

THE

University of Vermont MEDICAL CENTER

By Courier & Email

Office of the General Counsel

August 14, 2018

Donna Jerry, Senior Health Policy Analyst
Green Mountain Care Board
144 State Street
Montpelier, VT 05620

Re: Letter of Intent and Certificate of Need Application
for Replacement of Interventional Radiology Suite

Dear Donna:

On behalf of The University of Vermont Medical Center, I am pleased to submit the following documents in connection with UVM Medical Center's Certificate of Need application for the replacement of its Interventional Radiology Suite:

1. Letter of Intent, requesting expedited review;
2. Verification under Oath, signed by John Brumsted, MD;
3. Certificate of Need Application with:
 - a. A Narrative Description of the Project;
 - b. A detailed response to the applicable CON criteria, including the HRAP CON standards;
 - c. Financial Tables; and
 - d. Applicable attachments to the CON application.

Since we are requesting expedited review, we understand that your office will take care of the public notice requirements in accordance with 18 V.S.A. §§ 9440(c)(2)(A) and 9440(c)(5).

We look forward to receiving your decision on our request for expedited review and to working closely with you and your staff during the review process. If you or any members of your staff have questions concerning our application materials, please feel free to contact me any time.

Very truly yours,



Spencer R. Knapp, Esq.
Sr. VP and General Counsel

THE
University of Vermont
MEDICAL CENTER

By Courier & Email

Office of the General Counsel

August 14, 2018

Donna Jerry
Senior Health Policy Analyst
89 Main Street, Third Floor, City Center
Montpelier, VT 05620

Re: Letter of Intent for Replacement of the Interventional Radiology Suite

Dear Donna:

In accordance with 18 V.S.A. § 9440(c)(5) and the Certificate of Need Program Rule 4.000 (“Rule 4”), The University of Vermont Medical Center (“UVM Medical Center”) is filing this Letter of Intent and the enclosed Certificate of Need application, seeking expedited approval, without a hearing and with such other abbreviated process as the Green Mountain Care Board determines is appropriate, of a project to replace its Interventional Radiology Suite (the “Project”).

Under 18 V.S.A. § 9440(c)(5) and Rule 4, a request for expedited review may be granted if the project is likely to be (a) uncontested and (b) does not substantially alter services. Because this is simply an equipment replacement project involving a service that UVM Medical Center already provides, it is very unlikely that the project will be contested.

Under § 4.304 of Rule 4, a CON project does not “substantially alter services” if:

- (a) The project raises no significant health care policy or planning concerns; and
- (b) The project consists of the routine replacement of existing equipment that is depreciated, out-of-date or obsolete.

The Project’s cost of \$2.1 million is not substantial in terms of UVM Medical Center’s overall budget, and the Project will not have a significant impact on UVM Medical Center’s services or financial health. Moreover, because there will be no changes to our services, we do not believe that the Project raises any significant health care policy or planning concerns. Finally, consistent with the Rule, this Project consists only of the routine replacement of UVM Medical Center’s existing Interventional Radiology Suite which contains equipment that is fully depreciated and nearly obsolete.

Under Rule 4, we believe that the Green Mountain Care Board may declare this application uncontested and issue written notice granting a Certificate of Need without any further process, and we respectfully request that the Board do so.

In accordance with 18 V.S.A. § 9440(c)(2) and the underlying CON regulations and guidelines, we provide the following information concerning the Project, which is amplified in the enclosed application:

<u>Project Scope:</u>	The Project involves the replacement of Interventional Radiology equipment and facilities renovations for the Interventional Radiology Suite where the equipment will be housed at a total cost of \$2.1 million.
<u>Project Rationale and Objectives:</u>	The Interventional Radiology equipment currently in use at UVM Medical Center was purchased in 2005 and is fully depreciated. The system is exhibiting increasing periods of down-time and unreliability, and lacks certain enhancements made available by current technology.
<u>Need to be Addressed:</u>	The Project is needed to enable UVM Medical Center to maintain the existing level of interventional radiology services now provided without disruption of care to patients. As Vermont's only tertiary care hospital, replacing the angiography equipment is critical, since the clinical acuity of the cases at UVM Medical Center is greater than at other hospitals in the region.
<u>Cost, Access , Quality:</u>	The Project will provide continued patient access to interventional radiology services and improved quality through technological enhancements without any increase in costs or charges.
<u>Location:</u>	Minor facilities renovations will be required to replace the Interventional Radiology equipment, which will be installed in the existing location in McClure 1, room 1184, Suite 22 on the main hospital campus. Along with the equipment installation, new architectural finishes are planned, as well as upgrades to the existing mechanical HVAC ventilation and electrical systems.
<u>Service Area:</u>	Vermont and the New York counties of Essex, Warren, Washington, Clinton, Franklin and St. Lawrence, with a combined population of approximately one million persons.
<u>Projected Expenditures:</u>	\$2.1 million.

We look forward to working with you and your staff during the review process for this application.

Very truly yours,



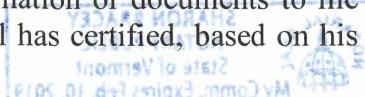
Spencer R. Knapp, Esq.
Sr. VP and General Counsel

STATE OF VERMONT
GREEN MOUNTAIN CARE BOARD

In re: The University of Vermont Medical Center Inc.)
Application for Certificate of Need to Replace)
the Interventional Radiology Suite)
Capital Expenditure: \$2.1 million)

JOHN R. BRUMSTED, M.D., being duly sworn, states on oath as follows:

1. My name is John R. Brumsted, M.D. I am the Chief Executive Officer of The University of Vermont Medical Center Inc. and President and Chief Executive Officer of The University of Vermont Health Network. I have reviewed the foregoing Certificate of Need Application.
2. Based on my personal knowledge, after diligent inquiry, the information contained in the Application is true, accurate and complete, does not contain any untrue statement of a material fact, and does not omit to state a material fact necessary to make the statement made therein not misleading, except as specifically noted herein.
3. My personal knowledge of the truth, accuracy and completeness of the information contained in the Application is based upon either my actual knowledge of the subject information or, where identified below, upon information reasonably believed by me to be reliable and provided to me by the individuals identified below who have certified that the information they have provided is true, accurate and complete, does not contain any untrue statement of a material fact, and does not omit to state a material fact necessary to make the statement made therein not misleading.
4. I have evaluated, within the 12 months preceding the date of this affidavit, the policies and procedures by which information has been provided by the certifying individuals identified below, and I have determined that such policies and procedures are effective in ensuring that all information submitted or used by The University of Vermont Medical Center Inc. in connection with the Certificate of Need program is true, accurate, and complete. I have disclosed to the Board of Trustees all significant deficiencies, of which I have personal knowledge after diligent inquiry, in such policies and procedures, and I have disclosed to the Board of Trustees any misrepresentation of facts, whether or not material, that involves management or any other employee participating in providing information submitted or used by The University of Vermont Medical Center Inc. in connection with the Certificate of Need program.
5. The following certifying individuals have provided information or documents to me in connection with the Application, and each such individual has certified, based on his or



her actual knowledge of the subject information or, where specifically identified in such certification, based on information reasonable believed by the certifying individual to be reliable, that the information or documents they have provided are true, accurate and complete, do not contain any untrue statement of a material fact, and do not omit to state a material fact necessary to make the statement made therein not misleading:

- (a) Paula Gonyea, Director, Radiology. This individual certified to the accuracy of the description of the equipment and the operations of the Radiology Department as described in the Application, including all information regarding the function, operation and clinical aspects of the Interventional Radiology program.
 - (b) Peter MacDonald, Director, Finance. This individual certified to the accuracy of all financial information submitted with the Application, including the CON Financial Tables.
 - (c) Peter Bero, Senior Project Manager, Facilities Planning and Construction. This individual certified to the accuracy of all information in the Application describing the renovation work to be performed, including the Project's consistency with the FGI Guidelines and the schematic drawings submitted with the Application.
6. In the event that the information contained in the Application becomes untrue, inaccurate or incomplete in any material respect, I acknowledge my obligation to notify the Green Mountain Care Board, and to supplement the Application, as soon as I know, or reasonably should know, that the information or document has become untrue, inaccurate or incomplete in any material respect.



JOHN R. BRUMSTED, M.D.

On August 14 2018, JOHN R. BRUMSTED, M.D. appeared before me and swore to the truth, accuracy and completeness of the foregoing.



Notary Public
My commission expires 2/10/19.



**STATE OF VERMONT
GREEN MOUNTAIN CARE BOARD**

**CERTIFICATE OF NEED APPLICATION
BY
THE UNIVERSITY OF VERMONT MEDICAL CENTER INC.
TO
REPLACE ITS INTERVENTIONAL RADIOLOGY SUITE**

Dated August 14, 2018

Spencer R. Knapp
Sr. V.P. & General Counsel

Steven J. Klein
Director of Legal Affairs &
Assistant General Counsel

Erika L. Smart
Assistant General Counsel

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SECTION I **PROJECT OVERVIEW**

A. Description of Project

The University of Vermont Medical Center Inc. (“UVM Medical Center”) hereby submits this Certificate of Need (“CON”) application in accordance with 18 V.S.A. Section 9440(c)(5), seeking expedited review and approval of a \$2.14 million project (the “Project”) to replace existing equipment in Interventional Radiology Suite 22, and to make the necessary renovations to house the equipment. Specifically, this application seeks approval of the following:

- (1) Replacement of UVM Medical Center’s Philips Allura FD10 Angiography system with a Philips Azurion 7 FD20 ceiling-mounted Angiography system at a cost of \$1,335,245; and,
- (2) Facilities renovations for the Interventional Radiology Suite at a cost of \$490,000, related construction contingency expenses of \$98,000, design/bidding contingency expenses of \$49,000, construction manager fees of \$49,000, furnishings, fixtures and equipment at a cost of \$77,480, architectural/engineering fees of \$43,220, and administrative expenses and permitting fees at a cost of \$2,677.¹

The total cost of the Project, which is \$2,144,622, will be covered by available working capital, without the need for additional borrowing.

B. Project Rationale

The Project does not involve any new program or service, the expansion or modification of any existing service or program, or the construction of any new health care facilities. The Project involves only the routine replacement of UVM Medical Center’s existing interventional radiology equipment, consistent with sound business practices, as well as minor facilities renovations necessary to house the equipment. The replacement of the existing equipment is in line with the manufacturer’s end of service life recommendations.

C. Consistency with CON Criteria and Standards

The proposed Project meets the statutory criteria set forth in Section 9437 of the Vermont Certificate of Need law, and is consistent with the Health Resource Allocation Plan published on July 1, 2009 (“HRAP”) and the applicable HRAP CON standards, as explained in detail in Parts IV and V of this Application.

¹ Permitting fees are limited to the CON application fee.

SECTION II

DESCRIPTION OF UVM MEDICAL CENTER'S INTERVENTIONAL RADIOLOGY SERVICES

A. Overview of Angiography Imaging in Interventional Radiology

Angiography is a medical imaging technique used by interventional radiologists to visualize the inside of blood vessels in several parts of the body, including the heart and brain, allowing radiologists to determine whether the vessels are diseased, narrowed, enlarged, or blocked altogether. Catheter angiography, the focus of this Project, works by inserting a thin tube into the artery through a small incision in the skin about the size of a pencil tip. The radiologist then threads the catheter through the arterial system to the desired location, and a contrast material, or dye, is injected to make the blood vessels visible on the x-ray and obtain a detailed picture from inside the blood vessel. X-rays are then taken and images are stored in a computer or captured on film.

Catheter angiography allows for real time imaging, which is crucial for procedures involving the deployment of devices inside the blood vessels. Moreover, unlike computed tomography (CT) or magnetic resonance (MR) angiography, the use of a catheter makes it possible to combine diagnosis and treatment into a single procedure. One common example is when angiography imaging is used by an interventional radiologist to diagnose arterial narrowing and then place a stent to treat it. The degree of imaging detail displayed by catheter angiography allows for diagnosis and treatment in a single non-invasive procedure.

Interventional radiology procedures using catheter angiography are minimally invasive, targeted treatments that replace open surgical procedures for the treatment of many vascular diseases. Instead of large, surgical incisions, patients are treated percutaneously through a very small incision in the skin. This has the advantage of being much less invasive and less costly than traditional surgery. The procedures generally involve less risk, less pain, and shorter recovery time for patients than for traditional surgery. Most interventional radiology procedures may be performed on an outpatient basis, or require only a short hospital stay.

B. Interventional Radiology Services at UVM Medical Center

UVM Medical Center's interventional radiology program is the only one of its kind in the region, serving patients throughout Vermont and northern New York. In our area, only Dartmouth Hitchcock Medical Center and Albany Medical Center offer interventional radiology programs of similar complexity. As the region's only stroke center, UVM Medical Center is currently spearheading an initiative to improve the survivability and outcomes of patients experiencing a stroke in rural areas by enhancing timely access to diagnosis and treatment. The replacement of the interventional radiology system is consistent with maintaining and improving the medical infrastructure critical to this initiative.

As illustrated in Table 1 below, UVM Medical Center's interventional radiology volumes have grown steadily over the last five to ten years, and the increasing popularity of interventional radiology procedures, as a safe and effective alternative to traditional surgery, is expected to

continue. Interventional radiology procedures are minimally invasive compared to open procedures, carry a lower risk of infection, and are the preferred treatment for many complex medical conditions.

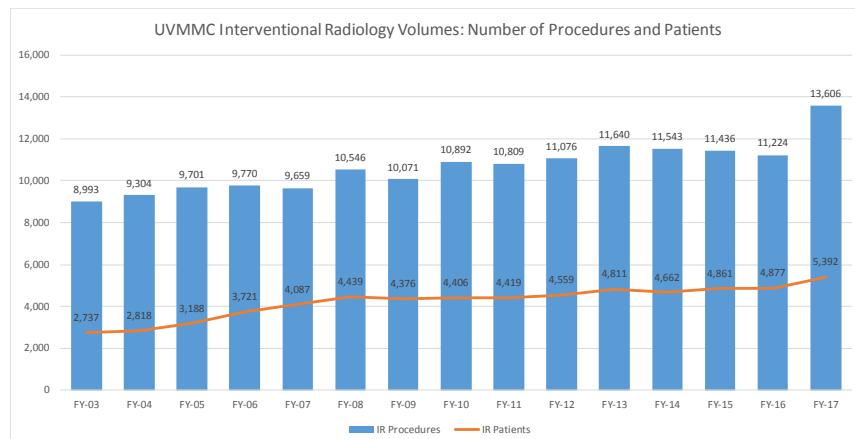


Table 1. Number of IR Procedures and Patient Volumes at UVMMC

The volume of interventional radiology cases at UVM Medical Center grew approximately 22% between 2012 and 2017. In 2017, UVM Medical Center performed nearly 14,000 interventional radiology procedures², primarily serving patients with cardiovascular disease, cancer, and end stage renal disease. The large growth rate between FY16-FY17 was driven by high hospital daily census, and an increased number of neurology procedures and spine and joint pain injections. As reflected in the table below, thirty-eight per cent of the patients came from Chittenden County, however UVM Medical Center treats patients from across Vermont and northern New York.

County, State	Distribution
Chittenden, VT	38%
Franklin, VT	9%
Washington, VT	8%
Addison, VT	8%
Clinton, NY	7%
Saint Lawrence, NY	5%
Franklin, NY	4%
Lamoille, VT	4%
Rutland, VT	3%
Essex, NY	3%
Grand Isle, VT	2%
Orleans, VT	2%
Orange, VT	2%
Caledonia, VT	1%
Washington, NY	1%
Windsor, VT	0%
Bennington, VT	0%
Essex, VT	0%
Windham, VT	0%
Other	2%
Total	100%

Table 2. Number of procedures by Patient Origin for CY2017

² The volume of interventional radiology procedures is higher than the number of interventional radiology patients because many patients undergo more than one billable procedure.

UVM Medical Center currently operates four interventional radiology suites. These suites are used for a combination of neurological interventional radiology procedures (e.g. stroke treatment), and vascular and non-vascular interventional radiology procedures. Many procedures are required to be performed on an emergent basis.

C. Need for Replacement of the Interventional Radiology System

The interventional radiology equipment currently in use at UVM Medical Center was purchased in 2005 and is now fully depreciated. The expected service life for the current interventional radiology imaging equipment is ten years, however UVM Medical Center's equipment is entering its thirteenth year of service. The system is experiencing increasing amounts of downtime and unreliability, and lacks certain enhancements made available by current technology.

The existing interventional radiology equipment is also experiencing behaviors typical of aging electronic devices including imaging deterioration and other issues related to end of life. The ability to procure replacement parts is significantly impacted by obsolescence and unavailability. The difficulty in locating operational parts directly impacts equipment uptime to perform patient care procedures.

The Project is needed to enable UVM Medical Center to maintain the existing level of interventional radiology services now provided without disruption of care to patients and with quality enhancements made available by current technology. The new Azurion technology is more energy efficient than the current Allura system. The manufacturer continues to improve the overall electronic capabilities, translating to a more energy efficient operating system, which in turn requires less HVAC needed for cooling requirements. The advanced technology also offers lower radiation emissions.

SECTION III DESCRIPTION OF PROJECT COMPONENTS

As indicated above, the Project includes the purchase of replacement equipment for Interventional Radiology Suite 22, as well as related renovations. This is described directly below.

A. Equipment

To meet its increasingly growing demand for interventional radiology procedures, UVM Medical Center plans to install replacement equipment in Interventional Radiology Suite 22. The replacement equipment consists of a new Philips Azurion 7 FD20 ceiling mounted imaging system, along with an uninterrupted power supply to serve the new equipment. The Philips Azurion is a next-generation image-guided therapy system platform that performs a wide range of routine and complex procedures, from minimally invasive to open procedures. The Azurion

provides a more advanced and complex technology platform than the current Allura system. It enables teams of clinicians to complete different tasks simultaneously in the interventional radiology suite, saving time and improving quality of care. Azurion also enables interventional personnel to pre-program routine task and user preferences, which has been shown to reduce errors in patient preparation and can speed up procedure times.

The costs for the Philips unit, the supporting mechanical and electrical infrastructure, and the furnishings, fixtures and other equipment (including the uninterrupted power supply), are included in Table 1 of the CON Financial Tables, which is attached hereto as Exhibit 1 to this application. The quote from Philips for the equipment is also included as Exhibit 2.

B. Renovations

In order to house the replacement equipment, facilities renovations will be required as part of the project. As part of the design, any new facilities renovations will be required to meet the *FGI Guidelines*, as further described below.

The Interventional Radiology Suite 22 is located on McClure 1 in room 1184 and was originally built in 1985 with the construction of the McClure Building. The original 1985 McClure 1 room 1184 construction was then extensively renovated in 2005 with the installation of the current interventional radiology equipment. The 2005 renovation included expanding the space to improve support staff circulation and storage area. The current suite consists of a control room, equipment closet, the main equipment room and an adjoining area for support staff circulation and storage. The 2005 renovation also included upgrades to mechanical HVAC, electrical and plumbing. The renovation was completed in accordance with the *FGI Guidelines* that were in place at the time.

To ensure compliance with the current *FGI Guidelines* and best practices for the operation of interventional radiology procedure rooms, the project will include an equipment replacement, upgrades to the mechanical HVAC ventilation system and new architectural finishes within the suite. This will ensure the suite has adequate HVAC ventilation requirements for the new equipment and procedure area. Upgrades are required to meet new ventilation requirements for procedure rooms.³ Finally, as this is primarily an existing equipment replacement, existing support and circulation areas will be maintained to ensure regulatory compliance with the *FGI Guidelines*.

Construction and Renovation Plan

The primary purpose of the project is to install new Interventional Radiology equipment in McClure 1 room 1184 Suite 22. Along with the equipment installation, all new architectural

³ Under the *FGI Guidelines*, the ventilation standards for Interventional Radiology Procedure Suites are well defined. The applicable ventilation design will be incorporated into the scope of the project.

finishes are planned for the suite. Additionally, the project will include upgrades to the existing mechanical HVAC ventilation and electrical systems. The existing suite size of approximately 572-square feet will remain unchanged. Lastly, as part of the project, McClure 1 room 1176 and a small portion of room 1174 will be transitioned from a staff bathroom to an equipment storage closet for the four main Philips electrical cabinets and McClure 1 room 1271 will have an uninterrupted power supply system installed to support the new equipment. An additional existing staff bathroom in the immediate area will remain untouched.

It is anticipated that the project will be completed under two distinct phases with the total construction duration expected to be approximately ten weeks. The duration includes existing equipment removal, room renovations and new equipment installation. The project is expected to take ten weeks from start to completion.

Phase 1: This phase includes the renovation of McClure 1 room 1176 and a small portion of room 1174 to function as the new equipment storage space for the four main Philips electrical cabinets and for the addition of an uninterrupted power supply system in McClure 1 room 1271. Additionally, as part of this phase, McClure 1 room 1184 Suite 22 will be renovated. The Suite 22 renovation will include all new architectural finishes such as new cabinets, desks, flooring, ceiling, and supporting storage closets. However, the footprint of the room will remain unchanged. Additional work will include upgrades to overhead structural steel supports to support the equipment as well as upgrades to electrical, HVAC ventilation, sprinkler systems, conduit, cabling, and duct work. The room will need to satisfy the requirements of the equipment manufacturer's specifications. The project will include an increase in ventilation due to the *FGI Guidelines* latest requirements for Imaging Procedure Rooms. An adjoining Tech work/equipment control room will have new equipment installed yet layout will remain unchanged.

Phase 2: This phase includes the installation of the Philips Azurion 7 FD20 ceiling mounted equipment in McClure 1 room 1184 Suite 22. This phase will also include the installation of the four main Philips electrical cabinets in the reconfigured McClure 1 room 1176 and an uninterrupted power supply system in McClure 1 room 1271. Philips will be responsible for installing the actual equipment.

Based on past imaging equipment replacement projects, we have learned that the existing radiation shielding has been adequate. This is in part due to the significant improvements in the control of radiation scatter by equipment manufacturers. As such, we have not included costs for any shielding enhancements to Suite 22. Shielding requirements will be reviewed by a UVM Medical Center radiation physicist. If any modifications to the shielding in Suite 22 become necessary, the modifications will be funded from the project's contingency. The performance of the shielding system will also be validated by a UVM Medical Center radiation physicist as part of the acceptance testing of the new equipment.

The uninterrupted power supply system will be installed with sufficient capacity to ensure that power failures are minimized in the event of a disruption of normal electrical power service to the building or Suite 22. The UPS will be designed to power the equipment during brief interruptions between the loss of normal power and when emergency power is supplied.

Included as Exhibit 3 to this CON application are the following sets of full-size (24 x 36-inch) drawings, which depict the renovation work that will occur:

1. Schematic-Level Drawings, prepared in accordance with GMCB requirements, depicting the proposed renovations and including the layout of the replacement Interventional Radiology Suite 22 equipment.
2. Site Plan Drawings, prepared by the vendor, depicting equipment layout, floor, wall and ceiling support layout, and electrical layout.

SECTION IV CONSISTENCY WITH THE HRAP CON STANDARDS

The applicable CON Standards are **bolded** below followed by an explanation as to how the Project is consistent with each standard.

CON STANDARD 1.1: Applicants shall include published GMCB quality measures for services related to a specific application, for the applicant and other hospitals that report on that quality measure. The applicant shall demonstrate how the project will improve or assist in the improvement of relevant quality measures, if the applicant's score is not above the national or the Vermont average.

UVM Medical Center's Interventional Radiology department follows quality measures established by the National Society of Interventional Radiologists (SIR). One of the key quality measures is Complication Rates. The SIR recommended benchmark for overall complication rates is between 1% and 4% with a maximum threshold of 5%. As reflected in Table 3 below, UVM Medical Center's Interventional Radiology procedure complication rate by identified grouping was 0.85% in 2017, down from the 2016 complication rate of 1.09%.

Interventional Radiology complication rates have decreased and stabilized

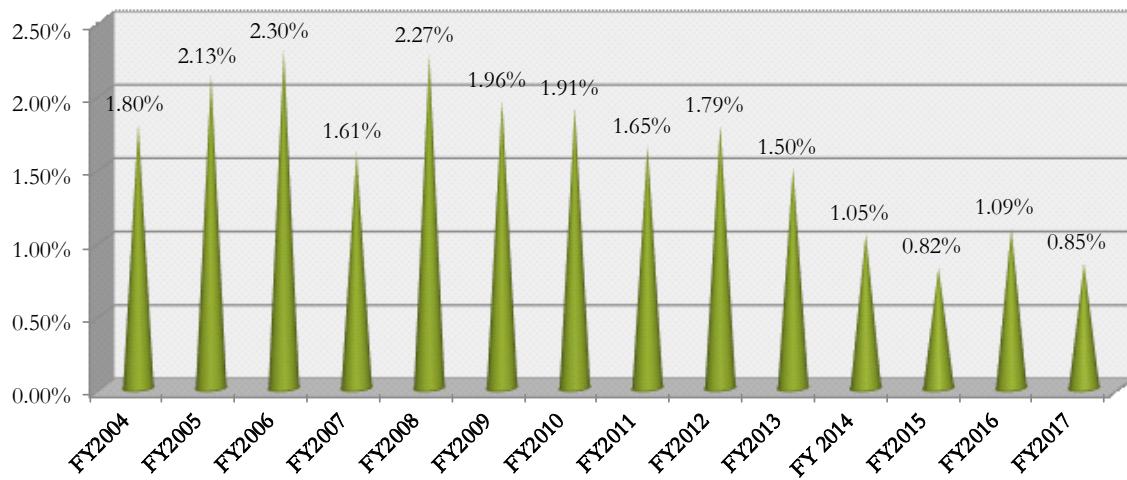


Table 3. Interventional Radiology Complication Rates at UVM Medical Center

CON STANDARD 1.6: Applicants seeking to develop a new health care project shall explain how the applicant will collect and monitor data relating to health care quality and outcomes related to the proposed new health care project. To the extent practicable, such data collection and monitoring shall be aligned with related data collection and monitoring efforts, whether within the applicant's organization, other organizations or the government.

For the past eighteen years, Interventional Radiology has implemented a quality assurance/quality improvement program consistent with the Joint Commission standards (PI 01.01.01, the hospital collects data to monitor its performance, compiles and analyzes data, and improves performance on an ongoing basis) and the National recommendation of the Society of Interventional Radiologist (SIR). The division meets on a monthly basis to review practices and any complications related to patient procedures. This peer review process utilizes practice standards, established by the SIR, and has set minimum threshold and complication rates to review. Each procedure has a data tool assessed and recorded in a central Interventional Radiology data base for future retrieval as required. This process allows for immediate discovery and reaction to cases that result in unexpected complication reporting and correction. This data is also shared with other divisions and services as required to assist in decreasing complications across the patient care continuum.

CON STANDARD 1.7: Applicants seeking to develop a new health care project shall explain how such project is consistent with evidence-based practice. Such explanation may include a description of how practitioners will be made aware of evidence based practice guidelines and how such guidelines will be incorporated into ongoing decision making.

UVM Medical Center is committed to delivering high quality patient care using evidence-based protocols and is a leading academic medical center providing graduate medical education based

on a philosophy of evidence-based practice. Physicians employed by UVMMC serve a joint role of practicing health care and teaching health care. This educational affiliation strengthens our commitment to providing cutting edge health care service technologies while ensuring continued professional and medical education to our clinical staff. Additionally, UVM Medical Center has a deep commitment to providing high quality health care in a population health environment. With regard specifically to Interventional Radiology, the management of Interventional Radiology patients at UVM Medical Center is based upon the ACR Appropriateness Criteria® from the American College of Radiology. In addition to reviewing all requests for exams in advance and assigning protocols, exams are preauthorized by insurance companies.

CON STANDARD 1.8: Applicants seeking to develop a new health care project shall demonstrate, as appropriate, that the applicant has a comprehensive evidence-based system for controlling infectious disease.

UVM Medical Center is in compliance with Joint Commission requirements on Infection Prevention and Surveillance.

The UVM Medical Center Infection Prevention Team was established in 1984 and as part of the James M. Jeffords Institute for Quality and Operational Effectiveness continues to strive to reduce and prevent healthcare-associated infections. A knowledgeable and effective infection prevention team is an important component of a successful infection prevention and control program. UVMMC has an experienced team with proven success in reducing healthcare-associated infections. The team is led by the Hospital Epidemiologist and includes members certified in infection prevention. The teams' infection prevention activities incorporate the following:

- Collection and analysis of infection data
- Evaluation of products and procedures
- Development and review of evidence based policies and procedures
- Consultation on infection risk assessment, prevention and control strategies including activities related to occupational health, construction and disaster planning
- Educational efforts directed at interventions to reduce infection risks
- Interpretation and implementation of changes mandated by regulatory, accrediting and licensing agencies
- Application of epidemiological and quality improvement principles including activities directed at improving patient outcomes
- Participation in research projects.

CON STANDARD 1.9: Applicants proposing construction projects shall show that costs and methods of the proposed construction are necessary and reasonable. Applicants shall show that the project is cost-effective and that reasonable energy conservation measures have been taken.

The architectural, mechanical HVAC, and electrical renovations proposed for this project are necessary and reasonable to accommodate the installation of the replacement interventional radiology equipment and to maintain existing and adequate support spaces.

UVM Medical Center believes that this approach – a continued reuse of existing adequate support spaces – yields the most cost-effective and reasonable construction option available, and is a better alternative than total demolition and reconstruction of all spaces.

Energy conservation measures are discussed in response to CON Standard 1.10 below.

CON STANDARD 1.10: Applicants proposing new health care projects requiring construction shall show such projects are energy efficient. As appropriate, applicants shall show that Efficiency Vermont, or an organization with similar expertise, has been consulted on the proposal.

UVM Medical Center will work with the Burlington Electric Department during early design to ensure that only the most energy efficient design, systems and products are selected for the project. Based on past experience, Efficiency Vermont does not provide consultative services to Burlington area businesses. Instead, the Burlington Electric Department provides these services. UVM Medical Center anticipates using energy efficient LED lighting to meet general and clinical procedure illumination requirements. The proposed ventilation equipment will use the best available technology to reduce energy consumption while ensuring a comfortable environment for our patients. The new HVAC ventilation equipment will be commissioned in accordance with requirements from the *FGI Guidelines* and the standards set forth by the American Association of Healthcare Engineers.

CON STANDARD 1.11: Applicants proposing new health care projects requiring new construction shall demonstrate that new construction is the more appropriate alternative when compared to renovation.

The proposed project seeks to renovate existing space, not construct new space. As such, CON Standard 1.11 does not appear to be applicable to this application.

CON STANDARD 1.12: New construction health care projects shall comply with the Guidelines for Design and Construction of Health Care Facilities as issued by the Facility Guidelines Institute (FGI), 2010 edition.

At the outset, we should note that entities such as UVM Medical Center, which are accredited by the Joint Commission, are required to follow the Guidelines for Design and Construction of Health Care Facilities (the “*FGI Guidelines*”) as part of the Joint Commission accreditation process. As this is primarily an equipment replacement project, it is UVM Medical Center’s intention to meet the 2014 *FGI Guidelines* by reviewing Interventional Radiology Suite 22 in combination with maintaining the existing current support spaces. Since Interventional Radiology Suite 22 is classified as an Imaging Procedure Room, the existing HVAC ventilation system serving the procedure room will require upgrades to provide the proper amount of ventilation as required by the 2014 *FGI Guidelines*.

The HVAC ventilation renovations for Interventional Radiology Suite 22 will meet ANSI/ASHRAE/ASHE Standard 170-2013, Ventilation of Health Care Facilities (*FGI*

Guidelines Section 4) including Section 7.4.3 Imaging Procedure Rooms and Equipment Section 1.4. Exhibit 3, attached hereto, contains a detailed table showing each relevant *FGI Guideline* and a description of how the Project will satisfy each guideline.

CON STANDARD 3.4: **Applicants subject to budget review shall demonstrate that a proposed project has been included in hospital budget submissions or explain why inclusion was not feasible.**

The Project was itemized in the FY18 capital budget as presented to the Green Mountain Care Board in June of 2017. This budget outlined UVM Medical Center's intention to replace the equipment during the next fiscal year, and our commitment to budgeting needed capital projects as early as possible. The estimated project cost at the time of budget was \$2.4M. This project is expected to come in under the original budgeted cost.

CON STANDARD 3.7: **Applicants proposing to replace diagnostic or therapeutic equipment shall demonstrate that existing equipment is fully depreciated, or the cost of the early replacement, including the cost of the remaining depreciation on existing equipment, is less costly than keeping the existing equipment.**

The current equipment residing in the Interventional Radiology Suite 22 was installed in 2005 and is fully depreciated. The equipment is entering its thirteenth year of service and is experiencing imaging deterioration. In addition, the ability to replace operational parts is significantly impacted by obsolescence and unavailability. This delays equipment availability uptime to perform patient care procedures.

CON STANDARD 3.19: **An applicant seeking to purchase a piece of diagnostic or therapeutic equipment shall include an analysis of whether other health care system costs may be reduced through more effective interventions through the use of the equipment. As appropriate, hospitals shall provide scientific evidence supporting the migration of such equipment and technology outside of tertiary care facilities.**

Continued use of interventional radiology procedures will reduce health care costs by avoiding the need for more costly and invasive surgical interventions. Interventional radiology procedures are used primarily for diagnosis and treatment of kidney and vascular disease, both of which tend to increase with age and among patients suffering from chronic conditions such as diabetes, high blood pressure, and obesity. Interventional radiology procedures are also utilized to prevent more serious conditions, such as stroke from occurring (e.g., stents are inserted to improve blood flow in carotid arteries to prevent stroke). However, when strokes do occur, this equipment is vital for emergent stroke thrombolytic intervention to prevent further damage.

As a tertiary/quaternary medical center serving approximately one million people in Vermont and Northern New York, the use of diagnostic imaging equipment, such as the Philips Azurion Series 7 FD20, is essential in the delivery of high quality patient care to our region. Health care savings are not driving this particular equipment replacement which is necessary due to end of life.

CON STANDARD 3.20: Applications to purchase diagnostic or therapeutic equipment, or to expand facilities to accommodate major medical equipment purchases, shall address the appropriateness of such distribution as compared to population, the availability of appropriately trained personnel, an evaluation of patient need versus convenience, urgent versus non-urgent use, and appropriate protocol to reduce the risk of repetitive testing (both within the facility purchasing the equipment and within the health care system).

UVM Medical Center is not proposing to “*expand* facilities to accommodate major medical equipment.” Instead, the proposal set forth in this application simply seeks the replacement of outdated and depreciated imaging equipment with new equipment. No changes will occur related to the distribution of interventional radiology imaging equipment in Vermont or the availability of trained personnel.

UVM Medical Center already employs fully-trained physicians and technicians who can safely and efficiently perform the interventional radiology procedures. This application, if approved, will not require any changes in UVM Medical Center’s staffing of its interventional radiology service.

This Project is a necessary replacement of the fully depreciated equipment that is being utilized for thousands of procedures every year, serving patients from Vermont and Northern New York. The current well established standards of patient care and patient selection will not change as a result of this Project and will continue in the future.

