

PROJECT INTENT

- RENOVATIONS AND ADDITION TO EXISTING SINGLE-STORY COMMERCIAL BUILDING (WAREHOUSE) INTO NEW THREE-STORY COMMERCIAL WAREHOUSE BUILDING.

CODE ANALYSIS - 2015 -IBC

USE GROUP

S-1 (SECTION 311.1)

CONSTRUCTION TYPE

IIIa (SECTION 602.5)

HEIGHT AND AREALIMITATIONS:

Table with 2 columns: Parameter and Value. Includes allowable building height (55'0"), number of stories (3), and floor area (20,000 SF).

ACTUAL HEIGHT AND AREA

Table with 2 columns: Parameter and Value. Includes actual building height (39'0"), number of stories (3), and floor area (480 SF).

FIRE-RESISTANCE RATINGS FOR BUILDING ELEMENTS - TABLE 601

Table with 2 columns: Element and Rating. Includes primary structural frame (1 HR), non-bearing walls (0 HR), and roof construction (0 HR).

FIRE-RESISTANCE RATING REQUIREMENTS FOR EXTERIOR WALLS - TABLE 602

Table with 2 columns: Wall Height and Rating. Includes walls less than 10 feet (2 HR) and walls 10 to 30 feet (1 HR).

MAXIMUM AREA OF EXTERIOR WALL OPENINGS - TABLE 705.5

Table with 2 columns: Opening Height and Requirement. Includes openings less than 3 feet (not permitted) and openings 3 to 15 feet (10% area).

INTERIOR FINISHES (803.1)

Table with 3 columns: Class, Flame Spread, and Smoke Development. Includes Class A (0-25), Class B (26-75), and Class C (76-200).

INTERIOR WALL AND CEILING FINISH REQUIREMENTS (TABLE 803.1)

Table with 2 columns: Location and Class. Includes interior exit stairways (Class C), corridors (Class B), and rooms (Class B).

INTERIOR FLOOR FINISH REQUIREMENTS (SECTION 804)

Table with 2 columns: Finish Type and Requirement. Includes Class I interior floor finish (0.45 WATTS/CM2) and Class II interior floor finish (0.12 WATTS/CM2).

FIRE-PROTECTION SYSTEMS

SECTION 903.2.9 - AUTOMATIC SPRINKLER SYSTEM IS NOT REQUIRED FOR THIS OCCUPANCY S-1.

PORTABLE FIRE EXTINGUISHERS - NFPA 10 - IBC (TABLE 906.3.2)

ORDINARY HAZARD OCCUPANCY MAXIMUM FLOOR AREA PER UNIT 1300 SF. ONE EXTINGUISHER REQUIRED EACH FLOOR.

FIRE ALARM AND DETECTION SYSTEM - SECTION 907.2.9

907.2.2 - CROUPE2 MANUAL FIRE ALARM SYSTEMS IS NOT REQUIRED.

OCCUPANT LOAD (TABLE 1004.1.2)

Table with 3 columns: Location, Area, and Occupant Load. Includes warehouse (143,500 sq ft, 3 persons) and total occupant load (9 persons).

EGRESS

MAXIMUM EXIT TRAVEL DISTANCE - (TABLE 1017.2) - PER LEVEL. MAXIMUM ALLOWABLE TRAVEL DISTANCE - 200 FEET. ACTUAL TRAVEL DISTANCE - 50 FEET.

ACCESSIBLE MEANS OF EGRESS

MINIMUM STAIR WIDTH BETWEEN HANDRAILS - 48". MINIMUM EGRESS WIDTH: 9 PERSONS < 0.37 PERSON = 3' MINIMUM AT STAIRS.

DIVISION 1 - GENERAL REQUIREMENTS

- 1. UNLESS INDICATED OTHERWISE, ALL PRODUCTS INDICATED SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND INSTRUCTIONS.
- 2. PROVIDE (FURNISH AND INSTALL) ALL WORK SPECIFIED AS INDICATED IN PERFORMANCE WITH THE MANUFACTURER'S PUBLISHED INSTALLATION INSTRUCTIONS.

- 9. ENGINEERED DRAWINGS (STRUCTURAL, MECHANICAL, ELECTRICAL, PLUMBING ETC.) ARE SHOWN DIAGRAMMATICALLY AND ARE NOT TO SCALE.
- 10. NO ADMIXTURES ARE PERMITTED WITHOUT THE ENGINEERS WRITTEN PERMISSION OTHER THAN ENTRAINED AIR.

DIVISION 7 - THERMAL AND MOISTURE PROTECTION

- 1. INSULATION: A. PERIMETER-DOW SQUARE EDGE 1-1/2" THICK EXTRUDED POLYSTYRENE ROOF FOAM INSULATION (R-7.5).
- 2. ALL OPENINGS THROUGH ROOF ARE TO BE FLASHED AND COUNTER FLASHED.
- 3. SEALANTS EXTERIOR: ONE-PART POLYURETHANE, NONSAG URETHANE SEALANT FOR USE WITH TYPE M, GRADE NR, CLASS 25.

