDED/ ADDED FSD 7&8	6-14-10
7	CFSD TAGS ADDED	6-28-10
8	5TH FLOOR ADDED	10-21-10
9	RELEASED PER LISTING	10-26-10
10	AS-BUILT RECORD DRAWING	5-7-12

HARRIS & HART INC.
1759 WEST 1200 SOUTH
OGDEN, UTAH. 84404
PHONE: (801) 731-0577
FAX NO: (801) 731-0580
WEBSITE: WWW.HARRIS-HART.COM
E-MAIL TO DETAILING DEPARTMENT:
ttaylor@harris-hart.com

JOB NO: 9507 PAY ITEM: 17

PROJECT: IL 0702072-30
CHOC HOSPITAL
ORANGE, CA

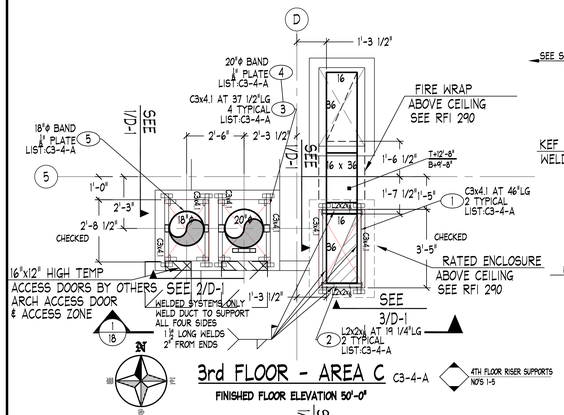
TITLE: DA #003
AREA C RISER SHAFT C2
HVAC SYSTEM LAYOUT

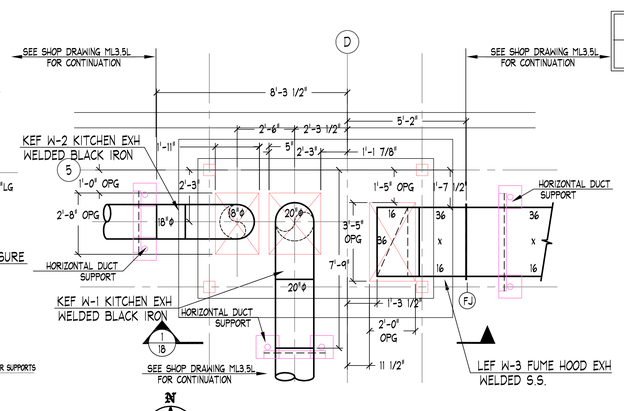
REFERENCE DRAWINGS
ARCH: STRUCT: MECH:

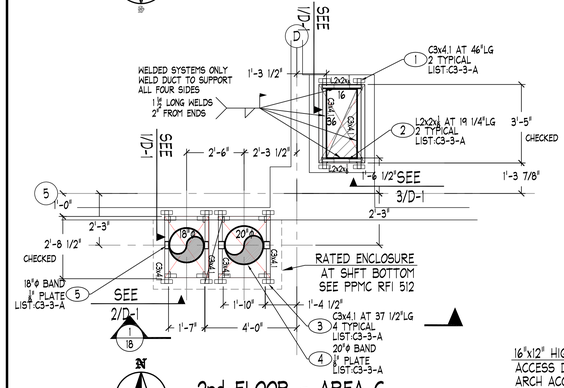
BY: R.F. DRAWING NO.

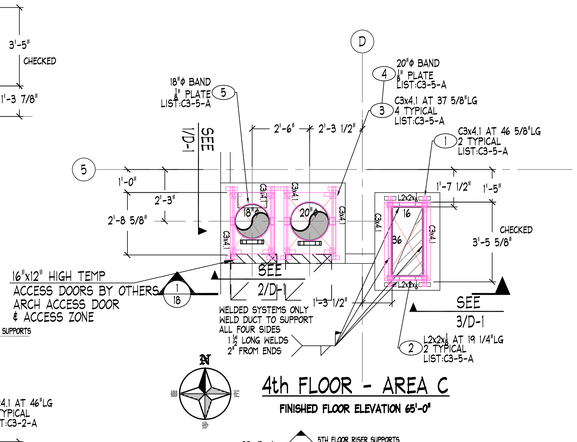
DATE: 08-18-09 17 of 115

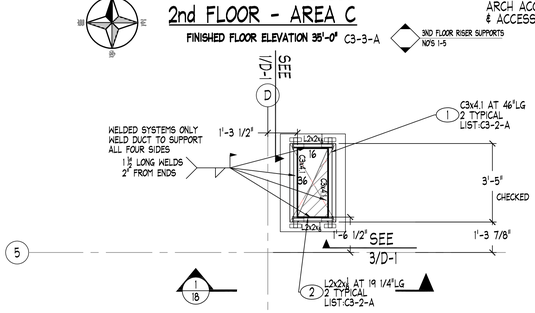
SCALE: 3/8" =1'-0"

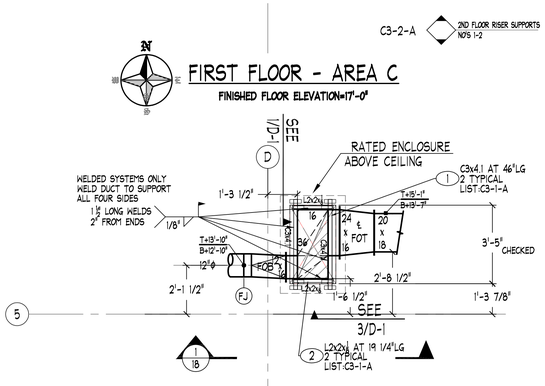


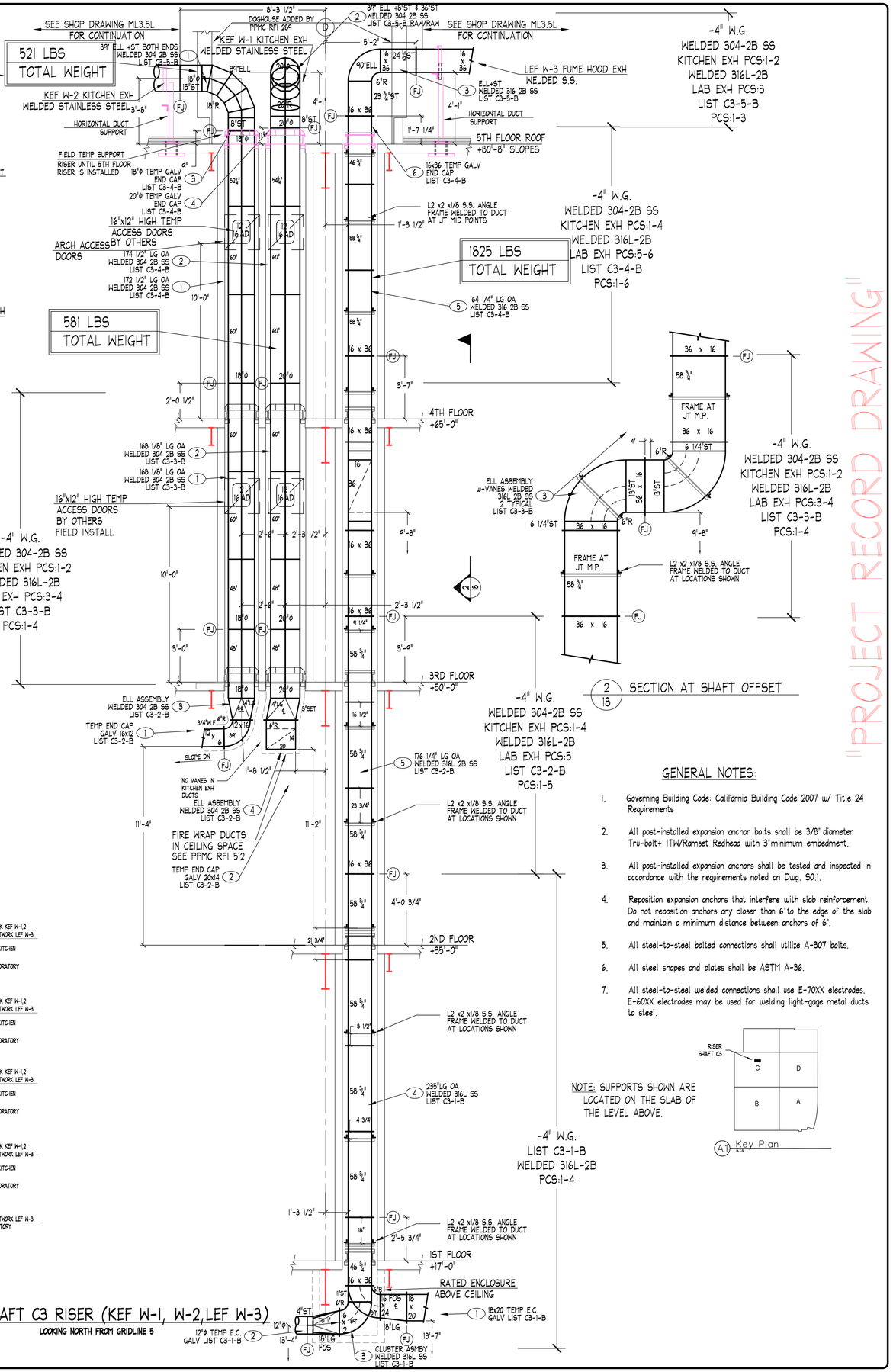












"PROJECT RECORD DRAWING"

NOTES
1. ELEVATIONS INDICATED ON THE DRAWING ARE TO THE DUCT BODY. ALLOWANCES MUST BE MADE FOR TRANSVERSE CONNECTORS, INSULATION AND SUPPORTS IN FABRICATION WHEN COORDINATING ELEVATIONS.

ABBREVIATIONS

@ & #	AT, #"	ACCESS DOOR, ACCESS PLATE	
B, BOTT	BOTTOM		
CL, ℄	CENTERLINE		
D, DIA	DIAMETER	DUCTWORK CONNECTOR	
F, FTM	FEMALE		
FD	FIRE DAMPER		
FJ	FLANGE JOINT		
FOB	FLANGE OUT BOTTOM		
FOR	FLANGE OUT RIGHT		
FOT	FLANGE OUT TOP		
H	HORIZONTAL		
MAL	MALE		
R	RADIUS		
S & W	S & WING CONNECTOR		
SPW-M	SPIN-IN FITTING		
SLIDE	SLIDING DAMPER		
SP	STATIC PRESSURE		
TDF	TRANSVERSE DUCT CONNECTOR		
TDC	TRANSVERSE DUCT CONNECTOR		
THK	THICKNESS		
TW	TURNING VANES		
TV	TURNING VANES		
U	UP		
V	VERTICAL		
VD	VOLUME DAMPER		
W	WIDE		
WD	WIDE BLADE		
WG	WELDED GUSSET		
↑↓	FEMALE INDICATOR		

SYMBOL LEGEND

SYMBOL	DESCRIPTION
	FIRE DAMPER OR COMBINATION FIRE/SMOKE DAMPER
	MANUAL VOLUME DAMPER WITH DIAL OR QUADRANT TYPE REGULATOR
	MANUAL VOLUME DAMPER WITH LOCKING QUADRANT REGULATOR
	MOTORIZED DAMPER
	DUCTWORK ACCESS DOOR OR ACCESS DOOR
	DUCTWORK PIECE NO. INDICATOR
	TOP OF DUCT/BOTTOM OF DUCT ELEVATION INDICATOR

MATERIAL LISTS

DESCRIPTION	NO.	DATE
PCS:1-4		
-4"W.G. WELDED 316L 2B EXH PCS:1-3	C3-2-B	4-28-10
-4"W.G. WELDED 316L 2B EXH PCS:1-4	C3-2-B	5-07-10
-4"W.G. WELDED 316L 2B EXH PCS:1-3	C3-3-B	5-10-10
-4"W.G. WELDED 316L 2B EXH PCS:1-4	C3-4-B	6-08-10
-4"W.G. WELDED 316L 2B EXH PCS:1-3	C3-5-B	10-26-10
PCS:1-2	C3-1-A	4-28-10
PCS:1-4	C3-2-A	4-28-10
PCS:1-5	C3-3-A	4-28-10
PCS:1-6	C3-4-A	4-28-10
PCS:1-3	C3-5-A	4-28-10

REVISIONS

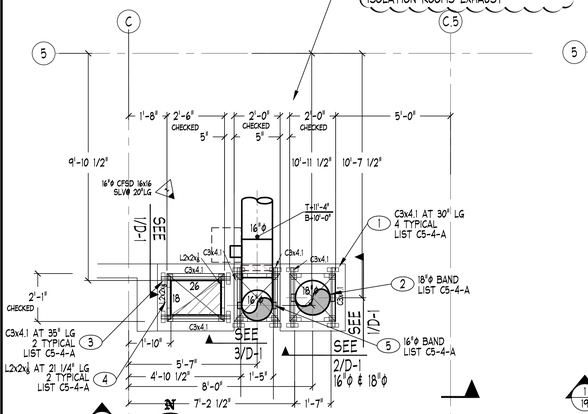
NO.	DESCRIPTION	DATE
1	RISER RAISED FOR COORDINATION	10-05-09
2	RISER RAISED FOR COORDINATION	10-15-09
3	REVISED FOR RESUBMITTAL	11-24-09
4	REVISED FOR PPMC RFI 512	12-15-09
5	REVISED FOR DSRSD REVISION	01-29-10
6	REVISED FOR 5TH FLOOR	08-31-10
7	REVISED FOR 5TH FLOOR	09-14-10
8	RISER SUPPORTS ADDED	9-29-10
9	5TH FLOOR ADDED	10-29-10
10	AS-BUILT RECORD DRAWING	9-29-10

SHEET METAL CONTRACTORS & FABRICATORS
HARRIS & HART

HARRIS & HART INC.
1759 WEST 1200 SOUTH
OGDEN, UTAH. 84404
PHONE: (801) 731-0577
FAX NO: (801) 731-0580
WEBSITE: WWW.HARRIS-HART.COM
E-MAIL TO DETAILING DEPARTMENT:
ttaylor@harris-hart.com

JOB NO: 9507 PAY ITEM: 18
PROJECT: IL 0702072-30
CHOC HOSPITAL
ORANGE, CA
TITLE: DA #003
AREA C RISER SHAFT C3
HVAC SYSTEM LAYOUT
REFERENCE DRAWINGS
ARCH: STRUCT: MECH:
BY: R.FRESTON DRAWING NO.
DATE: 08-18-09 18 of 115
SCALE: 3/8" =1'-0"

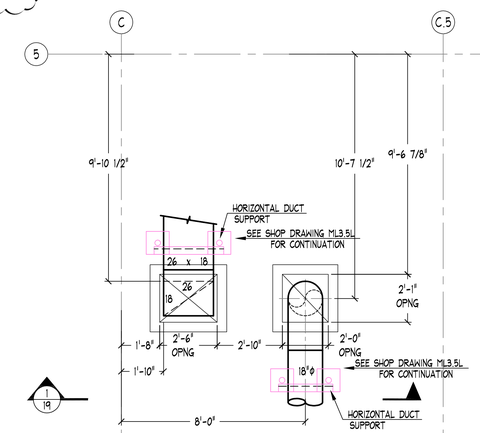
PROVIDE WARNING LABELS @ OPENINGS & @ 20 FOOT INTERVALS PER CMC 414.1 "CAUTION AIRBOURNE INFECTION ISOLATION ROOMS EXHAUST"



3rd FLOOR - AREA C

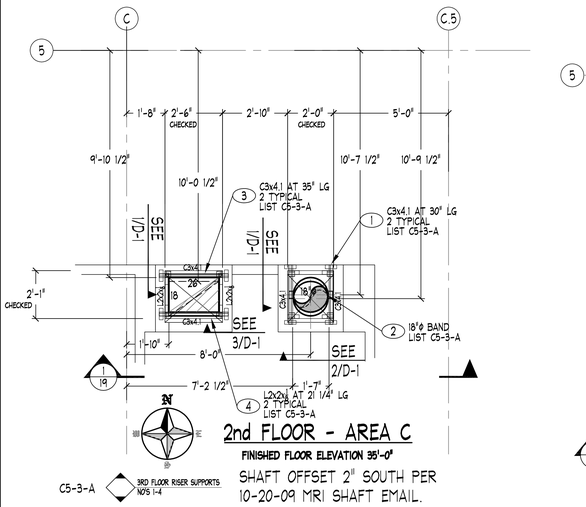
FINISHED FLOOR ELEVATION 50'-0"

C5-4-A — 4TH FLOOR RISER SUPPORTS NO'S 1-5



FIFTH FLOOR (ROOF)- AREA C

FINISHED FLOOR ELEVATION=80'-8" (SLOPES)

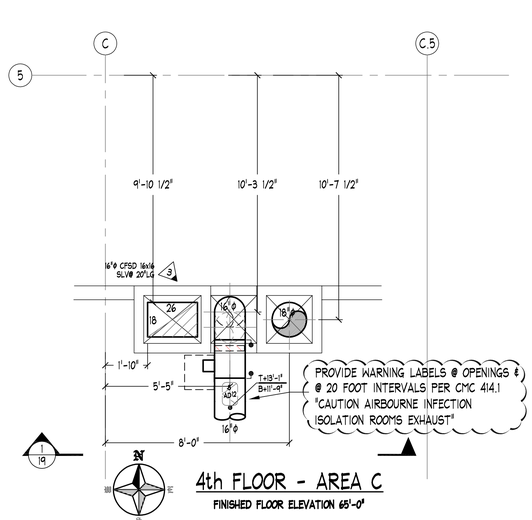


2nd FLOOR - AREA C

FINISHED FLOOR ELEVATION 35'-0"

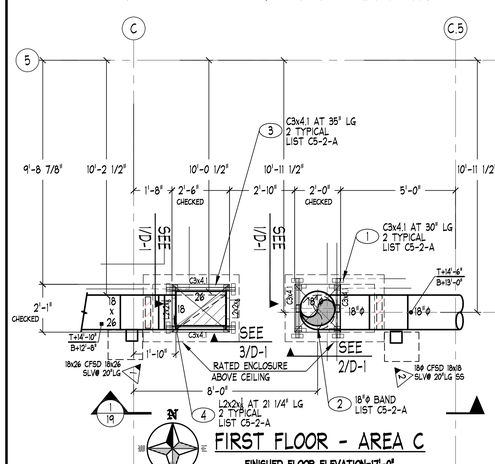
C5-3-A — 3RD FLOOR RISER SUPPORTS NO'S 1-4

SHAFT OFFSET 2" SOUTH PER 10-20-09 MRI SHAFT EMAIL.



4th FLOOR - AREA C

FINISHED FLOOR ELEVATION 65'-0"

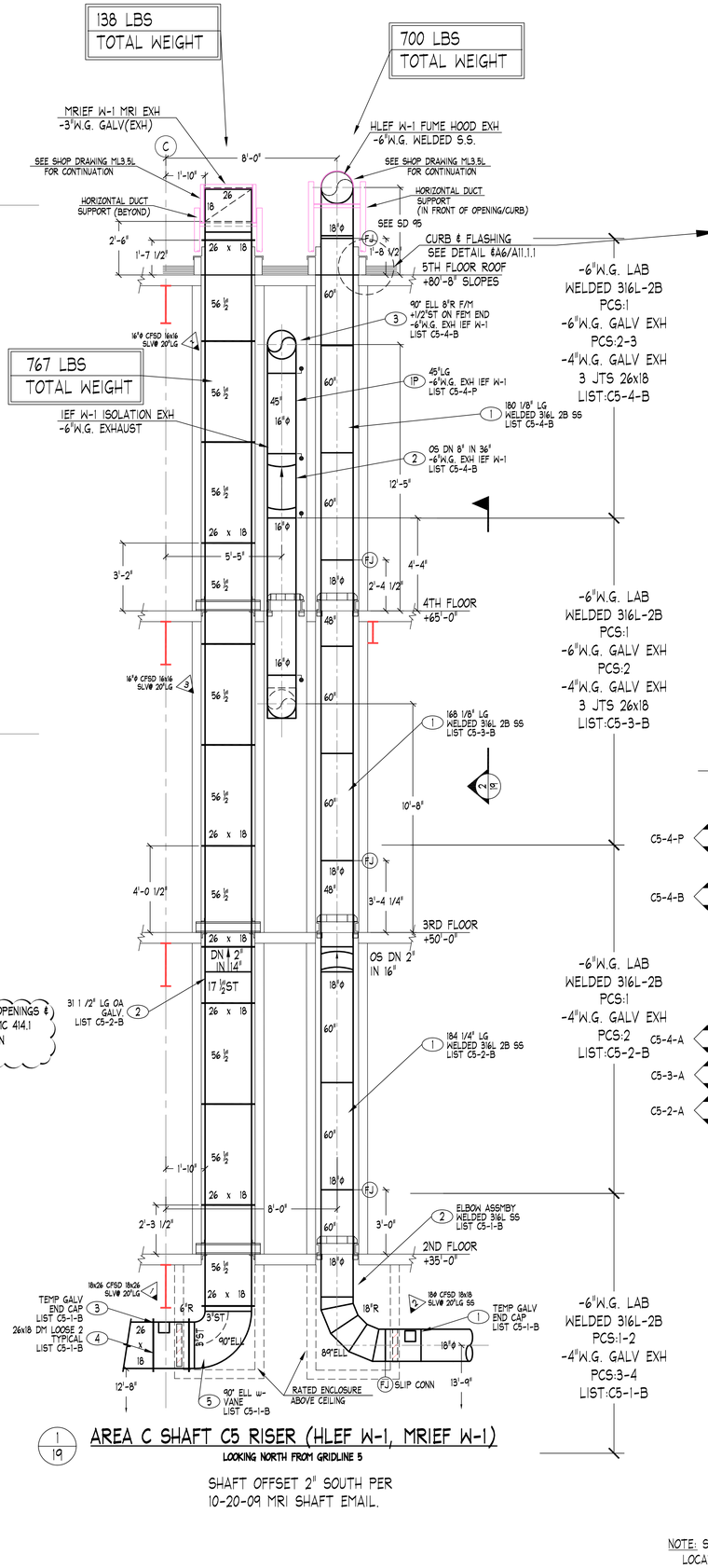


FIRST FLOOR - AREA C

FINISHED FLOOR ELEVATION=17'-0"

C5-2-A — 2ND FLOOR RISER SUPPORTS NO'S 1-4

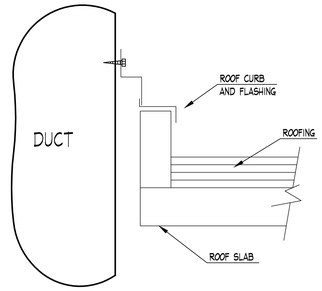
SHAFT OFFSET 2" SOUTH PER 10-20-09 MRI SHAFT EMAIL.



AREA C SHAFT C5 RISER (HLEF W-1, MRIEF W-1)

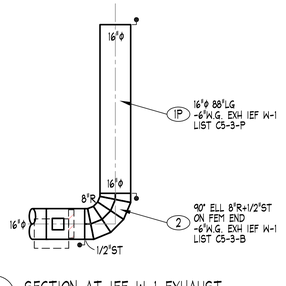
LOOKING NORTH FROM GRIDLINE 5

SHAFT OFFSET 2" SOUTH PER 10-20-09 MRI SHAFT EMAIL.



DETAIL AT ROOF CURB

SEE DETAIL A6/A11.1.1

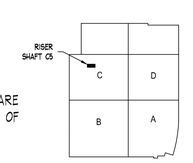


2 SECTION AT IEF W-1 EXHAUST

GENERAL NOTES:

1. Governing Building Code: California Building Code 2007 w/ Title 24 Requirements
2. All post-installed expansion anchor bolts shall be 3/8" diameter Tru-bolt+ ITW/Ramset Redhead with 3" minimum embedment.
3. All post-installed expansion anchors shall be tested and inspected in accordance with the requirements noted on Dwg. S0.1.
4. Reposition expansion anchors that interfere with slab reinforcement. Do not reposition anchors any closer than 6" to the edge of the slab and maintain a minimum distance between anchors of 6".
5. All steel-to-steel bolted connections shall utilize A-307 bolts.
6. All steel shapes and plates shall be ASTM A-36.
7. All steel-to-steel welded connections shall use E-70XX electrodes. E-60XX electrodes may be used for welding light-gage metal ducts to steel.

NOTE: SUPPORTS SHOWN ARE LOCATED ON THE SLAB OF THE LEVEL ABOVE.



