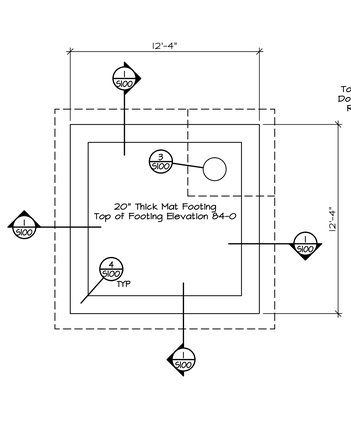
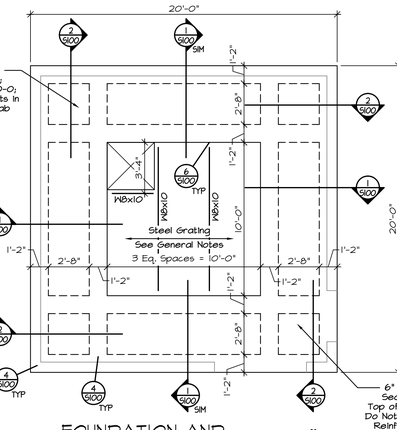


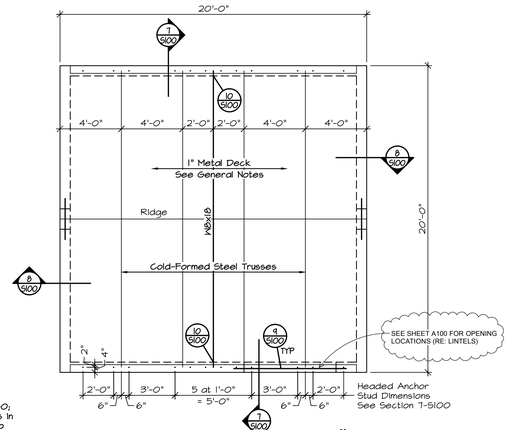
PIT FOUNDATION PLAN

0 2' 4' 6' 8' 1/4" = 1'-0"



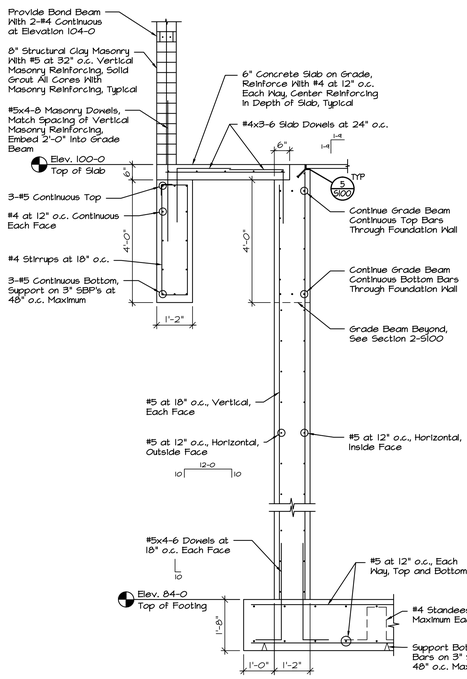
FOUNDATION AND FLOOR FRAMING PLAN

0 2' 4' 6' 8' 1/4" = 1'-0"



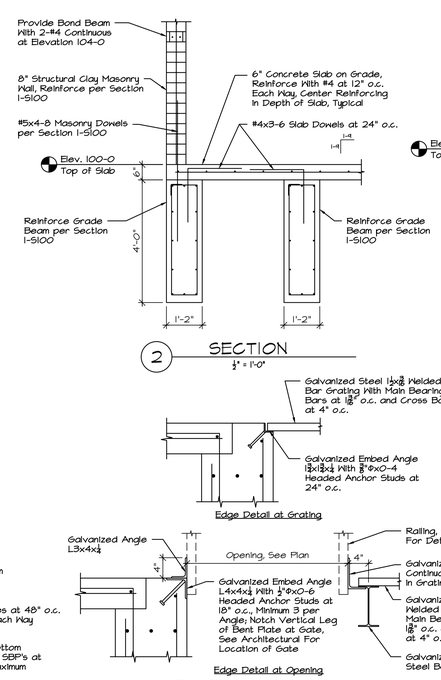
ROOF FRAMING PLAN

0 2' 4' 6' 8' 1/4" = 1'-0"



