

1) GENERAL

A. The building shall be designed such that there is maintained an absolute minimum of 68'-0" from face-of-column to face-of-column on the sales floor.

2) FOUNDATIONS

A. The concrete foundations shall be designed, detailed and constructed to provide for the safe, serviceable support of the pre-manufactured metal building structure and all prescribed loads applied thereto.

B. The soils supporting the foundation shall be prepared and compacted in accordance with a geotechnical testing based investigation and site specific recommendations provided by a Professional Engineer registered to practice in the State where the project is located.

C. The slab on grade shall not be utilized to resist horizontal thrust forces at the base of the pre-engineered building frames. The beams below and separate from the building slab may be utilized.

D. The bearing materials shall be free of organic, expansive or corrosive material, and shall support the foundation in accordance with the following twenty five year criteria:

- 1. Maximum differential movement due to either settlement or heave shall not exceed 1/2" over a distance of 50 feet.
2. Maximum total movement due to either settlement or heave shall not exceed 1".

E. The foundations shall be of sufficient depth to bear below local frost depth where exposed, attain minimum design bearing pressure, achieve sufficient protection from settlement or heave, and where adjacent to existing construction, avoid application of lateral earth pressure to adjacent construction.

3) SLAB ON GRADE

A. The subgrade for the slab on grade shall be compacted and prepared in accordance with a geotechnical testing based investigation and site specific recommendations provided by a Professional Engineer registered to practice in the State where the project is located.

B. The slab on grade shall conform to the latest editions of all applicable standards of the American Concrete Institute (ACI), the Building Code(s) enforced by the Authority Having Jurisdiction and these requirements.

C. Except at doors at the perimeter of the facility, the slab on grade shall be isolated from the building columns and any perimeter grade beams or walls. The slab on grade shall receive a hard steel trowel finish.

4) CONCRETE SALES FLOOR PRE-INSTALLATION CONFERENCE

A. At least 30 days prior to the start of the concrete slab construction, the general contractor shall conduct a meeting to review the proposed concrete mix designs and to discuss the required methods and procedures to achieve the requirements of this specification.

B. The general contractor shall require responsible representatives of every party concerned with the concrete work to attend the conference, including, but not limited to, the following:

- 1. Laboratory responsible for concrete mixes, field quality control and floor tolerance testing
2. Ready-mix concrete producer
3. Concrete contractor
4. Chemical admixture manufacturer
5. Liquid densifier and sealer manufacturer
6. Liquid densifier and sealer applicator
7. Joint filling manufacturer
8. Joint filling applicator

C. Minutes of the meeting shall be recorded, typed and printed by the general contractor and distributed to all concerned parties, including the owner's representative, the architect and the structural engineer, within five days of the meeting.

D. The minutes shall include a statement by the concrete supplier stating that the proposed concrete mix design will produce the concrete quality required by these specifications.

E. The minutes shall include a statement by the concrete contractor that the proposed concrete mix design will provide appropriate workability and setting times, to ensure that the concrete contractor can achieve the requirements of this specification.

5) CONCRETE CONTRACTOR QUALIFICATION

A. The concrete contractor shall include in their bid package to the general contractor, sufficient data, including a minimum of three similar and successful projects that clearly indicates the concrete contractor's ability to successfully perform the work and to achieve the interior sales floor slab tolerances required in this specification.

6) CONCRETE MATERIALS

A. Portland Cement: ASTM C 150, Type 1. Use one brand of cement throughout the project.

B. Coarse and fine aggregates: ASTM C 33. Combined aggregate gradation for slabs on grade and other designated concrete shall be 8% - 18% for large top size aggregates (1 1/2" or 8% - 22% for smaller top size aggregates (1" or 3/4") retained on each sieve below the top size and above the no. 100 sieve.

C. Water: complying with ASTM C 94.

D. Air-entraining admixtures: Shall conform to ASTM C-260. Admixture manufacturer shall provide written certification that the air-entraining admixture is compatible with other required admixtures.

E. Water-reducing admixture: Shall conform to ASTM C494, Type A and contain no more than 0.05% chloride ions.

F. Water-reducing, retarding admixture: Shall conform to ASTM C-494, Type D, and contain no more than 0.05% chloride ions.

G. High range water-reducing admixture (superplasticizer): Shall conform to ASTM C-494, Type E and contain no more than 0.05% chloride ions.

