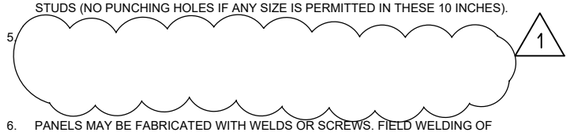
COLD-FORMED STEEL FRAMING

1. STRUCTURAL PROPERTIES OF THE FRAMING MEMBERS SHALL BE COMPUTED IN ACCORDANCE WITH AISI "NORTH AMERICAN STANDARD FOR COLD-FORMED STEEL FRAMING".
2. MINIMUM YIELD STRENGTH (F_Y) FOR STUDS IS 33,000 PSI FOR 18GA. AND 20 GA MATERIALS, AND 50,000 PSI FOR 16 GA, 14 GA, AND 12 GA. MATERIALS.
3. ALL STUDS, TRACK, BRIDGING AND ACCESSORIES SHALL BE FORMED FROM STEEL HAVING A G60 GALVANIZED COATING MEETING THE REQUIREMENTS OF ASTM A525.
4. A MINIMUM OF 10" OF UN-PUNCHED STEEL IS REQUIRED AT BOTH ENDS OF STUDS (NO PUNCHING HOLES IF ANY SIZE IS PERMITTED IN THESE 10 INCHES).



6. PANELS MAY BE FABRICATED WITH WELDS OR SCREWS. FIELD WELDING OF MATERIAL LESS THAN 18 GA. SHALL NOT BE PERMITTED. WELDS SHALL BE PERFORMED BY OPERATORS QUALIFIES IN ACCORDANCE WITH SECTION 6.0 OF THE AMERICAN WELDING SOCIETY'S "STRUCTURAL WELDING CODE-SHEET METAL" (AWS D1.3-8).
7. BOTH STUD FLANGES MUST BE ATTACHED TO TRACK AT TOP & BOTTOM WITH MINIMUM #12 SCREWS OR WELD.
8. ALL WELDS SHALL BE TOUCHED UP WITH ZINC RICH PAINT.
9. STUDS SHALL HAVE FULL BEARING AGAINST THE INSIDE TRACK WEB TOP AND BOTTOM. STUDS MUST BE CUT SQUARE. THE PANELIZATION FACILITY MUST UTILIZE A COMPRESSION MECHANISM IN THEIR JIGS (I.E.: HYDRAULIC RAMS) TO FULLY SEAT THE STUDS IN THE TRACK PRIOR TO ATTACHING.
10. TRACK SPLICES WITHIN A PANEL MUST BE SECURELY ANCHORED TO A COMMON ELEMENT (I.E.: STUD OR HEADER); OR BUTT-WELDED TOGETHER.
11. LATERAL BRIDGING SHALL BE USED TO RESIST TORSIONAL FORCES ON THE LOAD-BEARING STUDS. BRIDGING SHALL BE MINIMUM 1 $\frac{1}{2}$" CRC CHANNEL IN 3 $\frac{5}{8}$" OR 4" STUDS AND 2 $\frac{1}{2}$" CRC IN 6" STUDS.
12. BRIDGING IS TO BE SPACED AT NO MORE THAN 4'-0" O.C. VERTICALLY AT APPROXIMATELY THE THIRD POINT VERTICALLY.
13. MINIMUM TRACK FASTENING SHALL BE MINIMUM .177" DIAMETER POWDER ACTUATED FASTENERS SPACED ON 16" CENTERS (UNO.), WITH 1" MINIMUM PENETRATION INTO CONCRETE.
