

GENERAL STRUCTURAL NOTES

GENERAL:

1. DO NOT SCALE DRAWINGS.
2. ALL WORK SHALL BE DONE IN COMPLIANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
3. CONSTRUCTION DOCUMENTS ARE BASED UPON INFORMATION FROM AVAILABLE DESIGN DRAWINGS AND FIELD INVESTIGATION. REFERENCES TO EXISTING CONSTRUCTION MAY NOT REFLECT ACTUAL CONDITIONS. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, MEMBER SIZES AND EXISTING CONDITIONS. THESE CONDITIONS SHALL BE REFLECTED ON THE SHOP DRAWINGS PRIOR TO SUBMITTING FOR APPROVAL.
4. THE STRUCTURAL DRAWINGS ARE NOT INTENDED TO STAND ALONE BUT TO BE WORKED IN CONJUNCTION WITH THE ARCHITECTURAL AND MECHANICAL DRAWINGS.
5. CONTRACTOR SHALL PROVIDE ALL SHORING AND SUPPORT NECESSARY TO PROTECT THE EXISTING STRUCTURE DURING CONSTRUCTION.
6. REPAIR ALL FIREPROOFING, DAMAGED OR REMOVED DURING CONSTRUCTION, COORDINATE WITH ARCHITECTURAL DRAWINGS.

DESIGN CRITERIA:

1. BUILDING CODE: 2009 IBC
2. LIVE LOADS (LIVE LOAD REDUCTION HAS BEEN UTILIZED IN ACCORDANCE WITH IBC AND ASCE DESIGN CODES)
- a. ROOF (NON-SNOW): 20 PSF
3. SNOW LOAD IS BASED THE FOLLOWING:
- a. GROUND SNOW LOAD (Pg) OF 30 PSF
- b. SNOW EXPOSURE FACTOR (Ce) OF 1.0
- c. SNOW IMPORTANCE FACTOR (I) OF 1.2
- d. FLAT ROOF SNOW LOAD (Pi): 25.2 PSF
4. WIND LOAD HAS BEEN CALCULATED BASED ON THE FOLLOWING:
- a. BASIC WIND SPEED (V) - 90 MPH
- b. IMPORTANCE FACTOR (I) - 1.0
- c. EXPOSURE - B
- d. INTERNAL PRESSURE COEFFICIENT: +.18 / -.18
5. SEISMIC LOAD HAS BEEN CALCULATED BASED ON THE FOLLOWING:
- a. SEISMIC IMPORTANCE FACTOR: 1.5
- b. SITE CLASS: B
- c. 0.2 SECOND SPECTRAL RESPONSE ACCELERATION (SS): 0.273 g
- d. SECOND SPECTRAL RESPONSE ACCELERATION (S1): 0.06 g

SPECIAL INSPECTIONS REQUIREMENTS:

1. INSPECTION AND TESTING FOR THE ACCEPTANCE OF MATERIALS, INSTALLATION, FABRICATION, ERECTION OR PLACEMENT OF COMPONENTS AND CONNECTIONS FOR SPECIAL INSPECTION AND FOR QUALITY ASSURANCE SHALL BE IN ACCORDANCE WITH CHAPTER 17 OF THE INTERNATIONAL BUILDING CODE (IBC) AND LOCAL ENFORCEMENT AGENCY. ALL CONTRACTORS ARE REQUIRED TO COOPERATE, ACCOMMODATE AND COORDINATE WITH INSPECTING AND TESTING PERSONNEL.

CONCRETE:

1. ALL CONCRETE WORK SHALL COMPLY WITH THE AMERICAN CONCRETE INSTITUTE'S BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE ACI 318-05.
2. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT THE END OF 28 DAYS.

