

STRUCTURAL GENERAL NOTES:

DESIGN CRITERIA

1. DESIGN LIVE LOADS ARE IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE, 2009 EDITION, WITH THE FOLLOWING MINIMUM CRITERIA:
- FLOOR LOADS:**
- | OCCUPANCY OR USE: | LIVE LOAD: | CONCENTRATED LOAD: |
|--------------------------------------|------------|--------------------|
| FLOORS (UNLESS NOTED OTHERWISE)..... | 250 p.s.f. | 8000 lbs. |
| TRUCK BAY..... | HS20-44 | |
- SNOW LOADS:**
- | | |
|---|-----------|
| ROOF DESIGN SNOW LOAD, P _f (NON-REDUCIBLE) | 30 p.s.f. |
| EXPOSURE FACTOR, C _e | 1.0 |
| IMPORTANCE FACTOR, I _s | 1.1 |
| THERMAL FACTOR, C _t | 1.0 |
| GROUND SNOW LOAD, P _g | 20 p.s.f. |
- SEISMIC LOADS:**
- | | |
|--|---|
| IMPORTANCE FACTOR, I _e | 1.25 |
| MAPPED SPECTRAL RESPONSE ACCELERATIONS: | |
| S _s | 0.185 |
| S ₁ | 0.059 |
| SITE CLASS | D |
| SPECTRAL RESPONSE COEFFICIENTS: | |
| S _{ps} | 0.197 |
| S _{d1} | 0.094 |
| SEISMIC DESIGN CATEGORY | B |
| BASIC SEISMIC-FORCE-RESISTING SYSTEMS: ORDINARY STEEL MOMENT FRAME | |
| DESIGN BASE SHEAR: | BY PRE-ENGINEERED METAL BUILDING MANUFACTURER |
| RESPONSE MODIFICATION FACTOR, R: | 3.5 |
| ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE PROCEDURE | |
- WIND LOADS:**
- | | |
|---|------------|
| BASIC WIND SPEED (3-SECOND GUST): | 100 m.p.h. |
| WIND EXPOSURE | C |
| IMPORTANCE FACTOR, I _w | 1.15 |
| INTERNAL PRESSURE COEFFICIENT, GC _{pi} | ±0.18 |
- FLOOD LOADS:**
- NOT IN FLOOD HAZARD ZONE

2. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE THE LOCATION OF MECHANICAL OPENINGS, FLOOR DRAINS, INSERTS, DEPRESSIONS, BURIED CABLES AND UTILITIES, ETC. WITH ARCHITECTURAL, CIVIL, MECHANICAL AND ELECTRICAL DRAWINGS.
3. VERIFY ALL DIMENSIONS WITH ARCHITECTURAL DRAWINGS. NOTIFY ENGINEER OF DISCREPANCIES. WRITTEN DIMENSIONS TAKE PRECEDENCE OVER SCALED DIMENSIONS.