CON STANDARD 3.22: For applications involving the purchase of diagnostic or therapeutic equipment, applicants shall establish, through the submission of evidence in the form of peer-reviewed or similar articles, the clinical efficacy of the diagnoses or procedures to be performed.

Since this project is a straight replacement of the existing interventional radiology equipment, UVM Medical Center will continue to perform the same type of procedures and diagnostics in Interventional Radiology Suite 22. All the procedures including but not limited to Venous Intervention, Biopsy/Diagnostic Fluid Aspiration, and Drainages will be continuously provided to the UVM Medical Center market population.

Many scholarly articles discuss the clinical efficacy of interventional radiology diagnostics and procedures. Clinical efficacy of interventional radiology treatment as the only significant course for a patient in need of immediate intervention for an evolving stroke, was published by the American Journal of Neuroradiology in the article titled: *Endovascular Stroke Treatment Today*.⁴ Interventional radiology has been proven to be a better treatment option for patients in need of a uterine fibroid reduction than having an open surgical removal of the

⁴ “Endovascular Stroke Treatment Today.” I.Q. Grunwald, et al.. *American Journal of Neuroradiology*, February 2011, 32 (2) 238-243; DOI: <https://doi.org/10.3174/ajnr.A2346>.

uterus.⁵ Moreover, the endovascular approach for patients with poor physical health has been demonstrated to be a better alternative than a surgical approach.⁶

Over the last four to five decades, interventional radiology has proven to carry a number of benefits for patients. The techniques used in interventional radiology offer treatment options for many conditions, allowing patients to be treated with less risk and shorter hospital stays than traditional surgery. Interventional radiology procedures can be used in almost every organ system, and the list of conditions that can be diagnosed and treated using image-guided techniques is continuously growing.

CON STANDARD 3.23: In addition to proving need, applicants seeking to add or expand diagnostic or therapeutic equipment shall show that the equipment reduces costs and/or improves quality.

This application does not propose to “add” or “expand” diagnostic or therapeutic equipment. It only seeks to *maintain* UVM Medical Center’s existing interventional radiology services, by replacing fully-depreciated equipment that no longer conforms to industry standards. As such, this CON standard is not applicable to this application.

CON STANDARD 3.24: An applicant shall disclose potential financial conflicts of interest between hospitals and physicians and an equipment purchase.

There are no potential financial conflicts of interests between UVM Medical Center and its physicians related to or created by the Project. As such, CON Standard 3.24 is not applicable to the proposal.

**SECTION V
CONSISTENCY WITH 18 V.S.A. § 9437**

This Application demonstrates, and the GMCB should find, that the Project complies and is fully consistent with the statutory criteria set forth in 18 V.S.A. Section 9437

The statutory language contained in Section 9437 is **bolded** below followed by UVM Medical Center’s explanation of how the Project is consistent with each requirement.

1. The Application is consistent with the HRAP.

⁵ “Quality Improvement Guidelines for Uterine Artery Embolization for Symptomatic Leiomyoma.” Dariushnia, Sean R. et al. *Journal of Vascular and Interventional Radiology*, Volume 25, Issue 11, 1737-1747.

⁶ The SPINACH Study (Surgical Reconstruction Versus Peripheral Intervention in Patients With Critical Limb Ischemia):Osamu Iida, Mitsuyoshi Takahara, Yoshimitsu Soga, Akio Kodama, Hiroto Terashi, Nobuyoshi Azuma.

As indicated in Section IV, the Project is consistent with each of the HRAP CON standards and all other applicable provisions of the HRAP.

2. The cost of the project is reasonable, because:

A. the applicant's financial condition will sustain any financial burden likely to result from completion of the project;

The Project will not create a “financial burden” for UVM Medical Center. The costs of the Project will be paid from available working capital without incurring additional debt.

B. the project will not result in an undue increase in the costs of medical care. In making findings under this subdivision, the commissioner shall consider and weigh relevant factors, including:

- i. the financial implications of the project on hospitals and other clinical settings, including the impact on their services, expenditures, and charges;**
- ii. whether the impact on services, expenditures, and charges is outweighed by the benefit of the project to the public; and**

The Project involves simply routine equipment replacement and will not result in any increase in volumes or the costs of medical care.

C. less expensive alternatives do not exist, would be unsatisfactory, or are not feasible or appropriate;

Reasonable alternatives to replacing the interventional radiology equipment are not appropriate or feasible. The only alternative to replacing the equipment at this time would be to delay its replacement. That would not be appropriate or satisfactory, nor would it be consistent with sound business practices for replacing major capital equipment that is beyond the end of its useful life. Delayed replacement would lead to continued down time and disruptions of patient care.

3. There is an identifiable, existing, or reasonably anticipated need for the proposed project which is appropriate for the applicant to provide;

The need for this Project is demonstrated throughout this Application, and is specifically addressed in Sections I(B), II(A), II(B) and II(C), which are incorporated herein by reference.

4. The project will improve the quality of health care in the state or provide greater access to health care for Vermont's residents, or both;

The Project will enable UVM Medical Center to maintain the existing high quality of its interventional radiology services and implement equipment technology enhancements, including

better image quality and lower radiation, that will improve the quality of patient care, as explained throughout this Application.

5. The project will not have an undue adverse impact on any other existing services provided by the applicant;

The Project will not have a material impact on any other existing services offered by UVM Medical Center. All existing services will continue to be provided by UVM Medical Center.

6. The project will serve the public good;

The Project will serve the public good in numerous ways, as stated throughout the application.

CONCLUSION

Based upon the information contained in this Application, UVM Medical Center respectfully asks that the Application be APPROVED expeditiously and that a CON for the project be issued.

Dated at Burlington, Vermont this 14th day of August, 2018

THE UNVERSITY OF VERMONT MEDICAL CENTER INC.

By: _____
Spencer R. Knapp
Sr. V.P and General Counsel

By: _____
Steven J. Klein
Director of Legal Affairs & Assistant General
Counsel

And: _____
Erika Smart
Assistant General Counsel

INDEX OF EXHIBITS

Exhibit 1: CON Financial Tables

Exhibit 2: Equipment Quote

Exhibit 3: FGI Guidelines Compliance Chart with accompanying Floor Plans

**Universtiy of Vermont Medical Center
I/R Suite 22 Replacement**

Required Tables

When completing the tables please note that you need only fill-in the **shaded fields**. Fields with diagonal lines indicating **N/A** do not require an entry. The CON Application Form tables, when completed electronically, are set up to calculate totals as well as pre-populate fields in other tables for you. If you have any questions please contact Division staff. Also, please contact Division staff prior to determining if a given table may not be applicable for your project.

Applicants are encouraged to submit an electronic version of a completed application via attachment to email. Please send electronic versions as attachments to email addressed to: Donna.Jerry@state.vt.us

<u>Table</u>	<u>Description</u>
1	Project Costs
2	Debt Financing Arrangement: Sources & Uses of Funds
3A	Income Statement: Without Project
3B	Income Statement: Project Only
3C	Income Statement: With Project (no 'fill-in' required)
4A	Balance Sheet - Unrestricted Funds: Without Project
4B	Balance Sheet - Unrestricted Funds: Project Only
4C	Balance Sheet - Unrestricted Funds: With Project (no 'fill-in' required)
5A	Statement of Cash Flows: Without Project
5B	Statement of Cash Flows: Project Only
5C	Statement of Cash Flows: With Project (no 'fill-in' required)
6A	Revenue Source Projections: Without Project
6B	Revenue Source Projections: Project Only
6C	Revenue Source Projections: With Project (no 'fill-in' required)
7	Utilization Projections: Totals
8	Utilization Projections: Project Specific
9	Staffing Projections: Totals

NOTE: When completing this table make entries in the shaded fields only.

Universitiy of Vermont Medical Center

I/R Suite 22 Replacement

TABLE 1
PROJECT COSTS

Construction Costs	
1. New Construction	490,000
2. Renovation	1,335,245
3. Site Work	49,000
4. Fixed Equipment	98,000
5. Design/Bidding Contingency	49,000
6. Construction Contingency	Subtotal
7. Construction Manager Fee	49,000
8. Other (please specify)	
	<u>\$ 2,021,245</u>
 Related Project Costs	
1. Major Moveable Equipment	77,480
2. Furnishings, Fixtures & Other Equip.	43,220
3. Architectural/Engineering Fees	2,677
4. Land Acquisition	-
5. Purchase of Buildings	-
6. Administrative Expenses & Permits	-
7. Debt Financing Expenses (see below)	-
8. Debt Service Reserve Fund	-
9. Working Capital	-
10. Other (please specify)	-
Subtotal	<u>\$ 123,377</u>
Total Project Costs	<u>\$ 2,144,622</u>

Debt Financing Expenses	
1. Capital Interest	\$ -
2. Bond Discount or Placement Fee	-
3. Misc. Financing Fees & Exp. (issuance costs)	-
4. Other	-
Subtotal	<u>\$ -</u>
Less Interest Earnings on Funds	
1. Debt Service Reserve Funds	\$ -
2. Capitalized Interest Account	-
3. Construction Fund	-
4. Other	-
Subtotal	<u>\$ -</u>
Total Debt Financing Expenses	<u>\$ -</u>
feeds to line 7 above	

NOTE: When completing this table make entries in the shaded fields only.

**Universitiy of Vermont Medical Center
I/R Suite 22 Replacement**
TABLE 2
DEBT FINANCING ARRANGEMENT, SOURCES & USES OF FUNDS

Sources of Funds		
1. Financing Instrument	0.0%	
a. Interest Rate	To:	
b. Loan Period	\$	-
c. Amount Financed		-
2. Equity Contribution		-
3. Other Sources		
a. Working Capital ¹	2,144,622	-
b. Fundraising	-	-
c. Grants	-	-
d. Other	-	-
Total Required Funds	\$ 2,144,622	

Uses of Funds		
<u>Project Costs (feeds from Table 1)</u>		
1. New Construction	\$	-
2. Renovation	490,000	-
3. Site Work	-	-
4. Fixed Equipment	1,335,245	-
5. Design/Bidding Contingency	49,000	-
6. Construction Contingency	98,000	-
7. Construction Manager Fee	49,000	-
8. Major Moveable Equipment	-	-
9. Furnishings, Fixtures & Other Equip.	77,480	-
10. Architectural/Engineering Fees	43,220	-
11. Land Acquisition	-	-
12. Purchase of Buildings	-	-
13. Administrative Expenses & Permits	2,677	-
14. Debt Financing Expenses	-	-
15. Debt Service Reserve Fund	-	-
16. Working Capital	-	-
17. Other (please specify)	-	-
Total Uses of Funds	\$ 2,144,622	

Total sources should equal total uses of funds.

- 1) Funding Sources - Our current plan is that this would be funded through working capital. However, upon approval of the project, if the equipment vendor were to present more favorable financing options to us that would not increase the overall cost of the project (i.e., capital lease), we may decide to pursue such an option.

NOTE: When completing this table make entries in the shaded fields only.

Universitiy of Vermont Medical Center

I/R Suite 22 Replacement

TABLE 3A
INCOME STATEMENT
WITHOUT PROJECT

	Latest Actual	Budget	Proposed	Proposed	Proposed
	2017	2018	Year 1 2019	Year 2 2020	Year 3 2021
Revenues					
Inpatient Care Revenue	\$ 21,428,251	\$ 18,060,534	\$ 18,060,534	\$ 18,060,534	\$ 18,060,534
Outpatient Care Revenue	\$ 23,705,686	24,743,259	\$ 24,743,259	\$ 24,743,259	\$ 24,743,259
Chronic/Rehab Revenue	-	-	-	-	-
SNF/ECF Patient Care Revenue	-	-	-	-	-
Swing Beds Patient Care Revenue	-	-	-	-	-
Gross Patient Care Revenue	\$ 45,133,937	\$ 42,803,793	\$ 42,803,793	\$ 42,803,793	\$ 42,803,793
Disproportionate Share Payments	(350,087)	(272,968)	(272,968)	(272,968)	(272,968)
Free Care & Bad Debt	665,881	604,130	604,130	604,130	604,130
Deductions from Revenue	23,214,129	25,857,470	25,857,470	25,857,470	25,857,470
Net Patient Care Revenue	\$ 21,604,013	\$ 16,615,161	\$ 16,615,161	\$ 16,615,161	\$ 16,615,161
Other Operating Revenue	270,238	88,371	88,371	88,371	88,371
Total Operating Revenue	\$ 21,874,251	\$ 16,703,532	\$ 16,703,532	\$ 16,703,532	\$ 16,703,532
Operating Expense					
Salaries (Non-MD)	\$ 1,992,915	\$ 1,848,972	\$ 1,848,972	\$ 1,848,972	\$ 1,848,972
Fringes Benefits (Non-MD)	601,263	590,795	590,795	590,795	590,795
Physician Fees/Salaries/Contracts/Fringe	-	-	-	-	-
Health Care Provider Tax	1,296,241	996,910	996,910	996,910	996,910
Depreciation/Amortization					
Interest					
Other Operating Expense	4,089,909	4,157,983	\$ 4,157,983	\$ 4,157,983	\$ 4,157,983
Total Operating Expense	\$ 7,980,328	\$ 7,594,660	\$ 7,594,660	\$ 7,594,660	\$ 7,594,660
Net Operating Income (Loss)	\$ 13,893,924	\$ 9,108,872	\$ 9,108,872	\$ 9,108,872	\$ 9,108,872
Non-Operating Revenue	-	-	-	-	-
Excess (Deficit) of Rev Over Exp	\$ 13,893,924	\$ 9,108,872	\$ 9,108,872	\$ 9,108,872	\$ 9,108,872

Notes:

- Latest actual numbers should tie to the hospital budget process.
- Gross revenue includes revenue billed through the I/R department.
- Total operating expenses includes expenses from the I/R department, which excludes any room and board expenses as well as any expenses for ancillary services.
- Health Care Provider Tax is listed on this form as an expense. Please note on the UVMMC Audited Financial Statements it is treated as a contractual allowance.
- Other Operating Expense break down is as follows: FY17 \$3,288,557 is med/surg expense, \$310,182 is pharmaceutical expense and the remaining \$491,170 is all other. FY18 budget \$3,273,298 is med/surg expense, \$383,353 is pharmaceutical expense and the remaining \$501,332 is all other expense.

NOTE: When completing this table make entries in the shaded fields only.

Universtiy of Vermont Medical Center
I/R Suite 22 Replacement
TABLE 3B
INCOME STATEMENT
PROJECT ONLY

	Latest Actual 2017	Budget 2018	Proposed Year 1 2019	Proposed Year 2 2020	Proposed Year 3 2021
Revenues					
Inpatient Care Revenue	\$ -	\$ -	\$ -	\$ -	\$ -
Outpatient Care Revenue					
Chronic/Rehab Revenue					
SNF/ECF Patient Care Revenue					
Swing Beds Patient Care Revenue					
Gross Patient Care Revenue		\$ -	\$ -	\$ -	\$ -
Disproportionate Share Payments	\$ -	\$ -	\$ -	\$ -	\$ -
Free Care & Bad Debt					
Deductions from Revenue					
Net Patient Care Revenue		\$ -	\$ -	\$ -	\$ -
Other Operating Revenue					
Total Operating Revenue		\$ -	\$ -	\$ -	\$ -
Operating Expense					
Salaries (Non-MD)	\$ -	\$ -	\$ -	\$ -	\$ -
Fringes Benefits (Non-MD)					
Physician Fees/Salaries/Contracts/Fringes					
Health Care Provider Tax					
Depreciation/Amortization			231,218	231,218	231,218
Interest					
Other Operating Expense				30,736	30,736
Total Operating Expense		\$ -	\$ 231,218	\$ 261,954	\$ 261,954
Net Operating Income (Loss)		\$ -	\$ (231,218)	\$ (261,954)	\$ (261,954)
Non-Operating Revenue					
Excess (Deficit) of Rev Over Exp		\$ -	\$ (231,218)	\$ (261,954)	\$ (261,954)

Notes:

- This is a replacement project only so no additional revenue will be realized from this purchase.
- UVMMC anticipates that Suite 22 will become fully operational by 12/07/2018
- Additional expense is for depreciation and one year of maintenance savings that we will incur during the new equipments' warranty period.

8/14/2018

Health Care Administration

Copy of IR Suite 22 Repl CON_Tables 05.17.18, Table 3B

NOTE: This table requires no 'fill-in' as it is populated automatically from Tables 3A & 3B.

Universti of Vermont Medical Center
I/R Suite 22 Replacement
TABLE 3C
INCOME STATEMENT
WITH PROJECT

	Latest Actual	Budget	Proposed	Proposed	Proposed
	2017	2018	Year 1 2019	Year 2 2020	Year 3 2021
Revenues					
Inpatient Care Revenue	\$ 21,428,251	\$ 18,060,534	\$ 18,060,534	\$ 18,060,534	\$ 18,060,534
Outpatient Care Revenue	23,705,686	24,743,259	24,743,259	24,743,259	24,743,259
Chronic/Rehab Revenue	-	-	-	-	-
SNF/ECF Patient Care Revenue	-	-	-	-	-
Swing Beds Patient Care Revenue	-	-	-	-	-
Gross Patient Care Revenue	\$ 45,133,937	\$ 42,803,793	\$ 42,803,793	\$ 42,803,793	\$ 42,803,793
Disproportionate Share Payments	\$ (350,087)	\$ (272,968)	\$ (272,968)	\$ (272,968)	\$ (272,968)
Free Care & Bad Debt	665,881	604,130	604,130	604,130	604,130
Deductions from Revenue	23,214,129	25,857,470	25,857,470	25,857,470	25,857,470
Net Patient Care Revenue	\$ 21,604,013	\$ 16,615,161	\$ 16,615,161	\$ 16,615,161	\$ 16,615,161
Other Operating Revenue	270,238	88,371	88,371	88,371	88,371
Total Operating Revenue	\$ 21,874,251	\$ 16,703,532	\$ 16,703,532	\$ 16,703,532	\$ 16,703,532
Operating Expense					
Salaries (Non-MD)	\$ 1,992,915	\$ 1,848,972	\$ 1,848,972	\$ 1,848,972	\$ 1,848,972
Fringes Benefits (Non-MD)	601,263	590,795	590,795	590,795	590,795
Physician Fees/Salaries/Contracts/Fringes	-	-	-	-	-
Health Care Provider Tax	1,296,241	996,910	996,910	996,910	996,910
Depreciation/Amortization	-	-	231,218	231,218	231,218
Interest	-	-	-	-	-
Other Operating Expense	4,089,909	4,157,983	4,157,983	4,188,719	4,188,719
Total Operating Expense	\$ 7,980,328	\$ 7,594,660	\$ 7,825,878	\$ 7,856,614	\$ 7,856,614
Net Operating Income (Loss)	\$ 13,893,924	\$ 9,108,872	\$ 8,877,654	\$ 8,846,918	\$ 8,846,918
Non-Operating Revenue	-	-	-	-	-
Excess (Deficit) of Rev Over Exp	\$ 13,893,924	\$ 9,108,872	\$ 8,877,654	\$ 8,846,918	\$ 8,846,918

Latest actual numbers should tie to the hospital budget process.

GMCB	
FY17 Actual	

ASSETS

CURRENT ASSETS

CASH & INVESTMENTS	150,422,000
PATIENT ACCOUNTS RECEIVABLE, GROSS	147,341,000
LESS: ALLOWANCE FOR UNCOLLECTIBLE ACCTS	-
DUE FROM THIRD PARTIES	8,366,000
OTHER CURRENT ASSETS	109,575,000
TOTAL CURRENT ASSETS	415,704,000

BOARD DESIGNATED ASSETS

FUNDED DEPRECIATION	535,974,000
ESCROWED BOND FUNDS	4,902,000
OTHER	64,306,000
TOTAL BOARD DESIGNATED ASSETS	605,182,000

PROPERTY, PLANT AND EQUIPMENT

LAND. BUILDINGS & IMPROVEMENTS	685,331,000
FIXED EQUIPMENT	
MAJOR MOBILE EQUIPMENT	357,300,000
CONSTRUCTION IN PROGRESS	72,329,000
TOTAL PROPERTY, PLANT & EQUIPMENT	1,114,960,000

LESS: ACCUMULATED DEPRECIATION

LAND,BUILDINGS & IMPROVEMENTS	(337,973,000)
EQUIPMENT - FIXED	
EQUIPMENT - MAJOR MOVEABLE	(281,136,000)
TOTAL ACCUMULATED DEPRECIATION ()	(619,109,000)

TOTAL PROPERTY, PLANT AND EQUIPMENT, NET

OTHER LONG-TERM ASSETS	63,743,000
-------------------------------	-------------------

TOTAL ASSETS

1,580,480,000

LIABILITIES AND FUND BALANCE

CURRENT LIABILITIES

ACCOUNTS PAYABLE	38,511,000
SALARIES, WAGES AND PAYROLL TAXES PAYABLE	72,750,000
ESTIMATED THIRD-PARTY SETTLEMENTS	2,740,000
OTHER CURRENT LIABILITIES	50,083,000
CURRENT PORTION OF LONG-TERM DEBT	16,980,000
TOTAL CURRENT LIABILITIES	181,064,000

LONG-TERM DEBT

BONDS & MORTGAGES PAYABLE	474,245,000
CAPITAL LEASE OBLIGATIONS	
OTHER LONG-TERM DEBT	474,245,000

TOTAL OTHER NONCURRENT LIABILITIES

31,847,000

TOTAL LIABILITIES

687,156,000

FUND BALANCE

893,324,000

TOTAL LIABILITIES & FUND BALANCE

1,580,480,000

NOTE: When completing this table make entries in the shaded fields only.

Universitiy of Vermont Medical Center

I/R Suite 22 Replacement

TABLE 5A

STATEMENT OF CASH FLOWS
WITHOUT PROJECT

	Latest Actual 2017	Budget 2018	Proposed Year 1 2019	Proposed Year 2 2020	Proposed Year 3 2021
Beginning Cash	\$ -	\$ -	\$ -	\$ -	\$ -
Operations					
Excess revenues over expenses	13,893,924	9,108,872	9,108,872	9,108,872	9,108,872
Depreciation / Amortization	-	-	-	-	-
(Increase)/Decrease Patient A/R	-	-	-	-	-
(Increase)/Decrease Other Changes	-	-	-	-	-
Subtotal Cash from Operations	\$ 13,893,924	\$ 9,108,872	\$ 9,108,872	\$ 9,108,872	\$ 9,108,872
Investing Activity					
Capital Spending					
Capital					
Capitalized Interest					
Change in accum depr less depreciation	-	-	-	-	-
(Increase) Decrease in capital assets	-	-	-	-	-
Subtotal Capital Spending	\$ -	\$ -	\$ -	\$ -	\$ -
(Increase) / Decrease					
Funded Depreciation		-	-	-	-
Other LT assets & escrowed bonds & other		-	-	-	-
Subtotal (Increase) / Decrease	\$ -	\$ -	\$ -	\$ -	\$ -
Subtotal Cash from Investing Activity	\$ -	\$ -	\$ -	\$ -	\$ -
Financing Activity					
Debt (increase) decrease					
Bonds & mortgages		-	-	-	-
Repayment		-	-	-	-
Capital lease & other long term debt	-	-	-	-	-
Subtotal Cash from Financing Activity	\$ -	\$ -	\$ -	\$ -	\$ -
Other Changes (please describe)					
Manual adjustment					
Other					
Change in fund balance less net income		(9,108,872)	(9,108,872)	(9,108,872)	(9,108,872)
Other					
Subtotal Other Changes	\$ -	\$ (9,108,872)	\$ (9,108,872)	\$ (9,108,872)	\$ (9,108,872)
Net Increase (Decrease) in Cash	\$ 13,893,924	\$ -	\$ -	\$ -	\$ -
Ending Cash	\$ 13,893,924	\$ -	\$ -	\$ -	\$ -

Notes:

- Excess revenue over expenses is populated from table 3A and is the net income for the I/R department.
- The remaining operational expenses related to this cash flow statement are not obtainable at the departmental level.
- Investing Activity including capitalized interest is not stored at the departmental level and thus cannot be included on this cash flow statement.
- Financing Activity is not stored at the departmental level and thus cannot be included on this cash flow statement.

NOTE: This table requires no 'fill-in' as it automatically populates from Tables 4B, 5A and 5B.

**Universitiy of Vermont Medical Center
I/R Suite 22 Replacement**
TABLE 5B
STATEMENT OF CASH FLOWS
PROJECT ONLY

	Latest Actual 2017	Budget 2018	Proposed Year 1 2019	Proposed Year 2 2020	Proposed Year 3 2021
Beginning Cash		\$ -	\$ -	\$ (2,144,622)	\$ (2,175,358)
Operations					
Excess revenues over expenses			- (231,218)	(261,954)	(261,954)
Depreciation / Amortization			- 231,218	231,218	231,218
(Increase)/Decrease Patient A/R			-	-	-
(Increase)/Decrease Other Changes			-	-	-
Subtotal Cash from Operations		\$ -	\$ -	\$ (30,736)	\$ (30,736)
Investing Activity					
Capital Spending					
Capital			-	-	-
Capitalized Interest			-	-	-
Change in accum depr less depreciation			-	-	-
(Increase) Decrease in capital assets			- (2,144,622)	-	-
Subtotal Capital Spending		\$ -	\$ (2,144,622)	\$ -	\$ -
(Increase) / Decrease					
Funded Depreciation			-	-	-
Other LT assets & escrowed bonds & other			-	-	-
Subtotal (Increase) / Decrease		\$ -	\$ -	\$ -	\$ -
Subtotal Cash from Investing Activity		\$ -	\$ (2,144,622)	\$ -	\$ -
Financing Activity					
Debt (increase) decrease			-	-	-
Bonds & mortgages			-	-	-
Repayment			-	-	-
Capital lease & other long term debt			-	-	-
Subtotal Cash from Financing Activity		\$ -	\$ -	\$ -	\$ -
Other Changes (please describe)					
Manual adjustment			-	-	-
Other			-	-	-
Change in fund balance less net income			-	-	-
Other			-	-	-
Subtotal Other Changes		\$ -	\$ -	\$ -	\$ -
Net Increase (Decrease) in Cash		\$ -	\$ (2,144,622)	\$ (30,736)	\$ (30,736)
Ending Cash		\$ -	\$ (2,144,622)	\$ (2,175,358)	\$ (2,206,094)

NOTE: This table requires no 'fill-in' as it is populated automatically from Tables 5A & 5B.

Universitiy of Vermont Medical Center
I/R Suite 22 Replacement
TABLE 5C
STATEMENT OF CASH FLOWS
WITH PROJECT

	Latest Actual 2017	Budget 2018	Proposed	Proposed	Proposed
			Year 1 2019	Year 2 2020	Year 3 2021
Beginning Cash	\$ -	\$ -	\$ -	\$ (2,144,622)	\$ (2,175,358)
Operations					
Excess revenues over expenses	13,893,924	9,108,872	8,877,654	8,846,918	8,846,918
Depreciation / Amortization	-	-	231,218	231,218	231,218
(Increase)/Decrease Patient A/R	-	-	-	-	-
(Increase)/Decrease Other Changes	-	-	-	-	-
Subtotal Cash from Operations	\$ 13,893,924	\$ 9,108,872	\$ 9,108,872	\$ 9,078,136	\$ 9,078,136
Investing Activity					
Capital Spending					
Capital	-	-	-	-	-
Capitalized Interest	-	-	-	-	-
Change in accum depr less depreciation	-	-	-	-	-
(Increase) Decrease in capital assets	-	-	(2,144,622)	-	-
Subtotal Capital Spending	\$ -	\$ -	\$ (2,144,622)	\$ -	\$ -
(Increase) / Decrease					
Funded Depreciation	-	-	-	-	-
Other LT assets & escrowed bonds & other	-	-	-	-	-
Subtotal (Increase) / Decrease	\$ -	\$ -	\$ -	\$ -	\$ -
Subtotal Cash from Investing Activity	\$ -	\$ -	\$ (2,144,622)	\$ -	\$ -
Financing Activity					
Debt (increase) decrease					
Bonds & mortgages	-	-	-	-	-
Repayment	-	-	-	-	-
Capital lease & other long term debt	-	-	-	-	-
Subtotal Cash from Financing Activity	\$ -				
Other Changes (please describe)					
Manual adjustment	-	-	-	-	-
Other	-	-	-	-	-
Change in fund balance less net income	-	(9,108,872)	(9,108,872)	(9,108,872)	(9,108,872)
Other	-	-	-	-	-
Subtotal Other Changes	\$ -	\$ (9,108,872)	\$ (9,108,872)	\$ (9,108,872)	\$ (9,108,872)
Net Increase (Decrease) in Cash	\$ 13,893,924	\$ -	\$ (2,144,622)	\$ (30,736)	\$ (30,736)
Ending Cash	\$ 13,893,924	\$ -	\$ (2,144,622)	\$ (2,175,358)	\$ (2,206,094)

Notes:

- Refer to Tables 5A and 5B Notes

NOTE: When completing this table make entries in the shaded fields only.

University of Vermont Medical Center

I/R Suite 22 Replacement

TABLE 6A

REVENUE SOURCE PROJECTIONS
WITHOUT PROJECT

	Latest Actual 2017	% of Total	Budget 2018	% of Total	Proposed Year 1 2019	% of Total	Proposed Year 2 2020	% of Total	Proposed Year 3 2021	% of Total
Gross Inpatient Revenue										
Medicare	\$ 9,005,189	42.0%	\$ 8,302,636	46.0%	\$ 8,302,636	46.0%	\$ 8,302,636	46.0%	\$ 8,302,636	46.0%
Medicaid	3,102,639	14.5%	1,951,445	10.8%	1,951,445	10.8%	1,951,445	10.8%	1,951,445	10.8%
Commercial	7,806,830	36.4%	6,789,750	37.6%	6,789,750	37.6%	6,789,750	37.6%	6,789,750	37.6%
Self Pay	429,578	2.0%	68,101	0.4%	68,101	0.4%	68,101	0.4%	68,101	0.4%
Free Care / Bad Debt	-	0.0%	-	0.0%	-	0.0%	-	0.0%	-	0.0%
Other	1,084,016	5.1%	948,601	5.3%	948,601	5.3%	948,601	5.3%	948,601	5.3%
	\$ 21,428,251	100.0%	\$ 18,060,534	100.0%	\$ 18,060,534	100.0%	\$ 18,060,534	100.0%	\$ 18,060,534	100.0%
Gross Outpatient Revenue										
Medicare	\$ 11,653,845	49.2%	\$ 11,494,080	46.5%	\$ 11,494,080	46.5%	\$ 11,494,080	46.5%	\$ 11,494,080	46.5%
Medicaid	2,593,234	10.9%	2,599,695.89	10.5%	2,599,696	10.5%	2,599,696	10.5%	2,599,696	10.5%
Commercial	8,636,377	36.4%	9,276,042.63	37.5%	9,276,043	37.5%	9,276,043	37.5%	9,276,043	37.5%
Self Pay	241,990	1.0%	74,320.00	0.3%	74,320	0.3%	74,320	0.3%	74,320	0.3%
Free Care / Bad Debt	-	0.0%	-	0.0%	-	0.0%	-	0.0%	-	0.0%
Other	580,240	2.4%	1,299,120.95	5.3%	1,299,121	5.3%	1,299,121	5.3%	1,299,121	5.3%
	\$ 23,705,686	100.0%	\$ 24,743,259	100.0%	\$ 24,743,259	100.0%	\$ 24,743,259	100.0%	\$ 24,743,259	100.0%
Gross Other Revenue										
Medicare	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-
Medicaid	-	-	-	-	-	-	-	-	-	-
Commercial	-	-	-	-	-	-	-	-	-	-
Self Pay	-	-	-	-	-	-	-	-	-	-
Free Care / Bad Debt	-	-	-	-	-	-	-	-	-	-
Other	270,238	-	88,371	-	88,371	-	88,371	-	88,371	-
	\$ 270,238	-	\$ 88,371	-	\$ 88,371	-	\$ 88,371	-	\$ 88,371	-
Gross Patient Revenue										
Medicare	\$ 20,659,034	45.8%	\$ 19,796,716	46.2%	\$ 19,796,716	46.2%	\$ 19,796,716	46.2%	\$ 19,796,716	46.2%
Medicaid	5,695,873	12.6%	4,551,141	10.6%	4,551,141	10.6%	4,551,141	10.6%	4,551,141	10.6%
Commercial	16,443,207	36.4%	16,065,793	37.5%	16,065,793	37.5%	16,065,793	37.5%	16,065,793	37.5%
Self Pay	671,568	1.5%	142,421	0.3%	142,421	0.3%	142,421	0.3%	142,421	0.3%
Free Care / Bad Debt	-	0.0%	-	0.0%	-	0.0%	-	0.0%	-	0.0%
Other	1,664,256	3.7%	2,247,722	5.3%	2,247,722	5.3%	2,247,722	5.3%	2,247,722	5.3%
	\$ 45,133,937	100.0%	\$ 42,803,793	100.0%	\$ 42,803,793	100.0%	\$ 42,803,793	100.0%	\$ 42,803,793	100.0%
Deductions from Revenue										
Medicare	\$ 13,851,762	58.0%	\$ 15,379,461	58.1%	\$ 15,379,461	58.1%	\$ 15,379,461	58.1%	\$ 15,379,461	58.1%
Medicaid	4,249,992	17.8%	3,603,628	13.6%	3,603,628	13.6%	3,603,628	13.6%	3,603,628	13.6%
Commercial	4,213,834	17.6%	5,584,416	21.1%	5,584,416	21.1%	5,584,416	21.1%	5,584,416	21.1%
Self Pay	129,883	0.5%	36,843	0.1%	36,843	0.1%	36,843	0.1%	36,843	0.1%
Free Care / Bad Debt	665,881	2.8%	604,130	2.3%	604,130	2.3%	604,130	2.3%	604,130	2.3%
Other	768,658	3.2%	1,253,123	4.7%	1,253,123	4.7%	1,253,123	4.7%	1,253,123	4.7%
	\$ 23,880,010	100.0%	\$ 26,461,600	100.0%	\$ 26,461,600	100.0%	\$ 26,461,600	100.0%	\$ 26,461,600	100.0%
Net Patient Revenue										
Medicare	\$ 6,807,272	31.5%	\$ 4,417,255	26.6%	\$ 4,417,255	26.6%	\$ 4,417,255	26.6%	\$ 4,417,255	26.6%
Medicaid	1,445,880	6.7%	947,513	5.7%	947,513	5.7%	947,513	5.7%	947,513	5.7%
Commercial	12,229,373	56.6%	10,481,377	63.1%	10,481,377	63.1%	10,481,377	63.1%	10,481,377	63.1%
Self Pay	541,685	2.5%	105,578	0.6%	105,578	0.6%	105,578	0.6%	105,578	0.6%
Free Care / Bad Debt	(665,881)	-3.1%	(604,130)	-3.6%	(604,130)	-3.6%	(604,130)	-3.6%	(604,130)	-3.6%
Other	895,598	4.1%	994,599	6.0%	994,599	6.0%	994,599	6.0%	994,599	6.0%
DSP*	350,087	1.6%	272,968	1.6%	272,968	1.6%	272,968	1.6%	272,968	1.6%
	\$ 21,604,013	100.0%	\$ 16,615,161	100.0%	\$ 16,615,161	100.0%	\$ 16,615,161	100.0%	\$ 16,615,161	100.0%

Notes:

- Gross revenue includes revenue billed through the I/R department, but excludes any room and board charges as well as any charges for ancillary services.
- Gross Other Revenue is from client service billings in which Provider tax should not be applied.
- Deductions are calculated using the total UVMMC deduction percentages by payer

NOTE: When completing this table make entries in the shaded fields only.

