FOR CONSTRUCTION

Multiple Treatment Rooms Linear Accelerators 6/10 MV Energy

SAMPLE PROJECT

veritas®
Medical Solutions

160 Cassell Road, Harleysville, PA 19438 | 888-242-6760 | veritas-medicalsolutions.com

Notes for Construction

1. Physics and design layout is that of Veritas Medical Solutions, LLC. Project scope and associated drawings are based on these (approved) documents.

2. All demolition, site preparation work etc, must be complete prior to installation shielding or finish materials by Veritas Medical Solutions, LLC. Coordination with project construction staff and a Veritas representative is required to ensure field conditions are appropriate as called for in the Veritas quotation.

3. If VeriShield™ materials are to be installed against an existing structure it is the general contractor's responsibility to ensure that existing surfaces, including floors and ceilings are free of all protrusions, debris bumps, etc. Surface is to be flat, plumb and level within $\frac{1}{4}$" (6.35mm) in all directions.

4. Project construction staff is required to provide adequate access to the site in accordance with Veritas quotation and contract conditions. Additionally, proper protection is required for equipment, including but not limited to interior storage for electronics, doors, frames, drives, etc.

5. Shielding thickness as indicated on drawings is nominal. Veritas Medical Solutions, LLC provides a shielding guarantee,therefore variations in nominal thickness will not compromise shielding. Approval of any shielding changes is to be approved by Veritas Medical Solutions, LLC.

6. Veritas Medical Solutions, LLC reserves the right to make any changes in layout, shielding, or design, in order to ensure shielding integrity to the project and provide more practical means of installation. Any field changes approved by Veritas will be incorporated into a final As Built set of drawings.

7. Any contemplated penetrations through shielded barriers regardless of how small and how few are to be coordinated through Veritas Medical Solutions. Veritas proposal outlines approved penetrations for HVAC, electrical, dosimetry pipes, etc.

8. All structural steel to be equivalent to ASTM A-992, Grade 50 or ASTM A-36 as noted on structural plans. All structural tubing to be equivalent to ASTM 500 Grade B.

9. All steel that will ultimately be exposed to weather is to be factory painted with rust inhibitive based primer.

10. All welds are to be properly prepared and ground smooth according to AISC standards.

11. Testing: Testing procedures to be as per Shielding Techniques for Radiation Oncology Facilities, McGinley, Medical Physics Publishing ©2002 (Second Edition)

12. Testing shall be performed in the presence of a Veritas representative. This will allow any potential modifications to be made in the most efficient and time effective manner.

13. Final shielding must be approved by an independent, qualified health physicist or expert in the field of radiation protection. These individuals are to be selected and employed by the client.

I. Pre- Installation and Site Preparation Instructions

A. Inspect the proposed installation area and confirm that preparations to the site have been accomplished by the general contractor (foundations, any required demolition, protection of existing conditions, provision of proper access routes, etc.) prior to the installation commencement of VeriShield ™ materials.

B. Provide proper access routes to the installation area. Proper coordination between trades must be established in order to transport VeriShield materials to the installation site.

C. Provide adequate storage / staging area. Storage of materials will be in this defined area, which should be close to the installation area. NOTE: Any materials such as electronics, doors, frames, hardware, etc., must have adequate interior storage areas.

D. All utilities (water, electric, etc,) to be located in close proximity to the installation area.

II. Layout

E. VeriShield materials shall be installed from the most recent set of approved drawings. Upon layout of shielding, if any discrepancies are discovered on site, conditions should be resolved before commencing with installation.

F. First layer of VeriShield block shall be laid out (dry) around the entire perimeter of the proposed shielded structure. All accessory items, (door frames, lintels, dosimetry pipes, conduits, etc,) to be located at this time. Iso-center and column lines to be established and referred to during installation. Location of reinforced vertical and horizontal structural cells is to be identified at this time. Vertical rebar shall be anchored though floor slab at corners, intersections, typical.

III. Installation

G. Once VeriShield materials have been properly located, continue by placing first course of VeriShield ™ in a bed of standard mortar. Mix mortar according to ASTM C270 specification. (2) Two horizontal structural cells are to be filled with VeriShield grouting material along with rebar embedded as indicated on structural drawings and details.

H. ShieldTech™ frames and drive assembly recess shall be set at door opening as called for in drawings. All frames are to be set plumb and square. Drive assembly recess is to be set according to specifications on door drive drawing.

Installation Notes:

1. A meeting with a Veritas Medical Solutions representative and the General Construction Group is required prior to the installation of VeriShield block. This meeting is intended to compare , inspect work of other trades that may affect successful installation of VeriShield ™ block.

2. Before commencing with installation of VeriShield block, follow Pre-Installation Site Preparation Instructions Listed in drawing set.

3. Installation: First course of VeriShield block to be placed plumb, level and true to line in a bed of standard mortar.

4. Place all VeriShield block in a modified running bond pattern as called for on drawings and details herein. First (2) two courses of VeriShield block are placed in a "stack" bond. The (3rd) third course of block is offset to form a standard running bond pattern. The (4th) fourth course resumes stack bond. Subsequent courses of VeriShield block continue this (4) four course bond pattern accordingly.

5. Ensure all VeriShield block is installed with leveling bed of mortar at every (5th) fifth course of block. Maximum thickness of leveling bed is to be ? inch. Placement of appropriate brick ties or mesh is to be adhered to as called for in the drawings and details. Note: For seismic conditions see structural drawings for further clarification.

6. It is only necessary to provide horizontal (bed) joints. Vertical (head) joints are not necessary. Ensure there are no voids. Lay all VeriShield units plumb, level and true to line in the modified bond pattern as described in item 4 above, as well as indicated on drawings. Note: For seismic conditions see structural drawings for further clarification.

7. If any VeriShield units are displaced after mortar has stiffened - Remove and replace unit following steps 3 - 6 above.

8. Strike flush all joints. Ensure the curved interlock is fully intact with adjacent VeriShield block.

9. Mortar used between VeriShield ™ block shall be freshly mixed and shall be proportioned with 1 part portland cement, 1 part lime and 6 parts sand (Type S Mix). Mortar shall comply with ASTM C270 specification for Type S Mix.

10. Use all mortar within 2-1/2 hours after mixing.

11. Ensure all VeriShield ™ block are installed in a professional manner and to the highest quality standards, according to drawings.

