01-143769-CO

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kpff

01-143769 CO
6/21/01

MULTNOMAH COUNTY
DETENTION CENTER REMODEL
MECHANICAL PLATFORM

STRUCTURAL CALCULATIONS

KPFF PROJECT NO. 99666.02

JUNE 12, 2001

SUBMITTED TO:

KMD ARCHITECTS
421 SW SIXTH AVE., SUITE 1300
PORTLAND, OR 97204

SUBMITTED BY:

KPFF CONSULTING ENGINEERS
111 SW FIFTH AVENUE, SUITE 2500
PORTLAND, OR 97204-3628

kpff Consulting Engineers

June 12, 2001

Mr. Peter Alef
KMD Architects
421 SW Sixth Ave., Suite 1300
Portland, OR 97204

RE: Multnomah County Detention Center Remodel Mechanical Platform

Dear Peter:

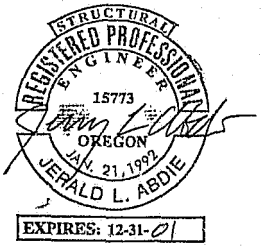
Attached please find calculation sheets 1 through 16, dated June 12, 2001, which verify the structural adequacy of the mechanical platform, as shown on drawings S0.1 through S6.1, dated June 8, 2001. Design is based on the requirements of the 1997 Uniform Building Code, as amended by the State of Oregon.

If you have any questions or need further information, please call.

Sincerely,

Aaron Stocek

Attachments



[AS/bd\99666.02-calc-6-12-01.doc]

kpff Consulting Engineers
Portland, Oregon

Project	MULT. CO. PET. CTR. REMODEL	By	STEELE
Location	PORTLAND, OR	Date	6/6/01
Client	KMD	Revised	
		Date	

Sheet No. 1
Job No. 99666.02

LOADS AND GENERAL INFORMATION

DEAD LOAD

DIAMOND PLANK	3.5 psf
STEEL BEAMS	10 psf
MISC.	1.5 psf
	15 psf

MECH. LOAD

80 psf @ MECHANICAL UNIT ONLY

LIVE LOAD

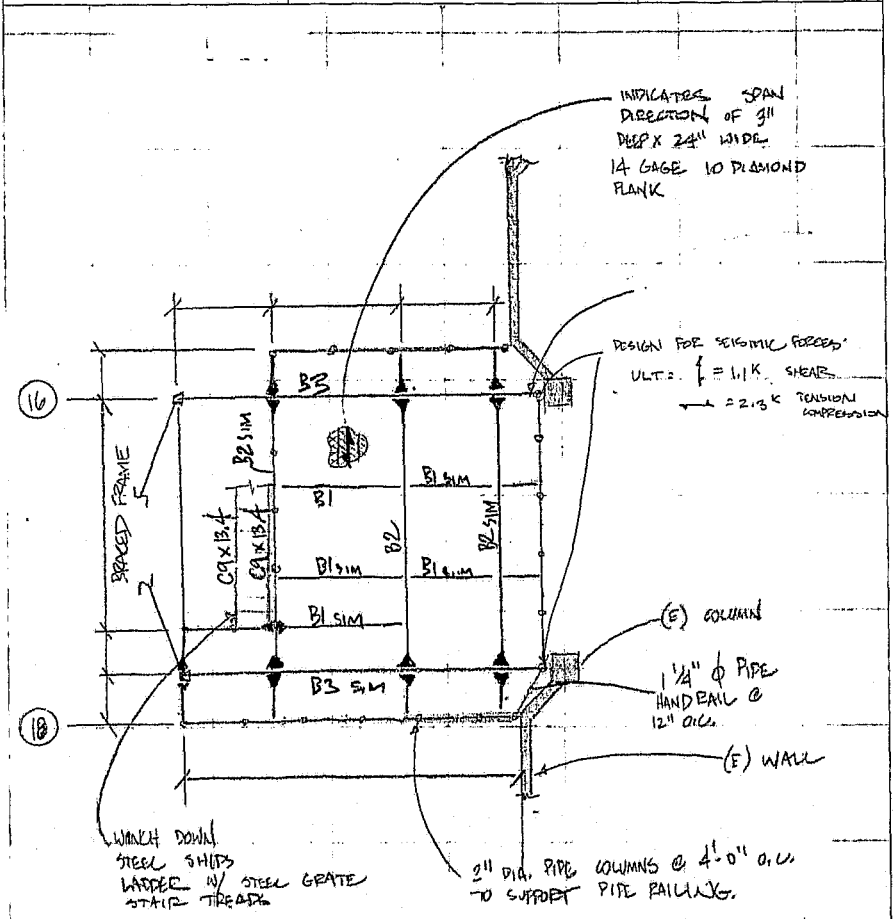
50 psf

DESIGN BASED UPON 1997 UBC w/ STATE OF OREGON AMENDMENTS.

SEISMIC ZONE 3

kpff Consulting Engineers
Portland, Oregon

Project: MULTNOMAH COUNTY MCDC REMODEL	By: STOCEK	Sheet No.: 2
Location: PORTLAND, OR	Date: 05/01	
Client:	Revised:	Job No.: 99066.02
	Date:	



MECHANICAL PLATFORM FRAMING KEY PLAN

kpff Consulting Engineers Portland, Oregon	Project MLDC REMODEL	By STOCKER	Sheet No. 3
	Location PORTLAND, OR	Date 06/01	
	Client KMD	Revised	Job No. 991666.02
		Date	

FRAMING DESIGN

B1:

$L = 9'-0"$

$W_{LL} = \frac{13'}{2}(15+50) = 423$ plf $P_x = .9^k$

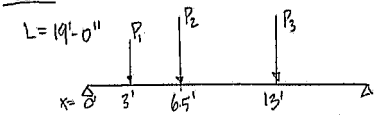
DL = 98 plf LL = 325 plf

REFERENCE ATTACHED COMPUTER OUTPUT

USE W10x12

B2:

$L = 19'-0"$



$P_1 = \frac{7}{2}(15+50) \times \frac{9'}{2} = 1024\#$ $P_{DL} = 298^\#$ $P_{LL} = 726^\#$

$P_2 = \frac{10'}{2}(15+50) \times \frac{9}{2} + \frac{13'}{2}(15+50) \times \frac{7}{2} = 3624\#$

$P_{DL} = 679^\#$ $P_{LL} = 2945^\#$

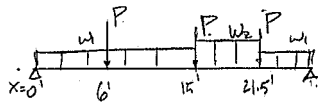
$P_3 = \frac{10'}{2}(15+50) \times \frac{9}{2} + \frac{10}{2}(15+50) \times \frac{7}{2} = 4063\#$

REFERENCE ATT. COMPUTER OUTPUT $P_{DL} = 780^\#$ $P_{LL} = 3283^\#$

USE W12x19

B3:

$L = 25'-0"$



$W_1 = (3.5' + 3')(15psf + 50psf) = 423$ plf

$W_2 = 6.5'(15+80) = 618$ plf

$P_{DL} = 1^k$ $P_L = 3.6^k$ REF. ATTACHED COMPUTER OUTPUT

USE W16x31

RAMSBEAM V2.0 - Gravity Beam Design
Licensed to: KPFF Consulting Engineers
Job: MCDC Remodel

Steel Code: AISC 9th Ed.

