

HED

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Project Manual

Wayne State University I2C – MRI Installation – Lab 5 Fit-Out

461 Burroughs St.
Detroit, Michigan 48202



Project No.: 2017-03497-000
CLIENT'S PROJECT NUMBER: 212-313128

Issued for Addendum 1: August 27, 2019

PROJECT NO.: 2017-03497-000



PRINTED ON RECYCLED PAPER

TITLE PAGE
000101-1

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VOLUME 1

INTRODUCTORY INFORMATION

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<u>Add 1</u>	000115	List of Drawings	

BIDDING AND CONTRACTING REQUIREMENTS

Balance of “Bidding and Contracting Requirements” documents will be provided by the Construction Manager.

**CONTRACTING REQUIREMENTS
CONSTRUCTION PRODUCTS AND ACTIVITIES**

DIVISION 1 - GENERAL REQUIREMENTS

012200	Unit Prices
013300	Submittal Procedures
013300-A	Submittal Procedures, Architect's Action Stamp Sample, Appendix A
013300-B	Submittal Procedures, Contractor's Submittal Label Information Sample, Appendix B
013300-C	Submittal Procedures, Submittal Transmittal, Appendix C
014010	Testing And Inspection Services - Building
017300	Execution

DIVISION 2 – EXISTING CONDITIONS

024119	Selective Demolition
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DIVISION 3 – CONCRETE

Structural on the Drawings

DIVISION 4 – MASONRY (NOT USED)

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Structural is on the Drawings

DIVISION 6 - WOOD AND PLASTICS

061000	Rough Carpentry
061610	Plywood Sheathing
064023	Interior Architectural Woodwork

DIVISION 7 - THERMAL AND MOISTURE PROTECTION

072100	Thermal Insulation
078413	Penetration Firestopping
078443	Joint Firestopping
079200	Joint Sealants
079219	Acoustical Joint Sealants

DIVISION 8 - DOORS AND WINDOWS

081113	Hollow Metal Doors and Frames
081416	Flush Wood Doors
083323	Overhead Coiling Doors
084123	Fire Rated Aluminum Framed Storefronts And Heat Barrier Entrances
087100	Door Hardware
088000	Glazing
088813	Fire-Rated Glass

DIVISION 9 - FINISHES

092216	Non-Structural Metal Framing
092900	Gypsum Board
095113	Acoustical Panel Ceilings
096513	Resilient Base and Accessories
096519	Resilient Tile Flooring
097350	Fiberglass Reinforced Panels (FRP)
099100	Painting

DIVISION 10 – SPECIALTIES – (NOT USED)

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DIVISION 11 – EQUIPMENT - (NOT USED)

DIVISION 12 – FURNISHINGS – (NOT USED)

DIVISION 13 - SPECIAL CONSTRUCTION

134950 Radio Frequency, Magnetic And Acoustical Shielding For MRI
Imaging Systems

DIVISION 14 - CONVEYING SYSTEMS – (NOT USED)

DIVISION 21 – FIRE SUPPRESSION

Mechanical on the Drawings

DIVISION 22 – PLUMBING

Mechanical on the Drawings

DIVISION 23 – HEATING, VENTILATING AND AIR CONDITIONING

Mechanical on the Drawings

DIVISION 26 – ELECTRICAL

Electrical on the Drawings

DIVISION 27 – COMMUNICATIONS

Electrical on the Drawings

DIVISION 28 – ELECTRONIC SAFETY AND SECURITY

Electrical on the Drawings

DIVISION 29 – 30 - (NOT USED)

DIVISION 31 – EARTHWORK - (NOT USED)

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DIVISION 32 - EXTERIOR IMPROVEMENTS - (NOT USED)

DIVISION 33- 49 - (NOT USED)

REFERENCE MATERIALS (BLUE PAPER)

The following items are issued for Contractor's use and do not form a part of the Contract Documents:

Preliminary Site Survey Report provided by Time Medical Systems,
Project Number P0896068, Dated July 30, 2019 14 Pages

[Add 1](#)

IMEDCO Site Survey
Part A 11 Pages
Part B 10 Pages

Time Medical Systems PICA Combined Owner Furnished Owner Installed
For Reference Only 10 Pages

Time Medical Systems PICA Handling and Position Owner Furnished
Owner Installed For Reference Only 29 Pages

Time Medical Systems PICA Installation Owner Furnished Owner
Installed For Reference Only 75 Pages

[Add 1](#)

Time Medical Systems Magnet Handling and Storage For Reference Only
4 Pages

END OF TABLE OF CONTENTS

SECTION 000115 - LIST OF DRAWINGS

1.1 CONTRACT DRAWINGS

A. The following Drawings, marked and dated as noted below, form a part of the Contract Documents:

1. Marked: Issued for: ~~Bid~~Addendum 1
2. Dated: ~~August 12, 2019~~August 12, 2019
3. List: Refer to Drawing G-001, "Drawing List" for complete list of drawings.

