

GENERAL STRUCTURAL AND CONSTRUCTION NOTES

GENERAL

1. TKG refers to The Kachele Group, Inc. in its capacity as Structural Engineer throughout this document.
2. All work shall conform to the "2009 International Building Code," and to all other applicable Federal, State, and local regulations and amendments.
3. Information contained on the hard copy of this drawing retained by TKG controls over variances or changes that might be introduced due to plotting by others via electronic document transfer.
4. The distribution and/or use of the electronic files of the Structural Drawings is strictly prohibited unless prior written authorization is provided by TKG.
5. The Structural Construction Documents are instruments of professional services and shall remain the property of TKG. The documents are not intended or represented to be suitable for reuse by the Client or others on extensions of this project or on any other project.
6. The Structural Drawings represent the completed project, which has been designed for the weights of materials indicated on the Drawings and for the superimposed loads indicated in the Design Data.
7. The Structural Drawings shall govern the work for the structural elements, unless otherwise noted. Discrepancies between the Architectural and Structural Drawings shall be reported to the Architect and TKG for review and clarification before proceeding with related work.
8. In case of conflict between the General Notes and details, the most rigid requirements shall govern.
9. Work not indicated on a part of the drawings but reasonably implied to be similar to that shown at corresponding places shall be repeated.
10. The structural plans, sections, details, etc. may not be drawn to scale or drawn to the scale indicated. The Contractor must not scale the Structural Drawings.
11. See Architectural Drawings and Specifications for detailed information regarding finishes, fireproofing, etc.
12. All costs of investigation and/or redesign due to Contractor improper installation of structural elements or other lack of conformance with the Contract Documents shall be at the Contractor's expense.
13. The Contractor is solely responsible for means and methods of construction and construction procedures, fabrication processes, coordination of work with other trades and job site safety.
14. Coordinate all dimensions for rooftop damage framing, roof openings, and roof curb supports with the Mechanical Drawings and the appropriate equipment manufacturers.
15. Remove, disconnect and/or relocate existing architectural, mechanical, plumbing, fire-protection and electrical systems in a code-compliant manner as required for the installation of the structural work, including shut-offs of utilities; replace and/or reconnect the systems to their original condition.
16. Existing building information shown is from existing drawings. Information shown may not necessarily reflect actual conditions. Field-verify existing building and site information shown (dimensions, elevations, material conditions, etc.) and notify the Architect of any discrepancies prior to fabrication of any structural component. Unless indicated otherwise, new slabs are to be at the same elevations as adjacent existing slabs. Foundation elevations or column lengths shall be adjusted with the approval of TKG to achieve matching slab elevations.
17. If the existing field conditions do not permit the installation of the work in accordance with the details shown, notify the Architect immediately and provide a sketch or sketch of the condition with his proposed modification of the details given on the Contract Documents.
18. Where alterations involve the existing supporting structure, provide shoring and protection required to ensure the structural integrity of the existing structure.
19. Provide sheelings, bracing, and underpinning as necessary to prevent lateral or vertical movements of existing buildings, streets, and existing utility lines.
20. Provide for dewatering as required during excavation and construction.
21. Engage a Professional Engineer who is licensed in the project's jurisdiction to design bracing, shoring, sheeting, etc. required to maintain the structural integrity of the existing buildings or new construction, sidewalks, utilities, etc. In accordance with the Contract requirements, submit detailed Shop Drawings indicating all work to be performed. All submittals shall bear the seal and signature of the Contractor's Engineer.
22. Heavy equipment is not permitted closer than 8'-0" from any foundation wall. If it is necessary to operate heavy equipment closer than 8'-0" to a foundation wall, the Contractor shall be the sole responsible party and, at his own expense, shall provide adequate supports or brace the wall to withstand the additional loads superimposed from such equipment.
23. Boring is not permitted without written approval.
24. Store all materials to protect them from exposure to the elements.