University of Vermont Medical Center

I/R Suite 22 Replacement

TABLE 6B

REVENUE SOURCE PROJECTIONS

PROJECT ONLY

	Latest Actual 2017	% of Total	Budget 2018	% of Total	Proposed Year 1 2019	% of Total	Proposed Year 2 2020	% of Total	Proposed Year 3 2021	% of Total
Gross Inpatient Revenue										
Medicare			\$ -		\$ -		\$ -		\$ -	
Medicaid				-						
Commercial				-						
Self Pay				-						
Free Care / Bad Debt				-						
Other				-						
			\$ -		\$ -		\$ -		\$ -	
Gross Outpatient Revenue										
Medicare			\$ -		\$ -		\$ -		\$ -	
Medicaid				-						
Commercial				-						
Self Pay				-						
Free Care / Bad Debt				-						
Other				-						
			\$ -		\$ -		\$ -		\$ -	
Gross Other Revenue										
Medicare			\$ -		\$ -		\$ -		\$ -	
Medicaid				-						
Commercial				-						
Self Pay				-						
Free Care / Bad Debt				-						
Other				-						
			\$ -		\$ -		\$ -		\$ -	
Gross Patient Revenue										
Medicare			\$ -		\$ -		\$ -		\$ -	
Medicaid				-						
Commercial				-						
Self Pay				-						
Free Care / Bad Debt				-						
Other				-						
			\$ -		\$ -		\$ -		\$ -	
Deductions from Revenue										
Medicare			\$ -		\$ -		\$ -		\$ -	
Medicaid				-						
Commercial				-						
Self Pay				-						
Free Care / Bad Debt				-						
Other				-						
			\$ -		\$ -		\$ -		\$ -	
Net Patient Revenue										
Medicare			\$ -		\$ -		\$ -		\$ -	
Medicaid				-						
Commercial				-						
Self Pay				-						
Free Care / Bad Debt				-						
Other				-						
DSP*										
			\$ -	0.0%	\$ -	0.0%	\$ -	0.0%	\$ -	0.0%

Notes:

- There is no additional revenue associated with the replacement of the I/R Suite

NOTE: This table requires no 'fill-in' as it will automatically populate from Tables 6A & 6B.

**Universty of Vermont Medical Center
I/R Suite 22 Replacement**
TABLE 6C
REVENUE SOURCE PROJECTIONS
WITH PROJECT

	Latest Actual 2017	% of Total	Budget 2018	% of Total	Proposed		Proposed		Proposed	
					Year 1 2019	% of Total	Year 2 2020	% of Total	Year 3 2021	% of Total
Gross Inpatient Revenue										
Medicare	\$ 9,005,189	42.0%	\$ 8,302,636	46.0%	\$ 8,302,636	46.0%	\$ 8,302,636	46.0%	\$ 8,302,636	46.0%
Medicaid	3,102,639	14.5%	1,951,445	10.8%	1,951,445	10.8%	1,951,445	10.8%	1,951,445	10.8%
Commercial	7,806,830	36.4%	6,789,750	37.6%	6,789,750	37.6%	6,789,750	37.6%	6,789,750	37.6%
Self Pay	429,578	2.0%	68,101	0.4%	68,101	0.4%	68,101	0.4%	68,101	0.4%
Free Care / Bad Debt	-	0.0%	-	0.0%	-	0.0%	-	0.0%	-	0.0%
Other	1,084,016	5.1%	948,601	5.3%	948,601	5.3%	948,601	5.3%	948,601	5.3%
	\$ 21,428,251	100.0%	\$ 18,060,534	100.0%	\$ 18,060,534	100.0%	\$ 18,060,534	100.0%	\$ 18,060,534	100.0%
Gross Outpatient Revenue										
Medicare	\$ 11,653,845	49.2%	\$ 11,494,080	46.5%	\$ 11,494,080	46.5%	\$ 11,494,080	46.5%	\$ 11,494,080	46.5%
Medicaid	2,593,234	10.9%	2,599,696	10.5%	2,599,696	10.5%	2,599,696	10.5%	2,599,696	10.5%
Commercial	8,636,377	36.4%	9,276,043	37.5%	9,276,043	37.5%	9,276,043	37.5%	9,276,043	37.5%
Self Pay	241,990	1.0%	74,320	0.3%	74,320	0.3%	74,320	0.3%	74,320	0.3%
Free Care / Bad Debt	-	0.0%	-	0.0%	-	0.0%	-	0.0%	-	0.0%
Other	580,240	2.4%	1,299,121	5.3%	1,299,121	5.3%	1,299,121	5.3%	1,299,121	5.3%
	\$ 23,705,686	100.0%	\$ 24,743,259	100.0%	\$ 24,743,259	100.0%	\$ 24,743,259	100.0%	\$ 24,743,259	100.0%
Gross Other Revenue										
Medicare	\$ -		\$ -		\$ -		\$ -		\$ -	
Medicaid	-		-		-		-		-	
Commercial	-		-		-		-		-	
Self Pay	-		-		-		-		-	
Free Care / Bad Debt	-		-		-		-		-	
Other	270,238		88,371		88,371		88,371		88,371	
	\$ 270,238		\$ 88,371		\$ 88,371		\$ 88,371		\$ 88,371	
Gross Patient Revenue										
Medicare	\$ 20,659,034	45.5%	\$ 19,796,716	46.2%	\$ 19,796,716	46.2%	\$ 19,796,716	46.2%	\$ 19,796,716	46.2%
Medicaid	5,695,873	12.5%	4,551,141	10.6%	4,551,141	10.6%	4,551,141	10.6%	4,551,141	10.6%
Commercial	16,443,207	36.2%	16,065,793	37.5%	16,065,793	37.5%	16,065,793	37.5%	16,065,793	37.5%
Self Pay	671,568	1.5%	142,421	0.3%	142,421	0.3%	142,421	0.3%	142,421	0.3%
Free Care / Bad Debt	-	0.0%	-	0.0%	-	0.0%	-	0.0%	-	0.0%
Other	1,934,494	4.3%	2,336,093	5.4%	2,336,093	5.4%	2,336,093	5.4%	2,336,093	5.4%
	\$ 45,404,175	100.0%	\$ 42,892,164	100.0%	\$ 42,892,164	100.0%	\$ 42,892,164	100.0%	\$ 42,892,164	100.0%
Deductions from Revenue										
Medicare	\$ 13,851,762	58.0%	\$ 15,379,461	58.1%	\$ 15,379,461	58.1%	\$ 15,379,461	58.1%	\$ 15,379,461	58.1%
Medicaid	4,249,992	17.8%	3,603,628	13.6%	3,603,628	13.6%	3,603,628	13.6%	3,603,628	13.6%
Commercial	4,213,834	17.6%	5,584,416	21.1%	5,584,416	21.1%	5,584,416	21.1%	5,584,416	21.1%
Self Pay	129,883	0.5%	36,843	0.1%	36,843	0.1%	36,843	0.1%	36,843	0.1%
Free Care / Bad Debt	665,881	2.8%	604,130	2.3%	604,130	2.3%	604,130	2.3%	604,130	2.3%
Other	768,658	3.2%	1,253,123	4.7%	1,253,123	4.7%	1,253,123	4.7%	1,253,123	4.7%
	\$ 23,880,010	100.0%	\$ 26,461,600	100.0%	\$ 26,461,600	100.0%	\$ 26,461,600	100.0%	\$ 26,461,600	100.0%
Net Patient Revenue										
Medicare	\$ 6,807,272	31.1%	\$ 4,417,255	26.4%	\$ 4,417,255	26.4%	\$ 4,417,255	26.4%	\$ 4,417,255	26.4%
Medicaid	1,445,880	6.6%	947,513	5.7%	947,513	5.7%	947,513	5.7%	947,513	5.7%
Commercial	12,229,373	55.9%	10,481,377	62.7%	10,481,377	62.7%	10,481,377	62.7%	10,481,377	62.7%
Self Pay	541,685	2.5%	105,578	0.6%	105,578	0.6%	105,578	0.6%	105,578	0.6%
Free Care / Bad Debt	(665,881)	-3.0%	(604,130)	-3.6%	(604,130)	-3.6%	(604,130)	-3.6%	(604,130)	-3.6%
Other	1,165,836	5.3%	1,082,970	6.5%	1,082,970	6.5%	1,082,970	6.5%	1,082,970	6.5%
DSP*	350,087	1.6%	272,968	1.6%	272,968	1.6%	272,968	1.6%	272,968	1.6%
	\$ 21,874,251	100.0%	\$ 16,703,532	100.0%	\$ 16,703,532	100.0%	\$ 16,703,532	100.0%	\$ 16,703,532	100.0%

NOTE: When completing this table make entries in the shaded fields only.

Universitiy of Vermont Medical Center

I/R Suite 22 Replacement

TABLE 7

UTILIZATION PROJECTIONS

TOTALS

A: WITHOUT PROJECT		Latest Actual 2015	Budget 2016	Proposed Year 1 2017	Proposed Year 2 2018	Proposed Year 3 2019
Inpatient Utilization						
Staffed Beds						
Admissions						
Patient Days						
Average Length of Stay						
Outpatient Utilization						
All Outpatient Visits						
OR Procedures						
Observation Units						
Physician Office Visits						
Ancillary						
All OR Procedures						
Emergency Room Visits						
Adjusted Statistics						
Adjusted Admissions						
Adjusted Patient Days						

B: PROJECT ONLY		Latest Actual 2015	Budget 2016	Proposed Year 1 2017	Proposed Year 2 2018	Proposed Year 3 2019
Inpatient Utilization						
Staffed Beds			-	-	-	-
Admissions			-	-	-	-
Patient Days			-	-	-	-
Average Length of Stay			-	-	-	-
Outpatient Utilization						
All Outpatient Visits			-	-	-	-
OR Procedures			-	-	-	-
Observation Units			-	-	-	-
Physician Office Visits			-	-	-	-
Ancillary						
All OR Procedures			-	-	-	-
Emergency Room Visits			-	-	-	-
Adjusted Statistics				-	-	-
Adjusted Admissions			-	-	-	-
Adjusted Patient Days			-	-	-	-

C: WITH PROJECT		Latest Actual 2015	Budget 2016	Proposed Year 1 2017	Proposed Year 2 2018	Proposed Year 3 2019
Inpatient Utilization						
Staffed Beds	-					
Admissions	-		-	-	-	-
Patient Days	-		-	-	-	-
Average Length of Stay	-					
Outpatient Utilization						
All Outpatient Visits	-		-	-	-	-
OR Procedures	-		-	-	-	-
Observation Units	-		-	-	-	-
Physician Office Visits	-		-	-	-	-
Ancillary						
All OR Procedures	-		-	-	-	-
Emergency Room Visits	-		-	-	-	-
Adjusted Statistics						
Adjusted Admissions	-					
Adjusted Patient Days	-					

NOTE: When completing this table make entries in the shaded fields only.

Universitiy of Vermont Medical Center

I/R Suite 22 Replacement

TABLE 8

UTILIZATION PROJECTIONS

PROJECT SPECIFIC

A: WITHOUT PROJECT		Latest Actual 2017	Budget 2018	Proposed Year 1 2019	Proposed Year 2 2020	Proposed Year 3 2021
You may wish to enter your own categories below:						
Acute						
Acute Care Admissions						
Acute Patient Days						
Acute Staffed Beds						
Imaging						
Radiology - Diagnostic Procedures						
I/R Procedures	14,156		12,576	12,576	12,576	12,576
Cat Scan Procedures						
Magnetic Resonance Imaging						
Other						
Laboratory Tests						
Catheterization Lab Procedures						
Division staff can assist in determining the amount of detail required to support your proposal.						

B: PROJECT ONLY		Latest Actual 2017	Budget 2018	Proposed Year 1 2019	Proposed Year 2 2020	Proposed Year 3 2021
Acute						
Acute Care Admissions			-	-	-	-
Acute Patient Days			-	-	-	-
Acute Staffed Beds			-	-	-	-
Imaging						
Radiology - Diagnostic Procedures			-	-	-	-
I/R Procedures			-	-	-	-
Cat Scan Procedures			-	-	-	-
Magnetic Resonance Imaging			-	-	-	-
Other						
Laboratory Tests			-	-	-	-

C: WITH PROJECT		Latest Actual 2017	Budget 2018	Proposed Year 1 2019	Proposed Year 2 2020	Proposed Year 3 2021
Acute						
Acute Care Admissions	-	-	-	-	-	-
Acute Patient Days	-	-	-	-	-	-
Acute Staffed Beds	-	-	-	-	-	-
Imaging						
Radiology - Diagnostic Procedures	-	-	-	-	-	-
I/R Procedures	14,156	12,576	12,576	12,576	12,576	12,576
Cat Scan Procedures	-	-	-	-	-	-
Magnetic Resonance Imaging	-	-	-	-	-	-
Other						
Laboratory Tests	-	-	-	-	-	-
Catheterization Lab Procedures	-	-	-	-	-	-
	-	-	-	-	-	-
	-	-	-	-	-	-
	-	-	-	-	-	-
	-	-	-	-	-	-

Notes:

- No new procedures or volume growth are projected, other than what has already been budgeted, since this is simply an equipment replacement project.

NOTE: When completing this table make entries in the shaded fields only.

Universtiy of Vermont Medical Center
I/R Suite 22 Replacement
TABLE 9
STAFFING PROJECTIONS
TOTALS

A: WITHOUT PROJECT		Latest Actual 2017	Budget 2018	Proposed Year 1 2019	Proposed Year 2 2020	Proposed Year 3 2021
Non-MD FTEs						
Total General Services						
Total Inpatient Routine Services						
Total Outpatient Routine Services						
Total Ancillary Services						
Total Other Services ¹		16.2	16.6	16.6	16.6	16.6
Total Non-MD FTEs		16.2	16.6	16.6	16.6	16.6
Physician FTEs						
Direct Service Nurse FTEs		8.2	7.1			

B: PROJECT ONLY		Latest Actual 2017	Budget 2018	Proposed Year 1 2019	Proposed Year 2 2020	Proposed Year 3 2021
Non-MD FTEs						
Total General Services						
Total Inpatient Routine Services						
Total Outpatient Routine Services						
Total Ancillary Services						
Total Other Services						
Total Non-MD FTEs			0.0	0.0	0.0	0.0
Physician Services						
Direct Service Nurse FTEs						

C: WITH PROJECT		Latest Actual 2017	Budget 2018	Proposed Year 1 2019	Proposed Year 2 2020	Proposed Year 3 2021
Non-MD FTEs						
Total General Services		0.0	0.0	0.0	0.0	0.0
Total Inpatient Routine Services		0.0	0.0	0.0	0.0	0.0
Total Outpatient Routine Services		0.0	0.0	0.0	0.0	0.0
Total Ancillary Services		0.0	0.0	0.0	0.0	0.0
Total Other Services		16.2	16.6	16.6	16.6	16.6
Total Non-MD FTEs		16.2	16.6	16.6	16.6	16.6
Physician Services		0.0	0.0	0.0	0.0	0.0
Direct Service Nurse FTEs		8.2	7.1	0.0	0.0	0.0

Other services FTEs include an Inventory Controller, I/R Techs, Angiography Techs, CT Techs, MAs, an I/R Manager, and an I/R Supervisor

PHILIPS HEALTHCARE
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PHILIPS

Quotation #: 1-1NSV3MX	Rev: 6	Effective From: 13-Dec-17	To: 11-Feb-18
Presented To: UNIVERSITY OF VERMONT MEDICAL CENTER 111 COLCHESTER AVE BURLINGTON, VT 05401-1416		Presented By: David Delworth <i>Account Manager</i>	
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		Laura Costello <i>Regional Manager</i>	Tel: Fax:
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Date Printed: 13-Dec-17			
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Tel:		Fax:(425) 458-0390	

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Quote Solution Summary

<u>Line #</u>	<u>Product</u>	<u>Qty</u>	<u>Price</u>
	100237 Azurion 7 M20	1	\$1,335,244.86
		Equipment Total:	\$1,335,244.86

Solution Summary Detail

<u>Product</u>	<u>Qty</u>	<u>Each</u>	<u>Monthly</u>	<u>Price</u>
100237 Azurion 7 M20	1	\$1,335,244.86		\$1,335,244.86

Buying Group: UNIVERSITY OF VERMONT HEALTH NETWORK Contract #: SBA11583M and LSP000030

Add'l Terms: The specific Contract # referenced above represents the Novation or Vizient agreement with Philips containing discounts, fees and any specific terms and conditions, including the Vendor's Terms and Conditions of Sale (subject to such Contract), applicable to the purchase of any Product identified as part of this quoted Solution.

Each Quotation solution will reference a specific Buying Group/Contract Number representing an agreement containing discounts, fees and any specific terms and conditions which will apply to that single quoted solution. If no Buying Group/Contract Number is shown, Philips' Terms and Conditions of Sale will apply to the quoted solution.

Each equipment system listed on purchase order/orders represents a separate and distinct financial transaction. We understand and agree that each transaction is to be individually billed and paid.

Payment Terms: 0% Down, 80% Upon Delivery, 20% Due When the Product is Available for First Patient Use, Net due 30 days from date of invoice

Quote Summary

100237 Azurion 7 M20

Qty	Product
1	NNAE556 Azurion 7 C20
1	NNAE580 Azurion FlexVision10 Input
1	FCV0812 live/ref slaving for ER
1	NCVD058 FlexSpot
1	NCVA099 Ratchet compressor
1	NCVD069 ClarityIQ.
1	NCVD059 FlexSpot secondary monitor
1	NCVC466 VesselNavigation Complete
1	NCVA783 Pivot for table base.
1	NCVA695 FD Rotational Angio
1	NCVC199 Wireless footswitch: mono-plane version
1	NCVD064 extension to FlexVision Pro
1	NCVD072 SmartMask Monoplane
1	NCVD138 table tilt option
1	NCVD030 FlexVision XL HD
1	NCVD097 DVD writer
1	NCVD081 Touch Screen Module Pro
1	NCVD078 FD Dual Fluoro monoplane
1	NCVD177 IW Hardware (FlexSpot)
1	NCVD128 storage extension
1	NCVA258 CO2 View Trace Software
1	NCVC325 OncoSuite complete
1	FCV0817 Accessory rail + cable ext.kit
1	NCVC564 XperCT Open and Closed
1	980406041009 Rad Shield w/ Arm (Contoured) 61X76
1	989801220273 Ceiling Track w/Column & Handle Ext
1	989801220284 ISM Premium Audio Package
1	989801225022 Medrad Mark 7 Arterion Pedestal
1	989801256033 iXR Additional Training 24 Hours OnSite
1	989801220380 Full Load Remote UPS
1	SP019 Trade in Allowance

100237 Azurion 7 M20

System Type:	New
Freight Terms:	FOB Destination
Warranty Terms:	Part numbers beginning with two (2) asterisks (**) are covered by a System 12 Months Warranty. All other part numbers are third (3rd) party items.
Special Notations:	Contingencies must be removed 120 days before scheduled shipment to assure delivery on specified date. Any rigging costs are the responsibility of the Purchaser.
Additional Terms:	The specific Contract # referenced above represents the Novation or Vizient agreement with Philips containing discounts, fees and any specific terms and conditions, including the Vendor's Terms and Conditions of Sale (subject to such

Line #	Part #	Description	Qty	Each	Price
1	**NNAE556	Azurion 7 C20	1	\$646,618.88	\$646,618.88

Advanced solution for vascular, non-vascular, embolization to interventional oncology procedures
Key benefits

- Optimized utilization of your lab by procedure based workflow
- Superb image quality to evaluate small details and vessels with clarity.
- Intuitive user interaction delivering an easy to use, easy to learn system

Changing interventions

With our Live Image Guidance we aim to remove barriers to safer, effective and reproducible treatments, delivering clinical value where it's needed most - at the point of patient treatment. Intelligent and intuitive integration of live imaging, patient information, and procedure-based applications optimize real time therapy guidance.

The 7 series C20 ceiling system is designed to enhance all the different procedures your interventional lab faces, from vascular, non-vascular and embolization to interventional oncology procedures. This future proof solution is designed around a single, standardized hardware and software platform that can be upgraded and expanded as new needs arise or requirements change. Its architecture is made to easily integrate with third party applications and devices. A new workflow approach aims to support interventional teams in carrying out procedures for their patients, consistently and efficiently with great ease of use.

The Philips Azurion 7 C20 uses a range of Procedure Cards to help optimize and standardize system set-up for your cases, from routine to mixed procedures.

Procedure Cards can increase the consistency of exams by offering presets (e.g. most-frequently used, default protocols and user-specified settings) on procedure-, physician- or departmental level. In addition, hospital checklists and/or protocols can be uploaded into the Procedure Cards to help safeguard the consistency of interventional procedures and help to minimize preparation errors.

The Philips Azurion 7 C20 interventional X-ray suite has been specifically designed to save time by enabling the interventional team to work on all activities in the exam room - and at one or more work spots in the control room at the same time - without interrupting each other. This leads to higher throughput and faster exam turnover and contributes to quality of care.

To improve dose management, Philips Zero dose positioning enables you to move the stand and table to the region of interest shown on the last clinical image hold before a new acquisition is started, without any radiation.

Specifications

The Philips Azurion series contain a number of features to support a flexible and patient centric procedural workflow.

The Philips Azurion series (within the limits of the used Operating Room table) are intended for use to perform:

- Image guidance in diagnostic, interventional and minimally invasive surgery procedures for the following clinical application areas: vascular, non-vascular, cardiovascular and neuro procedures.

100237 Azurion 7 M20

Line #	Part #	Description	Qty	Each	Price
<ul style="list-style-type: none"> • Cardiac imaging applications including diagnostics, interventional and minimally invasive surgery procedures. 					

The Philips Azurion 7 C20 system comprises five functional building blocks:

1. Geometry
2. X-ray Generation
3. Image Detection
4. User Interface
5. Viewing

Each functional building block is explained in further detail including accessories.

1. Geometry

A. 7 C20 stand

The Philips Azurion 7 C20 stand is a stable assembly of a C-arm and a ceiling suspended L-arm. The X-ray tube and the flat detector are integrated into the C-arm. This provides a compact assembly completely free from the floor, with maximal positioning flexibility and unrestricted access to the patient. The robust design ensures excellent reproducibility of projections, needed in for example subtracted imaging procedures and advanced 3D imaging. The L-arm can be rotated and moved in longitudinal direction allowing a three-sided patient approach and total body coverage.

- L-arm rotation around the patient table: +90, 0, -90 degrees.
- L-arm longitudinal movement: 300 cm

This movement features auto-stops at the parking position, cardio/neuro position and lower peripheral position.

B. Patient Support

The patient support provides very light manual float movement, even for heavy patients, thanks to the mono-bearing technology. The long flat carbon fiber tabletop provides ample space to place e.g. catheters and endovascular tools. On customer request, the standard table top can be replaced by a table top for neuro procedures. This table top has a smaller width at the head end for better imaging results in neuro procedures.

- Table top length of 319 cm, width 50 cm (neuro table top is 45cm at head end)
- Metal-free cantilever 125 cm
- Floating table-top movement of 120 cm longitudinal and +/- 18 cm transversal
- Motorized height adjustment range is 74 -102 cm cm for a table without swivel nor cradle/tilt.
- Maximum cantilever of 223 cm , for full patient coverage
- Table tilt +17 /-17 degrees (optional)
- Table cradle +15 / -15 degrees (optional)
- Pivot range 270 degrees (-90 to +180 or +90 to -180 degrees), table can be locked at any position and has stops at 0, +/-13, +/- 90 and +/- 180 (optional)
- Table swivel, 78.2 cm longitudinal displacement, motorized (optional).
- Maximum load: 275 kg (up to 250 kg patient weight plus 25kg accessories or 225kg patient weight plus 50kg accessories) plus 500 N for CPR in any longitudinal position of the table top

The UIM modules are not accessories; make consistent with "AD7 accessories Cardiac" The Philips Azurion system can be fitted with a comprehensive set of accessories to help you perform your procedures as conveniently as possible. Included are

- 1 cerebral filter

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Line #	Part #	Description	Qty	Each	Price
		<ul style="list-style-type: none"> • 3 rail accessory clamps • 1 drip stand • 1 Set of Elbow Supports • 1 Set of patient Straps • 1 Arm Support Board • 1 Head Support • 1 Mattress <p>The mattress is a slow recovery foam mattress with a density of 58 kg/m3. The mattress has a thickness of 7 cm and adapts to the body shape of the patient. It makes the pressure being divided equally and it recovers when the patient is taken off the mattress. The light yellow cover is easy to clean. Patients are more relaxed due to the comfort of this mattress.</p>			

2. X-ray Generation

A. Generator

The 7 C20 system comprises an integrated, micro-processor controlled Certeray generator based on high frequency converter technique. The user interface control of this X-ray Generator is incorporated in the touch screen module, review module, and the on-screen displays. The Certeray generator comprises:

- X-ray generator 100 kW
- Voltage range is 40 - 125 kV
- Maximum current 1000 mA at 100 kV
- Maximum continuous power for fluoroscopy: 1.5 kW

Program selection:

- Pulsed X-ray up to 3.75 , 7.5 , 15 , 30, 60(optional) frames/s for digital dynamic exposures
- Frame rate extension to 30 frames per second.

Designed to enhance visualization of complex and pediatric interventions

Frame rate extension to 30Fr/sec increases the system acquisition speed up to 30 frames per second for cardio studies requiring high speed imaging.

Specifications

The frame rate extension increases the acquisition speed to 15fps and 30fps with a 1024x1024 matrix.

- Pulsed X-ray for pulsed fluoroscopy (3.75 , 7.5 , 15 , 25, 30 frames/s).
- Minimum exposure time of 1 ms
- ECG triggered acquisition: allows acquiring one exposure for each QRS peak with selectable delay time
- Automatic kV and mA control for excellent image quality prior to run to save dose
- X-ray tube load incorporated in the Certeray generator
- Pulsed X-ray for (subtracted) acquisition up to 12 frames/s for vascular applications

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Line #	Part #	Description	Qty	Each	Price
	B. X-ray tube	The 7 C20 system has the Maximus ROTALIX Ceramic grid switch tube assembly MRC200+ GS 0407 integrated.			

The MRC 200+ GS 04 07 tube assembly and cooling unit CU 3101 for cardiovascular systems comprises:

- 0.4/0.7 mm nominal focal spot values maximal 30 and 65 kW short time load
- Grid switching at pulsed fluoroscopy and low load exposure (to eliminate soft radiation and improve image quality)
- Continuous loadability: 3400 W (at 21 degrees C room temperature) / 4000 W (= Max assembly continuous heat dissipation)
- Application of SpectraBeam dose management
- Tube housing is oil cooled with thermal safety switch
- Maximum anode cooling rate of 1820 kHU/min
- Anode heat storage capacity of 6.4 [MHUeff]

C. System intrinsic

- Fully digital imaging chain in maximizing the utilization and technology of the x-ray generator, x-ray tube, flat detector and image processing.
- Customizable EPX protocols to each application according to user preferences for different composition of dose rate, pulse speed, filter setting, and image processing (noise reduction, adaptive contour enhancement, adaptive harmonization)
- Built-in SpectraBeam filtering of low energy radiation to improve image quality and dose efficiency with MRC200+ X-ray tubes.
- Pre-filters of 0.2, 0.5 and 1.0 mm CU equivalent
- Automatic cardiac wedge positioning
- X-ray depth collimator with single semi-transparent wedge filter with manual and automatic positioning.
- Xper Beam Shaping, which means that both shutters and wedges can be positioned on the Last image Hold without the need for X-ray radiation.
- Xper Fluoro Storage, a grab function allows storage and archiving of both a fluoro image or the last 20 seconds of fluoroscopy run. These images or runs can be archived and reviewed as a regular run.

D. User selections

- removable anti-scatter grid to lower x-ray dose for pediatrics (grid ratio 13:1)
- ECG triggered acquisition, offering the possibility to acquire images at the same phase of the heart cycle. This applies to the low dose fluoro and exposure program for EP applications. This allows patient dose reduction by lowering the pulse rate to 1 pulse per heart and let the physician still focus on relevant items
- three programmable fluoroscopy modes can be selected from the control module. Each mode has a different composition of dose rate, pulse speed, filter setting, and image processing (noise reduction, adaptive contour enhancement, and adaptive harmonization)

Roadmap Pro can be selected from the control module.

In the first Roadmap phase a vessel map is created by live fluoroscopy or by selecting an exposure image (SmartMask) with a vessel map which, in the second Roadmap phase, is superimposed with subtracted live fluoroscopy.

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Line #	Part #	Description	Qty	Each	Price
		<p>Roadmap Pro features Smart Settings in special clinical modes that are optimized to visualize special materials such as coils and glue.</p> <ul style="list-style-type: none"> • Acquisition runs can be done without losing the vessel map of Roadmap Pro. • Live processing of the vessel map, the device map and the landmark map can be done on the touch screen module. • Field of View (FoV) can be altered during the second phase. • Xres for vascular procedures is standard part of Roadmap Pro. 			

In Roadmap Pro "Automatic Motion Compensation" (AMC) is added to the roadmap functionality. During roadmap, small movements of the patient can lead to subtraction artifacts. These artifacts might conceal important clinical information. "Automatic Motion Compensation" compensates for rigid, uniform (skeletal/table) translations and is therefore very effective in interventional (neurology) applications where subtraction imaging is applied. Disclaimer: AMC only corrects movement artifacts in 2 dimensions. 3 dimensional movements like swallowing or rotation of the head cannot be corrected.

E. User dose awareness

DoseWise program: Philips DoseWise program is a set of techniques, programs and practices built into the X-ray system that ensures excellent image quality during each interventional application, while at the same time reducing x-ray dose at every opportunity. The DoseWise comprises of three building blocks to help reduce x-ray dose without compromising diagnostic quality: system intrinsic, user selection and awareness.

On-system monitor display provides and displays body zone specific Air Kerma data (10 zones for cardiac applications) in numeric and graphical bars.

- Graph displays the accumulated Air Kerma dose for the particular body zone of the actual projection
- When the accumulated Air Kerma dose of the particular body zone reaches the critical skin dose level of 2 Gy, it will be indicated on the display and made visible to the x-ray operator.

Radiation Dose Structured Report

Collection of dose relevant parameters and settings and export to a DICOM database (e.g. PACS) (dose information is sent in MPPS message not as Radiation Dose Structure report), according IEC60601-2-43, 2nd Edition. The reported data can be used for, for example:

- Quality improvement: evaluating trends in X-ray dose performance per facility, system and operator. RDSR enables analysis of average dose levels & variance for routinely performed exams and procedures. Also, typical system usage can be extracted from the data, helping to identify root causes behind deviations and measures to improve.
- Analysis of individual patient cases: using dose levels and system usage per procedure
- Alerting for high dose cases, timely identifying patients at risk or deterministic effects, for proper follow-up.

Secondary Capture Dose Report

The Secondary Capture Dose Report function allows the user to save & transfer, manually or automatically, a patient Dose Report to PACS in DICOM secondary capture format.

The dose report will be stored in the related patient image folder.

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Line #	Part #	Description	Qty	Each	Price
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3. Image Detection

The system has a 20 inch flat panel image detector. This detector can be rotated over 90 degrees from portrait to landscape and vice versa.

The image chain with the 20 inch flat panel image detector comprises the following:

- A 30 cm by 40 cm (20 in.) diagonal 8 mode Dynamic Flat Detector subsystem for fluoroscopy and cine-fluorography.
- 8 modes 30*38/30*30/26*26/22*22/19*19/16*16/13.5*13.5/11*11 cm, Dynamic Flat Detector
- The outer detector physical housing is 36 x 47.2 cm
- The digital output of the Flat detector is 1904*2586 pixels at 16 bit depth.
- The pixel pitch is 154 micron by 154 micron
- The DQE(0) is >77% providing high conversion of X-ray into a digital image, while maintaining a high MTF.

Philips Azurion offers a storage capacity of (optionally extendable) of 50,000 images at matrix size of 1024 x 1024, in 8 or 10 bit depth. With a matrix size of 2048 x 2048 this is 12,500 images. Maximum number of examinations is 999, with no limit to the maximum number of images per examination.

Xres is a multi-resolution spatial temporal noise reduction and edge enhancement filter for interventional applications. Xres exploits the full benefits of dynamic digital flat detector imaging to enhance sharpness and contrast and has been designed to reduce noise in fluoroscopy and exposure runs. The settings for Xres Cardio can be customized to improve image quality. Xres is a Philips unique image processing algorithm developed at Philips Research for medical applications. Xres is used with Philips MR and US scanners next to Philips Azurion systems.

4. User Interface

User Interface in Examination Room

The User Interface comprises a variety of User Interface modules in the Examination Room. There is the On-Screen Display, the touch screen module, Viewpad and the control modules.

The On-Screen Display is positioned on the left side of the live/ref monitor. The following system information is displayed:

- X-ray indicator
- X-ray tube temperature condition
- Gantry position in rotation and angulation
- Source Image Distance
- Table height
- Table top tilt and cradle angle, if applicable
- Detector field size display
- General System messages
- Selected Frame speed
- Fluoroscopy mode
- Integrated fluoroscopy time
- Skin Dose: dose rate during X-ray, cumulated dose when no X-ray
- Dose Area Product: dose rate during X-ray, cumulated dose when no X-ray
- Graphical bars for Body Zone specific dose-rate and accumulated skin dose levels, related to the 2 Gy level (for cardiac applications)
- Stopwatch

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Line #	Part #	Description	Qty	Each	Price
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The pan handle is an extension of the control possibilities for floating movements of the table top in cardio vascular and neuro systems

Key benefits

- Flexible positioning during cardio and neuro procedures
- Flexible positioning during cardio and neuro procedures

To allow more flexible positioning during cardio and neuro procedures, the pan handle option can be used to perform floating table movements. The pan handle provides a solid grip of the tabletop and can release and apply the tabletop brakes. It can be attached anywhere along the tabletop and accessory rails without affecting the floating range.