GENERAL NOTES

- 1. THE WORK SHOWN ON THESE DRAWINGS HAS BEEN DESIGNED IN ACCORDANCE WITH THE STRUCTURAL REQUIREMENTS OF THE 2015 INTERNATIONAL BUILDING CODE.
- 2. THESE DRAWINGS SHOW THE WORK ASSOCIATED WITH RENOVATIONS AND ADDITIONS TO THE EXISTING ONE-STORY COMMERCIAL WAREHOUSE-STORAGE BUILDING LOCATED AT 709 YEATES STREET, IN BETHLEHEM, PA.
- 3. THE STRUCTURAL COMPONENTS HAVE BEEN DESIGNED/ANALYZED FOR THE FOLLOWING LIVE LOADS:

- 3. THE PORTIONS OF THE EXISTING STRUCTURE AFFECTED BY THIS WORK HAVE BEEN ANALYZED USING THE LOADS LISTED ABOVE AND FOUND TO BE CAPABLE OF SUPPORTING THE ADDITIONAL LOADS IMPOSED BY THIS WORK.
- 4. THIS STRUCTURE HAS BEEN DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER THE CONSTRUCTION OF THE BUILDING HAS BEEN COMPLETED.
- 5. JOBSITE SAFETY IS SOLELY THE RESPONSIBILITY OF THE CONTRACTOR.

SPECIAL NOTES TO THE CONTRACTOR:

- 1. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS OF THE EXISTING CONDITIONS BEFORE PROCEEDING WITH ANY WORK.
- 2. THE CONTRACTOR SHALL REPORT TO THE ENGINEER ANY AND ALL CONDITIONS WHICH DIFFER FROM THOSE SHOWN ON THESE DRAWINGS.
- 3. CONTRACTOR IS RESPONSIBLE FOR PROVIDING PROTECTION TO WINDOWS AND FINISHES AND ADJACENT PROPERTIES PRIOR TO START OF WORK.

FOUNDATION NOTES:

- 1. EXISTING FOUNDATIONS ARE TO BE UTILIZED IN THIS PROJECT.
- 2. NEW FOUNDATIONS HAVE BEEN DESIGNED TO REST ON INORGANIC, UNDISTURBED SOIL HAVING A PRESUMPTIVE BEARING VALUE OF 3000 PSF.
- 3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LIMITING POURS TO MINIMIZE SHRINKAGE CRACKING.
- 4. STEP FOOTINGS WHERE ELEVATIONS CHANGE AT A MAXIMUM SLOPE OF ONE VERTICAL ON TWO HORIZONTAL AND PLACE LOWER FOOTING FIRST.

CONCRETE NOTES:

- 1. ALL CONCRETE WORK SHALL CONFORM TO ALL THE REQUIREMENTS OF A.C.I. 301 (LATEST EDITION), "SPECIFICATIONS FOR STRUCTURAL CONCRETE IN BUILDINGS".
- 2. CONCRETE SHALL BE NORMAL WEIGHT CONCRETE AND SHALL DEVELOP A COMPRESSIVE STRENGTH OF 3000 PSI IN 28 DAYS.
- 3. ALL DETAILING, FABRICATION AND ERECTION OF REINFORCING BARS, UNLESS OTHERWISE NOTED, MUST FOLLOW THE LATEST ACI CODE AND THE LATEST ACI MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES."

- 4. NO ADMIXTURES ARE PERMITTED WITHOUT THE ENGINEERS WRITTEN PERMISSION OTHER THAN ENTRAINED AIR.
- 5. REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60.

CONCRETE MASONRY NOTES:

- 1. ALL CONCRETE MASONRY WORK SHALL CONFORM TO THE REQUIREMENTS OF ACI 530/ASCE 5 (LATEST EDITION), "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES".
- 2. CONCRETE BLOCK SHALL BE NORMAL WEIGHT LOAD BEARING MASONRY UNITS CONFORMING TO ASTM C-90, GRADE N4, WITH A MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF 1500 PSI ON THE NET AREA OF THE UNITS.
- 3. MORTAR SHALL BE TYPE M OR S AND CONFORM TO ASTM C-270.

STRUCTURAL STEEL NOTES:

- 1. DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO THE "SPECIFICATION FOR THE DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS", LATEST EDITION, AS ADOPTED BY THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION.
- 2. MATERIALS: STRUCTURAL STEEL, W-SHAPES ASTM A 992, FY = 50,000 PSI. CHANNELS, ANGLES ASTM A 36, FY = 36,000 PSI.