SHOP DRAWINGS

1. Submit Shop Drawings for all structural materials to Architect for review prior to the start of fabrication or commencement of work.
2. Review period by TKG shall be a minimum of 10 working days.
3. No portion of the Structural Contract Drawings may be reproduced for submittal as Shop Drawings unless authorized by TKG in writing. Violation of this provision will result in the rejection of the Shop Drawings and will be returned not reviewed by the Structural Engineer.
4. Shop Drawings submitted for structural engineering review shall consist of two (2) sets of prints and one (1) set of reproductions. One (1) marked up print and one marked up reproducible with TKG's comments will be returned to the Contractor. This requirement applies to Shop Drawings for structural review only and it supersedes any other requirements indicated on any other drawings or in any one of the specifications.
5. Shop Drawings shall bear the Contractor's stamp of approval, which shall constitute certification that he has verified all field measurements, construction criteria, materials, and similar data and has checked each drawing for completeness, coordination, and compliance with the Contract Documents.
6. Changes to Shop Drawings that are re-submitted must be clouded or otherwise clearly indicate the changes that have been made to a previously issued and reviewed drawing.
7. Provide TKG with written notice of deviations from the requirements of the Construction Documents. The notice must be received prior to Shop Drawing submittal. The Contractor remains liable for deviations unless reviewed by TKG and acknowledged in writing, prior to receipt of the Shop Drawings.
8. The Shop Drawings shall include dimensional floor and roof edges, openings and sleeves at all floors required for all trades. These openings shall be coordinated with the Architectural, Structural, Mechanical, Electrical and Plumbing Drawings.

TESTING AND INSPECTION

1. Engage a Testing/Inspection Agency to provide testing services as indicated in each section of these General Notes.
2. Engage a Testing/Inspection Agency that must provide personnel with the following minimum qualifications:
- A. Certified by Institute of Certified Engineering Technicians, or other recognized comparable organization, and,
- B. For inspection, sampling, testing of concrete and masonry: ACI-Certified Concrete Field-Testing Technician, Grade I; and Construction Inspector, Level II.
- C. Structural Steel Inspection: AWS Certified Welding Inspector.
3. Submit periodic testing and inspection reports to Architect during construction. Submit final Testing and Inspection Report for each division of work, certified by a licensed Professional Engineer that testing and inspections were performed and that the structural work was performed in accordance with Contract Documents.
4. "Structural Tests and Special Inspection" as defined by IRC 2003, Chapter 17, is required of all construction delineated on the Structural Drawings. Engage a Testing/Inspection Agency to provide testing and inspecting services as indicated in each section of these General Notes.

EARTHWORK

1. Verify all existing field conditions that may affect the installation of the foundation system as shown prior to starting work.
2. Excavation must be performed so as to disturb existing adjacent buildings, streets, and utility lines. Verify location of all utilities prior to commencement of work. Hand excavate around utilities as required.
3. Satisfactory fill materials are those complying with ASTM D2487, groups GW, GP, GM, SM, SW, and SP. On site borrow material must be tested to determine suitability for use as fill material.
4. Backfill material must consist of crushed stone with optimum moisture content for compacting and shall be free of debris.
5. Compact soil to not less than the following percentages of maximum density of modified proctor (ASTM D1557):
- Under building foundations – 95%
- Under building slabs, steps, pavements – 95%
6. Remove existing vegetation, top soil, demolition debris, organic fills, abandoned underground utilities, equipment and vaults, and unsatisfactory soil materials. Proof roll subgrade to obtain uniformly densified substrate prior to placing fill material evenly in 8" thick (maximum) layers and compacting to required density.
7. Engage a Testing/Inspection Agency to perform soil testing and inspection service. Reports shall be submitted to the Architect outlining work performed and test results.
8. Walls and grade beams having backfill against both sides shall have the backfill placed on both sides with a maximum differential height of 8 inches.
9. Do not backfill until retaining walls have attained 75% of specified 28-day design strength.
10. Do not backfill with frozen soil.