A1 Key Plan N.T.S.

AS-BUILT RECORD

NOTES

1. ELEVATIONS INDICATED ON THIS DRAWING ARE TO THE DUCT BODY. ALLOWANCES MUST BE MADE FOR INSULATION, FLANGES, REINFORCING AND EXTERIOR INSULATION WHEN COORDINATING ELEVATIONS.

ABBREVIATIONS

A	ACCESS DOOR, ACCESS PLATE	S & D	S & DRIVE CONNECTOR
AD, AP		SF	SUPPLY FITTING
E, EXIT	EXHAUST/AIR	SL	SLOPE
D, DN	DOWN	SP	STATIC PRESSURE
DC	DUCTWORK CONNECTOR	T	TEMPERATURE DUCT CONNECTOR
EA	EXHAUST AIR	TH	THROAT
FD	FIRE DAMPER	TR	TRANSITION FITTING
FI	FLANGE IN	TR	TRANS
FO	FLANGE OUT	U	UP
FSD	FIRE/SMOKE DAMPER	V	VERTICAL
FD	FLAT ON BOTTOM	V	VOLUME DAMPER
FOS	FLAT ON SIDE	VD	VOLUME DAMPER
FOT	FLAT ON TOP	W	WATER GAUGE
H	HORIZONTAL	WG	WALE INDICATOR
M	WALE	WI	WALE INDICATOR
OFFSET			FEMALE INDICATOR
RADIUS			

SYMBOL LEGEND

SYMBOL	DESCRIPTION
	FIRE DAMPER OR COMBINATION FIRE/SMOKE DAMPER W/O.
	MANUAL VOLUME DAMPER WITH TAB
	MANUAL VOLUME DAMPER WITH QUADRANT LOCKING DEVICE
	MANUAL VOLUME DAMPER WITH CEILING MOUNTED CONCEALED REGULATOR
	MOTORIZED DAMPER
	DUCTWORK ACCESS DOOR OR ACCESS PLATE
	DUCTWORK PIECE NO.
	TOP OF DUCT/BOTTOM OF DUCT ELEVATION INDICATOR

MATERIAL LISTS

NO.	DESCRIPTION	DATE
C5-1-B	-4" ø +6" M.G. EXHAUST DUCTWORK	PCS:1-5
C5-2-B	-4" ø +6" M.G. EXHAUST DUCTWORK	PCS:1-2
C5-3-B	-4" ø +6" M.G. EXHAUST DUCTWORK	PCS:1-2
C5-3-P	-4" ø +6" M.G. PURCHASED ROUND	PCS:1
C5-4-B	-4" ø +6" M.G. EXHAUST DUCTWORK	PCS:1-3
C5-4-P	-4" ø +6" M.G. PURCHASED ROUND	PCS:1
C5-2-L	2ND FLOOR RISER SUPPORTS	PCS:1-4
C5-3-L	3RD FLOOR RISER SUPPORTS	PCS:1-4
C5-4-L	4TH FLOOR RISER SUPPORTS	PCS:1-5

REVISIONS

NO.	DESCRIPTION	DATE
1	SHAFT WALLS MOVED AT 2ND FLOOR PER OSHPD PERMIT SET (1-27-10) AND EMAIL OF 10-20-09	04-27-10
2	RE/ISSD FOR RESUBMITTAL	05-07-10
3	RE/ISSD PER OSHPD REVIEW	05-26-10
4	RE/ISSD PER LISTING	06-10-10
5	RE/ISSD PER LISTING	06-10-10
6	ADDED LABEL NOTATION REQUIREMENTS @ IEF-W1	09-20-10
7	RISER SUPPORTS ADDED	09-20-10
8	AS-BUILT RECORD DRAWING	09-20-10
		5-5-12

HARRIS & HART INC.
1759 WEST 1200 SOUTH
OGDEN, UTAH. 84404
PHONE: (801) 731-0577
FAX NO: (801) 731-0580
WEBSITE: WWW.HARRIS-HART.COM
E-MAIL TO DETAILING DEPARTMENT:
ttaylor@harris-hart.com

JOB NO: 9507 PAY ITEM: 19

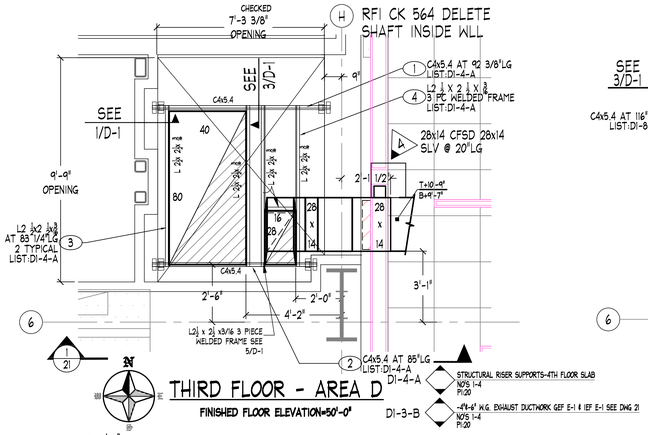
PROJECT: IL 0702072-30
CHOC HOSPITAL
ORANGE, CA

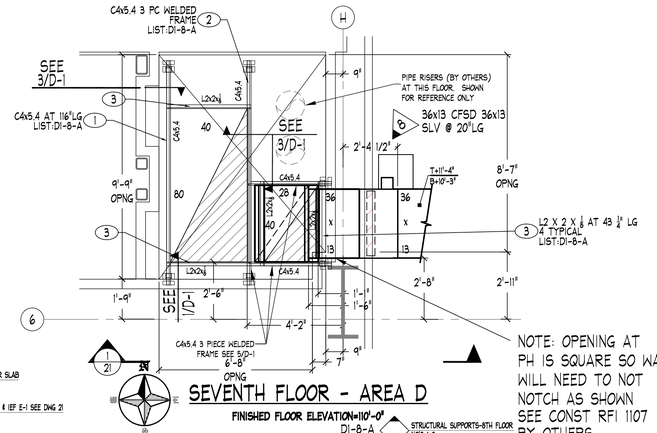
TITLE: DA #003
AREA C RISER SHAFT C5
HVAC SYSTEM LAYOUT

REFERENCE DRAWINGS
ARCH: STRUCT: MECH:

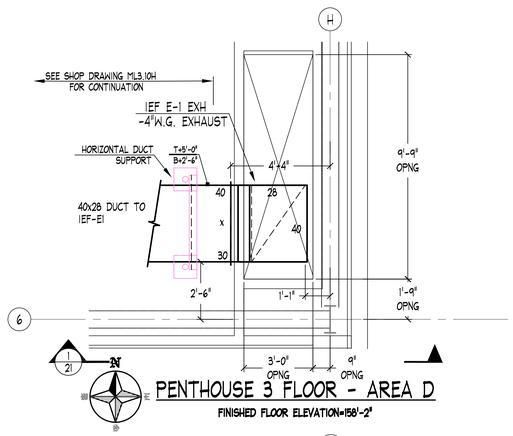
BY: R.FRESTON
DATE: 08-18-09
SCALE: 3/8" =1'-0"

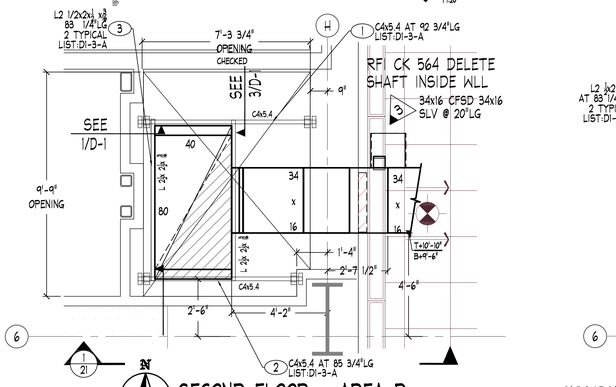
DRAWING NO. 19 of 115

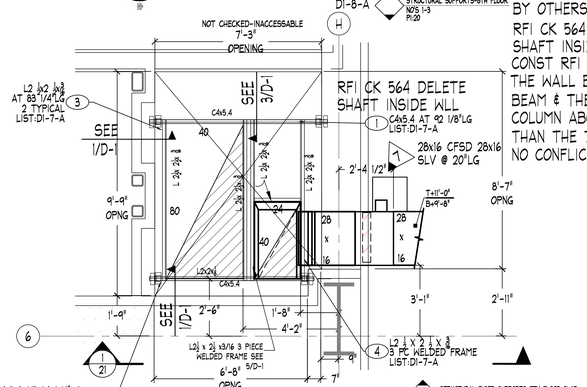


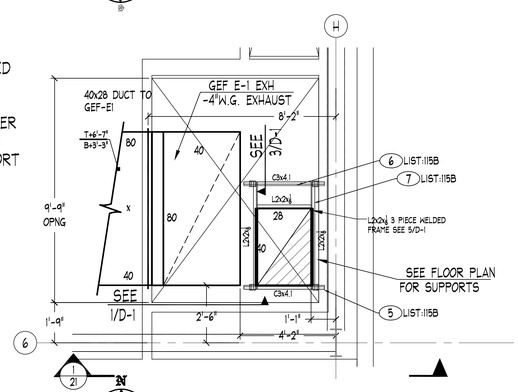


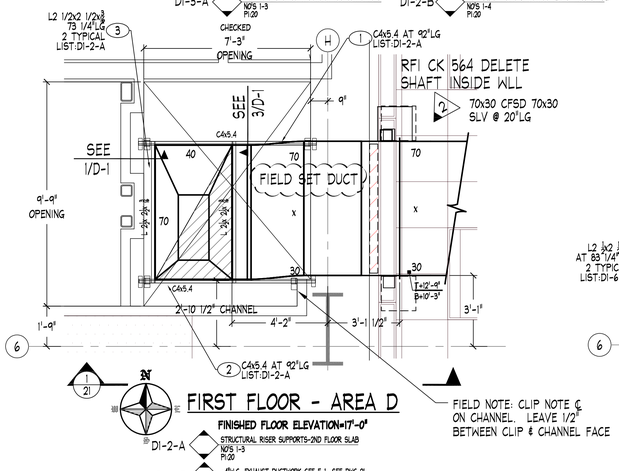
NOTE: OPENING AT PH IS SQUARE SO WALL WILL NEED TO NOT NOTCH AS SHOWN SEE CONST RFI 1107 BY OTHERS
RFI CK 564 DELETE SHAFT INSIDE WLL CONST RFI 1550-1 DELETED THE WALL BETWEEN THE BEAM & THE DUCT AT 7 COLUMN ABOVE IS SMALLER THAN THE 7TH FLOOR SO NO CONFLICT WITH SUPPORT

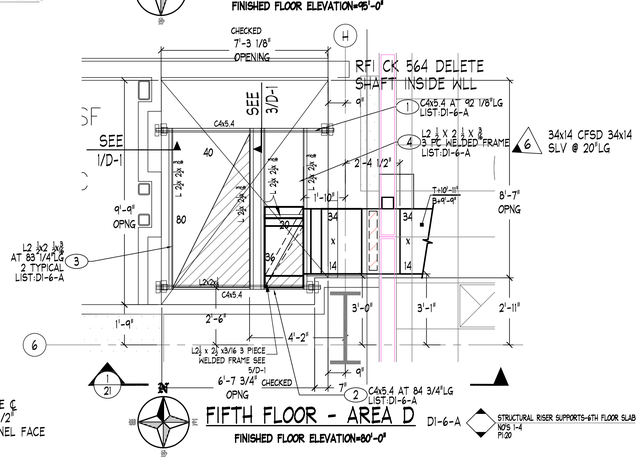


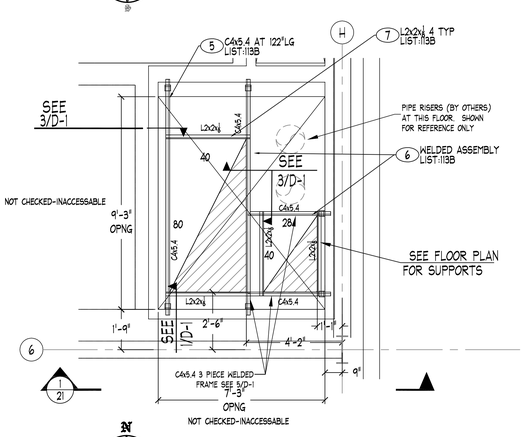


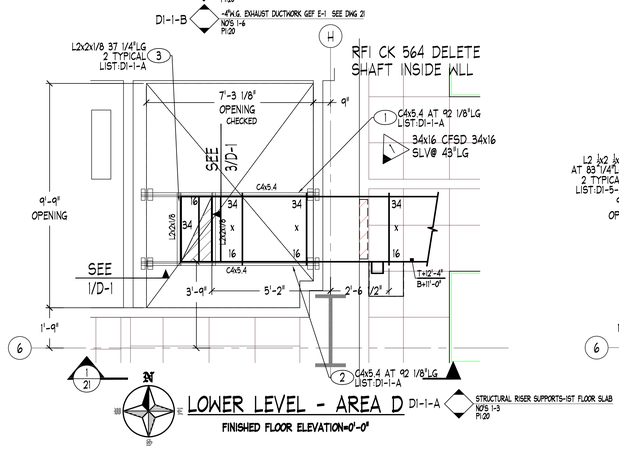


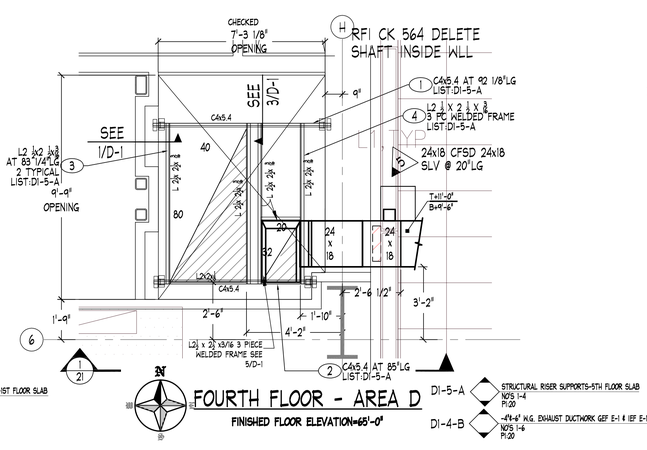












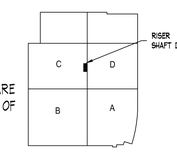
DI-6-A	STRUCTURAL RISER SUPPORTS-6TH FLOOR SLAB NOTS 1-4
DI-6-B	-4"x6" M.G. EXHAUST DUCTWORK GEF E-1 & IEF E-1 NOTS 1-4
DI-7-A	STRUCTURAL RISER SUPPORTS-7TH FLOOR SLAB NOTS 1-4 PI:20
DI-7-B	-4"x6" M.G. EXHAUST DUCTWORK GEF E-1 & IEF E-1 NOTS 1-7 PI:20
DI-8-A	STRUCTURAL RISER SUPPORTS-8TH FLOOR SLAB NOTS 1-3 PI:20
DI-8-B	-4"x6" M.G. EXHAUST DUCTWORK GEF E-1 & IEF E-1 NOTS 1-6 PI:20

DI-1-A	STRUCTURAL RISER SUPPORTS-1ST FLOOR SLAB NOTS 1-3 PI:20
DI-1-B	-4"x6" EXHAUST DUCTWORK GEF E-1 SEE DWG 21 NOTS 1-6 PI:20
DI-2-A	STRUCTURAL RISER SUPPORTS-2ND FLOOR SLAB NOTS 1-3 PI:20
DI-1-B	-4"x6" EXHAUST DUCTWORK GEF E-1 SEE DWG 21 NOTS 1-6 PI:20
DI-3-A	STRUCTURAL RISER SUPPORTS-3RD FLOOR SLAB NOTS 1-3 PI:20
DI-2-B	-4" M.G. EXHAUST DUCTWORK GEF E-1 SEE DWG 21 NOTS 1-5 PI:20
DI-4-A	STRUCTURAL RISER SUPPORTS-4TH FLOOR SLAB NOTS 1-4 PI:20
DI-3-B	-4"x6" M.G. EXHAUST DUCTWORK GEF E-1 & IEF E-1 SEE DWG 21 NOTS 1-4 PI:20
DI-5-A	STRUCTURAL RISER SUPPORTS-5TH FLOOR SLAB NOTS 1-4 PI:20
DI-4-B	-4"x6" M.G. EXHAUST DUCTWORK GEF E-1 & IEF E-1 SEE DWG 21 NOTS 1-6 PI:20
DI-5-B	-4"x6" M.G. EXHAUST DUCTWORK GEF E-1 & IEF E-1 NOTS 1-6 PI:20

NOTE: SUPPORTS SHOWN ARE LOCATED ON THE SLAB OF THE LEVEL ABOVE.

GENERAL NOTES:

1. Governing Building Code: California Building Code 2007 w/ Title 24 Requirements
2. All post-installed expansion anchor bolts shall be 3/8" diameter Tru-bolt+ ITW/Ramset Redhead with 3"minimum embedment.
3. All post-installed expansion anchors shall be tested and inspected in accordance with the requirements noted on Dwg. S0.1.
4. Reposition expansion anchors that interfere with slab reinforcement. Do not reposition anchors any closer than 6"to the edge of the slab and maintain a minimum distance between anchors of 6".
5. All steel-to-steel bolted connections shall utilize A-307 bolts.
6. All steel shapes and plates shall be ASTM A-36.
7. All steel-to-steel welded connections shall use E-70XX electrodes. E-60XX electrodes may be used for welding light-gage metal ducts to steel.



A1 Key Plan

"PROJECT RECORD DRAWING"

NOTES

1. ELEVATIONS INDICATED ON THIS DRAWING ARE TO THE DUCT BODY. ALLOWANCES MUST BE MADE FOR DUCT REINFORCING, REINFORCING AND EXTERIOR INSULATION WHEN COORDINATING ELEVATIONS.

ABBREVIATIONS

AD, AP	ACCESS DOOR, ACCESS PLATE	S & D	S & DRIVE CONNECTOR
B, BOTT	BOTTOM	SCD	SMOKE DAMPER
CL, CTR	CENTERLINE	SLEEVE	SLEEVE
DN	DOWN	SP	STATIC PRESSURE
DC	DUCTMATE CONNECTOR	TP	TOP
EA	EACH	TC	TRANSVERSE DUCT CONNECTOR
FD	FIRE DAMPER	TH	THROAT
FL	FLANGE IN	TRANS	TRANSITION FITTING
FLEX	FLEXIBLE DUCT	TV	TURNING VANES
FSD	FLAT ON BOTTOM	U	UP
FDS	FLAT ON SIDE	V	VERTICAL
FDT	FLAT ON TOP	VD	VOLUME DAMPER
H	HEIGHT/DEPTH	W	WIDE
M	MAIN	WG	WATER GAUGE
OS	OFFSET	WI	WALL INDICATOR
R	RADIUS	XH	X-HEAVY

SYMBOL LEGEND

SYMBOL	DESCRIPTION
	FIRE DAMPER OR COMBINATION
	FIRE/SMOKE DAMPER NO.
	MANUAL VOLUME DAMPER WITH QUADRANT LOCK
	MANUAL VOLUME DAMPER WITH LOCKING QUADRANT
	CEILING MOUNTED CONCEALED REGULATOR
	MOTORIZED DAMPER
	DUCTWORK ACCESS DOOR OR ACCESS PLATE
	DUCTWORK PIECE NO.
	DIRECTIONAL
	WALL
	OFFSET
	RISER
	TOP OF DUCT/BOTTOM OF DUCT ELEVATION INDICATOR

MATERIAL LISTS

DATE	NO.	DESCRIPTION
04/20/10	DI-1-A	RISER SUPPORTS 1ST FLOOR SLAB
04/20/10	DI-2-A	RISER SUPPORTS 2ND FLOOR SLAB
04/20/10	DI-1-B	-4"x6" EXHAUST DUCTWORK SEE DWG 21
04/20/10	DI-3-A	RISER SUPPORTS 3RD FLOOR SLAB
04/20/10	DI-2-B	-4"x6" EXHAUST DUCTWORK SEE DWG 21
04/20/10	DI-4-A	RISER SUPPORTS 4TH FLOOR SLAB
04/20/10	DI-3-B	-4"x4"x6" EXH DUCTWORK SEE DWG 21
04/20/10	DI-5-A	RISER SUPPORTS 5TH FLOOR SLAB
04/20/10	DI-4-B	-4"x4"x6" EXH DUCTWORK SEE DWG 21
09/21/10	DI-7-A	RISER SUPPORTS 7TH FLOOR SLAB
09/21/10	DI-8-A	RISER SUPPORTS 8TH FLOOR SLAB

REVISIONS

NO.	DESCRIPTION	DATE
1	REVISED PER ENGINEER'S COMMENTS	11/05/09
2	REVISED FOR RESUBMITTAL	11-24-09
3	REVISED PER OSHPD REVIEW	01-29-10
4	RISER SUPPORTS 5-8 LISTED	04-21-10
5	1ST FLOOR DUCT NOTED TO FIELD SET	10-04-10
6	RISER DUCTS 5-8 ADDED	10-08-10
7	AS-BUILT RECORD DRAWING	5-8-12

HARRIS & HART INC.
1759 WEST 1200 SOUTH
OGDEN, UTAH. 84404
PHONE: (801) 731-0577
FAX NO: (801) 731-0580
WEBSITE: WWW.HARRIS-HART.COM
E-MAIL TO DETAILING DEPARTMENT: ttaylor@harris-hart.com

JOB NO: 9507 PAY ITEM:

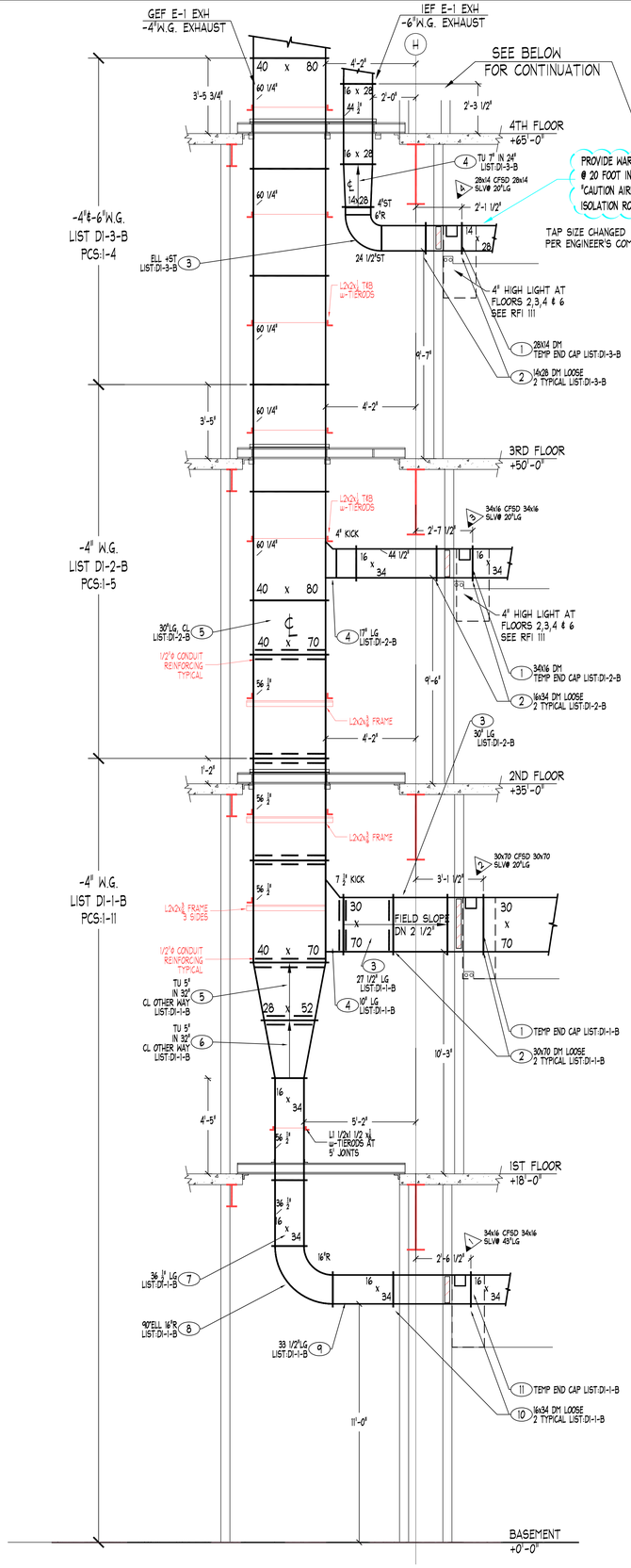
PROJECT: IL 0702072-30
CHOC HOSPITAL
ORANGE, CA