Specifications

Pan handle with cable and connector

Table-top attachment clamp

Accessory-rail attachment clamp

Touch screen module

The touch screen module is provided for use at either the tableside or in the control room. Optionally, it is possible to connect in parallel up to three touch screen modules on the system. The touch screen module has a touch screen, which can be operated when covered with sterile covers. The touch screen module allows control of (depending on configuration):

- 3rd party equipment (e.g. CX50, Interventional Tools, EchoNavigator, DoseAware)
- Monitor layout (FlexVision, switchable viewing)
- X-Ray settings (Collimation, Projections, Table, Series and Processing)
- Quantitative Analysis (optional) User can only start QA from the touch screen module. No controls like coronary analysis, left ventricular and vessel analysis can be performed on the touch screen module.
 - Operation of Xcelera, XperIM and IntelliSpace Portal viewing (optional)
- Operation of CX50 Ultrasound (optional)

2nd Touch Screen Module

Key Benefits

- Control system operations with a second touch screen module

Tablet-like touch screen control

During an intervention flexible control of applications and system operations can support fast decisions and communication with team members. The touch screen module provides fast, tablet-like touch response to control system operations. Up to three touch screen modules can be connected to the X-ray system: on the table, on the pedestal and in the control room.

Specifications

The second touch screen module is similar to the standard touch screen module and provides touch screen control of displayed functionality. The following functions can be made available providing the relevant commercial options have been selected:

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Line #	Part #	Description	Qty	Each	Price
		<ul style="list-style-type: none"> • Acquisition settings • Image processing controls • Channel selection for MultiVision • Automatic position control (optional) • Quantitative Analysis controls (optional) • Xcelera and IntelliSpace Portal viewing (optional) • Interventional tool controls (optional) • 3D-RA, Dynamic 3D Roadmap (optional) • StentBoost, 3D-CA (optional) • XperCT, XperGuide (optional) • XIM physio monitoring controls (optional) 			

Connectivity:

A maximum of 3 touch screen modules can be connected to the X-ray system:

- One touch screen module on the table
- One touch screen module in the Control Room
- One touch screen module on the pedestal

Viewpad

The Viewpad contains the preprogrammed function settings. The system is provided with two Viewpads. The following functions are provided:

- Run and image selection
- File and run cycle
- File overview
- Store to Reference image file
- Copy image to photo file
- Digital (fixed) zoom and panning
- Recall reference images, which means switching control of Viewpad function from life to reference monitor
- Laser pointer, intended to point at regions of interest on the image monitors
- LED indication of laser pointer on/off and battery low
- Subtraction on/off
- Remasking
- Landmarking
- Access flat detector rotation

User Interface in Control Room

The control room comprises a review module, data color monitor and review monitor. The data and review functions are controlled by a single keyboard and mouse. The review module offers the basic functions for review. The most prominent functions can be controlled by the push of a button. The review module comprises the following functionality:

- Power on/off
- File and run cycle
- File, Run, and Image stepping

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Line #	Part #	Description	Qty	Each	Price
		<ul style="list-style-type: none"> • Run and file overview • Reset fluoroscopy timer • Enable/disable X-ray • Geo disable 			

Acquisition monitor. A standard keyboard and mouse control the user interface. The acquisition monitor is intended to follow live case in the ER. System information is displayed on the bottom of the monitor:

- Stopwatch and Time
- System guidance information
- Dose Area Product (DAP) and Skin Dose, as dose rate during X-ray and cumulative dose at no X-ray
- Frame speed settings, fluoroscopy mode, and accumulated Fluoroscopy time
- Exposure and fluoroscopy settings as Voltage (kV), Current (mA) and time (ms)
- Geometry information as rotation, angulation, and SID

The acquisition monitor is designed for standard workflow based on scheduling, preparation, acquisition, review, report, and archive.

Scheduling

In the scheduling page it is possible to add new patients (either querying from RIS/CIS or by creating patient locally). The patients can be listed and selected per date, physician, and intervention type. Previous DICOM patient studies can be uploaded with the DICOM Query Retrieve function in the Philips Azurion system. Patient management protocols are flexible and allow

for multiple studies to be selected under one patient identification number. This means that new studies can be appended to an earlier patient file. Furthermore, each study can contain multiple examinations to allow for split administrative purposes. Each examination contains multiple files, like acquisition file, reference file, and QA results file.

Procedure Cards

Procedure Cards provide the information of room and patient preparation for each individual physician. Procedure Cards are customizable per setting and allow each physician to provide their own room protocols. Procedure Cards is intended to make hard copies of the protocol instructions redundant.

Acquisition

The acquisition page contains information on the currently selected patient.

Reviewing

The review page allows for reviewing of patients:

- Previous examination cases
- Review of other DICOM XA or DICOM SC studies.

Quantitative Vascular Analysis

Key benefits

100237 Azurion 7 M20

Line #	Part #	Description	Qty	Each	Price
		<ul style="list-style-type: none"> Allows quantitative assessment of different size vessels such as aortic and peripheral Aids confident decision making for device selection, approach angles and follow-up Designed for efficiency with single click functions and fast results 			

Easily obtain objective assessment of aortic and peripheral vasculature to support decision making and allow quantitative assessment of vasculature during vascular interventions, the 2D quantitative vascular analysis option supports quantification such as aortic and peripheral artery dimensions of about 5 to 50 mm from 2D angiographic images. With one click, the relevant segment is detected and a visualization of the obstruction, healthy vessel, reference diameter, stenosis diameter and plaque area is created.

Specifications:

- Automated vessel segmentation
- Diameter measurement along selected segment
- Automated obstruction analysis
- Stenosis diameter, stenosis length
- % stenosis diameter, % stenosis area
- Automated and manual calibration routines
- Store result page

Analysis of the targeted vessel segment has been simplified with the single click function. Position the mouse on or close to the stenotic area and click once to detect the relevant segment. The visualization shows the obstruction, healthy vessel, reference diameter, stenosis diameter and plaque area.

Archiving

Clinical studies can be archived to a CD/DVD, USB or a PACS. The archive process can be completely automated and customized with settings. Parameters like multiple destinations, archive formats can be selected to the individual needs and wishes for programming under the settings.

With Philips Azurion the control room comprises of an acquisition monitor and a review monitor. The review monitor is a 24 inch color TFT-LCD medical grade monitor. The Graphical User Interface on the Review monitor has the following features and possibilities:

- Step through file, run, or images
- File, and run overview
- Contrast, brightness, and edge enhancement settings
- Flagging of runs or images for transfer
- Applying text annotation in images
- DICOM printing if available
- Executing Quantitative Analysis Packages if available
- Subtraction functionality if available

This system is delivered with printed instructions for use and/or electronic instructions for use, as well as a quick start leaflet. A printed paper instructions for use can also be ordered at no additional cost.

5. Viewing

A. Viewing in Examination room

100237 Azurion 7 M20

Line #	Part #	Description	Qty	Each	Price
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Philips Azurion systems come with one 27 inch high brightness color medical grade LCD monitor for clinical image display in the Examination room. This LCD monitor is intended for viewing in the examination room and is designed for medical applications. The monitors is used for combined viewing of live images and reference display. Selection and storing of live to reference monitor is controlled by the infra-red remote-control viewpad or via touch screen module.

The On-Screen Display provides status information on stand rotation-angulation, table height, display of system messages, X-ray tube load status, selected fluoroscopy mode, selected detector Field of View, and both the rate and accumulation of the dose area product and Air Kerma dose.

The main characteristics are:

- 27 inch high brightness color TFT-LCD display
- Native format 1920x1080 Full HD
- 10 bit gray-scale resolution with gray-scale correction
- Wide viewing angle (approx. 178 degrees)
- High brightness (max 650 Cd/m², default 400 Cd/m²)
- Long term luminance stability through backlight stabilization circuit
- Automatic brightness control with backlight sensor
- Control functions on side
- User programmable and standard reference setting
- On-Screen Display
- Internal selectable lookup table for gray-scale transfer function, including DICOM
- Internal power supply (100-240 VAC)
- Integrated LCD protection screen

If applicable included is a flat monitor ceiling suspension for 2 monitors (2F MCS). MCS includes motorized height adjustment. The ceiling suspension allows flexible monitor positioning over a range of about 360 x 300 cm. At customer request, this 2 monitor MCS can be replaced by a 4 or 6 fold MCS or an MCS integration kit HD for non-Philips MCS. The MCS integration kit HD contains vital parts for system operation.

B. Viewing in Control room

Philips Azurion includes two 24 inch high brightness color LCD monitors. The color monitors are for acquisition and reviewing display.

The main characteristics for color monitor are:

- 24 inch color TFT-LCD display
- Native format 1920x1080 Full HD
- High brightness (max 400 Cd/m², default 350 Cd/m²)
- Wide viewing angle (approx. 178 degrees)
- Long term luminance stability through backlight stabilization circuit
- Automatic brightness control with backlight sensor
- Control functions on side
- User programmable and standard reference setting
- On-Screen Display
- Internal selectable lookup table for gray-scale transfer function, including DICOM
- Internal power supply (100-240 VAC)Integrated USB hub

A Philips Azurion system includes the DICOM Image Interface which enables the export of clinical images to a DICOM destination like a CD-Medical station or a PACS server. The export formats are based on DICOM 3.0 protocols. The system exports clinical studies in Cardiac DICOM XA Multi-Frame or DICOM Secondary Capture formats.

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Line #	Part #	Description	Qty	Each	Price
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The DICOM Image Interface transfers through its fast Ethernet link, making images available on-line within seconds. The archive process can be configured by X-ray settings. The images are sent out either in the background, or manually upon completion of the examination. The export format is configurable in 512x512 or 1024x1024 matrix in 8 or 12 bit depth. The examination can be sent to multiple destinations for archiving and reviewing purposes. The DICOM Image Interface provides DICOM Storage and DICOM Storage Commitment Services. The DICOM Query/Retrieve function allows older DICOM XA MF and DICOM SC studies to be uploaded in the system. Furthermore, additional information can be appended to a study while keeping the patient identification the same.

Remote Intercom for the Azurion System. The option includes a separate intercom, which is connected independently from the system. This allows placement of the intercom at the preferred working position in the control room and examination room. The listen function can be separately selected on each intercom. Activating the talk function on a selected intercom automatically disables this function on the other intercom.

Uninterruptable Power System (UPS)

Ensures data integrity

A power failure of the hospital mains during an intervention can cause loss of data. If this occurs, the single phase Uninterruptable Power System (UPS) enables a proper shut-down of the X-ray system processor units.

Specifications

In case a full three phase UPS is selected, the single phase UPS is not delivered.

Remote service

Access to the system from a Remote location is possible via network or modem connection.

Remote access to a system can shorten the time needed for e.g. changing system settings or problem diagnosis.

Environmental

At Philips Healthcare, we feel the responsibility towards society and the environment. The latest 7 C20 system is a perfect example of our EcoVision program. By examining every aspect of the 7 C20 design and development through a green eye, we drastically reduced the products environmental impact.

System & table APC

Helps to save time and manage X-ray dose with automatic positioning

Positioning the X-ray system to visualize relevant anatomy from different perspectives can involve a great deal of time and many scout images during interventional procedures. To help save time and manage X-ray dose while working, the Automatic Position Controller (APC) provides an easy way for interventional team members to store and recall stand-related positions.

Specifications

The system APC stand and table positions need to be stored and recalled separately.

Clinical Education Program for Azurion System:

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Line #	Part #	Description	Qty	Each	Price
		<p>The purchase of the Azurion System includes a StartRight entitlement pool that allows for the customized delivery of educational events to improve staff time to proficiency, knowledge on system features, and improve overall lab efficiency. For new users, the recommended series of educational events includes:</p> <p>Essentials OffSite Education: Philips will provide up to two (2) Cardiovascular Technologists, Registered Technologists, Registered Nurses, or other system operator as selected by customer, with in-depth didactic, tutorial, and hands-on training covering basic functionality and work-flow of the cardiovascular imaging system. In order to provide trainees with the ability to apply all fundamental functioning on their system, and to achieve maximum effectiveness, this class should be attended no earlier than two weeks prior to system installation. This twenty-eight (28) hour class is located in Cleveland, Ohio, and is scheduled based on your equipment configuration and availability. Due to program updates, the number of class hours is subject to change without notice. Customer will be notified of current, total class hours at the time of registration. This class is a prerequisite to your equipment handover OnSite Education. CEU credits may be available for each participant that meets the guidelines provided by Philips. Please refer to guidelines for more information. In the event that an EP Navigator workstation has also been ordered, the offsite training course will be tailored to focus on the electrophysiology functionality of the FD system and the EPN workstation. Travel and lodging are not included, but may be purchased through Philips. It is highly recommended that 989801292102 (CV Full Travel Pkg OffSite) is purchased with all OffSite courses</p> <p>Initial Handover OnSite Education: The primary Philips Education Specialists will provide twenty-eight (28) hours of education for up to four (4) students, selected by customer, including technologists from night/weekend shifts if necessary. Students should attend all 28 hours, and must include the two OffSite education attendees. CEU credits may be available for each participant that meets the guidelines provided by Philips. Please refer to guidelines for more information. Note: Site must be patient-ready. Philips personnel are not responsible for actual patient contact or operation of equipment during education sessions except to demonstrate proper equipment operation. It is highly recommended for systems that are fully loaded or for customers with a large number of staff members to also purchase 989801292099 (CV Add OnSite Clin Educ 24h).</p> <p>FollowUp OnSite Education: Philips Education Specialists will provide sixteen (16) hours of education for up to four (4) students, selected by customer, including technologists from night/weekend shifts if necessary. Students should attend all 16 hours, and must include the two OffSite education attendees. CEU credits may be available for each participant that meets the guidelines provided by Philips. Please refer to guidelines for more information. Note: Site must be patient-ready. Philips personnel are not responsible for actual patient contact or operation of equipment during education sessions except to demonstrate proper equipment operation.</p> <p>Assessment OnSite Year 1: The primary Philips Education Specialist will perform a two day onsite assessment at the customer site on or close to the first anniversary of the Initial Handover. The Specialist will assess through various means not limited to; physical observation of procedure workflow, tool usage data analysis and staff interviews. The Specialist will then review findings with department head and make recommendations thereof. The Specialist may perform refresher training if required.</p>			
2	**NNAE580	Azurion FlexVision10 Input	1	\$21,462.70	\$21,462.70

Education expires one (1) year from installation date (or purchase date if sold separately).
Ref#296339296340296341296342-20170209

2 **NNAE580 Azurion FlexVision10 Input 1 \$21,462.70 \$21,462.70

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Line #	Part #	Description	Qty	Each	Price
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Eight Isolated Wall Connection box to support the display of an external video source on a monitor in the examination room.

Key benefits

- Stream video from other modalities on the interventional X-ray suite:
- Connect external video in the exam room

Easily stream video to other locations

Many interventional facilities use video to record and stream images from other modalities on the interventional X-ray suite for training or presentation purposes. The Video Wall Connection Box facilitates connection of the video source via a standard DVI cable/connector and lossless transfer of the video signal over the approximate 30 meter long cable. It can be mounted in the examination room or in the control room, depending on the location of the video source.

Specifications

The quantity of the VWCB's has to be calculated as follows:

For each video signal via MultiVision: 1 VWCB (max = 4)

For each video signal to FlexVision XL on Cardio System: 1 VWCB (max = 9)

For each video signal to FlexVision XL on Vascular System: 1 VWCB (max = 8)

For each 3rd party video signal directly connected to an LCD in the MCS: 1x VWCB

Note:

No VWCB is required in case a video signal is connected directly to a dedicated LCD from the following sources:

1. Live/ref Slaving
2. Interventional HW (XtraVision), IntelliSpace Portal, Philips Xcelera (only if workstations are powered by Philips X-ray system)
3. XperIM

Two Isolated Wall Connection box on the rear side of the monitor ceiling suspension to support the display of an external video source on a monitor in the examination room.

Key benefits

- Easily connect external video in the exam room

Specifications

A wall connection box to connect external video (input only), USB and Ethernet. One or two WCB's (option) can be attached on the rear side of the 1st MCS with a bracket. A cable box (also attached to rear side of 1st MCS) can be used to store connected equipment cables. A maximum of two WCBs/cable boxes can be attached.

3	**FCV0812	live/ref slaving for ER	1	\$5,299.23	\$5,299.23
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Line #	Part #	Description	Qty	Each	Price
		Live/ref slaving for Exam Room.			

Key benefits

- Easily display any data or clinical information needed to work efficiently

Simplify workflow with flexible viewing control

Having patient data and clinical information easily available on screen can enhance decision making and efficiency during interventions. The live/ref slaving will enable the option to slave the Live and Ref video source from the X-ray system. The total amount of live/ref slaving that can be selected is max 5, minus the number of FCV0807 Live/ref slaving for CR.

Specifications

Live/ref slaving for ER is possible:

- On Philips MCS (additional monitor excluded from this option)
- In combination with FCV0519 1 or 2 MCS from Skytron/Steris

4	**NCVD058	FlexSpot	1	\$38,535.69	\$38,535.69
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Integrated work spot in the Control Room to view, control and manipulate all applications within a single view

Key benefits

- Access all applications on one compact workplace in the control room
- Set up unlimited custom screen layouts with all relevant information in one view
- Full flexibility of screen layouts (live resize, drag and drop)
- Clutter free and clean control room

Simplify control room workflow

Typical interventional control rooms are equipped with several workstations and controls to support procedures that require extra handling and space. FlexSpot helps you save time and space in the control room by giving you seamless access to all applications on one compact workplace. Easily set up any screen layout desired with all relevant information in one view. Resize, drag and drop items just like a tablet.

Specifications

FlexSpot offers an integrated workspot in the Control Room with one or more high resolution QHD (2560x1440) displays.

- Show internal video sources (e.g. Review, CR Live)
- Show up to 11 external video sources (e.g. Ultrasound, EchoNav, etc.)
- Video sources can be flexibly displayed on FlexSpot through user customizable presets. Users can customize the displayed layout and assign video sources to viewports as desired
- Up to 4 video sources can be displayed on a single FlexSpot display (excluding the add-on FlexSpot).
- Per display, the user can choose between 7 different layouts (positioning of viewports)
- FlexSpot offers user interaction through a keyboard and mouse with which users can seamlessly control all video sources on screen. Seamless means that users can move out of one viewport and into another without needing to press a special keyboard shortcut or use a gesture.
- In systems with both FlexSpot and FlexVision, FlexSpot offers convenient control access of FlexVision from the primary FlexSpot workspot.
- Users can define their own preset groups and preset names.
- Through field service, users can assign their own custom name and icon to a video source (also applies to FlexVision)
- The X-ray status area with all X-ray details is always visible on the primary display of the primary FlexSpot workspot.
- Up to 3 Philips workstations can be integrated into the technical room. With this, the workstations are powered from the system and are fully integrated into the system. Users do not need to separately power on/off these workstations.

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Line #	Part #	Description	Qty	Each	Price
		<ul style="list-style-type: none"> - The snapshot function allows the user to store/save a screen-capture of any image on the FlexSpot as a photo image to the current Acquisition Patient study. - 27 inch high brightness color LCD monitor for clinical image display in the Control Room. <p>The main characteristics for color monitor are:</p> <ul style="list-style-type: none"> - 27 inch color TFT-LCD display - Native format 2560x1440 Quad HD - High brightness (max 500 Cd/m², default 350 Cd/m²) - Wide viewing angle (approx. 178 degrees) - Long term luminance stability through backlight stabilization circuit - Automatic brightness control with backlight sensor - Control functions on side - User programmable and standard reference setting - On Screen Display - Internal selectable lookup table for gray-scale transfer function, including DICOM - Internal power supply (100-240 VAC) - Integrated USB hub 			
5	**NCVA099	Ratchet compressor	1	\$1,108.85	\$1,108.85

Decrease motion artifacts on images

Patient movement can cause motion artifacts in images. The ratchet compressor is used to immobilize the patient on the table and thereby decrease motion artifacts on images. It can be easily attached to the side of the table. The ratchet winding mechanism is attached to one side of the table. The quick release lever lets you easily pass the compression band over the patient and under the table for symmetrical compression.

6	**NCVD069	ClarityIQ.	1	\$116,732.52	\$116,732.52
Significantly lower dose- across clinical areas, patients and operators.					

Key benefits

- High-quality imaging at low dose levels
- Enhanced work environment for staff through active management of scatter radiation
- Expands treatment options – enables longer procedures to treat obese and high-risk patients with confidence

See with confidence every time

Interventions are becoming increasingly complex, which lengthens fluoroscopy time and increases the need for high resolution imaging. New devices can be more difficult to visualize, making it harder to position them precisely. The prevalence of patients with a high BMI can also require increased dose levels to visualize anatomy. All of these factors inspired us to completely redefine the balance in interventional X-ray with AlluraClarity.

AlluraClarity with its unique ClarityIQ technology gives you exceptional live image guidance during treatment. What's more, you can confidently manage low X-ray dose levels without changing your way of working. In short, you can see what you have to regardless of patient size.

Specifications

ClarityIQ technology is the foundation of Philips X-ray systems with AlluraClarity. It offers:

- Noise and artefact reduction, also on moving structures and objects
- Image enhancement and edge sharpening

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Line #	Part #	Description	Qty	Each	Price
		<ul style="list-style-type: none"> - Automatic real-time patient and table motion correction on live images - A flexible digital imaging pipeline from tube to display that is tailored for each application area - Over 500 clinically fine-tuned system parameters making it possible to filter out more X-ray radiation and use smaller focal spot sizes and shorter pulses with the grid switching technology of Philips MRC tube and accompanying generator 			
7	**NCVD059	FlexSpot secondary monitor FlexSpot secondary monitor Simplify control room workflow This option adds a second QHD (2560x1440) high resolution monitor to the primary FlexSpot workspot. Specifications 2nd Display for FlexSpot enables the user to show up to 8 video sources on a single FlexSpot workspot by combining 2 high resolution displays. Keyboard and mouse control is seamless across the 2 displays, see FlexSpot.	1	\$8,189.72	\$8,189.72
8	**NCVC466	VesselNavigation Complete VesselNavigation Complete VesselNavigation Complete provides a package solution for Live Image Guidance for endovascular procedures allowing to plan, perform and follow-up procedures with confidence. Live Image Guidance is based on the 3D overlay of the vasculature on the 2D fluoro images. Next to Vessel Navigator's functionality to overlay a previous acquired CTA or MRA volume on the live image, this package allows you to create an overlay with a 3D contrast enhanced angiography volume (3D Roadmap). VesselNavigation Complete consists of VesselNavigator, 3D-RA, 3D-RA on Xper Module and 3D-Roadmap.	1	\$85,738.69	\$85,738.69

VesselNavigator

Reduce your need for contrast in complex endovascular procedures

VesselNavigator allows reuse of 3D vascular anatomical information from existing CTA and MRA datasets as a 3D roadmap overlay on live X-ray images. With its sophisticated visualization, it provides an intuitive and continuous 3D roadmap to guide you through vasculature during the entire procedure. This reduces the need for a contrast enhanced run to create a conventional roadmap and potentially shortens procedure times.

The essential components of VesselNavigator are:

- 3D roadmap navigation with a personalized visualization of a CT or MR overlay of the selected vasculature on live fluoro.
- Both 2D and 3D registration for CT or MR image fusion, allowing to choose the optimal registration method for the user's workflow
- Easy, intuitive four step workflow, with one click vessel segmentation
- Ring markers to easily indicate the ostia and landing zones.

VesselNavigator can be used for any type of endovascular procedure, except for coronaries and intracranial vessels. It is especially beneficial for complex and tortuous vasculature where it is challenging to accurately navigate and place stents or for procedures where contrast use should be minimized.

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Line #	Part #	Description	Qty	Each	Price
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VesselNavigator provides the following functions:

One click vessel segmentation; the user can select the relevant vessels for the overlay in the CT or MR volume in one click

3D landmarks. In the planning step the user can place ring markers for denoting ostia or landing zones and markers for denoting specific structures like calcifications

Plan angles; VesselNavigator provides three dimensional views of vasculature that allow you to easily define the right projection angle. These angles can be recalled during the procedure for optimal navigation and stent placement.

2D registration; The CT or MR volume needs to be matched with the X-ray image for continuous live overlay. This can be performed with 2 X-ray images from different orientations. Once the 2 images are acquired, the user must manually match the bones on the preoperative scan with the X-ray image.

3D registration; The existing CTA or MRA volume needs to be matched with the X-ray image for continuous live overlay. This can be performed with a rotational angiogram or cone beam CT. The user has to identify 3 identical anatomical points on the rotational scan and the CTA or MRA volume. The software automatically matches the identified points to register the pre-operative scan with the X-ray system.

Live image guidance; Real-time overlay of the 3D Vessel segmentation on the live 2D X-ray images from the Allura X-ray system of the same anatomy. For optimal viewing, the user can personalize the visualization of the overlay. The overlay can provide additional 3D image guidance to help the user with navigating the device/catheter to the target, enhancing clinical outcomes.

Table tracking; The overlay will be aligned with the live X-ray image, irrespective of table and system movements.

Table side control; Registration and live guidance can be controlled from table-side to provide efficient work-flow during the interventional procedures

Image data for VesselNavigator is stored together with the VesselNavigator movies and snapshots and can be sent to any optional DICOM compatible device (e.g. PACS/IntelliSpace Portal/Xcelera). Supported are DICOM XA, DICOM SC, DICOM CT, DICOM MR and DICOM XA and any PC in a standard PC compatible format (JPEG,AVI). All this data can be reviewed at any time.

VesselNavigator movies and snapshots can be stored/archived on:

- A PACS systems as DICOM Secondary Capture images or movies.
- USB removable memory device.
- One or multiple DVD's, CD-ROM(s) for easy archiving.
- Hard copy via the (DICOM Print) protocol.

3D-RA

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Line #	Part #	Description	Qty	Each	Price
		Allura 3D-RA assists physicians in decision making for treatment strategy in endovascular procedures, neuro or vascular surgery or even radiotherapy.			
		Allura 3D-RA reduces the number of DSA acquisitions and fluoroscopy time needed to perform an examination. This means less X-Ray dose for the patient and the medical staff and a reduced quantity of dye, leading to reduced procedure costs.			
		Allura 3D-RA provides a unique assessment after treatment due to the use of non-subtracted images that allows to shows devices stents, coils, clips and provide the optimal stand projection for endovascular treatment.			
		Allura 3D-RA provides a wide range of communication facilities to export 3D images.			

1 Image Acquisition

Image acquisition is performed with the Rotational Angiography feature of the Allura Xper FD series with the flexibility to position the C-arm in either head or side position.

C-arm in Head position: the Rotational Angiography run is performed over a scan range of 240 degrees with a rotation speed up to 55 degrees/sec.

C-arm in Side position: the Rotational Angiography run is performed over a scan range of 180 degrees with a rotation speed up to 30 degrees/sec.

2 3D Vessel Reconstruction

The rotational run is automatically transferred and displayed as a 3D vessel model: with the Real-Time digital link (option) 120 images are reconstructed into a 3 dimensional model within seconds. Additional reconstructions, using the Reconstructive Zooming Technique, can be performed as well.

3 Workflow:

Allura 3D-RA in combination with the Allura Xper FD series will provide an optimal workflow via the following workflow enhancers:

Complete automated 3D-RA process from 3D acquisition to 3D Viewing: no user interaction needed.

3D at Xper Module (option); With the Xper module the physician has all required 3D functionality at tableside. At the touch screen module functionality like rotating, panning, zooming, AVA, virtual stenting, 3D-APC and 3D Follow C-arc can be performed. With the mouse tablet all other functions can be performed so that there is no need for the Physician to leave the examination room.

3D Automatic Position Control (3D-APC); When the optimal working position has been chosen via the Allura 3D-RA interventional tool, the C-arc will automatically steer to this position.

3D Follow C-arc; When the position of the C-arc (not using any X-ray) is changed, the 3D volume will automatically follow the position of the C-arc. This means the position of the C-arc (and therefore the 2D projection) and the 3D volume are always aligned. As last seen; when the user leaves the patient in the model and later selects that patient again, the Allura 3D-RA interventional tool will return to the image last used by the user.

Mouse over: When moving the mouse cursor over a button the mouse over text will show up to explain the function of that specific button.

4 Calibration

Allura 3D-RA calibrations are performed by Philips Healthcare Customer Support. Allura 3D-RA calibration data are stable over at least 6 months time.

5 Viewing

A Real Time user interface is available with 3D-RA, providing 3D object viewing in any space direction. A graphical display of (C-arm) stand position including angulation/rotation for any projection.

Philips' CRM (Contrast Resolution Management) Technology for a considerable increase in contrast resolution in all volumes.

Various Image Rendering possibilities: Volume/Surface Rendering, MIP, Endoscopy, SUM (pseudo x-ray image) Gradient rendering; the possibility to display the vessel structure transparently.

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Line #	Part #	Description	Qty	Each	Price
		Cut-plane function to get a precise insight of the shape of the pathology Orthoviewer providing a multi-planar visualization of objects using the different Image Rendering possibilities. MPR (Multi-Planar Reformatting): enables visualization of the volume in all three standard projections (coronal, sagittal and axial) Especially useful for optimal viewing of spine procedures (e.g. Vertebroplasty) SpineView: special acquisition protocol for optimal viewing of the spine, especially osteoporotic vertebrae CalciView: allows visualization of Hyper dense plaque in 3D, separately or in relation to the lumen. 5 different distance measurements calculated in the same volume, including "Quick measurement" feature Volume calculation Automated Vessel Analysis (AVA), provides information on vessel segment diameter, area and length with only three mouse-clicks. Endoscopic and cross sectional views are available. Computer Assisted Aneurysm Analysis (CAAA), providing information on Aneurysms, like volume, neck size etc.. Catheter tip shape simulation, providing information on how to shape the catheter tip. Virtual stenting; Ability to simulate a stent placement in a selected vessel segment for proper stent sizing. All relevant data of the simulated stent are displayed Annotation: text can be added to a volume to capture comments. Interpolative Zoom Reconstructive Zooming Technique, 2 additional user defined reconstructions focused on the Volume Of Interest (VOI) using different cube size and voxel resolution. Subtraction of reconstructed volumes, allowing to visualize vessels without embolization devices (stents, coils, clips,..) to assess the outcomes of treatment Automatic Voxelshift: compensates for movement when rendering subtracted or superimposed volumes Set the grey values WW/WL Store/Recall of user defined projections.			
		6 Archiving			
		Transfer to:			
		Optional Hard Copy unit (DICOM Print)			
		Any optional DICOM compatible device (e.g. PACS/ViewForum/Xcelera), supported are DICOM XA, DICOM SC, DICOM CT and DICOM 3D			
		Any PC in a standard PC compatible format (JPEG,AVI)			
		One or multiple DVD's, CD-ROM(s) for easy archiving			
		Store a subset of exportable objects (snapshots and AVI Movies) to a USB removable memory device.			

3D-RA on Xper Module

The 3D-RA on XPER MODULE integrates the off-line 3D-RA application in the Allura Xper system. It allows operation of 3D-RA with the Xper module in the examination room during an examination. Display of 3D-RA imaging in the examination room has to be arranged for the monitor ceiling suspension with an additional monitor or with MultiVision (sharing an existing monitor). Following 3D-RA functions are available on the Xper module:

- Image rotation
- Image translation
- Start mouse mode
- Snapshot
- Segmentation (window-width/window-level control)

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Line #	Part #	Description	Qty	Each	Price
		<ul style="list-style-type: none"> • 3D zoom control • Store/recall views • Recall Anterior-Posterior view • Select 3D APC / Follow stand mode 			

3D Roadmap

3D Roadmap extends the capabilities of the integrated 3D product by providing a sustainable 3D roadmap to support interventional procedures. The 3D Roadmap option matches the real-time 2D fluoroscopy images with the 3D-RA reconstruction of the vessel tree. It provides a 3D real time insight of the advancement of the guide wire, catheter and coils through complex vessel structures. 3D roadmap has automatic motion compensation for the neuro runs. When the automatic motion compensation function is active, this functionality will constantly correct the motion artifacts which can be present in the 3D Roadmap image.

Image Acquisition

The 3D Roadmap is based on the visualization of the vessel tree out of 3D-RA. The 3D Roadmap is activated with one button touch at tableside (Xper Module). Select the 3D Roadmap function on the touch screen module, activate fluoroscopy and the 3D Roadmap is activated. The "live" 2D fluoroscopy image is overlaid with the 3D volume of the vessel tree and is automatically displayed on the 3D roadmap monitor in both the examination and control room.

Intuitive, fully controlled from tableside:

The bidirectional link between the X-ray system and the 3D Roadmap allows the user to select the optimal stand position for the procedure in two ways. 3D Automatic Position Control allows the gantry to automatically move to the best interventional projection as shown on the 3D Roadmap monitor. 3D Follow C-arc allows the 3D Roadmap to remain in sync with the 2D projection, automatically adjusting viewpoint as the gantry is repositioned

- Landmarking to adjust the intensity of the anatomical reference surrounding the vessels;
- 3D blending to fade in/out the 3D view;
- WW/WL settings to control the contrast/brightness;
- Store and review runs for reporting and archive purposes;
- Store snapshots and movies.

3D Roadmaps can be sent to:

Any optional DICOM compatible device (e.g. PACS/ViewForum/Xcelera), supported are DICOM XA, DICOM SC, DICOM CT and DICOM 3D

Any PC in a standard PC compatible format (JPEG,AVI)

And stored/archived on

A PACS systems as DICOM Secondary Capture images or movies

USB removable memory device

One or multiple DVD's, CD-ROM(s) for easy archiving

Hard copy via the (DICOM Print) protocol

Clinical Education Program for Vessel Navigation:

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Line #	Part #	Description	Qty	Each	Price
		Philips Imaging Systems Clinical Education Specialist will provide twenty-four (24) hours of education for up to four (4) students, as selected by customer, including technologists from weekend/night shifts as necessary. CEU credits are not available for this portion of training. Please refer to guidelines for more information. Note: Site must be patient ready. Philips personnel are not responsible for actual patient contact or operation of equipment during education sessions except to demonstrate proper equipment operation.			

Education expires one (1) year from equipment installation date (or purchase date if sold separately). Ref#296276-20150820

9	**NCVA783	Pivot for table base.	1	\$4,277.59	\$4,277.59
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For angiographic- and interventional procedures of the upper peripherals.

Provides improved table access for patient transfer.

Allows pivoting of the table base around its vertical axes.

Pivot range from -90 degrees to + 180 degrees (or -180 to +90 degrees) with locked positions on 0, -13/+13 (facilitating arm-angiography) and -90/+90 and 180 degrees.

Comprising:

- pivot device with graduated scale to be mounted on the universal floor plate of the table.

Compatible with Xper Table

10	**NCVA695	FD Rotational Angio	1	\$18,397.79	\$18,397.79
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Rotational angiography provides real-time 3D impressions of complex vasculature and coronary artery tree. It acquires multiple projections with just one contrast injection via a fast rotational scan of the region of interest.

Rotational Angiography can be used during screening procedures to quickly determine the optimal projection for the study as the angle (rotation/angulation) of the projection is indicated on each image.

Compared with traditional angiography, Rotational Angiography can save considerable time, dose and contrast, while providing image detail required for diagnostic and therapeutic decisions.

A rotational scan is possible both with the Allura Xper systems in the side position (ceiling mounted systems) and in the head position, providing the flexibility to perform procedures virtually from head to toe.