FOUNDATIONS

1. Foundations have been designed and footing elevations established based upon the Reference Drawings for the construction of the existing building. A new Geotechnical Investigation and recommendations has not been provided by the Owner for this project. Footings shall bear on undisturbed stratum or engineered fill with a minimum bearing capacity of 4,000 psf. During construction, the bearing value shall be verified by a qualified Geotechnical Engineer.
2. Retain the services of a professional engineer and Geotechnical Engineer and testing laboratory to provide inspection and testing services.
3. Prior to footing concrete placement, the inspecting Geotechnical Engineer shall approve the footing subgrade and soil bearing capacity. If conditions prove to be unacceptable at elevations shown, footing bottoms must be lowered to acceptable subgrade material. Fill over-excavation with concrete (2,500 psi at 28 days).
4. The bottoms of exterior footings must bear a minimum of 3'-0" (36") below finished grade.
5. Do not place footings on frozen earth or in standing water.
6. The bearing elevations of new footings adjacent to existing footings must match the adjacent existing footing bearing elevations, unless indicated otherwise on plans.
7. Concrete slabs-on-grade shall bear on mechanically compacted soil capable of supporting 500 psf. Provide 6" (min.) granular subbase beneath slabs-on-grade: Penn DOT 2B or #57 grading. Compact subbase to 95% of the maximum dry density as determined by ASTM D1557.
8. Divide concrete slabs-on-grade into segments by means of expansion, control and construction joints as indicated on the drawings. Position of construction joints other than those shown on the drawings shall be submitted to the Architect for approval.
9. Concrete for foundations must be placed on the same day the subgrade is approved by the Geotechnical Engineer.
10. Utility lines shall not be placed through or below foundations without TKG's approval.
11. Provide a continuous waterstop at all horizontal and vertical construction joints in elevator pits and other pit walls.
12. Construction joint keys shall be 2x4 (nominal & tapered), unless noted otherwise.

CAST-IN-PLACE CONCRETE

1. Concrete shall be designed, reinforced, detailed and constructed in accordance with:
- A. Building Code Requirements for Structural Concrete, ACI 318-02*, American Concrete Institute
- B. American Concrete Institute Manual of Concrete*, American Concrete Institute
- C. Manual of Standard Practice*, Concrete Reinforcing Steel Institute
- D. Specifications for Structural Concrete for Buildings ACI 301*, American Concrete Institute
- E. Reinforcing steel shall be detailed, fabricated, and placed in accordance with the A.C.I. "Detailing Manual No. SP-66", latest edition.
2. Concrete for slabs shall have a minimum compressive strength (f'_c) of 4,000 psi at 28 days; all other concrete shall have a minimum compressive strength (f'_c) be 3,000 psi. Air entrainment: 6% (+/-1.5%) in all concrete exposed to freeze/thaw.
3. Concrete for slabs on metal deck shall be lightweight concrete (115 pcf) with cement conforming to ASTM C150, Type I or II. Other concrete shall be normal weight concrete (144 pcf) with cement conforming to ASTM C150, Type I. Aggregate shall conform to ASTM C33 for normal weight concrete and ASTM C330 for lightweight concrete.
4. Cement substitutes: ASTM C598 Class C or F or ASTM C595, Type I. Limit to 50% max of cementitious content by weight.
5. Reinforcing steel: ASTM A615 Grade 60.
6. Welded Wire Fabric: (W.W.F.) ASTM A-185.
7. Reinforcing steel clear cover must be as follows unless noted otherwise:
- A. Concrete cast against and permanently exposed to earth ---- 3".
- B. Concrete exposed to earth or weather
- #6 bars and larger ---- 1-1/2"
- #5 bars and smaller ---- 1-1/2"
- C. Concrete not exposed to weather or in contact with ground
- Slabs, walls, joists ---- #11 bars and smaller ---- 3/4"
- Beams and columns ---- Primary reinforcement, ties, stirrups, or spirals ---- 1-1/2"
8. Prior to concrete placement, submit to the Architect for review reinforcing steel Shop Drawings and a concrete mix design for each type of concrete, prepared in accordance with the specifications.
9. Placing of concrete must not start until the placement of reinforcing steel has been approved by the Testing/Inspection Agency.
10. Reinforcing steel shall be securely held in place while placing concrete. If required, additional bars, stirrups, or chairs shall be provided to support bars adequately.
11. Reinforcing bar splices shall be Class "B" tension lap per ACI 318 unless noted otherwise.
12. Welded wire fabric shall be placed 1" from the top of slabs unless noted otherwise.