STEEL:

1. ALL STRUCTURAL STEEL WORK SHALL COMPLY WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION'S (AISC) "STEEL CONSTRUCTION MANUAL," 13TH EDITION.
2. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING:
- a. CHANNELS, ANGLES, BARS, PLATES - ASTM A36 HAVING A MINIMUM YIELD STRENGTH OF 36,000 PSI
- b. WIDE FLANGE SHAPES - ASTM A992 HAVING A MINIMUM YIELD STRENGTH OF 50,000 PSI
- c. HOLLOW STRUCTURAL SECTIONS (HSS) - ASTM A500 GRADE B HAVING THE FOLLOWING MINIMUM YIELD STRENGTH:
- i. ROUND - 42,000 PSI
- ii. SQUARE AND RECTANGULAR - 46,000 PSI
- d. PIPE - ASTM A53 HAVING A MINIMUM YIELD STRENGTH OF 35,000 PSI, TYPE E OR S, GRADE B.
- e. SHEAR CONNECTORS - ASTM A108 GRADES 1015 THRU 1020.
3. COLUMN TO BEAM & BEAM TO BEAM CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE AISC MANUAL OF STEEL CONSTRUCTION USING 3/4 INCH DIAMETER ASTM A325-N BOLTS UNLESS NOTED OTHERWISE. CONNECTIONS SHALL BE DOUBLE CLIP ANGLES WITH TWO BOLTS MINIMUM.
4. WELDING SHALL BE IN STRICT ACCORDANCE WITH THE AMERICAN WELDING SOCIETY (AWS) D1.1 "STRUCTURAL WELDING CODE," AND THE AISC REQUIREMENTS. ALL WELDING SHALL BE PERFORMED BY WELDERS CERTIFIED TO WELD IN THE REQUIRED POSITIONS. WELDING ELECTRODES SHALL BE E70XX.
5. SURFACES OF EXISTING MATERIALS TO RECEIVE WELDS SHALL BE CLEANED THOROUGHLY OF ALL PAINT, DIRT, RUST AND OTHER FOREIGN MATTER PRIOR PLACEMENT OF WELDS.
6. NON-METALLIC, NON-SHRINKAGE GROUT, PREMIXED, FACTORY PACKAGED, NON-FERROUS AGGREGATE GROUT, COMPLYING WITH ASTM C 1107, OF CONSISTENCY SUITABLE FOR APPLICATION, AND A 30-MINUTE WORKING TIME.
7. ADHESIVE ANCHOR SYSTEM SHALL BE HEAVY DUTY TWO COMPONENT ADHESIVE ANCHOR CONSISTING OF SELF CONTAINED ADHESIVE CAPSULE SUCH AS HILTI HVA ADHESIVE SYSTEM OR APPROVED EQUAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

ABBREVIATIONS

ABBREVIATION TERM

@	AT
AB	ANCHOR BOLT
ACI	AMERICAN CONCRETE INSTITUTE
AFB	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AFS	ABOVE FINISHED SLAB
AGGR	AGGREGATE
AHR	ANCHOR
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
ALT	ALTERNATE
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
APA	AMERICAN PLYWOOD ASSOCIATION
APPROX	APPROXIMATE
ARCH	ARCHITECT
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS
ASTM	AMERICAN NATIONAL STANDARDS INSTITUTE
TESTING AND	MATERIALS
AWG	AMERICAN WIRE GAUGE
AWS	AMERICAN WELDING SOCIETY
B PL	BASE PLATE
BB	BACK TO BACK
BF	BOTH FACES
BFF	BELOW FINISH FLOOR
BIA	BRICK INSTITUTE OF AMERICA
BITUM	BITUMINOUS
BLDG	BUILDING
BLW	BELOW
BM	BEAM
BOS	BOTTOM OF STEEL
BOT	BOTTOM
BRDG	BRIDGING
BRG	BEARING
BRG PL	BEARING PLATE
BS	BOTH SIDES
BTWN	BETWEEN
BW	BOTH WAYS
C	CHANNEL
C TO C	CENTER TO CENTER
CANTIL	CANTILEVER
CC	CUBIC CENTIMETER
CG	CENTER OF GRAVITY
CH	CAST-IN-PLACE
CJ	CONTROL JOINT
CL	CENTER LINE
CLG	CEILING
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CONC	CONCRETE
CONSTR	CONSTRUCTION
CONT	CONTINUE
CONTR	CONTRACTOR
COV	COVER
CRSI	CONCRETE REINFORCING INSTITUTE
CTR	CENTER
CU FT	CUBIC FEET
CU IN	CUBIC INCH
CU YD	CUBIC YARD
D	DEPTH
D	PENNY (NAIL)
DBL	DOUBLE
DEG	DEGREE
DEMO	DEMOLITION
DET	DETAIL
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DWG	DRAWING
E	EAST
EA	MODULUS OF ELASTICITY
EE	EACH
EF	EACH FACE
EJ	EXPANSION JOINT
EL	ELEVATION
ENGR	ENGINEER
EOS	EDGE OF SLAB
EQ	EQUAL
EQ SP	EQUALLY SPACED
EQUIP	EQUIPMENT
EW	EACH WAY
EXCL	EXCLUDE
EXIST	EXISTING
EXP	EXPANSION
EXT	EXTERIOR