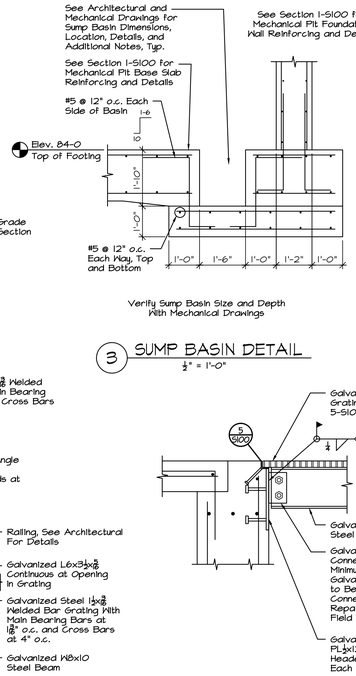
1 SECTION

1/2" = 1'-0"



2 SECTION

1/2" = 1'-0"

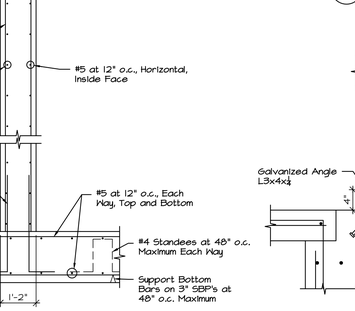


3 SUMP BASIN DETAIL

1/2" = 1'-0"

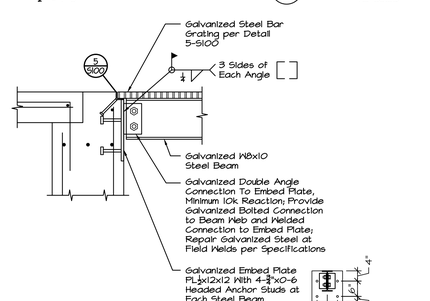
4 CORNER BAR DETAIL

No Scale



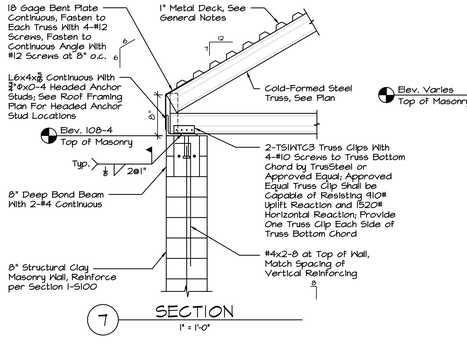
5 DETAIL

1" = 1'-0"



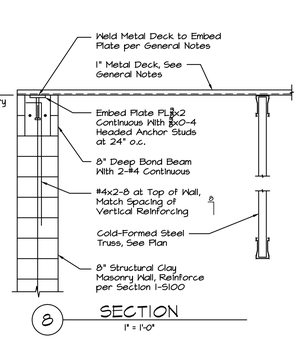
6 DETAIL

1" = 1'-0"



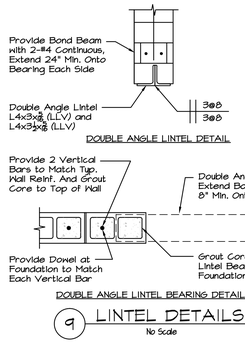
7 SECTION

1" = 1'-0"



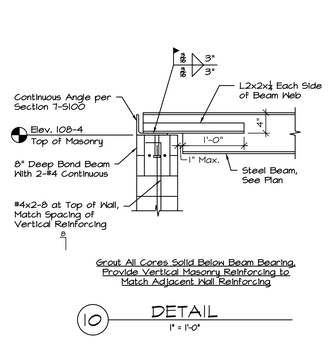
8 SECTION

1" = 1'-0"