MATERIAL LEGEND

IN SECTION &/OR PLAN

- EXISTING CONSTRUCTION
- CONCRETE
- CMU
- VERISHIELD V230
- VERISHIELD V250
- VERISHIELD V300
- LEAD (Pb) BRICK
- LEAD (Pb) SHEET/PLATE
- STEEL (Fe) SHEET/PLATE
- HDPE SHEET/PLATE
- HDPE BORATED SHEET/PLATE
- ALUMINUM
- PLYWOOD or:
- GROUT (SHIELDED)
- MORTAR
- RIGID INSULATION

MODULAR SHIELDING LEGEND

IN SECTION and/or PLAN

- 1 — NUMBER OF WYTHES - LOW DENSITY
- 1 HD — NUMBER OF WYTHES - HIGH DENSITY
- 1 Pb — NUMBER OF THICKNESS (Inches) - LEAD
- ⊗ — POINT LOAD - LOADING PLAN

GENERAL SCALE NOTE

SCALE NOTE: THE SCALE OF THESE DRAWINGS ARE APPROXIMATE. ALL EXISTING INTERIOR AND EXTERIOR WALLS, OPENINGS, ETC. ARE REPRODUCTIONS OF FIELD MEASUREMENTS AND OBSERVED EXISTING CONDITIONS. FIELD VERIFY ALL CONDITIONS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION AND CONSULT ARCHITECT REGARDING ANY UNIDENTIFIED CONDITIONS.

MASONRY GROWTH NOTE

ALL DIMENSIONS AND MASONRY WYTHE TAGS INDICATED HEREIN ARE TO BE UNDERSTOOD AS NOMINAL DIMENSIONS ONLY, UNLESS OTHERWISE NOTED. DURING INSTALLATION, IT IS TO BE EXPECTED THE DIMENSION OF EACH WYTHE OF MASONRY TO INCREASE BY 1/16" EACH COURSE REFLECTING ACTUAL WORKING CONDITIONS, IRREGULARITIES IN SHAPE OF BLOCK, AND CONSTRUCTION TOLERANCES, ETC. GROWTH IS TO BE ACCOUNTED FOR DURING LAYOUT IN THE FIELD PRIOR TO INSTALLATION.

FOR CONSTRUCTION

DRAWING NUMBER
XG-002

SEAL

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SAMPLE PROJECT
MULTIPLE TREATMENT ROOMS
LINEAR ACCELERATORS

veritas Medical Solutions

CONDITION OF USE

*		REV. CONSTR. ISSUE
*		CONSTRUCTION ISSUE
*		REVISED ISSUE
*		REVIEW ISSUE

DRAWING ISSUE

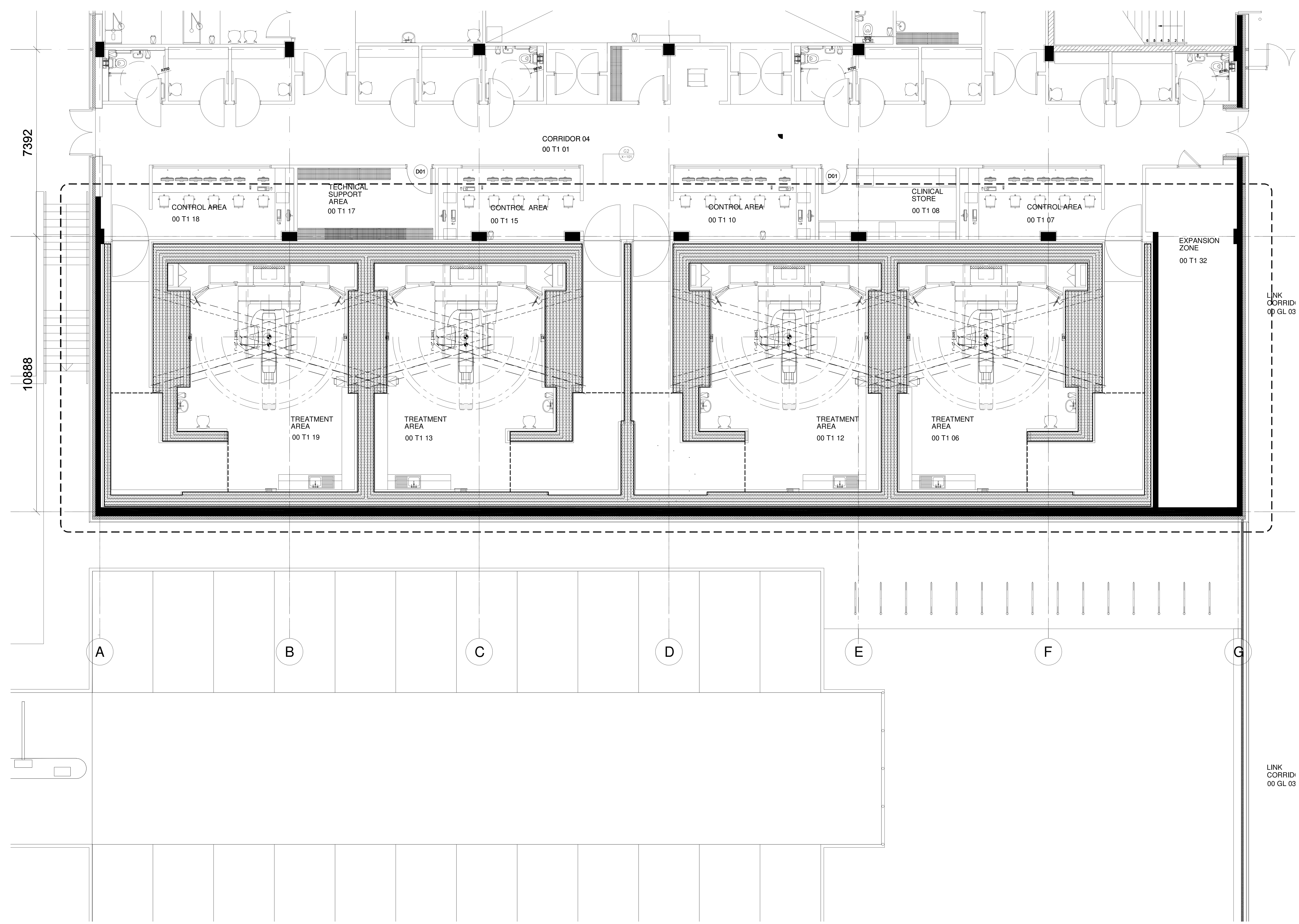
DRAWN BY	CHECKED BY
RDA	MA
PROJECT NO.	SCALE
.	AS NOTED

*

DRAWING TITLE

NOTES, LEGENDS, KEYPLAN

DRAWING NUMBER
XG-002



H1 KEY PLAN
1:50

FOR CONSTRUCTION

DRAWING NUMBER
X-100

SEAL

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SAMPLE PROJECT
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*	REVIEW ISSUE