TITLE: DA #003
AREA D RISER SHAFT D1
HVAC SYSTEM LAYOUT

REFERENCE DRAWINGS
ARCH: STRUCT: MECH:

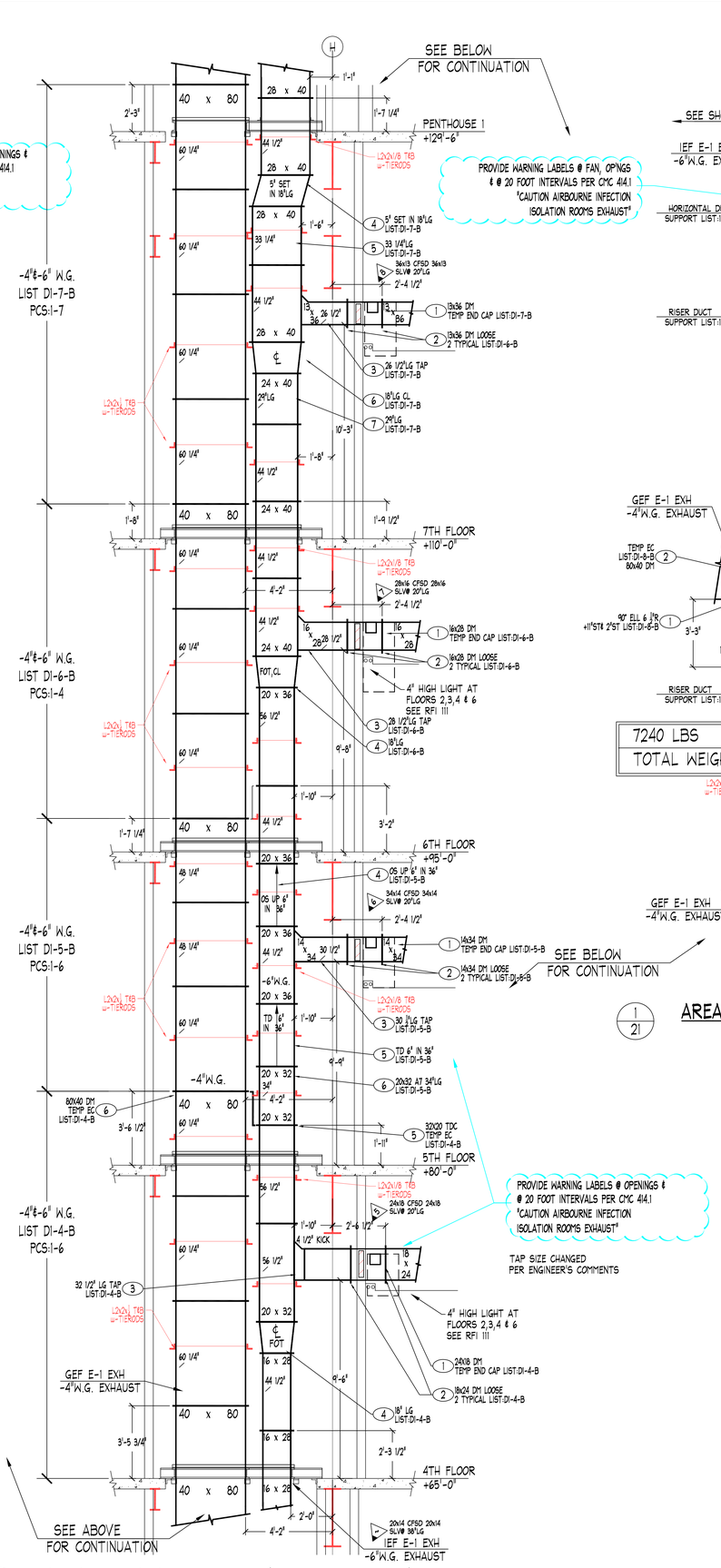
BY: R.FRESTON
DATE: 08-18-09
SCALE: 3/8" =1'-0"

DRAWING NO. 20 of 115



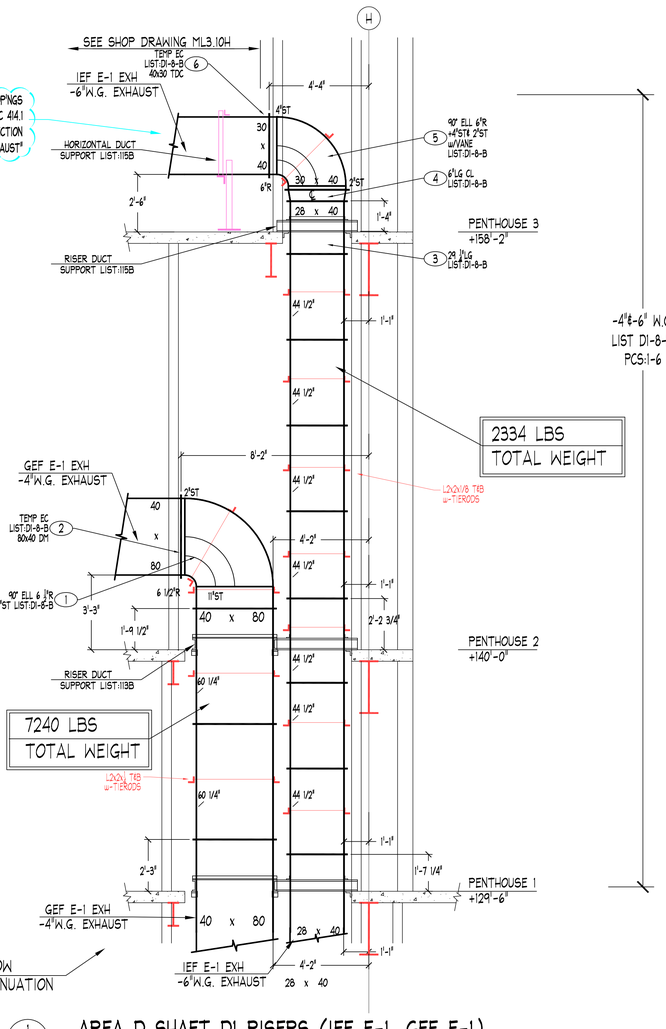
1/21 AREA D SHAFT DI RISERS (IEF E-1, GEF E-1)

LOOKING NORTH FROM GRIDLINE 6



1/21 AREA D SHAFT DI RISERS (IEF E-1, GEF E-1)

LOOKING NORTH FROM GRIDLINE 6



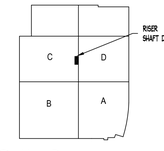
1/21 AREA D SHAFT DI RISERS (IEF E-1, GEF E-1)

LOOKING NORTH FROM GRIDLINE 6

DI-1-B	-4" W.G. EXHAUST DUCTWORK GEF E-1 NOTE I-11 PI:20
DI-2-B	-4" W.G. EXHAUST DUCTWORK GEF E-1 NOTE I-5 PI:20
DI-3-B	-4"ℓ-6" W.G. EXHAUST DUCTWORK GEF E-1 & IEF E-1 NOTE I-4 PI:20
DI-4-B	-4"ℓ-6" W.G. EXHAUST DUCTWORK GEF E-1 & IEF E-1 NOTE I-6 PI:20
DI-5-B	-4"ℓ-6" W.G. EXHAUST DUCTWORK GEF E-1 & IEF E-1 NOTE I-6 PI:20
DI-6-B	-4"ℓ-6" W.G. EXHAUST DUCTWORK GEF E-1 & IEF E-1 NOTE I-4 PI:20
DI-7-B	-4"ℓ-6" W.G. EXHAUST DUCTWORK GEF E-1 & IEF E-1 NOTE I-7 PI:20
DI-8-B	-4"ℓ-6" W.G. EXHAUST DUCTWORK GEF E-1 & IEF E-1 NOTE I-6 PI:20

GENERAL NOTES:

1. Governing Building Code: California Building Code 2007 w/ Title 24 Requirements
2. All post-installed expansion anchor bolts shall be 3/8" diameter Tru-bolt+ ITW/Ramset Redhead with 3" minimum embedment.
3. All post-installed expansion anchors shall be tested and inspected in accordance with the requirements noted on Dwg. S0.1.
4. Reposition expansion anchors that interfere with slab reinforcement. Do not reposition anchors any closer than 6" to the edge of the slab and maintain a minimum distance between anchors of 6".
5. All steel-to-steel bolted connections shall utilize A-307 bolts.
6. All steel shapes and plates shall be ASTM A-36.
7. All steel-to-steel welded connections shall use E-70XX electrodes. E-60XX electrodes may be used for welding light-gage metal ducts to steel.



A1 Key Plan

"PROJECT RECORD DRAWING"

NOTES

1. ELEVATIONS INDICATED ON THE DRAWING ARE TO THE DUCT BODY. ALLOWANCES MUST BE MADE FOR TRANSITIONS CONNECTIONS, AND OTHER OBSTRUCTIONS IN COORDINATION WHEN COORDINATING ELEVATIONS.

ABBREVIATIONS

AD, AP	ACCESS DOOR, ACCESS PLATE	S & D	S & DRIVE CONNECTOR
B, BOTT	BOTTOM	SI-M	SPIN-IN FITTING
C, ℄	CENTERLINE	SLV	SLEEVE
D, DN	DOWN	SP	STATIC PRESSURE
DM	DUCTMATE CONNECTOR	T	TOP
F, FOM	FROM	TDC	TRANSVERSE DUCT CONNECTOR
FD	FIRE DAMPER	TF	TRANSITION FITTING
FO	FLANGE OUT	TMMS	TRANSITION FITTING
FOB	FLAT ON BOTTOM	TV	TURNING VANES
FOT	FLAT ON TOP	U	UP
H	HORIZONTAL	V	VERTICAL
HD	HEAD	VD	VOLUME DAMPER
I.D.	INSIDE DIMENSION	W	WITH
MD	MOTORIZED DAMPER	W/	WITH LOUVER
O.D.	OUTSIDE DIMENSION	W/O	WITHOUT
OFF	OFFSET	WLK	WALK ANCHOR
R	RADIUS	+/-	FLANGE INDICATOR

SYMBOL LEGEND

SYMBOL	DESCRIPTION
	FIRE DAMPER OR COMBINATION FIRE/SMOKE DAMPER W/O.
	MANUAL VOLUME DAMPER WITH SPAL OR QUADRANT TYPE REGULATOR
	CEILING VOLUME DAMPER WITH REGULATOR
	MOTORIZED DAMPER
	DUCTWORK ACCESS DOOR OR DUCTWORK PRESS PO.
	DUCTWORK PRESS PO. INDICATOR
	TOP OF DUCT/BOTTOM OF DUCT ELEVATION CHANGE

REVISIONS

NO.	DATE	DESCRIPTION
1	11/05/09	REF PER ENGINEER'S COMMENTS
2	11/24/09	REVISED FOR RESUBMITTAL
3	02/01/10	REVISED PER OSHPD REVIEW
4	04/07/10	FLOORS BASED ON "FOR PERMIT" SET
5	05/24/10	REVISED PER LISTING
6	06-04-10	REVISED PER LISTING
7	06-09-10	REVISED PER LISTING
8	09-22-10	FLOORS 5+7 LISTED
9	10-04-10	DUCT NOTED TO FIELD SLOPE
10	10-27-10	REVISED PER LISTING
11	5-6-12	AS-BUILT RECORD DRAWING

MATERIAL LISTS

NO.	DATE	DESCRIPTION
DI-1-B	04/02/10	-4"W.G. EXHAUST DUCTWORK
DI-2-B	04/02/10	-4"W.G. EXHAUST DUCTWORK
DI-3-B	04/02/10	-4"ℓ-6"W.G. EXHAUST DUCTWORK
DI-4-B	04/02/10	-4"ℓ-6"W.G. EXHAUST DUCTWORK
DI-5-B	09/22/10	-4"ℓ-6"W.G. EXHAUST DUCTWORK
DI-6-B	09/22/10	-4"ℓ-6"W.G. EXHAUST DUCTWORK
DI-7-B	09/22/10	-4"ℓ-6"W.G. EXHAUST DUCTWORK
DI-8-B	10/08/10	-4"ℓ-6"W.G. EXHAUST DUCTWORK

SHEET METAL CONTRACTORS & FABRICATORS
HARRIS & HART

HARRIS & HART INC.
1759 WEST 1200 SOUTH
OGDEN, UTAH. 84404
PHONE: (801) 731-0577
FAX NO: (801) 731-0580
WEBSITE: WWW.HARRIS-HART.COM
E-MAIL TO DETAILING DEPARTMENT:
ttaylor@harris-hart.com

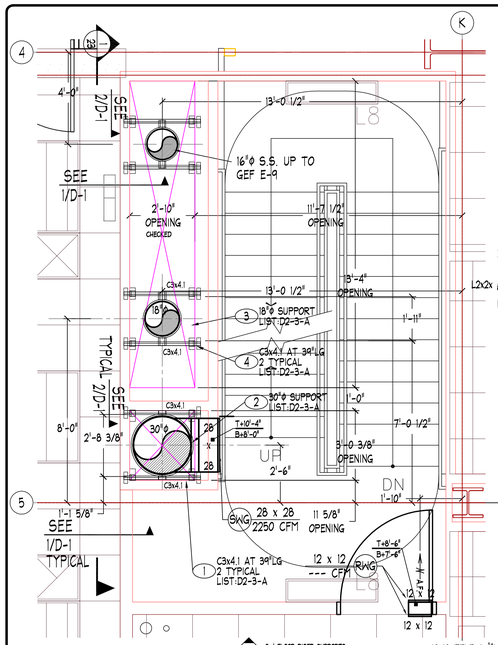
JOB NO: 9507 PAY ITEM: 20

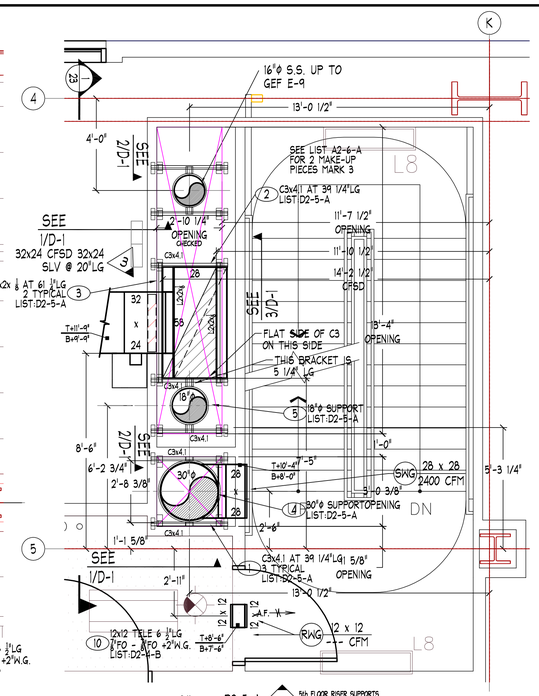
PROJECT: IL 0702072-30
CHOC HOSPITAL
ORANGE, CA

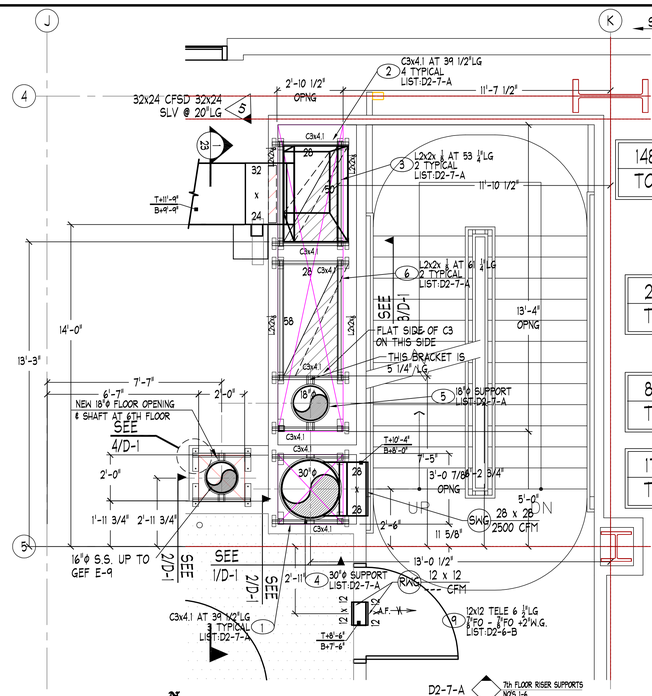
TITLE: DA #003
AREA D RISER SHAFT D1
HVAC SYSTEM LAYOUT

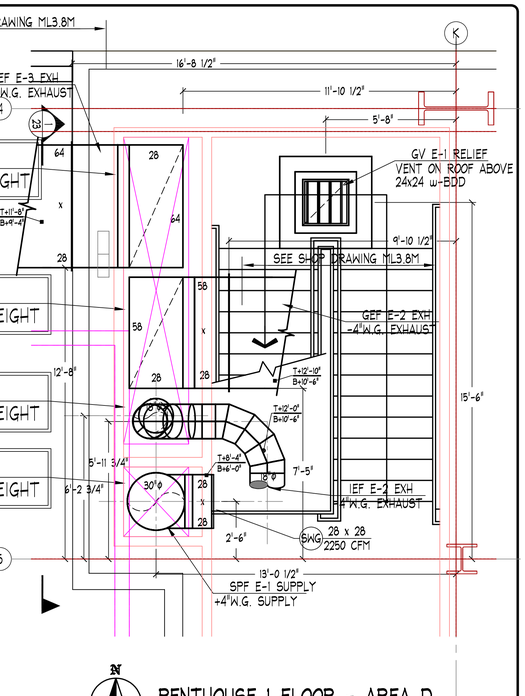
REFERENCE DRAWINGS
ARCH: STRUCT: MECH:

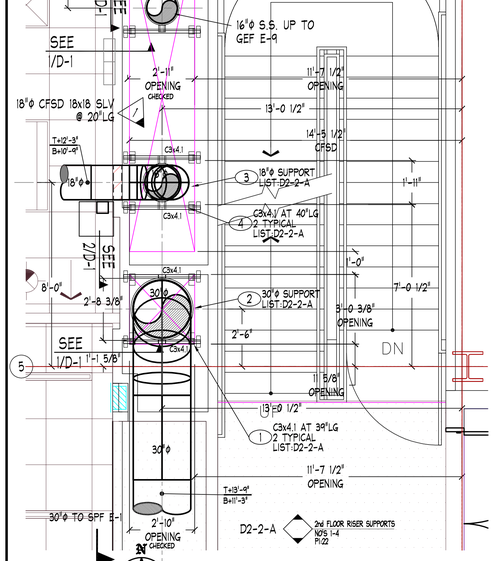
BY: R.FRESTON
DRAWING NO: 21 OF
DATE: 08-18-09
SCALE: 3/8" =1'-0"

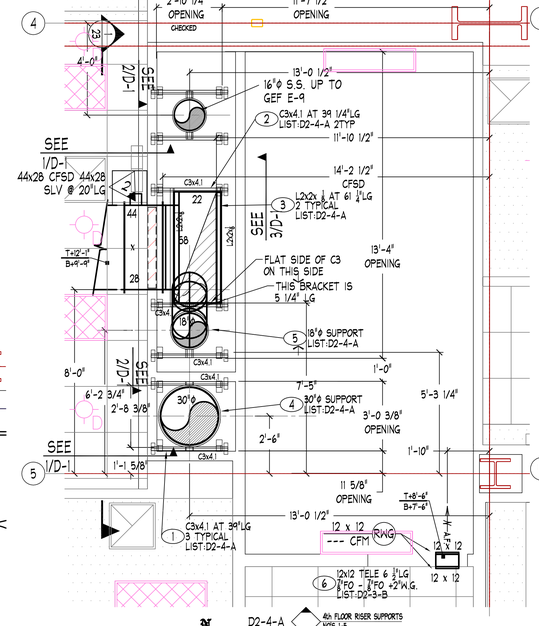


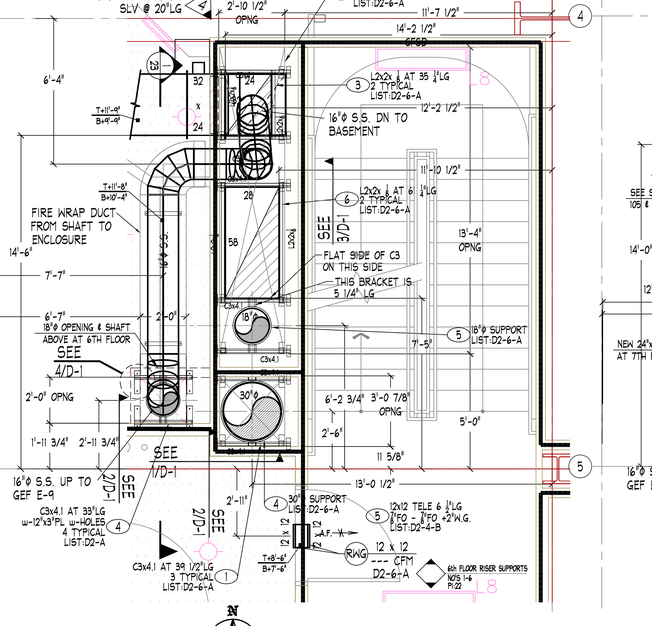


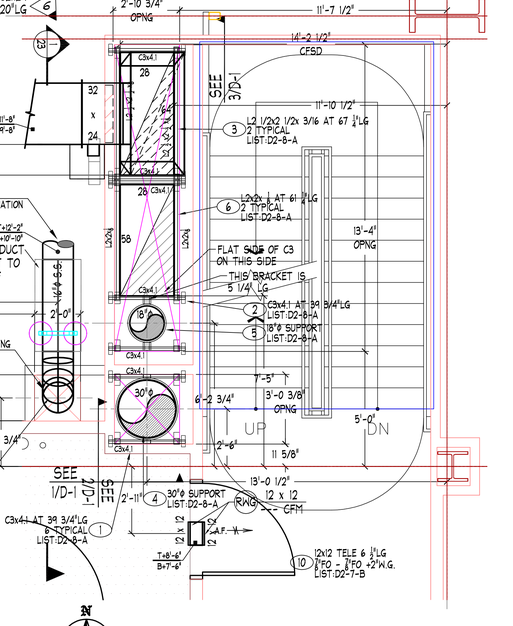


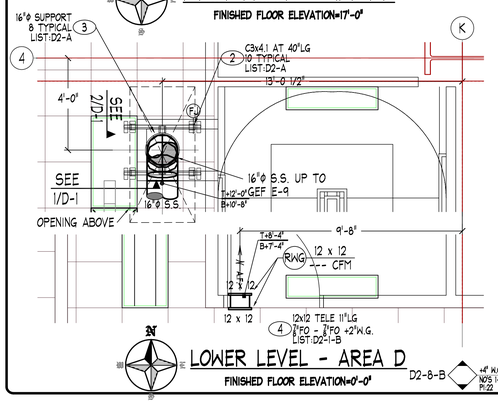












D2-A UPS RISER SUPPORTS NOTE 1-4 PI:22

D2-B UPS RISER 304-2B S.S. NOTE 1-10 VOID 1 & 2 PI:22

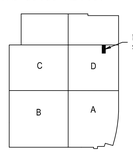
D2-8-B +4" W.G. SUPPLY SPF E-1, E-2 & -4" W.G. EXH IEF E-2 & -4" GEF E-2 NOTE 1-11 PI:22

D2-1-P PURCHASED ROUND DUCTWORK. SEE DWG FOR W.G. NOTE 1-3 PI:22	D2-1-B +4" W.G. SUPPLY SPF E-1 & -4" W.G. EXH IEF E-2 NOTE 1-4 PI:22
D2-2-P PURCHASED ROUND DUCTWORK. SEE DWG FOR W.G. NOTE 1-2 PI:22	D2-2-B +4" W.G. SUPPLY SPF E-1 & -4" W.G. EXH IEF E-2 NOTE 1-2 PI:22
D2-3-P PURCHASED ROUND DUCTWORK. SEE DWG FOR W.G. NOTE 1-3 PI:22	D2-3-B +4" W.G. SUPPLY SPF E-1, E-2 & -4" W.G. EXH IEF E-2 & -4" GEF E-2 NOTE 1-6 PI:22
D2-4-P PURCHASED ROUND DUCTWORK. SEE DWG FOR W.G. NOTE 1-3 PI:22	D2-4-B +4" W.G. SUPPLY SPF E-1, E-2 & -4" W.G. EXH IEF E-2 & -4" GEF E-2 NOTE 1-10 PI:22
D2-5-P PURCHASED ROUND DUCTWORK. SEE DWG FOR W.G. NOTE 1-2 PI:22	D2-5-B +4" W.G. SUPPLY SPF E-1, E-2 & -4" W.G. EXH IEF E-2 & -4" GEF E-2 NOTE 1-5 PI:22
D2-6-P PURCHASED ROUND DUCTWORK. SEE DWG FOR W.G. NOTE 1-3 PI:22	D2-6-B +4" W.G. SUPPLY SPF E-1, E-2 & -4" W.G. EXH IEF E-2 & -4" GEF E-2 NOTE 1-9 PI:22
D2-7-P PURCHASED ROUND DUCTWORK. SEE DWG FOR W.G. NOTE 1-2 PI:22	D2-7-B +4" W.G. SUPPLY SPF E-1, E-2 & -4" W.G. EXH IEF E-2 & -4" GEF E-2 NOTE 1-10 PI:22
D2-8-P PURCHASED ROUND DUCTWORK. SEE DWG FOR W.G. NOTE 1-2 PI:22	D2-8-B +4" W.G. SUPPLY SPF E-1, E-2 & -4" W.G. EXH IEF E-2 & -4" GEF E-2 NOTE 1-11 PI:22

GENERAL NOTES:

1. Governing Building Code: California Building Code 2007 w/ Title 24 Requirements
2. All post-installed expansion anchor bolts shall be 3/8" diameter Tru-bolt+ ITW/Ramset Redhead with 3" minimum embedment.
3. All post-installed expansion anchors shall be tested and inspected in accordance with the requirements noted on Dwg. S0.1.
4. Reposition expansion anchors that interfere with slab reinforcement. Do not reposition anchors any closer than 6" to the edge of the slab and maintain a minimum distance between anchors of 6".
5. All steel-to-steel bolted connections shall utilize A-307 bolts.
6. All steel shapes and plates shall be ASTM A-36.
7. All steel-to-steel welded connections shall use E-70XX electrodes. E-60XX electrodes may be used for welding light-gage metal ducts to steel.