9 LINTEL DETAILS

No Scale



10 DETAIL

1" = 1'-0"

GENERAL STRUCTURAL NOTES

General Contractor shall review and stamp all the shop drawings before submitting for review.
Field verify all existing dimensions, elevations, and conditions. Notify the Architect for direction if the actual existing conditions differ from the conditions shown or implied on the drawings.
Verify all dimensions and elevations with the Architectural Drawings.
See the Architectural drawings for the exact dimensions for openings in the walls, roof and floor systems.
Verify all mechanical opening sizes and locations with the mechanical contractor.
Verify all electrical opening sizes and locations with the electrical contractor.
No pipes, sleeves, or etc. shall pass through the beams or columns unless indicated on the plan.
Do not hang or attach any architectural, mechanical, or electrical elements or systems from the metal deck unless specifically approved otherwise.
The Contractor shall design, provide, and maintain temporary bracing, shoring, guying, etc. and other methods as required to prevent any excessive loading and to stabilize the structural elements during construction. These methods shall remain in place until all members and final connections have been completed.
The foundation is designed for an allowable bearing pressure of 2000 psf as recommended in the Geotechnical Report prepared by Allied Laboratories, Project No. 14-12453-2754.
The building's structural system is designed per the International Building Code - 2006 Edition.
The Contractor shall perform all material testing and inspection requirements for compliance with the governing building code, the project specifications, the local building inspection department, and the following Structural Special Inspection Notes.
Structural steel and metal deck erection shall comply with OSHA Standard 29 CFR Part 1926, Subpart R and all other governing regulations. Structural steel suppliers and fabricators shall incorporate the requirements of this standard into the materials fabricated and supplied on this project.

DESIGN LOADS

Building structure is designed for the following loads and criteria:

Building Occupancy Category:		II
Dead:	Dead load:	Weight of materials and construction plus weight of fixed service equipment
Live:	Roof live load:	20 psf (non-reducible)
	Floor live load:	150 psf
Snow:	Ground snow load:	Pg = 15 psf
	Flat-roof snow load:	Pf = 12 psf
	Drifting snow load:	ASCE 7-05
	Snow exposure factor:	Ce = 1.0
	Snow load importance factor:	I = 1.0
	Thermal factor:	Ct = 1.1
Wind:	Basic wind speed (3-second gust):	90 MPH
	Wind importance factor:	I = 1.0
	Wind exposure category:	C
	Internal pressure coefficient:	±0.18
Seismic:	Seismic importance factor:	I = 1.0
	Mapped spectral response accelerations:	Ss = 0.135
		S1 = 0.076
	Spectral response coefficients:	Sds = 0.144
		Sd1 = 0.082
	Site class:	D
	Seismic Design Category:	B
	Basic seismic-force resisting system:	Ordinary reinforced masonry shear walls
	Seismic response coefficient:	Cs = 0.072
	Response modification factor:	R = 2.00
	Analysis procedure:	Equivalent lateral force

STRUCTURAL SPECIAL INSPECTIONS

The Contractor shall engage one or more qualified independent testing and inspecting agencies to perform the material testing and inspection requirements as outlined in the project specifications and this section.
Testing and inspection reports shall be furnished to the Contracting Officer's Representative (C.O.R.), the Architect, and the Structural Engineer. Reports shall indicate that the materials tested and the work inspected are in conformance with the Contract Documents. Discrepancies shall be brought to the attention of the Contractor for correction. If the discrepancies are not corrected, the discrepancies shall be reported to the C.O.R., the Architect, and the Structural Engineer.
The testing and inspecting agencies shall submit a final report for each type of work stating that any discrepancies noted in the testing and inspections have been corrected and that the structural work was, to the best of their knowledge, performed in conformance with the Contract Documents.
The testing and inspection program does not relieve the Contractor of any responsibility for constructing the project in accordance with the Contract Documents and for controlling the quality of construction.
The Contractor shall be responsible for the scheduling and the timely notification of the testing and inspection agencies of the need for material testing or inspections.
All work which requires testing or inspection shall be ready for testing or inspection at the time of the testing and inspecting agency's visit. No work shall be performed which would conceal items to be tested or inspected until the work has been reviewed and accepted.
The following types of work require special inspection (IBC references refer to the International Building Code edition referenced above).

