

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:		CONCENTRATED
	<u>OCCUPANCY OR USE:</u>	<u>LOAD:</u>
FLOORS (UNLESS NOTED OTHERWISE).....	150 p.s.f.	4000 lbs.

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. 2

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 _{p1}	0.094
SEISMIC DESIGN CATEGORY	B
BASIC SEISMIC-FORCE-RESISTING SYSTEMS: LIGHT FRAMED WALLS SHEATHED WITH WOOD STRUCTURAL PANELS	
DESIGN BASE SHEAR:	4.0 KIP
RESPONSE MODIFICATION FACTOR, R:	6.5
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 (ON SITE) | |
| ACTIVE | 65 p.c.f. |
| AT REST | 85 p.c.f. |
3. SOIL BENEATH FOOTING SHALL BE 4 FEET OF GRANNULAR NONEXPANSIVE STRUCTURAL FILL COMPACTED 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.

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 db | 48 db |
- (WHERE db = 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 SHALL BE FORMED WITH METAL LOAD KEY JOINT SUPPLIED BY JAHN CONCRETE PRODUCTS OR APPROVED EQUAL. FOR 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 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.

WOOD:

1. ALL LUMBER MATERIALS, FABRICATION AND CONSTRUCTION SHALL CONFORM TO THE INTERNATIONAL BUILDING CODE 2009 EDITION, THE NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION, ALONG WITH ITS SUPPLEMENT OF WOOD DESIGN VALUES, LATEST EDITION AND THE PROJECT SPECIFICATIONS.
2. ALL DIMENSION LUMBER (2" TO 4" THICK) SHALL BE DOUGLAS FIR/LARCH #2 OR BETTER WITH THE FOLLOWING MINIMUM ALLOWABLE STRESSES (NORMAL LOADING CONDITIONS AND SINGLE MEMBER USES):
- | | |
|--|---------------|
| EXTREME FIBER IN BENDING F _b | 900 psi |
| HORIZONTAL SHEAR F _v | 95 psi |
| COMPRESSION PERPENDICULAR TO GRAIN F _{c⊥} | 625 psi |
| COMPRESSION PARALLEL TO GRAIN F _c | 1,350 psi |
| MODULUS OF ELASTICITY E | 1,600,000 psi |
3. ALL PLYWOOD SHEATHING SHALL BEAR THE STAMP OF THE AMERICAN PLYWOOD ASSOCIATION (APA). PLYWOOD SHALL HAVE THE FOLLOWING SPAN RATINGS:
- | | |
|-----------------------------|-------------|
| ROOFS | SPAN RATING |
| 5/8" PLYWOOD (STRUCTURAL I) | 40/20 |
| WALLS | |
| 1/2" PLYWOOD (STRUCTURAL I) | 32/16 |
4. PROVIDE TRUSS ENGINEERING AND TRUSS SHOP DRAWINGS PER SPECIFICATIONS. TRUSS MANUFACTURER SHALL DESIGN AND PROVIDE ALL TRUSS TO TRUSS CONNECTORS.
5. MISCELLANEOUS FRAMING CLIPS, ANCHORS AND HANGERS SHALL BE PROVIDED AS NECESSARY TO ERECT A RIGID STRUCTURAL FRAMEWORK. ALL CONNECTORS REFER TO SIMPSON STRONG TIE COMPANY. EQUAL CONNECTORS MAY BE UTILIZED PROVIDED THEY HAVE EQUIVALENT CAPACITIES.
6. ALL BUILT-UP MEMBERS OF TWO PIECES SHALL BE NAILED TOGETHER WITH A MINIMUM OF FOUR (4) 10d COMMON NAILS PER FOOT. ALL BUILT-UP MEMBERS OF MORE THAN TWO PIECES SHALL BE BOLTED TOGETHER WITH 1/2" DIAMETER AT 24" O.C. (COUNTER SINK AS REQUIRED) WITH A MINIMUM OF THREE (3) BOLTS PER BEAM.
7. ROOF PLYWOOD SHEATHING SHALL BE NAILED AT ALL PLYWOOD PANEL EDGES WITH 10d COMMON NAILS AT 4" O.C. ALL PLYWOOD PANEL EDGES SHALL BE BLOCKED. NAIL TO INTERMEDIATE SUPPORTS WITH 10d COMMON NAILS AT 8" O.C.
- 2 8. WALL PLYWOOD SHEATHING EAST WALL SHALL BE NAILED AT ALL PLYWOOD PANEL EDGES WITH 10d COMMON NAILS AT 3" O.C. WALL PLYWOOD SHEATHING WEST WALL SHALL BE NAILED TO STUDS w/ 2 ROWS OF 10d COMMON NAILS @ 3" O.C. STAGGERED. ALL PLYWOOD PANEL EDGES SHALL BE BLOCKED. WEST WALL BLOCKING SHALL BE 4x8's. NAIL TO INTERMEDIATE SUPPORTS WITH 10d COMMON NAILS AT 8" O.C.
- 2 9. GYPSUM BOARD WALL SHEATHING SHALL BE SECURED TO EVERY STUD WITH NO. 6 SCREWS AT 4" O.C. ALL PANEL EDGES SHALL BE BLOCKED.
10. ALL NAILING SHALL CONFORM TO CHAPTER 23 OF THE 2009 EDITION OF THE INTERNATIONAL BUILDING CODE.

STRUCTURAL STEEL:

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

REVISIONS		
NO.	DATE	DESCRIPTION
1	06/21/2012	ISSUED FOR BUILDING PERMIT SUBMITTAL TO PPRBD (BLOWER BUILDING)
2	06/29/2012	ISSUED FOR BUILDING PERMIT SUBMITTAL TO PPRBD (BLOWER BUILDING)
3	07/17/2012	ISSUED FOR CONSTRUCTION PER PPRBD BLDG PERMIT NO. I29081 (BLOWER BLDG)

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STRUCTURAL GENERAL NOTES
BLOWER BUILDING
HAROLD D. THOMPSON REGIONAL WATER RECLAMATION FACILITY
LOWER FOUNTAIN METROPOLITAN SEWAGE DISPOSAL DISTRICT

DRAWN	SKC
DESIGNED	MG
CHECKED	MG
DATE	MAY 2012
PROJECT NO.	20166.362
GMS FILE NO.	2599

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

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