DRAWING ISSUE

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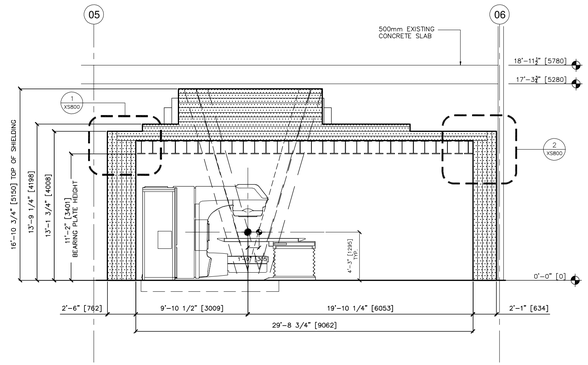
PROJECT NO. -	SCALE AS NOTED

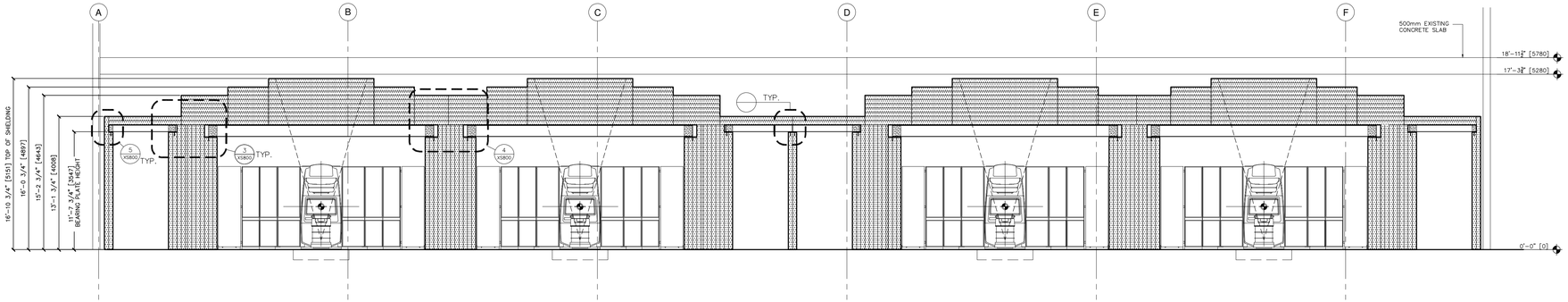
DRAWING TITLE

KEY PLAN

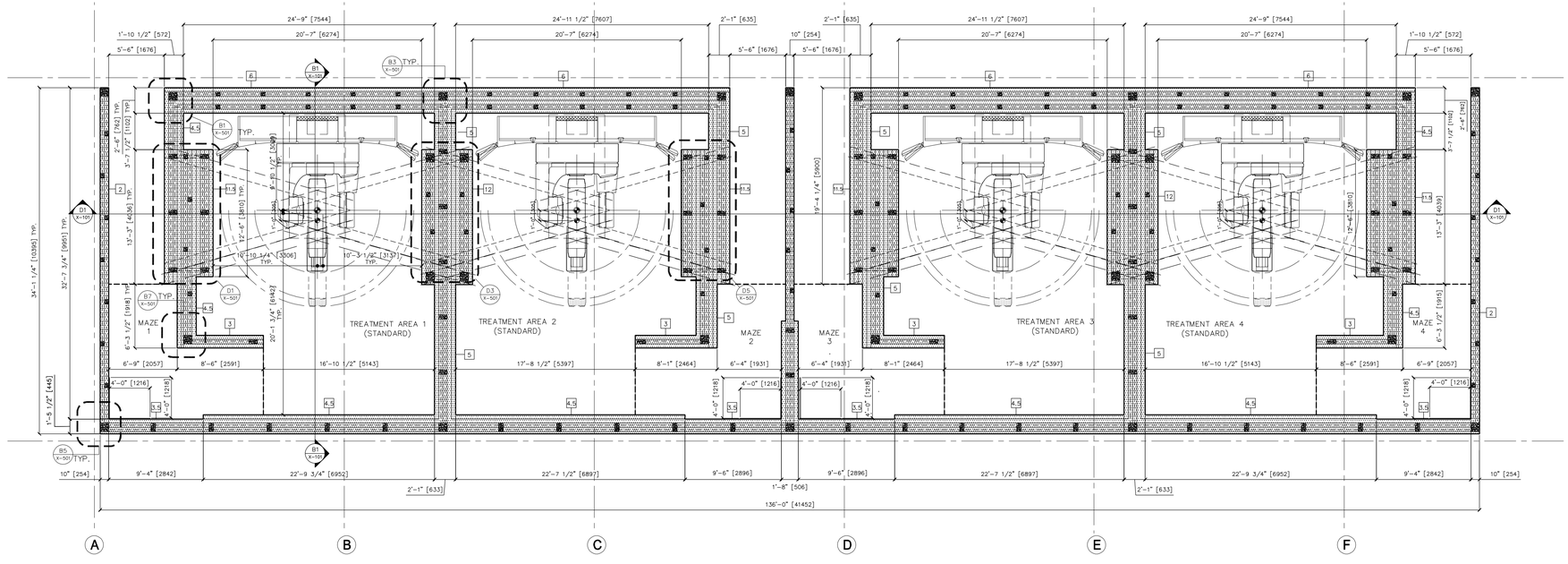
DRAWING NUMBER
X-100



B1 SECTION VIEW
1:50



D1 SECTION VIEW THROUGH PRIMARY
1:50



H1 FLOOR PLAN
1:50

FOR CONSTRUCTION

DRAWING NUMBER
X-101

SEAL

GENERAL NOTES

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.		REVISED ISSUE
.		REVIEW ISSUE

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RDA	MA
PROJECT NO	SCALE
.	AS NOTED