1. Inspection of fabricators shall comply with IBC Section 1704.2.
2. Testing and inspection of steel construction shall comply with IBC Section 1704.3 and IBC Table 1704.3.
   a. Submit AWS welder certification on all personnel performing shop fabrication or field erection welding.
   b. Perform visual inspection of all shop fabrication and field erection welds.
   c. Perform ultrasonic inspection of all partial or complete joint penetration welds during the shop fabrication and field erection.
   d. Perform continuous inspection of all fillet welds greater than 5/16" during the shop fabrication and field erection.
   e. Perform periodic inspection of all snug-tightened (Type ST) bolted connections.
   f. Perform visual inspection of the metal roof deck fastener installation.
3. Testing and inspection of concrete construction shall comply with IBC Section 1704.4 and IBC Table 1704.4.
   a. Perform sampling and testing of cast-in-place concrete as specified.
   b. Perform periodic observation of reinforcing steel placement.
   c. Contractor shall maintain records of all batch reports and delivery tickets on each load of concrete delivered to the project site for periodic review by the Architect/Engineer.
4. Testing and inspection of masonry construction shall comply with IBC Section 1704.5 and IBC Table 1704.5.1.
   a. Perform inspection of the reinforcing steel placement and positioning, the block core cleaning and preparation, and the grout placement for proper consolidation, reconsolidation, and placement of the grout lift heights.
   b. Perform the sampling and testing of the mortar per ASTM C780 and grout per ASTM C1019 and as specified.
5. Testing and inspection of the soils shall comply with IBC Section 1704.7 and IBC Table 1704.7.
   a. Perform periodic sampling, testing, and inspection of the soil type, moisture content, and compaction as specified.
   b. Perform periodic testing and inspection of the soils at the foundation system bearing elevation to verify the required soil bearing capacities.
6. Testing and inspection of the post-installed anchors and post-installed reinforcing bars shall comply with IBC Section 1704.13.
   a. Perform an initial post-installed anchor and reinforcing bar installation inspection for each type and size of post-installed anchor and reinforcing bar. Any change in the personnel performing the post-installed anchor or reinforcing bar installation shall require an initial installation inspection.
   b. Perform periodic post-installed anchor and post-installed reinforcing bar installation inspections during the project to verify that the anchor and reinforcing bar installations continue to be properly performed.
   c. Post-installed anchor and reinforcing bar installation inspections shall verify anchor/reinforcing bar type, anchor/reinforcing bar diameter, anchor/reinforcing bar embedment depth, adhesive type, hole dimensions, anchor/reinforcing bar spacing, base material, hole cleaning procedures, and adherence to the manufacturer's installation instructions.
   d. Perform visual observation of all completed post-installed anchor and post-installed reinforcing bar installations.

CAST-IN-PLACE CONCRETE

All concrete shall have the following minimum compressive strengths at 28-days.

Mat Footings, Grade Beams, and Foundation Walls:	4000 psi
Interior Floor Slabs:	4000 psi
Exterior Slabs and Pavement:	4000 psi

All aggregate for normal weight concrete shall meet ASTM C33. Aggregates shall be proportioned such that mix design shall contain a minimum of 50% coarse aggregates by gradation requirements set forth in ASTM C33. Coarse aggregate shall meet No. 67 grading requirements.
Exterior exposed concrete shall have from 4 to 7% entrained air.
Concrete shall be in strict conformance with the current "ACI Manual of Concrete Practice".
No aluminum shall be placed in the concrete.
Chamfer all exposed edges of the concrete 3/4".
Provide concrete bases for the mechanical equipment. All shall be 4 inches thick on top of floor slabs on grade with 6x6-W2.1xW2.1 WWF, unless otherwise noted.
Conduit for pumps may be placed in concrete pit walls.
Do not tie conduit to reinforcing.
Provide a minimum 2 inches of cover on all sides of conduit.
Coordinate locations of conduit with Electrical Drawings and Contractor.