SOILS AND FOUNDATIONS

1. FOUNDATION DESIGN IS IN ACCORDANCE WITH THE SOIL REPORT BY HEPWORTH-PAWLAK GEOTECHNICAL, INC, NUMBER 308121B, DATED MARCH 4, 2009.
2. DESIGN OF FOOTINGS AND WALLS IS BASED ON FOLLOWING CRITERIA:
- | | |
|--|--------------|
| MAXIMUM ALLOWABLE SOIL BEARING PRESSURE | 2,500 p.s.f. |
| EQUIVALENT FLUID PRESSURE FOR RETAINING (GRANULAR NON-EXPANSIVE) AT REST | 65 p.c.f. |
3. SOIL BENEATH FOOTING SHALL BE 4 FEET OF GRANNULAR NONEXPANSIVE STRUCTURAL FILL CONTACTED IN ACCORDANCE WITH THE SOILS REPORT AND SPECIFICATIONS WITH MINIMUM DENSITY AS FOLLOWS:
- FOOTING: 100% OF STANDARD PROCTOR, ASTM D698.
4. SOIL BENEATH SLABS-ON-GRADE SHALL BE 4 FEET OF GRANNULAR, NON-EXPANSIVE STRUCTURAL FILL COMPACTED IN ACCORDANCE WITH THE SOILS REPORT AND SPECIFICATIONS WITH MINIMUM DENSITY AS FOLLOWS:
- SLABS-ON-GRADE: 95% OF STANDARD PROCTOR, ASTM D698.
5. A REPRESENTATIVE OF THE SOILS ENGINEER SHALL INSPECT THE OPEN EXCAVATION TO DETERMINE THAT THE SOIL TYPE AND CONDITIONS ARE CONSISTENT WITH DESIGN CRITERIA OF THE SOILS REPORT. IF THE SOIL PROPERTIES ARE FOUND TO BE DIFFERENT FROM THIS CRITERIA, THEN THE ENGINEER SHALL BE PROMPTLY NOTIFIED SO THAT THE FOUNDATION DESIGN MAY BE REVIEWED.
6. THE FOUNDATION HAS BEEN DESIGNED FOR STRUCTURAL LOADINGS FROM FRAME REACTIONS SHOWN BELOW. MCA STRUCTURAL ENGINEERS INC. IS RESPONSIBLE FOR THE FOUNDATION DESIGN ONLY. BASED ON THESE LOADINGS. THE GENERAL CONTRACTOR SHALL VERIFY THAT THE FINAL METAL BUILDING LOADINGS MATCH THOSE SHOWN IN THE TABLE ON THIS SHEET. IF THE LOADINGS SHOWN DIFFER FROM THE FINAL METAL BUILDING LOADINGS, THE ENGINEER SHALL BE PROMPTLY NOTIFIED SO THAT THE FOUNDATION DESIGN MAY BE REVIEWED. THE PRE-ENGINEERED BUILDING MANUFACTURER IS RESPONSIBLE FOR THE SUPERSTRUCTURE DESIGN FOR LIVE, SNOW, WIND AND SEISMIC LOADS IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE, 2009 EDITION.

PRE-ENGINEERED METAL BUILDING PRELIMINARY FRAME REACTIONS. SEE NOTE NO. 6			
COLUMN LOCATION	MAXIMUM HORIZONTAL REACTION (KIPS)	MAXIMUM VERTICAL REACTION (KIPS)	MINIMUM VERTICAL REACTION (KIPS)
A-1, A-5	4.1	8.5	-3.1
B-1, B-5	4.1	8.5	-3.1
C-1, C-5	19.3	37.4	-4.7
D-1, D-5	4.8	10.1	-3.9
A-2, A-4	5.1	7.8	-3.9
D-3	10.1	17.5	-9.0
B-2, B-4	5.1	7.8	-3.9

7. THE GENERAL CONTRACTOR SHALL COORDINATE ANCHOR BOLT LOCATIONS WITH THE FINAL METAL BUILDING DESIGN DRAWINGS.

CONCRETE:

1. ALL CONCRETE DESIGN, MATERIALS AND CONSTRUCTION SHALL CONFORM TO ACI STANDARD 318-08, THE INTERNATIONAL BUILDING CODE, 2009 EDITION, THE CRSI MANUAL OF STANDARD PRACTICE (CURRENT EDITION) AND THE PROJECT SPECIFICATIONS.
2. MATERIAL SPECIFICATIONS:
- | | |
|---------------------------------|-------------------|
| REINFORCING BARS | ASTM A615, GR. 60 |
| WELDED WIRE FABRIC | ASTM A185 |
| REINFORCING BARS (WELDED) | ASTM A706, GR. 60 |
3. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH IN 28 DAYS AS FOLLOWS:
- A. GENERAL STRUCTURAL CONCRETE
- | | | |
|--|-------------|------------------|
| FOOTING & STEM WALLS | 4000 p.s.i. | CEMENT TYPE I/II |
| SLABS-ON-GRADE | 4000 p.s.i. | CEMENT TYPE I/II |
| (WITH 1.5 lbs OF FIBERMESH PER CUBIC YARD) | | |
4. REINFORCEMENT SHALL BE DETAILED IN ACCORDANCE WITH THE ACI DETAILING MANUAL, LATEST EDITION. FORMWORK SHALL BE DESIGNED, ERECTED AND REMOVED IN ACCORDANCE WITH THE SPECIFICATIONS.
5. REINFORCEMENT SHALL BE PLACED SO THAT THE FOLLOWING MINIMUM CONCRETE PROTECTION IS PROVIDED, UNLESS NOTED OTHERWISE.
- | | |
|---|--------------|
| CONCRETE SURFACES POURED AGAINST GROUND | 3" CLEAR |
| FORMED SURFACES EXPOSED TO GROUND OR WEATHER | |
| BARS #6 AND LARGER | 2" CLEAR |
| BARS #5 AND SMALLER..... | 1-1/2" CLEAR |
| SLABS-ON-GRADE | AT CENTERS |
6. REINFORCEMENT SHALL BE SECURELY TIED AND SHALL BE SUPPORTED WITH METAL CHAIRS OR HUNG FROM FORMS.
7. CONTINUOUS HORIZONTAL BARS AND CORNER BARS IN FOOTINGS, STEM WALLS AND SLABS SHALL BE LAPPED AS FOLLOWS AT SPLICES. SPLICE LOCATIONS SHALL BE STAGGERED WHERE POSSIBLE.
- | | | |
|-------------------------------|--|---------------------|
| CONCRETE COMPRESSIVE STRENGTH | No. 6 BARS & SMALLER | No. 7 BARS & LARGER |
| 4000 p.s.i | 38 d _b | 48 d _b |
| | (WHERE d _b = BAR DIAMETERS) | |
8. ADDITIONAL (2) #6 BARS (ONE EACH FACE) WITH A 2'-0" PROJECTION SHALL BE PLACED DIAGONALLY ACROSS THE CORNERS OF ALL OPENINGS AND VERTICAL STEPS IN WALLS.
9. STEM WALLS BELOW GRADE SHALL HAVE BACKFILL PLACED EQUALLY ON BOTH SIDES UNTIL THE REQUIRED LEVELS ARE REACHED.
10. CONSTRUCTION JOINTS IN SLABS ON GRADE SHALL BE SPACED AT INTERVALS ENCLOSING NO MORE THAN 144 SQUARE FEET WITH A MAXIMUM OF 12 FEET IN ANY ONE DIRECTION UNLESS OTHERWISE NOTED ON DRAWINGS. CONSTRUCTION JOINTS IN SLABS 6" AND THICKER PROVIDE 1 INCH DIAMETER X 24" LONG SMOOTH DOWELS AT 18" ON CENTER OILED ONE END. REFER TO PROJECT MANUAL FOR SEALING OF CONSTRUCTION JOINTS.
11. CONSTRUCTION JOINTS (COLD JOINTS) SHALL BE PROVIDED IN STEM WALLS, WHICH ARE OVER 70 FEET IN A STRAIGHT RUN. KEYWAYS AND WATERSTOPS SHALL BE PROVIDED AT ALL CONSTRUCTION JOINTS IN STEM WALLS.
12. CONTROL JOINTS IN SLABS MAY BE TOOLED OR SAWCUT AS INDICATED ON THE DRAWINGS.
13. ALL JOINTS SHALL BE APPROVED BY THE ENGINEER.

STRUCTURAL STEEL:

1. ANCHOR BOLTS SHALL CONFORM TO ASTM F1554 GRADE 36.

REVISIONS

NO.	DATE	DESCRIPTION
1	11/29/2012	ISSUED FOR VALUE ENGINEERING AND PRICING
2	01/07/2013	ISSUED FOR BUILDING PERMIT SUBMITTAL TO PPRBD (BIOSOLIDS HANDLING COMPLEX)
3	03/14/2013	ISSUED FOR CONSTRUCTION PER PPRBD BLDG PERMIT #85132 (BIOSOLIDS HANDLING COMPLEX)

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STRUCTURAL GENERAL NOTES
BIOSOLIDS HANDLING COMPLEX
HAROLD D. THOMPSON REGIONAL WATER RECLAMATION FACILITY
LOWER FOUNTAIN METROPOLITAN SEWAGE DISPOSAL DISTRICT

DRAWN
DESIGNED
CHECKED
DATE
PROJECT NO.
GMS FILE NO.

SKC
MAM
RJS
SEPTEMBER 2012
20166.382
2599

GMS, INC.
CONSULTING ENGINEERS
611 N. WEBER, SUITE 300
COLORADO SPRINGS, COLORADO 80903

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OF
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