H. Water-reducing, non-corrosive accelerating admixture: Shall conform to ASTM C-494, Type C or E, and contain no more chloride ions than are present in municipal drinking water.

- 1. Calcium chloride or admixtures containing more than 0.05% chloride ions are not permitted.
2. Flyash is not permitted.

7) EVAPORATION RETARDER

A. Waterborne, monomolecular film forming, manufactured for application to fresh concrete.
1. Acceptable products:
a. "Eucobar" by Euclid Chemical - Phil Brandt 877-438-3826

8) CURING MATERIALS

A. Exterior curing: All exterior concrete slabs shall be cured using a liquid membrane-forming curing compound. The liquid membrane-forming curing compound shall meet the requirements of ASTM C1315 with a maximum V.O.C. Content of 700 g/l.

B. Interior curing (building not enclosed/sales floor slab is placed first): The interior sales floor slab shall be cured using a reduced odor, dissipating liquid membrane forming curing compound that is formulated from hydrocarbon resins.

C. Interior curing (building enclosed/sales floor slab is placed last): The interior sales floor slab shall be cured using a removable, low odor, fast drying liquid membrane forming curing compound.

9) LIQUID DENSIFIER / SEALER FOR INTERIOR SALES FLOOR

A. Liquid densifier / sealer shall be a sodium silicate / silicofluoride blend. Manufacturer of liquid densifier and sealer must be contacted prior to bidding for pricing and application requirements.

- 1. Acceptable liquid densifier and sealer manufacturer:
a. "Euco Diamond Hard" by Euclid Chemical - Phil Brandt 877-438-3826
b. "RetroPlate 99" by RetroPlate Systems - Curtis Turnbull 888-942-3144

B. Approval: All general contractors bidding or negotiating a Dollar General project shall contact Euclid Chemical or RetroPlate to obtain a list of approved applicators located within the geographic region of the project.

C. Project service: at least 10 days prior to application of liquid densifier and sealer, the general contractor shall notify the Euclid Chemical or RetroPlate representative for jobsite service.

10) SEMI-RIGID POLYUREA JOINT FILLER

A. UV Resistant, semi-rigid polyurea joint filler shall be a two (2) component, 100% solids compound, with minimum Shore "A" hardness of 80.

- 1. Acceptable semi-rigid polyurea joint filler manufacturer:
a. "Euco QWIKJoint UVR" by Euclid Chemical - see sheet T01 for contact info

B. Non-UV Resistant, semi-rigid polyurea joint filler shall be a two (2) component, 100% solids compound, with a minimum Shore "A" hardness of 75.

- 1. Acceptable semi-rigid polyurea joint filler manufacturer:
a. "CreteFill Pro 75" by CureCrete - see sheet T01 for contact info

C. Approval: All general contractors bidding or negotiating a Dollar General project shall contact the Euclid Chemical company or Retroplate to obtain a list of approved applicators located within the geographic region of the project.

11) CONCRETE MIXES

A. Comply with ACI 301 requirements for concrete mixtures.

B. Concrete mix design(s) shall be proportioned according to ACI 301 for normal-weight concrete determined by either laboratory trial mix or field test data as follows:

- 1. Compressive strength (28 days): 4000psi (27.6mpa) with a maximum water-cement ratio of .53, unless otherwise indicated on the drawings. Concrete materials included in the mix design shall be the same materials provided to the project, and shall be prepared by an independent testing laboratory approved by the owner.

2. Slump: Concrete containing a water reducer shall have a maximum slump of 5 1/2" for the interior sales floor slab and 6 1/2" for other areas.

3. Adjustments to concrete mixes: Mix design adjustments may be requested by General Contractor when characteristics of materials, job conditions, weather, test results or other circumstances warrant, at no additional cost to the contractor, as accepted by owner. Laboratory test data for revised mix design and strength shall be submitted to and accepted by owner before using in work.

4. Interior concrete sales floor: Concrete shall be designed to meet 4000 psi compressive strength @ 28 days and exhibit $\leq 0.04\%$ shrinkage @ 28 days.

Table with 2 columns: Prototype mix and Materials. Lists specifications for Cement, Fly ash/slag, Coarse aggregate, Fine aggregate, Water content, Air content, Water Reducer, W/cm, Initial slump (water), Final Slump (with water reducer), and Shrinkage.

12) FLOOR SLAB FINISH AND TOLERANCES

A. General: Unless otherwise noted by owner, concrete sales floor slab shall be cast in one continuous placement. Concrete shall be placed, screeded, re-straightened, and finished as necessary to meet the FF and FL tolerance requirements.