END OF SECTION
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RBOX – Shielded Enclosure Testing

SHIELDING EFFECTIVENESS TEST REPORT FOR: IMEDCO America LTD LOCATION: Wyane State University Detroit, MI	Document No.	Revision	Issue Date
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EMI SITE SURVEY REPORT

Customer:	Imedco
Location:	Wyane State University 461 Burroughs St Detroit, MI 48202
Report Status:	EMI Survey
Test Specification:	OEM Site Planning Guide
Test Report No.:	20190827A
Job Number:	N/A

DOCUMENT HISTORY

Revision	Issue Date	Affected Page(s)	Description of Modifications	Revised By	Approved By
0	27 August 2019		Initial release		

RBOX – Shielded Enclosure Testing			
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TEST REPORT NO. 20190827A

From:
R-BOX TESTING
MOBILE TESTING

Test for:
IMEDCO American LTD

Written By **Barkley Wesselius** 27 August 2019
 Barkley Wesselius, NDT Technician

TEST PERSONNEL – R-Box Testing

Barkley Wesselius	NDT Technician, RBOX Testing
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CUSTOMER TEST WITNESS

N/A	Imedco
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Test Facility	R-BOX Mobile Test Lab
Address	Po Box 58
Address	
City, State Zip Code	Bartonsville, PA 18321
Phone	(570) 350-4914
Fax	(570) 300-1643

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RBOX – Shielded Enclosure Testing			
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1 INTRODUCTION

This report documents the results of a series of EMI measurements performed at a location intended for magnetic sensitive equipment.

This series of measurements was performed by R-BOX testing mobile test laboratory at
 Wyane State University
 461 Burroughs St
 Detroit, MI 48202

R-Box Testing is a completely independent test and measurement service that performs tests and measurements in accordance with the latest U.S. Government and manufacturers' guidelines requiring impartial testing. R-Box Testing is not affiliated with any systems, equipment, or facilities manufacturers.

2 TEST DATES

27 August 2019

3 TEST SPECIFICATION

OEM Site Planning Guide

4 PURPOSE OF TEST

The purpose of this series of measurements was to measure any sources that would effect the operation of the proposed equipment to be installed.

5 SITE DESCRIPTION

The proposed location is for the installation of Time Medical System MRI. The proposed location is at ground level of a existing single story building. This building is located at 461 Burroughs St, Detroit, MI 48202. The proposed MRI suite is currently an unused lab. The location has a solid floor on grade. EMI measurements were taken at an estimated ISO center.

6 TEST LOCATION

Wyane State University
 461 Burroughs St
 Detroit, MI 48202

7 CUSTOMER

IMEDCO
 1730 E Pleasant St.
 Noblesville, IN 46060

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8 TEST PERSONNEL

Barkley Wesselius, NDT Technician

9 MEASUREMENT PROCEDURE

Overview: To determine the levels of ambient EMI the OEM Site Planning Guide was used to setup, data collection and presentation. Measurements were taken at approximate ISO-center.

- Building steelworks and reinforcements within 6m of the magnet iso-center affects the magnetic field homogeneity within the measuring area of the magnet. Details should be provided to Time Medical Systems of beams and columns in excess of 100kg/m around the shield room and reinforced concrete or steel beams up to 40kg/m² below the magnet. These pieces of information allow Time Medical Systems to ensure that the magnet will reach the required specifications. The need for magnetic compensation and the shielding method is determined according to the quasi-static (DC < 5Hz) and slow changing magnetic field fluctuation (AC 16-20Hz; AC 50-60Hz).

Maximum Acceptable Magnetic Fluctuation Values without Magnetic Compensation Requirements	
DC (<5Hz)	1mG 100nT
AC (16.6Hz)	0.2mG 20nT
AC (50-60Hz)	1mG 100nT

10 TEST RESULTS

Fluctuation minimum meets the requirement without compensation. The results are indicated in section 13.