NOTE: SUPPORTS SHOWN ARE LOCATED ON THE SLAB OF THE LEVEL ABOVE.



A1 Key Plan

"PROJECT RECORD DWG"

NOTES

1. ELEVATIONS INDICATED ON THIS DRAWING ARE TO THE DUCT BODY. ALLOWANCES MUST BE MADE FOR TRANSITIONS CONNECTIONS, REINFORCING, ETC. REFER TO SHOP DRAWINGS FOR COORDINATING ELEVATIONS.

ABBREVIATIONS

AD, AP	ACCESS DOOR, ACCESS PLATE	S & D	S & DRIVE CONNECTOR
BL, BOTT	BOTTOM	SP	SPIN-IN FITTING
C	CENTERLINE	SLIV	SLIDE VOLUME DAMPER
CL, DN	CLOSE, DOWN	SP	STATIC PRESSURE
DM	DUCTMATE CONNECTOR	T	TOP
F	FEMALE	TDC	TRANSVERSE DUCT CONNECTOR
F, FTM	FLANGE TO MALE	TM	TRANSITION MALE
FI	FLANGE IN	TRNS	TRANSITION FITTING
FO	FLANGE OUT	TV	TURNING VANES
FOB	FLAT ON BOTTOM	U	UP
FOS	FLAT ON SIDE	VD	VOLUME DAMPER
FOT	FLAT ON TOP	W	WITH
H	HORIZONTAL	WJG	WELDED JOGGLE
M	MALE	WS	WHALE INDICATOR
OFFSET	OFFSET	F/M	FEMALE INDICATOR
R	RADIUS		

SYMBOL LEGEND

SYMBOL	DESCRIPTION
	TRIE SYMBOL FOR CONSTRUCTION FINAL DUCT DIAMETER NO.
	MANUAL VOLUME DAMPER WITH SYM. OR EQUIVALENT TYPE REGULATOR
	CEILING MOUNTED DIFFUSER WITH CEILING MOUNTED DAMPER REGULATOR
	MOTORIZED DAMPER
	DUCTWORK ACCESS DOOR OR ACCESS PLATE
	DUCTWORK PIECE NO.
	INDICATOR TOP OF DUCT/BOTTOM OF DUCT ELEVATION INDICATOR

REVISIONS

NO.	DATE	DESCRIPTION
1	04-14-09	REVISED PER TYPE DRAWINGS ISSUED
2	05-26-09	REVISED FOR RESUBMITTAL
3	04-14-09	FLOORS 1-4 RESPACED FOR LISTING
4	04-14-09	REVISED FOR SUPPORTS LISTED
5	4-29-10	FLOORS 5-7 RISERS LISTED
6	4-27-10	FLOOR 8 RISERS LISTED
7	10-1-10	UPS RISER ADDED GEF E-4 304-2B WELDED SS
8	11-15-10	LOWER LEVEL UPS RISER CHANGED
9	11-22-10	AS-BUILT RECORD DRAWING
10	5-4-12	

MATERIAL LISTS

NO.	DESCRIPTION	DATE
D2-1-B	+4"W.G. RW. EXH E SUPPLY DUCTWORK	04-14-09
D2-2-B	+4"W.G. RW. EXH E SUPPLY DUCTWORK	04-14-09
D2-3-B	+4"W.G. RW. EXH E SUPPLY DUCTWORK	04-14-09
D2-4-B	+4"W.G. RW. EXH E SUPPLY DUCTWORK	04-14-09
D2-5-B	+4"W.G. RW. EXH E SUPPLY DUCTWORK	04-14-09
D2-1-P	PURCHASED ROUND DUCTWORK	04-14-09
D2-2-P	PURCHASED ROUND DUCTWORK	04-14-09
D2-3-P	PURCHASED ROUND DUCTWORK	04-14-09
D2-4-P	PURCHASED ROUND DUCTWORK	04-14-09
D2-A	-4"W.G. EXH GEF E-4 304-2B S.S. WELDED	11-15-10
D2-B	-4"W.G. EXH GEF E-4 304-2B S.S. WELDED	11-15-10

SHEET METAL CONTRACTORS & FABRICATORS
HARRIS & HART

HARRIS & HART INC.
1759 WEST 1200 SOUTH
OGDEN, UTAH. 84404
PHONE: (801) 731-0577
FAX NO: (801) 731-0580
WEBSITE: WWW.HARRIS-HART.COM
E-MAIL TO DETAILING DEPARTMENT:
ttaylor@harris-hart.com

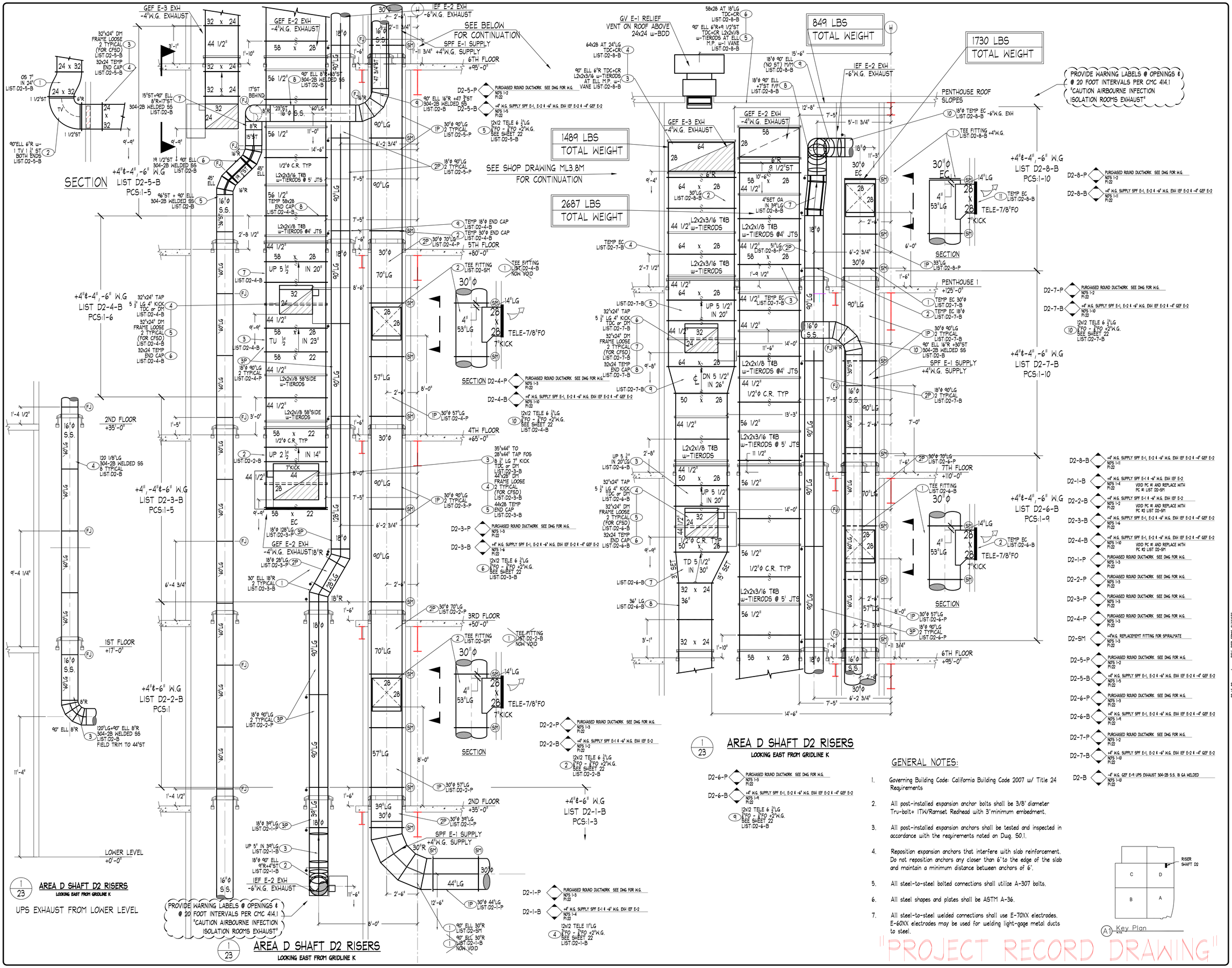
JOB NO: 9507 PAY ITEM: 22

PROJECT: IL 0702072-30
CHOC HOSPITAL
ORANGE, CA

TITLE: DA #003
AREA D RISER SHAFT D2
HVAC SYSTEM LAYOUT

REFERENCE DRAWINGS
ARCH: STRUCT: MECH:

BY: R.FRESTON
DRAWING NO. 22 of 115
DATE: 08-18-09
SCALE: 3/8" =1'-0"



GENERAL NOTES:

1. Governing Building Code: California Building Code 2007 w/ Title 24 Requirements
2. All post-installed expansion anchor bolts shall be 3/8" diameter Tru-bolt+ ITW/Ramset Redhead with 3" minimum embedment.
3. All post-installed expansion anchors shall be tested and inspected in accordance with the requirements noted on Dwg. S0.1.
4. Reposition expansion anchors that interfere with slab reinforcement. Do not reposition anchors any closer than 6" to the edge of the slab and maintain a minimum distance between anchors of 6".
5. All steel-to-steel bolted connections shall utilize A-307 bolts.
6. All steel shapes and plates shall be ASTM A-36.
7. All steel-to-steel welded connections shall use E-70XX electrodes. E-60XX electrodes may be used for welding light-gage metal ducts to steel.

"PROJECT RECORD DRAWING"

NOTES

1. ELEVATIONS INDICATED ON THIS DRAWING ARE WITH RESPECT TO ROOF ALLOWANCES MUST BE MADE TO ACCOMMODATE ROOF FRAMING AND REINFORCING AND EXTERIOR INSULATION WHEN COORDINATING ELEVATIONS.

ABBREVIATIONS

AD, AP	ACCESS DOOR, ACCESS PLATE	S & D	S & DRIVE CONNECTION
B, BOT	BOTTOM, BOTTOM FITTING	SA	SUPPLY AIR
C	CENTERLINE	SLV	SLEEVE
D, DN	DOWN	SP	STATIC PRESSURE
DM	DUCTMATE CONNECTION	TDC	TRANSVERSE DUCT CONNECTION
DTM	DUCTMATE TRANSVERSE METAL	TEMP	TEMPERATURE
FD	FIRE DAMPER	TH	THREAD
FE	FIRE DAMPER WITH FUSIBLE LINK	TRANS	TRANSITION FITTING
FLG	FLANGE, FLANGED	TV	TURNING VANES
FOB	FLAT ON BOTTOM	UP	UP
FOS	FLAT ON SIDE	V	VERTICAL
FOT	FLAT ON TOP	VD	VOLUME DAMPER
H	HORIZONTAL	W	WIDE
M	MALE	WG	WATER GAUGE
OS	OFFSET	WR	WALL REDUCER
R	RADIUS	↑↑	TOTAL ELEVATION

SYMBOL LEGEND

SYMBOL	DESCRIPTION
	FIRE DAMPER OR COMBINATION
	FIRE/SMOKE DAMPER W/O SMA
	MANUAL VOLUME DAMPER WITH SMA, SMOKE DAMPER WITH SMA, FIRE DAMPER WITH SMA
	MANUAL VOLUME DAMPER WITH CEILING MOUNTED CONCEALED REGULATOR
	MOTORIZED DAMPER
	DUCTWORK ACCESS DOOR OR ACCESS PLATE
	DUCTWORK PIECE NO.
	DUCTWORK SIZE
	TOP OF DUCT/BOTTOM OF DUCT ELEVATION INDICATOR

MATERIAL LISTS

NO.	DATE	DESCRIPTION
D2-1-B	04-14-10	+4"℄-4" W.G. EXH IEF SUPPLY DUCTWORK
D2-2-B	04-14-10	+4"℄-4" W.G. EXH IEF SUPPLY DUCTWORK
D2-3-B	04-14-10	+4"℄-4" W.G. EXH IEF SUPPLY DUCTWORK
D2-4-B	04-14-10	+4"℄-4" W.G. EXH IEF SUPPLY DUCTWORK
D2-5-B	06-27-10	+4"℄-4" W.G. EXH IEF SUPPLY DUCTWORK
D2-1-P	04-14-10	PURCHASED ROUND DUCTWORK
D2-2-P	04-14-10	PURCHASED ROUND DUCTWORK
D2-3-P	04-14-10	PURCHASED ROUND DUCTWORK
D2-4-P	04-14-10	PURCHASED ROUND DUCTWORK
D2-SM	07-12-10	+4"W.G. REPLACEMENT FITTING FOR SPIRALMATE
D2-5-P	06-27-10	PURCHASED ROUND DUCTWORK
D2-6-P	10-11-10	PURCHASED ROUND DUCTWORK
D2-7-P	10-27-10	PURCHASED ROUND DUCTWORK
D2-8-P	11-15-10	PURCHASED ROUND DUCTWORK
D2-B	07-12-10	+4"W.G. GEF E-4 SWSP-2B S.S. WELDED
D2-SH	11-15-10	+4"ESPPLY DUCTWORK MAKE-UP FITTING

REVISIONS

NO.	DATE	DESCRIPTION
2	11-24-09	REVISED FOR RESUBMITTAL
3	04-14-10	FLOORS 1-4 PREPARED FOR LISTING
4	04-29-10	REVISED PER LISTING
5	06-1-10	REVISED PER LISTING
6	06-11-10	REVISED PER LISTING
7	07-12-10	LIST D2-5H ADDED FOR NEW FITTINGS
8	06-27-10	FLOORS 5-7 LISTED
9	10-11-10	LIST D2-8-B ADDED
10	10-27-10	REVISED PER LISTING
11	11-15-10	UPS RISER, LISTS D2-4 & D2-B ADDED
12	12-22-10	LOWER LEVEL ELEV REVISED
13	5-8-12	AS-BUILT RECORD DRAWING

09-4-09 1 REV. PER FPPG CHANGES

HARRIS & HART INC.
1759 WEST 1200 SOUTH
OGDEN, UTAH. 84404
PHONE: (801) 731-0577
FAX NO: (801) 731-0580
WEBSITE: WWW.HARRIS-HART.COM
E-MAIL TO DETAILING DEPARTMENT: ttaylor@harris-hart.com

JOB NO: 9507 PAY ITEM: 22

PROJECT: IL 0702072-30
CHOC HOSPITAL
ORANGE, CA

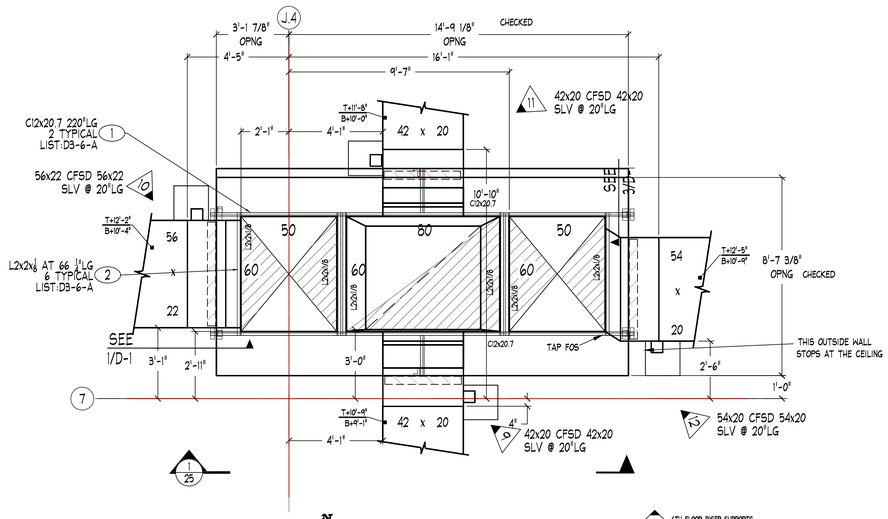
TITLE: DA #003
AREA D RISER SHAFT D2
HVAC SYSTEM LAYOUT

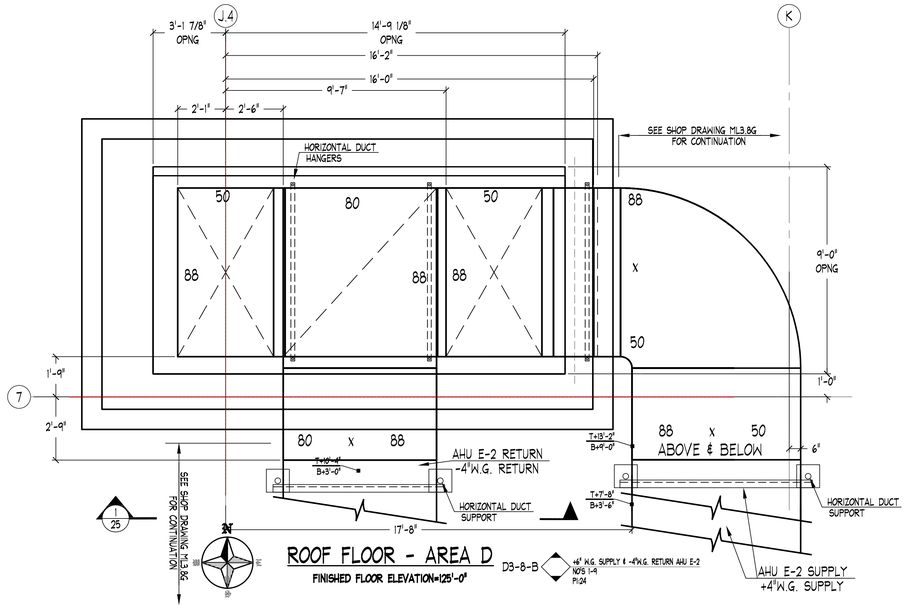
REFERENCE DRAWINGS
ARCH: STRUCT: MECH:

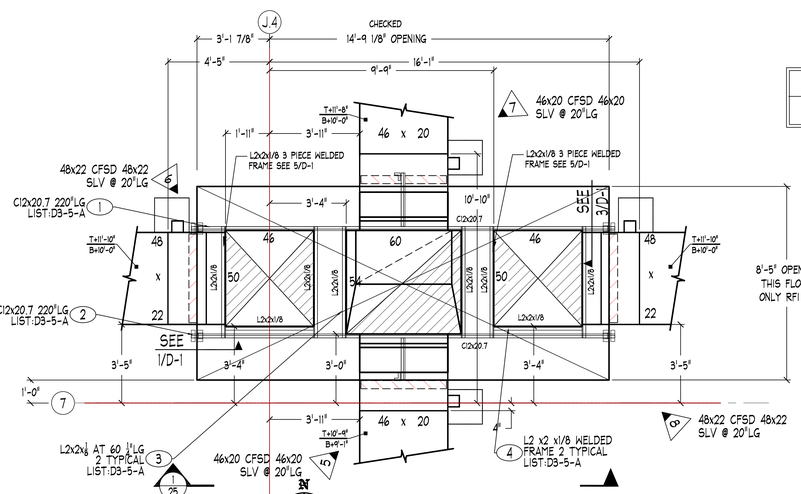
BY: R.FRESTON
DATE: 08-18-09
SCALE: 3/8" =1'-0"

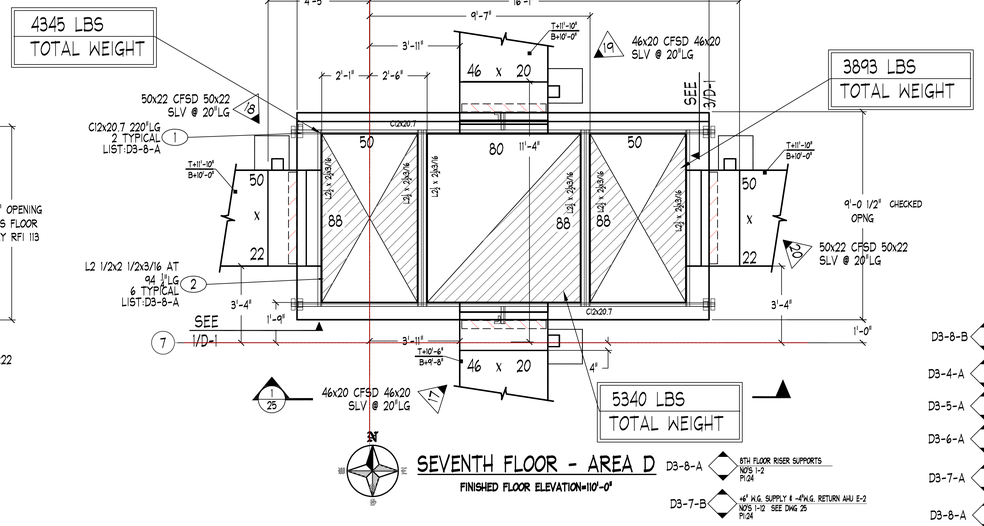
DRAWING NO. 23of 115

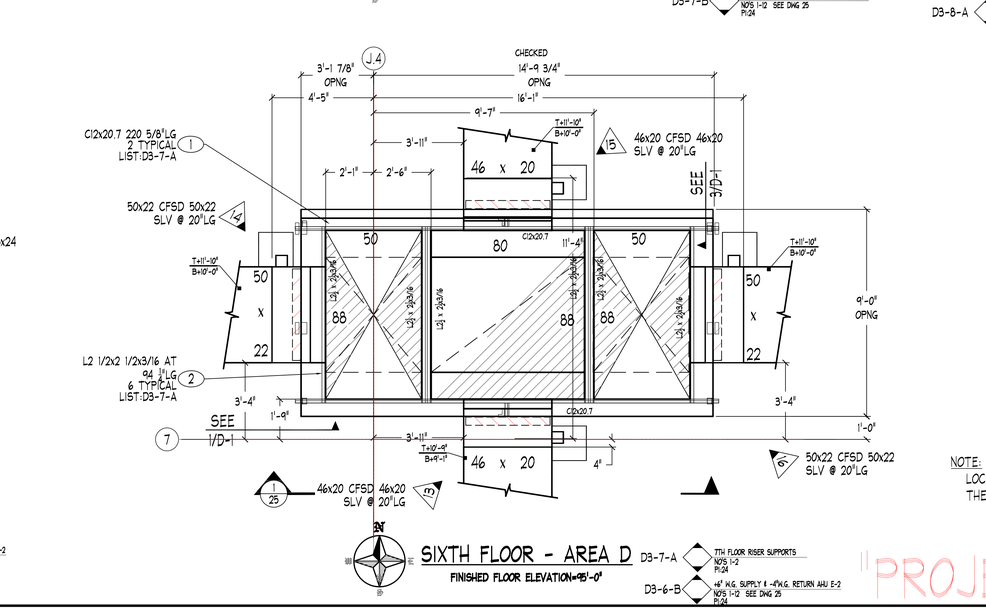
C | D
B | A
RISER SHAFT D2
A1 Key Plan











D3-8-B 48" M.G. SUPPLY & -4"W.G. RETURN AHU E-2 NOTE 1-9 PI:24

D3-4-A 4TH FLOOR RISER SUPPORTS NOTE 1-4 PI:24

D3-5-A 5TH FLOOR RISER SUPPORTS NOTE 1-4 PI:24

D3-6-A 6TH FLOOR RISER SUPPORTS NOTE 1-2 PI:24

D3-7-A 7TH FLOOR RISER SUPPORTS NOTE 1-2 PI:24

D3-8-A 8TH FLOOR RISER SUPPORTS NOTE 1-2 PI:24

D3-3-B 48" M.G. SUPPLY & -4"W.G. RETURN AHU E-2 NOTE 1-10 SEE DWG 25 PI:24

D3-4-B 48" M.G. SUPPLY & -4"W.G. RETURN AHU E-2 NOTE 1-10 SEE DWG 25 PI:24

D3-5-B 48" M.G. SUPPLY & -4"W.G. RETURN AHU E-2 NOTE 1-13 SEE DWG 25 PI:24

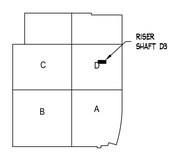
D3-6-B 48" M.G. SUPPLY & -4"W.G. RETURN AHU E-2 NOTE 1-12 SEE DWG 25 PI:24

D3-7-B 48" M.G. SUPPLY & -4"W.G. RETURN AHU E-2 NOTE 1-12 SEE DWG 25 PI:24

GENERAL NOTES:

1. Governing Building Code: California Building Code 2007 w/ Title 24 Requirements
2. All post-installed expansion anchor bolts shall be 3/8" diameter Tru-bolt+ ITW/Ramset Redhead with 3" minimum embedment.
3. All post-installed expansion anchors shall be tested and inspected in accordance with the requirements noted on Dwg. S0.1.
4. Reposition expansion anchors that interfere with slab reinforcement. Do not reposition anchors any closer than 6" to the edge of the slab and maintain a minimum distance between anchors of 6".
5. All steel-to-steel bolted connections shall utilize A-307 bolts.
6. All steel shapes and plates shall be ASTM A-36.
7. All steel-to-steel welded connections shall use E-70XX electrodes. E-60XX electrodes may be used for welding light-gage metal ducts to steel.