13. Lap two (2) full mesh lengths at splices and wire together.
14. Use bonding agent where new concrete is placed against existing concrete.
15. Epoxy adhesive such as EPOXY-4452 or equivalent, or HMA Adhesive System as manufactured by Hilti, Inc., shall be used where rebar dowels are to be installed into existing concrete.
16. Verify sizes and locations of slots, pipe sleeves, etc., as required for mechanical trades before concrete is placed. No sleeve shall be placed through any concrete element unless shown on the Structural Drawings, approved Shop Drawings or specifically authorized in writing by TKG.
17. All inserts and sleeves must be cast-in-place whenever feasible. Drilled or powder driven fasteners will be permitted when proven to the satisfaction of TKG that the fasteners will not spoil the concrete and have the same capacity as cast-in-place inserts.
18. When installing expansion bolts or adhesive anchors, avoid drilling or cutting of existing reinforcing steel and destruction of concrete.
19. Holes shall be blown clean prior to placing bolts or adhesive anchors.
19. Chamfer all exposed concrete corners 1" x 1" minimum unless noted otherwise on Architectural Drawings.
20. The concrete slabs shall be finished flat and level within tolerance, to the elevation indicated on the drawings.
21. All reinforcing steel shall be continuous through construction joints.
22. Carefully guard against early drying out of concrete, especially during the first 24 hours. All surfaces shall be moist cured or protected using a membrane curing agent applied as soon as forms are removed. If membrane curing agent is used, exercise care not to damage coatings.
23. Throughout construction, protect the concrete work against damage due to excessive loading, construction equipment, materials or methods, ice, rain, snow, excessive heat, and freezing temperatures.
24. Hot weather concreting shall be in accordance with ACI-306.
25. Cold weather concreting shall be in accordance with ACI-306.
26. Inspection and Testing – Reports of all tests shall be submitted to the Architect and TKG.
- A. The agency shall inspect the formwork and reinforcing steel placement for compliance with the contract Documents and Shop Drawings. The agency shall monitor all structural concrete placement for conformance with applicable ACI requirements.
- B. Sample fresh concrete in accordance with ASTM C172.
- C. Cast 6 test cylinders for each day's pour or each 50 cubic yards of concrete placed, whichever results in more test cylinders, in accordance with ASTM C31. Properly cure and store concrete test cylinders.
- D. Test two lab-cured test cylinders for compressive strength at seven days and 28 days in accordance with ASTM C39. The two remaining cylinders to be held in reserve for additional testing if required.
- E. Slump: ASTM C143; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mix. Perform additional tests when concrete consistency appears to change.
- F. Air Content: ASTM C231, pressure method, for normal-weight concrete; ASTM C 173, volumetric method, for structural lightweight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mix.
- G. Concrete Temperature: ASTM C1064, one test hourly when air temperature is 40 deg. F and below and when 80 deg. F and above, and one test for each composite sample.
- H. The agency will make additional tests of in-place concrete at the Contractor's expense when test results indicate specified concrete strengths have not been attained, as directed by the Structural Engineer.

UNDERPINNING

1. Underpinning of existing foundation walls is required. The extent of underpinning is shown on foundation plan and referenced elevations. Contractor shall excavate and confirm all existing foundation conditions and inform Architect and Engineer if conditions vary with those shown on the drawings.
2. The width of underpinning sections are limited to three (3) or as shown on drawings in order to maintain integrity of existing construction. Bottom of underpinning is noted in sections. Excavate and install underpinning in conformance with the local codes and other applicable regulations.
3. Underpinning sections are to be installed by the "Approach Pit" method, with an alternate sequencing procedure that permits uniform transfer of wall loads to new bearing elevations.
4. Contractor shall ensure stability and bearing of existing foundation during underpinning. Do not undermine the existing foundation. All approach pits to begin at least at one horizontal to one vertical slope from the bearing level of the existing foundation.
5. Approach pits may need to be lagged or braced, depending on the stability of the soil. Timber lagging of pits that will remain in place following completion of underpinning shall be pressure-treated.
6. Bracing, lagging, etc., required to insure the structural integrity/stability of the existing buildings, shall be designed by a Professional Engineer registered in the state of the project location requested by the Contractor.
7. The Contractor shall retain the services of a Geotechnical Engineer to verify the bearing value at the bottom of each section of underpinning. Underpinning shall bear on undisturbed stratum with a minimum bearing capacity of 3000 psf.
8. Steel wedge driving and dry packing of newly concreted underpinning sections shall be done after 24 hours have elapsed following placement of concrete. Dry pack underside of existing foundation with non-shrink non metallic grout with $f'_c = 5000$ psi.
9. Concrete for underpinning shall attain 4000 psi minimum in 72 hours. Use Type II cement to permit dewatering (load transfer) in 24 hours. Type I cement may be used provided that increased cement is used to produce equivalent strength gain.
10. Contractor shall develop and submit a proposed schedule of underpinning sequence for review by the Architect and Engineer.
11. Complete records of all underpinning procedures will be made by the Contractor on a daily basis.
12. The Contractor shall engage a testing agency to monitor all underpinning concrete placement for conformance with applicable ACI requirements.
13. Cast 6 test cylinders for each day's pour or each 50 cubic yards of concrete placed, whichever results in more test cylinders, in accordance with ASTM C31.
13. Test two lab-cured test cylinders for compressive strength at three days, seven days and 28 days in accordance with ASTM C39.