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DRAWING TITLE

FLOOR PLAN AND SECTIONS

DRAWING NUMBER
X-101

DRAWING NUMBER
X-102

SEAL

GENERAL NOTES

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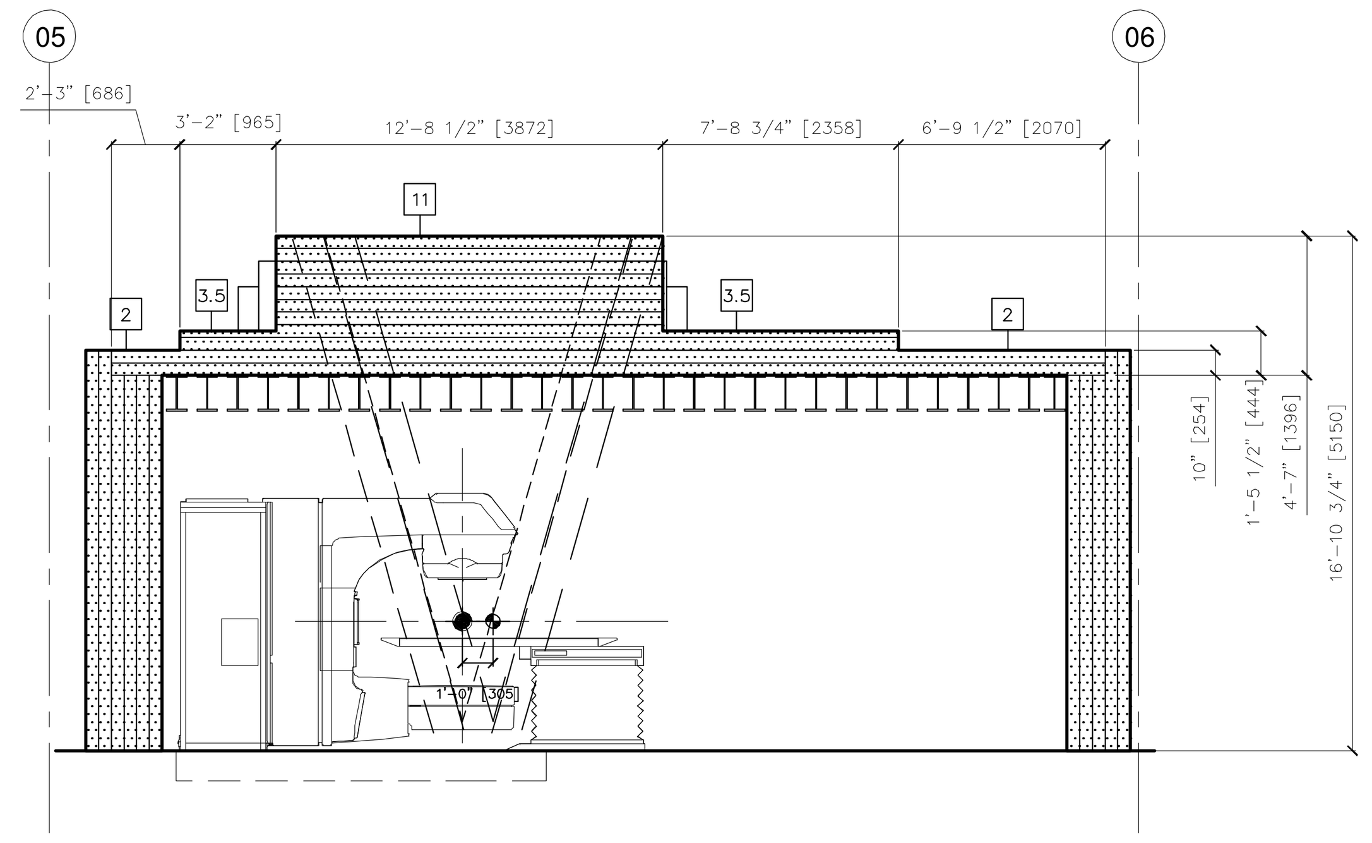
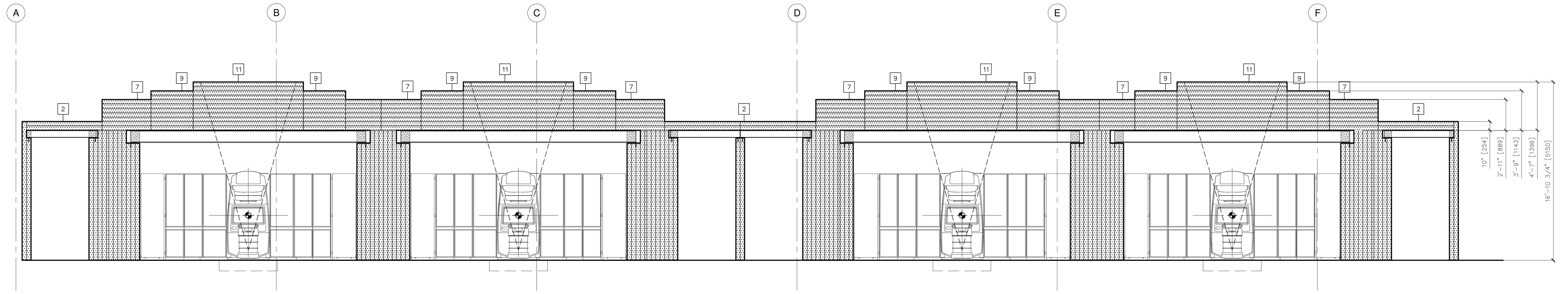
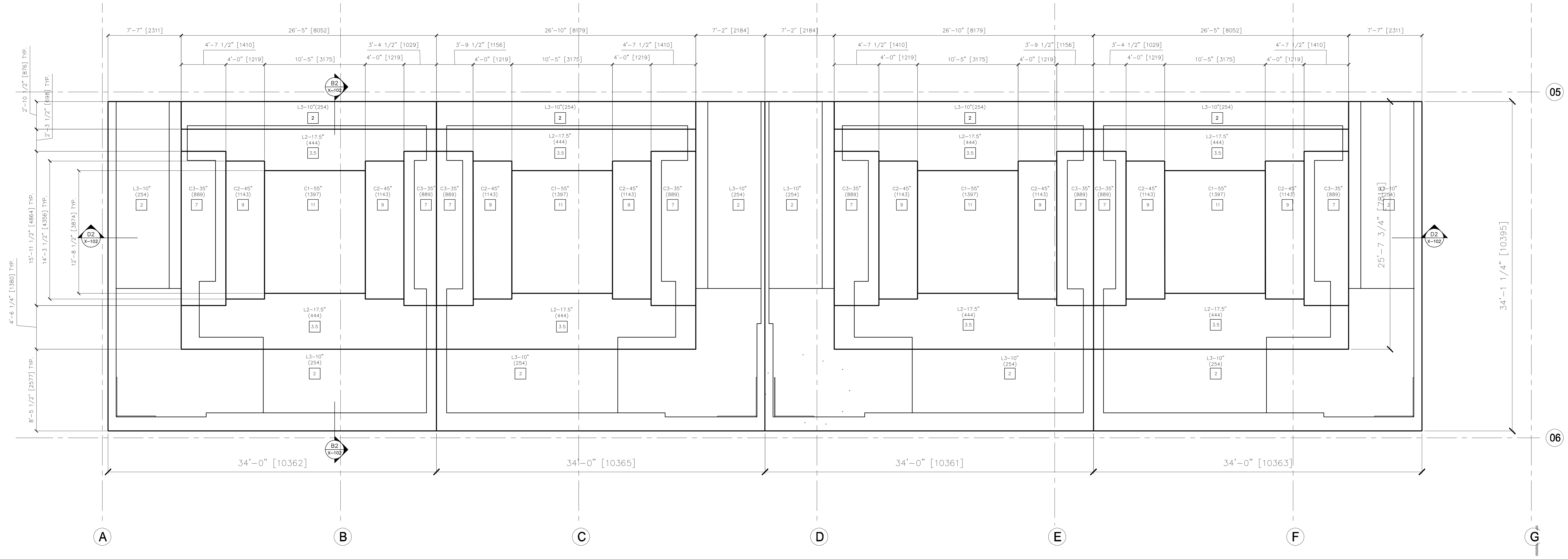