REINFORCING STEEL

All reinforcing shall meet ASTM A615 - 60,000.
All reinforcing steel shall have adequate coverage as indicated in ACI 318 for the given exposure.
Reinforcing shall be continuous and lapped a minimum of 24 inches or 36 bar diameters whichever is greater, unless otherwise noted.
Reinforcing shall be detailed according to the ACI Detailing Manual and shall be prepared under the supervision of a professional engineer licensed to practice in the State of Kansas.
Provide corner lap bars to match in size and spacing of all wall and grade beam horizontal bars per Detail 4-S100. Corner bars are not required in the wall footings, unless specifically indicated.
Provide 2-#5, 4'-0" longer than opening dimension, on all sides of the openings in the slabs and walls.
Provide 100 pounds of extra bars of various sizes to be used as directed. Include labor for placing same.
Provide 3-inch slab bolster with continuous bottom plate at 4'-0" maximum centers for positioning all grade beam bottom bars and all footing bottom bars.
Mark each bundle of the reinforcing with weatherproof tags.

STRUCTURAL CLAY MASONRY

All structural clay masonry units shall be made of fired clay or shale units and shall have a minimum compressive strength of 4150 psi on net area at 28-days.
All mortar for use in structural clay masonry shall conform to ASTM C 270, Type N.
Provide vertical reinforcement as indicated on the plan and sections. Bars for typical lift shall be shop cut for 4'-0" lifts plus a minimum 48 bar diameters lap. Field cut bars for top lift and non-typical lengths.
Provide dowels from the foundation to match in size and spacing of all vertical reinforcement.
Provide standard hook at the end of all vertical masonry reinforcing into top bond beam at roof bearing elevation.
Provide at least one vertical rebar at each end, side of control joints, jambs, corner, and intersection of all load bearing and exterior masonry walls. Size of rebar to match the size of typical vertical reinforcing. If the wall does not contain any vertical masonry reinforcing, provide 1-#4 vertical at the described locations.
Grout all reinforced vertical block cores and bond beams with minimum 2000 psi grout. Grout shall conform to ASTM C 476.
Provide 2-#4's continuous for all bond beams unless otherwise indicated on the plan. Furnish in shop lengths and field cut. See the plans (including architectural), sections and notes for the locations.
Provide one corner bar to match each horizontal bond beam.
Provide horizontal joint reinforcing in all structural clay masonry unit walls at 16 inches o.c. unless noted otherwise.
Provide vertical masonry reinforcing galvanized bar positioners at 48 inches o.c. at each vertical reinforcing bar. Provide bar positioners to match the wall thickness, bar size, and bar position as required.
Provide masonry control joints at a maximum spacing of 24'-0" o.c. unless noted or shown otherwise. Coordinate all control joint locations with the Architect/Engineer. Control joints shall not occur below or directly adjacent to the truss, beam or lintel bearing points.
Provide a bond beam at Elevation 104-0 at all exterior masonry walls.
Provide an 8-inch deep bond beam at the top of all exterior masonry walls, unless detailed otherwise.