B1

SPAN INFORMATION: stocek
Beam Size (User Selected) = W10X12 Fy = 50.0 ksi
Total Beam Length (ft) = 9.00
Top Flange Not Braced By Decking

LOADS: Self Weight = 0.012 k/ft
Line Loads (k/ft):

Dist1	Dist2	DL1	DL2	Pre DL1	Pre DL2	LL1	LL2
0.00	9.00	0.098	0.098	0.000	0.000	0.325	0.325

SHEAR: Max V (kips) = 1.96 fv (ksi) = 1.04 Fv = 20.00

MOMENTS:

Span	Cond	Moment kip-ft	@ ft	Lb ft	Cb	Tension Flange fb	Tension Flange Fb	Comp Flange fb	Comp Flange Fb
Center	Max +	4.4	4.5	9.0	1.00	4.85	30.00	4.85	13.43
Controlling		4.4	4.5	9.0	1.00	---	---	4.85	13.43

REACTIONS (kips):

	Left	Right
DL reaction	0.50	0.50
Max + LL reaction	1.46	1.46
Max + total reaction	1.96	1.96

DEFLECTIONS:

Dead load (in)	at 4.50 ft =	-0.010	L/D =	10372
Live load (in)	at 4.50 ft =	-0.031	L/D =	3512
Total load (in)	at 4.50 ft =	-0.041	L/D =	2624

RAMSBEAM V2.0 - Gravity Beam Design
Licensed to: KPFF Consulting Engineers
Job: MCDC Remodel

Steel Code: AISC 9th Ed.

SPAN INFORMATION: stocek B2
Beam Size (User Selected) = W12X19 Fy = 50.0 ksi
Total Beam Length (ft) = 19.00
Top Flange Not Braced By Decking

LOADS: Self Weight = 0.019 k/ft
Point Loads (kips):

Dist	DL	Pre DL	LL	Flange Bracing Top	Bottom
3.00	0.24	0.00	0.79	Yes	No
6.50	0.68	0.00	2.94	Yes	No
13.00	0.78	0.00	3.28	Yes	No

SHEAR: Max V (kips) = 4.71 fv (ksi) = 1.65 Fv = 20.00

MOMENTS:

Span	Cond	Moment kip-ft	@ ft	Lb ft	Cb	Tension Flange fb	Fb	Comp Flange fb	Fb
Center	Max +	26.6	6.5	6.5	1.00	15.00	30.00	15.00	23.41
Controlling		26.6	6.5	6.5	1.00	---	---	15.00	23.41

REACTIONS (kips):

	Left	Right
DL reaction	1.07	0.98
Max + LL reaction	3.64	3.38
Max + total reaction	4.71	4.36

DEFLECTIONS:

Dead load (in)	at	9.50 ft =	-0.102	L/D = 2229
Live load (in)	at	9.50 ft =	-0.367	L/D = 621
Total load (in)	at	9.50 ft =	-0.470	L/D = 485

RAMSBEAM V2.0 - Gravity Beam Design
Licensed to: KPFF Consulting Engineers
Job: MCDC Remodel

Steel Code: AISC 9th Ed.

SPAN INFORMATION: stocek
Beam Size (Optimum) = W16X31 Fy = 50.0 ksi
Total Beam Length (ft) = 25.00
Top Flange Not Braced By Decking

LOADS: Self Weight = 0.031 k/ft
Point Loads (kips):

Dist	DL	Pre DL	LL	Flange Bracing Top	Bottom
6.00	1.00	0.00	3.60	Yes	No
15.00	1.00	0.00	3.60	Yes	No
21.50	1.00	0.00	3.60	Yes	No

Line Loads (k/ft):

Dist1	Dist2	DL1	DL2	Pre DL1	Pre DL2	LL1	LL2
6.00	15.00	0.098	0.098	0.000	0.000	0.325	0.325
21.50	25.00	0.098	0.098	0.000	0.000	0.325	0.325
15.00	21.50	0.098	0.098	0.000	0.000	0.520	0.520

SHEAR: Max V (kips) = 14.12 fv (ksi) = 3.42 Fv = 19.69

MOMENTS:

Span	Cond	Moment kip-ft	@ ft	Lb ft	Cb	Tension Flange fb	Tension Flange Fb	Comp Flange fb	Comp Flange Fb
Center	Max +	84.4	15.0	9.0	1.00	21.47	30.00	21.47	23.49
Controlling		84.4	15.0	9.0	1.00	---	---	21.47	23.49

REACTIONS (kips):

	Left	Right
DL reaction	2.40	3.24
Max + LL reaction	7.37	10.87
Max + total reaction	9.76	14.12

DEFLECTIONS:

Dead load (in)	at 12.75 ft =	-0.198	L/D =	1514
Live load (in)	at 12.75 ft =	-0.651	L/D =	461
Total load (in)	at 12.75 ft =	-0.849	L/D =	353

kpff Consulting Engineers, Portland, Oregon	Project: MCDC REMODEL	By: STOCK	Sheet No. 7
	Location: PORTLAND, OR	Date: 06/01	
	Client: KMD	Revised	Job No. 99666.02
		Date	

MOMENT CONNECTION DESIGN:

$M = 1040^{\#} \times 4' = 4160$ ft-lb.

$S_{x\,REQ'D} = \dfrac{4160 \times 12}{0.6(50)(1000)} = 1.7 \text{ in}^3$

USE W8x10

$T = C = \dfrac{4160 \text{ ft-lb} \times 12}{8''} = 6240^{\#}$

$F_t = 0.6 \times 50 = 30$ ksi

PL WIDTH
$b_f - (\frac{3}{16} + \frac{1}{16})2$
$4 - 0.5 = 3.5''$

$t_{REQ'D} = \dfrac{6.24^k}{30 \text{ ksi} \times 3.5''} = 0.06$

USE 1/4" PL

PL STRENGTH = $0.25''(3.5'')(30 \text{ ksi}) = 26^k$

$WELD_L$ REQ'D $= \dfrac{26^k}{0.707(\frac{3}{16})(0.3)(70)} = 9.4''$

6" LONG EA. SIDE
WELD EA. SIDE w/ 3/16

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Portland, Oregon

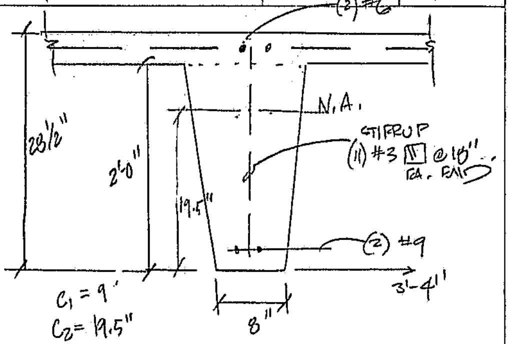
Project: MCDC REMODEL	By: STOCEK	Sheet No. 8	
Location: 48"	Date		
Client: X	Revised	Job No. 99600.0	
CHECK (E) PAN JOIST	Date		

L = 48.25'   d = 28½"

PAN JOIST

P = 149^K   f'c = 4000 psi @ 28 days

A = 408 in²



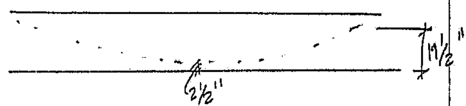
(E) DL:

SLAB = 56 psf — USE 60 psf

JOIST = 200 plf

W_{DL} = 60 × 4' + 200 = 440 plf

W_{LL} = 50 psf × 4' = 200 plf



A_1 = 48" × 4.5" = 216 in²

A_2 = 24 × 8 = 192 in²

A = 408 in²

N.A. = $\frac{216\,in^2(26.25\,in) + 192\,in^2(12")}{216 + 192}$ = 19.5"

$I_x = \left[48(4.5)^3/12 + 48(4.5)(6.75)^2\right] + \left[8"(4.5)^3/12 + 8(4.5)(2.25)^2\right] + \left[8(19.5)^3/12 + 8(19.5)(9.75)^2\right] = 30222\ in^4$

10206   243   19773

S_1 = 3358 in³ S_2 = 1550 in³ $r = \sqrt{\frac{I}{A}}$ ∴ r^2 = 74 in²

$\frac{P_{EFFECTIVE}}{P_{INITIAL}}$ = 0.7 – 0.9 ∴ 0.8

$P_{INITIAL} = \frac{P_{EFF.}}{0.8} = \frac{149^K}{0.8} = 186^K$

M_{TOTAL} = (440 plf + 200 plf) × 48.25 ft²/8 = 186.3 K-ft.