ROUGH CARPENTRY:

- 1. ALL WOOD FRAMING SHALL CONFORM TO THE NATIONAL FOREST PRODUCTS ASSOCIATION "NATIONAL DESIGN STANDARD FOR WOOD CONSTRUCTION".
- 2. THE STRUCTURAL WOOD STEEL GRADE STAMPED LUMBER SHALL BE HEM FIR No. 2 OR BETTER, GRADED AS FOLLOWS:

JOISTS AND RAFTERS: Fb = 850 PSI, E = 1,300,000 PSI

STUDS: Fc = 800 PSI, E = 1,200,000 PSI

- 3. "JOISTS" SHAPED COMPOSITE MEMBERS SHALL BE TRUSS-JOISTS, AS MANUFACTURED BY THE TRUSS-JOIST CORPORATION, OR AN APPROVED EQUAL.
- 4. PARALLEL PSI HEADERS AND BEAMS SHALL BE MANUFACTURED BY TRUSS JOIST MACMILLAN (OR AN APPROVED EQUAL) AND SHALL HAVE A MODULUS OF ELASTICITY OF 2,000,000 PSI.

- 5. THE STRUCTURAL GULU-LAMINATED TIMBER SHOWN ON THESE DRAWINGS SHALL BE DOUGLASS FIR WITH THE FOLLOWING MINIMUM ALLOWABLE UNIT STRESSES: Fb = 2000 PSI, Fv = 165 PSI, E = 1,800,000.

- 6. STRUCTURAL WOOD FRAMING USED IN EXTERIOR APPLICATIONS OR IN CONTACT WITH CONCRETE OR MASONRY SHALL BE SOUTHERN YELLOW PINE, No. 2 OR BETTER, OR PRESERVATIVE TREATED WOOD.
- 7. FLUSH-FRAMED CONNECTIONS SHALL BE MADE WITH PREFABRICATED GALVANIZED STEEL HANGERS OF WIDTH AND DEPTH APPROPRIATE FOR THE SUPPORTED MEMBER.

- 8. BUILT-UP MEMBERS SHALL HAVE ADJACENT PILES NAILED TOGETHER WITH TWO ROWS OF NAILS AT 12" O.C. (104 COMMON NAILS FOR 1 1/2" PILES, 124 COMMON NAILS FOR 1 1/4" PILES).
- 9. UNLESS OTHERWISE NOTED, ALL LUMBER SHALL BE NAILED IN ACCORDANCE WITH THE SPECIFIED NAILING SCHEDULE.

- 10. ROOF TRUSSES SHALL BE INSTALLED DIRECTLY OVER BEARING STUDS UNLESS OTHERWISE DETAILED.
- 11. ROOF TRUSSES AND BEAMS SHALL BE SUPPORTED LATERALLY AT EACH SUPPORT BY FULL DEPTH SOLID BLOCKING, EXCEPT WHERE MEMBERS ARE SUPPORTED BY A FLUSH HEADER OR NAILED TO A RIB BOARD.

- 12. PROVIDE TWO STUDS AT EACH END OF ALL FLUSH-FRAMED HEADERS OR BEAMS, UNLESS MORE ARE INDICATED ON PLAN. PROVIDE ONE JACK STUD AND ONE FULL STUD AT EACH END OF ALL DROPPED HEADERS OR BEAMS, UNLESS MORE ARE INDICATED ON PLAN.
- 13. WOOD SILL PLATES SHALL BE ATTACHED TO FOUNDATION WALLS WITH 1/2" DIAMETER BOLTS EMBEDDED AT LEAST 6" INTO CONCRETE, AND SPACED NO MORE THAN 32" ON CENTER. WOOD SILL PLATE SHALL BE PRESURE-TREATED.

- 14. PROVIDE HORIZONTAL BLOCKING AT 4'-0" OC VERTICALLY STAGGERED IN ALL BEARING WALLS.

PLYWOOD SHEATHING NOTES:

- 1. PLYWOOD SHALL CONFORM TO U.S. PRODUCT STANDARD PS-1, AND BEAR THE APA GRADE, TRADEMARK OF THE AMERICAN PLYWOOD ASSOCIATION.
- 2. PLYWOOD SHEATHING FOR FLOORS, ROOF, AND WALLS SHALL BE APA GRADED C-D WITH EXTERIOR GLUE. SHEATHING FOR FLOORS AND WALLS SHALL BE 3/4" EXPOSURE 1. ROOF SHEATHING SHALL BE 5/8" 4020.

- 3. PLYWOOD SHEATHING SHALL BE INSTALLED WITH THE LONG DIMENSION OF THE PANEL ACROSS SUPPORTS AND CONTINUOUS OVER TWO OR MORE SPANS.
- 4. LAY UP ROOF PLYWOOD WITH FACE GRAIN PERPENDICULAR TO SUPPORTS. STAGGER JOINTS AND INSTALL BLOCKING AT ALL EDGES.

- 5. NAIL ROOF PLYWOOD WITH 104 COMMON NAILS AT 6" O.C. AT ALL EDGES AND BOUNDARIES AND AT 12" O.C. AT INTERMEDIATE SUPPORTS, UNLESS OTHERWISE.

Revision table with columns: REV, DESCRIPTION, BY, CHK, DATE. Includes revision 1: GENERAL REVISIONS REMOVED SECOND FLOOR.

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Project information table. Includes SCALE AS NOTED, DATE, DRAWN BY TZS, CHECKED BY BAC, DWG. No. 2021-103 ST.10, REV. 2, SHEET 1 of 6.

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