ABBREVIATION TERM

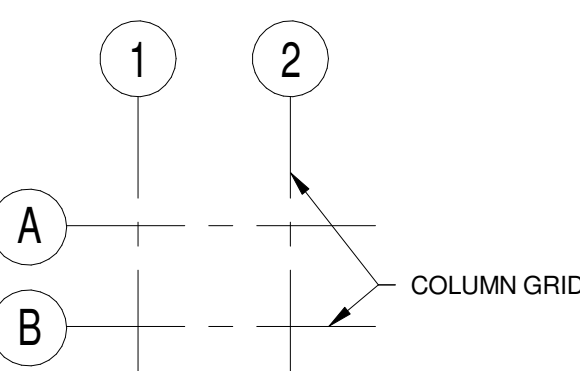
JT	JOINT
F/F	FACE TO FACE
FD	FLOOR DRAIN
FDN	FOUNDATION
FF EL	FINISH FLOOR ELEVATION
FIN	FINISH
FIN FLR	FINISH FLOOR
FIN GR	FINISH GRADE
FLR	FLOOR
FM	FACTORY MUTUAL
FO	FINISHED OPENING
FOM	FACE OF MASONRY
FW	FACE OF WALL
FS	PAR SIDE
FT	FEET
FTG	FOOTING
G	GAGE
GAL V	GALVANIZED
GR BM	GRADE BEAM
GRTG	GRATING
HORIZ	HORIZONTAL
HT	HEIGHT
I	MOMENT OF INERTIA
IBC	INTERNATIONAL BUILDING CODE
ID	INSIDE DIAMETER
IF	INSIDE FACE
INSUL	INSULATION
INT	INTERIOR
K	KIPS
KB	KNEE BRACE
KLF	KIPS PER LINEAL FOOT
KO	KNOCKOUT
KOP	KNOCK OUT PANEL
KSF	KIPS PER SQUARE FOOT
KSI	KIPS PER SQUARE INCH
L	ANGLE
LBS	POUND
LH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LONG	LONGITUDINAL
LT GA	LIGHT GAGE
LT WT	LIGHTWEIGHT
LWC	LIGHTWEIGHT CONCRETE
MAINT	MAINTENANCE
MAX	MAXIMUM
MBR	MEMBER
MC	MOMENT CONNECTION
MECH	MECHANICAL
MED	MEDIUM
MFG	MANUFACTURING
MFR	MANUFACTURER
MID	MIDDLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MO	MASONRY OPENING
MTL	METAL
MULT	MULTIPLE
NIC	NOT IN CONTRACT
NO	NUMBER
NOM	NOMINAL
NS	NEAR SIDE
NTS	NOT TO SCALE
O/O	OUT TO OUT
OC	ON CENTER
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE
OPH	OPPOSITE HAND
OPNG	OPENING
OPP	OPPOSITE
OR	OUTSIDE RADIUS
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
PC	PIECE
PCA	PORTLAND CEMENT ASSOCIATION
PCF	POUNDS PER CUBIC FOOT
PERF	PERFORATED
PERIM	PERIMETER
PERP	PERPENDICULAR
PLF	POUNDS PER LINEAR FOOT
PREFAB	PREFABRICATE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	PRESSURE TREATED