$M_{SELF-WEIGHT}$ = 440 plf × 48.25 ft²/8 = 128 K-ft.

ADDITIONAL POINT LOAD

DL = 3^K

LL = 9^K

SEISMIC = $\frac{2.3^K \times 13.33'}{19' \times 1.4}$ = 1.2^K

DIVIDE OVER (2) BEAMS

DL = 1.5^K

LL = 4.5^K

SEIS = 0.6^K

kpff Consulting Engineers
Portland, Oregon

Project	MULTI REMODEL	By	STOCKEL
Location	PORTLAND, OR	Date	06/01
Client	KMT	Revised	
		Date	

Sheet No. 9
Job No. 96666.02

STRESSES DUE TO P_i

$e = h = 19.5'' - 5'' = 14.5''$

$$f = \frac{-P_{in}}{A}\left[1 \pm \frac{e \cdot c}{r^2}\right]$$

$$f_1 = \frac{-180^k}{408in^2}\left[1 - \frac{(14.5)(9)}{74}\right] = 0.35 \text{ ksi} \checkmark$$

$$f_2 = \frac{-180^k}{408in^2}\left[1 + \frac{14.5(19.5)}{74}\right] = -2.2 \text{ ksi} \checkmark$$

STRESSES DUE TO $M_{SELF\ WT.}$

$$f = \frac{M_{S.W.} \times 12}{S}$$

$$f_1 = \frac{-123 k\text{-ft} \times 12}{3358} = -0.440 \text{ ksi} \checkmark$$

$$f_2 = \frac{123 \times 12}{1550} = 0.99 \text{ ksi} \checkmark$$

STRESSES DUE TO M_{TOTAL}

$$f_1 = \frac{-186.3 \times 12}{3358} = -0.671 \text{ ksi}$$

$$f_2 = \frac{186.3 \times 12}{1550} = 1.44 \text{ ksi}$$

STRESSES DUE TO $P_{EFF.}$

$$f_1 = 0.8 \times 0.35 = 0.280 \text{ ksi}$$

$$f_2 = 0.8 \times -2.2 = -1.76 \text{ ksi}$$

AT TRANSFER: P_i + $M_{SELF.\ WT.}$

$$f_1 = 0.35 - 0.440 = -0.11$$

$$f_2 = -2.2 + 0.99 = -1.21$$

$f_{ti} = 3\sqrt{f'_{ci}} = 3\sqrt{4000} = 189.7$ psi TENSION

$f_{ci} = 0.60 f'_{ci} = 0.60 \times 4000$ psi $= 2400$ psi

AT SERVICE:

$P_{EFF} + M_{LL}$

$$f_1 = 0.280 - 0.671 = -0.391 \text{ ksi}$$

$$f_2 = -1.76 + 1.44 = -0.36 \text{ ksi}$$

(E) GOOD

$f_{ts} = 6\sqrt{f'_c} = 379$ psi

$f_{cs} = 0.45 f'_c = 1800$ psi

kpff Consulting Engineers Portland, Oregon	Project MUDC REMODEL	By STOCEK	Sheet No. 10
	Location PORTLAND, OR	Date 06/01	
	Client KMD	Revised	Job No. 99666.02
		Date	

CHECK PT - JOIST W/ ADDED LOAD

$$M_{TOTAL} = (440 + 200)\times\frac{40.25^2}{8} + 6^K \times \frac{40.25'}{4}$$

$$= 186 + 72 = 258 \text{ K-ft.}$$

STRESSES DUE TO M_{TOTAL}:

$$f_1 = \frac{-258\times 12}{3358} = -.0922 \text{ ksi}$$

$$f_2 = \frac{258\times 12}{1550} = 2 \text{ ksi}$$

STRESSES DUE TO P_{EFF}:

$$f = \frac{P}{A}\left[1 - \frac{e\cdot c}{r^2}\right]$$

$$f_1 = \frac{-149^K}{408 in^2}\left[1 - \frac{14.5"(9")}{74 in^2}\right] = 0.28$$

$$f_2 = \frac{-149^K}{408 in^2}\left[1 + \frac{14.5"(19.5")}{74 in^2}\right] = -1.76 \text{ ksi}$$