14. VOIDS BENEATH TRACK SHALL NOT BE PERMITTED, CONTRACTOR SHALL PROVIDE A REASONABLY LEVEL SLAB WITH TOLERANCE OF1/8" IN 10 FEET. WHERE UNEVENNESS OF SUPPORTING FLOOR PREVENTS CONTINUOUS SOLID BEARING, PANEL OR TRACK SHALL BE LEVELED BY A METHOD APPROVED BY THE ENGINEER OF RECORD.
15. CONTINUOUS STUDS EACH SIDE OF HEADERS SHALL BE EQUAL TO 1/2 OF THE INTERRUPTED STUDS PLUS ONE STUD AT EACH SIDE. USE MINIMUM OF TWO (2) STUDS EACH SIDE. HEADERS SHALL BE DESIGNED TO TRANSFER ALL UNIFORM AND/OR CONCENTRATED LOADS. SHEAR SHALL BE TRANSFERRED BY FULL BEARING ON JACK STUDS OR BY SHEAR PLATES. SHEAR PLATES SHALL BE 16 GA. MINIMUM.
16. CUTTING OF LOAD-BEARING METAL STUDS, OR TRACK IS NOT PERMITTED WITHOUT SPECIFIC APPROVAL FROM THE ENGINEER OR RECORD.
17. MULTIPLE STUD "COLUMNS" SHALL BE WELDED TOGETHER IN GROUPS OF AT LEAST TWO STUDS WITH 2" TOP & BOTTOM AND 1" @ 24" O.C. BOTH SIDES IN BETWEEN.
18. AT WALL LOCATIONS WHERE MULTIPLE STUDS ARE REQUIRED TO SUPPORT VERTICAL LOADS, A CONTINUOUS LOAD PATH SHALL BE PROVIDED TO SUPPORT THOSE LOADS THROUGH THE STRUCTURE INCLUSIVE OF THE FLOOR SYSTEM TO THE FOUNDATION. THIS MAY BE ACCOMPLISHED THROUGH THE USE OF HOLLOW STRUCTURAL SECTIONS (HSS), BEAMS, HEADERS, STIFFENERS, OR OTHER APPROPRIATE MEANS BASED ON LOCATION AND DETAILING CONSIDERATION.
19. CONTACTOR SHALL BE RESPONSIBLE FOR THE DESIGN OF ALL COLD-FORMED STEEL FRAMING. THE COLD-FORMED STEEL FRAMING COMPONENTS AND CONNECTION DETAILS SHOWN ON THE STRUCTURAL DRAWINGS ARE DIAGRAMMATIC ONLY. SEE ARCHITECTURAL DETAILS FOR FRAMING LAYOUTS AND SECTIONS.
20. SUBMIT SHOP DRAWINGS AND STRUCTURAL ANALYSIS CALCULATIONS SIGNED AND SEALED BY A LICENSED PROFESSIONAL ENGINEER RESPONSIBLE FOR THE DESIGN OF COLD-FORMED METAL ROOF, FLOOR FRAMING, WALLS, SHEAR WALLS, ANCHORAGE, SHEATHING, ATTACHMENT, ETC.. SHOP DRAWINGS SHALL INCLUDE DESIGN LOADINGS AND REACTIONS APPLIED TO THE SUPPORTING STRUCTURE. INCLUDE PLACING DRAWINGS FOR FRAMING MEMBERS SHOWING SIZE AND GAGE DESIGNATIONS, NUMBER, TYPE, LOCATION AND SPACING. INDICATE CONNECTIONS, SUPPLEMENTAL STRAPPING, BRACING, SPLICES, BRIDGING, ACCESSORIES AND DETAILS AND CONSTRUCTION SEQUENCE REQUIRED FOR PROPER AND SAFE INSTALLATION.