C-arm in side position:

- Max. rotation Speed: 30 degrees/s
- Max. rotation Angle: 180 degrees

C-arm in head position:

- Max. rotation Speed: 55 degrees/s
- Max. rotation Angle: 305 degrees

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Line #	Part #	Description	Qty	Each	Price
Max. Frame speeds are given by the framespeed specifications of the system configuration.					
The speed and range of rotation are the highest available (see table). The very high speed allows using less contrast, whereas the very wide rotation range provides a complete evaluation of the anatomy.					
A contrast run can be followed up with a mask run, to allow image/run subtraction.					
The stand is designed for a very high mechanical stability. It offers precise positioning and high reproducibility, assuring you of high quality images and excellent subtraction studies.					
Operation of Rotational Angiography is extremely easy. The procedure is selected, set up and executed virtually in a matter of seconds, supporting the highest patient throughput.					
A set of dedicated acquisition programs is available on the Xper Module and can be selected at the touch of a button. The rotation end- and start-positions are easily selected. The procedure is controlled from the exposure hand- or footswitch.					
11	**NCVC199	Wireless footswitch: mono-plane version	1	\$6,740.32	\$6,740.32
One wireless footswitch in the examination room.					
Key benefits					
<ul style="list-style-type: none"> • Reduces clutter around the examination table • Simplifies preparation and cleanup • Streamlines workflow in the interventional suite 					
Reduce clutter and streamline workflow					
The wireless footswitch option streamlines workflow, reduces clutter, and simplifies preparation and cleanup in the interventional suite. Clinicians can use the footswitch to wirelessly control the X-ray system in the examination room, from any convenient position around the table. No sterile covers are needed with the IPX8 certified waterproof design.					
Specifications					
<ul style="list-style-type: none"> • The mono-plane wireless footswitch is a 3 pedal version; one pedal for fluoroscopy, one for exposure and one to control the room light/single shot. The pedals can be configured according customers preferred lay-out. • The wireless footswitch is working via RF technology and is fully tested and released for medical use. It has an active range up to 10 meters, depending on structures within this range. • The wireless footswitch has a lithium battery which only needs to be recharged once per week. During recharging the footswitch still can be used and is fully functional. In parallel, a wired footswitch can also be used. • The status of the battery is indicated by an LED-indication on the footswitch itself, so that the user can decide when the footswitch needs to be recharged. • The wireless footswitch has high water ingress protection standard (IPX8), it can easily be cleaned in water. 					
The wireless footswitch has an on/off switch. It can be switched off when not in use. When the footswitch is active, but not in use, it will go into a sleep-mode. It will be re-activated when touched or when one of the pedals is pressed.					
12	**NCVD064	extension to FlexVision Pro	1	\$34,681.70	\$34,681.70

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Line #	Part #	Description	Qty	Each	Price
		Extension to Flexvision large 58 inch high resolution LCD for exam room, enabling flexible screen lay outs and full control (seamless mouse) of up to 11 external sources including third party systems.			

Key benefits

- Full control at table side of all applications with seamless mouse control or via touch screen module
- Full flexibility of screen layouts (live resize, drag and drop, unlimited number)
- To simplify and standardize system set-up for your FlexVision Pro, your personalized layout will come up automatically with ProcedureCards.

Easy tableside control

With FlexVision Pro, user can control FlexVision and video sources on FlexVision through wireless mouse in Examination Room as well as virtual keyboard and touchpad on the touch screen module in the Examination Room. An operator can resize images and adjust the screen layout during the procedure without going into configuration.

Specifications

Full control at table side of all applications in the interventional lab (view and control) with a single wireless mouse or with a Touch Screen Module

- Integration: control of up to 11 external sources
- Possibility to configure unlimited flexible screen layouts
- Screenshots: with single click all displayed inputs can be captured
- Live resize the video window and adjust the screen layout during the procedure without going into configuration
- Operate all the video sources displayed on the monitor using the wireless mouse at tableside
- Mouse and keyboard function on the touch screen module (TSM) to control (external) sources

13	**NCVD072	SmartMask Monoplane	1	\$10,270.37	\$10,270.37
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Key benefits

- Simplifies roadmap procedures by overlaying fluoroscopy with a selected acquired image.
- Enables roadmap procedures to manage radiation dose and contrast media by selecting an image from an acquired series as a mask image.

Supports navigation during interventions without the need of additional contrast media.

SmartMask simplifies roadmap procedures by overlaying fluoroscopy with a selected acquired image in the Live X-ray window.

Specifications

The reference image can be faded in/out with variable intensity, controlled from tableside. SmartMask uses the reference image displayed on the reference monitor. Any previously acquired image can be used as reference. SmartMask facilitates pre- and post- intervention comparisons to assess treatment results.

14	**NCVD138	table tilt option	1	\$17,550.58	\$17,550.58
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Table tilt option provides precise imaging of contrast medium, blood, or objects in the body.

Key benefits

- Tilts the table to support gravity oriented and puncture procedures
- Keeps the region of interest in the isocenter of rotation and angulation
- Allows more precise imaging of contrast medium, blood, or objects in the body

Precise imaging during gravity oriented and puncture procedures

To obtain high quality results and avoid re-takes during gravity oriented or puncture procedures, it's important to keep the region of interest centered at all times. The tilt option allows you to tilt the table. As the table tilts, the X-ray beam automatically adapts to the movement to keep the region

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Line #	Part #	Description	Qty	Each	Price
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of interest in the isocenter of rotation and angulation of the stand. As a result, your region of interest always remains centered to allow more precise imaging of contrast medium, blood, or objects in the body.

The table floats even when tilted, and the region of interest can be followed by panning the tabletop. When combined with the Bolus Chase option, the table tilt option enables phlebography to be performed with a head-up tilted patient.

Specifications

- Motorized table height from 78.5 - 103.5 cm
- Maximum tilt range: -17 degrees (head down) to +17 degrees (head up).
- Tilt speed: 2 degrees/sec
- Automatic safeguarding system with manual override
- Panning range in tilted plane: equal to the standard tabletop specifications (longitudinal 120cm, lateral 36cm)
- Easy to use controls

15	**NCVD030	FlexVision XL HD	1	\$93,446.65	\$93,446.65
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FlexVision XL HD is an integrated viewing solution designed to give you full control over your viewing environment which brings High Definition viewing.

Key benefits

- Easily access multiple, up to 8, video inputs (including third party systems) video inputs to inform decision making during procedures
- Create custom display templates to support diverse procedures
- The screen layout of the FlexVision XL HD can also be changed from the control room
- Enlarge images to reveal more details and support comfortable working positions

Diagnostic information easily made available at table side

In today's interventional setting, as you perform more complex procedures with smaller devices in complex anatomy, you rely on various types of diagnostic information to guide you. To inform decision making in the exam room, Philips offers an advanced digital workspace called FlexVision HD. You can display multiple images in a variety of custom layouts on a large, high-definition LCD screen. Zoom in and out to enhance fine details, while maintaining an overview of all information. Create custom display templates for specific procedures/physician preferences to easily support diverse procedures.

Specifications

FlexVision XL HD offers:

- Native resolution of FD20 can be displayed.
- Sharp images at full size without zoom
- High Definition display at native resolution for ultimate detail
- Up to 2k*2k image display fully integrated
- Enhanced small vessel visualization

1. DVI video composition unit.

The DVI video composition unit allows the user to direct and switch the video output of all connected medical equipment to specific sub windows of the Philips 58-inch color LCD with LED backlight in the Examination Room.

- The DVI video composition unit is operated from the touch screen module.
- The DVI video composition unit supports a wide variety of display formats (up to 1920x1200)
- Up to 11 external inputs are connected to the DVI video composition unit via wall connection box or boxes.

2. Medical grade, high resolution color LCD in the Examination Room

This display supports the image quality requirements for monochrome X-ray images as well as color images and replaces all displays normally delivered with the system for the Examination Room.

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Line #	Part #	Description	Qty	Each	Price
		<p>Main characteristics are:</p> <ul style="list-style-type: none"> - 58-inch, 8 Megapixel color LCD - Native resolution: 3840x2160 - Brightness: Max: 700 Cd/m² (typical) stabilized: 400 Cd/m² - Contrast ratio: 1:4000 (typical) - Wide viewing angle (approx. 176 degrees) - Constant brightness stabilization control - Lookup tables for gray-scale, color and DICOM transfer function - Full protective screen Ingress Protection: IP-21 <p>3. Large color LCD control (touch screen module)</p> <ul style="list-style-type: none"> • Enlarge information at any stage during the case via the touch screen module in the Examination Room or Control Room. • Select viewing lay-outs via the touch screen module in the Examination Room. • Create new layouts by matching inputs to desired locations on preset templates. • Adjust the screen layout during the procedure without going into configuration • 20 layouts; each layout is customizable, size of viewports can be customized by end user X-ray status area visible with all X-ray details <p>4. Monitor ceiling suspension</p> <p>Monitor ceiling suspension for use in the Examination Room carries the 58-inch color LCD, providing highly flexible viewing capabilities. The monitor ceiling suspension is height-adjustable and moveable along ceiling rails. It can be positioned on either side of the table.</p> <p>5. Snapshot</p> <p>The snapshot function allows the user to store/save a screen-capture of any image on the FlexVision HD as a photo image to the current acquisition patient study.</p>			
16	**NCVD097	DVD writer	1	\$265.79	\$265.79
		<p>Key benefits</p> <ul style="list-style-type: none"> • Store images and information on DVDs for easy sharing <p>Store images and information on DVDs for easy sharing</p> <p>To provide flexible storage options, a DVD writer is available with the Philips X-ray system. Procedural images and information can be stored on DVDs and used for archiving, training and presentations.</p> <p>Specifications</p> <p>Export and import of X-ray images and X-ray runs to DVD and/or from DVD</p>			
17	**NCVD081	Touch Screen Module Pro	1	\$24,083.25	\$24,083.25
		Extension of Touch Screen Module for easy control of X-Ray images at table site			
		<p>Key benefits</p> <ul style="list-style-type: none"> - Imaging parameters can be quickly and easily adjusted at tableside - Clinical image are shown to support easy navigation. Collimate on the clinical image with one finger. Pinch, zoom, pan and flag images for processing. Position shutters and wedges by simply swiping the image on screen. - All X-ray settings can be easily adjusted to help you effectively manage patient and staff dose <p>Enhance image navigation on the touch screen module</p> <p>This option extends the functionality of the touch screen module, allowing live X-ray images and source images from reference monitors to be displayed on the touch screen module. Shutters and wedges can also be easily positioned with a fingertip by simply dragging them into position. A pointer is also available on screen to improve communication in and between the exam room and control room.</p> <p>Specifications</p> <ul style="list-style-type: none"> - enhance image navigation on the TSM 			

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Line #	Part #	Description	Qty	Each	Price
		<ul style="list-style-type: none"> - intuitive control of shutters and wedges by simply dragging the lines shown on top of the image - provides intuitive zooming and panning functionality (also during fluoroscopy) - turns the touchscreen into the pointing device in order to improve communication in ER/CR: when activated the pointer is shown on corresponding monitor !!! Note: Touchpad and Keyboard control from the TSM is NOT part of this option but 'FlexVision Pro' option. !!! Note: Images shown on the TSM are not meant for diagnostic purposes (image is down-scaled, compressed and latency during live/replay maybe higher than on the live monitor) 			
18	**NCVD078	FD Dual Fluoro monoplane	1	\$16,861.18	\$16,861.18
		An additional fluoro channel in parallel to the standard fluoro channel			
		Key benefits			
		<ul style="list-style-type: none"> • View the subtracted fluoroscopy next to the default non-subtracted fluoroscopy • View a digitally zoomed fluoroscopy image next to the default fluoroscopy image 			
		Second fluoro image to support complex interventions			
		For complex interventions, it can be useful to view the subtracted fluoroscopy image next to the normal fluoroscopy image. The Dual Fluoro option provides an additional fluoro channel in parallel to the default fluoro channel. The dual fluoro option allows to view live digitally zoomed fluoroscopy next to non-zoomed fluoroscopy.			
		Specifications			
		The Dual fluoroscopy mode is selected via the touch screen module.			
		The trace-subtracted fluoro image will be displayed on the live viewport, the non-subtracted fluoro image is displayed on the reference 3 viewport.			
		In Dual Fluoro mode, the live fluoroscopy image can be zoomed digitally, providing a larger view of the region of interest for complex interventions. The zoomed live fluoroscopy image will be shown on the live viewport, while the entire non-zoomed image will be shown on the reference 3 viewport.			
		The fluoro zoom function is controlled via the touch screen module.			
19	**NCVD177	IW Hardware (FlexSpot)	1	\$18,165.22	\$18,165.22
		Hardware for the 3D interventional tools combined with FlexSpot.			
		Key benefits			
		<ul style="list-style-type: none"> • Facilitates multimodality viewing in exam room and control room • Supports DICOM compatible data from CT and MR imaging modalities • Provides real-time access to images to support fast results 			
		View multimodality images in exam room and control room			
		Images from a variety of sources are being increasingly used during interventions for a variety of Live Image Guidance tools. The Interventional Hardware option provides the hardware for our interventional tools that enables DICOM compatible data from other imaging modalities to be imported and viewed in the exam room and control room. To support fast results, a real-time digital image link is provided between the Interventional Hardware workstation and the X-ray system.			
		Specifications			
		The Interventional hardware is the hardware for the 3D interventional tools that included Real Time Link. It enables import and viewing of DICOM compatible data from other imaging modalities.			
		The Interventional Hardware comprises at least:			
		<ul style="list-style-type: none"> • Computer Workstation • 16 GB memory • 2 TB disk for the operating system, application software and application data • Internal CD-ROM / DVD writer • Mouse tablet to interact with all the interventional tools at the table side. 			
		Conditionally:			
		FD Calibration Tool Kit for 3D-RA			

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Line #	Part #	Description	Qty	Each	Price
20	**NCVD128	storage extension Extends image storage capacity on your X-ray system As imaging data becomes larger, you can quickly reach the limit of the storage capacity on your interventional X-ray system. The Storage extension extends the storage capacity of your interventional X-ray system. Specifications By default 50.000 images are available, this option will give 100.000 images (this is for 1K2 image size).	1	\$4,979.45	\$4,979.45
21	**NCVA258	CO2 View Trace Software	1	\$2,745.13	\$2,745.13
22	**NCVC325	OncoSuite complete	1	\$105,972.10	\$105,972.10

OncoSuite consists of XperCT Dual, EmboGuide and XperGuide with Ablation option.

XperCT Dual extends the capabilities of the interventional suite offering CT like imaging to visualize bone, soft tissue and vessels in case of contrast enhanced acquisition. XperCT Dual protocols are available covering routine procedures such as biopsies and drainages but also advanced procedures such as abdominal oncological imaging up to neuro high resolution stenting. All protocols can be selected at the tableside via the XperModule.

The DualPhase dual view functionality allows the simultaneous visualization of two 3D datasets acquired at different times of the procedure such as the arterial and post-arterial contrast enhancement in oncologic liver imaging. In this DualView, XperCT Dual allows the segmentation of multiple lesions at the same time in the viewed datasets.

XperCT Dual acquires up to 60 frames/sec. (frame rate extension to 60frames/sec is included) and supports fast abdominal protocols with 5 to 10 second acquisition time for Allura release prior to 8.2 and even 5 to 8 second acquisition times for Allura release 8.2 or higher, thereby minimizing respiratory artifacts. The XperCT volume is displayed automatically within 8 to 15 seconds after acquisition. No user interaction is required.

XperCT Dual includes Metal Artifact Reduction to reduce the artifacts caused by metal presence in the region of interest. In case the original XperCT shows metal artifacts, the interventional radiologist can perform a second reconstruction and select for Metal Artifact Reduction, which will remove the artifacts caused by the metal present. The most typical examples of metal presence are: metal implants, coils or stents with stainless steel structures. Moreover, BMI Noise Reduction is included to reduce the noise caused by large size patients.

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Line #	Part #	Description	Qty	Each	Price
Note: BMI Noise Reduction is only available when Abdominal XperCT runs are selected					

The XperCT volume can be viewed in the control room and in the examination room. The viewing package comprises:

- 3D volume viewing in any desired orientation
- Slice viewing in any desired orientation
- Slice viewing at any slice thickness with a minimum of 0.5 mm
- Five distance measurements calculated in the same volume, including "Quick measurement" feature
- Cut-plane functionality to provide precise insight into anatomical structure
- Unique high-resolution reconstructive zoom technique
- Graphical display of stand position including rotation and angulation parameters
- Contrast and brightness control
- Contrast resolution 5-10 Hu
- Spatial resolution of the initial reconstruction: 10 lp/mm
- Contrast range -1000 to 2000 Hu
- High resolution imaging mode produces
- 512x512x512 volume rendered reconstructions
- XperCT Dual can be controlled via the Xper module and the mouse at tableside.

The XperCT volume can be matched with (when additional options are available) Allura 3D-RA and pre acquired CT, PET/CT or MR volumes. This view allows combining multiple images from different modalities in order to provide additional anatomical insight. This multimodality volume can be viewed with the following functionalities:

- Registration of the two volumes from the same patient
- The resulting volume can be viewed with complete 3D-RA viewing functionality
- The XperCT slice can be overlaid onto the 3D vessel for better assessment of the region of interest
- Three different contrast rendering options to allow optimal viewing of the 3D vessel in the soft tissue structure
- (128x128x128, 256x256x256, 384x384x384 and 512x512x512 volumes)
- Movie clip recording functionality (AVI) to capture dynamic views
- 3D automatic position control at tableside: When an optimal working position is selected from the XperCT volume the C-arc steers itself to the selected position
- 3D Follow C-arc at tableside: When selected, the XperCT volume automatically follows the position of the C-arc.
- XperCT data and 3D-RA with XperCT Dual overlay is stored in the same patient file as all other patient related data. All this data can be reviewed at any time

XperCT data can be sent to:

- Any optional DICOM compatible device (e.g. PACS/ViewForum/Xcelera), supported are DICOM XA, DICOM SC, DICOM CT and DICOM 3D
- Any PC in a standard PC compatible format (JPEG,AVI)
XperCT datasets can be stored/achieved on:

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Line #	Part #	Description	Qty	Each	Price
		<ul style="list-style-type: none"> • A PACS systems as DICOM Secondary Capture images or movies • USB removable memory device • One or multiple DVD's, CD-ROM(s) for easy archiving • Hard copy via the (DICOM Print) protocol 			

EmboGuide provides workflow-guided Embolization support in three steps. The first step comprises of the Identification and Segmentation of multiple lesions. Secondly, the feeders of the segmented lesions are identified. The Automatic feeder detection function supports the user with this. Finally, Live Image Guidance is used in order to reach each of the identified feeders for a selective or super-selective Embolization.

The essential components of EmboGuide are:

- 3D lesion segmentation tool for 3D target(s) identification and volume measurement.
- Workflow-driven planning tool with automated feeding vessel detection and marking.
- 3D roadmap navigation with lesion and feeding paths overlay.

Depending on Allura configurations, XperCT Dual allows obtaining two manual forward scans or two automatic rotational scans with a user-defined delay between them (automatic rotational scans only for Allura release 8.2 or higher). In case of two automatic rotational scans, the first scan is performed in a forward direction while the second one is performed in reverse direction (DualPhase wiper rotation). In both configurations, the first phase can be used to show early tumor contrast uptake and its feeding vessels, while the second scan can be used to depict the delayed contrast uptake in lesion, determining its vascularity and perfusion. Optimal automatic high volume reconstruction is in this respect is essential to secure appropriate feeding vessel detection in the first phase and a good soft-tissue contrast in the second phase. The 3D lesion segmentation is an interactive user-guided tool that allows isolating regions of interest in a 3D volume using image-specific features. The tool can be used for user-guided segmentation of lesions from MR, CT or XperCT volumes. A workflow-driven planning tool, building on already available vessel detection and volume cut features, can then be used to highlight the feeding vessels to the lesion. Real-time overlay and registration of the 3D volume on live 2D X-ray images from the Allura X-ray system of the same anatomy can be used as additional 3D image guidance to support the navigation of the device/catheter. Planning data, like the earlier annotated feeding vessels and/or 3D landmarks can be displayed on 2D-3D fused images as supporting information.

EmboGuide provides the following functions:

- Automatic Feeder Detection; supports the user in analyzing the vasculature of lesions by giving the initial suggestions of the feeding vessels of the segmented lesions. The detected feeding vessels will be annotated and added to the planning.
- Manually add and/or remove feeding vessels; after running the automatic feeder detection function, the user can verify and refine the planning by manually adding and/or removing feeding vessels.
- Follow Feeder; for verification, the user may use the Follow Feeder function. This function allows the user to trace the path of a single annotated feeding vessel to verify whether it traces into a targeted lesion.
- 3D Landmarks; landmarks can be put on the 3D volume as additional information to support with the navigation of the catheter.
- Live 3D Image Guidance; real-time overlay and registration of the 3D volume on the live 2D X-ray images from the Allura X-ray system of the same anatomy, can provide additional 3D

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Line #	Part #	Description	Qty	Each	Price
		image guidance to help the user with navigating the device/catheter to the embolization target.			
		• Storage of the live 2D-3D overlay runs; the real-time overlay of the 3D volume with the live 2D X-ray images from the Allura X-ray system can be recorded and stored for reviewing at any time.			
		• Table-side control; to provide efficient work-flow during the interventional procedures, the most frequently used functions can be controlled from table-side.			

Image data for EmboGuide is stored together with the EmboGuide movies and snapshots and can be sent to any optional DICOM compatible device (e.g. PACS/IntelliSpace Portal/Xcelera).

Supported are DICOM XA, DICOM SC, DICOM CT and DICOM 3D and any PC in a standard PC compatible format (JPEG,AVI). All this data can be reviewed at any time.

EmboGuide movies and snapshots can be stored/achieved on:

- A PACS systems as DICOM Secondary Capture images or movies.
- USB removable memory device.
- One or multiple DVD's, CD-ROM(s) for easy archiving.
- Hard copy via the (DICOM Print) protocol.

OncoSuite Ablation allows planning of the ablation zone with a high degree of accuracy using conventional methods. XperGuide ablation software helps to plan and guide the specific ablation zones and distance between the ablation needles in 3D based on the manufacturer's specifications of each needle. OncoSuite Ablation shows the isotherm of each needle on an XperCT overlay or on a pre-acquired MR, CT or PET/CT volume. OncoSuite Ablation assists clinicians in planning the optimal placement of the ablation needle to cover the targeted lesion. The needle path can be planned by drawing it or by defining entry and target locations on XperCT, MR, CT or PET/CT slices. By allowing the precise planning of multiple needles, XperGuide's ablation software assists clinicians in treating large tumors and thereby helping to prevent re-do.

OncoSuite Ablation consists of both XperGuide and the XperGuide Ablation option.

XperGuide enables real-time needle guidance in the angio suite. Virtual needle paths are created by XperCT Dual data and on overlays of previous acquired MR, CT, or PET/CT datasets. In order to visualize the actual needle path versus the virtual path that is planned upfront, XperGuide offers the possibility to match real-time 2D fluoroscopy images with 3D volume of XperCT Dual, CT, PET/CT or MR datasets. A wide range of gantry projections can be used to define the needle path. This volumetric dataset can be viewed in any slice direction providing optimal sight.

Path planning in XperGuide can be done by:

- Drawing a virtual needle path on an XperCT, CT, PET/CT or MR slice
- Defining entry and target points on different XperCT Dual, MR, CT or PET/CT slices
- Defining a help line on a 3D volume XperGuide automatically calculates the optimal gantry projections for the path and transfers them to the planning to draw the needle path. The calculated virtual needle paths can be viewed on the XperCT Dual, MR, CT or PET/CT slices, to verify if this path is feasible

XperGuide supports planning of multiple needle trajectories. During the needle procedure, XperGuide is fully controlled at tableside. When XperGuide is active, guidance is automatically active when the fluoroscopy pedal is pressed. The live 2D image is projected over the XperCT Dual, MR, CT or PET/CT volume. The gantry can be positioned in the calculated gantry positions

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Line #	Part #	Description	Qty	Each	Price
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or controlled manually. The XperGuide images (live 2D fluoroscopy projected over the XperCT Dual, MR, CT or PET/CT volume) will follow the gantry projections.

At table side, XperGuide adapts in real-time to the following parameters:

- Changes in the angulation of the C-arm
- Changes in the rotation of the C-arm
- Changes in the field of view
- Changes in the source image distance

XperGuide data, like XperGuide movies and snapshots, can be exported to any optional DICOM compatible device (e.g. PACS/ViewForum/Xcelera). Supported are DICOM XA, DICOM SC, DICOM CT and DICOM 3D and any PC in a standard PC compatible format (JPEG,AVI).

XperGuide movies and snapshots can be stored/achieved on:

- A PACS systems as DICOM Secondary Capture images or movies
- USB removable memory device
- One or multiple DVD's, CD-ROM(s) for easy archiving
- Hard copy via the (DICOM Print) protocol

XperGuide Ablation is an extension to the XperGuide software to facilitate the planning of tumor ablation procedures. It supports all percutaneous ablation techniques (RF, microwave and cryo-ablation) by displaying the isotherm of the chosen ablation needle. It allows the visualization of multiple needles by entering their thermal characteristics, and the assessment of their combined impact in the ablation zone. A virtual ablation needle with its thermal characteristics is displayed on a 3 dimensional XperCT volume or previously acquired CT, MR or PET/CT data to verify optimal positioning of the needle and obtain total tumor coverage. The thermal characteristics of each needle consist of the width, breadth and front of its ablation zones. Per needle up to three ablation zones of different isotherms can be defined. XperGuide Ablation allows to plan and store up to 60 different types of thermal needle characteristics simultaneously.

All thermal characteristics can be stored and transferred to other Allura systems. After the needle planning is performed, the 2D fluoroscopy overlay on the 3D volume allows real time needle guidance along the planned trajectory on XperCT, MR, CT and PET/CT datasets. During live needle guidance it is possible to adjust the ablation transparency and modify the previous plan. After the needle(s) are positioned, it's possible to control the effective ablation target with the previous plan.

Clinical Education Package for OncoSuite Complete:

XperCT Handover OnSite Education: Philips Education Specialists will provide eight (08) hours of education for up to four (4) students, selected by customer, including technologists from night/weekend shifts if necessary. CEU credits may be available for each participant that meets the guidelines provided by Philips. Please refer to guidelines for more information. Note: Site must be patient-ready. Philips personnel are not responsible for actual patient contact or operation of equipment during education sessions except to demonstrate proper equipment operation.

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Line #	Part #	Description	Qty	Each	Price
iXR EmboGuide OnSite Education: Philips Education Specialists will provide eight (8) hours of education for up to four (4) students, selected by customer, including technologists from night/weekend shifts if necessary. CEU credits may be available for each participant that meets the guidelines provided by Philips. Please refer to guidelines for more information. Note: Site must be patient-ready. Philips personnel are not responsible for actual patient contact or operation of equipment during education sessions except to demonstrate proper equipment operation.					

iXR XperGuide Onco Ablation OnSite Education: Philips Education Specialists will provide eight (8) hours of education for up to four (4) students, selected by customer, including technologists from night/weekend shifts if necessary. CEU credits may be available for each participant that meets the guidelines provided by Philips. Please refer to guidelines for more information. Note: Site must be patient-ready. Philips personnel are not responsible for actual patient contact or operation of equipment during education sessions except to demonstrate proper equipment operation.

Education expires one (1) year from equipment installation date (or purchase date if sold separately). Ref#292335296250296249-20151215

23	**FCV0817	Accessory rail + cable ext.kit	1	\$3,255.95	\$3,255.95
<ul style="list-style-type: none"> • Extend the length of the OP rail to fit cardio and neuro tabletops • Position operating modules and/or accessories conveniently • Work comfortably at the head end of the table <p>Extend the length of the OP rail To provide more flexibility when performing procedures, the additional OP rail accessory with cable extension kit is equipped with everything needed to mount operating modules and/or accessories next to the tabletop.</p>					

Specifications

This option includes the following items:

- One additional OP rail (mechanical) of 500 mm
- Cable extension set for OP rail
- Extension cable for control module, 1.3 meters long
- One connection box to connect the user interface cables to the module cables
- An extension for the table op rail of 500 mm

The additional OP rail can be mounted on either side of the tabletop where no OP rails are mounted. The additional OP rail is compatible with AD5 and AD7 Table (cardio and neuro) patient tabletops. The OP rail has the same profile and dimensions as the current standard OP rail. The maximum load (downwards) on the additional OP rail is 100 N (F=100N), the maximum mechanical moment on the additional OP-Rail is 40Nm downwards and 20Nm upwards, determined by the tabletop of the patient table.

24	**NCVC564	XperCT Open and Closed	1	\$3,853.98	\$3,853.98
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Line #	Part #	Description	Qty	Each	Price
		For Philips Azurion Interventional X-ray suites, Open trajectory function is available in propeller mode in addition to the current standard trajectory.			
		Specifications			
		Open Trajectory provides 3D rotational acquisitions with start and stop positions of +55° to -185° respectively. This protocol opens the arc to the left side of the patient allowing for a wider translation of the angiographic table towards this direction; thereby shifting the isocenter of the C-arm to the right lateral side of the patient. This enables visualizing off-centered regions of interest (such as the periphery of the liver) in a single sweep. In this function, the data is acquired at the same frame rate as XperCT Dual (60 frames/sec). With 'XperCT Open and Closed' functionality, customers can continue to retain the current standard closed trajectory protocols. Therefore, customers will be able to choose either of the trajectories in propeller mode during the procedure as per their preference.			
25	**980406041009	Rad Shield w/ Arm (Contoured) 61X76	1	\$2,441.96	\$2,441.96
		Contoured Rad Shield with Arm rest. 61X76			
26	**989801220273	Ceiling Track w/Column & Handle Ext	1	\$3,662.95	\$3,662.95
		Mavig 2.5m Ceiling Track with Ceiling trolley, 360 degree column, and brake handle extension.			
27	**989801220284	ISM Premium Audio Package	1	\$20,515.82	\$20,515.82
		The Premium Audio Package is comprised of the following items:			
		Control System - Touchscreen Control Package offers touchscreen control with 7" Touch panel			
		Advanced Audio Communication System with Hands Free Telephony - Advanced audio uses an echo cancelling audio communication system with the EasySuite touchscreen to call or receive a telephone call. The hands-free system utilizes O.R. loudspeakers and 1 boom mounted microphones with no handset required.			
		MP3 Audio and Charging Interface - Universal MP3 music interconnection system allows any 3.5mm jack-enabled personal audio device to play music through the Advanced Audio System. Provides integrated charging capability via USB.			
		Speaker Upgrade for AAC (adds 2 additional speakers for Exam Room) Upgrade adds two recessed ceiling mounted speakers to the Standard Audio System, or Advanced Audio System, for a total of four speakers per Operating Room.			
		PTT Control Room Communication System with Control Room Loudspeakers - Push to talk intercom microphone system for control room plus two recessed ceiling mounted speakers for Control Room.			
		Ambient Room Lighting Control Enables touch panel control of room lights using customer provided lighting controller. Functions include on/off and ability to select multiple lighting presets.			
28	**989801225022	Medrad Mark 7 Arterion Pedestal	1	\$23,256.80	\$23,256.80

100237 Azurion 7 M20

Line #	Part #	Description	Qty	Each	Price
The Arterion Mark 7 Pedestal contrast medium injector can be positioned anywhere at the patient positioning table on a mobile unit, for direct operation of all functions in the examination room.					
The injector system includes:					
<ul style="list-style-type: none"> - A mobile pedestal stand with electronics unit and a connection cable to the manual release. - A support arm with injector head and a control lever for moving the injector head. - A user control console with large touch screen and corresponding additional monitoring display on the injector head. 					
Functions					
Pressure limitation:					
<ul style="list-style-type: none"> - for 150 ml syringes 689 to 8273 kPa, corresponds to 100 to 1200 psi. . 					
Flow rates for 150 ml syringes:					
<ul style="list-style-type: none"> - 0.1 to 45 ml/s in increments of 0.1 ml/s - 0.1 to 59.9 ml/min in increments of 0.1 ml/min - rise/fall: 0 to 9.9 s in increments of 0.1 seconds 					
Release delay for injection or radiation:					
<ul style="list-style-type: none"> - 0 to 99.9 s in increments of 0.1 s. 					
Adjustable volume for 150 ml syringes:					
<ul style="list-style-type: none"> - 1 ml to the max. syringe capacity in increments of 1 ml. 					
Fill rate:					
<ul style="list-style-type: none"> - Variable syringe filling speed 1-20ml/s. 					
Injection protocols:					
<ul style="list-style-type: none"> - Up to 40 injection protocols possible. 					
Parameters currently displayed on the touch screen display and on the head display:					
<ul style="list-style-type: none"> - Injection speed - Injection volume - Remaining volume - Injection duration - Applied pressure 					
Contrast medium heating:					
<ul style="list-style-type: none"> - Nominal 35°C (95°F)+-5°C (9°F) 					
Injection data memory					
<ul style="list-style-type: none"> - Up to 50 injection data items stored 					
Included in the scope of delivery					
<ul style="list-style-type: none"> - Injector standard configuration 150 ml - Philips interface cable - Operator Manual - Service manual (English). 					
Power supply					
100-240 VAC 50/60 Hz 1000VA.					
29	**989801256033	iXR Additional Training 24 Hours OnSite	1	\$6,710.00	\$6,710.00

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Line #	Part #	Description	Qty	Each	Price
		Clinical Education Specialists will provide twenty-four (24) hours of IXR OnSite Education for up to four (4) students, selected by customer, including technologists from night/weekend shifts if necessary. CEU credits may be available for each participant that meets the guidelines provided by Philips. Note: Philips personnel are not responsible for actual patient contact or operation of equipment during education sessions except to demonstrate proper equipment operation. Education expires one (1) year from equipment installation date (or purchase date if sold separately).			
30	**989801220380	Full Load Remote UPS	1	\$37,024.00	\$37,024.00
		MGE Galaxy 5000 80 kVA Full Load – 40kW UPS with remote capability. Includes top feed cabinet and optional side panels, ISX0001369526 G5TUPSU80KPA Adjacent MGE Galaxy 5000 Battery Cabinet with one full string of batteries and standard Galaxy 5000 Adjacent battery Temp sensor. High Voltage 6 Alarm Relays Card MGE GALAXY 5000 Remote Alarm Status Panel MGE SNMP/Web Communication Card Top Feed Auxiliary Cabinet In the event of a power loss the UPS provides emergency power to allow system function and full X-Ray exposure and fluoroscopy for up to 15 minutes.			
31	SP019	Trade in Allowance	1	(\$47,600.00)	(\$47,600.00)
		Customer represents and warrants that (i) Customer has, and shall have when title passes, good and marketable title to the equipment being traded in and (ii) has the authority to effect such trade in. Product: Allura Xper FD20 Serial Number: 53598789 Manufacturer: PHILIPS HEALTHCARE			
		Trade-In authorization number: 48292			
		Trade-In Value: \$47,600.00			
		De-install Date: 6/30/2018			
		Customer will be trading-in equipment that is described on the attached System Disclosure Form (the "Trade-In"), which Trade-In the parties agree (i) will be removed on the De-install Date and (ii) is currently in the condition as represented on the System Disclosure Form. In addition, the parties agree as follows:			
		<ol style="list-style-type: none"> 1. Customer represents and warrants that Customer has good and marketable title to the Trade-In as of the date of this Quotation and will have good and marketable title when Philips removes the Trade-In from Customer's site (the "Removal Date"); 2. Title to the Trade-In shall pass from Customer to Philips on the Removal Date, unless otherwise agreed by Philips and the Customer; 3. Notwithstanding anything to the contrary in any Business Associate Addendum, Customer represents and warrants that as of the Removal Date all Protected Health Information will have been de-identified or removed from the Trade-In; 4. Philips may test and inspect the Trade-In prior to de-installation. If the condition of the Trade-In is not substantially the same on the Removal Date (ordinary wear and tear excepted) as it is identified on the System Disclosure Form, then Philips may reduce the price quoted for the Trade-In; 5. If the removal date is delayed until after the De-Install Date, unless Philips causes the delay, then Philips may reduce the price quoted for the Trade-In by six percent (6%) per month. 6. Philips is responsible for normal de-installation costs of the Trade-In. 			