STRUCTURAL STEEL

1. Fabrication and erection of structural steel must conform to "The Manual of Steel Construction – Allowable Stress Design," Ninth Edition, 1989, American Institute of Steel Construction including Specifications for Structural Steel Buildings, Specification for Structural Joints Using ASTM A325 or A490 Bolts, and AISC Code of Standard Practice except Sections 4.2 and 7.9 which shall not be applicable to this project.
2. "Hollow Structural Sections Connection Manual", American Institute of Steel Construction, Steel Tube Institute, and American Iron and Steel Institute.
3. All welding must be performed by certified welders and must conform to "Structural Welding Code AWS/AWS D1.1-00", American Welding Society.
4. Structural steel shall conform to the following:
- A. Wide flange shapes and WT's: ASTM A992 with a minimum yield strength of 50,000 psi.
- B. Channels, angles, plates and miscellaneous connection material: ASTM A36 with a minimum yield strength of 36,000 psi, unless noted otherwise.
- C. Pipes: ASTM A53, Types E or S, Grade B, with minimum yield strength of 35,000 psi.
- D. Steel Tubing (square or rectangular): ASTM A500, Grade B, with a minimum yield strength of 46,000 psi.
5. Bolted connections: ASTM A325 high strength bolts 3/4" diameter.
6. Anchor rods: ASTM F1554, Grade 36, headed unless noted otherwise.
7. Welding electrodes: E70XX
8. Leveling grout shall be nonshrink, Shrinkage-Resistant Grout: ASTM C 1107, factory-packaged, nonmetallic aggregate grout, noncorrosive, nonsetting, mixed with water to consistency suitable for application and a 30-minute working time. Minimum compressive strength at 28 days = 5000 psi.
9. Gas cutting of main structural members in the field is prohibited.
10. Submit Shop Drawings for fabrication and erection of structural steel. Clearly indicate coordinated dimensions of mechanical unit and roof penetration slabs. Shop and Erection Drawings must show all shop/floor and field welds.
11. Cuts, holes, coping, etc. shall be made by the Contractor for other trades shall be shown on the Shop Drawings and made in the shop. Cuts or burning of holes in the field is prohibited.
12. Notify TKG of any fabrication or erection errors or deviations and receive written approval before any field corrections are made.
13. All steel must be painted with shop standard primer unless noted otherwise.
14. Do not point steel where encased with concrete, to receive spray-on fireproofing, at field weld areas, at the top flange of composite beams or at any slip critical bolt areas.
15. All steel at and below finished grade or floor slab shall receive two (2) coats of bituminous paint – or 3" minimum concrete cover.
16. Steel items such as angles, plates, bolts and washers in direct contact with exterior finish masonry, and all exterior exposed structural steel, must be hot-dip galvanized per ASTM A123 or shall be coated with specified primer/paint.
17. All exterior exposed structural steel must be hot-dip galvanized per ASTM A123 or shall be coated with specified primer/paint.
18. When galvanized steel is field welded, provide appropriate ventilation measures. Welded surfaces shall be ground smooth and coated with galvanizing repair paint. Galvanizing repair paint shall be a high zinc dust content paint complying with Military Specifications MIL-P-21035 (Shin) or SSPC-Paint-20.
19. Existing steel shall be thoroughly cleaned prior to field welding and/or painting with specified coatings.
20. Field welded surfaces shall be cleaned and ground smooth within four (4) inches of the weld. After welds are complete, coat with appropriate primer/paint as specified. For galvanized members, coat the exposed area with galvanizing repair paint after welding. Galvanizing repair paint shall be a high zinc dust content paint complying with Federal Specifications 500-P-21035A or SSPC-Paint-20, Cold Galvanizing Compound by ZRC Products Co. or equal.
21. CONNECTIONS
- A. The steel fabricator is responsible for the design of connections utilizing the criteria below. Fabricator's responsibilities include using a Professional Engineer registered in the project's jurisdiction to design the structural steel connections.
- B. All shop and field connections shall be made with high strength bolts or welds. Connections shall be Type N for framed connections and Type SC, CS, Class A for wind/seismic moment, bracing and hangers unless noted otherwise.
- C. Provide double angle connections or knife plate connections for full depth of supporting beam, unless otherwise approved. Single angle connections are not acceptable. No connection shall consist of less than 2-3/4" diameter bolts or welds developing less than 10,000 pounds. Minimum weld size shall be 3/16" fillet.
- D. Connections shall be designed for reactions as shown on plans. For beams without designated loads on drawings, select connections to support 50% of total uniform load capacity in bending for both given beam and span as indicated in Part 2 of the Manual. Minimum of 2 bolts per connection.
- E. All connections shall be "Framed Beam Connections" designed in accordance with Part 4 of the AISC Manual. Provide double angle connections unless otherwise approved.
22. Welding electrodes, welding process, minimum preheat and interpass temperatures shall be in accordance with the AWS and AWS Specifications. Any structural steel damaged in welding is to be replaced or reinforced as acceptable to TKG.
23. The Structural Steel Fabricator, and/or General Contractor, shall verify existing dimensions and conditions at the site. Any discrepancy found must be reported to the Architect prior to preparation of Shop Drawings. Shop Drawings shall include field measurements and conditions.
24. For the purposes of preparing these Structural Drawings, it has been assumed that the existing steel is weldable. The Contractor shall retain the services of a testing agency to positively establish existing steel weldability and weld requirements. Alternate means of connection (field bolting in existing or newly reamed holes) may be required in locations where field welds are deemed unfeasible.
25. Quality Control
- A. Engage a qualified independent testing and inspecting agency to inspect field welds and bolted connections.
- B. Visually inspect all fillet welds and bolted connections according to AWS D1.1.
- C. Monitor the installation of end plate bolts requiring pre-tensioning for conformance with specific pre-calibrated tightening procedures.
- D. Test each full penetration butt or groove weld and fifty percent (50%) of partial penetration welds by the ultrasonic method, ASTM E164.
- E. Test ten percent (10%) of all field fillet welds in primary connections and multi-pass welds by the magnetic particle method, ASTM E709. Cracks or zones of incomplete fusion or penetration will not be accepted.
- F. Test any weld for which visual examination indicates an unusual condition and/or poor quality.
- G. Welding inspection and testing procedures shall be in accordance with the AWS code.
26. Correct deficiencies in Work that test reports and inspections indicate do not comply with the Contract Documents.
27. See Quality Control specification requirements.