STRUCTURAL STEEL

1. STRUCTURAL STEEL SHALL CONFORM TO THE AISC "SPECIFICATIONS FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS", 14TH EDITION, **ASD**.
2. WELDED CONNECTIONS SHALL CONFORM TO THE LATEST REVISED CODE OF THE AMERICAN WELDING SOCIETY, AWS D1.1.
3. BOLTS AND BOLTED CONNECTIONS SHALL CONFORM TO THE REQUIREMENTS OF THE "SPECIFICATIONS FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS" LATEST EDITION AS APPROVED BY THE COUNCIL ON RIVETED AND BOLTED JOINTS. USE BEARING-TYPE WITH THREADS INCLUDED IN THE SHEAR PLANE. ANCHOR RODS SHALL CONFORM TO ASTM F-1554, GRADE 36, OR AS SPECIFIED ON THE DRAWINGS.
4. ALL BOLTS SHALL BE TIGHTENED TO A "SNUG-TIGHT" CONDITION, UNLESS NOTED OTHERWISE. BOLTED MOMENT CONNECTIONS, SHALL BE CONSIDERED "SLIP-CRITICAL", WITH THE BOLTS FULLY PRE-TENSIONED.
5. TYPICAL MATERIALS ARE AS FOLLOWS:
   a. PLATES, ANGLES, CHANNELS AND S-SHAPES SHALL BE ASTM A36.
   b. WIDE FLANGE SHAPES SHALL BE A992, GRADE 50.
   c. PIPE SHALL BE A53, GRADE B.
   d. HSS SHALL BE A500 GRADE B.
6. WELDING ELECTRODES SHALL BE E70 XX (LOW HYDROGEN) OR BETTER. FOR WELDING SYMBOLS WITH NO LENGTH DIMENSION GIVEN, THE WELDING SHALL BE CONTINUOUS BETWEEN ABRUPT CHANGES IN DIRECTION. WELDS NOT OTHERWISE NOTED SHALL BE ¼" IN SIZE.
7. ALL WELDING OF GALVANIZED STEEL SHALL COMPLY WITH REQUIREMENTS IN AWS D-19.0 "WELDING ZINC COATED STEEL"
8. IN GENERAL, IT IS THE INTENT OF THESE PLANS AND SPECIFICATIONS THAT ALL SHOP CONNECTIONS BE WELDED OR BOLTED AND ALL FIELD CONNECTIONS BE BOLTED EXCEPT WHERE NOTED OTHERWISE.
9. THE FABRICATOR IS TO ENGAGE A PROFESSIONAL ENGINEER, REGISTERED IN THE STATE OF THE PROJECT, TO DESIGN, SIGN AND SEAL ALL CONNECTIONS (INCLUDING MOMENT CONNECTIONS) BASED ON FORCES SHOWN ON DRAWING. SUBMIT CONNECTIONS DESIGN, SHOP AND ERECTION DRAWINGS TO THE EOR FOR APPROVAL.
10. VERIFY THE EXACT SIZE AND LOCATION OF ALL OPENINGS PRIOR TO FABRICATION OF STEEL FRAMING MEMBERS.
11. OPENINGS THROUGH STEEL BEAMS SHALL BE PROVIDED AS DETAILED ON THE DRAWINGS. ALL SUCH OPENINGS SHALL BE MACHINE CUT. ALL RECTANGULAR OPENINGS SHALL HAVE A CORNER RADIUS OF 2 TIMES THE WEB THICKNESS, ½" MINIMUM.
12. ALL STEEL EXPOSED TO WEATHER OR DENOTED ON THE DRAWINGS TO BE GALVANIZED SHALL BE HOT-DIPPED GALVANIZED INCLUDING ALL STEEL PARTIALLY EXPOSED TO WEATHER, UNLESS NOTED OTHERWISE.
13. BEAM CONNECTIONS SHALL BE DESIGNED TO DEVELOP THE LOADS INDICATED ON THE DRAWING. IN NO CASE SHALL THE MINIMUM NUMBER OF ROWS OF BOLTS BE LESS THAN TWO NOR SHALL ANY CONNECTION MATERIAL BE THINNER THAN 5/16".
14. SET COLUMN BASE PLATES AND BEAM BEARING PLATES UPON NON-SHRINK, NON-METALLIC GROUT CONFORMING TO CRD-C-621-81. ACCEPTABLE PRODUCTS ARE AS FOLLOWS:
    "EUCO NS" BY EUCLID CHEMICAL COMPANY.
    "MASTERFLOW 713" BY MASTER BUILDERS.
    "5 STAR"