B1 SECTION VIEW
1:50
CEILING SHIELDING

B4 NOT USED
1:50



D1 SECTION VIEW THROUGH PRIMARY
1:50
CEILING SHIELDING



H1 FLOOR PLAN
1:50
CEILING SHIELDING

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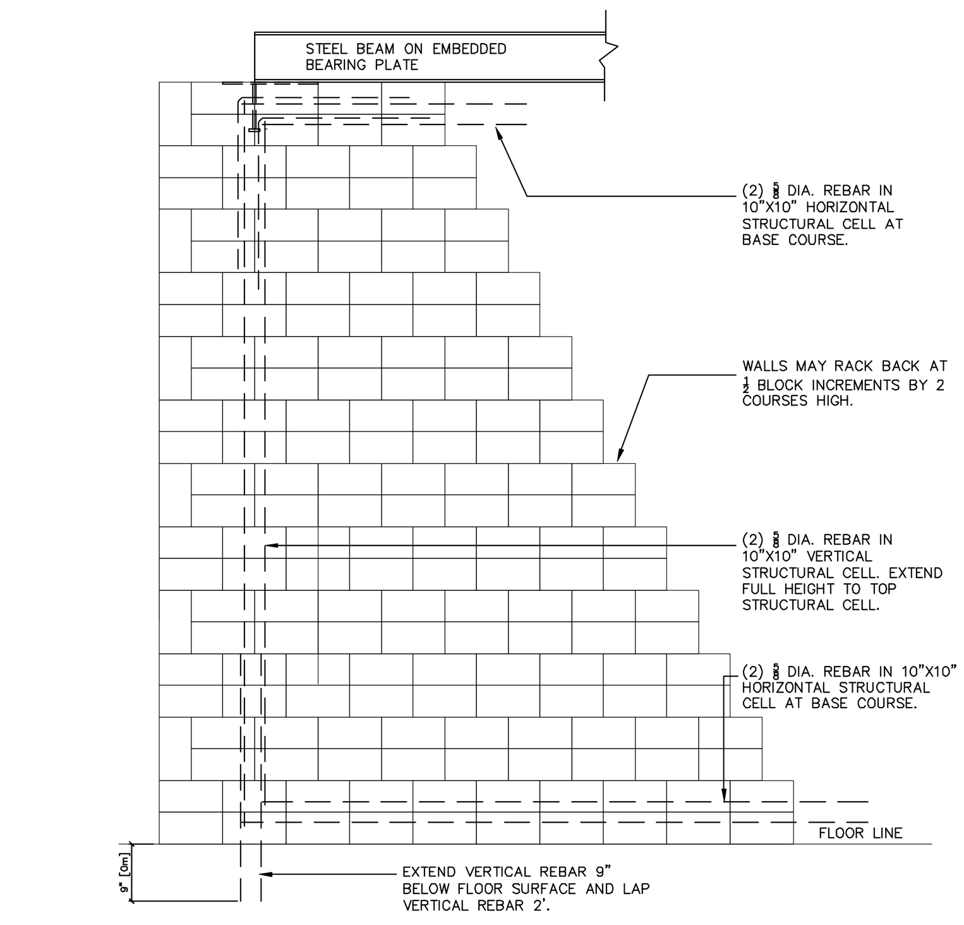
DRAWING TITLE