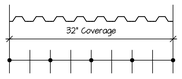
STRUCTURAL STEEL

Structural steel shall meet the latest AISC "Specification for Structural Steel Buildings."
The steel fabricator and detailer shall be responsible for the design and detailing of all steel framing connections which are not explicitly detailed on the contract documents. The submitted shop drawings shall clearly show and note all shop and field bolting and welding requirements.
All member loads, reactions, and moments defined on the drawings are ASD, service-load level, unless noted otherwise.
Steel framing members shall only be spliced at locations shown on the design drawings or as shown on and approved on the shop drawings.
Structural steel shop drawings shall be prepared under the supervision of a professional engineer licensed to practice in the State of Kansas.
All steel plates and shapes shall meet ASTM A36 except wide flange sections shall meet ASTM A992, Fy = 50 ksi. Structural steel tubing shall meet ASTM A500, Grade B, Fy = 46 ksi and structural piping shall meet ASTM A53, Grade B, Fy = 35 ksi.
All beam and column connections shall be made with A325 (Type 1) bolts and accessories. Connections shall be designed as snug-tightened (Type ST) bolted connections, unless noted otherwise.
All headed studs shall meet ASTM A108, Grade 1015-1020, and AWS D1.1, Type B.
Provide standard size holes for all bolts and anchors in steel framing members unless noted otherwise (1/16" larger hole than diameter of bolt or anchor).
Welding shall conform to AWS D1.1, "Structural Welding Code - Steel". All welds shall be AWS prequalified welded joints. No unauthorized welds will be accepted.
E70xx electrodes shall be used for all welding, U.N.O..
Steel lintels shall be provided over all the openings in the masonry walls, unless otherwise detailed.
See Lintel Detail 9-S100 for lintel requirements indicated on the drawings.
Not all masonry openings which require lintels are shown on the structural drawings. Refer to the architectural and mechanical drawings for the size and location of additional openings in the masonry walls.
Provide solid grouted masonry units below bearing of all lintels, beams, or etc.. Grout block cores with 2000 psi grout.
All field completed welding and bolted connections shall be reviewed and accepted by the Field Inspection and testing agency prior to the installation of subsequent work.

METAL ROOF DECK

Metal Deck shall be 1", 22 gage, Type E, continuous over three or more spans. Roof deck shall be galvanized and shall conform to ASTM A924 and/or A653 with a minimum G60 coating. Provide metal deck in full length sheets. Metal roof deck is designed to resist diaphragm forces, and shall be connected using size 12 screw fasteners to all supports as follows:

Metal roof deck shall be fastened to all supports with a 32/5 pattern.
Side laps shall have two size 10 screw fasteners between supports.
Deck shall be attached to all perimeter boundary members parallel with deck flutes with size 12 screws at 8 inches o.c., where such members occur. Deck shall be attached to embed plate perimeter boundary members perpendicular with deck flutes at gable end walls with nominal 5/8"ø paddle weld at 8 inches o.c., where such members occur. Partial deck sheets used to complete deck layout shall be attached to the supporting members at all flutes. Only qualified welders who shall make practice welds prior to the actual job welding shall do welding. Practice welds shall be made on deck to check welding rod, amperage, and burn-off rate to produce satisfactory fusion. Welds shall be in accordance with the current standards of the American Welding Society.



STEEL GRATING

Steel grating shall be galvanized welded rectangular bar grating, Type 19-W-4 by Ohio Gratings Inc., or equal.
Main bearing bars shall be 1-1/2 x3/16 inches, spaced 1 3/16 inches center to center.
Crossbars shall be welded at right angles to the bearing bars, spaced 4 inches center to center.
No notching or cutting of bearing bars before welding is permissible.
Grating surface shall be plain.
Attach grating to the supporting structure with saddle clips and screw fasteners.