AT SERVICE $P_{EFF} + M_L$

$$f_1 = 0.28 - 0.922 = -0.64 \text{ ksi}$$

$$f_2 = -1.76 + 2 = 0.24 \text{ ksi}$$

} GOOD

$$f_{ts} = 6\sqrt{f'_c} = 6\sqrt{4000} = 0.379 \text{ ksi}$$

$$f_{cs} = 0.45 f'_c = 0.45 \times 4000 = 1.8 \text{ ksi}$$

VERIFY ADEQUACY W/ PT DATA + REFERENCE ATTACHED COMPUTER OUTPUT

991006.02

```
*****************************************
*              ++PTDataPlus++           *
*                 V1.1-0116             *
*       Structural Data Incorporated    *
*         17292 Goldenwest Street       *
* Huntington Beach, CA 92647  714/841-9938 *
*****************************************
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Licensed to:
KPFF Consulting Engineers
707 S. W. Washington St., Suite 600
Portland, Oregon 97205-3523 503/227-3251

Section 1 - G E N E R A L I N P U T D A T A Sheet No._____

PROJECT NAME: MCDC REMODEL 06-07-2001
BEAM ID: Existing Beam
DATA FILE: d:\PTuser\STOCEK.PTD

BASIC GEOMETRY:	
Number of Spans	1
Left Cantilever	NO
Right Cantilever	NO
Number of Left End Spans	0
Number of Right End Spans	0
POST-TENSIONED TENDON DATA (UNBONDED, LOW RELAXATION):	
Minimum Tendon Cover at TOP	3.00 in
Minimum Tendon Cover at BOTTOM of Interior Spans	3.00 in
Minimum Tendon Cover at BOTTOM of End Spans	3.00 in
Tendon Bundle Diameter	2.00 in
Cross-Sectional Area of ONE Strand	0.153 in2
UNSTRESSED REINFORCING STEEL DATA:	
Rebar Cover at TOP	2.00 in
Rebar Cover at BOTTOM	2.00 in
Rebar Yield Stress	60.00 ksi
Maximum Longitudinal Bar Size	#9
Stirrup Size	#3
CONCRETE CRITERIA (* = Calculated Value):	
Maximum Flexural Stress at TOP - 6.00{SQR(f'c)}	379 psi
Maximum Flexural Stress at BOTTOM - 6.00{SQR(f'c)}	379 psi
Beam Concrete Strength	4000 psi
Beam Concrete Weight	150 pcf
Beam Modulus of Elasticity*	3834 ksi
Column Concrete Strength	4000 psi
Column Concrete Weight	150 pcf
Column Modulus of Elasticity*	3834 ksi
ADDITIONAL CRITERIA:	
Skipped Live Load	YES
Minimum Average Compressive Stress	250 psi
DL+LL/4 - UBC 2618(j)	YES
Ratio of Unreduced LL to Reduced LL	1.00

Top Columns Assumed NOT Present When Tendons are Stressed
Analysis Based Upon Constant Prestress Force
ACI 318-89 Section 18.8.3 included in analysis

Load Factors KDL/KLL/KW1/KW2	1.40/1.70/1.70/1.30
Load Factors KDW/KCOMB/KDL1/KLL1	0.90/0.75/1.40/1.70
Effective Tendon Stress LR/SR	175.0/162.0 ksi

KPFF Consulting Engineers
707 S. W. Washington St., Suite 600
Portland, Oregon 97205-3523
503/227-3251

**********PTData+{V1.1-0116}**********

Section 6 - C O N C R E T E L O A D S

SPAN 1 L = 48.50 ft

LOAD(kips/ft)	A(ft)	B(ft)
0.425	0.00	48.50

Section 7 - B E A M A N D C O L U M N M O M E N T S (ft-kips)

UNFACTORED BEAM DEAD AND BALANCED MOMENTS

SPAN	L	Dead Load M (x - ft)	R	Balanced Load L	M (x - ft)	R
1	0.00	220.80(22.63)	0.00	-0.55	-204.51(22.63)	-0.55

UNFACTORED BEAM LIVE LOAD MOMENTS

SPAN	L	Most Positive M (x - ft)	R	L	Most Negative M (x - ft)	R
1	0.00	58.55(22.63)	0.00	0.00	0.00(0.00)	0.00

BEAM SECONDARY (Unfactored)

SPAN	L	R
1	-0.00	-0.00

COLUMN (Factored)

JOINT	TOP	BOT
1	0.00	0.00
2	0.00	0.00

Section 8 - C O N C R E T E F L E X U R A L S T R E S S E S (ksi)

SPAN		Service Loads Tension (x)	Service Loads Compression (x)	Transfer of Prestress Tension (x)	Transfer of Prestress Compression (x)
1	T	0.333(9.70)	-0.631(22.63)	-0.020(22.63)	-0.424(0.00)
	B	0.216(22.63)	-0.436(9.70)	-0.431(0.00)	-1.312(22.63)

Section 9 - D E F L E C T I O N S (U N F A C T O R E D L O A D S)

SPAN	Dead + Balanced Loads DeltaDL (x) (in) (ft)	L/Delta	Live Loads DeltaLL (x) (in) (ft)	L/Delta
1	0.0100(22.63)	58411	0.2142(22.63)	2717

Section 10 - R E B A R R E Q U I R E M E N T S (in2)

SPAN		Factored Loads (%R= 0.0) As (x)	Factored Loads (%R= 0.0) A's (x)	DL+LL/4 (%R= 0) As (x)	DL+LL/4 (%R= 0) A's (x)
1	T	0.000(0.00)	0.000(0.00)	0.000(0.00)	0.000(0.00)
	B	0.328(22.63)	0.000(0.00)	1.840(22.63)	0.000(0.00)

**********PTData+{V1.1-0116}**********

SPAN		Factored Loads (%R= 6.7) As (x)	Factored Loads (%R= 6.7) A's (x)	DL+LL/4 (%R=10) As (x)	DL+LL/4 (%R=10) A's (x)
1	T	0.000(0.00)	0.000(0.00)	0.000(0.00)	0.000(0.00)
	B	0.328(22.63)	0.000(0.00)	1.840(22.63)	0.000(0.00)

SPAN		Factored Loads (%R=15.0) As (x)	Factored Loads (%R=15.0) A's (x)	DL+LL/4 (%R=15) As (x)	DL+LL/4 (%R=15) A's (x)
1	T	0.000(0.00)	0.000(0.00)	0.000(0.00)	0.000(0.00)
	B	0.328(22.63)	0.000(0.00)	1.840(22.63)	0.000(0.00)

Section 11 - R E B A R F O R A C I C O D E M I N I M U M S (in2)

SPAN		One-Way (ACI 18.9.2) As (x - ft)	Two-Way (ACI 18.9.3) As (x - ft)
1	T	0.000(0.00)	0.000(0.00)
	B	0.625(0.00)	0.000(0.00)

Section 12 - B E A M S H E A R D E S I G N

SPAN 1 L= 48.50ft

X Left	Vcn(kips)	Vcw(kips)	Vci(kips)	Av(in2/ft)	#3 @(in)	CODE

Use #3 @ 21.38in o/c for Span 1

Section 13 - C O L U M N D E S I G N L O A D S (F A C T O R E D)

	Maximum Axial Load			Maximum Moment		
	Axial	Column Moment		Axial	Column Moment	
	Load	Top	Bottom	Load	Top	Bottom
JOINT	kips	ft-kips	ft-kips	kips	ft-kips	ft-kips
1	28.95	0.00	0.00	28.95	0.00	0.00
2	28.95	0.00	0.00	28.95	0.00	0.00