ABBREVIATION TERM

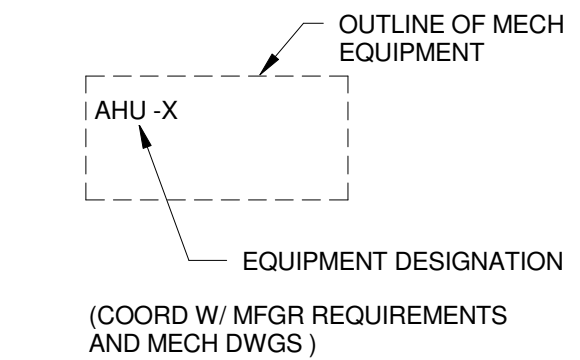
QTY	QUANTITY
R	RADIUS
RD	ROOF DRAIN
REF	REFERENCE
REIN	REINFORCE
REQ	REQUIRED
RECO	REQUIRED
RET	RETURN
REV	REVISION
RM	ROOM
RO	ROUGH OPENING
RTU	ROOF TOP UNIT
S	SOUTH
SCHED	SCHEDULE
SDI	STEEL DECK INSTITUTE
SECT	SECTION
SF	SQUARE FOOT (FEET)
SHT	SHEET
SHTHG	SHEATHING
SI	INTERNATIONAL SYSTEM OF UNITS
SJI	STEEL JOIST INSTITUTE
SK	SKETCH
SQ	SQUARE
SQ IN	SQUARE INCH
SST	STAINLESS STEEL
STD	STANDARD
STIF	STIFFENER
STIR	STIRRUP
STL	STEEL
STL JST	STEEL JOIST
STL LNTL	STEEL LINTEL
STL PL	STEEL PLATE
STRUCT	STRUCTURAL
SYMM	SYMMETRICAL
T&B	TOP AND BOTTOM
TF	TOP OF FINISH FLOOR
THK	THICKNESS
THRU	THROUGH
TN	TRUE NORTH
TO	TOP OF
TO FDN	TOP OF FOUNDATION
TOS	TOP OF BEAM
TOC	TOP OF CONCRETE
TOP	TOP OF FLOOR
TOP	TOP OF FOOTING
TOL	TOLERANCE
TOM	TOP OF MASONRY
TOS	TOP OF SLAB
TOS	TOP OF STEEL
TOW	TOP OF WALL
TYP	TYPICAL
T/	TOP OF
UNO	UNLESS NOTED OTHERWISE
VERT	VERTICAL
VRFY	VERIFY
W/	WITH
W/O	WITHOUT
WD	WOOD
WF	WIDE FLANGE
WP	WORKING POINT
WT	WEIGHT
WWF	WELDED WIRE FABRIC