COMPOSITE METAL DECKING

1. STEEL DECK FABRICATION AND ERECTION SHALL CONFORM TO THE LATEST EDITION OF THE STEEL DECK INSTITUTE SPECIFICATIONS.
2. DECK SHALL INCLUDE ANY MISCELLANEOUS CLOSURE PIECES, METAL SCREEDS, ROOF CURBS, DRAIN SUMP PANS, REINFORCING AROUND OPENINGS, ETC. REQUIRED TO MAKE A COMPLETE JOB. MISCELLANEOUS ITEMS SHALL BE GALVANIZED AND SHALL BE NO THINNER THAN 18 GAGE.
3. STEEL COMPOSITE DECK SHALL BE GALVANIZED (G-60), UNLESS NOTED OTHERWISE.
4. CONCRETE SLABS ON METAL DECK ARE SUPPORTED BY THE METAL DECK.
5. PLACE CONCRETE SLAB REINFORCING ONE INCH FROM TOP OF SLAB. PROVIDE ADDITIONAL REINFORCING WHERE SHOWN ON THE DRAWINGS.
6. METAL DECK UNITS SHALL MEET THE PROJECT SPECIFICATIONS. DECK PLUS SLAB SHALL BE CAPABLE OF SUPPORTING SUPERIMPOSED LIVE LOADS.
7. DUE ALLOWANCE SHALL BE MADE FOR DEFLECTION OF UNSHORED SLABS. NO ADDITIONAL PAYMENTS WILL BE MADE FOR EXTRA CONCRETE USED TO BRING SURFACES TO REQUIRED ELEVATIONS.
8. COMPOSITE DECK SHALL BE PUDDLE WELDED (5/8"ϕ MINIMUM) TO EACH SUPPORT AT 12" CENTERS MAXIMUM SPACING. THE FIRST AND LAST RIBS OF EACH SHEET SHALL BE WELDED TO THE SUPPORTS. SIDE LAPS SHALL BE SCREWED WITH #10 SELF-TAPPING SCREWS AT 2'-0" ON CENTER MAXIMUM, UNLESS NOTED OTHERWISE. THE HEADED STUDS IN COMPOSITE CONSTRUCTION MAY BE SUBSTITUTED FOR PUDDLE WELDS.
9. ALL DECK SHALL SPAN OVER A MINIMUM OF 2 SUPPORTS. NO SINGLE SPAN DECK IS ACCEPTABLE, UNLESS SHOWN OTHERWISE ON THE DRAWINGS.
10. STEEL DECK CROSS SECTIONS ARE ONLY REPRESENTED DIAGRAMMATICALLY ON THE DRAWINGS.

STEEL ROOF DECK

1. STEEL DECK FABRICATION AND ERECTION SHALL CONFORM TO THE LATEST EDITION OF THE STEEL DECK INSTITUTE SPECIFICATIONS.
2. DECK SHALL INCLUDE ANY MISCELLANEOUS CLOSURE PIECES, METAL SCREEDS, ROOF CURBS, DRAIN SUMP PANS, REINFORCING AROUND OPENINGS, ETC. REQUIRED TO MAKE A COMPLETE JOB. MISCELLANEOUS ITEMS SHALL BE GALVANIZED AND SHALL BE NO THINNER THAN 18 GAGE.
3. STEEL DECK SUBMITTALS SHALL INCLUDE THE DIAPHRAGM CAPACITY AND THE UPLIFT CAPACITY OF THE DECK AND ALL THE FASTENING PATTERNS USED.
4. STEEL ROOF DECK SHALL BE GALVANIZED (G-90), UNLESS NOTED OTHERWISE.
5. STEEL ROOF DECK SHALL BE FASTENED USING HILTI X-ENP 19 OR X-HSN 24 FASTENER OR EQUIVALENT TO EACH SUPPORT WITH A 36/5 PATTERN WITH THE FIRST AND LAST RIBS OF EACH SHEET FASTENED TO THE SUPPORTS. SIDE LAPS SHALL BE SCREWED WITH (5) #10 SELF-TAPPING SCREWS PER SPAN, UNLESS NOTED OTHERWISE.
6. THE DECK SHALL HAVE THE FOLLOIWNG MINIMUM PROPERTIES:
   ROOF DECK: 1 ½" x20GA TYPE B
   I = 0.201 in4
   Sp = 0.234 in3
   Sn = 0.247 in3
7. ALL DECK SHALL SPAN OVER A MINIMUM OF 2 SUPPORTS. NO SINGLE SPAN DECK IS ACCEPTABLE, UNLESS SHOWN OTHERWISE ON THE DRAWINGS.
8. STEEL DECK CROSS SECTIONS ARE ONLY REPRESENTED DIAGRAMMATICALLY ON THE DRAWINGS.
9. DO NOT SUSPEND POINT LOADS FROM DECK INCLUDING HANGERS FOR CEILINGS, PIPES, DUCTS, EQUIPMENT, ETC. CONTRACTOR INSTALLING SUCH POINT LOADS SHALL PROVIDE SUB-FRAMING TO TRANSFER LOAD TO STRUCTURE SUPPORTING DECK.