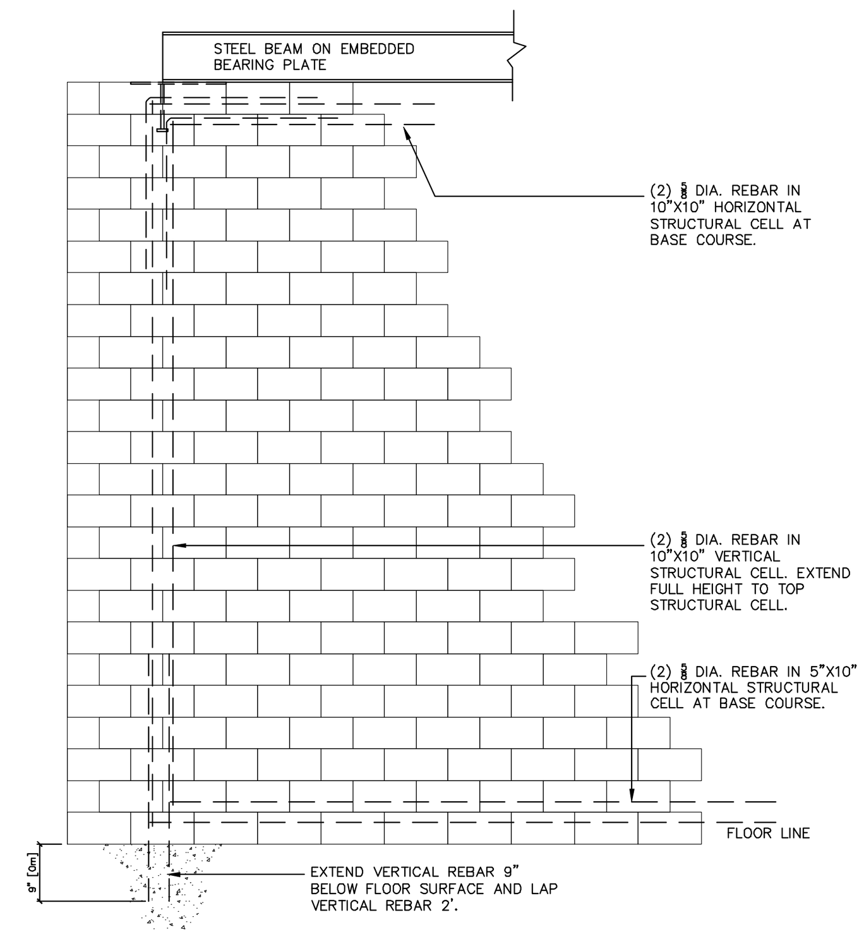
CEILING SHIELDING

DRAWING NUMBER
X-102

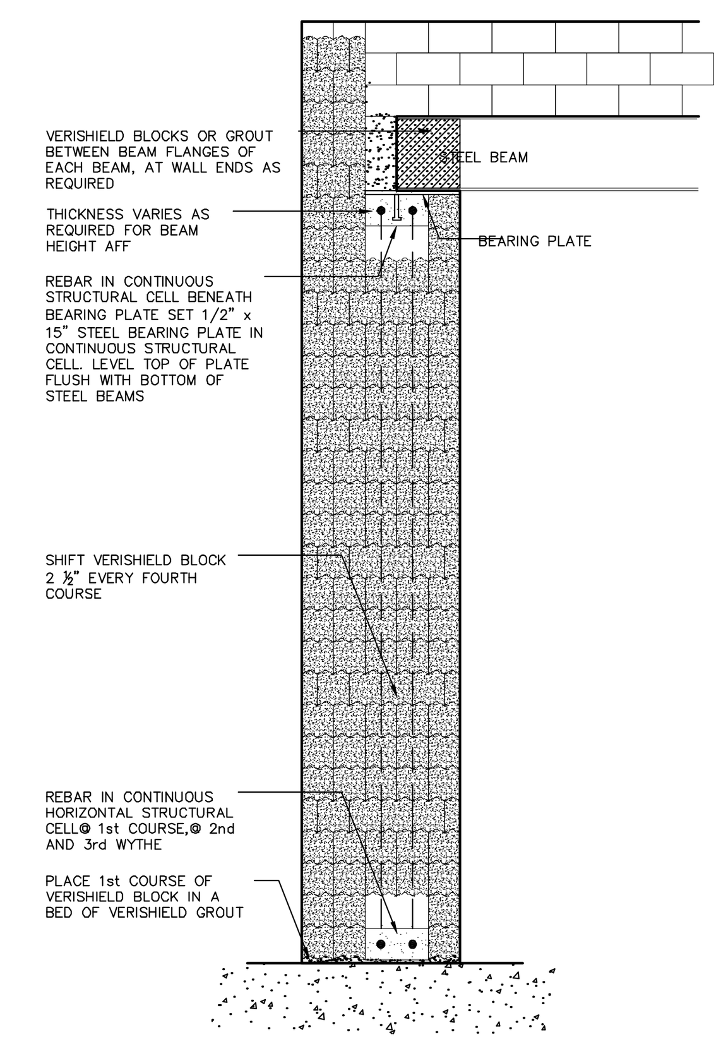
FOR CONSTRUCTION



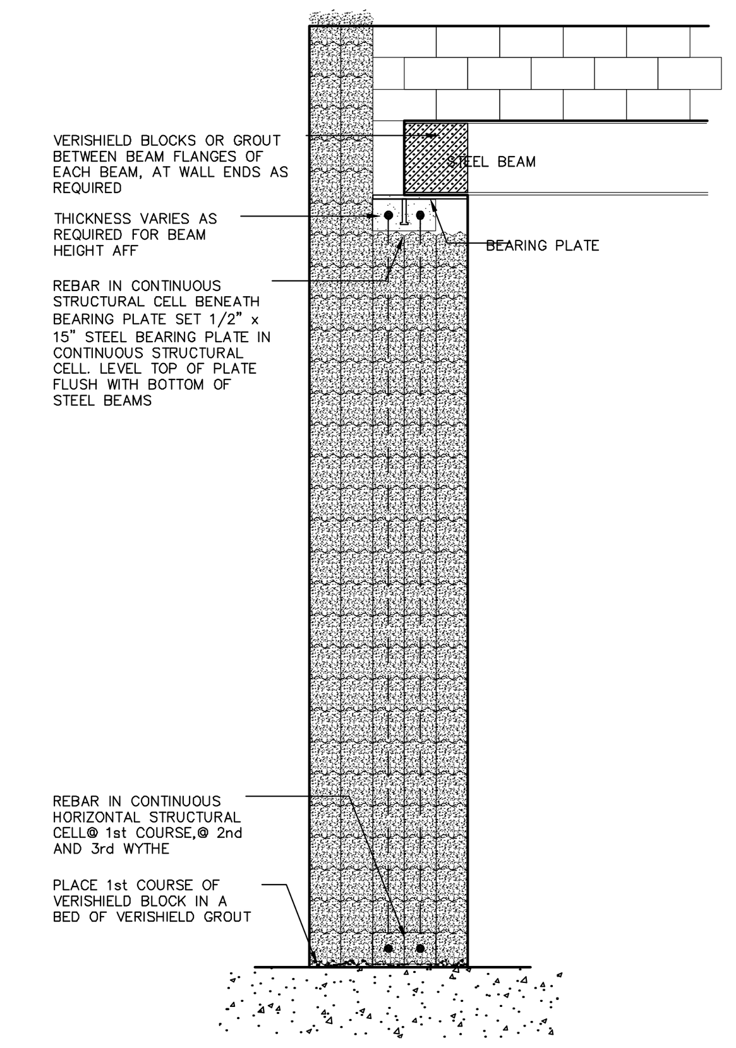
B1 DETAIL
1:20
WALL ELEVATION WITH STACKED BOND



