9 EQUAL SPACES @ 28'-0" = 252'-0"

4 EQUAL SPACES @ 25'-4" O.C. = 93'-4"

BUILDING DESIGN LOADS

BUILDING AREAS ARE DESIGNED FOR THE FOLLOWING LIVE LOADS IN ADDITION TO DEAD & EQUIPMENT LOADS

1. ROOF LIVE LOADS - 20 lbs/□'
2. SECOND FLOOR LIVE LOADS - 100 lbs/□' except as noted - see loading chart.
3. GROUND FLOOR - 150 lbs/□' " " " " "
4. SECOND FLOOR OFFICE ROOF - 30 lbs/□' " " " " "
5. MECH EQUIP SLAB OVER GROUND FLOOR OFFICE - 200 lbs/□' " " " " "
6. WIND LOADS (HORIZONTAL)
   - 0'-30' - 30 lbs/□'
   - 30'-50' - 40 lbs/□'

(REFER TO GENERAL NOTES DRAW'G. S-24-1 & S-24-5)

10	9	8	7	6	5	4	3	2	← COL. LINE	
100	100	100	100	100	100	100	200	100		A
100	100	100	100	100	100	100	200	100		B
200	OPEN	OPEN	OPEN	20	20	200	200	100		C
200	OPEN	OPEN	OPEN	20	20	100	200	100		D
										E

SECOND FLOOR LOADING CHART

10	9	8	7	6	5	4	3	2	1	← COL. LINE
150	150	150	150	150	150	150	150	150		A
250	150	250	250	250	250	250	250	250		B
150	150	150	150	150	150	150	150	150		C
150	150	150	150	150	150	150	150	150		D
										E

GROUND FLOOR LOADING CHART

NUMBERS INDICATE LIVE LOADS IN lbs/□'

SECOND FLOOR FRAMING PLAN

TOP OF STEEL ELEV. 17'-7" UNLESS NOTED

SCALE 1/8" = 1'-0"

STANDARD WELDED BAR GRATING W/ 3/4"x1/8 BEARING BARS @ 15/16" O.C. & CROSS BARS @ 4" O.C. GALVANIZED

OPTION #3

NEW 17" Φ PENETRATION
FILL EXISTING PENETRATION
EXISTING PENETRATION TO BE FILLED. SEE DETAIL TYP.
FILL EXISTING PENETRATION
NEW 5" Φ PENETRATION
NEW 25" Φ PENETRATION SEE DETAIL, TYP.
FOR CRANE PIT FALL PROTECTION SEE
SEE FOR FRAMING OVER THIS AREA AT ELEV. 31'-9"
FOR FRAMING UNDER THIS AREA SEE
REMOVE ONE SECTION OF EXISTING RAIL'S HORIZONTALS, ⊛ GATE
NEW HANDRAIL SPLICE HORIZONTAL INTO EXISTING HANDRAIL AT EACH END.
L4x4x¼ BRACING @ 4.9 O.C. MAX
FENCE-GATE
PROVIDE CUT OUTS IN BENT PL AND GRATE AT EXISTING PIPES, TYP.
SEE ENLARGED PLAN OF THIS AREA SEE
SEE SHEEET S-24-6A FOR ADDITIONAL STRUCTURAL ITEMS.
EXISTING CATWALK
NEW HANDRAIL SPLICE HORIZONTAL INTO EXISTING HANDRAIL AT EACH END.
8' CHAIN LINK FENCE AROUND MEZZANINE PERIMETER
FENCE-GATE
REMOVE ONE SECTION OF EXISTING RAIL'S HORIZONTALS, ⊛ GATE
NEW 14½" Φ PENETRATION
NOTE: ALL GRATING (EX-CEPT TOG EL 10'-11½") TO BE 1⅛" BEARING BARS @ 1⅞" SPCNG W/CROSS BARS @ 4" O.C.
TOG. EL 14'-2"
TOG. EL 9'-0"
TOP OF GRATING EL 18'-0"
TYP. HR 4E54 6G32
DOWN
C6X8.2 AT TOP OF 18WF70
C8X11.5 4x4 STEEL TUBE
SECTION @ GRATING
W14x99
HSS
18WF50
18WF60
18WF45
18WF55
18WF64
18WF70
18WF77 Y/(1) END HAUNCH (A-441 STL)
18WF64 Y/END HAUNCH
18WF77 Y/(1) END HAUNCH
14WF78
14WF87
14WF57
14WF45
14WF30
12WF27
16WF36
16WF40
16WF50
W16x36
W14x30
W14x80
W14x90
W16x89
W16x99
12B16.5
14J5
14J8
6G8.2(6#)
6G32(6#)
4E54(4#)
6B12
10E15.3
10E18
10E21
10E33
L3x2½x¼ (4"G") UNLESS NOTED
L5x2½x5/16" UNLESS NOTED
t SPACE HEATER
HANDRAIL
LADDER
OPEN
DOWN
DOOR
NO GRATE
STAIRWAY NO.1
3X3 TUBE
6WF15
6WF20
6WF25
6WF35
6WF45
6WF55
6WF65
W18x55 (FV)
W18x45 (FV)
W18x50
W16x31
W12x19
W12x26
EXISTING W18x70 (FV)
EXISTING W18x70 (FV)
EXISTING W18x70 (FV)
EXISTING W18x70 (FV)
PL ¼ (CONT)
STIFF PL ¼ @ 24" O.C.
PL ½ (CONT.)
STIFF PL ¼ @ 24" O.C.
PL ½ ANCHOR BOLT
PL ½ BASE PL ¼ GROUT
CONC. SLAB
EXPANSION SHIELD
3½"x3½" TUBE COL W/ ¼" WALLS
PIPE COL
STIFF PL ¼" @ 24" O.C. TYP.
6"x3⅜"x9'-0" PL WELDED TO BOTTOM OF BEAM.
3x3 TUBE W/¼ WALLS
CORNER
INTERMEDIATE BASE PLATE DETAIL
SCALE: 1½"=1'-0"
FOR BUS DUCT SUPPORT FRAMING SEE
ALL FLOOR PENETRATIONS SPECIFIED HEREIN IS DEPENDANT UPON MECHANICAL EQUIPMENT SELECTED. CONTRACTOR SHALL VERIFY SIZE AND LOCATION OF ALL WORK PRIOR TO PROCEDING.
SEE SHEET M-24-233 FOR LOCATION OF CHILLER.
6 EQUAL SPA. @ 4'-8" (JOIST SPACING)
14 WF 78
14 B22 (-2½)
w/ 9"x⅜" PL OUTSIDE (4 PL)
HORIZ. BRIDGING (TOP & BOT.)
10 WF 33 (-2½)
TYP. SPACING-BOTT. FLG. BRACING
7'-0" 7'-0" 7'-0" 7'-0"