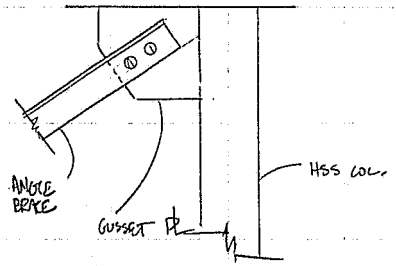
kpff Consulting Engineers
Portland, Oregon

Project	M. Co. MCDC BOOKING REMODEL	By	STEELE
Location	PORTLAND, OR	Date	02/01
Client	KMD	Revised	
		Date	

Sheet No. 15
Job No. 99666.02

MECHANICAL PLATFORM WEIGHT

WF BEAMS — 6^K
DIAMOND PLATE — 2^K
MECH. UNITS — 10^K
Σ = 18^K



DETERMINE F_p $a_p = 1.0$ $R_p = 3.0$

$F_p = 4.0 \times 0.30 \times 1.0 \times W = 1.44\,W$

$F_p = \frac{1.0 \times 0.30 \times 1.0}{3.0}\left(1 + 3\frac{0}{245'}\right) = 0.12\,W$

$F_{p\,MIN} = 0.7 \times 0.30 \times 1.0 \times W = 0.25\,W$

$\therefore F_p = 0.25 \times 18^K = 4.5^K$

FORCE TO BRACED FRAME = 2.3^K ULT.

h = 13' L = 19'-0" ← BAY SIZE

X-BRACE TENSION ONLY

LENGTH OF BRACE ≅ 25'

TRY (2) L4x4x1/4 r = 1.05 l/r = 131

l/r < 300 REQ'D FOR TENSION ONLY

HORIZONTAL FORCE = 18^K × 0.25 = 4.5^K/2 = 2.3^K

BRACE FORCE = 2.3^K × 23/19 = 2.9^K

P_t = 36 ksi × 3.88 in² = 140^K GOOD

BRACE CONNECTION: FORCE = .20 × A_1 = 2.2 × 2.8^K = 6.2^K

(2) 3/4" ϕ A307 THRU - .275 = 2 × 4.4 × 1.33 = 11.7^K

GUSSET PL

A_1 = 0.5 × 1.5" × 2 = 1.5 in² F_v = 0.3(Fu) = 11.4 ksi

f_v = 11.7^K / 1.5 = 7.8 ksi USE 1/2" GUSSET PL

kpff Consulting Engineers, Portland, Oregon			
Project: MCDC REMODEL	By: STOCEK	Sheet No. 16	
Location: PORTLAND	Date: 06/01		
Client: KMD	Revised:	Job No. 99666.02	
	Date:		

BEAM CONNECTION TO (E) COLUMN

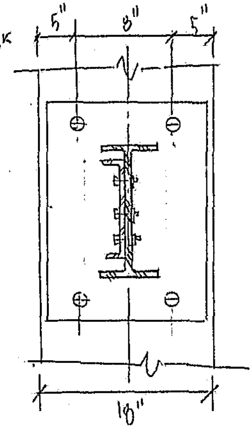
W18x40

$P_{TL} = 14.5^k$

$\frac{14.5^k}{4 \text{ BOLTS}} = 3.6^k$

$P_H = 1.15^k$

$P_R = 14.5^k$



MIN EDGE DIST = 10" x 0.33 = 3.3"
USE 5"

Vallow = 8000# x 0.6 = 4.8k/BOLT > 3.6 ✓

USE (4) 3/4" ϕ A307 THREADED RODS
w/ 9" EMBEDMENT AND ~~[illegible]~~
HILTI HY-150 EPOXY

CONNECTION 1:

$P_V = 14.5^k$ $P_H = \frac{2.3^k}{2} = 1.15^k / 1.4 = 820^{\#}$

WEAK AXIS BENDING = $820^{\#} \times 2\frac{1}{2}" = 2050$ in-lb.

$S_{YREQ'D} = \frac{2050}{1000 \times 0.6 \times 50} = 0.07 \text{ in}^3 < 0.962$

USE C9x13.4

(FILE)

CITY OF
PORTLAND, OREGON
OFFICE OF PLANNING AND DEVELOPMENT REVIEW
PO Box 8120
Portland, OR 97207-8120

MULTNOMAH COUNTY

STRUCTURAL CHECKSHEET
Commercial Building Permit

Application # : 01-143769-000-00-CO
Review Date.: July 30, 2001

'o:	APPLICANT	PETER ALEF KMD ARCHITECTS 421 SW SIXTH AVENUE SUITE 1300 PORTLAND OR 97204	Work: Fax:	503 221-1474 503 227-0762
rom:	Structural Engineer	Jed Sampson	Phone: Fax: e-Mail	503-823-7540 503 823-7692 sampsonj@ci.portland.or.us
c:	OWNER	MULTNOMAH COUNTY & PROPERTY MANAGEMENT 2505 SE 11TH AVE PORTLAND, OR 97202-1006		

City of Portland
APPROVED
SEP 11 2001

ROJECT INFORMATION

treet Address:	1120 SW 3RD AVE
escription of Work:	Interior demo and reconstruction of booking facility floor LL1 and construction of mechanical platform.

ased on the plans and specifications submitted, the following items appear to be missing or not in conformance with the regon Structural Specialty Code and / or other city, state, or federal requirements.

em #	Location on plans	Code Section	Clarification / Correction Required
1.			Complete and return the attached Special Inspection Form prior to issuance of the permit.
2.			Supply stamped structural calculations and details showing how the mechanical units are attached to the mechanical platform to resist code required horizontal and vertical loads.

STRUCTIONS

respond to this checksheet, come to Document Services (1900 SW Fourth Ave., 2nd floor) and update all four sets of the ginally submitted drawings. To update the drawings, you may either replace the original sheets with new sheets, or edit the ginally submitted sheets when corrections are of a minor nature and when approved by the Office of Planning and Development view. (Specific instructions for updating plans are posted in Document Services.)

ease complete the attached Checksheet Response Form and include it with your re-submittal. Notify Document Control Staff t you are submitting corrections for the Structural review. To ensure that the plan reviewer receives notification, verify that the nputer has been updated to show that the corrections were received.

ou have specific questions concerning this Checksheet, please call me at 503-823-7540. To check the status of your project, ease call (503) 823-7000 and select option 4. Your Plan Review Status will be faxed to you, so please be ready to provide a fax nber. If you don't have a fax number, you may dial (503) 823-7357 to request a Plan Review Status or visit Document Services.

Office of Planning and Development Review

City of Portland Special Inspections 1900 SW 4th Avenue, Suite 5000 Portland, OR 97201

Structural Special Inspection and Observation Program Checksheet

The architect or engineer of record shall prepare and submit a special inspection and structural observation program in accordance with UBC Section 106.3.5. The architect or engineer of record shall confirm that the special inspection and structural observations noted below are indicated on the plans. Major projects may require that a more complete program be prepared.