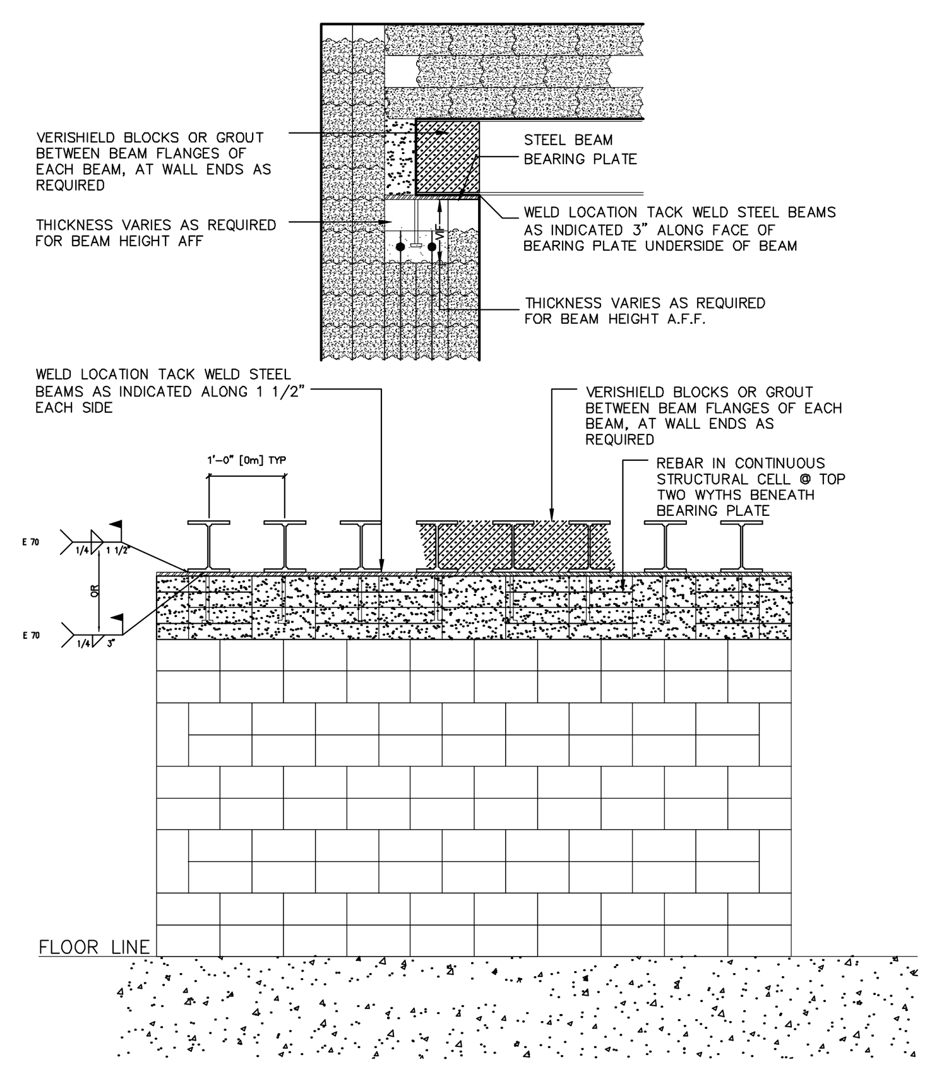
B3 DETAIL
1:20
WALL ELEVATION WITH RUNNING BOND



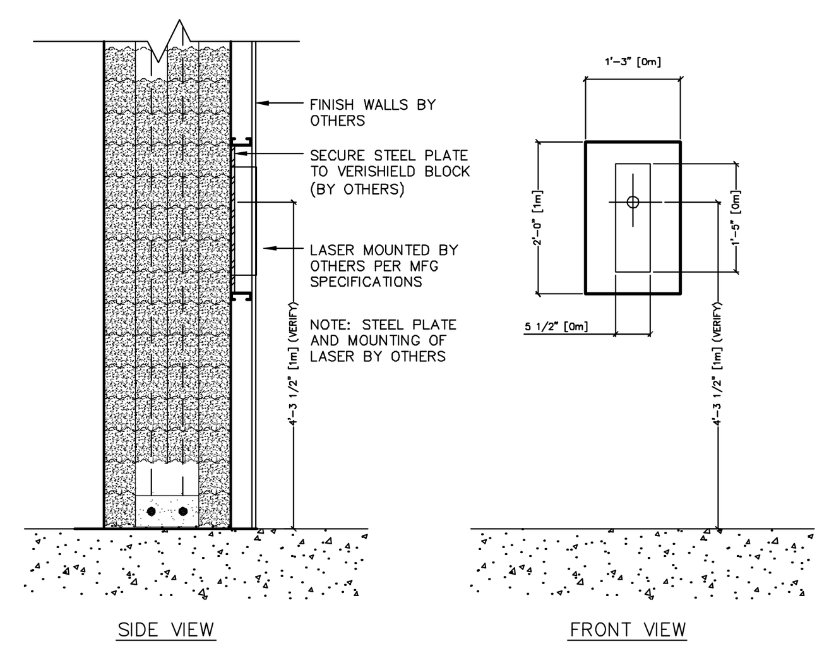
B5 DETAIL
1:20
WALL SECTION WITH OFFSET BOND



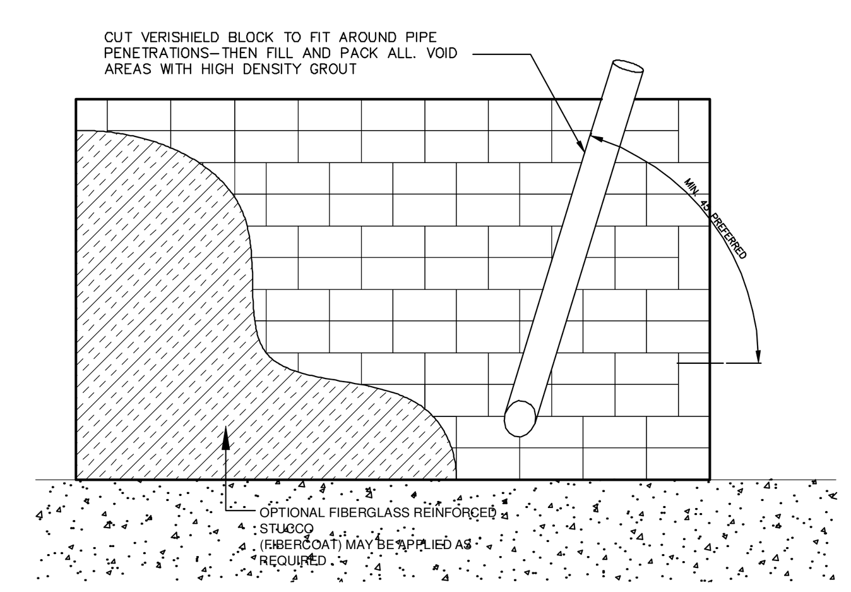
B7 DETAIL
1:20
WALL SECTION WITH IN-LINE BOND