B. Trowel finish (sales floor): Apply a hard trowel finish to surfaces as follows:

- 1. Laser screeds, vibratory screeds, highway straightedges and wood bull floats shall be used to initiate screeding and floating process to form a uniform and open-textured surface plane before excess moisture or bleed water appears on the surface.
2. Highway straightedge operations shall continue before, during and after troweling operation, until specified floor tolerances are achieved.
3. Trowel finish with gas operated troweling machine with adjustable blades on all finishing equipment.
4. Protection: Care shall be taken to protect the interior sales floor. Entrances shall include clean floor mats to prevent mud stains and all equipment on the floor shall be diapered to prevent spills.

C. Comply with ACI 117, "Specifications For Tolerances For Concrete Construction and Materials." Interior sales floor slab shall meet the requirements of a type 3, single course, hard steel-troweled finish as described in ACI 302.

- 1. All perimeter areas and edges of the concrete floor shall exhibit the same finish as the sales floor, including but not limited to, hallways, offices, restrooms, etc.
2. The general contractor is responsible for contracting with the testing laboratory for all costs associated with floor tolerance testing.
3. Flatness: Overall Floor Flatness rating of at least 35
4. Levelness: Overall Floor Levelness rating of at least 30
5. Tolerance Band for Entire Floor +/- 0.375 inch
6. Failure to achieve the above criteria shall be cause for replacement of the offending segment of grinding/polishing at no cost to the Owner or Tenant.

13) CONCRETE PROTECTION AND CURING

A. General: Normalize concrete set time and protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 308 for hot-weather protection and ACI 306 for cold-weather protection during curing.

B. Sawed joints: All saw cutting shall be accomplished with a "Soft-Cut" saw and vacuum system equipped with a new blade and plate, as soon as the slab will support the weight of the saw and operator.

C. Polishing: The interior sales floor slab shall be cured using the specified dissipating or removable liquid membrane-forming curing compound. Per manufacturer's instructions, application shall be applied evenly and uniformly as soon as possible after final finishing.

14) CONTRACTION JOINTS IN SLABS-ON-GRADE

A. Form weakened-plane contraction joints, sectioning concrete into areas as indicated on drawings.

B. Sawed joints: All saw cutting shall be accomplished with a "Soft-Cut" saw and vacuum system equipped with a new blade and plate, as soon as the slab will support the weight of the saw and operator.

15) INTERIOR SALES FLOOR SLAB PROTECTION

- 1. Take the following measures to protect the interior sales floor slab:
a. Wrap or "diaper" all motorized and hydraulic equipment to prevent fluid leaks
2. Provide non-marking tires on rubber tread vehicles or equip rubber tires with tire boots made of nylon fabric
3. Provide mats at all entrances to prevent mud stains

16) TIMING OF JOINT FILLER, LIQUID DENSIFIER AND POLISHING PROCESS

A. Do not commence installation of semi-rigid polyurea joint filler, liquid densifier and sealer or polishing processes until the building is completely enclosed, permanent power and lighting is operating and the building is thermostatically controlled.

17) INSTALLATION OF SEMI-RIGID POLYUREA JOINT FILLER

A. All General Contractors bidding or negotiating a Dollar General project shall contact Euclid Chemical or RetroPlate to obtain a list of approved applicators located within the geographic region of the project.

B. Joint filler installation: Comply with recommendations in ACI 302 for use of joint filler as applicable to materials, applications, and conditions indicated.

C. Surface cleaning of joints: Clean out joints immediately before installing joint filler. Remove foreign material from joint substrates that could interfere with adhesion of joint filler by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint filler.

D. For proper load transfer, joints must be filled full depth, but in no case should the joint filler be any less than 1" deep in the joint.

E. Mixing: Joint filler is a two part product requiring machine mixing and placing. Premix part b separately before using. Follow pump manufacturer's equipment instructions.

F. Placement: Joint filler shall be filled full depth. No hacker rod is allowed. Joints should be overfilled and shaved even with the surrounding joint edge giving the floor joints a flat, smooth appearance.

G. Joint filler separation: The approved joint filling applicator shall include in their bid a cost per linear foot to make one return trip to refill joints if joint filler sidewall separation or splitting exceeds 1/16," or if surface profile is concave, chattered or if voids occur. This shall take place one week prior to grand opening.