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Line #	Part #	Description	Qty	Each	Price
7.		The trade-in value will not include costs associated for any facility modifications and/or rigging required for de-installation and must be accounted for separately.			
8.		Customer is responsible for all plumbing necessary to properly drain coolant from chiller system and cap the lines.			
9.		Prior to the Removal Date, Customer shall remove from the room all equipment that is not being de-installed.			

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LIST PRICE	\$3,320,110.00
DISCOUNT	\$1,937,265.14
TRADE IN AMOUNT	(\$47,600.00)
NET PRICE	\$1,335,244.86

Buying Group: UNIVERSITY OF VERMONT HEALTH NETWORK Contract #: SBA11583M and LSP000030

Add'l Terms: The specific Contract # referenced above represents the Novation or Vizient agreement with Philips containing discounts, fees and any specific terms and conditions, including the Vendor's Terms and Conditions of Sale (subject to such Contract),

Each Quotation solution will reference a specific Buying Group/Contract Number representing an agreement containing discounts, fees and any specific terms and conditions which will apply to that single quoted solution. If no Buying Group/Contract Number is shown, Philips' Terms and Conditions of Sale will apply to the quoted solution.

Each equipment system listed on purchase order/orders represents a separate and distinct financial transaction. We understand and agree that each transaction is to be individually billed and paid.

Price above does not include any applicable sales taxes.

The preliminary delivery request date for this equipment is:_____.

If you do not issue formal purchase orders indicate by initialing here_____.

Tax Status:

Taxable _____ Tax Exempt _____

If Exempt, please indicate the Exemption Certification Number:_____, and attach a copy of the certificate.

Delivery/Installation Address:

Invoice Address:

Contact Phone #:

Contact Phone #:

Purchaser approval as quoted:

Date:

Title:

This quotation is signed and accepted by an authorized representative in acknowledgement of the system configuration, terms and conditions stated herein.

Philips Standard Terms and Conditions of Sale

The products and services listed in the quotation are offered by Philips Healthcare division of Philips North America LLC ("Philips") only under the terms and conditions described below (the "Terms and Conditions of Sale").

1. Price; Taxes.

The purchase price stated in the quotation does not include applicable sales, excise, use, or other taxes in effect or later levied. Customer shall provide Philips with an appropriate exemption certificate reasonably in advance of the date the product is available for delivery, otherwise, Philips shall invoice Customer for those taxes, and Customer shall pay those taxes in accordance with the terms of the invoice. Customer is defined as a legal entity, its affiliates and or subsidiaries who purchase product(s), and take title of the purchased product(s) from Philips.

2. Cancellation.

Philips' cancellation policies are set forth in the applicable Product Specific Schedule attached to these Terms and Conditions of Sale.

3. Payment Terms.

3.1 Unless otherwise specified in the quotation, Philips will invoice Customer, and Customer will immediately pay such invoice based on the date of invoice for each product in accordance with the payment terms set forth in the applicable Product Specific Schedule attached to these Terms and Conditions of Sale:

3.2 Orders are subject to Philips' on-going credit review and approval.

3.3 Philips may make partial or early shipments and Customer will immediately pay such invoice based on the date of invoice for each product in accordance with the payment terms set forth in the quotation.

3.4 Customer shall pay interest on any amount not paid when due at the annual rate of twelve percent (12%) or at the maximum rate permitted by applicable law, whichever is lower. If Customer fails to pay any amount when due, in addition to any other rights or remedies available to Philips at law or in equity, Philips may discontinue the performance of services, discontinue the delivery of the product, or deduct the unpaid amount from any amounts otherwise owed to Customer by Philips under any agreement with Customer. In any action initiated to enforce the terms of the quotation following a Customer default or product cancellation under an order arising from the quotation, Philips shall be entitled to recover as part of its damages all costs and expenses, including reasonable attorneys' fees, in connection with such action.

3.5 Credit Card. Philips, at its discretion, will accept a credit card for payment on orders with a net value of \$50,000 or less.

4. Trade - In.

If Customer will be trading-in any equipment ("Trade-In"), then:

4.1 Customer represents and warrants that Customer has good and marketable title to such Trade-In;

4.2 Title to the Trade-In shall pass from Customer to Philips making the new equipment available to Customer for first patient use. Removal of the Trade-In from Customer's site shall occur no later than the date Philips makes the new product available for first patient use, unless otherwise agreed in writing between Philips and the Customer;

4.3 Notwithstanding anything to the contrary in any Business Associate Addendum ("BAA"), Customer represents and warrants that Customer has removed or de-identified all Protected Health Information ("PHI") from the Trade-In equipment as of the date the equipment is removed and will otherwise comply with all applicable privacy laws. To the extent Customer has not done so, Customer agrees to reimburse Philips for any out-of-pocket costs Philips incurs to remove or de-identify PHI from the Trade-In.

4.4 Customer will ensure that the Trade-In is clean and sanitized and that all potentially infected materials and biological fluids are removed prior to its de-installation and removal.

4.5 If (a) the condition of the Trade-In is not substantially the same when Philips removes the Trade-In (ordinary wear and tear excepted) as it was when Philips quoted the Trade-In value; or (b) Customer delays the removal of the Trade-In, then Philips may reduce the price quoted for such Trade-In or cancel the Trade-In and Customer will pay the adjustment amount within thirty (30) days of receipt of invoice.

4.6 If Philips does not receive timely possession of the Trade-In, Philips will, at its option, either charge Customer the amount of the Trade-in allowance and cancel the trade-in, re-value the trade-in allowance accordingly, and/or charge Customer a rental fee of 10% of the trade-in allowance per month or partial month until the trade-in is available for removal. Customer will pay any invoiced allowance adjustment or rental fee within thirty (30) days from the invoice date.

4.7 Evidence that Customer intends to trade in an asset as part of the purchase or lease of any product(s) shall be in the form of, but not limited to: (a) receiving a trade in quote and/or authorization from Philips on the value of the asset to be traded in; (b) providing Philips with serial numbers of assets to be traded in; and/or, (c) providing Philips with a de-installation date to remove an existing asset in order to install Philips quoted equipment.

5. Leases. If Customer desires to convert the purchase of any product to a lease, Customer will arrange for the lease agreement and all other related documentation to be reviewed and approved by Philips not later than ninety (90) days prior to the date of the availability for delivery of major components of the product. The Customer is responsible for converting the transaction to a lease, and is required to secure the leasing company's approval of all of these Terms and Conditions of Sale. No product will be delivered to the Customer until Philips has received copies of the fully executed lease documents and has approved the same.

6. Security Interest. By signing the quotation or issuing a purchase order for the products described, Customer hereby grants to Philips a purchase money security interest in the products until all payments have been made. Philips may file a financing statement for such security interest and Customer shall sign any financing statements or other documents necessary to perfect Philips' security interests in the products. Where permitted by applicable law, Customer's signature on the quotation or on a purchase order issued as a result of the quotation gives Philips the right to sign on Customer's behalf and file any financing statement or other documents to perfect Philips' security interest in the product.

7. Shipment and Risk of Loss.

7.1 Delivery terms are stated in the applicable Product Specific Schedule attached to these Terms and Conditions of Sale.

7.2 Except as otherwise stated in the applicable Product Specific Schedule, title to any product (excluding software), and risk of loss or damage shall pass to the Customer F.O.B. destination. Customer shall obtain and pay for insurance covering such risks at destination.

8. Site Preparation and Installation.

8.1 Site Access. Customer shall provide Philips full and free access to the installation site and a suitable safe space for the storage of the products before installation. Customer shall ensure, at no charge to Philips, that there are no obstacles preventing Philips from moving the product from the entrance of the Customer's premises to the installation site.

8.2 Site Preparation and Installation.

(a) Customer Responsibility. Customer shall be responsible, at its expense, for rigging, the removal of partitions or other obstacles, installation of safety switch or breaker, and restoration work. The products will be installed during normal working hours. Except where Philips has agreed in writing to provide construction services for a fee pursuant to a construction agreement and scope of work signed by Customer, Customer shall be responsible, at its expense, for the preparation of the installation site where the product will be installed including any required structural alterations. Customer shall provide any and all plumbing, carpentry work, conduit, wiring including communications and/or computer wiring, network equipment, power supply, surge suppression and power conditioning (except to the extent they are expressly included in the quotation), fire protection and environmental controls, ground fault and isolation system, and other fixtures and utilities required to properly attach, install, and use the product. Site preparation shall be in compliance with all applicable laws, including all safety, electrical, and building codes relevant to the product and its installation and use. The sufficiency of any installation site plans shall be the responsibility of Customer. Customer, at its expense, shall obtain all permits and licenses required by federal, state, or local authorities in connection with the installation and operation of the product, including any certificate of need and zoning variances.

(b) Unless otherwise stated by Philips, Customer shall advise Philips of site conditions at or near the location where equipment is installed five (5) days prior to the mutually agreed upon delivery date. The update shall include but not limited to the following:

(i) Hazardous Materials. Asbestos and other hazardous materials that could adversely affect the installation or pose a health or safety risk to Philips' personnel, and Customer shall ensure that those conditions are corrected and hazardous materials removed, and that the site is fully prepared and available to Philips before installation work begins. Customer represents and warrants that an asbestos survey of the facility has been performed to determine the presence, location, quantity and condition of asbestos containing materials (ACM) or presumed asbestos containing materials (PACM) at the facility; and the facility and/or work area does not contain any ACM or PACM or the facility and/or work area contains ACM or PACM, such material has been encapsulated or enclosed and the work will not disturb any such materials.

(ii) Construction. All construction work in technical and operator room(s) is finished including but not limited to the responsibilities identified in 8.2 (a).

(c) Delays. If site preparation is not on schedule five (5) days prior to the mutually agreed upon delivery date or as otherwise specified by Philips, Philips and Customer will conduct an evaluation of the site and establish a revised installation schedule. In the event that installation is delayed by Customer within five (5) days prior to the mutually agreed upon delivery date or after the start of installation, Customer will be responsible for: (i) storage and fees for the preservation and life support of the equipment to ensure high quality and long life of system(s); and, (ii) Costs associated with rescheduling and coordination for all resources and third party providers, including travel costs for split delivery and installation directly related to the delay in installation. If during installation Philips discovers hazardous materials (i.e. asbestos, etc.) all installation activities will stop and Customer will remove and dispose of the hazardous materials. Once the issue giving rise to the delay has been rectified and the site meets the criteria set forth in this Section 8, Philips and Customer will conduct an evaluation of the site and establish a new installation schedule.

(d) Philips Responsibility. Unless additional professional services are purchased separately (including turnkey) and/or professional services are set forth in a statement of work or project implementation plan under the agreement for the product purchased hereunder, Philips role upon delivery will solely be to unpack the product, construct applicable pads (if required for certain products), and connect the product to a safety switch or breaker to be installed by the Customer, and calibrate and test the product.

8.3 PHILIPS MAKES NO WARRANTY AND ASSUMES NO LIABILITY FOR THE FITNESS OR ADEQUACY OF THE SITE IN WHICH THE PRODUCT IS TO BE INSTALLED OR USED. EXCEPT OTHERWISE PROHIBITED BY STATE LAW OR STATE CONSTITUTION CUSTOMER SHALL INDEMNIFY, DEFEND, AND HOLD HARMLESS PHILIPS AND ITS AFFILIATES AGAINST ANY LIABILITIES, COSTS, LOSSES, EXPENSES, PHYSICAL PROPERTY DAMAGES, AND/OR THIRD PARTY CLAIMS, INCLUDING SUBROGATION CLAIMS, COLLECTIVELY ALL THE FOREGOING ARISING FROM OR RELATING TO CUSTOMER'S SITE PREPARATION RESPONSIBILITIES.

8.4 Local Labor. If local labor conditions, including but not limited to a requirement to utilize union labor, require the use of non-Philips employees to participate in the installation of the product, then such participation of non-Philips employees shall be at Customer's expense. In such case, Philips will provide engineering supervision during the installation.

8.5 Remote Services Network ("RSN"). Customer will (a) provide Philips with a secure location at Customer's premises to store one Philips remote services network router and provide full and free access to this router, (or a Customer-owned router acceptable to Philips) for connection to the equipment and to Customer's network; or (c) provide Philips with outbound internet access over SSL; at all times during the warranty period provide full and free access to the equipment and Customer network for Philips' use in remote servicing of the product, remote assistance to personnel that operate the products, updating the products software, transmitting automated status notifications from the product and regular uploading of products data files (such as but not limited to error logs and utilization data for improvement of Philips products and services and aggregation into services). Customer's failure to provide such access will constitute Customer's waiver of the scheduled planned maintenance service and will void support or warranty coverage of product malfunctions until such time as planned maintenance service is completed or RSN access is provided. Customer agrees to pay Philips at the prevailing demand service rates for all time spent by Philips service personnel waiting for access to the products.

9. Product Warranty.

9.1 (a) If a separate product warranty prints as part of the quotation, that product warranty applies to your purchase and is incorporated herein; otherwise Section 9.2-9.7 shall apply unless the product is identified under 9.1 (b). (b) For Patient Care and Monitoring Solutions Portfolio (PCMS), Emergency Care & Resuscitation Portfolio, (ECR) and Medical Supplies Portfolio (MS) Products, the product warranty document can be found at: <http://www.usa.philips.com/healthcare/about/terms-conditions>, or can be provided upon request.

9.2 Hardware/Systems. Philips warrants to Customer that the Philips equipment (including its operating software) will perform in substantial compliance with its performance specifications, in the documentation accompanying the products, for a period of 12 months beginning upon availability for first patient use.

9.3 Stand-alone Licensed Software. For a period of ninety (90) days from the date Philips makes Stand-alone Licensed Software available for first patient use, such Stand-alone Licensed Software shall substantially conform to the technical user manual that ships with the Stand-alone Licensed Software. "Stand-alone Licensed Software" means sales of Licensed Software without a contemporaneous purchase of a server for the Licensed Software. If Philips is not the installer of the Stand-alone Licensed Software, the foregoing warranty

period shall commence upon shipment.

9.4 If the start of the installation is delayed for any reason beyond the control of Philips for more than thirty (30) days following the date that Philips notifies Customer that the major components of the product are available for delivery, the warranty period begins on the thirty-first (31st) day following that date.

9.5 Philips' sole obligations and Customer's exclusive remedy under any product warranty are limited, at Philips' option, to the repair or the replacement of the product or a portion thereof within thirty (30) days after receipt of written notice of such material breach from Customer ("Product Warranty Cure Period") or, upon expiration of the Product Warranty Cure Period, to a refund of a portion of the purchase price paid by the Customer, upon Customer's request. Any refund will be paid, to the Customer when the product is returned to Philips. Warranty service outside of normal working hours (i.e. 8:00 A.M. to 5:00 P.M., Monday through Friday, excluding Philips' observed holidays), will be subject to payment by Customer at Philips' standard service rates.

9.6 This warranty is subject to the following conditions: the product: (a) is to be installed by authorized Philips representatives (or is to be installed in accordance with all Philips installation instructions by personnel trained by Philips); (b) is to be operated exclusively by duly qualified personnel in a safe and reasonable manner in accordance with Philips' written instructions and for the purpose for which the products were intended; and, (c) is to be maintained and in strict compliance with all recommended and scheduled maintenance instructions provided with the product and Customer is to notify Philips immediately if the product at any time fails to meet its printed performance specifications. Philips' obligations under any product warranty do not apply to any product defects resulting from improper or inadequate maintenance or calibration by the Customer or its agents; Customer or third party supplied interfaces, supplies, or software including without limitation loading of operating system patches to the Licensed Software and/or upgrades to anti-virus software running in connection with the Licensed Software without prior approval by Philips; use or operation of the product other than in accordance with Philips' applicable product specifications and written instructions; abuse, negligence, accident, loss, or damage in transit; improper site preparation; unauthorized maintenance or modifications to the product; or viruses or similar software interference resulting from connection of the product to a network. Philips does not provide a warranty for any third party products furnished to Customer by Philips under the quotation; however, Philips shall use reasonable efforts to extend to Customer the third party warranty for the product. The obligations of Philips described herein and in the applicable product-specific warranty document are Philips' only obligations and Customer's sole and exclusive remedy for a breach of a product warranty.

9.7 THE WARRANTIES SET FORTH HEREIN AND IN PHILIPS' WARRANTY DOCUMENT WITH RESPECT TO A PRODUCT (INCLUDING THE SOFTWARE PROVIDED WITH THE PRODUCT) ARE THE ONLY WARRANTIES MADE BY PHILIPS IN CONNECTION WITH THE PRODUCT, THE SOFTWARE, AND THE TRANSACTIONS CONTEMPLATED BY THE QUOTATION, AND ARE EXPRESSLY IN LIEU OF ANY OTHER WARRANTIES, WHETHER WRITTEN, ORAL, STATUTORY, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Philips may use refurbished parts in the manufacture of the products, which are subject to the same quality control procedures and warranties as for new products.

10. Philips Proprietary Service Materials.

Any Philips maintenance or service software and documentation provided with the product and/or located at Customer's premises is intended solely to assist Philips and its authorized agents to install and to test the products or to assist Philips and its authorized agents to maintain and to service the products under warranty or a separate support agreement with Customer. Customer agrees to restrict access to such software and documentation to Philips' employees and those of Philips' authorized agents only and to permit Philips to remove its Proprietary Service Materials upon request.

11. Patent Infringement Claims.

11.1 Philips shall indemnify, defend, and hold harmless Customer against any new claim that a Philips product provided in the quotation infringes, misappropriates, or violates any third party intellectual property right, whether patent, copyright, trademark, or trade secret, provided that Customer: (a) provides Philips prompt written notice of the claim, (b) grants Philips full and complete information and assistance necessary for Philips to defend, settle, or avoid the claim, and (c) gives Philips sole control of the defense or settlement of the claim.

11.2 The provisions of this section shall not apply if the product is sold or transferred.

11.3 If (a) a Philips product is found or believed by Philips to infringe a valid patent or copyright; or, (b) Customer has been enjoined from using the Philips product pursuant to an injunction issued by a court of competent jurisdiction, Philips may, at its option; (i) procure the right for Customer to use the product; (ii) replace or modify the product to avoid infringement; or, (iii) refund to Customer a portion of the product purchase price upon the return of the original product. Philips shall have no obligation for any claim of infringement arising from: Philips' compliance with Customer's designs, specifications, or instructions; Philips' use of technical information or technology supplied by Customer; modifications to the product by Customer or its agents; use of the product other than in accordance with the product specifications or applicable written product instructions; use of the product with any other product not sold by Philips to Customer and the Philips product in and of itself is not infringing; if infringement would have been avoided by the use of a current unaltered release of the products; or use of the Philips Product after Philips has advised Customer, in writing, to stop use of the Philips Product in view of the claimed infringement. The terms in this section state Philips' entire obligation and liability for claims of infringement, and Customer's sole remedy in the event of a claim of infringement.

12. Limitation of Liability.

THE TOTAL LIABILITY, IF ANY, OF PHILIPS AND ITS AFFILIATES FOR ALL DAMAGES AND BASED ON ALL CLAIMS, WHETHER ARISING FROM OR RELATING TO BREACH OF CONTRACT, BREACH OF WARRANTY, NEGLIGENCE, INDEMNITY, STRICT LIABILITY OR OTHER TORT, OR OTHERWISE, ARISING FROM A PRODUCT, LICENSED SOFTWARE, AND/OR SERVICE IS LIMITED TO THE PRICE PAID HEREUNDER FOR THE PRODUCT, LICENSED SOFTWARE, OR SERVICE GIVING RISE TO THE LIABILITY.

THIS LIMITATION SHALL NOT APPLY TO:

- (a) THIRD PARTY CLAIMS FOR DIRECT DAMAGES FOR BODILY INJURY OR DEATH TO THE EXTENT CAUSED BY PHILIP'S NEGLIGENCE OR PROVEN PRODUCT DEFECT;
- (b) CLAIMS OF TANGIBLE PROPERTY DAMAGE REPRESENTING THE ACTUAL COST TO REPAIR OR REPLACE PHYSICAL PROPERTY TO THE EXTENT CAUSED BY PHILIPS NEGLIGENCE OR PROVEN PRODUCT DEFECT.
- (c) OUT OF POCKET COSTS INCURRED BY CUSTOMER TO PROVIDE PATIENT NOTIFICATIONS, REQUIRED BY LAW, TO THE EXTENT SUCH NOTICES ARE CAUSED BY PHILIPS UNAUTHORIZED DISCLOSURE OF PHI; and,
- (d) FINES/PENALTIES LEVIED AGAINST CUSTOMER BY GOVERNMENT AGENCIES CITING PHILIPS UNAUTHORIZED

DISCLOSURE OF PHI AS THE BASIS OF THE FINE/PENALTY, ANY SUCH FINES OR PENALTIES SHALL CONSTITUTE DIRECT DAMAGES.

13. DISCLAIMER.

IN NO EVENT SHALL PHILIPS OR ITS AFFILIATES BE LIABLE FOR ANY INDIRECT, PUNITIVE, INCIDENTAL, CONSEQUENTIAL, EXEMPLARY OR SPECIAL DAMAGES, INCLUDING WITHOUT LIMITATION, LOST REVENUES OR PROFITS, BUSINESS INTERRUPTION, LOSS OF DATA, OR THE COST OF SUBSTITUTE PRODUCTS OR SERVICES WHETHER ARISING FROM BREACH OF CONTRACT, BREACH OF WARRANTY, NEGLIGENCE, INDEMNITY, STRICT LIABILITY OR OTHER TORT.

14. Confidentiality.

Each party shall maintain as confidential any information furnished or disclosed to one party by the other party, whether disclosed in writing or disclosed orally, relating to the business of the disclosing party, its customers, employees, and/or its patients, and the quotation and its terms, including the pricing terms under which Customer has agreed to purchase the products. Each party shall use the same degree of care to protect the confidentiality of the disclosed information as that party uses to protect the confidentiality of its own information, but in no event less than a reasonable amount of care. Each party shall disclose such confidential information only to its employees having a need to know such information to perform the transactions contemplated by the quotation. The disclosing party maintains exclusive ownership of the confidential information which it discloses to the receiving party, and a receiving party shall be responsible for the breach of these confidentiality terms by any of its representatives or other person to whom it may disclose the confidential information. The obligation to maintain the confidentiality of such information shall not extend to information that (a) is or becomes generally available to the public without violation of these Terms and Conditions of Sale or any other obligation of confidentiality or (b) is lawfully obtained by the receiving Party from a third party without any breach of confidentiality or violation of law. Notwithstanding the foregoing, in the event that the receiving party is required by law to disclose any confidential information to a court, government department/agency or regulatory body, the receiving party may so disclose, provided that it shall, to the extent permitted by applicable law, first inform the disclosing party of the request or requirement for disclosure to allow an opportunity for the disclosing party to apply for an order to prohibit or restrict such disclosure. Moreover, nothing set forth herein shall prohibit Customer from disclosing confidential information required by state or federal open records laws, to the extent disclosed in compliance with the rules and procedures applicable thereto, including notifying Philips and providing Philips an opportunity to argue certain information may be exempt as a trade secret, if applicable thereunder

15. Compliance with Laws & Privacy.

15.1 Each party shall comply with all laws, rules, and regulations applicable to the party in connection with the performance of its obligations in connection with the transactions contemplated by the quotation including, but not limited to, those relating to affirmative action, fair employment practices, FDA, Medicare fraud and abuse, and the Health Information Portability and Accountability Act of 1996 ("HIPPA"). Health care providers are reminded that if the purchase includes a discount or loan, they must fully and accurately report such discount or loan on cost reports or other applicable claims for payment submitted under any federal or state health care program, including but not limited to Medicare and Medicaid, as required by federal law (see 42 CFR 1001.952[h]).

15.2 In the course of providing project implementation related services and/or warranty services to Customer, hereunder, it may be necessary for Philips to have access to, view and/or download computer files from the products that might contain Personal Data. "Personal Data" means information about an identifiable individual, and includes any information that is "personal information" or "personal health information" within the meaning of any applicable privacy laws relating. Personal Data can include both personal health information (i.e., images, heart monitor data, and medical record number) and non-health information (i.e., date of birth, gender). Philips will process Personal Data only to the extent necessary to perform and/or fulfill its project implementation related service, warranty service and/or warranty obligations hereunder. Customer further acknowledges and agrees that all telephone conversations between Philips and Customer may, in Philips discretion, be recorded.

15.3 It is Customer's responsibility to notify Philips if any portion of the order is funded under the American Reinvestment and Recovery Act ("ARRA"). To ensure compliance with the ARRA regulation, Customer shall include a clause stating that the order is funded under ARRA on its purchase order or other document issued by Customer.

15.4 Product Safety and Other Complaints. Customer will report immediately to Philips any event of which Customer becomes aware that suggests that any services or products provided by Philips, for any reason: (a) may have caused or contributed to a death or serious injury, or (b) have malfunctioned where and such malfunctions would be likely to cause or contribute to a death or serious injury if the malfunction were to occur again. Additionally, Customer will also report to Philips complaints it receives from its personnel and patients or any other person regarding the identity, quality, performance, reliability, safety, effectiveness, labels or instructions for use of the services or products provided by Philips. Philips shall be solely responsible for submitting any filings or reports to any government authorities with respect to the Philips products and services provided by Philips hereunder, unless otherwise required by law.

16. Excluded Provider.

As of the date of the sale of this product, Philips represents and warrants that Philips, its employees and subcontractors, are not debarred, excluded, suspended or otherwise ineligible to participate in a federal or state health care program, nor have they been convicted of any health care related crime for the products and services provided under these Terms and Conditions of Sale (an "Excluded Provider"). Philips shall promptly notify Customer if it becomes aware that Philips or any of its employees or subcontractors providing services hereunder have become an Excluded Provider under a federal or state healthcare program, whereupon Customer shall provide Philips with a reasonable opportunity to discuss and attempt to resolve in good faith with Customer any Customer related concerns in relation thereto, and/or will give Philips a reasonable opportunity to dispute its, or its employee's or subcontractor's, designation as an Excluded Provider. In the event that the Parties are unable to resolve any such Customer concerns to the reasonable satisfaction of Customer within sixty (60) days of the applicable party's designation as an Excluded Provider, the Customer may terminate this order by express written notice for products and services not yet shipped or rendered prior to a date of exclusion.

17. Omnibus Reconciliation Act (OMNI) Social Security (PL96-499, Public Law)

Philips and Customer shall comply with the Omnibus Reconciliation Act of 1980 (P.L. 96-499) and its implementing regulations (42 CFR, Part 420). Philips agrees that until the expiration of four (4) years after furnishing services or products pursuant to these Terms and Conditions of Sale, Philips shall make available, upon written request of the Secretary of the Department of Health and Human Services, or upon request of the Comptroller General, or any of their duly authorized representatives, these Terms and Conditions of Sale and the books, documents and records of Philips that are necessary to verify the nature and extent of the costs charged to Customer hereunder.

Philips further agrees that if Philips carries out any of the duties of these Terms and Conditions of Sale through a subcontract with a value or cost of ten-thousand U.S. dollars (\$10,000.00) or more over a twelve (12) month period, with a related organization, such subcontract shall contain a clause to the effect that until the expiration of four (4) years after the furnishing of such services pursuant to such subcontract, the related organization shall make available, upon written request to the Secretary, or upon request to the Comptroller General, or any of their duly authorized representatives the subcontract, and books and documents and records of such organization that are necessary to verify the nature and extent of such costs. This paragraph relating to the retention and production of documents is included because of possible application of Section 1861(v) (1) (1) of the Social Security Act (42 U.S.C. 1395x (v) (1) (I) (1989)), as amended from time to time to these Terms and Conditions of Sale. If Section 1861(v) (1) (1) should be found to be inapplicable, then this paragraph shall be deemed inoperative and without force and effect.

18. General Terms.

The following additional terms shall be applicable to the purchase of a product:

18.1 Force Majeure. Each party shall be excused from performing its obligations (except for payment obligations) arising from any delay or default caused by events beyond its reasonable control including, but not limited to, acts of God, acts of third parties, acts of any civil or military authority, fire, floods, war, embargoes, labor disputes, acts of sabotage, riots, accidents, delays of carriers, subcontractors or suppliers, voluntary or mandatory compliance with any government act, regulation or mandatory direction, request, shortage of labor, materials or manufacturing facilities. For clarity, Customer requests shall not be considered 'government' requests under this section 17.1.

18.2 Bankruptcy. If Customer becomes insolvent, is unable to pay its debts when due, files for bankruptcy, is the subject of involuntary bankruptcy, has a receiver appointed, or has its assets assigned, Philips may cancel any unfulfilled obligations, or suspend performance; however, Customer's financial obligations to Philips shall remain in effect.

18.3 Assignment. Customer may not assign any rights or obligations in connection with the transactions contemplated by the quotation without the prior written consent of Philips, which consent shall not be unreasonably withheld, and any attempted assignment without such consent shall be of no force or effect.

18.4 Export Controls. Customer shall assume sole responsibility for obtaining any required export authorizations in connection with Customer's export of the products from the country of delivery.

18.5 Governing Law. All transactions contemplated by the quotation shall be governed by the laws of the province where the equipment will be installed, without regard to that province's choice of law principles. EACH PARTY, KNOWINGLY AND AFTER CONSULTATION WITH COUNSEL, FOR ITSELF, ITS SUCCESSORS' AND ASSIGNS, WAIVES ALL RIGHT TO TRIAL BY JURY OF ANY CLAIM ARISING WITH RESPECT TO THIS AGREEMENT OR ANY MATTER RELATED IN ANY WAY THERETO.

18.6 Entire Agreement. These Terms and Conditions of Sale, the terms and conditions set forth in the quotation and the applicable Philips' product-specific warranty constitute the entire understanding and agreement by and between the parties with respect to the transactions contemplated by the quotation, and supersede any previous understandings or agreements between the parties, whether written or oral, regarding the transactions contemplated by the quotation. The pricing in the quotation is based upon the terms and conditions in the quotation. No additional terms, conditions, consents, waivers, alterations, or modifications shall be binding unless in writing and signed by the parties. Customer's additional or different terms and conditions, whether stated in a purchase order or other document issued by Customer, are specifically rejected and shall not apply to the transactions contemplated by the quotation.

18.7 Headings. The headings in the quotation are intended for convenience only and shall not be used to interpret the quotation.

18.8 Severability. If any provision of the quotation is deemed to be illegal, unenforceable, or invalid, in whole or in part, the validity and enforceability of the remaining provisions shall not be affected or impaired, and shall continue in full force and effect.

18.9 Notices. Notices or other communications shall be in writing, and shall be deemed served if delivered personally, or if sent by facsimile transmission, by overnight mail or courier, or by certified mail, return receipt requested and addressed to the party at the address set forth in the quotation.

18.10 Performance. The failure of Customer or of Philips at any time to require the performance of any obligation will not affect the right to require such performance at any time thereafter. Course of dealing, course of performance, course of conduct, prior dealings, usage of trade, community standards, industry standards, and customary standards and customary practice or interpretation in matters involving the sale, delivery, installation, use, or service of similar or dissimilar products or services shall not serve as references in interpreting the terms and conditions of the quotation. **18.11 Obligations.** Customer's obligations are independent of any other obligations the Customer may have under any other agreement, contract, or account with Philips. Customer will not exercise any right of offset in connection with the terms and conditions in the quotation or in connection with any other agreement, contract, or account with Philips. **18.12 Additional Terms.** The Product specific schedules listed below are incorporated herein as they apply to the equipment listed on the quotation and their additional terms shall apply solely to Customer's purchase of the products specified therein. If any terms set forth in a schedule conflict with terms set forth in these Terms and Conditions of Sale, the terms set forth in the schedule shall govern. (a) Schedule 1: Imaging Systems Portfolio (IS).

18.11 Obligations. Customer's obligations are independent of any other obligations the Customer may have under any other agreement, contract, or account with Philips. Customer will not exercise any right of offset in connection with the terms and conditions in the quotation or in connection with any other agreement, contract, or account with Philips.

18.12 Additional Terms. The Product Specific Schedules listed below are incorporated herein as they apply to the equipment listed on the quotation and their additional terms shall apply solely to Customer's purchase of the products specified therein. If any terms set forth in a Product Specific Schedule conflict with terms set forth in these Terms and Conditions of Sale, the terms set forth in the schedule shall govern.

(a) Schedule 1: Imaging Systems Portfolio (IS) ("Product Specific Schedules").

LICENSED SOFTWARE

1. License Grant

1.1 Subject to any usage limitations for the Licensed Software set forth on the product description of the quotation, Philips grants to Customer a nonexclusive and non-transferable right and license to use the computer software package ("Licensed Software") in accordance with the terms of the quotation and these Terms and Conditions of Sale. The License shall continue for as long as Customer continues to own the product, except that Philips may terminate the License if Customer is in breach or default of these Terms and Conditions of Sale and/or the quotation. Customer shall return the Licensed Software and any authorized copies thereof to Philips immediately upon expiration or termination of this License.

1.2 The License does not include any right to use the Licensed Software for purposes other than the operation of the product. Customer may make one copy of the Licensed Software in machine-readable form solely for backup purposes. Philips reserves the right to charge for backup copies created by Philips. Except as otherwise provided under section 1.6, Customer may not copy, reproduce, sell, assign, transfer, or sublicense the Licensed Software for any purpose without the prior written consent of Philips. Customer shall reproduce Philips' copyright notice or other identifying legends on such copies or reproductions. Customer will not (and will not allow any third party to) decompile, disassemble, or otherwise reverse engineer or attempt to reconstruct or discover the product or Licensed Software by any means whatsoever.

1.3 The License shall not affect the exclusive ownership by Philips of the Licensed Software or of any trademarks, copyrights, patents, trade secrets, or other intellectual property rights of Philips (or any of Philips' suppliers) relating to the Licensed Software.