~ Please Note that a separate Soils Inspection Form may also be required ~

Instructions -- This Checksheet must be fully completed to obtain your permits

⇒ **Part B and Part C** (if indicated) must be completed by the Owner, Architect or Engineer.

⇒ **Part D** must be signed by the Owner, or Architect or Engineer acting as the owner's agent.

When complete, return to Document Services, attn: Special Inspections, or fax to (503) 823-5434.
The information on this form must be provided before your building permit can be issued.

Application # 01-143769-000-00-CO **Date:** July 30, 2001
Project Name: JUSTICE CENTER BOOKING FACILITY
Site Address: 1120 SW 3RD AVE
Architect of Record (Firm) _____ **Phone #** _____
Engineer of Record (Firm) _____ **Phone #** _____

The following special inspections and structural observations shall be performed according to the State Building Code and City of Portland Administrative Rules unless a program of inspections is submitted by the Engineer of Record and approved by the Plan Review Division.

PART A

[X] Anchors - Adhesive	[ ] Reinforced Concrete	[X] Structural Steel	[ ] Wood 5-Story Construction
[ ] Anchors - Cast-In-place	[ ] Prestressed Concrete	[ ] Str. Silicone Glazing	[ ] Fireproofing
[X] Anchors - Expansion	[ ] Shotcrete	[ ] Masonry fm =	
[ ] Special Cases:			

PART B Mandatory – If any box in PART A is checked, PART B must be completed
Indicate the City approved inspection agency to perform the special inspections noted in PART A above.

_____

PART C If box below is checked, PART C must also be completed
[ ] Structural Observation by Engineer of Record. Indicate stages at which structural observation is to occur:

PART D This Checksheet must be signed by the Owner, Architect or Engineer of Record
The owner hereby agrees to employ the special inspector, approved testing agency and/or engineer for the above noted special inspections and/or structural observation.

_____ Date _____
Signature of Owner or the Architect or Engineer acting as the Owner's Agent
(Please Note: Contractors are NOT authorized to sign)

Print Name _____ Phone _____

Firm _____ Plans Examiner: Jed Sampson

APPLICANT – COMPLETE PARTS B, C & D

Structural Checksheet with Special Inspections Response

Permit #: 01-143769-000-00-CO **Date:** _____

Customer name and phone number: _____

Note: *Please number each change in the '#' column. Use as many lines as necessary to describe your changes. Indicate which reviewer's checksheet you are responding to and the item your change addresses. If the item is not in response to a checksheet, write* **customer** *in the last column.*

#	Description of changes, revisions, additions, etc.	Checksheet and item #

(for office use only)

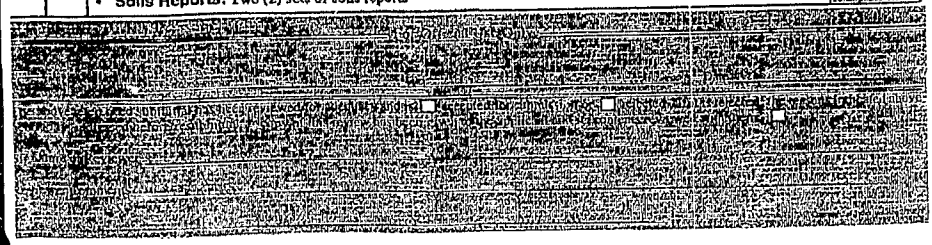
Commercial, Industrial and Multi-Family Submittal Requirements

Please indicate below the items being submitted for review. ***Please refer to the "Summary of Submittal Requirements - Commercial, Industrial and Multi-Family Dwellings" handout for a comprehensive list of requirements.*** *Failure to provide any of the required information at time of submittal will be cause for rejection of your application.* Applications will not be processed or routed for review until all plan review/processing fees have been paid.

Yes	N/A		Accepted
	NA	**Final Plat Approval:** Projects involving a land division or new subdivision are required to have final plat	
		Appeals: Have appeals been granted for this project? YES (NO) If Yes, copies must be attached	
		Phased Permits: Are you requesting phased permitting at time of permit submittal? YES (NO)	
Y		**Main Permit:** Four (4) complete sets of construction documents (design drawings for phased permits) that include:	
	NA	• **Site Plan:** A 100% complete site plan showing all related improvements	
	NA	• **Foundation Plans:** A foundation plan including all dimensions, construction details and references	
	NA	• **Elevations:** Building elevations	
Y		• **Floor Plans:** Floor plans (for phased permits see handout)	
Y		• **Sections:** Building sections (for phased permits see handout)	
Y		• **Mechanical, Electrical & Plumbing drawings:** (see handout)	
Y		• **Specifications:** Two (2) sets of complete construction specifications (for phased permits see handout)	
Y		• **Structural Calculations:** one (1) set	
	NA	• **Soils Report:** Two (2) sets of soils reports	

If you are also requesting a phased permit at the time of permit submittal, you must also provide

Yes	N/A		Accepted
		Partial Permit: Four (4) complete sets of construction documents for the scope of the partial permit (usually "Grading/Shoring Only", Structural Only", or "Foundation Only" permits) that include:	
		• **Site Plan:** A 100% complete site plan showing all related improvements	
		• **Construction Plans:** 100% construction plans showing all work to be done under partial permit	
		• **Mechanical, Electrical, Plumbing Drawings:** (see handout)	
		• **Specifications:** Two (2) sets of construction specifications for work to be covered under the partial permit	