POST-INSTALLED MECHANICAL ANCHORS

1. EXPANSION TYPE ANCHORS SHALL BE ICC-ES APPROVED.
2. ANCHORS TO MASONRY SHALL BE HILTI KWIK BOLT 3 MASONRY ANCHORS OR ICC-ES APPROVED EQUIVALENT, EXCEPT AS NOTED.
3. EXPANSION ANCHORS OF THE DIAMETER AND EMBEDMENT SHOWN ON THE DRAWINGS SHALL BE INSTALLED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, THE CURRENT ICC-ES REPORT FOR THE BOLT AND THE RECOMMENDATIONS OF THE MANUFACTURER. WHERE THESE PROVISIONS CONFLICT, THE MORE STRINGENT REQUIREMENTS SHALL GOVERN.
4. EXPANSION ANCHOR DESIGN IS BASED ON ICC-ES CAPACITY FOR INSTALLATION WITHOUT SPECIAL INSPECTION.
5. ANY SUBSTITUTIONS OF THE ANCHORS MUST BE APPROVED BY THE STRUCTURAL ENGINEER.
6. ANCHORS SHALL BE ZINC PLATED UNLESS OTHERWISE NOTED AS STAINLESS STEEL.
7. WHEN DETAILS INDICATE EXPANSION ANCHORS WITH NO SIZE, PROVIDE ANCHORS OF 5/8" NOMINAL DIAMETER.
8. EXPANSION ANCHORS SHALL NOT BE USED AS HOLD-DOWN ANCHORS.
9. EXPANSION ANCHORS SHALL NOT BE USED FOR NON-VIBRATION ISOLATED EQUIPMENT RATED OVER 10 HORESEPOWER WITH RECIPROCATING OR ROTATING MECHANISMS; ANCHORS SHALL BE UNDERCUT ANCHORS.
10. WHEN INSTALLING DRILLED IN ANCHORS USE CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE EXISTING REINFORCING BARS.
11. IT IS RECOMMENDED THAT 1/4" PILOT HOLES BE DRILLED TO CONFIRM THAT EXISTING REINFORCING BARS ARE NOT PRESENT AND THAT ALL HOLES BE DRILLED WITH A HAMMER DRILL AND CARBIDE DRILL BITS.
12. HOLES SHALL BE DRILLED, CLEANED AND PREPARED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION. HOLES SHALL BE FREE OF DEBRIS BY IN-HOLE BRUSHING COMBINED WITH A VACUUM OR OIL-FREE COMPRESSED AIR; JETTING HOLES WITH WATER IS NOT PERMITTED.
13. FOLLOWING ATTAINMENT OF 10% OF THE SPECIFIED INSTALLATION TORQUE, 100% OF THE SPECIFIED TORQUE SHALL BE REACHED WITHIN (7) OR FEWER COMPLETE TURNS OF THE NUT. IF THE SPECIFIED TORQUE IS NOT ACHIEVED WITHIN THE REQUIRED NUMBER OF TURNS, THE ANCHOR SHALL BE REMOVED OR ABANDONED.
14. ALL UNNECESSARY AND UNUSED HOLES SHALL BE COMPLETELY FILLED WITH NON-SHRINK EPOXY GROUT. CLOSELY MATCH THE COLOR OF THE GROUT WITH THE COLOR OF THE EXISTING SURFACES OR PAINT TO A MATCHING COLOR. REFER TO GROUT MANUFACTURER'S RECOMMENDATIONS FOR PAINT.
15. HOLES IN CONNECTION PLATES SHALL BE NO MORE THAN 1/16" LARGER THAN THE BOLT DIAMETER.
16. MINIMUM EMBEDMENT LENGTH OF EXPANSION ANCHORS INTO SOLID (OR GROUTED) MASONRY OR CONCRETE SHALL BE AS FOLLOWS:
    5/8" DIAMETER EXPANSION ANCHORS - 4" EMBEDMENT.
    3/4" DIAMETER EXPANSION ANCHORS - 4 ¾" EMBEDMENT.

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3/17/21

NO.	REVISIONS	BY	DATE
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DESIGNED NN | CHECKED CAM
DRAWN DPF | IN CHARGE CAM

DESIGN AGENCY
PRIME AE
540 White Pond Drive, Ste. E
Akron, Ohio 44320
(330)-864-7755

OHIO TURNPIKE

GENERAL NOTES

WESTGATE — WILLIAMS COUNTY

PROJECT 58-21-01
DATE: 03-17-2021

S002

35 / 214

OHIO TURNPIKE AND INFRASTRUCTURE COMMISSION