18) INITIAL CLEANING FOR LIQUID DENSIFIER AND SEALER APPLICATION

A. Interior sales floor slab: Thoroughly clean the interior sales floor slab prior to initial application of liquid densifier and sealer by completely removing the specific dissipating or removable curing compound from the floor surface.

1. If Kurez DR VOX (slab first) was used to cure the slab, use "Euco Clean & Strip" by Euclid Chemical, applied at the proper water to product ratio and coverage rate that will completely remove the Kurez DR VOX. Contact: Phil Brandt (877) 438-3826

2. If Kurez RC (slab last) was used to cure the slab, use "Kurez OFF" by Euclid Chemical, applied at the proper water to product ratio and coverage rate that will completely remove the Kurez RC. Contact: Phil Brandt (877) 438-3826

19) POLISHING PROCESS AND APPLICATION OF LIQUID DENSIFIER / SEALER

A. All Applications shall be certified by Euclid Chemical or Retro-Plate. This process cannot be used in both "Wet" and "Dry" applications. This process achieves a quality concrete finish (meets and/or exceeds the specified floor tolerances) by the floor finisher. Failure to achieve the above criteria shall be cause for replacement of the offending segments or grinding/polishing at no cost to the Owner or Tenant.

- D. Only the Sales Floor will receive the full 9 step process outlined below under item K.
E. All other areas will only receive steps 1 through 4, no additional work is necessary.
F. The Black painted border will not be required in areas behind fixtures, etc. ... it will only be installed at the main entry door, office doors, egress doors and doorways into the receiving area and transitions that can be seen by the customers.
G. Steps 2 & 4 are combo steps using different grits of resin bond diamonds on each pass.
H. This is a "Resin" only grind that does not tear away as much of the surface area.

I. If a Cure-&Seal product is required at the time of slab placement only Water Based Dissipating Sealers are allowed. NO Acrylic Cure-N-Seals are allowed.
J. Prior to application, inspect interior sales floor slab to ensure that slab is clean and free of dust, grease, oils, or other contaminants that might prohibit the proper application and penetration of the liquid densifier and sealer.

- K. Process Steps
1. Cut, clean out, prep and fill the concrete floor joints with the Euclid QWIKJoint UVR polyurea joint filler.
2. Grind concrete floor with a combo set of 40/50 grit resin bond diamonds.
3. Grind concrete floor with a combo set of 60/100 grit resin bond diamonds.
4. Thoroughly clean the concrete floor and apply Diamond Hard densifier at 225 square feet per gallon.
5. Polish concrete floor with a combo set 100/200 grit resin bond diamonds.
6. Polish concrete floor with 400 grit resin bond diamonds.
7. Thoroughly clean concrete floor and then apply Diamond Hard densifier at 700 square feet per gallon.
8. Burnish / Polish concrete floor with 800 grit diamond impregnated pads.
9. Burnish / Polish concrete floor with 1500 grit diamond impregnated pads.

L. All edges must be polished to match concrete floor with coinciding SASE 5" resin Polishing pads or HTC EZ Grind polishing 5" diamond tools.
M. Polish results: Perform polishing process to attain an overall gloss reading of >= 35 specified overall gloss value (SOGV) as measured using a Horiba IG-320, and a specified minimum gloss reading of >= 30 minimum local gloss value (MGLV).

DESIGNER'S DESIGN INTENTION: THE DESIGN BASIS FOR THESE DOCUMENTS WERE BASED ON THE STANDARD PROTOTYPE DIMENSIONS PROVIDED BY DG BY DOLLAR GENERAL THROUGH THEIR OWNERS REPRESENTATIVE.

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MEMBER OF THE FIVE PROFESSIONAL SOCIETIES OF THE STATE OF FLORIDA: REGISTERED PROFESSIONAL ENGINEER IN MECHANICAL ENGINEERING, REGISTERED PROFESSIONAL ENGINEER IN ELECTRICAL ENGINEERING, REGISTERED PROFESSIONAL ENGINEER IN CIVIL ENGINEERING, REGISTERED PROFESSIONAL ENGINEER IN CHEMICAL ENGINEERING, REGISTERED PROFESSIONAL ENGINEER IN SANITARY ENGINEERING



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DOLLAR GENERAL BUILDING Prototype 9100 SF B Store # 22718

DG Woodstock Belis Ferry Rd. Woodstock, GA

CONSTRUCTION DOCUMENTS

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DOLLAR GENERAL CONCRETE SPECIFICATIONS

S0.3