NOTE: SUPPORTS SHOWN ARE LOCATED ON THE SLAB OF THE LEVEL ABOVE.



D3-6-A 6TH FLOOR RISER SUPPORTS NOTE 1-2 PI:24

D3-5-B 48" M.G. SUPPLY & -4"W.G. RETURN AHU E-2 NOTE 1-13 SEE DWG 25 PI:24

D3-4-B 48" M.G. SUPPLY & -4"W.G. RETURN AHU E-2 NOTE 1-10 SEE DWG 25 PI:24

D3-5-A 5TH FLOOR RISER SUPPORTS NOTE 1-4 PI:24

D3-4-A 4TH FLOOR RISER SUPPORTS NOTE 1-4 PI:24

D3-3-B 48" M.G. SUPPLY & -4"W.G. RETURN AHU E-2 NOTE 1-10 SEE DWG 25 PI:24

D3-8-A 8TH FLOOR RISER SUPPORTS NOTE 1-2 PI:24

D3-7-B 48" M.G. SUPPLY & -4"W.G. RETURN AHU E-2 NOTE 1-12 SEE DWG 25 PI:24

D3-7-A 7TH FLOOR RISER SUPPORTS NOTE 1-2 PI:24

D3-6-B 48" M.G. SUPPLY & -4"W.G. RETURN AHU E-2 NOTE 1-12 SEE DWG 25 PI:24

NOTES

1. ELEVATIONS INDICATED ON THIS DRAWING ARE TO BE USED FOR DUCTWORK. NO ADJUSTMENTS SHALL BE MADE FOR TRANSVERSE CONNECTORS, REINFORCING AND EXTERIOR INSULATION WHEN COORDINATING ELEVATIONS.

ABBREVIATIONS

AD, AP	ACCESS DOOR, ACCESS PLATE	S & D	S & DRIVE CONNECTOR
AFF	ABOVE FINISHED FLOOR	SCD	SMOKE DETECTOR
C, CL	CENTERLINE	SLEVE	
D, DN	DOWN	SLV	
DC	DRYWALL CONNECTOR	SP	STATIC PRESSURE
EA, FTM	EACH, FLANGE TO METAL	STA	
FD	FIRE DAMPER	TDC	TRANSVERSE DUCT CONNECTOR
FL	FLANGE AT	TH	THROAT
FSD	FIRE SMOKE DAMPER	TRANS	TRANSITION FITTING
FOB	FLAT ON BOTTOM	TVD	TURNING VANES
FOS	FLAT ON SIDE	UP	UP
FOT	FLAT ON TOP	V	VERTICAL
H	HORIZONTAL	VD	VOLUME DAMPER
M	MALE	W	WIDTH
MD	MOTORIZED DAMPER	WG	WATER GAUGE
OFF	OFFSET	↑	WALL INDICATOR
R	RADIUS	↑↑	TRIANGLE INDICATOR

SYMBOL LEGEND

SYMBOL	DESCRIPTION
	FIRE DAMPER OR COMBINATION FIRE/SMOKE DAMPER WITH FUSIBLE LINK AND SMOKE DETECTOR OR EQUIPMENT TYPE REGULATOR
	MANUAL VOLUME DAMPER WITH LOCKING QUADRANT
	CEILING MOUNTED CONCEALED REGULATOR
	MOTORIZED DAMPER
	DUCTWORK ACCESS DOOR OR ACCESS PLATE
	DUCTWORK PIECE NO. SEE DETAIL
	TOP OF DUCT/BOTTOM OF DUCT ELEVATION INDICATOR

MATERIAL LISTS

NO.	DESCRIPTION	DATE
D3-3-B	48" L -4" SUPPLY & RETURN DUCTWORK	PCS1-12
D3-4-A	4TH FLOOR RISER SUPPORTS	PCS1-14
D3-4-B	48" L -4" SUPPLY & RETURN DUCTWORK	PCS1-10
D3-5-A	5TH FLOOR RISER SUPPORTS	PCS1-14
D3-5-B	48" L -4" SUPPLY & RETURN DUCTWORK	PCS1-13
D3-6-A	6TH FLOOR RISER SUPPORTS	PCS1-12
D3-6-B	48" L -4" SUPPLY & RETURN DUCTWORK	PCS1-12
D3-7-A	7TH FLOOR RISER SUPPORTS	PCS1-12
D3-7-B	48" L -4" SUPPLY & RETURN DUCTWORK	PCS1-12
D3-8-A	8TH FLOOR RISER SUPPORTS	PCS1-14
D3-8-B	48" L -4" SUPPLY & RETURN DUCTWORK	PCS1-14

REVISIONS

NO.	DESCRIPTION	DATE
1	REVISED FOR RESUBMITTAL	04-14-10
2	REVISED PER OSHPD REVIEW	05-28-10
3	FLOORS 3-4 PREPARED FOR LISTING	04-14-10
4	RISER SUPPORTS 5-8 ADDED	05-22-10
5	FLOOR 8 PREPARED FOR LISTING	05-22-10
6	RISER BRACES ADDED	09-22-10
7	AS-BUILT RECORD DRAWING	09-22-10
		09-22-10
		09-22-10
		09-22-10
		10-1-10

HARRIS & HART INC.
1759 WEST 1200 SOUTH
OGDEN, UTAH. 84404
PHONE: (801) 731-0577
FAX NO: (801) 731-0580
WEBSITE: WWW.HARRIS-HART.COM
E-MAIL TO DETAILING DEPARTMENT:
ttaylor@harris-hart.com

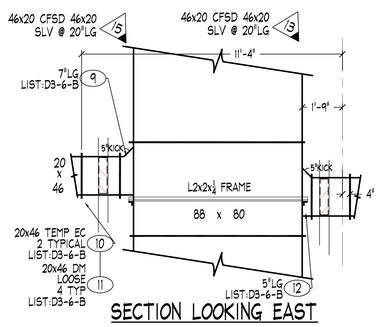
JOB NO: 9507 PAY ITEM: 24

PROJECT: IL 0702072-30
CHOC HOSPITAL
ORANGE, CA

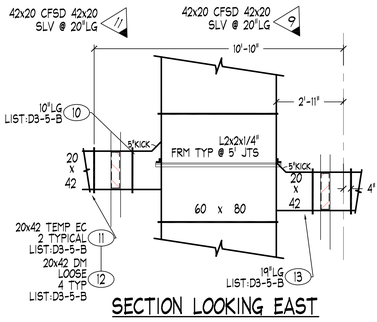
TITLE: DA #003
AREA D RISER SHAFT D3
HVAC SYSTEM LAYOUT

REFERENCE DRAWINGS		
ARCH:	STRUCT:	MECH:
BY: R.FRESTON		DRAWING NO.
DATE: 08-18-09		24of 115
SCALE: 3/8" =1'-0"		

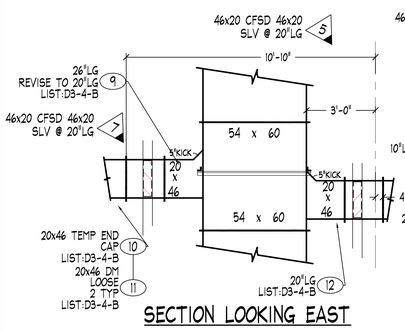
"PROJECT RECORD DWG"



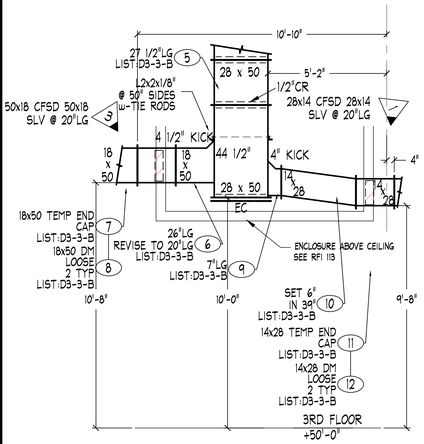
SECTION LOOKING EAST



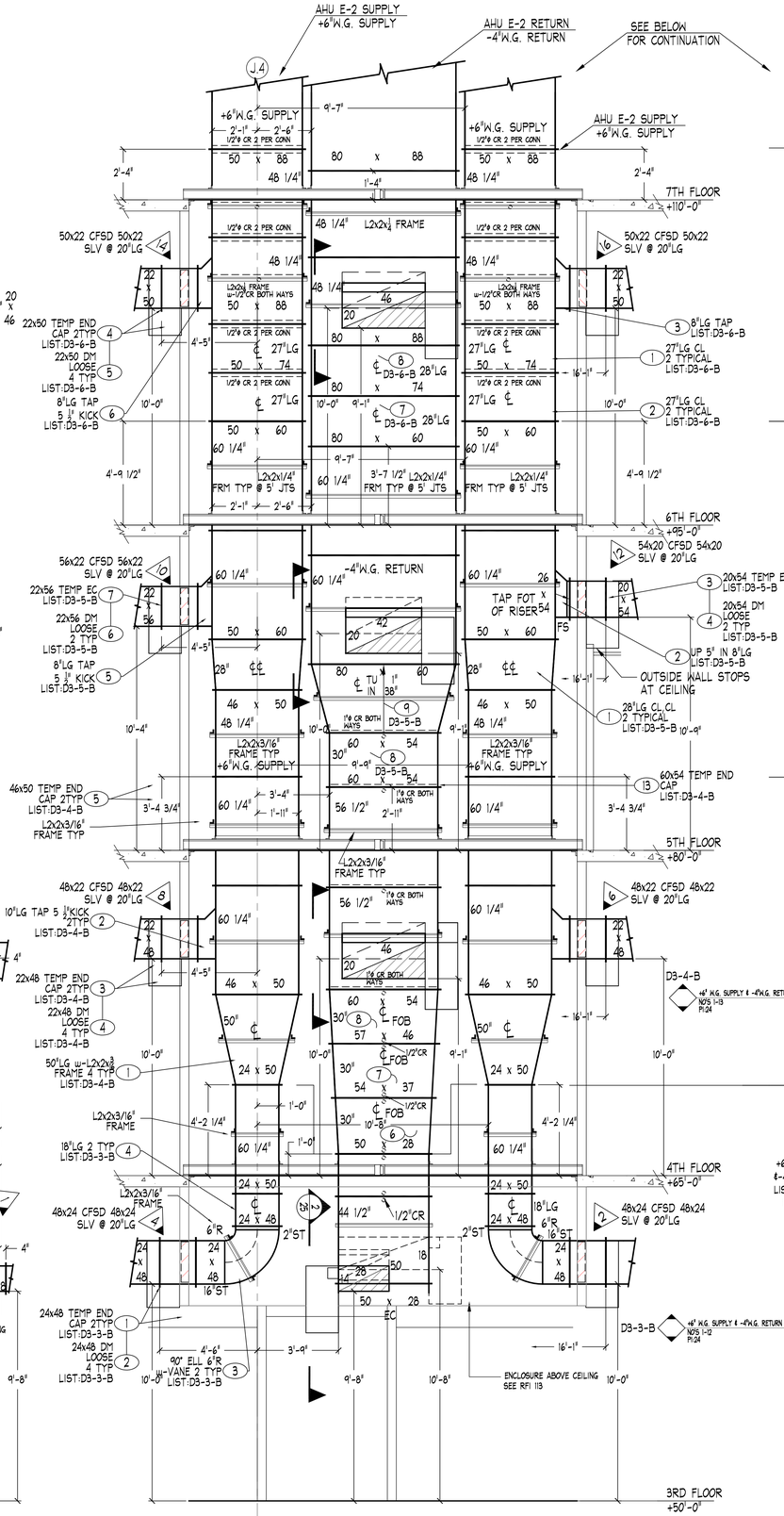
SECTION LOOKING EAST



SECTION LOOKING EAST

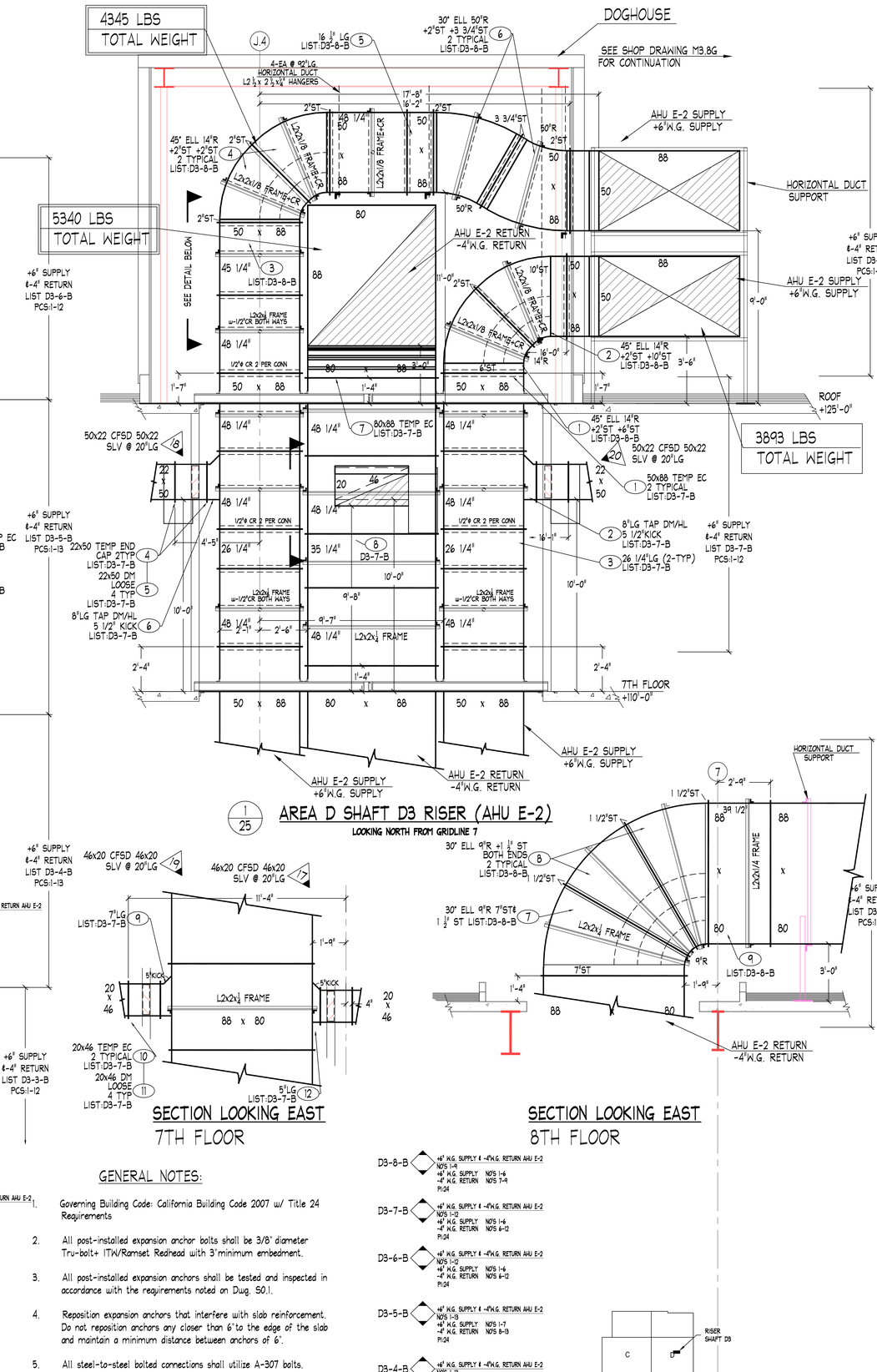


PARTIAL VIEW AT ENCLOSURE



AREA D SHAFT D3 RISER (AHU E-2)

LOOKING NORTH FROM GRIDLINE 7



SECTION LOOKING EAST

7TH FLOOR

SECTION LOOKING EAST

8TH FLOOR

GENERAL NOTES:

1. Governing Building Code: California Building Code 2007 w/ Title 24 Requirements
2. All post-installed expansion anchor bolts shall be 3/8" diameter Tru-bolt+ ITW/Ramset Redhead with 3"minimum embedment.
3. All post-installed expansion anchors shall be tested and inspected in accordance with the requirements noted on Dwg. S0.1.
4. Reposition expansion anchors that interfere with slab reinforcement. Do not reposition anchors any closer than 6"to the edge of the slab and maintain a minimum distance between anchors of 6".
5. All steel-to-steel bolted connections shall utilize A-307 bolts.
6. All steel shapes and plates shall be ASTM A-36.
7. All steel-to-steel welded connections shall use E-70XX electrodes. E-60XX electrodes may be used for welding light-gage metal ducts to steel.

D3-8-B +6" M.G. SUPPLY & -4"W.G. RETURN AHU E-2 NOTE 1-9 +6" M.G. SUPPLY NOTE 1-4 -4" M.G. RETURN NOTE 7-9 PI:24

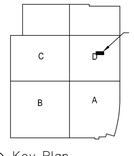
D3-7-B +6" M.G. SUPPLY & -4"W.G. RETURN AHU E-2 NOTE 1-12 +6" M.G. SUPPLY NOTE 1-6 -4" M.G. RETURN NOTE 6-12 PI:24

D3-6-B +6" M.G. SUPPLY & -4"W.G. RETURN AHU E-2 NOTE 1-12 +6" M.G. SUPPLY NOTE 1-6 -4" M.G. RETURN NOTE 6-12 PI:24

D3-5-B +6" M.G. SUPPLY & -4"W.G. RETURN AHU E-2 NOTE 1-13 +6" M.G. SUPPLY NOTE 1-7 -4" M.G. RETURN NOTE 8-13 PI:24

D3-4-B +6" M.G. SUPPLY & -4"W.G. RETURN AHU E-2 NOTE 1-13 PI:24

D3-3-B +6" M.G. SUPPLY & -4"W.G. RETURN AHU E-2 NOTE 1-0 +6" M.G. SUPPLY NOTE 1-4 -4" M.G. RETURN NOTE 5-12 PI:24



A1 Key Plan n.t.s.

"PROJECT RECORD DRAWING"

NOTES

1. ELEVATIONS INDICATED ON THIS DRAWING ARE TO THE DUCT BODY. ALLOWANCES MUST BE MADE FOR DUCT FLANGES, INSULATION, REINFORCING AND EXTERIOR INSULATION WHEN COORDINATING ELEVATIONS.