STEEL DECK

1. Steel deck shall be designed, detailed and installed in accordance with the "Design Manual for Floor Decks and Roof Decks" of the Steel Deck Institute, latest edition.
2. Welding of the steel deck shall be performed by certified welders and shall conform to the "Structural Welding Code AWS/AWS D1.3-2008", American Welding Society.
3. Steel roof deck shall be 1-1/2" – 20 gauge – type "B" galvanized with G-60 coating and shall conform to ASTM A653 structural quality grade 33 or higher.
4. Install steel deck in accordance with SDI suggested Specifications unless noted otherwise on the drawings. Steel deck shall be detailed to have a minimum of three continuous spans. The steel deck supplier shall supply decks of greater gauges where three span conditions cannot occur. Ends of adjacent deck units shall meet over supports, with either lapped or butted joints, at appropriate.
5. Steel deck properties are based on products manufactured by Valcort, a division of Nucor Corporation. Steel deck by other manufacturers may be supplied, provided load carrying capacity based on manufacturer's standard load tables, deflection characteristics, and UL fire ratings equal or exceed those of materials specified and if approved by the Architect and TKG.
6. Steel deck supplier shall provide steel closure angles and purlins, pour slopes, screed edges, roof sump pans and shall provide all additional framing to support deck at openings and column areas to result in a complete installation and as required, in accordance with the Steel Deck Institute.
7. Fasten steel roof deck at the ends of the deck units and at all intermediate supports with 5/8" puddle welds at 12" o.c. in a 36/4 pattern. Fasten perimeter edges of deck panels with 5/8" puddle welds at 12" o.c.. Fasten side laps with #10 TEK screws at quarter points between the supports. Welding washers shall be used as required by the deck manufacturer. Any split or partial panels shall be fastened to the supporting structure in every valley regardless of adjacent fastener patterns.
8. Steel deck installer may substitute alternate means of mechanical fastening in lieu of welding if connection and diaphragm capacity is maintained.
9. Inspect steel deck installation in accordance with SDI and AWS.