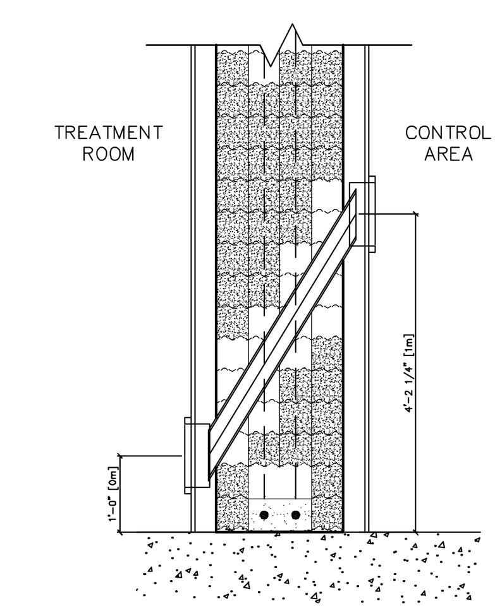
E1 DETAIL
1:20
BEARING PLATE - STRUCTURAL CELL



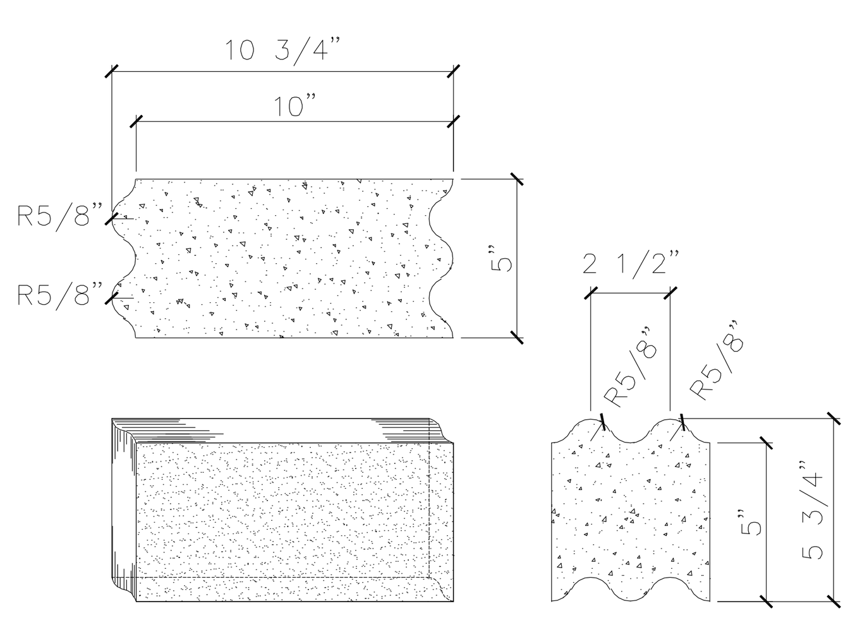
E3 DETAIL
1:20
LASER MOUNTING PLATE



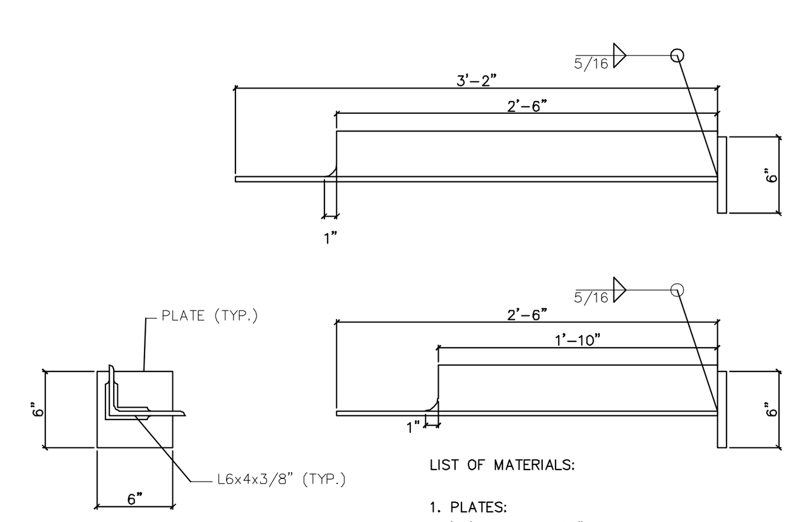
E5 DETAIL
1:20
PIPE PENETRATION - FIBERCOAT



E7 DETAIL
1:20
DOSIMETRY PIPE PENETRATION



H1 DETAIL
N.T.S.
TYPICAL BLOCK



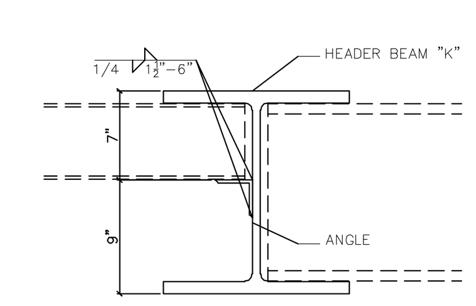
LIST OF MATERIALS:

1. PLATES:
(16) 6.0x6.0x0.75"

2. ANGLES:
(8) 6.0x4.0x0.375"x30"
(8) 6.0x4.0x0.375"x38"

NOTE: VERIFY GAP BETWEEN WALL TO FIRST BEAM.
NOTE: ALL ANGLES TO HAVE SHORT LEG COPED w/1" RADIUS.

H3 DETAIL
1:10
WALL TIES



LIST OF MATERIALS:

1. HEADER BEAM:
(1) W16x50 (UB457x191x74 @ S355 GRADE)

2. ANGLES:
(1) 4.0x4.0x0.375"x104" MAX.

NOTE: VERIFY END CONDITION OF HEADER AT WALL WHERE FIRST BEAM FRAMES INTO HEADER BEAM.

H5 DETAIL
1:10
HEADER BEAM

CORNERS OF MASONRY:
FORM ALL CORNERS AND GROUT SOLID TO PROVIDE 90° ANGLES. ALL SURFACES TO BE SMOOTH, FLUSH AND PLUMB

FOR CONSTRUCTION

DRAWING NUMBER
X-500

SEAL

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Medical Solutions

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DRAWING ISSUE

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SHEET LABEL

DRAWING TITLE

DETAILS

DRAWING NUMBER
X-500