11 CONCLUSION

Measurements followed OEM Site Planning Guide and has been accepted by the customer for the evaluation of the site described previous. The planning guide recommended a maximum acceptable magnetic fluctuation values without Magnetic Compensation Requirements

All data collected was below the recommend levels as stated in the OEM Site Planning Guide.

Refer to the measurement data for compliance.

RBOX – Shielded Enclosure Testing

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FOR: IMEDCO America LTD
LOCATION: Wyane State University
Detroit, MI

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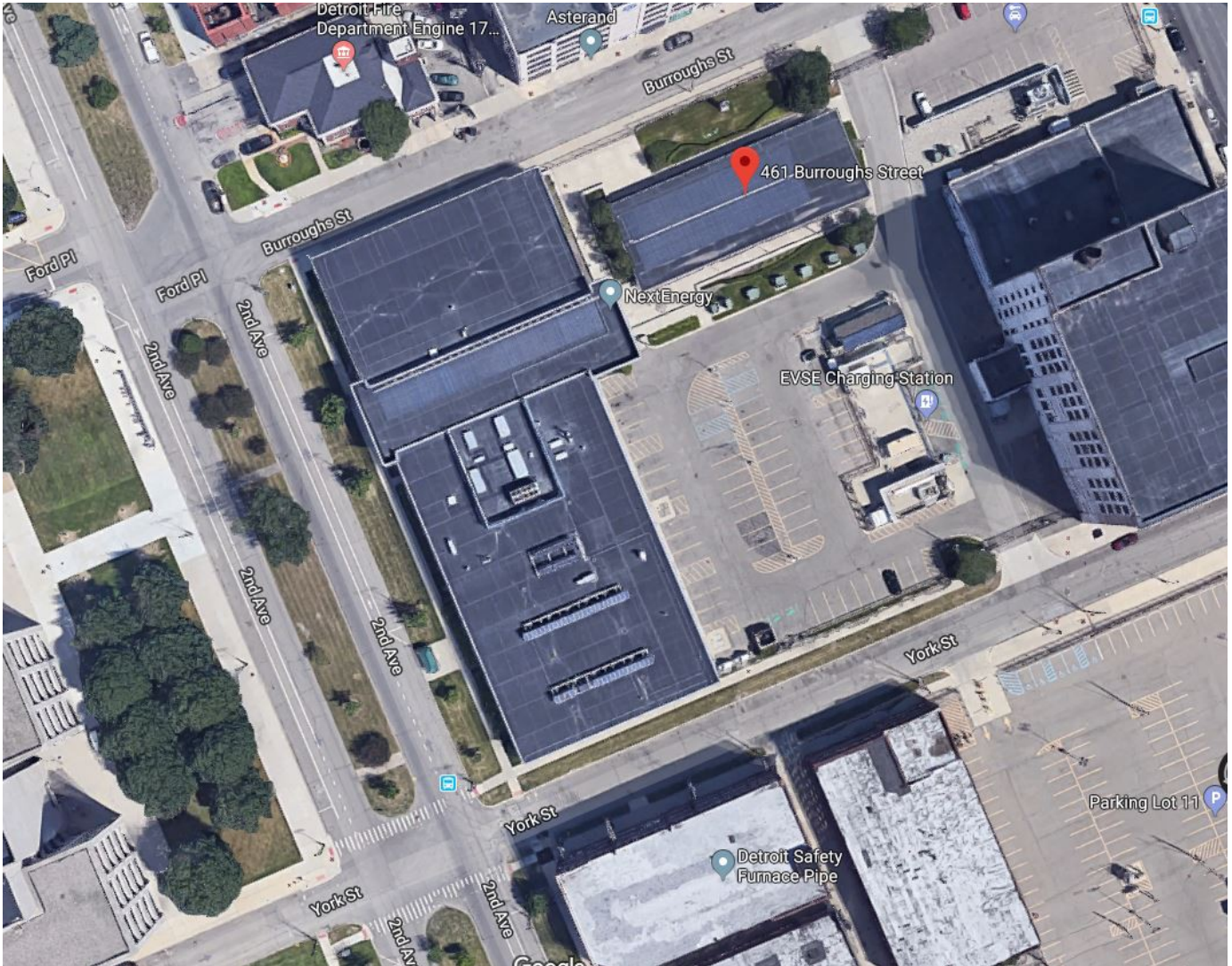
N/A