		• **Structural Calculations:** One set of complete calculations for the work covered under the partial permit	
		• **Soils Reports:** Two (2) sets of soils reports	



Date: Application #: 01-143769 CO

Project Address: 1120 S.W. 2ND AVE. Project Valuation: $3,600,000

Legal Description: MULTNOMAH CO. JUSTICE CENTER Tax Account #:

Applicant's Name: PETER ALEF Phone #: 503-221-1474

Company Name: KMD ARCHITECTS Fax #: 503-227-0762

Address: 421 S.W. 6TH, SUITE 1300, PORTLAND, OR 97204

Contractor's Name: HOFFMAN CONST. CO. Phone #: 503-221-8811

Address: 805 S.W. BROADWAY, SUITE 2100, PDX, OR Fax #: 503-221-8934

Which of the following best describes the proposed work?

- ☐ Addition — How many square feet?_____
- ☐ Demolish structure
- ☐ Fire Damage Repair
- ☐ Move a structure — From what address?
- ☒ Alteration — *If change of use or occupancy:* From use/occupancy_____ To use/occupancy_____ *Seismic Upgrade:* Yes____ No X
- ☐ New Construction — How many square feet?_____ How many stories?_____ Number of structures_____

Briefly describe the proposed work (include location): SELECTIVE DEMOLITION AND RECONSTRUCTION OF BOOKING FLOOR LL1 (PORTION) AND CONSTRUCTION OF MECHANICAL PLATFORM

Which of the following best describes the use of the structure(s)? Check all that are applicable.

- ☐ Apartments/Condos
- ☐ Assembly
- ☐ Assisted Care Facility
- ☐ Business
- ☐ Education
- ☐ Factory/Industrial
- ☐ Hazardous
- ☐ Hotel
- ☒ Institutional
- ☐ Mercantile
- ☐ Row House (3 or more)
- ☐ Storage
- ☐ Miscellaneous (deck, driveway, fence, retaining wall, tank, tower, misc work)

Existing Structure:
What is the square footage of the existing structure? 460,144±
How many stories is the existing structure? 16 ABOVE GRADE, 2 BELOW GRADE

Plumbing Fixtures: 59 EXIST'G, 41 PROPOSED
How many new plumbing fixtures? MINUS 18

For Dwelling Units:
How many dwelling units are existing?_____
How many dwelling units will be demolished?_____
How many dwelling units will be added?_____

Floodplain:
Is the property in the floodplain?
Yes____ No X

Have any appeals been requested or approved for this project?
Yes____ No X *If yes, please attach a copy.*

Have any Land Use Reviews been requested or approved for this project?
Yes____ No X *If yes, please attach a copy.*

Residential/Commercial Submittal Approved

LIFE SAFETY CHECKLIST
Application No.: 01-143769-000-00-CO
IVR No.: 2106506

MULTNOMAH COUNTY MCDC BOOKING REMODEL
1120 SW 3rd AVE.
PORTLAND, OREGON 97405

ITEM #	LOCATION ON PLANS	Code Section	Clarification / Correction Required
1	D2.3, A2.2	112.1	All occupied areas called out on plans. Completed on reinserted drawings.
2	A2.2	1007.5.5	Door to stair No. 1 exits to an up run of stairs. Existing condition now documented on re-inserted plans.
3	A2.2	112.1	Drawing A2.2 shows floor finishes in each room. Section 09000-1 in the Specifications denotes floor, wall and ceiling finishes.
4	Floor Plans	112.1	Occupancy types and seperations are revised on re-inserted sheets.
5	ES2.2, A2.2	317	All locks on the exit path are controlled either by Building Central Control (existing at 2nd floor) or by local control at L112. Building Central Control can take control of all of the doors in the exit path during an emergency. All locking mechanisms in the exit path are either remotely operated motorized slider units or swing doors with remotely operated electric locks. All doors on the exit path are emergency keyable from both sides. See door and frame schedule Specification section 08000 and hardware schedules 08710 and 11192.
6	A2.2A, A2.2	323	All glazing is shown on the Interior Window Schedule (08000-3) and elevated on drawings 08000-5 through 08000-7. Glazing is called out on the Interior Window Schedule and further specified in Section 08800. All glass will conform to Code Section Appendix Chapter 3, 323.1.2 "Fixed security glazing set in noncombustible frames protected by an automatic sprinkler system equipped with listed quick-response sprinklers designed to wet completely the entire surface of any glazing. Other products may be approved under an alternate means of protection as specified under Section 104.2.8."
7	E2.2, Note 17	112.1	Stair access to mechanical platform is from the ground level only. Stair is always down when mechanical is being serviced. Similar to elevator access stair at floor 10 in the existing building.
8	M2.2	112.1	Supplimental unstamped coordination drawing showing mechanical ductwork and rated walls is provided as drawing M2.2A for coordination only.
9	A1.1	316.5	Elevator Lobby L132 has a sliding door assembly at both ends of the lobby.
10	A1.1	316.5	Sliding door L132 located between grids 14 & 15 @ 13' east of Grid 'H' is a detention electronically sliding door. The door assembly like almost all detention doors are not rated. The assembly is installed with additional sprinkler heads to provide coverage as noted in item 6 above. The balance of the wall is built to a ralting for contol of smoke and fire. In addition, the elevators in the elevator lobby are being fitted with smoke shutters to contol any smoke generated or transmitted in the elevator shaft.