ABBREVIATIONS

AD, ⌀	ACCESS DOOR, ACCESS PLATE	S & D	S & D VANE CONNECTOR
B, BOTT	BOTTOM	SP	SPIN-IN FITTING
CL	CENTERLINE	SQ	SQUARE
D, Dn	DOWN, DUCTWORK CONNECTOR	SP	STATIC PRESSURE
DM	DUCTMATE CONNECTOR	TOP	TOP
F, FTM	FLANGE, FLANGE TYPE MEMBER	T, TSC	TRANSVERSE DUCT CONNECTOR
FD	FIRE DAMPER	TH	THROAT
FI	FLANGE IN	TRANS	TRANSITION FITTING
FO	FLANGE OUT	TV	TURNING VANES
FOB	FLANGE OUT BOTTOM	U	U
FDS	FLAT ON SIDE	V	VERTICAL
FOT	FLAT ON TOP	VD	VOLUME DAMPER
H	HORIZONTAL	W	WIDE
M	MITER	WG	WATER GAUGE
OFFSET	OFFSET	↑	MALE INDICATOR
INCHES	INCHES	↓	FEMALE INDICATOR

SYMBOL LEGEND

SYMBOL	DESCRIPTION
	FIRE DAMPER OR COMBINATION FIRE/SMOKE DAMPER W/O.
	MANUAL VOLUME DAMPER WITH DAL
	MANUAL VOLUME DAMPER WITH QUADRANT LOCK
	MANUAL VOLUME DAMPER WITH CEILING MOUNTED CONCEALED REGULATOR
	MOTORIZED DAMPER
	DUCTWORK ACCESS DOOR OR ACCESS PLATE
	DUCTWORK PIECE NO.
	INDICATES DIRECTION OF DUCT ELEVATION INDICATOR

MATERIAL LISTS

NO.	DESCRIPTION	DATE
D3-8-B	+6"-4" RETURN & SUPPLY DUCTWORK PCS:1-2	04-14-10
D3-7-B	+6"-4" RETURN & SUPPLY DUCTWORK PCS:1-13	04-14-10
D3-6-B	+6"-4" RETURN & SUPPLY DUCTWORK PCS:1-13	04-14-10
D3-5-B	+6"-4" RETURN & SUPPLY DUCTWORK PCS:1-12	09-29-10
D3-4-B	+6"-4" RETURN & SUPPLY DUCTWORK PCS:1-12	09-29-10
D3-3-B	+6"-4" RETURN & SUPPLY DUCTWORK PCS:1-12	09-29-10
D3-7-5	+6"-4" RETURN & SUPPLY DUCTWORK PCS:1-4	09-29-10
D3-8-3	+6"-4" RETURN & SUPPLY DUCTWORK	10-11-10

REVISIONS

NO.	DESCRIPTION	DATE
1	REVISED FOR RESUBMITTAL	11-24-09
2	REVISED PER DSA/PD REVIEW	02-04-10
3	FLOORS 3-4 PREPARED FOR LISTING	02-04-10
4	REVISED PER LISTING	5-24-10
5	REVISED PER LISTING	6-25-10
6	FLOORS 5-7 PREPARED FOR LISTING	09-29-10
7	FLOOR 8 PREPARED FOR LISTING	10-11-10
8	REVISED PER LISTING	10-24-10
9	RISER BRACES ADDED	12-24-10
10	AS-BUILT RECORD DRAWING	5-9-12

SHEET METAL CONTRACTORS & FABRICATORS
HARRIS & HART

HARRIS & HART INC.
1759 WEST 1200 SOUTH
OGDEN, UTAH. 84404
PHONE: (801) 731-0577
FAX NO: (801) 731-0580
WEBSITE: WWW.HARRIS-HART.COM
E-MAIL TO DETAILING DEPARTMENT:
ttaylor@harris-hart.com

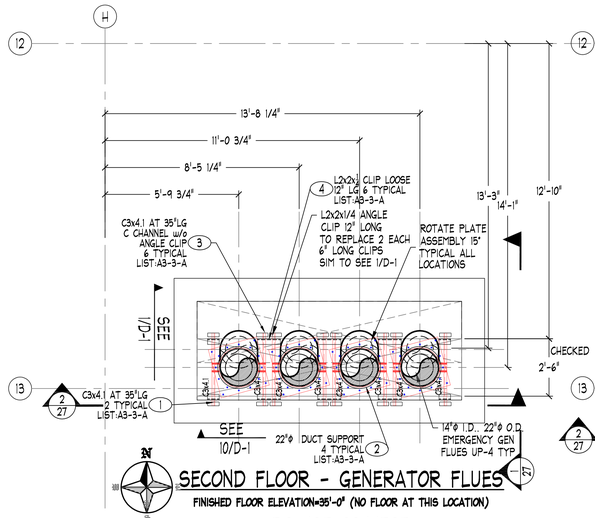
JOB NO: 9507 PAY ITEM:24

PROJECT: IL 0702072-30
CHOC HOSPITAL
ORANGE, CA

TITLE: DA #003
AREA D RISER SHAFT D3
HVAC SYSTEM LAYOUT

REFERENCE DRAWINGS
ARCH: STRUCT: MECH:

BY: R.FRESTON
DRAWING NO. 25of 115
DATE: 08-18-09
SCALE: 3/8" =1'-0"

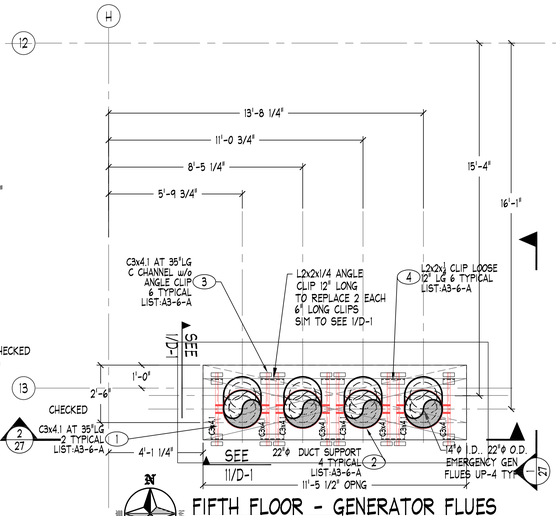


SECOND FLOOR - GENERATOR FLUES

FINISHED FLOOR ELEVATION=35'-0" (NO FLOOR AT THIS LOCATION)

DO NOT CONNECT FLUE TO BAND TYPICAL

A3-3-A — 3RD FLOOR RISER SUPPORTS NOTS 1-4 PI:26

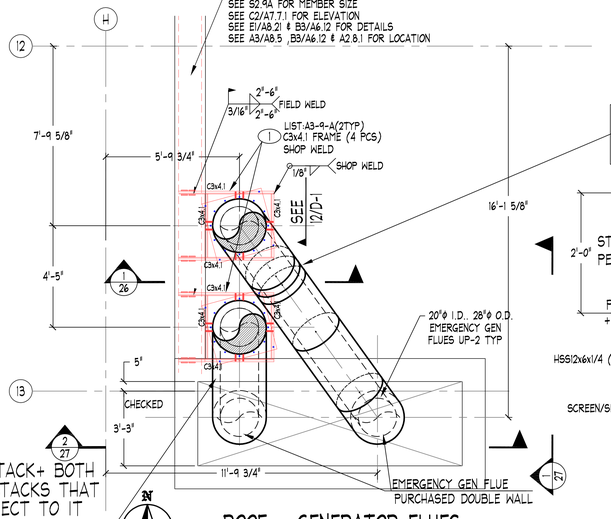


FIFTH FLOOR - GENERATOR FLUES

FINISHED FLOOR ELEVATION=80'-0"

DO NOT CONNECT FLUE TO BAND TYPICAL

A3-6-A — 6TH FLOOR RISER SUPPORTS NOTS 1-4 PI:26



20"STACK+ BOTH 14" STACKS THAT CONNECT TO IT

5669 LBS TOTAL WEIGHT

ROOF - GENERATOR FLUES

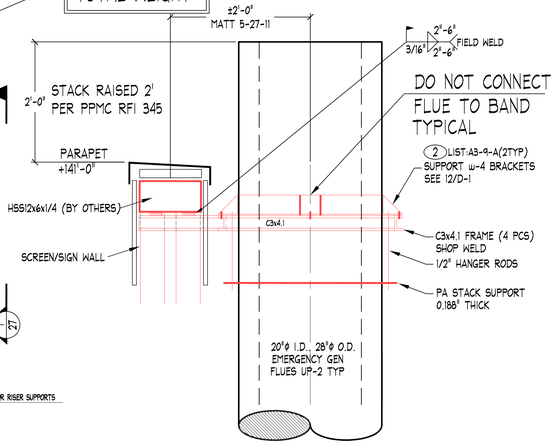
FINISHED FLOOR ELEVATION=125'-0"

DO NOT CONNECT FLUE TO BAND TYPICAL

A3-9-A — 4TH FLOOR RISER SUPPORTS NOTS 1-2 PI:26

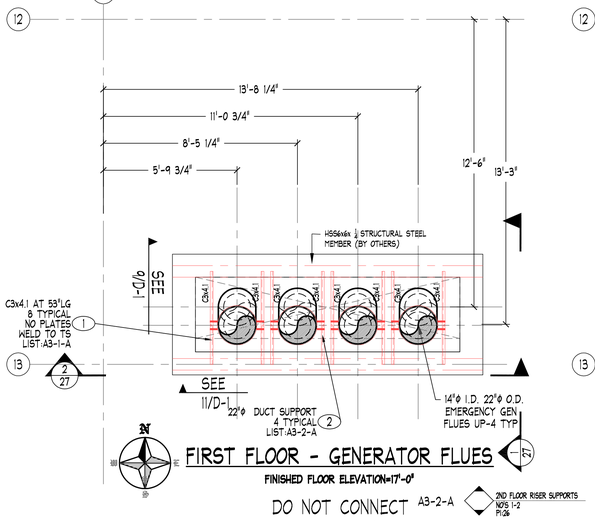
20"STACK+ BOTH 14" STACKS THAT CONNECT TO IT

5810 LBS TOTAL WEIGHT



1/26 STACK DISCHARGE - ELEVATION

SCALE:1"=1'-0"

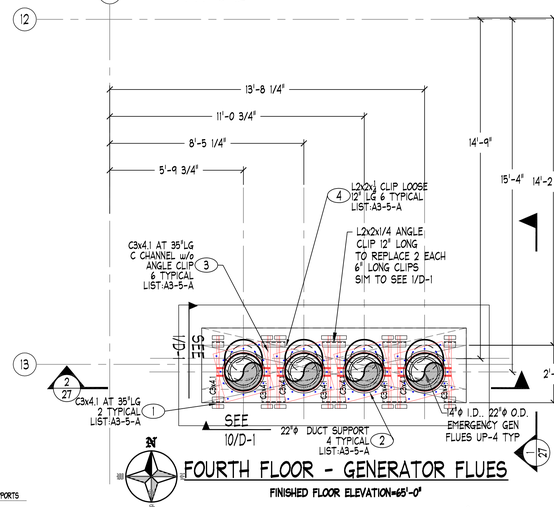


FIRST FLOOR - GENERATOR FLUES

FINISHED FLOOR ELEVATION=17'-0"

DO NOT CONNECT FLUE TO BAND TYPICAL

A3-2-A — 2ND FLOOR RISER SUPPORTS NOTS 1-2 PI:26

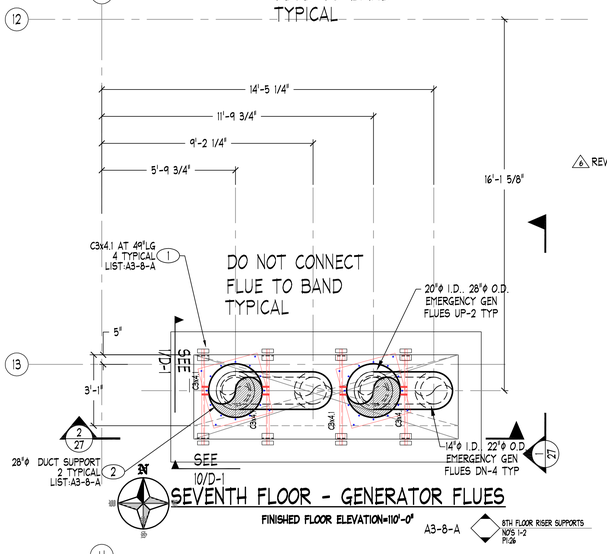


FOURTH FLOOR - GENERATOR FLUES

FINISHED FLOOR ELEVATION=65'-0"

DO NOT CONNECT FLUE TO BAND TYPICAL

A3-5-A — 5TH FLOOR RISER SUPPORTS NOTS 1-4 PI:26



SEVENTH FLOOR - GENERATOR FLUES

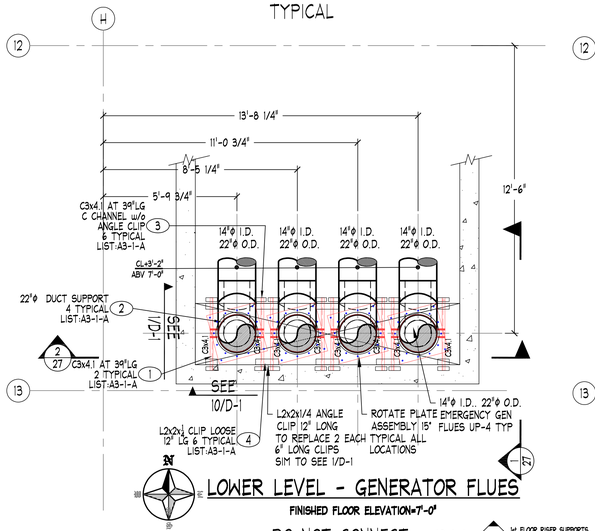
FINISHED FLOOR ELEVATION=110'-0"

A3-8-A — 8TH FLOOR RISER SUPPORTS NOTS 1-2 PI:26

6 REVISED PER FIELD CHANGES

SEE SELKIRK METALBESTOS SUBMITTAL FOR FLUE DETAILS

STACK CONSTRUCTION:
20 GA INNER WALL
4" AIR SPACE WITH INSULATION
24 GA OUTER WALL

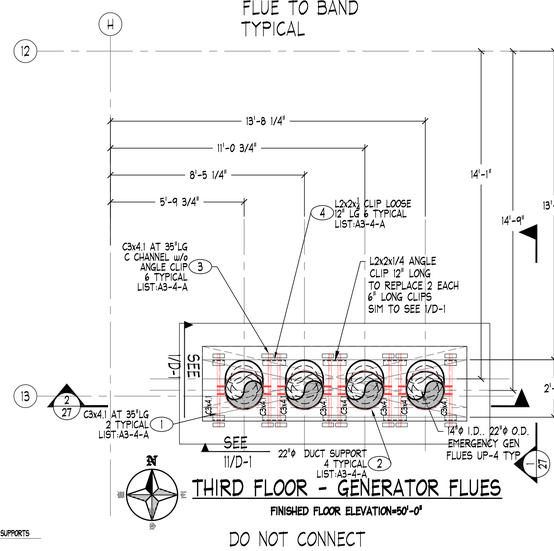


LOWER LEVEL - GENERATOR FLUES

FINISHED FLOOR ELEVATION=7'-0"

DO NOT CONNECT FLUE TO BAND TYPICAL

A3-1-A — 1st FLOOR RISER SUPPORTS NOTS 1-4 PI:26

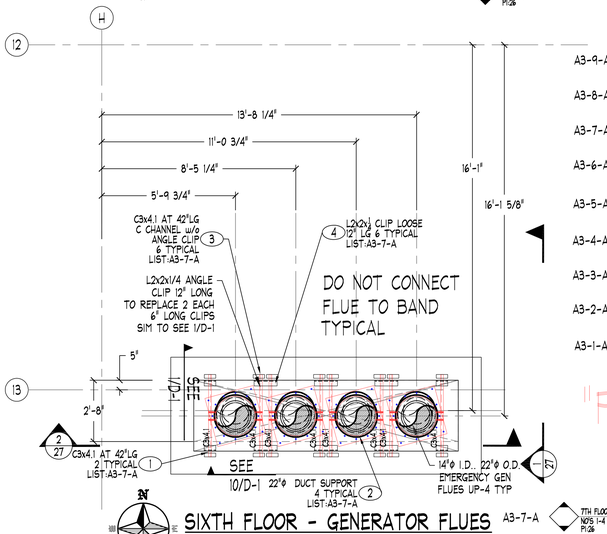


THIRD FLOOR - GENERATOR FLUES

FINISHED FLOOR ELEVATION=50'-0"

DO NOT CONNECT FLUE TO BAND TYPICAL

A3-4-A — 4TH FLOOR RISER SUPPORTS NOTS 1-4 PI:26



SIXTH FLOOR - GENERATOR FLUES

FINISHED FLOOR ELEVATION=95'-0"

A3-7-A — 7TH FLOOR RISER SUPPORTS NOTS 1-4 PI:26

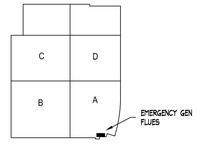
NOTE: SUPPORTS SHOWN ARE LOCATED ON THE SLAB OF THE LEVEL ABOVE.

A3-9-A — 4TH FLOOR RISER SUPPORTS NOTS 1-2 PI:26
A3-8-A — 8TH FLOOR RISER SUPPORTS NOTS 1-2 PI:26
A3-7-A — 7TH FLOOR RISER SUPPORTS NOTS 1-4 PI:26
A3-6-A — 6TH FLOOR RISER SUPPORTS NOTS 1-4 PI:26
A3-5-A — 5TH FLOOR RISER SUPPORTS NOTS 1-4 PI:26
A3-4-A — 4TH FLOOR RISER SUPPORTS NOTS 1-4 PI:26
A3-3-A — 3RD FLOOR RISER SUPPORTS NOTS 1-4 PI:26
A3-2-A — 2ND FLOOR RISER SUPPORTS NOTS 1-2 PI:26
A3-1-A — 1st FLOOR RISER SUPPORTS NOTS 1-4 PI:26

GENERAL NOTES:

1. Governing Building Code: California Building Code 2007 w/ Title 24 Requirements
2. All post-installed expansion anchor bolts shall be 3/8" diameter Tru-bolt+ ITW/Ramset Redhead with 3" minimum embedment.
3. All post-installed expansion anchors shall be tested and inspected in accordance with the requirements noted on Dwg. S0.1.
4. Reposition expansion anchors that interfere with slab reinforcement. Do not reposition anchors any closer than 6" to the edge of the slab and maintain a minimum distance between anchors of 6".
5. All steel-to-steel bolted connections shall utilize A-307 bolts.
6. All steel shapes and plates shall be ASTM A-36.
7. All steel-to-steel welded connections shall use E-70XX electrodes. E-60XX electrodes may be used for welding light-gage metal ducts to steel.

"PROJECT RECORD DRAWING"



A1 Key Plan

NOTES

1. ELEVATIONS INDICATED ON THIS DRAWING ARE TO THE DUCT BODY. ALLOWANCES MUST BE MADE FOR ADDITIONAL DUCT HEIGHT DUE TO REINFORCING AND EXTERIOR INSULATION WHEN COORDINATING ELEVATIONS.

ABBREVIATIONS

AD, AP	ACCESS DOOR, ACCESS PLATE	S & D	S & DRAIC CONNECTOR
EL, ELEV	ELEVATION	SV	SPRINKLER FITTING
ELBOW	ELBOW ELEVATION	SV	SUPPLY AIR
D, Dn	DOWN	SP	STATIC PRESSURE
DC	DUCTMATIC CONNECTOR	T	TOP
DM	DUCTMATIC MOTOR	T - TOC	TOP OF FLEXIBLE DUCT CONNECTION
FD	FIRE DAMPER	TH	THREAD
FI	FIRE DAMPER FLANGE IN	TRANS	TRANSITION FITTING
FO	FLANGE OUT	TV	TURNING VANES
FOB	FLANGE OUT BOTTOM	U	UP
FOS	FLAT ON SIDE	V	VERTICAL
FOT	FLAT ON TOP	VD	VOLUME DAMPER
H	HORIZONTAL	W	WALL
MO	MANUAL OPPOSED BLADE	WG	WATER GAUGE
OFFSET	OFFSET	WR	WALL REDUCER
RADIUS	RADIUS	FO	FEMALE INDICATOR

SYMBOL LEGEND

SYMBOL	DESCRIPTION
	FIRE DAMPER OR COMBINATION FIRE/SMOKE DAMPER NO.
	MANUAL VOLUME DAMPER WITH SEAL QUADRANT OPERATOR
	MANUAL VOLUME DAMPER WITH CEILING MOUNTED CONCEALED REGULATOR
	MOTORIZED DAMPER
	DUCTWORK ACCESS DOOR OR ACCESS PLATE
	DUCTWORK PIECE NO.
	INDICATOR DESCRIPTION OF DUCT ELEVATION INDICATOR

REVISIONS

NO.	DESCRIPTION	DATE
1	REVISED FOR RESUBMITTAL	11-24-08
2	REVISED PER OSHPD REVIEW	01-29-10
3	SUPPORTS LISTED 1-5	04-14-10
4	FLOORS 5-8 SUPPORTS LISTED	09-10-10
5	REVISED PER SELKIRK SUBMITTAL	02-28-11
6	REVISED PER FIELD INFORMATION	02-28-11
7	REVISED PER FIELD INFO/DETAIL 1/A4/LIST A3-4-A	04-3-11
8	AS-BUILT RECORD DRAWING	09-9-12

MATERIAL LISTS

NO.	DESCRIPTION	DATE
A3-1-A	1ST FLOOR RISER SUPPORTS	04-14-10
A3-2-A	2ND FLOOR RISER SUPPORTS	04-14-10
A3-3-A	3RD FLOOR RISER SUPPORTS	04-14-10
A3-4-A	4TH FLOOR RISER SUPPORTS	04-14-10
A3-5-A	5TH FLOOR RISER SUPPORTS	04-14-10
A3-6-A	6TH FLOOR RISER SUPPORTS	09-10-10
A3-7-A	7TH FLOOR RISER SUPPORTS	09-10-10
A3-8-A	8TH FLOOR RISER SUPPORTS	09-10-10
A3-9-A	ROOF LEVEL RISER SUPPORTS	11-24-08

SHEET METAL HARRIS & HART CONTRACTORS & FABRICATORS

HARRIS & HART INC.
1759 WEST 1200 SOUTH
OGDEN, UTAH. 84404

PHONE: (801) 731-0577
FAX NO: (801) 731-0580

WEBSITE: WWW.HARRIS-HART.COM

E-MAIL TO DETAILING DEPARTMENT:
ttaylor@harris-hart.com

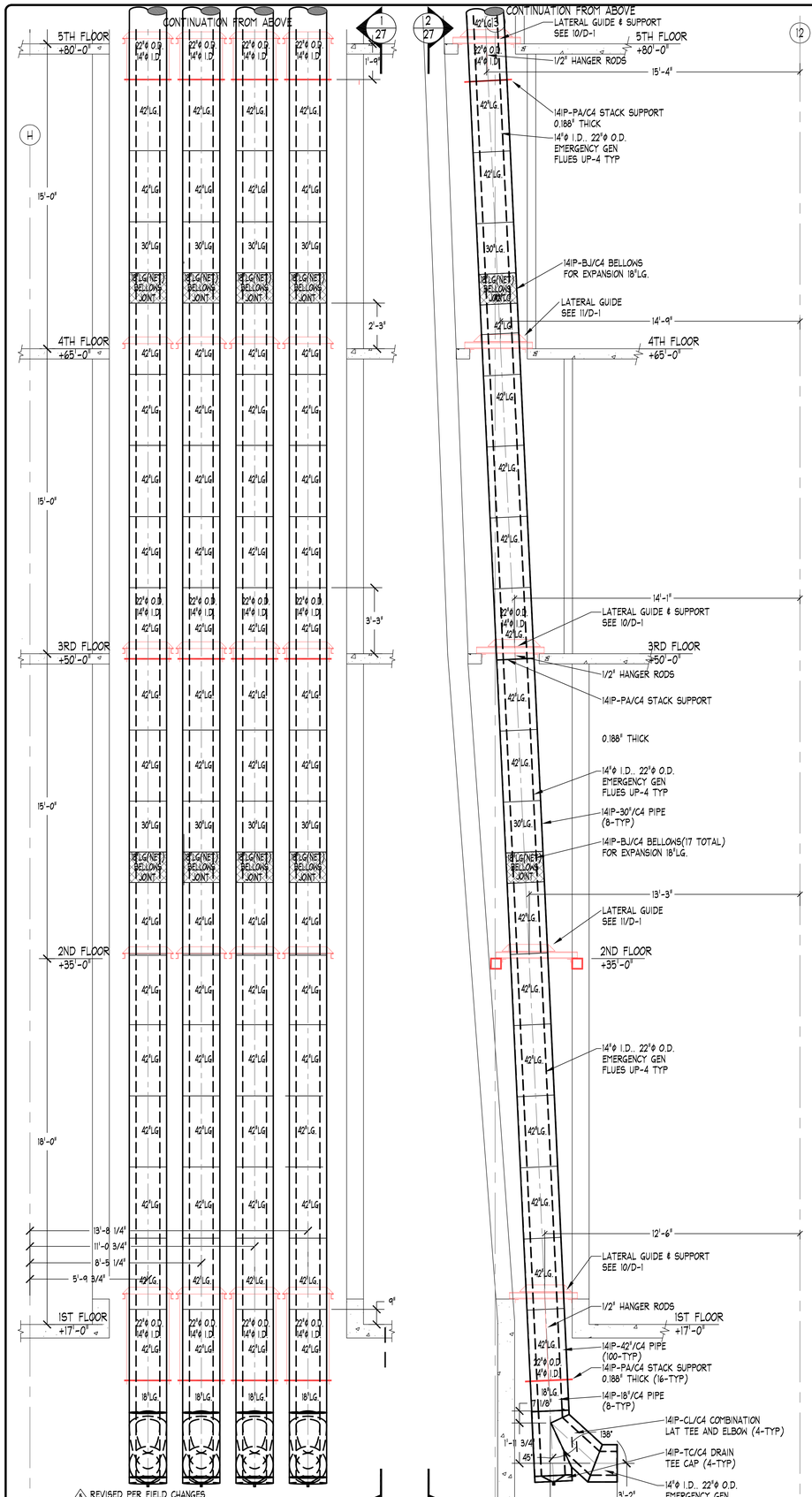
JOB NO: 9507 PAY ITEM:

PROJECT: IL 0702072-30
CHOC HOSPITAL
ORANGE, CA

TITLE: DA #003
GENERATOR FLUES SUPPORTS
HVAC SYSTEM LAYOUT

REFERENCE DRAWINGS
ARCH: STRUCT: MECH:

BY: R.FRESTON
DRAWING NO.
DATE: 08-18-09
SCALE: 3/8" =1'-0"
26of 115

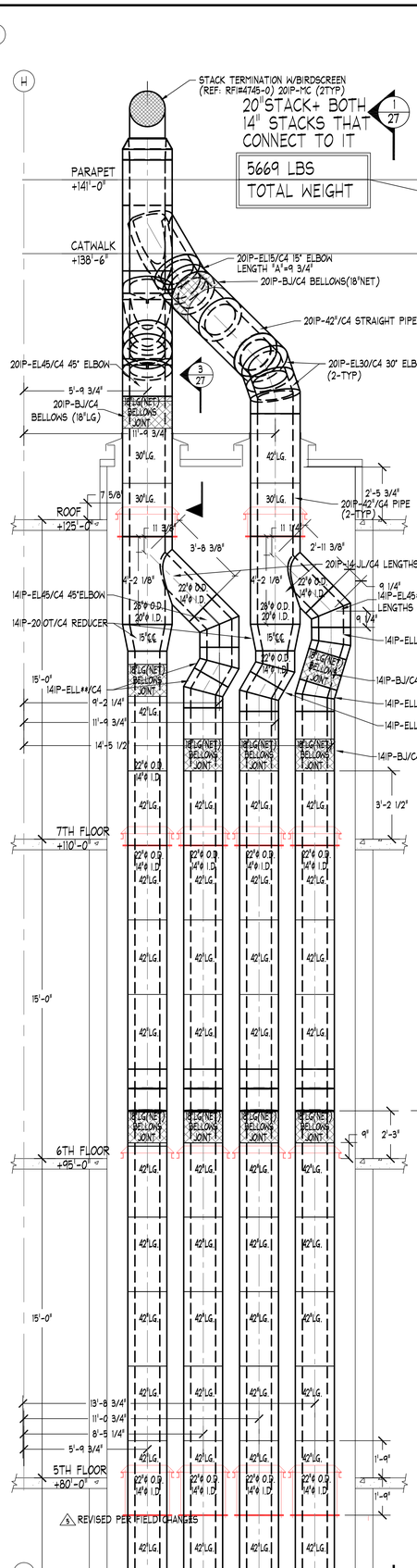


2/27 EMERGENCY GENERATOR FLUES

LOOKING NORTH FROM GRIDLINE 13

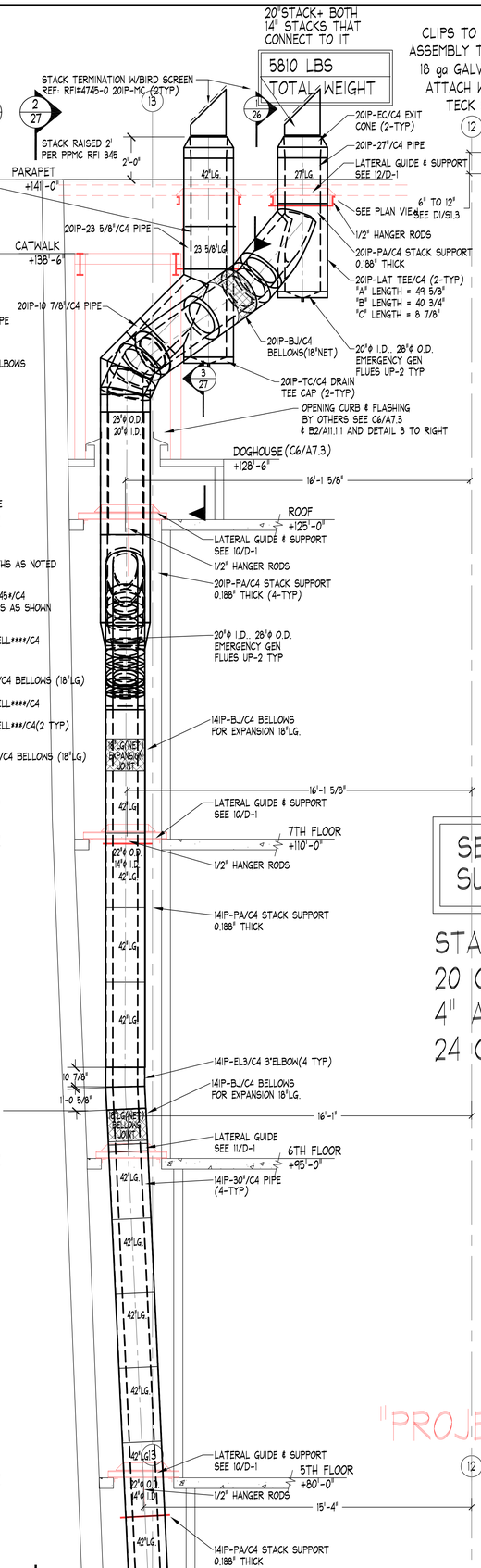
1/27 EMERGENCY GENERATOR FLUES

LOOKING WEST FROM GRIDLINE H



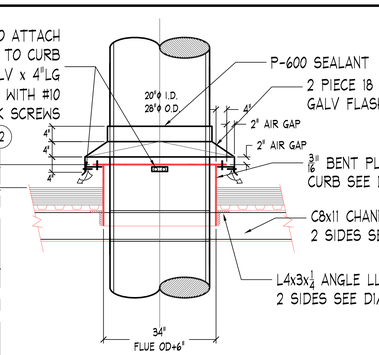
2/27 EMERGENCY GENERATOR FLUES

LOOKING NORTH FROM GRIDLINE 13

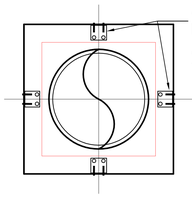


1/27 EMERGENCY GENERATOR FLUES

LOOKING WEST FROM GRIDLINE H



3/27 SECTION AT ROOF



PARTIAL PLAN AT ROOF

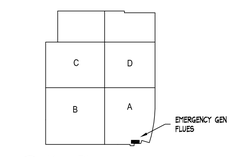
SEE SELKIRK METALBESTOS SUBMITTAL FOR FLUE DETAILS

STACK CONSTRUCTION:
20 GA INNER WALL
4" AIR SPACE WITH INSULATION
24 GA OUTER WALL

GENERAL NOTES:

1. Governing Building Code: California Building Code 2007 w/ Title 24 requirements
2. All post-installed expansion anchor bolts shall be 3/8" diameter Tru-bolt+ ITW/Ramset Redhead with 3" minimum embedment.
3. All post-installed expansion anchors shall be tested and inspected in accordance with the requirements noted on Dwg. S0.1.
4. Reposition expansion anchors that interfere with slab reinforcement. Do not reposition anchors any closer than 6" to the edge of the slab and maintain a minimum distance between anchors of 6".
5. All steel-to-steel bolted connections shall utilize A-307 bolts.
6. All steel shapes and plates shall be ASTM A-36.
7. All steel-to-steel welded connections shall use E-70XX electrodes. E-60XX electrodes may be used for welding light-gage metal ducts to steel.

"PROJECT RECORD DRAWING"



A1 Key Plan

NOTES

1. ELEVATIONS INDICATED ON THIS DRAWING ARE TO THE DUCT BODY. ALLOWANCES MUST BE MADE FOR FLANGES, ACCESS DOORS, REINFORCING AND EXTERIOR INSULATION WHEN COORDINATING ELEVATIONS.

ABBREVIATIONS

A.D.	ACCESS DOOR	S & D	S & DRAKE CONNECTOR
A.P.	ACCESS PLATE	SF	SPIN-in FITTING
B. BOTT	BOTTOM	SV	SUPPLY AIR
B.U.	BUILT-UP	SP	STATIC PRESSURE
D. DN	DOWN	T	TOP
DM	DUCTMATE CONNECTOR	TDC	TRANSVERSE DUCT CONNECTOR
EA. ITM	EACH ITEM	TH	THROAT
FD	FIRE DAMPER	TR	TRANSITION FITTING
FI	FLANGE IN	TRANS	TRANSOM VANES
FO	FLANGE OUT	TV	TURNING VANES
F.O.B.	FLAT ON BOTTOM	V	VERTICAL
FOS	FLAT ON SIDE	VD	VOLUME DAMPER
FOT	FLAT ON TOP	W	WORK
H	HORIZONTAL	WG	WATER GAUGE
M	MITER	↑F	MALE INDICATOR
OS	OFFSET	↓F	FEMALE INDICATOR
R	RADIUS		

SYMBOL LEGEND

SYMBOL	DESCRIPTION
	FIRE DAMPER OR COMBINATION FIRE/SMOKE DAMPER NO.
	MANUAL VOLUME DAMPER WITH 1/4" SQUARE REGULATOR
	MANUAL VOLUME DAMPER WITH CEILING MOUNTED CONCEALED REGULATOR
	MOTORIZED DAMPER
	DUCTWORK ACCESS DOOR OR ACCESS PLATE
	DUCTWORK PITCH NO.
	ADJUSTABLE ELBOW OR ELEVATION INDICATOR
	DIRECTION OF DUCT

REVISIONS

NO.	DATE	DESCRIPTION
1	1/05/09	RSI/ PER ENGINEER'S COMMENTS
2	11/24/09	RSI/ISED FOR RESUBMITTAL
3	01/29/10	RSI/ISED PER OSHPD REVIEW
4	02-18-11	RSI/ISED PER SELKIRK SUBMITTAL
5	02-24-11	RSI/ISED PER UPDATED FIELD INFOMATION
6	05-12-11	ROOF OPENING DETAIL ADDED
7	6-7-11	UPDATED PER INSTALLATION
8	5-8-12	AS-BUILT RECORD DRAWING

MATERIAL LISTS

NO.	DATE	DESCRIPTION

HARRIS & HART INC.
1759 WEST 1200 SOUTH
OGDEN, UTAH. 84404
PHONE: (801) 731-0577
FAX NO: (801) 731-0580
WEBSITE: WWW.HARRIS-HART.COM
E-MAIL TO DETAILING DEPARTMENT: ttaylor@harris-hart.com

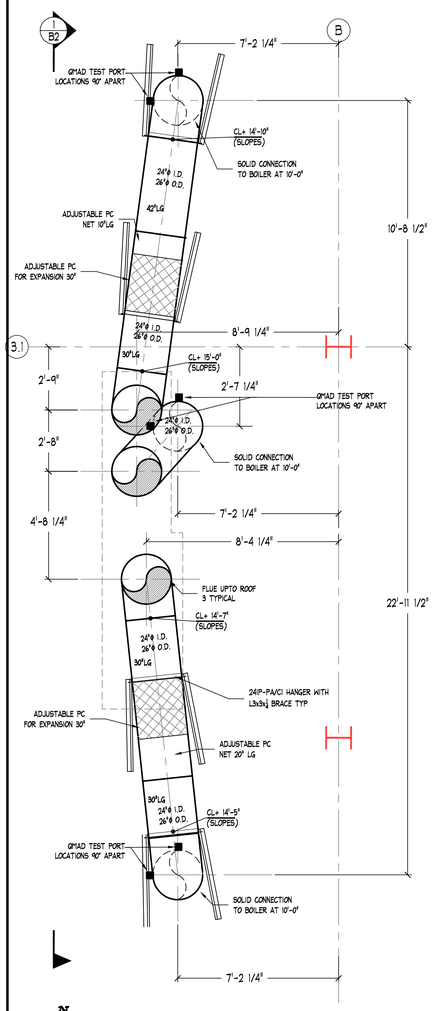
JOB NO: 9507 PAY ITEM:

PROJECT: IL 0702072-30
CHOC HOSPITAL
ORANGE, CA

TITLE: DA #003
GENERATOR FLUES SUPPORTS HVAC SYSTEM LAYOUT

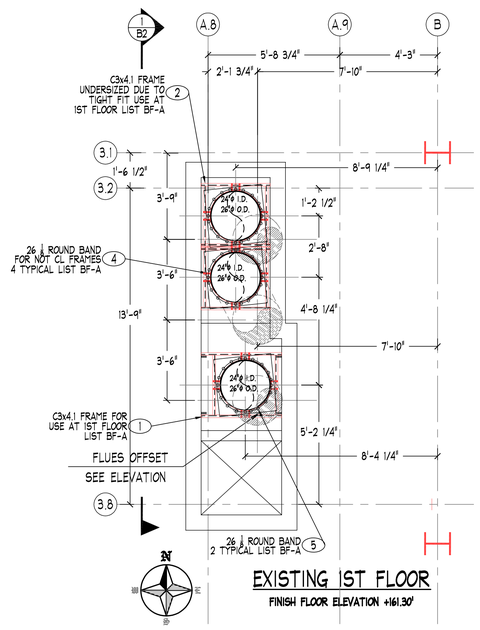
REFERENCE DRAWINGS
ARCH: STRUCT: MECH:

BY: R.FRESTON
DRAWING NO.
DATE: 08-18-09
27of 115
SCALE: 3/8" =1'-0"



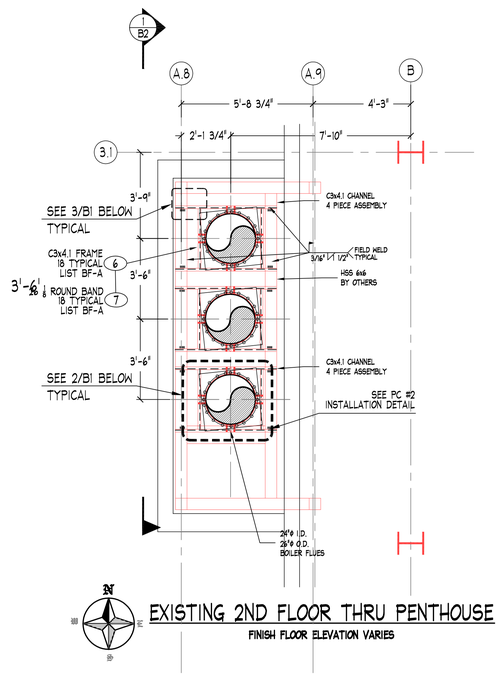
BOILER PLANT SUB-BASEMENT

SUB-BASEMENT ELEVATION +131.80'



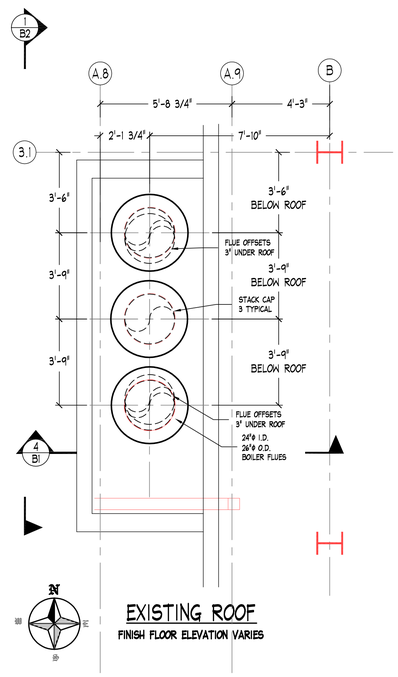
EXISTING 1ST FLOOR

FINISH FLOOR ELEVATION +161.30'



EXISTING 2ND FLOOR THRU PENTHOUSE

FINISH FLOOR ELEVATION VARIES



EXISTING ROOF

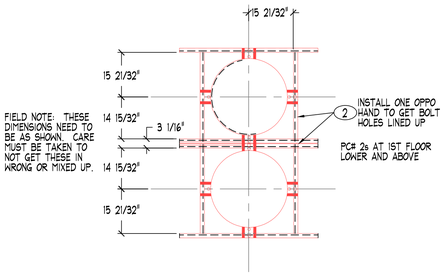
FINISH FLOOR ELEVATION VARIES

GENERAL NOTES:

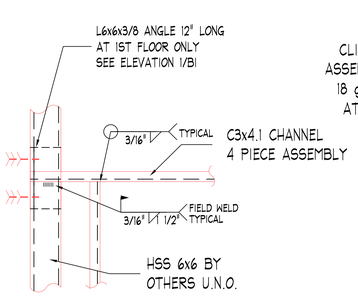
1. THIS DRAWING SUBMITTAL PACKAGE ADDRESSES THE BOILER FLUE SUPPORTS ONLY. THE REMAINING RISER SUPPORTS WILL BE SUBMITTED SEPARATELY.
2. THERMAL EXPANSION JOINTS ARE INCLUDED IN THE STACK DESIGN AT THE LOCATIONS INDICATED ON THIS DRAWING. IN ADDITION, PLEASE SEE THE ATTACHED NOV. 12, 2009 SELKIRK LETTER FOR THE CORRESPONDING ENGINEERING CALCULATIONS.
3. THE SUPPORT SPACING WAS DETERMINED BY THE FLUE MANUFACTURER. THE SPACING IS IN ACCORDANCE WITH THEIR RECOMMENDATIONS AND UL LISTINGS. SEE ATTACHED TABLE A-4 FOR VERTICAL SUPPORT AND GUIDE SPACING.
4. THE "PLATE SUPPORT ASSEMBLY" INSTALLATION INSTRUCTIONS FROM THE MANUFACTURER ARE INCLUDED WITH THIS SUBMITTAL. PLEASE SEE TABLE A-3 INDICATING THAT A SINGLE "PLATE SUPPORT ASSEMBLY" CAN SUPPORT 82' OF STACK. IN ADDITION, PLEASE SEE ATTACHED ARW ENGINEERS CALCULATIONS PAGE #13.
5. DETAIL D1/S1.3 IS A ROOF OPENING DETAIL ONLY, AND THE BOILER FLUES WILL PASS THROUGH THIS PENETRATION ONLY AND IS NOT BEING USED AS A MEANS OF SUPPORT. THE SUPPORT OF THE FLUES IS AS SHOWN ON THE SHOP DRAWINGS, WITH HANGER LOCATIONS AND SPACING DETERMINED BY THE FLUE MANUFACTURER, AND UTILIZING C3x4.1 WELDED FRAMES WITH CORRESPONDING STRUCTURAL ENGINEERING PROVIDED BY ARW ENGINEERS.
6. PLEASE SEE ATTACHED ARW ENGINEERS CALCULATIONS PAGE #2 FOR CLARIFICATION OF "Z" HEIGHT DIMENSIONS.

SEE SELKIRK METALBESTOS SUBMITTAL FOR FLUE DETAILS

STACK CONSTRUCTION:
20 GA INNER WALL
1" AIR SPACE
24 GA OUTER WALL

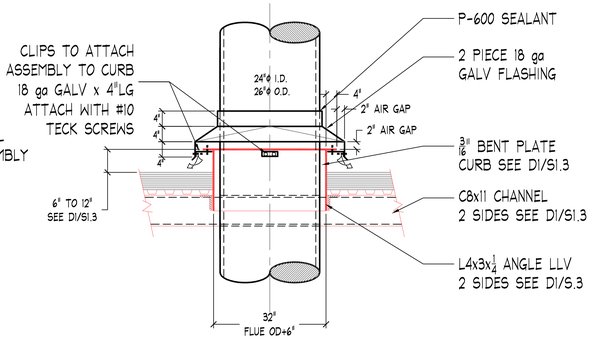


PC # 2 INSTALLATION DETAILS
1ST FLOOR HIGH AND LOW SUPPORTS

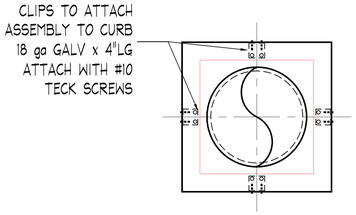


DETAIL AT HSS 6x6

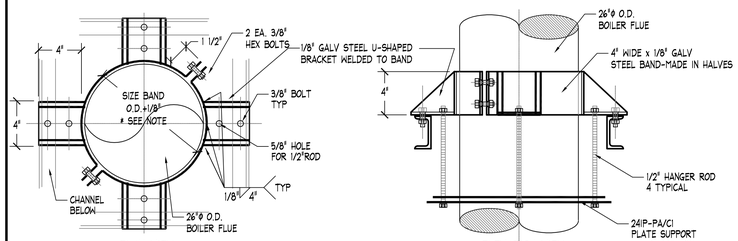
3/B1 — CHANNEL FRAME TO STRUCTURE CONNECTIONS



4/B1 — SECTION AT ROOF

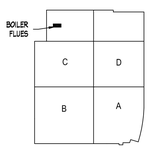


PARTIAL PLAN AT ROOF



2/B1 — BOILER FLUE SUPPORT DETAILS
DO NOT CONNECT BRACKET TO FLUE
ALLOW 1/16" CLEAR BETWEEN GUIDE & FLUE

BF-A — BOILER FLUE RISER SUPPORTS NOS 1-7 PG1



A1 Key Plan N.T.S.

"PROJECT RECORD DRAWING"

NOTES
1. ELEVATIONS INDICATED ON THIS DRAWING ARE TO THE DUCT BODY. ALLOWANCES MUST BE MADE FOR DUCT CONSTRUCTION, REINFORCING AND EXTERIOR INSULATION WHEN COORDINATING ELEVATIONS.

ABBREVIATIONS

AD, AP	ACCESS DOOR, ACCESS PLATE	S & D	S & DRAKE CONNECTION
B, BOTT	BOTTOM	SI	SPIN-IN FITTING
C	CENTERLINE	SLV	SLEEVE
C, ON	CONN	SP	STATIC PRESSURE
CM	DUCTMATE CONNECTOR	T	TOP
F, FTM	FEMALE	TDC	TRANSVERSE DUCT CONNECTOR
FD	FIRE DAMPER	TEES	TEES
FL	FLANGE IN	TRANS	TRANSITION FITTING
FO	FLANGE OUT	TV	TURNING VANES
FOS	FLAT OFFSET SYSTEM	U	U
FOS	FLAT ON SIDE	V	VERTICAL
FOT	FLAT ON TOP	VD	VOLUME DAMPER
H	HORIZONTAL	W	WITH
M	MITER	WG	WATER GAUGE
OS	OFFSET	WLF	WALL INDICATOR
R	RADIUS	WMF	WALL INDICATOR FEMALE

SYMBOL LEGEND

SYMBOL	DESCRIPTION
	FIRE DAMPER OR COMBINATION FIRE/SMOKE DAMPER NO.
	MANUAL VOLUME DAMPER WITH DIAL OR QUADRANT TYPE REGULATOR
	MOTORIZED DAMPER WITH ACTUATOR
	CEILING MOUNTED CONCEALED REGULATOR
	MOTORIZED DAMPER
	DUCTWORK ACCESS DOOR OR ACCESS PLATE
	DUCTWORK PIECE NO.
	INDICATOR
	DIRECTION OF FLOW/TYPE OF DUCT ELEVATION INDICATOR

MATERIAL LISTS

NO.	DESCRIPTION	DATE
BF-A	FLUE RISER SUPPORTS	7-24-09

REVISIONS

NO.	DESCRIPTION	DATE
1	FLUES REVISED FOR COORDINATION	10-07-09
2	UPDATED PER OWNER PLAN CHECK COMMENTS	12-4-09
3	CONNECTIONS TO BOILERS UPDATED	01-15-10
4	UPDATED PER CO #52	01-28-10
5	FLUE RISER SUPPORTS LISTED	01-29-10
6	FLOOR TO JOINT DISTANCES ADDED, F.J.T LENGTHS	06-11-10
7	REVISED PER COMM	02-02-11
8	SUB-BASEMENT DIMENSIONS CHANGED	03-21-11
9	BOILER B-3 LOCATION CHANGED TO MATCH MODEL	03-21-11
10	TEST PORTS ADDED PER H&H RFI 243	05-06-11
11	ROOF OPENING DETAIL ADDED	05-21-11
12	AS-BUILT RECORD DRAWING	05-7-12

SHEET METAL CONTRACTORS & FABRICATORS
HARRIS & HART

HARRIS & HART INC.
1759 WEST 1200 SOUTH
OGDEN, UTAH. 84404
PHONE: (801) 731-0577
FAX NO: (801) 731-0580
WEBSITE: WWW.HARRIS-HART.COM
E-MAIL TO DETAILING DEPARTMENT:
ttaylor@harris-hart.com