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12 SITE DETAIL

12.1 Site Map



RBOX – Shielded Enclosure Testing

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FOR: IMEDCO America LTD
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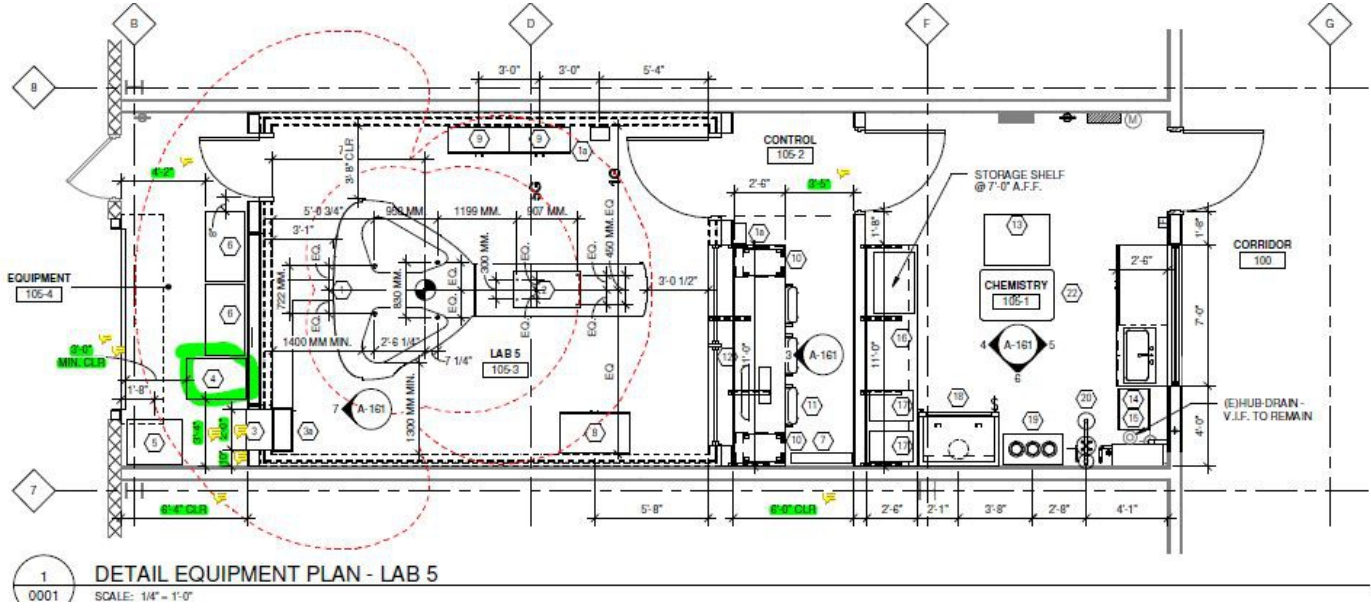
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12.2 Site Plan



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13 MEASUREMENT DATA

13.1 DC<5Hz =Max

.98 mG

Fluctuation minimum meets the 1 mG requirement without compensation.
(Activity in the loading bay next door may have contribute a higher reading).

13.2 AC (16.6 Hz) (Rail Frequency) = Max

.004 mG

Fluctuation minimum meets the 0.2 mG requirement without compensation.

13.3 AC (50-60 Hz) (Mains Power Frequency) = Max

.027 mG

Fluctuation minimum meets the 1 mG requirement without compensation.

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14 EMI/RFI TEST EQUIPMENT LIST

14.1 Table: MRI Test Equipment List

Mfgr./Model	Description	Serial
GigHertzSolution ME 3851A	DC-100KGz Electrostress Analyzer	13100001731
AlphaLab-Latnex / MG-DC3	Milligauss Meter	105
Tenmars TM-192D	Triaxial Magnetic Guass Meter 30Hz – 2000Hz	150701483
Lutron / EMF-823	Triaxial Magnetic Field Meter 30Hz – 2000Hz	1100312

MAGNET HANDLING AND STORAGE

**TIME MEDICAL
SYSTEMS**

The information contained herein is the responsibility of and is approved by the following, to whom all enquiries should be directed in the first instance:

Service Support
Time Medical Systems

Created by:
Date:

Reviewed by:
Date:

Approved by:
Date:

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SERVICE DOCUMENT

1 TEMPORARY STORAGE REQUIREMENTS

At all stages of the transportation to its final destination, the magnet and other wooden boxes may be required to store at a temporary climate-controlled location so that the shipment is not exposed to extreme conditions in attributes such as:

- Temperature
- Humidity
- Sunlight
- Rain
- Snow

For exact values, refer to section "temporary secure storage" of the installation planning document as shown below. (Ref.: 8)

10.3 TEMPORARY SECURE STORAGE

Occasional building work may slip behind completion schedule. It is a requirement to provide a secure storage for PICA shipment on site until the MRI suite is ready.

The following conditions should be observed:

- Safe storage temperature should be between -20°C and 45°C.
- Relative humidity at <60%.
- Take precautions for rain, sunshine, fire, and/or corrosion.
- Establish a warning sign 3m away to warn personnel to maintain a safe distance from the shipment.

1.1 GOODS INWARD INSPECTION

Conduct a standard goods inward inspection to confirm the shipment, and identify for signs of possible damage to the container.

Inspect the wooden box for signs of tilt and shock during transportation.

Review the packing list for all items shipped from the factory, and ensure each item for installation is available before proceeding with actual installation.

SERVICE DOCUMENT

1.2 UNCRATING INSTRUCTIONS

The wooden box used to house the magnet body is illustrated below.

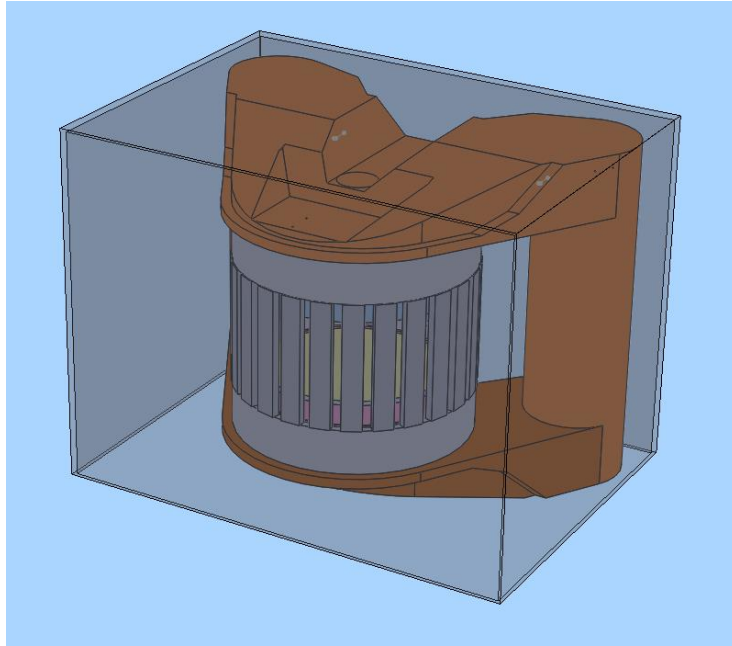


Figure 1: Magnet Body in Wooden Box (for illustration only)

As delivered, the magnet is packed in a wooden box. The magnet is to be lifted from the transport vehicle to a specified loading point.

WARNING: PICA Whole-Body MRI magnet generates strong magnetic and electromagnetic fields that can inhibit operation of some cardiac pacemakers, resulting in death or serious injury to the user. Consult the pacemaker user's manual, contact the manufacturer, or confer with a physician to determine the effect on a specific pacemaker. Time Medical Systems provides signs with each system to warn pacemaker wearers of this hazard.

The wooden box and markings outside the box are shown below. In general, verify the information against the packing list before proceeding to handling any wooden box.



Figure 2: Wooden Box Markings

SERVICE DOCUMENT

Follow steps below to open the wooden box:

1. While the wooden box is on the transportation vehicle, remove lid of the box.
2. Inspect and remove protection wrapping materials (i.e. cling wrapping film) if necessary.



Figure 3: Magnet with Wrapping Materials

Note: the magnet body is fully wrapped in insulation foam and it should not be unwrapped.

3. Inspect the integrity of transportation protection bar fitted to the front of the magnet opening to provide protection against vibration. Inspect integrity of wooden protective boards fitted at the magnet opening.



Figure 4: Transportation Protection Bar and Wooden Protective Boards

--End of Document--