DESIGN LIVE LOADS

- Roof 30 psf + Drift
- Floor 100 psf
- Wind (Main Wind Force Resisting System):
- Basic Wind Speed (3-second gust): 80 mph
- Wind Importance Factor, I_W : 1.15 (based on occupancy category: 3)
- Wind Exposure Category: B
- Components and Cladding design pressure: 15.3 psf / per ASCE 7

- Seismic (Main Seismic Force Resisting System):
- Seismic Importance Factor (I_e): 1.25
- Spectral Response Acceleration:
- SS: 0.35
- S1: 0.07
- Site Class (S): D
- Spectral Response Coefficient:
- SRS: 0.34
- S01: 0.11
- Seismic Design Category: C
- Basic Seismic Resisting System: Moment Resisting Frames
- Design Base Shear: 52.5 kips
- Seismic Response Coefficient (CS): 0.06
- Response Modification Factor (R): 3
- Analysis Procedure: Equivalent Lateral Force Procedure

SYMBOLS LEGEND

CONCRETE WALL

CONCRETE UNDERPINNING

MASONRY WALL

SHEAR WALL

STUD WALL

DENOTES EXISTING STRUCTURE

BUILDING OR WALL SECTION

DETAIL OR ENLARGED PLAN

ELEVATION WORK POINT

DECK OR SLAB SPAN DIRECTION

PLANK SPAN DIRECTION

DENOTES REVISION

DENOTES STEP IN SLAB

SLOPE

ABBREVIATIONS LEGEND

AD	American Concrete Institute	LT	Light Weight
ASC	American Inst. of Steel Construction	LTL	Lintel
		LWC	Lightweight Concrete
ASTM	American Society of Testing & Materials	MAS	Masonry
		MAX	Maximum
		MEM	Membrane
AB	Anchor bolt	MIN	Minimum
ABV	Adhesive	MSC	Miscellaneous
ADJ	Adjustable	MO	Masonry opening
AFF	Above Finished Floor	NAT	Natural
ALT	Alternate	NIC	Not in Contract
ARCH	Architect	NO or #	Number (# in concrete detailing)
		NOM	Nominal
		NIS	Not to Scale
BPL	Bearing Plate/Base Plate	OC	Overall
BLKG	Blocking	OD	On Center
BM	Beam	OC	On Outside Diameter
BT	Bottom	OF	Outside Face
BNT	Bent	OP	Opening
		OPP	Opposite
C-C	Center to Center	PART	Partition
CJT	Construction Joint	PC	Piece
CLR	Clear / Clearance	PCC	Precast Concrete
CMU	Concrete Masonry Unit(s)	PCC	Pounds per Cubic Foot
COL	Column	PEN	Penetration
CONC	Concrete	PFB	Prefabricate(d)
CONN	Connection	PL	Plate
CONSTR	Construction	PLS	Plaster
CONV	Continuous	PLYM	Plywood
COORD.	Coordinate	PRESS	Pressure
CSK/S	Countersunk Screw	PROJ	Project, Protected, Projection
		PSF	Pounds per Square Foot
		PSI	Pounds per Square Inch
d(penny)	Nails	R	Radius
D	Depth	R/C	Reinforced Concrete
DET	Detail	RD	Roof Drain
DIA	Diameter	REC	Rectangular
DAG	Diagonal	RECT	Refer(ence)
DEN	Determine	REIN	Reinforcing
DWLS	Drawing	REQD	Required
DWG	Drawing	REV	Review, Revision
E	Each	RFR	Rafter
EF	Each Face		
EW	Each Way	SCHED	Schedule
EL or ELEV	Elevation	SECT	Section
EOS	Edge of Slab	SEIS	Seismic
EQ	Equal	SGT	Sheet
EXIST	Existing	SHG	Sheeting
EXP	Expansion	SHR	Shrink
EXP JT	Expansion Joint	SL	Slip Critical
		SJ	Steel Joint
FDN	Foundation	SLG	Slab on Grade
FIN	Finish	SP	Spandrel
FLG	Flanking	SPCC	Spacing
FLR	Floor	SPCS	Specification
FRMG	Framing	SQ	Square
FT	Foot	SS	Stainless Steel
FTG	Footing	STD	Standard
GA	Gauge, Gage	STOR	Storage
GALV	Galvanized	STIFF	Stiffener
GC	General Contractor	STRR	Strut
GLM	Glued Laminated	STR	Steel
GR	Grade	STRUT	Structural
GYP	Gypsum	SYMM	Symmetrical
		T	Top
HNGR	Hanger	T&G	Tongue and Groove
HT	Height	PT/SL	Top of Slab
HP	High Point	PT/STL	Top of Steel
HK	Hole	PT/W	Top of Wall
HORIZ	Horizontal	THK	Thick
		THRU	Through
ID	Inside Diameter	TRU	Typical
IF	Inside Face	UBC	Uniform Building Code
IN	Inch	VERT	Vertical
INCL	Inclusive		
		W	Width
		WF	Wide Flange
		W	With
		W/O	Without
		WD	Wood
		WP	Waterproof
		WPT	Working Point
		WGT	Weight
		WFF	Welded Wire Fabric