1.4 Customer agrees that only authorized officers, employees, and agents of Customer will use the Licensed Software or have access to the Licensed Software (or to any part thereof), and that none of Customer's officers, employees, or agents will disclose the Licensed Software, or any portion thereof, or permit the Licensed Software, or any portion thereof, to be used by any person or entity other than those entities identified on the quotation. Customer acknowledges that certain of Philips' rights may be derived from license agreements with third parties, and Customer agrees to preserve the confidentiality of information provided by Philips under such third party license agreements.

1.5 The Licensed Software shall be used only on the product(s) referenced in the quotation.

1.6 Customer may transfer the Licensed Software in connection with sale of the product to a healthcare provider who accepts all of the terms and conditions of this License; provided that Customer is not in breach or default of this License, the Terms and Conditions of Sale, or any payment obligation to Philips.

2. Modifications.

2.1 If Customer modifies the Licensed Software in any manner, all warranties associated with the Licensed Software and the products shall become null and void. If Customer or any of its officers, employees, or agents should devise any revisions, enhancements, additions, modifications, or improvements in the Licensed Software, Customer shall disclose them to Philips, and Philips shall have a non-exclusive royalty-free license to use and to sub-license them.

2.2 The Licensed Software is licensed to Customer on the basis that (i) Customer shall maintain the configuration of the products as they were originally designed and manufactured and (ii) the product includes only those subsystems and components certified by Philips. The Licensed Software may not perform as intended on systems modified by other than Philips or its authorized agents, or on systems which include subsystems or components not certified by Philips. Philips does not assume any responsibility or liability with respect to unauthorized modification or substitution of subsystems or components.

Philips Std Terms and Conditions of Sale Rev. M.09.2016

Imaging Systems Portfolio (IS)
Schedule 1

Interventional X-Ray (iXR), IntelliSpace Portal (ISP), Digital Radiography (DR), Mobile Radiography (MDR), Radiography and Fluoroscopy (RF), C-Arms (surg), Women's Healthcare (WHC) Mammography Products, Computed Tomography (CT), Magnetic Resonance (MR), Invivo, Positron Emission Tomography (PET/CT), Advanced Molecular Imaging (SPECT & SPECT/CT) and Radiation Oncology (PROS)

1. Payment Terms.

Unless otherwise specified in the quotation, Philips will invoice Customer, and Customer will pay such invoice on receipt, as follows:

1.1 For Imaging Systems Portfolio

- (a) 10% of the purchase price shall be due with Customer's submission of its purchase order.
 - (b) 70% of the purchase price shall be due on delivery of the major components of the product. Product installation will not begin until Customer has paid this portion of the purchase price.
 - (c) 20% of the purchase price shall be due net thirty (30) days from the date the product is available for first patient use. Available for first patient use means the product has been installed and substantially meets Philips' published specifications.
- 1.2 If the start of the installation is delayed for any reason beyond the control of Philips for more than thirty (30) days following the date that Philips notifies customer that the major components of the product are available for delivery, the unpaid portion of the purchase price shall be due on the thirty-first (31st) day following such date.

2. Cancellation. The quotation is subject to change or withdrawal prior to written acceptance by Customer. All purchase orders issued by Customer are subject to acceptance by Philips. If Customer cancels an order prior to product shipment, Customer shall pay a cancellation charge of fifteen percent (15%) of the net order price. Orders are non-cancellable for Products shipped.

3. Delivery.

- 3.1 Philips will use reasonable efforts to ship the Product to the Customer by: (a) by the mutually agreed upon shipment date; or (b) by the date stated in the quotation; or (c) as otherwise agreed in writing. Philips will ship the Product according to Philips' standard commercial practices. Philips will deliver the equipment during normal working hours, 8:00 - 5:00 PM, in the time zone where the Customer is located. Philips may make partial shipments. Philips will pay shipping costs associated with Product shipment.
- 3.2 Prior to the shipment of any Product, Philips may change the construction or the design of the product without notice to the Customer so long as the function, footprint, and performance of the Product are not substantially altered.
- 3.3 If Customer requests a delay in the date major components of the Product are available for delivery, then Philips will place the Product in storage and the unpaid portion of the purchase price shall be due. Customer will reimburse Philips for all storage fees, transportation expenses, and related costs incurred by Philips upon receipt of invoice.

4. Additional Customer Installation Obligations for Magnetic Resonance.

4.1 Customer shall provide any and all site preparation and shall be in compliance with all RF or magnetic shielding and acoustical suppression and building codes relevant to the Product and its installation and use.

4.2 Customer's contractor or Customer's architect is required to provide detailed information on the proposed Helium Exhaust Pipe for their MRI system prior to installation to ensure safety specifications are being met.

Required Details include:

- (a) Architectural drawing or sketch with complete dimensions including lengths, bending radii, bending angles, and pipe diameters for entire Helium Exhaust Pipe run from RF enclosure to discharge location.
- (b) Completed Helium Exhaust Pipe Verification Checklist (Provided by Local Philips Project Manager)
- (c) Picture showing the area where the Helium Exhaust Pipe will discharge.

4.3 Magnets will not be released for delivery unless and until Helium Exhaust Pipe details are provided for verification and have been confirmed to meet all life safety specifications.

4.4 Costs of equipment preservation, to ensure a high quality system, will be passed to the Customer if the installation site is not ready due to delays not caused by Philips. Additionally, climate control costs during and after equipment installation are also the responsibility of the Customer. Preservation of equipment is required to prevent exposing equipment to the negative effects of a non-climate controlled construction environment, where there is dust or high humidity. Climate control could include costs associated with ensuring a climate controlled environment. Activates and expenses required for preservation may include time, materials, and transportation to package and seal, and transport the equipment to a controlled environment to prevent dust from entering the equipment. For MR this includes the consumption of Helium for life support.

5. Additional Terms Related to Sales of the IntelliSpace Breast Solution, including the MammoDiagnost VU.

5.1 **Installation.** Philips will install the IntelliSpace Breast Solution and perform installation tests on the application running with the hardware provided as part of the solution, including the MammoDiagnost VU. Philips will also configures and provides interfaces to the equipment and information systems set forth in a statement of work signed by Philips and the Customer. Interfaces as set forth in Subsection 5.2 below are Customer's responsibility and are not part of Parts installation deliverables.

5.2 **Customer's Interface Obligations for Third Party RIS and MIS Applications.** Customer is responsible to develop and implement interfaces from the Licensed Software running on the client workstation to any third party Radiology Information System ("RIS") or Mammography Information System ("MIS") or to contract with the RIS and/or MIS vendor to have them perform these interface obligations on Customer's behalf. Interfacing the solution from the solutions server is not permitted. Philips shall provide Customer an API toolkit for the Licensed Software to aide Customer to perform such interface tasks. The successful and reasonably timely completion of these projects takes good faith efforts on the part of both Philips and Customer, especially when Customer has third party interfaces to develop and implement. A project implementation plan will be developed by Philips and the Customer based on completion dates mutually agreed by the parties that should be reflective of the obligations of both parties. These dates will be entered into the project implementation plan for this solution (the "Project Implementation Plan"). In the event Customer has not fulfilled its interface obligations by the dates set forth in the Project Implementation Plan, Customer will sign Philips' acceptance (MDIR) document for the Philips deliverables sold and pay the final payment described in Subsection 1.1(c), provided that Philips has installed the Philips deliverables and provided the interfaces Philips is responsible for pursuant to Subsection 5.1, and that the Philips deliverables substantially meet

Philips' published specifications.

5.3 Prior Validation of Operating System Updates and/or Upgrades. Patches introduced by operating system original equipment manufacturers (an "OEM") or upgrades to anti-virus software can impact the performance and functionality of the applications that run on them and affect patient safety. Philips shall perform validation testing of certain Microsoft operating systems and McAfee anti-virus software during the warranty period. Philips shall have no obligation to validate any other third party operating system or anti-virus software. Customer shall not install or use (a) operating system patches, updates or upgrades; (b) anti-virus updates (except to the DAT files, i.e., virus definitions); or, (c) upgrades to anti-virus search engines, collectively (a)-(b) prior to validation testing and approval by Philips ("Unauthorized Updates"). Philips shall have no liability, including, without limitation, for warranty claims, arising from use of the Licensed Software with Unauthorized Updates. In the event Philips discovers that Customer is using an Unauthorized Update with the Licensed Software, Philips shall have the right to require Customer to roll back to the most recently validated versions of operating systems and anti-virus, prior to performing any support.

5.4 Customer's Network Connectivity Obligations. Customer must have network connectivity between the IntelliSpace Breast solution server, the client workstation, and the optional DynaCAD server of not less than 1GB/s, and all three systems must be on the same subnet. A connection of no less than 100 MB/s is required between the IntelliSpace Breast solution and the hospital network. However for optimal performance a 1GB/s network between the IntelliSpace Breast and the hospital network is recommended.

5.5 RSN Warranty Condition Requirement. As a condition to receiving warranty service on this solution, Customer agrees it shall use Philips Remote Service Network ("RSN") service to enable Philips to access the system to perform its support obligations.

PHILIPS PRODUCT WARRANTY

CARDIOVASCULAR SYSTEMS (CV)

This product warranty document is an addition to the terms and conditions set forth in the quotation to which this warranty document is attached. Unless specifically listed below, this warranty does not apply to replacement parts. The terms and conditions of the quotation are incorporated into this warranty document. The capitalized terms herein have the same meaning as set forth in the quotation.

1. **Twelve (12) Month System Warranty.**

1.1 Philips Healthcare a division of Philips North America LLC ("Philips") warrants to Customer that the Philips Cardio Vascular Systems ("System") will perform in substantial compliance with its performance specifications, in the documentation accompanying the System, for a period of twelve (12) months after completion of installation or availability for first patient use, whichever occurs first.

1.2 Any glassware or flat detectors provided with the System is subject to special warranty terms set forth below.

2. **Planned Maintenance.**

2.1 During the warranty period, Philips service personnel will schedule planned maintenance visits, in advance, at a mutually agreeable time on weekdays, between 8:00 A.M. and 5:00 P.M. local time, excluding Philips observed holidays.

3. **System Options, Upgrades or Accessories.**

3.1 Any Philips authorized options, upgrades, or accessories for the System which are delivered and/or installed on the System during the original term of the System warranty shall be subject to the same warranty terms contained in the first paragraph of this warranty, except that such warranty shall expire on the later of: (a) upon termination of the initial twelve (12) month warranty period for the System on which the option or accessory is installed, b) after ninety (90) days for parts only from the date of installation.

4. **MRC X-ray TUBES**

4.1 Philips warrants to Customer, for the warranty periods further specified in this section, that the Philips X-Ray tube will be substantially free from defects in material and manufacturing workmanship, which impair performance under normal use as specified in Philips System descriptions and specifications.

4.2 The warranty period for MRC tubes provided with Customer's purchase of a new or refurbished X-ray system shall be the shorter of thirty-six (36) months after installation or thirty-eight (38) months after date of shipment from Philips.

4.3 The warranty period for purchases of replacement tubes shall be the shorter of twelve (12) months after installation or fourteen (14) months after date of shipment from Philips.

5. **MRC Tube Warranty Exclusion**

5.1 The above warranty shall not apply to X-ray tubes outside the United States and Canada.

5.2 Philips obligations under the System warranty do not apply to any System defects resulting from: improper or inadequate maintenance or calibration by Customer or its agents; Customer or third party supplied software, interfaces, or supplies; use or operation of the System other than in accordance with loss, or damage in transit; improper site preparation; unauthorized maintenance or Philips applicable System specifications and written instructions; abuse, negligence, accident, modifications to the System; or, to viruses or similar software interference resulting from the connection of the System to a network.

6. **MRC Tube Warranty Remedies**

6.1 If a tube is found to fail during the warranty period, and if, in the best judgment of Philips, the failure is not due to neglect, accident, improper installation, use contrary to instructions, or the exclusions stated above, Philips tube warranty liability hereunder is limited to, at Philips option, the repair or replacement of the tube.

6.2 Any replacement tube would have a warranty period equal to the balance of the warranty period left on the tube replaced.

7. **Dynamic Flat Detectors**

7.1 Philips warrants the flat detectors provided with the System, if any, will be free from defects in material and manufacturing workmanship for twelve (12) months.

7.2 Claims must be made within twelve (12) months after installation or fifteen (15) months after date of shipment from Philips, whichever occurs first.

7.3 If a detector fails to meet this warranty, as Customer's sole and exclusive remedy, upon return of the detector, Philips will provide Customer a replacement detector at no additional charge.

8. **System Software and Software Updates**

8.1 The software provided with the System will be the latest version of the standard software available for that System as of the ninetieth (90th) day prior to the date the System is delivered to Customer.

8.2 Updates to standard software for the System that do not require additional hardware or equipment modifications will be performed as a part of normal warranty service during the term of the warranty.

8.3 All software is and shall remain the sole property of Philips or its software suppliers.

8.4 Use of the software is subject to the terms of a separate software license agreement. Customer must sign all such license agreements prior to or upon the delivery of the product.

8.5 No license or other right is granted to Customer or to any other party to use the software except as set forth in the license agreements.

8.6 Any Philips maintenance or service software and documentation provided with the System and/or located at Customer's premises is intended solely to assist Philips and its authorized agents to install and to test the System, to assist Philips and its authorized agents to maintain and to service the System under a separate support agreement with Customer, or to permit Customer to maintain and service the System.

8.7 Customer agrees to restrict the access to such software and documentation to Philips employees, those of its authorized agents, and to authorized employees of Customer only.

9. **Warranty Limitations**

9.1 Philips sole obligations and Customer's exclusive remedy under any product warranty are limited, at Philips option, to the repair or the replacement of the product or a portion thereof, within thirty (30) days after receipt of written notice of such material breach from Customer ("Product Warranty Cure Period") or, upon expiration of the Product Warranty Cure Period, to a refund of a portion of the purchase price paid by the Customer upon Customer's request.

9.2 Any refund will be paid, to the Customer when the product is returned to Philips.

9.3 Warranty service outside of normal working hours (i.e. 8:00 AM to 5:00 PM, Monday through Friday, excluding Philips Observed holidays), will be subject to payment by Customer at Philips standard service rates.

9.4 This warranty is subject to the following conditions: the product (a) is to be installed by authorized Philips representatives (or is to be installed in accordance with all Philips installation instructions by personnel trained by Philips); (b) is to be operated exclusively by duly qualified personnel in a safe and reasonable manner in accordance with Philips written instructions and for the purpose for which the products were intended; and (c) is to be maintained and in strict compliance with all recommended and scheduled maintenance instructions provided with the Product.

9.5 Philips' obligations under any product warranty do not apply to any product defects resulting from: improper or inadequate maintenance or calibration by the Customer or its agents; Customer or third party supplied interfaces, supplies, or software including without limitation loading of operating system patches to the Licensed Software and/or upgrades to anti-virus software running in connection with the Licensed Software without prior approval by Philips; use or operation of the product other than in accordance Philips' applicable product specifications and written instructions; abuse, negligence, accident, loss, or damage in transit; improper site preparation; unauthorized maintenance or modifications to the product; or, viruses or similar software interference resulting from connection of the product to a network.

9.6 Philips does not provide a warranty for any third party products furnished to Customer by Philips under this quotation; however, Philips shall use reasonable efforts to extend to Customer the third party warranty for the product.

9.7 The obligations of Philips described herein and in the applicable product-specific warranty document are Philips only obligations and Customer's sole and exclusive remedy for a breach of a warranty.

9.8 THE WARRANTIES SET FORTH HEREIN AND IN PHILIPS WARRANTY DOCUMENT WITH RESPECT TO A PRODUCT (INCLUDING THE SOFTWARE PROVIDED WITH THE PRODUCT) ARE THE ONLY WARRANTIES MADE BY PHILIPS IN CONNECTION WITH THE PRODUCT, THE SOFTWARE, AND THE TRANSACTIONS CONTEMPLATED BY THE QUOTATION, AND ARE EXPRESSLY IN LIEU OF ANY OTHER WARRANTIES, WHETHER WRITTEN, ORAL, STATUTORY, EXPRESS OR IMPLIED INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF NON-INFRINGEMENT MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

9.9 Philips may use refurbished parts in the manufacture of the products, which are subject to the same quality control procedures and warranties as for new parts.

10. **Remote Services Network ("RSN").**

10.1 Customer will (a) provide Philips with a secure location at Customer's premises to store one Philips remote services network router and provide full and free access to this router, (or a Customer-owned router acceptable to Philips) for connection to the equipment and to Customer's network; or (b) provide Philips with outbound internet access over SSL; at all times during the warranty period provide full and free access to the equipment and the Customer network for Philips use in remote servicing of the product, remote assistance to personnel that operate the products, updating the product and regular uploading of products data files (such as but not limited to error logs and utilization data for improvement of Philips products and services and aggregation into services).

10.2 Customer's failure to provide such access will constitute Customer's waiver of the scheduled planned maintenance service and will void support or warranty coverage of product malfunctions until such time as planned maintenance service is completed or RSN access is provided.

10.3 Customer agrees to pay Philips at the prevailing demand service rates for all time spent by Philips service personnel waiting for extended coverage.

11. Transfer of System

11.1 In the event Customer transfers or relocates the System, all obligations under this warranty will terminate unless Customer receives the prior written consent of Philips for the transfer or relocation.

11.2 Upon any transfer or relocation, the System must be inspected and certified by Philips as being free from all defects in material, software and workmanship and as being in compliance with all technical and performance specifications.

11.3 Customer will compensate Philips for these services at the prevailing service rates in effect as of the date the inspection is performed.

11.4 Any System which is transported intact to pre-approved locations and is maintained as originally installed in mobile configurations will remain covered by this warranty.

12. Limitation of Liability

12.1 THE TOTAL LIABILITY, IF ANY, OF PHILIPS AND ITS AFFILIATES FOR ALL DAMAGES AND BASED ON ALL CLAIMS, WHETHER ARISING OR RELATING TO FROM BREACH OF CONTRACT, BREACH OF WARRANTY, NEGLIGENCE, INDEMNITY, STRICT LIABILITY OR OTHER TORT, OR OTHERWISE, ARISING FROM A PRODUCT, LICENSED SOFTWARE, AND/OR SERVICE IS LIMITED TO THE PRICE PAID HEREUNDER FOR THE PRODUCT, LICENSED SOFTWARE, OR SERVICE GIVING RISE TO THE LIABILITY.

12.2 THIS LIMITATION SHALL NOT APPLY TO:

- (a) THIRD PARTY CLAIMS FOR DIRECT DAMAGES FOR BODILY INJURY OR DEATH TO THE EXTENT CAUSED BY PHILIPS NEGLIGENCE OR PROVEN PRODUCT DEFECT;
- (b) CLAIMS OF TANGIBLE PROPERTY DAMAGE REPRESENTING THE ACTUAL COST TO REPAIR OR REPLACE PHYSICAL PROPERTY TO THE EXTENT CAUSED BY PHILIPS NEGLIGENCE OR PROVEN PRODUCT DEFECT;
- (c) OUT OF POCKET COSTS INCURRED BY CUSTOMER TO PROVIDE PATIENT NOTIFICATIONS, REQUIRED BY LAW, TO THE EXTENT SUCH NOTICES ARE CAUSED BY PHILIPS UNAUTHORIZED DISCLOSURE OF PHI; and;
- (d) FINES/PENALTIES LEVIED AGAINST CUSTOMER BY GOVERNMENT AGENCIES CITING PHILIPS UNAUTHORIZED DISCLOSURE OF PHI AS THE BASIS OF THE FINE/PENALTY, ANY SUCH FINES OR PENALTIES SHALL CONSTITUTE DIRECT DAMAGES;

13. Disclaimer

13.1 IN NO EVENT SHALL PHILIPS OR ITS AFFILIATES BE LIABLE FOR ANY INDIRECT, PUNITIVE, INCIDENTAL, CONSEQUENTIAL, EXEMPLARY OR SPECIAL DAMAGES, INCLUDING WITHOUT LIMITATION, LOST REVENUES OR PROFITS, BUSINESS INTERRUPTION, LOSS OF DATA OR THE COST OF SUBSTITUTE PRODUCTS OR SERVICES WHETHER ARISING FROM BREACH CONTRACT, BREACH OF WARRANTY, NEGLIGENCE, INDEMNITY, STRICT LIABILITY OR OTHER TORT.

14. FORCE MAJEURE

14.1 Philips and Customer shall each be excused from performing its obligations arising from any delay or default caused by events beyond its reasonable control including, but not limited to: acts of God, acts of third parties, acts of the other party, acts of any civil or military authority, fire, floods, war, embargoes, labor disputes, acts of sabotage, riots, accidents, delays of carriers, subcontractors or suppliers, voluntary or mandatory compliance with any government act, regulation or request, shortage of labor, materials or manufacturing facilities.

Philips system specifications are subject to change without notice

CON Standard 1.12 – Compliance with 2014 FGI Guidelines for Design and Construction of Health Care Facilities
Sections 2.2-3.5 Interventional Imaging

FGI Guideline Section Number	FGI Guideline Section Title	FGI Requirement	How Addressed by the Proposed Project
2.2-3.5.1.1	General Application	Space and equipment shall be provided for interventional imaging radiology as necessary to accommodate the services provided and the equipment manufacturer's technical specifications.	As this is primarily an equipment replacement, the project will ensure that all equipment manufacturer's technical specifications are met.
2.2-3.5.1.2	General Location	<ul style="list-style-type: none"> (1) Location of interventional imaging facilities in a freestanding unit, the diagnostic imaging suite, or an interventional imaging area, which may include operating rooms, shall be permitted if approved by the authority having jurisdiction. (2) Combination of interventional radiology and interventional cardiology shall be permitted if approved by the AHJ. 	The project will only include the replacement of interventional radiology angiography equipment and not the addition of an operating room or interventional cardiology to the space.
2.2-3.5.2.1	Interventional Imaging Procedure Room Space requirements	<p>The procedure room shall be large enough to accommodate required equipment and clearances in accordance with the manufacturer's technical specifications.</p> <ul style="list-style-type: none"> (1) The procedure room shall have a minimum clear dimension of 18 feet. (2) The procedure room shall be sized to allow a minimum clearance of 4 feet on all sides 	As this is primarily an equipment replacement, the project will ensure that all equipment manufacturer's technical specifications are met. The 18 foot minimum clear dimension for the procedure room and 4 foot minimum clearance on all sides of the table are both met within the existing suite 22 space.

		<p>of the gantry assembly or table.</p>	
2.2-3.5.3.1	<p>Pre-Procedure and Recovery Patient Care Areas</p> <p><i>General</i></p>	<p>A pre-procedure and recovery patient care area or room shall be provided.</p> <ul style="list-style-type: none"> (1) Capacity. The number of patient care stations shall be determined during the planning phase. (2) Location. Pre-procedure and recovery area(s) or room(s) shall be immediately accessible to procedure rooms and separate from corridors. (3) Layout. The pre-procedure and recovery patient care area or room shall be arranged to permit visual observation by staff before and after the procedure. (4) Patient care station design <ul style="list-style-type: none"> (a) Bays, cubicles, or single-bed rooms shall be permitted to serve as patient care stations. (b) When determining the area for a patient care station, space shall be provided for all equipment described in the functional program. 	<p>As this is primarily an equipment replacement, existing pre-procedure and recovery patient care areas are already provided outside of the interventional imaging suite 22. These existing facilities are located on McClure 1 rooms 1228, 1229, 1246 and 1247 and will remain unchanged.</p>
2.2-3.5.3.2	<p>Pre-Procedure and Recovery Patient Care Areas</p> <p><i>Space requirements</i></p>	<ul style="list-style-type: none"> (1) Area <ul style="list-style-type: none"> (a) Where bays are used, each patient care station shall have a minimum clear floor area of 60 square feet. 	<p>As this is primarily an equipment replacement, existing pre-procedure and recovery patient care areas are already provided outside of the interventional imaging suite 22. These existing facilities are located on</p>

		<p>(b) Where cubicles are used, each patient care station shall have a minimum clear floor area of 80 square feet with space for a visitor's chair.</p> <p>(2) Clearances</p> <p>(a) Each bay shall have a minimum clearance of 4 feet between the sides of stretchers or patient beds.</p> <p>(b) Each bay or cubicle shall have a minimum clearance of 3 feet between walls or partitions and the sides and foot of stretchers or patient beds.</p> <p>(3) Reserved</p> <p>(4) Patient privacy. Provisions such as cubicle curtains shall be used for patient privacy.</p> <p>(5) Hand-washing stations. See Section 2.1-2.6.5 (Hand-Washing Station) for requirements.</p>	McClure 1 rooms 1228, 1229, 1246 and 1247 and will remain unchanged.
2.2-3.5.4	Interventional and Intraoperative MRI (I-MRI) Facilities		This guideline is not applicable to the project.
2.2-3.5.5	Support Area for Patient Care <i>General</i>	For requirements, see Section 2.1-2.5 (Support Areas for Patient Care-General).	As this is primarily an equipment replacement, existing support area for patient care are already provided outside of the interventional imaging suite 22. These existing facilities are located on McClure 1 room 1180 and will remain unchanged.
2.2-3.5.6.1	Support Areas for Interventional Imaging Services	A control room or area shall be provided.	As this is primarily an equipment replacement, the existing control room

	<p><i>Control room or area.</i></p>	<ul style="list-style-type: none"> (1) The control room or area shall be sized to accommodate the image-recording and viewing equipment. (2) A shielded view window permitting direct observation of the patient from the control console shall be provided. (3) The shielded control room shall be configured to prevent radiation exposure into occupied areas of the control room when ionizing radiation modalities are used. (4) Where the procedure room requires positive (or negative) pressure, a door shall be provided between the control room and the procedure room or between the combined control room/procedure room and other adjacent spaces. (5) Where control functions for ionizing radiation exposures take place in the procedure room, storage for personal radiation protection devices shall be provided. (6) Omission of the control room or area shall be permitted in electrophysiology labs if approved by a certified radiation physicist and provisions are made for individual staff radiation shielding. 	<p>equipment will be replaced yet the existing control room area will remain unchanged.</p>
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2.2-3.5.6.4

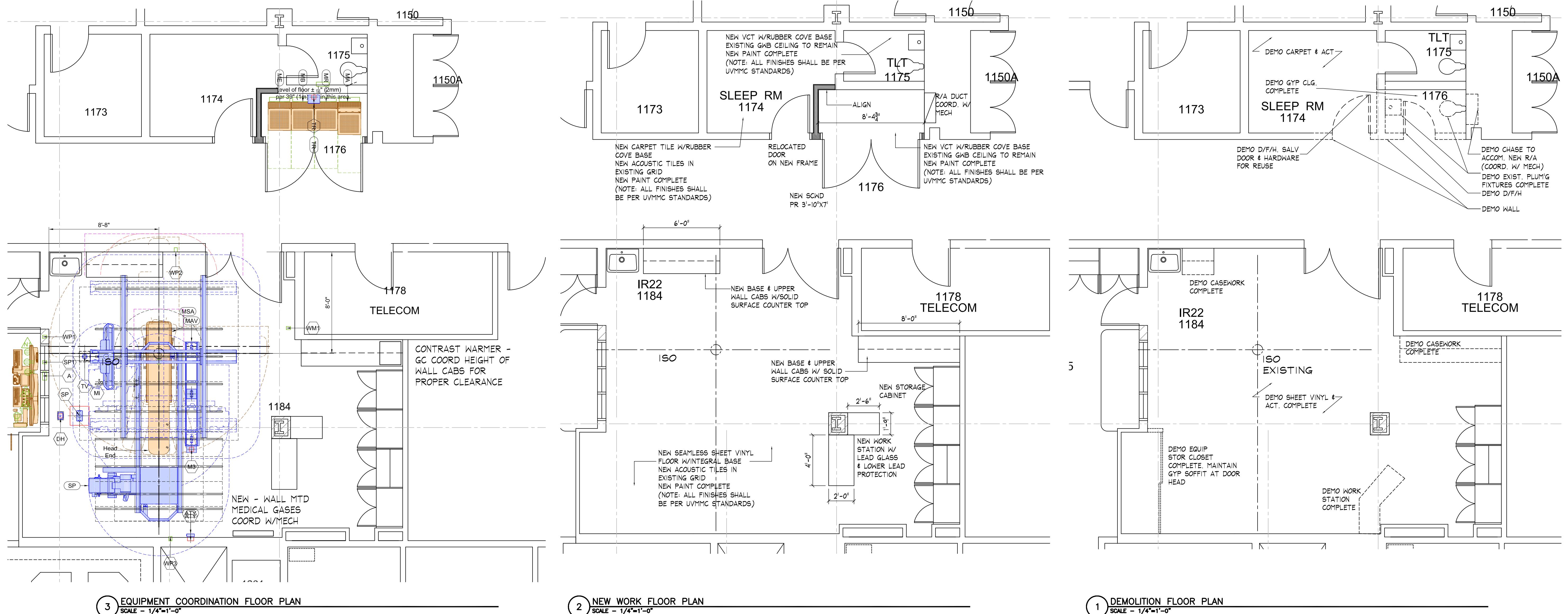
Support Areas for Interventional

Where electrophysiology studies are

This guideline is not applicable to the

	<p>Imaging Services <i>Emergency response space</i></p>	<p>performed, dedicated space and equipment for emergency resuscitation and stabilization shall be immediately accessible to the procedure room.</p>	<p>project.</p>
2.2-3.5.6.5	<p>Support Areas for Interventional Imaging Services <i>Hand scrub facilities</i></p>	<p>Hand scrub facilities shall be provided in accordance with Section 2.1-3.3 (Hand Scrub Facilities).</p>	<p>As this is primarily an equipment replacement, an existing hand scrub sink is already provided within the interventional imaging suite 22 and will remain yet be equipped with the latest in no touch technology.</p>
2.2-3.5.6.6	<p>Support Areas for Interventional Imaging Services <i>Medication safety zone</i></p>	<p>See Section 2.1-2.6.6 (Medication Safety Zones) for requirements.</p>	<p>As this is primarily an equipment replacement, an existing Pixis medicine cabinet is already provided outside of the interventional imaging suite 22. The Pixis is located adjacent to McClure 1 room 1170A.</p>
2.2-3.5.6.7	<p>Support Areas for Interventional Imaging Services <i>Reading room</i></p>	<p>A reading room for reviewing images shall be available for use by the interventional imaging suite.</p>	<p>As this is primarily an equipment replacement, existing reading rooms are already provided outside of the interventional imaging suite 22. These existing facilities are located on McClure 1 room 1144.</p>
2.2-3.5.6.8	<p>Support Areas for Interventional Imaging Services <i>Electrical equipment room</i></p>	<p>(1) Electronics equipment rooms or enclosures large enough to contain x-ray transformers, power modules, and associated electronics and electrical gear shall be provided. (2) Sharing of electronics equipment rooms by multiple procedure rooms shall be permitted.</p>	<p>As this is primarily an equipment replacement, existing electrical equipment rooms are already provided outside of the interventional imaging suite 22. These existing facilities are located in numerous locations on McClure 1.</p>
2.2-3.5.6.9	<p>Support Areas for Interventional Imaging Services</p>	<p>A clean workroom or clean supply room shall be provided in accordance</p>	<p>As this is primarily an equipment replacement, existing clean supply</p>

	<i>Clean workroom or clean supply room</i>	with Section 2.1-2.6.9 (Clean Workroom or Clean Supply Room).	rooms are already provided outside of the interventional imaging suite 22. These existing facilities are located in numerous locations on McClure 1.
2.2-3.5.6.10	Support Areas for Interventional Imaging Services <i>Soiled workroom or soiled holding room</i>	A soiled workroom shall be provided in accordance with Section 2.1-2.6.10 (Soiled Workroom or Soiled Holding Room).	As this is primarily an equipment replacement, existing soiled utility rooms are already provided outside of the interventional imaging suite 22. These existing facilities are located on McClure 1 room 1283.
2.2-3.5.6.12	Support Areas for Interventional Imaging Services <i>Environmental services room</i>	An environmental services room shall be provided in accordance with Section 2.1-2.6.12 (Environmental Services Room).	As this is primarily an equipment replacement, existing environmental service closets are already provided outside of the interventional imaging suite 22. Existing environmental service closets on McClure 1 will be used to meet this requirement.
2.2-3.5.7.1	Support Areas for Staff <i>Staff changing area(s)</i>	Staff changing area(s) shall be provided and arranged to ensure a traffic pattern so that personnel can enter from outside the suite, change their clothing, and move directly into the interventional imaging suite.	As this is primarily an equipment replacement, existing staff changing areas are already provided outside of the interventional imaging suite 22. These existing facilities are located on McClure 1 room 1110.
7.4.3	Imaging Procedure Rooms	If invasive procedures occur in this type of room, ventilation shall be provided in accordance with the ventilation requirements for procedure rooms (Class A surgery). If anesthetic gases are administered, ventilation shall be provided in accordance with the ventilation requirements for operating rooms (Class B or C surgery).	Ventilation upgrades will be constructed to meet Class A surgery procedure room ventilation requirements.



PROJECT NAME AND ADDRESS
UVMMC - IR22 EQUIPMENT REPLACEMENT
MCCLURE - LVL 1 - BURLINGTON, VT

Joseph Architects
25 Crossroad
Waterbury, Vermont 05676
Tel. 802-244-5220
Fax 802-806-1010
www.JosephArchitects.com

SCHEMATIC FLOOR PLANS

J.G.

DRAWN BY

2018/04/16

BATE

18-450 PROJECT NUMBER

A-01

ISSUED FOR PRICING
AND COORDINATION ONLY.
NOT FOR CONSTRUCTION
4/12/18

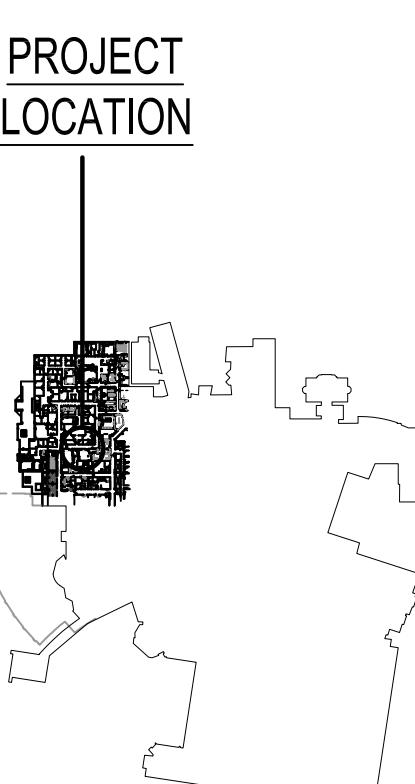


1 OVERALL EQUIPMENT LOCATION PLAN
SCALE - 1/4"=1'-0"

ISSUED FOR PRICING
AND COORDINATION ONLY.
NOT FOR CONSTRUCTION
4/12/18

J.G. DRAWN BY 2018/04/16 DATE
18-450 PROJECT NUMBER SHEET

A-02



KEY PLAN
NTS

Rev# - REVISION

PROJECT NAME AND ADDRESS

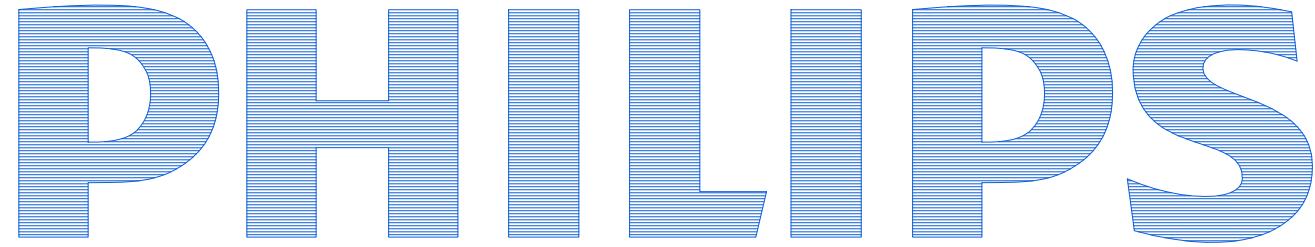
UVMMC - IR22 EQUIPMENT REPLACEMENT

MCCLURE - LVL 1 - BURLINGTON, VT

Joseph Architects
25 Crossroad
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www.JosephArchitects.com

DRAWING NAME

OVERALL EQUIPMENT LOCATION PLAN



Healthcare

www.healthcare.philips.com

Final Site Preparation Support Document

The equipment components shown in this drawing package are based on the current proposed purchase and are subject to change if modifications are made to the configuration.