SECTION @ GRATING

1¼" REMOVABLE POST
1½" x 5" SLEEVE
2-1 1/16" Φ HOLES
GA. 3⅜" EA. END FOR LIFTING.
BAR 1¼" x ¼"
1¼" x 3/16" STD. GALV. BAR GRATING
L 3x2x¼
11" MAX.
SLAB
8WF17
10WF21
12WF27 (REMOVABLE)
18WF70

SECTION

SCALE 1½" = 1'-0"

STD. GALV. GRATING - (SECT. 3) (OMIT GRATING FOR SECT. 3")
L 3x2x¼ (CONT)
PL ¼ (CONT.)
STIFF PL ¼ @ 24" O.C.
18WF

SECTION

SCALE 1½" = 1'-0"

SAME A SECT. 3 EXCEPT OMIT GALV. GRATING.

W18x15
PL ¼ (CONT) STIFF PL ¼ @ 24 o.c.
18WF64
TYP.

SECTION

SCALE 1½" = 1'-0"

3½"x3½" TUBE COL W/ ¼" WALLS
CONC. SLAB
8½"x7½" PL
PL ¼ ANCHOR BOLT
PL ½ BASE PL ¼ GROUT
EXPANSION SHIELD
12B16.5
18WF

SECTION

SCALE 1½" = 1'-0"

STIFF ¼" PL @ 24" O.C.
TYP.

SECTION

SCALE 1½" = 1'-0"

12B16.5 T.O.S. ELEV. 31'-9"
PL 4⅝" x 1½" x 0'-9½"
PL 8½" x ½" x 0'-8"
PIPE COL
32" STD
GRATE HIPERSECTIONS

GRATE GUARD DETAIL

GRATE GUARD PL 2x2x¼
GRATE HIPERSECTIONS

OFFICE ROOF FRAMING PLAN

TOP OF STEEL ELEV. 31'-9" UNLESS NOTED

SCALE ⅛" = 1'-0"

7'-9" OR 7'-10"
5'-10"
ROOF PLAN 2ND. FL. PLAN

SECTION

SCALE 1" = 1'-0"

2 X 2 X 3/16 L
TYP.

STATE OF TEXAS
TODD M. SPECK
86389
LICENSED PROFESSIONAL ENGINEER
2-10-11

OTHON CONSULTING ENGINEERS
F-1471 HOUSTON • AUSTIN • DALLAS

REVISION	DATE	DESCRIPTION
1	2/10/11	MISCELLANEOUS CHANGES
0	9/24/10	ISSUED FOR CONSTRUCTION

SIGNATURES		DATE
DR.	ENG	
CH	APPR	

NATIONAL AERONAUTICS & SPACE ADMINISTRATION
LYNDON B. JOHNSON SPACE CENTER HOUSTON, TEXAS

BUILDING 24

SECOND FLOOR FRAMING PLANS & DETAILS

PROJECT NO.
PROJECT ID
CODE IDENT. NO. 21350
SIZE F
SHEET NO. ___ OF ___
DWG NO. SD-24-9

REV
DISCP
PE
APPR

$DATE$ $FILE$ $TIME$ $USER$ $FILE$$

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