STRUCTURAL DRAWING LIST

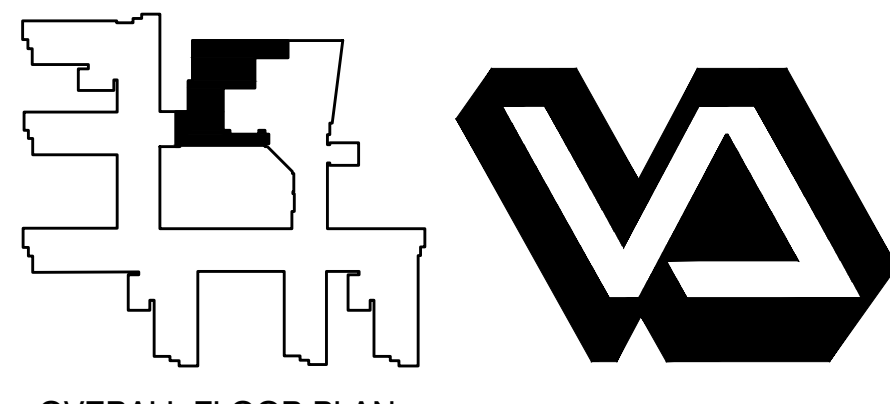



S001	STRUCTURAL NOTES, SYMBOLS & ABBREVIATIONS
S101	FOUNDATION/FIRST FLOOR PLAN
S102	SECOND FLOOR FRAMING PLAN
S103	ROOF FRAMING PLAN
S301	ELEVATIONS
S601	FOUNDATION SECTIONS AND DETAILS
S602	FRAMING SECTIONS
S603	TYPICAL FRAMING DETAILS

REFERENCE DRAWINGS

135-S1 THRU 135-S14 DATED 16 JULY 1985
BY: PAULUS, SOKOLOWSKI & SARTOR CONSULTING
SITE & STRUCTURAL ENGINEERS
WARREN, NJ.

SEE OTHER DRAWINGS ATTACHED FOR FURTHER INFORMATION:
DATED: 16 JULY 1985
BY: PAULUS, SOKOLOWSKI & SARTOR CONSULTING
SITE & STRUCTURAL ENGINEERS

135-B1 BORING AND TEST PIT LOCATION PLAN
135-B2 BORING LOGS
135-B3 TEST PIT LOGS
135-B4 TEST PIT LOGS AND SUBSURFACE SECTIONS

Revisions	Date		Department of Veterans Affairs New Jersey Health Care System 151 Knollcroft Road Lyons, New Jersey 07939		BBLM Architects	Architecture 924 Cherry Street	Planning Phila., PA 19107	Interiors (215) 625-2300		Ritter & Pianta Associates, LLC 4220 Main Street Philadelphia, PA 19127 t: (215) 508-3800 f: (215) 508-3800	
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