JOB NO: 9507 PAY ITEM: 01

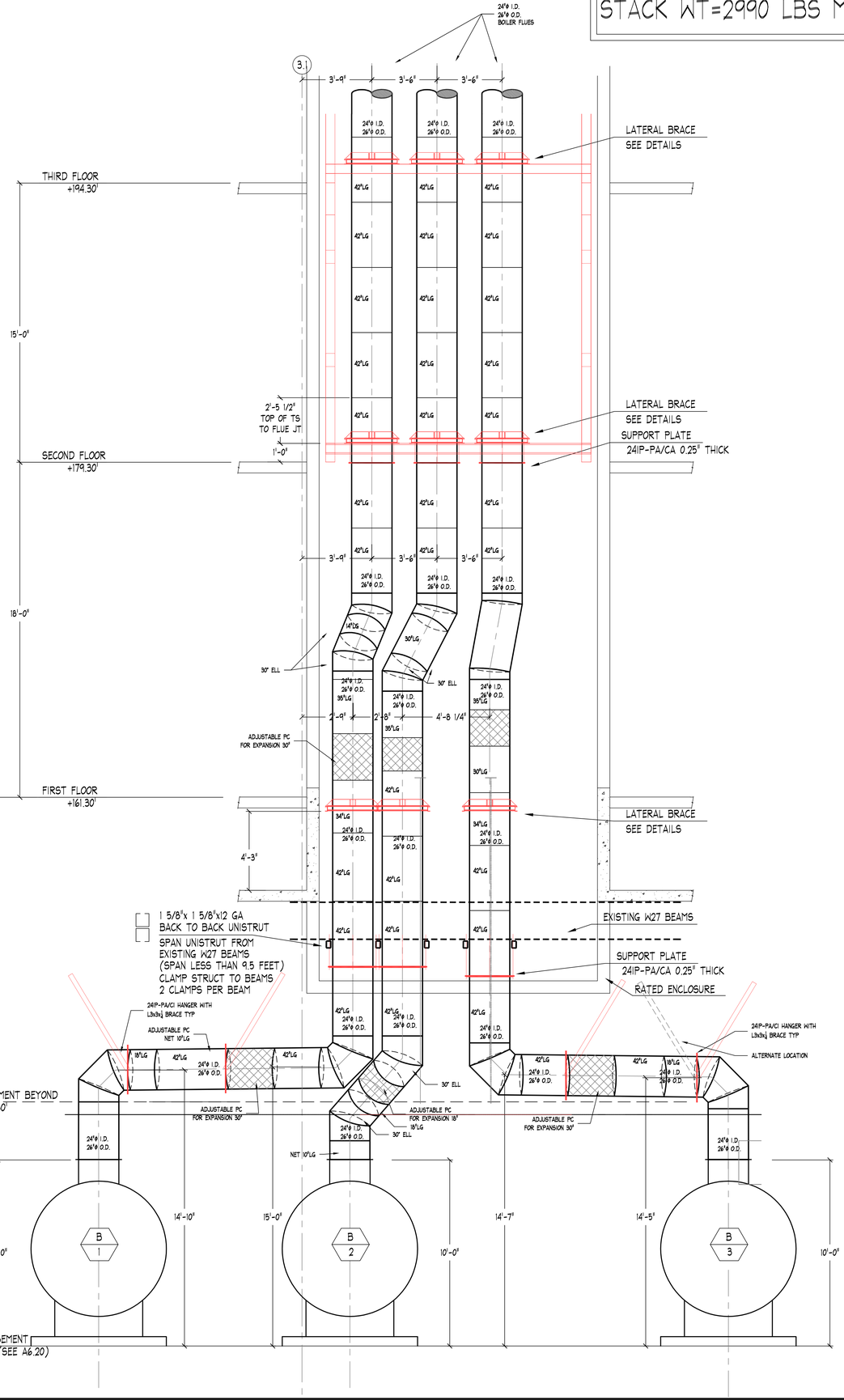
PROJECT:
CHOC HOSPITAL
ORANGE, CA

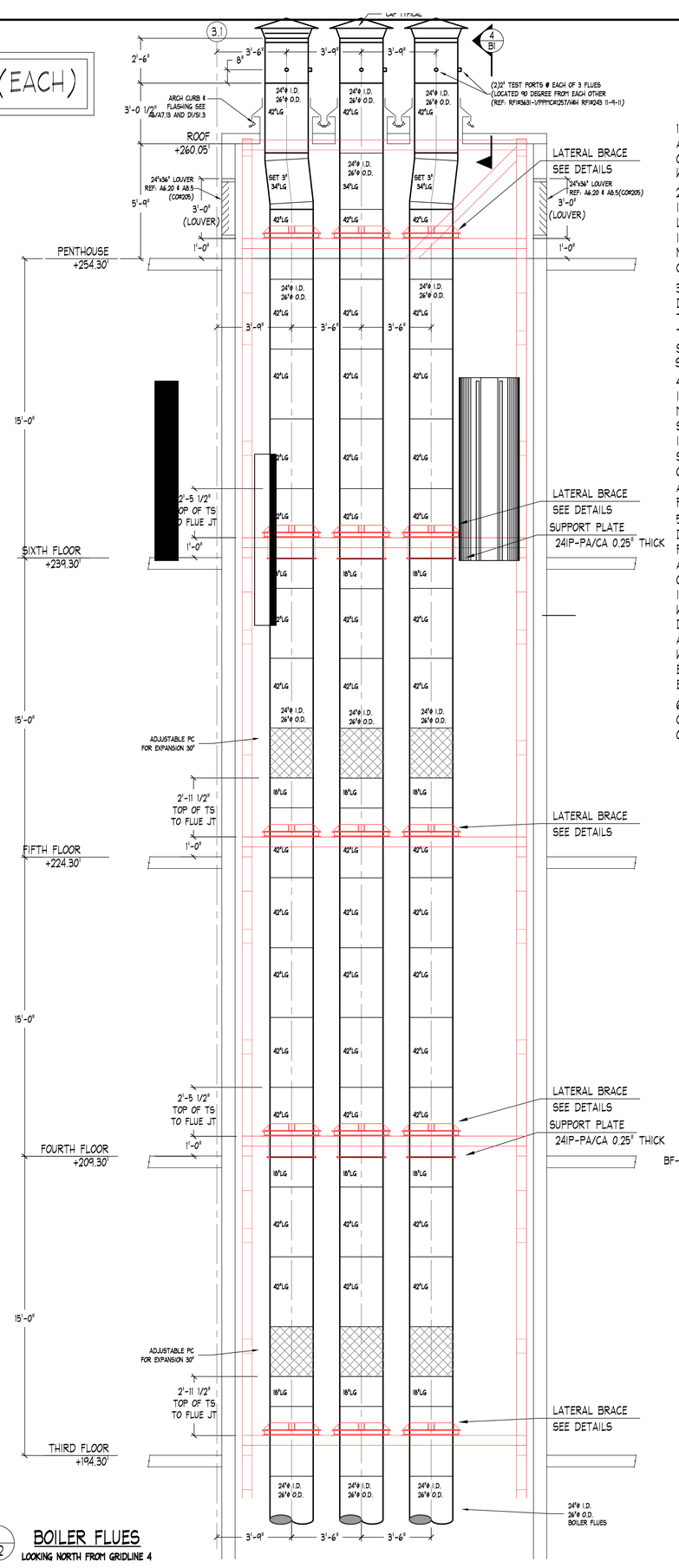
TITLE:
BOILER FLUE SUPPORTS
HVAC SYSTEM LAYOUT

REFERENCE DRAWINGS
ARCH: STRUCT: MECH:

BY: R.F.
DATE: 8-04-09
SCALE: 3/8" =1'-0"
DRAWING NO.
B1 OF 2

STACK WT=2990 LBS MAX (EACH)

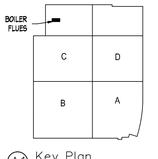




SEE SELKIRK METALBESTOS
SUBMITTAL FOR FLUE DETAILS

STACK CONSTRUCTION:
20 GA INNER WALL
1" AIR SPACE
24 GA OUTER WALL

BF-A BOILER FLUE RISER SUPPORTS
VOL 1-7
PLUS



A1 Key Plan

1/B2 **BOILER FLUES**
LOOKING NORTH FROM GRIDLINE 4

GENERAL NOTES:

1. THIS DRAWING SUBMITTAL PACKAGE ADDRESSES THE BOILER FLUE SUPPORTS ONLY. THE REMAINING RISER SUPPORTS WILL BE SUBMITTED SEPARATELY.
2. THERMAL EXPANSION JOINTS ARE INCLUDED IN THE STACK DESIGN AT THE LOCATIONS INDICATED ON THIS DRAWING. IN ADDITION, PLEASE SEE THE ATTACHED NOV. 12, 2009 SELKIRK LETTER FOR THE CORRESPONDING ENGINEERING CALCULATIONS.
3. THE SUPPORT SPACING WAS DETERMINED BY THE FLUE MANUFACTURER. THE SPACING IS IN ACCORDANCE WITH THEIR RECOMMENDATIONS AND UL LISTINGS. SEE ATTACHED TABLE A-4 FOR VERTICAL SUPPORT AND GUIDE SPACING.
4. THE "PLATE SUPPORT ASSEMBLY" INSTALLATION INSTRUCTIONS FROM THE MANUFACTURER ARE INCLUDED WITH THIS SUBMITTAL. PLEASE SEE TABLE A-3 INDICATING THAT A SINGLE "PLATE SUPPORT ASSEMBLY" CAN SUPPORT 82' OF STACK. IN ADDITION, PLEASE SEE ATTACHED ARW ENGINEERS CALCULATIONS PAGE #13.
5. DETAIL D1/S1.3 IS A ROOF OPENING DETAIL ONLY, AND THE BOILER FLUES WILL PASS THROUGH THIS PENETRATION ONLY AND IS NOT BEING USED AS A MEANS OF SUPPORT. THE SUPPORT OF THE FLUES IS AS SHOWN ON THE SHOP DRAWINGS, WITH HANGER LOCATIONS AND SPACING DETERMINED BY THE FLUE MANUFACTURER, AND UTILIZING C3x4.1 WELDED FRAMES WITH CORRESPONDING STRUCTURAL ENGINEERING PROVIDED BY ARW ENGINEERS.
6. PLEASE SEE ATTACHED ARW ENGINEERS CALCULATIONS PAGE #2 FOR CLARIFICATION OF "Z" HEIGHT DIMENSIONS.

"PROJECT RECORD DRAWING"

NOTES
1. ELEVATIONS INDICATED ON THIS DRAWING ARE TO THE DUCT BODY. ALLOWANCES MUST BE MADE FOR FLANGES, ACCESS DOORS, REINFORCING AND EXTERIOR INSULATION WHEN COORDINATING ELEVATIONS.

ABBREVIATIONS

AD, AP	ACCESS DOOR, ACCESS PLATE	S & D	S & D DRIVE CONNECTOR
E, BOTT	ELBOW, BOTTOM	SF	SLIDE FITTING
D, DN	DOWN	SV	SLEEVE
DC	DUCTMATE CONNECTOR	SP	STATIC PRESSURE
EA	EACH	T	TOP
EFM	EXTERNAL FLANGE	TC	TEMPERATURE DUCT CONNECTOR
FD	FIRE DAMPER	TH	THROAT
FI	FLANGE IN	TRANS	TRANSITION FITTING
FO	FLANGE OUT	TY	TEE
FOB	FLAT ON BOTTOM	U	UP
FOS	FLAT ON SIDE	V, VD	VERTICAL, VOLUME DAMPER
FOT	FLAT ON TOP	W	WIDTH, WIRE
H	HORIZONTAL	WG	WATER GAUGE
MAL	MALE	↑ ↑	MALE INDICATOR
OFFSET	OFFSET	↑O	FEMALE INDICATOR
RADIUS	RADIUS		

SYMBOL LEGEND

SYMBOL	DESCRIPTION
	FIRE DAMPER OR COMBINATION FIRE/SMOKE DAMPER W/O.
	MANUAL VOLUME DAMPER WITH QUADRANT HANDLE
	MANUAL VOLUME DAMPER WITH LOCKING QUADRANT
	CEILING MOUNTED CONCEALED REGULATOR
	MOTORIZED DAMPER
	DUCTWORK ACCESS DOOR OR ACCESS PLATE
	DUCTWORK PIECE NO.
	TOP OF DUCT/BOTTOM OF DUCT ELEVATION INDICATOR

MATERIAL LISTS

NO.	DESCRIPTION	DATE
BF-A	FLUE RISER SUPPORTS	7-29-10

REVISIONS

NO.	DESCRIPTION	DATE
1	FLUES REVISED FOR COORDINATION	10-07-09
2	UPDATED PER OSHPD PLAN CHECK COMMENTS	12-04-09
3	CONNECTIONS TO BOILERS UPDATED	01-15-10
4	UPDATED PER CO #62	01-24-10
5	FLUE RISER SUPPORTS LISTED	01-24-10
6	FLOOR TO JOINT DISTANCES ADDED, 4 LT. LENGTHS	06-11-10
7	REVISED PER CCR#3	02-02-11
8	TEST PORTS ADDED TO FLUES PER HAI RFI 243	05-04-11
9	ROOF OPENING SECTION ADDED	05-12-11
10	UPDATED PER INSTALLATION	06-07-11
11	UPDATED PER CMOOS (ADDED ARCH LOUVERS)	06-13-11

AS-BUILT RECORD DRAWING

SHEET METAL HARRIS & HART CONTRACTORS & FABRICATORS

HARRIS & HART INC.
1759 WEST 1200 SOUTH
OGDEN, UTAH. 84404
PHONE: (801) 731-0577
FAX NO: (801) 731-0580
WEBSITE: WWW.HARRIS-HART.COM
E-MAIL TO DETAILING DEPARTMENT:
ttaylor@harris-hart.com

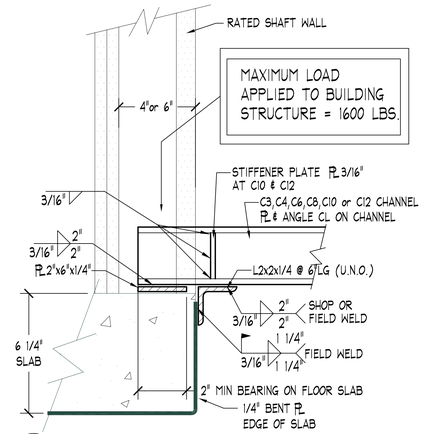
JOB NO: 9507 PAY ITEM: 01

PROJECT:
CHOC HOSPITAL
ORANGE, CA

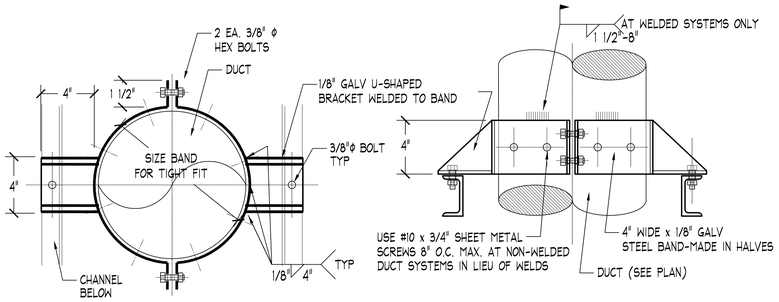
TITLE:
BOILER FLUE SUPPORTS
HVAC SYSTEM LAYOUT

REFERENCE DRAWINGS
ARCH: STRUCT: MECH:

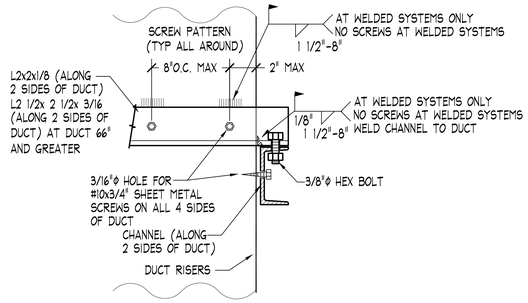
BY: R.F.
DATE: 8-04-09
SCALE: 3/8" =1'-0"
DRAWING NO.
B2 OF 2



1 D-1 CHANNEL TO SLAB EDGE CONNECTION DETAIL



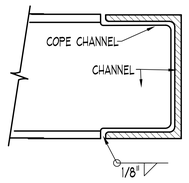
2 D-1 ROUND DUCT SUPPORT DETAIL



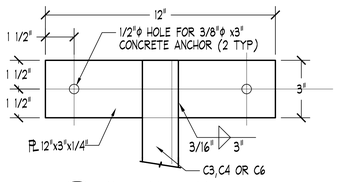
3 D-1 L2x2x1/8 OR L2 1/2x 2 1/2x 3/16 TO CHANNEL CONNECTION DETAIL

GENERAL NOTES:

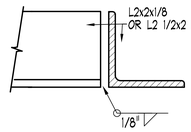
1. Governing Building Code: California Building Code 2007 w/ Title 24 Requirements
2. All post-installed expansion anchor bolts shall be 3/8" diameter Tru-bolt+ ITW/Ramset Redhead with 3"minimum embedment.
3. All post-installed expansion anchors shall be tested and inspected in accordance with the requirements noted on Dwg. S0.1.
4. Reposition expansion anchors that interfere with slab reinforcement. Do not reposition anchors any closer than 6"to the edge of the slab and maintain a minimum distance between anchors of 6".
5. All steel-to-steel bolted connections shall utilize A-307 bolts.
6. All steel shapes and plates shall be ASTM A-36.
7. All steel-to-steel welded connections shall use E-70XX electrodes. E-60XX electrodes may be used for welding light-gage metal ducts to steel.



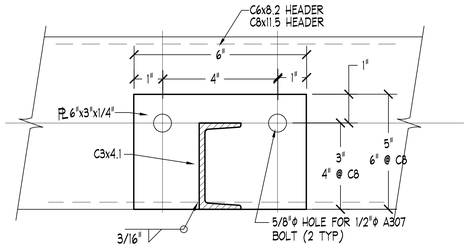
CHANNEL SHOP WELD



4 D-1 END PLATE DETAIL



5 D-1 SHOP WELDS AT STEEL MEMBERS

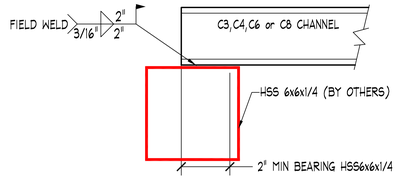


6 D-1 C3x4.1 TO C6x8.2 (C8x11.5 SIM) CONNECTION DETAIL

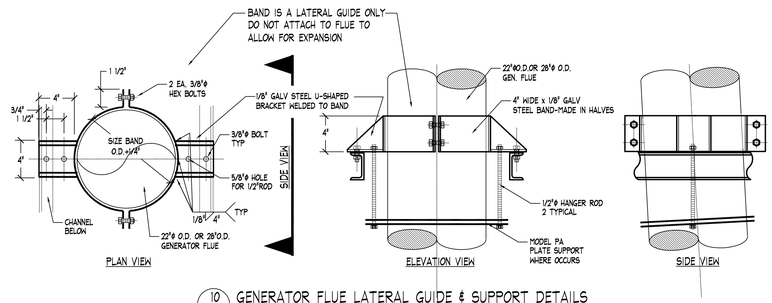
DETAIL 7 & 8 NOT USED ON THIS PROJECT

8 D-1 C6x8.2 TO C6x8.2 CONNECTION DETAIL

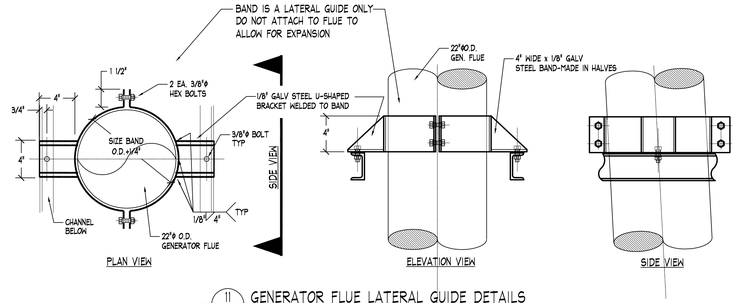
7 D-1 L2x2x1/8 ON C4 or C6 DETAIL



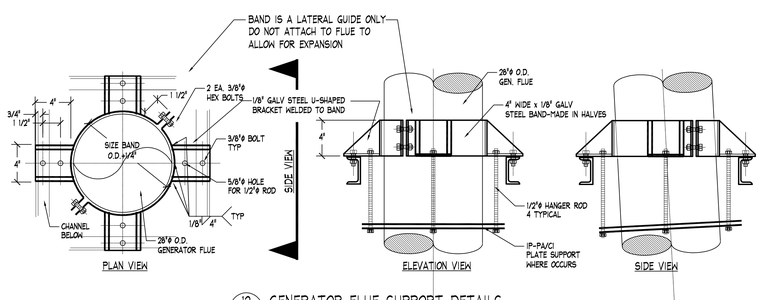
9 D-1 CHANNEL TO STRUCTURAL HSS CONNECTION DETAIL



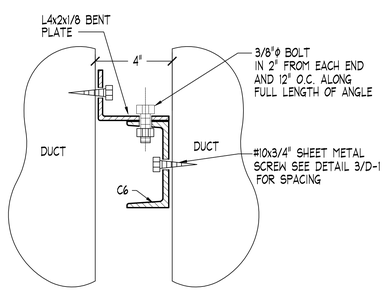
10 D-1 GENERATOR FLUE LATERAL GUIDE & SUPPORT DETAILS
DO NOT CONNECT BAND TO FLUE



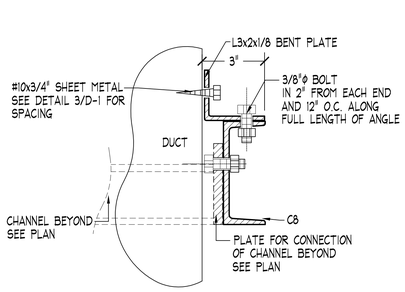
11 D-1 GENERATOR FLUE LATERAL GUIDE DETAILS
DO NOT CONNECT BAND TO FLUE



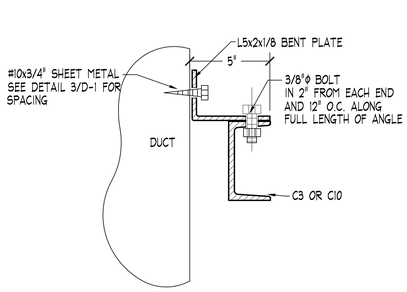
12 D-1 GENERATOR FLUE SUPPORT DETAILS
DO NOT CONNECT BAND TO FLUE



13 D-1 L4x2x1/8 BENT PLATE ON C6 DETAIL



14 D-1 L3x2x1/8 BENT PLATE ON C8 DETAIL



15 D-1 L5x2x1/8 BENT PLATE ON C3 & C10 DETAIL

"PROJECT RECORD DRAWING"

NOTES

1. ELEVATIONS INDICATED ON THIS DRAWING ARE TO THE DUCT BODY. ALLOWANCES MUST BE MADE FOR TRANSVERSE CONNECTIONS, REINFORCING & FLANGES. FIELD VERIFICATION WHEN COORDINATING ELEVATIONS.

ABBREVIATIONS

AL ¢	ACCESS DOOR, ACCESS PLATE	S & D	
B, BOTT	BOTTOM	S	S & DRAKE CONNECTOR
CEIL	CEILING	SV	SPIN-IN FITTING
CL	CENTERLINE	STAT	STATIC PRESSURE
D	DUCTMATE CONNECTOR	SP	TOP
DM	FEMALE	T	TRANSVERSE DUCT CONNECTOR
F, FTM	FLANGE TRANSFER	TC	TURNING VANES
FI	FLANGE IN	TF	TRANSITION FITTING
FO	FLANGE OUT	TV	TURNING VANES
FOB	FLAT ON BOTTOM	U	UP
FOS	FLAT ON SIDE	V	VERTICAL
FOT	FLAT ON TOP	VD	VOLUME DAMPER
H	HORIZONTAL	W	WITH
M	MALE	WG	WIRE GAUGE
OS	OFFSET	¢	MALE INDICATOR
R	RADIUS	¢	FEMALE INDICATOR

SYMBOL LEGEND

SYMBOL	DESCRIPTION
	FIRE DAMPER W/ FUSIBLE LINK
	FIRE/SMOKE DAMPER W/
	MANUAL VOLUME DAMPER WITH SEAL
	GRAVITY TYPE BACKDRAFT DAMPER
	CEILING ADJUSTED CONCEALED REGULATOR
	MOTORIZED DAMPER
	ACCESS DOOR
	TEXT/PANEL ACCESS DOOR OR ACCESS PLATE
	DUCTMATE PIECE NO.
	ANCHOR
	TOP OR SIDE/BOTTOM OF DUCT ELEVATION INDICATOR

REVISIONS

NO.	DATE	DESCRIPTION
1	11-24-09	REVISED FOR RESUBMITTAL
2	01-28-10	REVISED PER OSHPD REVIEW
3	04-14-10	DETAIL 14 SHEET CHANGED
4	5-7-12	AS-BUILT RECORD DRAWING

MATERIAL LISTS

NO.	DATE	DESCRIPTION

HARRIS & HART CONTRACTORS & FABRICATORS — SHEET METAL

HARRIS & HART INC.
1759 WEST 1200 SOUTH
OGDEN, UTAH. 84404
PHONE: (801) 731-0577
FAX NO: (801) 731-0580
WEBSITE: WWW.HARRIS-HART.COM
E-MAIL TO DETAILING DEPARTMENT:
ttaylor@harris-hart.com

JOB NO: 9507 PAY ITEM:

PROJECT: IL 0702072-30
CHOC HOSPITAL
ORANGE, CA

TITLE: DA #003
RISER SUPPORT DETAILS
HVAC SYSTEM LAYOUT

REFERENCE DRAWINGS
ARCH: STRUCT: MECH:

BY:
DATE:
SCALE: 3/8" =1'-0"

DRAWING NO.
D-1