11	A4.2	Code Guide	Drawing A1.1A is being provided showing egress path and lighting layout. This is informational only and not part of the Construction Documents.

KMD ARCHITECTS AND PLANNERS, PC
A PROFESSIONAL CORPORATION
421 SW SIXTH AVENUE, SUITE 1300 • PORTLAND, OR 97204 • 503.221.1474/FAX 503.227.0762

INFORMATION BULLETIN

PROJECT: Multnomah County MCDC Booking Remodel NO.: IB-2

CONTRACTOR: Hoffman Construction Company DATE: 15 August 2001

DATE OF CONTRACT: 31 May 2001 ARCHITECT'S JOB NO. 812-303

RFI REFERENCE: None

DESCRIPTION OF WORK TO BE PERFORMED:

IB-2.1 **Provide:** Change door swings on doors L131 and L132 as shown on drawing IB-2. Doors were approved in Habersham/Grand Openings shop drawing, items No. 30 & 31.

Door L131 changes from LH to RH swing. Hardware stays the same.

Door L132 changes from RH to LH with the door operator changing opening directions. Opener remains on Waiting area L124 side.

■ Referenced Drawings: A2.2 & A2.2A
■ Attached Drawings: IB-2

If above work results in a change in cost or time to the Contract, advise Architect within 5 work days.

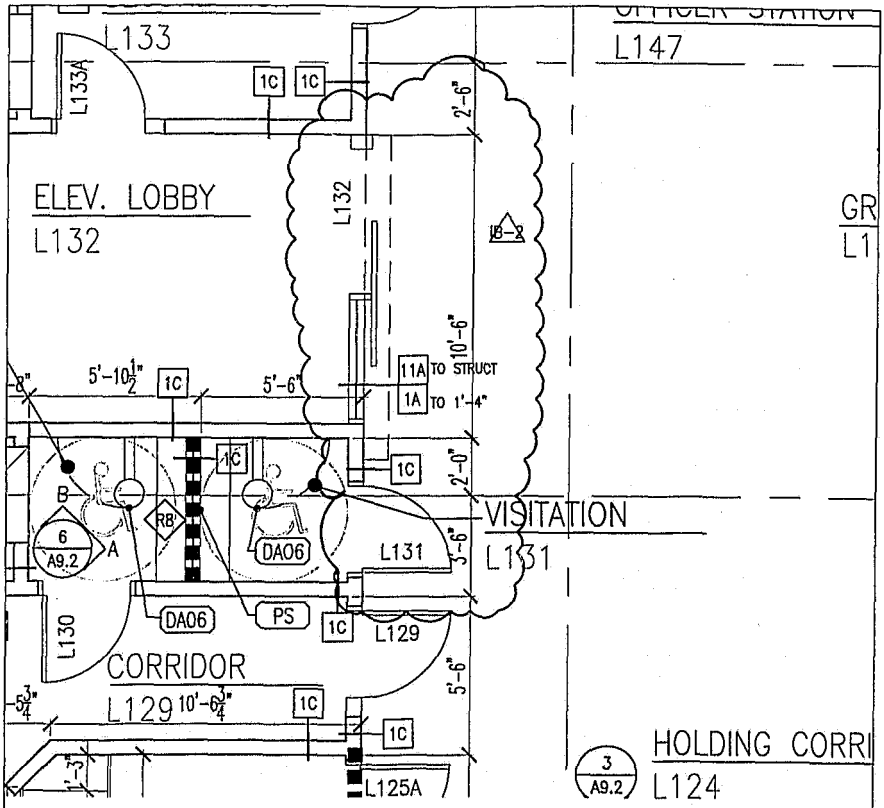
COPIES TO:

- ■ MCSO ..... Captain Ronald Bishop, Multnomah County Sheriff's Office
- ■ PROJECT REP ..... Douglas Nelson, Vickers/Foster & Associates
- ■ AGENCY ..... OPDR
- □ AGENCY .....
- ■ CONTRACTOR ..... Cary Bubenik, Hoffman Construction

CONSULTANTS:

- □ STRUCTURAL .....
- □ CIVIL .....
- □ ELECTRICAL .....
- □ MECHANICAL .....
- □ OTHER .....

SIGNED: _____
Peter Alef, Project Architect



1 DOOR I131 & I132 PLAN REVISIONS

SCALE 1/4" = 1'-0"

TITLE: DOOR L131 AND L132 REVISIONS	DATE: 15 AUG 01
KMD ARCHITECTS AND PLANNERS A PROFESSIONAL CORPORATION 421 SW Sixth Avenue, Suite 1300 Portland, Oregon 97204 (503) 221-1474 FAX: (503) 227-0762	PROJECT: MULTNOMAH COUNTY MCDC BOOKING REMODEL 1120 SW 2nd AVE., PORTLAND, OREGON
	JOB No: 812-303
	SHEET NO: IB-2

KMD ARCHITECTS AND PLANNERS, PC
A PROFESSIONAL CORPORATION
421 SW SIXTH AVENUE, SUITE 1300 • PORTLAND, OR 97204 • 503.221.1474/FAX 503.227.0762

INFORMATION BULLETIN

PROJECT: Multnomah County MCDC Booking Remodel

NO.: IB-1

CONTRACTOR: Hoffman Construction Company

DATE: 7 August 2001

DATE OF CONTRACT: 31 May 2001

ARCHITECT'S JOB NO. 812-303

RFI REFERENCE: None, MCSO Request

DESCRIPTION OF WORK TO BE PERFORMED:

IB-1.1 **Provide:** Elevated wood platform, constructed from Douglas Fir, 2 by framing , 3/4" plywood flooring, with stair, skirt and toe kick. An 1 ½" nominal diameter steel pipe handrail shall be provided at the existing concrete column and a steel pipe handrail/ guardrail shall be constructed at the North side facing the Records area. Provide an extra pipe post to accept the handrail extension from the ramp at Room L113. The elevated platform and stairs shall be carpeted to match the balance of the Records area.

Revise: Interior elevation 4/A9.1 per 2/IB-1.2

■ Referenced Drawings: A2.2A & 4/A9.1
■ Attached Drawings: IB-1.1, IB 1.2, & IB-1.3

If above work results in a change in cost or time to the Contract, advise Architect within 5 work days.

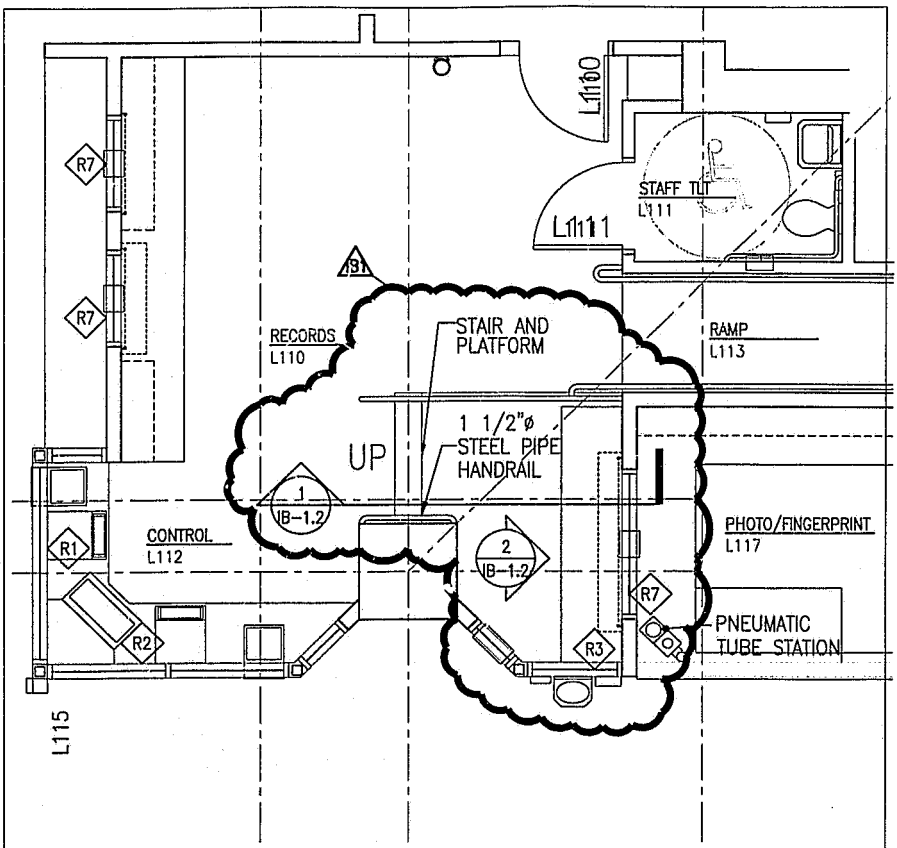
COPIES TO:

■ MCSO ..... Captain Ronald Bishop, Multnomah County Sheriff's Office
■ PROJECT REP ..... Douglas Nelson, Vickers/Foster & Associates
☐ AGENCY .....
☐ AGENCY .....
■ CONTRACTOR ..... Cary Bubenik, Hoffman Construction

CONSULTANTS:

☐ STRUCTURAL .....
☐ CIVIL .....
☐ ELECTRICAL .....
☐ MECHANICAL .....
☐ OTHER .....

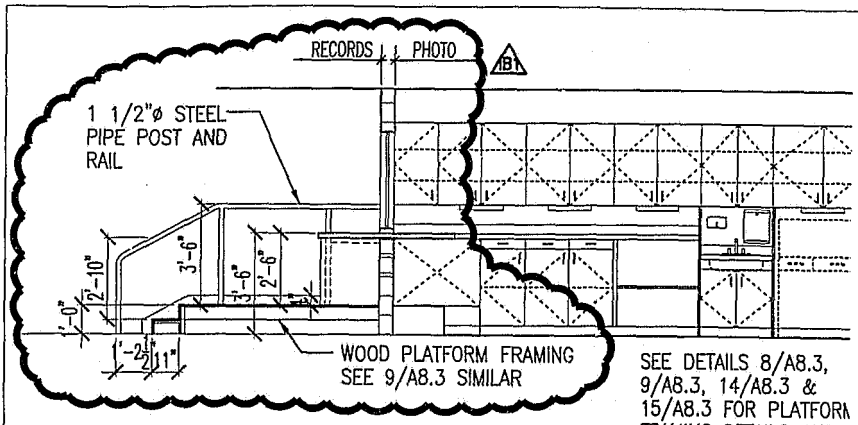
SIGNED: _____
Peter Alef, Project Architect



1 PARTIAL PLAN RECORDS L110

SCALE 1/4" = 1'-0"

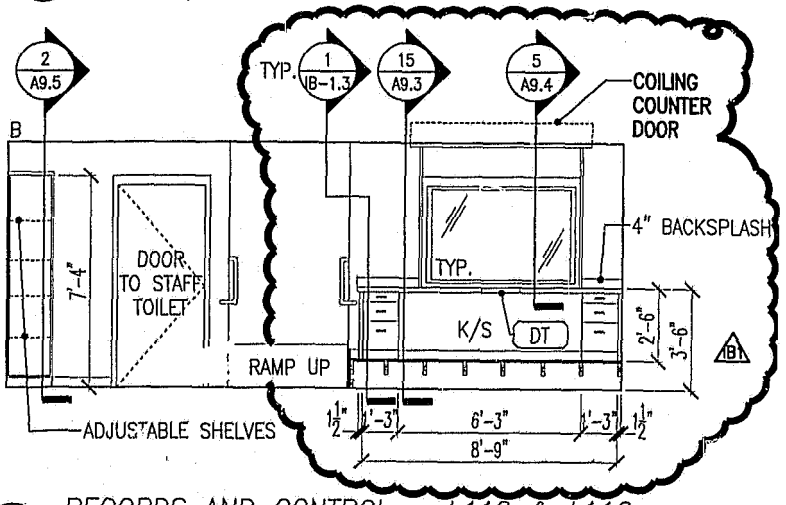
TITLE: RECORDS		DATE: 7 AUG. 01
KMD ARCHITECTS AND PLANNERS A PROFESSIONAL CORPORATION 421 SW Sixth Avenue, Suite 1300 Portland, Oregon 97204 (503) 221-1474 FAX: (503) 227-0762	PROJECT: MULTNOMAH COUNTY MCDC BOOKING REMODEL PORTLAND, OREGON	JOB No: 812-303 SHEET NO: IB-1.1



SEE DETAILS 8/A8.3, 9/A8.3, 14/A8.3 & 15/A8.3 FOR PLATFORM FRAMING DETAILS AND HANDRAIL DETAILS

1 PARTIAL SECTION RECORDS L110

SCALE 1/4" = 1'-0"

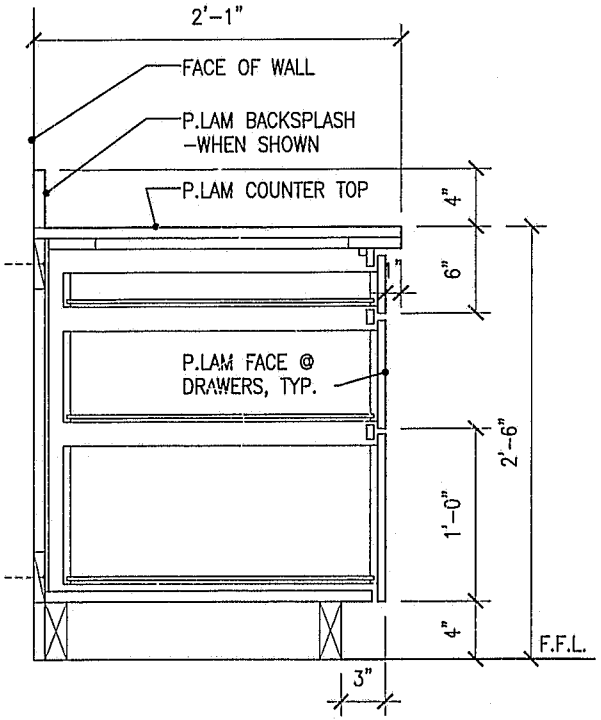


2 RECORDS AND CONTROL – L110 & L112

SCALE 1/4" = 1'-0"

TITLE: RECORDS ELEVATIONS		DATE: 7 AUG. 01
KMD ARCHITECTS AND PLANNERS A PROFESSIONAL CORPORATION 421 SW Sixth Avenue, Suite 1300 Portland, Oregon 97204 (503) 221-1474 FAX: (503) 227-0762	PROJECT: MULTNOMAH COUNTY MCDC BOOKING REMODEL PORTLAND, OREGON	JOB No: 812-303 SHEET NO: IB-1.2

Records



1 BASE CABINET W/ DRAWERS

SCALE 1 1/2" = 1'-0"

TITLE: RECORDS BASE CABINET		DATE: 7 AUG. 01
KMD ARCHITECTS AND PLANNERS A PROFESSIONAL CORPORATION 621 SW Sixth Avenue, Suite 1300 Portland, Oregon 97204 (503) 221-1474 FAX: (503) 227-0762	PROJECT: MULTNOMAH COUNTY MCDC BOOKING REMODEL PORTLAND, OREGON	JOB No: 812-303 SHEET NO: IB-1.3

Records