SYMBOL LEGEND

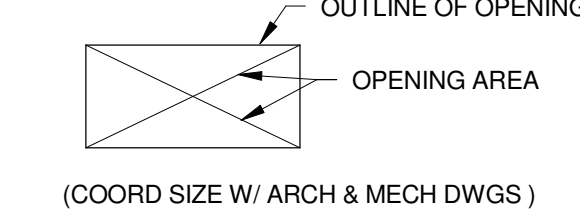
LINE TYPE SYMBOLS



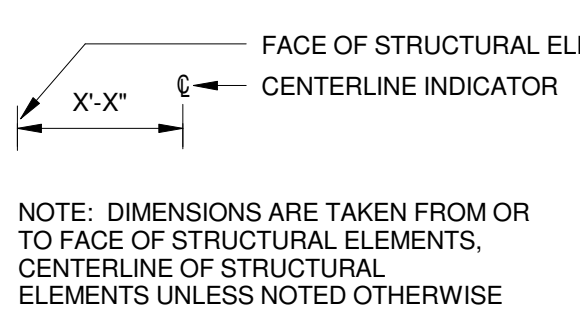
EQUIPMENT DESIGNATION



FLOOR OPENING

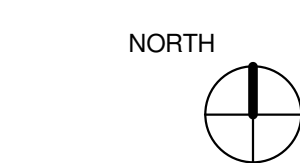


GENERAL DIMENSIONING

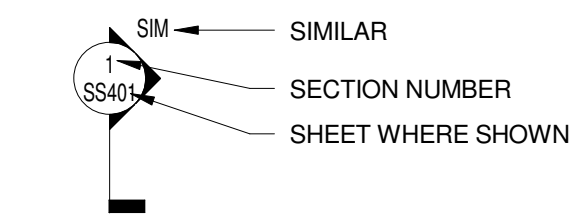


NOTE: THE ± INDICATES A DIMENSION THAT CAN VARY. (NOTIFY THE ENGINEER OF ANY CHANGE IN THAT DIMENSION IF IT IS GREATER THAN 1")

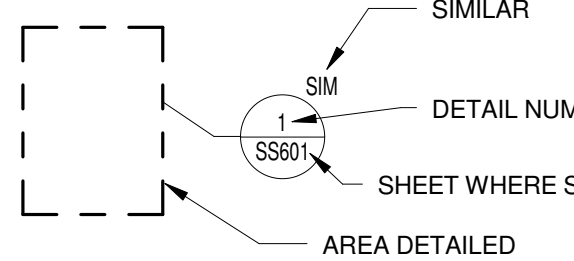
NORTH ARROW



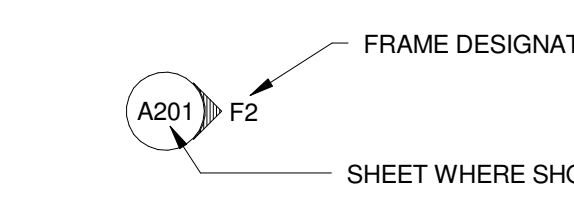
BUILDING WALL SECTION INDICATION



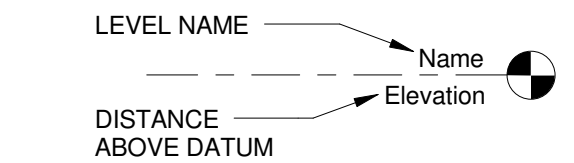
DETAIL INDICATION



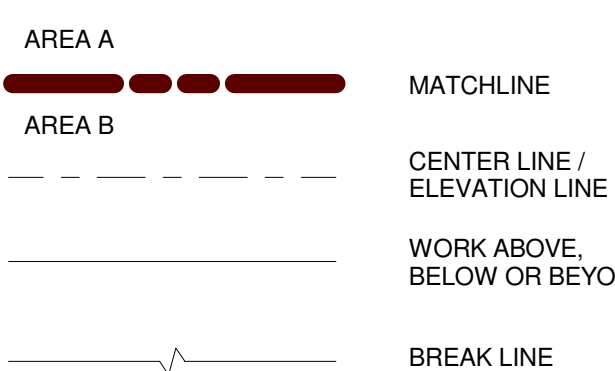
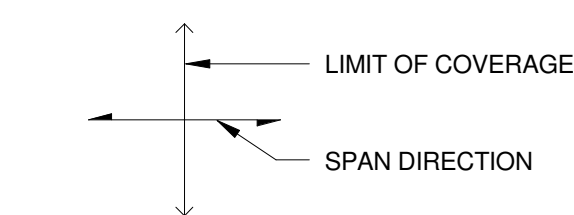
STRUCTURAL FRAME ELEVATION