COLD-FORMED STEEL TRUSSES

Trusses and connections shall be designed by the truss manufacturer for the defined criteria and to support the following loads:

Dead Load	Top Chord:	15 psf
	Bottom Chord:	10 psf

Total Dead Load to be used in the Net Uplift Calculation shall not exceed 60 percent of the Dead Load indicated.
See "Design Loads" section for live load, snow load, wind load, and seismic design criteria.
In addition to the uniform loads, all trusses shall be designed to support a 200 pound concentrated load applied to the top chord or bottom chord at any point along the length of the truss.
Where noted on the plans or details, trusses shall be designed for additional special loads as indicated.
Truss web configuration shall be determined by the truss manufacturer.
Provide a minimum 4-inch, 54 mil top chord and a minimum 4-inch, 43 mil bottom chord at all metal trusses.
Truss manufacturer shall design the truss to truss connections.
The connections referenced on the drawings are based on Trus Steel, an ITW Company.
Trusses and connections shall be designed and fabricated using the latest edition of the "Design Guide for Cold-Formed Steel Trusses" published by the American Iron and Steel Institute.
The truss design shall meet the requirements of the International Building Code - 2006 Edition, the AISC Specifications for Structural Steel Buildings, the AISI Specification for the Design of Cold-Formed Steel Structural Members, and the project specifications.
The trusses shall be designed to limit total load vertical deflection to L/240. Live load deflection shall be limited to L/360. Lateral load deflections for members exposed to the wind load shall be limited to L/240.
Computations for the design of truss members and connections shall be prepared and sealed by a professional engineer licensed to practice in the State of Kansas and shall be submitted for review along with the shop drawings.
Permanent bracing and bridging shall be designed by the truss manufacturer and shall be installed as shown on the shop drawings.
Provide adequate bottom chord bracing to resist wind uplift forces where a rigid ceiling is not attached to the bottom chord of trusses.
All roof trusses shall be anchored to all bearing points with the framing anchors.
Provide adequate anchorage and bracing during erection.

POST-INSTALLED ANCHORS

All post-installed anchors and post-installed reinforcing bars shall be installed per the manufacturer's installation instructions. All holes shall be drilled per the manufacturer's instructions with the required bit type and size to provide the minimum embedment length specified in the Structural drawings. All holes shall be cleaned per the manufacturer's instructions with a brush and compressed air prior to installing the anchor or reinforcing bar.
The installation of all post-installed anchors and post-installed reinforcing bars shall be performed by personnel trained and certified by the American Concrete Institute/Concrete Reinforcing Steel Institute or trained by the post-installed anchor and/or adhesive manufacturer for the type of anchor or reinforcing bar being post-installed.
Expansion anchors installed into concrete shall be wedge anchors equal to Hilti Kwik Bolt TZ Stud Anchor or Simpson Strong-Tie Strong-Bolt2.
Expansion anchors installed into solid grouted masonry shall be wedge anchors equal to Hilti Kwik Bolt 3 Stud Anchor.
Adhesive anchors or reinforcing bars installed into concrete or solid grouted masonry shall use Hilti HIT-HY 150 MAX Adhesive Anchoring System or an approved equal.
A piston plug injection procedure approved by the adhesive manufacturer shall be used for the injection of adhesive into holes greater than 10 inches in depth.
Simpson Strong-Tie SET-XP, Hilti HIT-HY 150 MAX-SD, and Hilti HIT-RE 500-SD are approved equal adhesive anchoring systems for adhesive anchors or reinforcing bars installed into concrete.
Simpson Strong-Tie SET is an approved equal adhesive anchoring system for adhesive anchors or reinforcing bars installed into solid grouted masonry.
All post-installed expansion anchors must be tightened to the anchor manufacturer's recommended installation torque.
The installation of all post-installed anchors and post-installed reinforcing bars shall be reviewed and accepted by the field testing and inspection agency.

BLDG. LOCATION & ORIENTATION CHANGES	4-1-13
REVISIONS	DATE

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PROJECT TITLE	CONSTRUCT BACKUP WATER SYSTEM
LOCATION	WICHITA VAM&ROC 5500 E KELLOGG
ISSUE DATE	6-20-2014
CHECKED	M.J.H.
DRAWN	A.J.W.
PROJECT NUMBER	589A7-12-127
BUILDING NUMBERS	
DRAWING NUMBER	S100
	DWG 7 OF 8

Office of Facilities Management

Department of Veterans Affairs