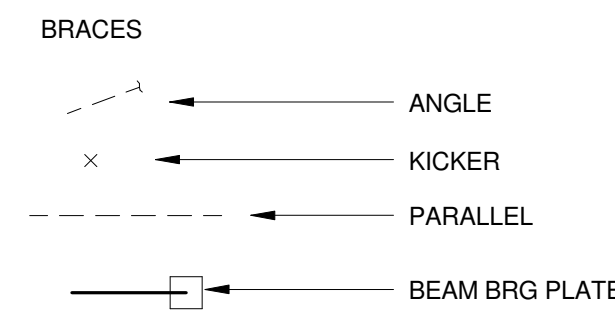
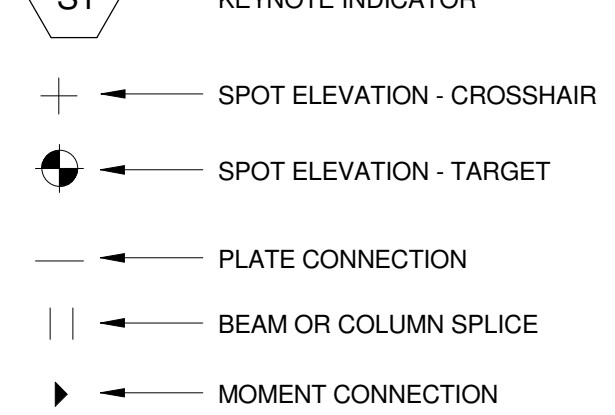
ELEVATION TAG



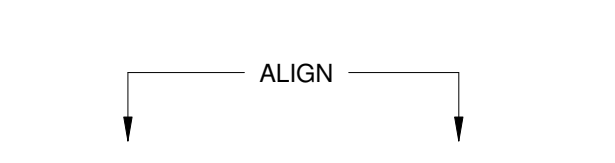
DECK OR SLAB SPAN



KEYNOTE INDICATOR



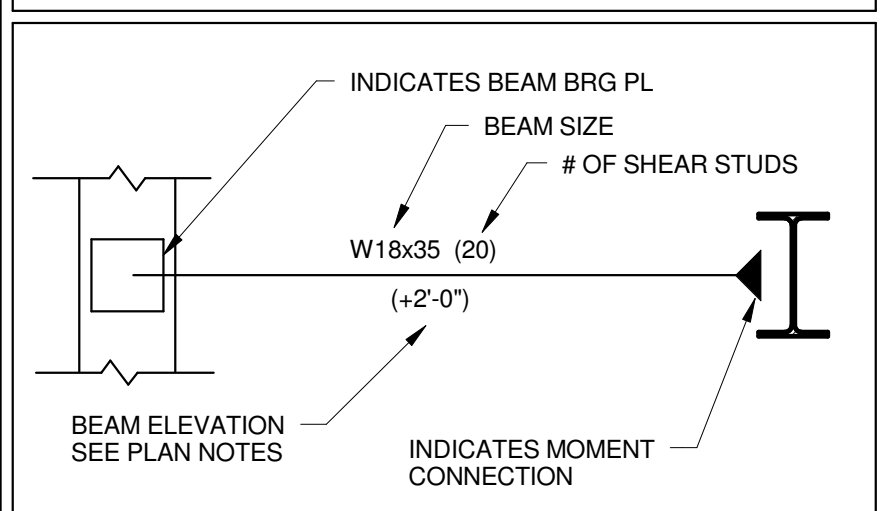
ALIGN WITH NEARBY CONSTRUCTION



REVISION INDICATION



BEAM LEGEND



FULLY SPRINKLERED  
ISSUED FOR BID

CONSULTANTS:

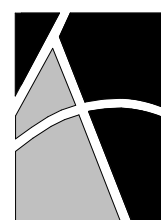
Lab Consultant: HERA  
MEP Engineer: H.F. Lenz

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KEY PLAN:

ARCHITECT:



ARRAY

healthcare facilities solutions

Project Number

3515

Scale

As indicated

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King of Prussia, PA 19406

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Drawing Title

STRUCTURAL NOTES, ABBREVIATIONS AND  
LEGENDS

Approved: Project Director

Project Title

REPLACEMENT OF AC-19 AND  
LABORATORY RENOVATION

Location

3900 WOODLAND AVE  
PHILADELPHIA, PA. 19104

Date

04-12-2012

Checked

SDS

Drawn

GFM

VA Project Number

VA244-P-1786

Building Number

2

Drawing Number

SI-001

Dwg.

of

Office of  
Facilities  
Management



Department of  
Veterans Affairs