Table of Contents

Project Details	Philips Contacts	Project
Drawing Number N-EAS180234	Project Manager: Chris Neugebauer	Azurion 7 C20
Date Drawn: 4/17/2018	Contact Number: (978) 257-0380	University of Vermont Medical Center
Quote: 1-NSV/3MX Rev. 9	Email: chris.neugebauer@philips.com	Burlington, VT
Order: 6600382870.010000	Drawn By: Jorge Valle	Room 22

General Specifications

1. Responsibility

The customer shall be solely responsible, at its expense for preparation of site, including any required structural alterations. The site preparation shall be in accordance with plans and specifications provided by Philips. Compliance with all safety electrical and building codes relevant to the equipment and its installation is the sole responsibility of customer. The customer shall advise Philips of conditions at or near the site which could adversely affect the installation work and shall ensure that such conditions are corrected and that the site is fully prepared and available to Philips before the installation work is due to begin. The customer shall provide all necessary plumbing, carpentry work, or raceway (conduits, wireways, auxiliary gutters, etc.) required to attach and install products ready for use.

2. Permits

Customer shall obtain all permits and licenses required by federal, state/provincial or local authorities in connection with the construction, installation and operation of the products and related rules, regulations, shall bear any expense in obtaining same or in complying with any ordinances and statutes.

3. Radiation Protection

The customer or his contractor, at his own expense, shall obtain the service of a licensed radiation physicist to specify radiation protection. (X-Ray Tube output 125 KVp max.)

4. Asbestos and Other Toxic Substances

Philips assumes no hazardous waste (i.e., PCB's in existing transformers) exists at the site. If any hazardous material is found, it shall be the sole responsibility of the customer to properly remove and dispose of this material at its expense. Any delays caused in the project for this special handling shall result in Philips time period for completion being extended by like period of time. Philips assumes that no asbestos material is involved in this project in any ceilings, walls or floors. If any asbestos material is found anywhere on the site, it shall be the customer's sole responsibility to properly remove and/or make safe this condition, at the customer's sole expense.

5. Labor

In the event local labor conditions make it impossible or undesirable to use Philips' regular employees for such installation and connection, such work shall be performed by laborers supplied by the customer, or by an independent contractor chosen by the customer at the customer's expense, and in such case, Philips agrees to furnish adequate engineering supervision for proper completion of the installation.

6. Schedule

The general contractor should provide Philips with a schedule of work to assist in the coordination of delivery of Philips supplied products which are to be installed by the contractor and delivery of the primary equipment.

7. Extended Installation or Turnkey Work by Philips

Any room preparation requirements for Philips equipment indicated on these drawings is the responsibility of the customer. If an extended installation or turnkey contract exists between Philips and the customer for room preparation work required by the equipment represented on these drawings, some of the responsibilities of the customer as depicted in these drawings may be assumed by Philips. In the event of a conflict between the work described in the turnkey contract workscope and these drawings, the turnkey contract workscope shall govern.

8. Infection Control and Interim Life Safety Measures

Compliance with all Infection Control and Interim Life Safety Measures shall be the sole responsibility of the customer. The customer shall provide all means and methods necessary for compliance with Infection Control (IC) and Interim Life Safety Measures (ILSM) in connection with the construction and installation/operation of the products shown herein and shall bear any expenses related to same.

(16.0)

Minimum Site Preparation Requirements

A smooth efficient installation is vital to Philips and their customers. Understanding what the minimum site preparation requirements are will help achieve this goal. The following list clearly defines the requirements which must be fulfilled before the installation can begin.

1. Walls to be painted or covered, baseboards installed, floors to be tiled and/or covered, ceiling shall have grid tiles and luminaires installed and operational.
2. Doors and windows, especially radiation protection barriers, installed and finished with locksets operational.
3. All electrical convenience outlets, raceways, wireways, auxiliary fittings, knockouts, cable connectors, terminal and power distribution blocks, cable openings, chase nipples, junction boxes and pull boxes installed and operational.
4. A private supply mains branch circuit with overcurrent protective circuit breaker and manual operable circuit disconnect means shall be present and operational. Definition of "Private supply" means an end-leave of the hospital distribution system after the last overcurrent protective disconnect means from which all equipment included in the Azurion ground domain is powered. Note that only equipment included in the Azurion certification and equipment with which the Azurion has a compatibility statement are allowed to be inside the Azurion ground domain. All other electrical equipment is not allowed to have a functional connection to the Azurion system and shall have no direct galvanic connection to prevent ground loops. 3rd party equipment that does not have a function connection with the Azurion system, but that is intended to be used inside the same patient area as the Azurion System shall be grounded to the PCB inside the ERB with a ground bonding of <= 200 mOhm for plugable equipment.
5. 120V convenience outlets operational.
6. All support structure correctly installed. All channels, pipes, beams and/or other supporting devices should be level, parallel, and free of lateral or longitudinal movements.
7. All contractor supplied cables pulled and terminated.
8. A dust-free environment in and around the procedure room.
9. All HVAC (heating, ventilating and air conditioning) installed and operational as per specifications.

10. Architectural features such as computer floor, wood floor, casework, bulkheads, installed and finished. When technical cabinets are installed in a closet with doors, it is suggested that the customer install a temperature alarm in the event of an air conditional failure.
11. All plumbing installed and finished.
12. Philips does not install or connect developing tanks, automatic processors or associated equipment, built in illuminators, cassette pass boxes, loading benches and cabinets, lead protective screens, panels or lead glass window and frame. This is to be done by the customer/contractor.
13. Clear door openings for moving equipment into the building must be 42" (1067mm) W x 82" (2083mm) H min. 48" (1219mm) W x 82" (2083mm) H rec., Or larger contingent on an 8'-0" (2438mm) corridor width.
14. Countertop is 30" (765mm) for seated height and 36" (915mm) for standing height.

Note

Once Philips has moved equipment into the suite and started the installation, the contractor shall schedule his work around the Philips installation team on site. It is suggested that a telephone be provided in the room to receive telephone calls. This would alleviate facility staff from answering calls for Philips personnel.

Remote Service Diagnostics

Medical imaging equipment to be installed by Philips Medical is equipped with a service diagnostic feature which allows for remote and on site service diagnostics. To establish this feature, a RJ45 type ethernet 10/100/1000 Mbit network connector must be installed as shown on plan. Access to customer's network via their remote access server is needed for Remote Service Network (RSN) connectivity. All cost with this feature are the responsibility of the customer.

HVAC Requirement for General Equipment Locations

Operation	
Temperature	67°F (20°C) to 77°F (25°C)
Temperature gradient	Max. 1°F / Minute (0.5°C / Minute)
Humidity (non-condensing) Humidity shall be stable within 10%	20% to 80%
Exam Room	*6483 BTU/hr
Equipment Room	*8189 BTU/hr
Control Room	*1706 BTU/hr

*Average heat emission during clinical use

Data applicable for basic system:

Large monitor + 4 x small monitor in Monitor Ceiling Suspension
1 workstation + 2 x small monitor in Control Room

Add 1706 BTU/hr for additional large monitor

Add 273 BTU/hr for additional small monitor

Add 1024 BTU/hr for additional workstation

See AL sheet for additional heat load in case of UPS

Equipment's designed airflow is from front/side to back. Please design the air handling in the rack cabinet equipment area accordingly.

Heating, ventilation, and air conditioning requirements must maintain temperature at 72 degrees +/- 5 degrees Fahrenheit as well as a non-condensing relative humidity at 20-80% with 10% maximum variation. These temperature and humidity levels must be maintained in all (3) rooms (equipment, examination and control rooms).

<p>Project Azurion 7 C20 University of Vermont Medical Center Burlington, VT Room 22</p> <p>Philips Contacts Project Manager: Chris Neugebauer Contact Number: (978) 257-0380 Email: chris.neugebauer@philips.com</p> <p>Project Details Drawing Number: N-EAS180234 Date Drawn: 4/17/2018 Quote: 1-1NSV3MX Rev. 9 Order: 6600382870.010000</p> <p>AN</p>

Electrical Requirements Mains 40E Cabinet

Maximum Rated Power: 100kW

Supply Configuration: 3 phase, equally sized insulated power conductors and an insulated equipment grounding conductor. Insulated grounding conductor shall have the same or larger size than line conductors. Line wires shall be no smaller than 6 AWG, 90 degrees Celcius or higher temperature rating. The conductor size is dependant on the upstream circuit breaker rating:

Minimum 2 AWG for 125A circuit breaker rating.

Nominal Line Voltage: 480 VAC, 60 Hz

Branch Power Requirement: 100 kVA (System only; verify UPS power requirements)

Circuit Breaker: 3 phase, Type D 125A with long-time delay

(16.1)

Remote Control of Room Lighting

The control of customer lighting must incorporate an electrical isolation system such as demonstrated on Sheet ED3. Lighting scheme is the responsibility of the customer.

(12.0)

PHILIPS

AL
THIS SHEET IS PART OF THE DOCUMENT SET LISTED ON SHEET C1 AND SHOULD NOT BE SEPARATED.
04.19.2017
THE INFORMATION IN THIS PACKAGE IS PROVIDED AS A CUSTOMER CONVENIENCE, AND IS NOT TO BE CONSTRUED AS ARCHITECTURAL DRAWINGS OR CONSTRUCTION DOCUMENTS.
Philips assumes no liability nor offers any warranty for the fitness or adequacy of the premises or the utilities available at the premises in which the equipment is to be installed, used, or stored.

Equipment Legend

- A Furnished and installed by Philips
- B Furnished by customer/contractor and installed by customer/contractor
- C Installed by customer/contractor
- D Furnished by Philips and installed by contractor
- E Existing
- F Future
- G Optional item furnished by Philips

↓	↓	Equipment Designation		Detail Sheet	
		Description	Weight (lbs)	Heat Load (btu/hr)	↓
A	SP	Clea Stand	2557	1706	AD2
A	MSA	Angio Diagnost 7 with Pivot and Tilt	1693	205	AD2
A	ME	Certeray iX Generator Cabinet	320	2971	AD3
A	MR	Peripheral 40E Cabinet	441	2049	AD3
A	MA	Mains 40E Cabinet	826	5464	AD3
A	CY	Control Room Connection Box	115	567	AD6
A	DB	Documentation Box - Mounted on Wheels (Final location to be coordinated with customer and/or local Philips Service)	176	0	AD4
A	ATY	Exam Room Auxiliary Box	7	1.7	AD4
A	MB	Image 40E Cabinet	441	1877	AD3
A	TV	58" LCD Monitor Suspension	563	1020	AD4
A	VB1	Video Connection Box	11	34	AD4
A	~	Video Connection Box	11	34	AD4
A	VB10	Video Connection Box	11	34	AD4
A	IH	Interventional Hardware (Integrated with FlexSpot) - Not Shown	73	2424	-
A	MAV	Mavig Ceiling Track w/ Radiation Shield	167	350	AD5
A	AR	Image Stream Audio Rack	200	600	AD3
D	UPS	Galaxy 5000 - 80 kVA UPS with Top Entry	1062	8531	AD5
D	BC	Galaxy 5000 - 32" Battery Cabinet	2900	-	AD5
D	RSAP	Remote Status Alarm Panel (for UPS)	20	-	AD5
A	MED	Medrad Arterion Injector on Pedestal	185	4095	AD3
----- Items not on Philips Quote/Order -----					
B	MGB	Med Gas Boom	-	-	-

Project
Azurion 7 C20
University of Vermont Medical Center
Burlington, VT
Room 22

Project Details	Philips Contacts
Drawing Number N-EAS180234	Project Manager: Chris Neugebauer Contact Number: (978) 257-0380 Email: chris.neugebauer@philips.com
Date Drawn: 4/17/2018	Drawn By: Jorge Valle
Quote: 1-1NSV3MX Rev. 9	
Order: 6600382870.010000	

Equipment Layout

1/4" = 1'-0"

Required Unistrut Height: 9' - 6 $\frac{3}{16}$ ", + $\frac{3}{8}$ " / -0 (2900mm, +10mm / -0)
Unistrut height measured from finished floor to bottom of Unistrut.

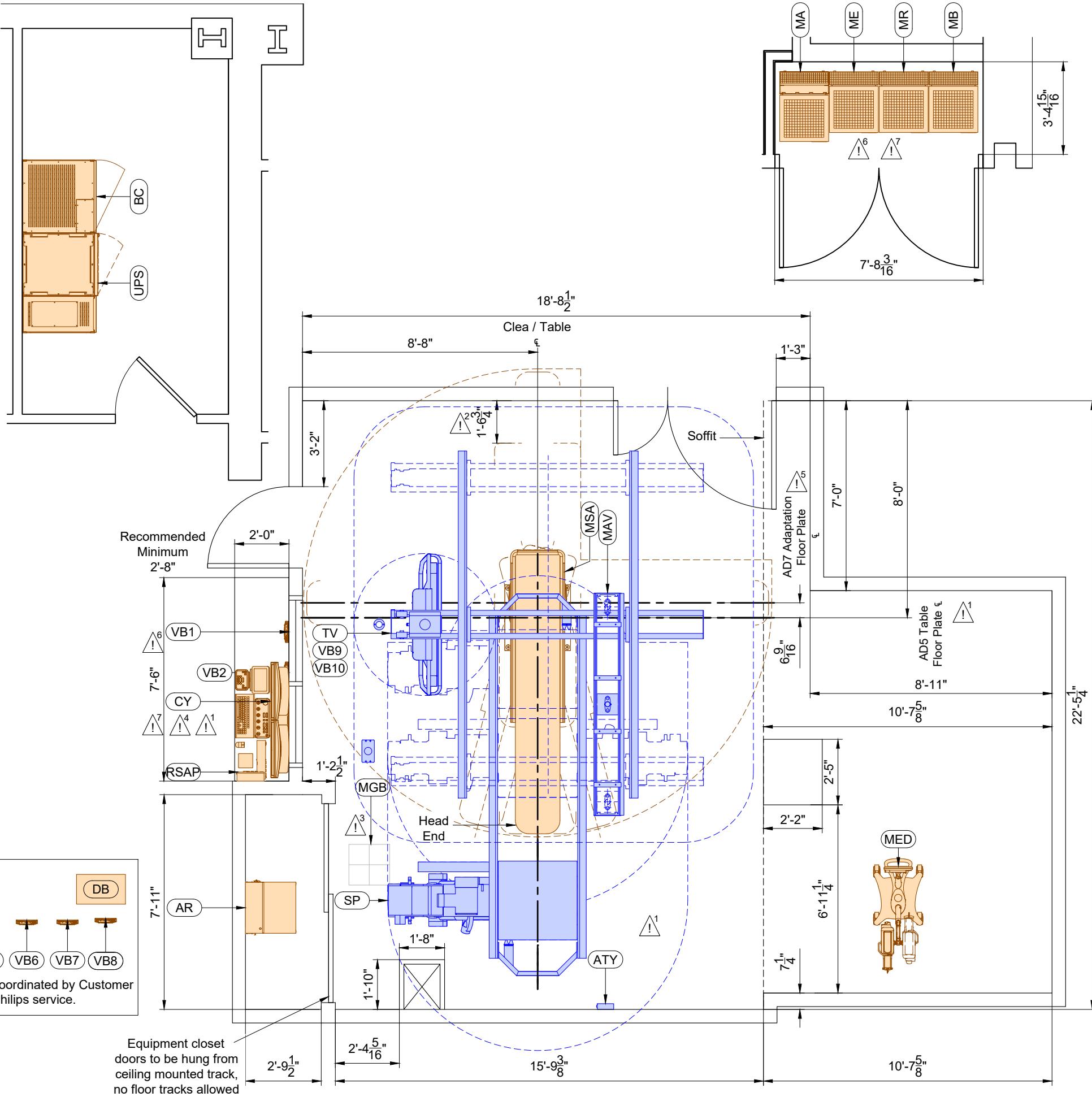
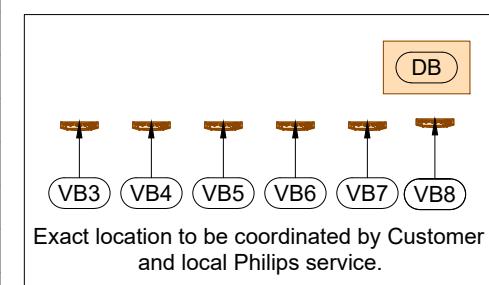
Planning Issues and Considerations

- ! Verify exact location and configuration of existing floor plate, Unistrut, and electricals with local Philips service for reuse.
- ! A minimum of 3'-0" (915mm) clear distance is recommended around the foot end of the AD7 table when fully extended to ensure adequate space for staff flow.
- ! Third Party Items - It is the region's responsibility to interface and coordinate customer's non-catalog item(s) with Philips' equipment. Verify feasibility and ensure full functionality and movement of Clea system.
- ! View of patient may be limited. Verify with customer requirement.
- ! Exact equipment configuration to be verified with local Philips Sales. Adaptation plate is not listed on order but is shown due to Philips Project Manager request.
- ! Conduit run(s) from "SP" to "MA/ME/MR" must be able to take the most direct route. (Maximum conduit length = "37/37/39")
- ! Conduit run(s) from "CY" to "MA/MR" must be able to take the most direct route. (Maximum conduit length = "55")

General Notes

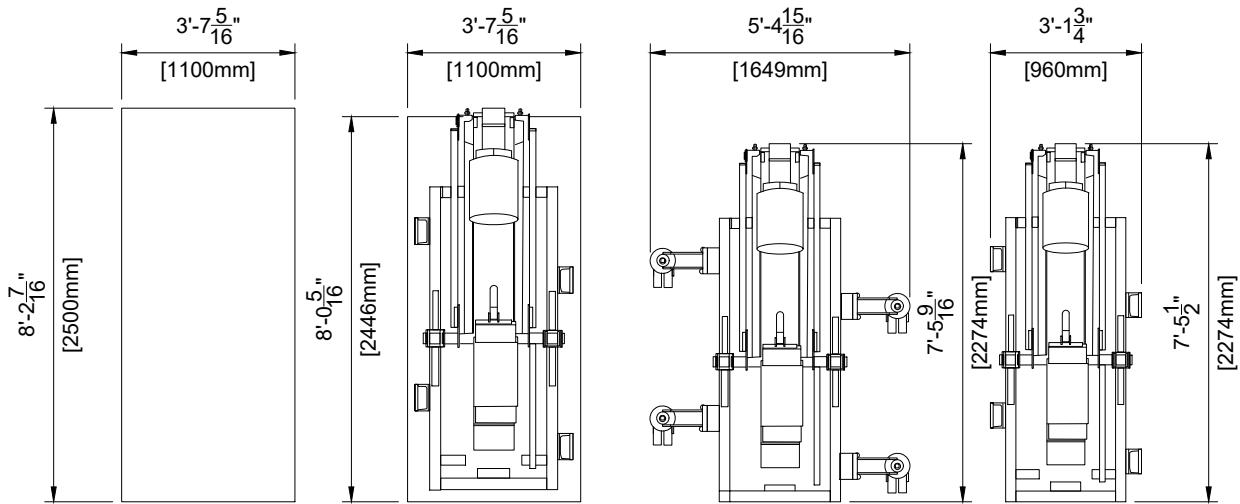
- * Counters and cabinetry shown to be supplied and installed by contractor.
- * Architect to coordinate with end users/technicians to determine final placement of control desk components prior to installation in order to avoid rework. Architect to coordinate with Philips Project Manager to reflect final placement on Philips drawings.
- * Field to verify all room dimensions.
- * Clea Stand cannot fully rotate in its parked position. However, this will not affect the functionality of the equipment.

	Source	Location	Displayed
VB1	TBD	Control	FlexVision
VB2	TBD	Control	FlexVision
VB3	TBD	TBD	FlexVision
VB4	TBD	TBD	FlexVision
VB5	TBD	TBD	FlexVision
VB6	TBD	TBD	FlexVision
VB7	TBD	TBD	FlexVision
VB8	TBD	TBD	FlexVision
VB9	TBD	Exam	FlexVision
VB10	TBD	Exam	FlexVision



Project Details	Philips Contacts
Drawing Number N-EAS180234	Project Manager: Chris Neugebauer Contact Number: (978) 257-0380 Email: chris.neugebauer@philips.com
Date Drawn: 4/17/2018	Drawn By: Jorge Valle
Quote: 1-NSV3MX Rev. 9 Order: 6600382870.010000	THE INFORMATION IN THIS PACKAGE IS PROVIDED AS A CUSTOMER CONVENIENCE, AND IS NOT TO BE CONSTRUED AS ARCHITECTURAL DRAWINGS OR CONSTRUCTION DOCUMENTS. Philips assumes no liability nor offers any warranty for the fitness or adequacy of the premises or the utilities available at the premises in which the equipment is to be installed, used, or stored.

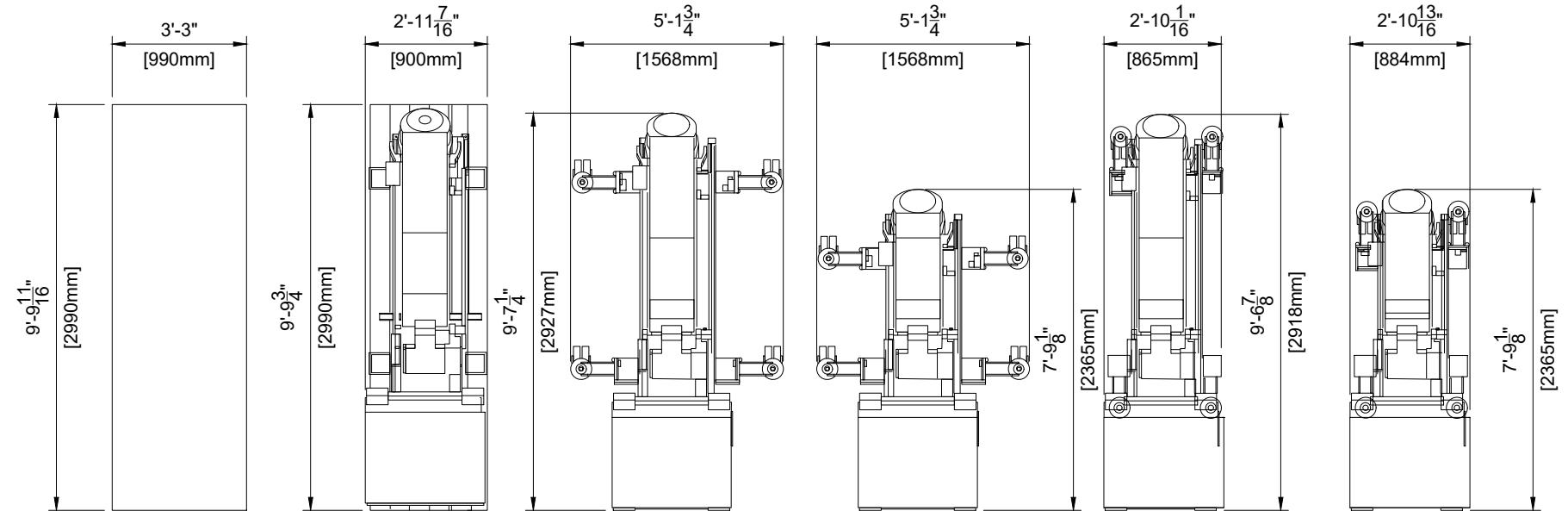
Detail - Clea Ceiling (C-ARM) Transport Details



Transport Possibilities

	Crate	Pallet	Kick Wheels Wide	Kick Wheels Small
Height	77.95" (1980mm)	76.22" (1936mm)	69.02" (1753mm)	77.76" (1975mm)
Weight	2050 lbs (930 kg)	1940 lbs (880 kg)	2061 lbs (935 kg)	1764 lbs (800 kg)

Detail - Clea Ceiling (L-ARM) Transport Details



Transport Possibilities

	Crate	Pallet	Klick Wheels Wide	Klick Wheels Wide Elevator	Klick Wheels Small	Klick Wheels Small Elevator
Height	57.09" (1450mm)	54.80" (1392mm)	49.25" (1251mm)	79.53" (2020mm)	49.25" (1251mm)	79.53" (2020mm)
Weight	2094 lbs (950 kg)	1973 lbs (895 kg)	1896 lbs (860 kg)	1896 lbs (860 kg)	1896 lbs (860 kg)	1896 lbs (860 kg)

AD1

(12.0)

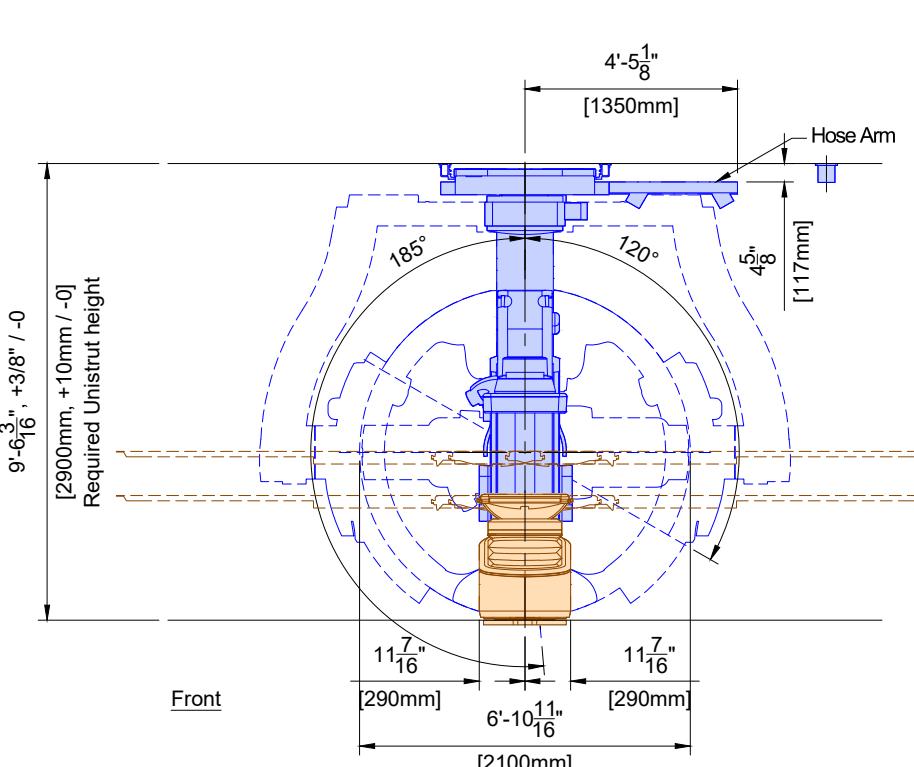
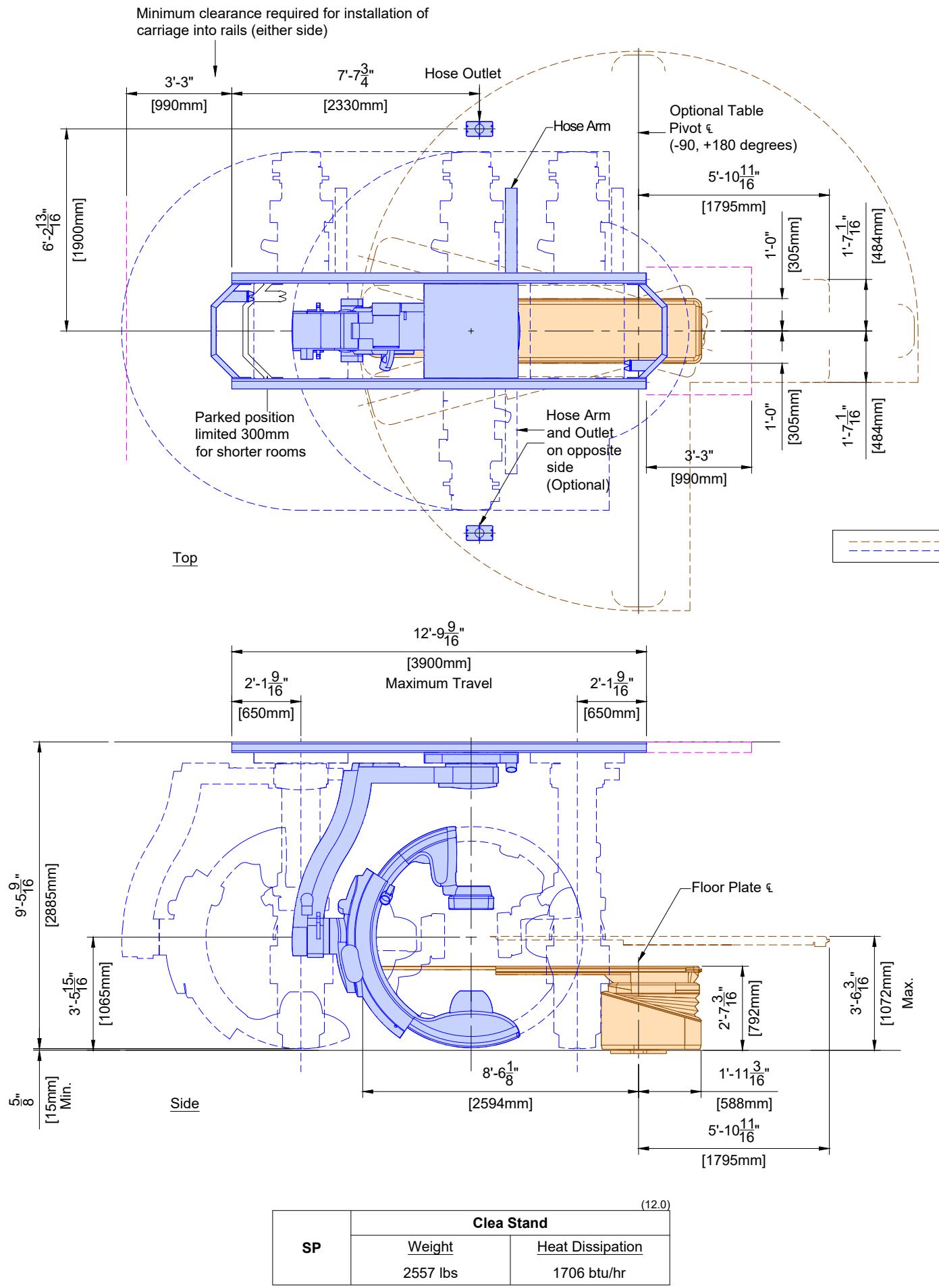


Table Pivot is optional. This allows the table to rotate -90, +180 degrees about center of table base.

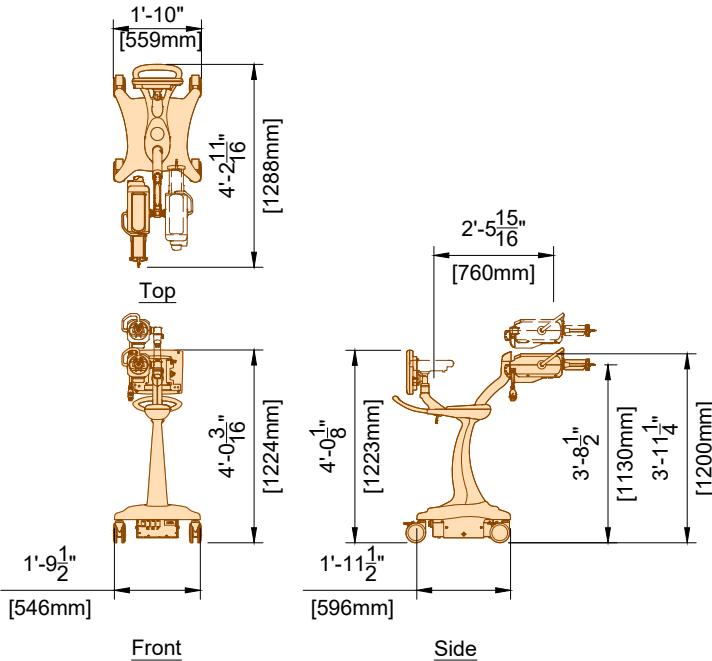
Angio Diagnost 7		
MSA	Weight	Heat Dissipation
	1693 lbs	205 btu/hr

Project
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Burlington, VT
Room 22

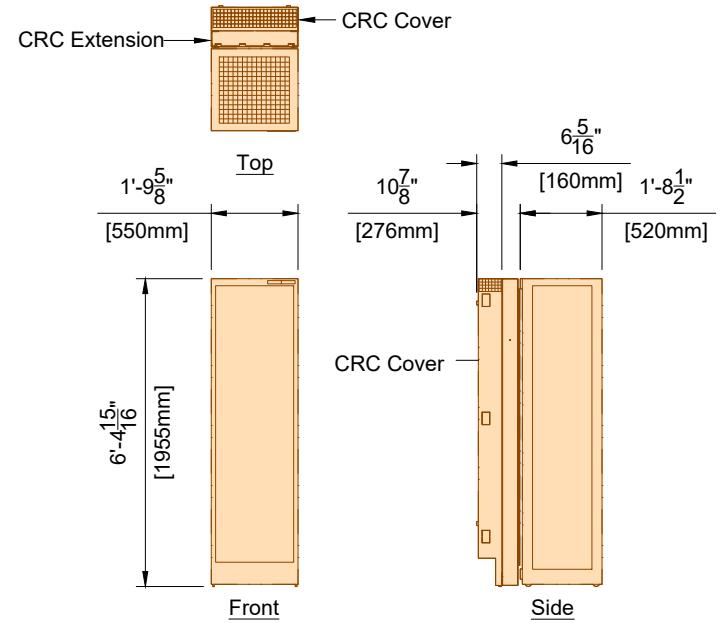
Project Details
Drawing Number
N-EAS180234
Date Drawn: 4/17/2018
Quote: 1-NSV3MX Rev. 9
Order: 6600382870.010000

Philips Contacts
Project Manager: Chris Neugebauer
Contact Number: (978) 257-0380
Email: chris.neugebauer@philips.com
Drawn By: Jorge Valle

AD2



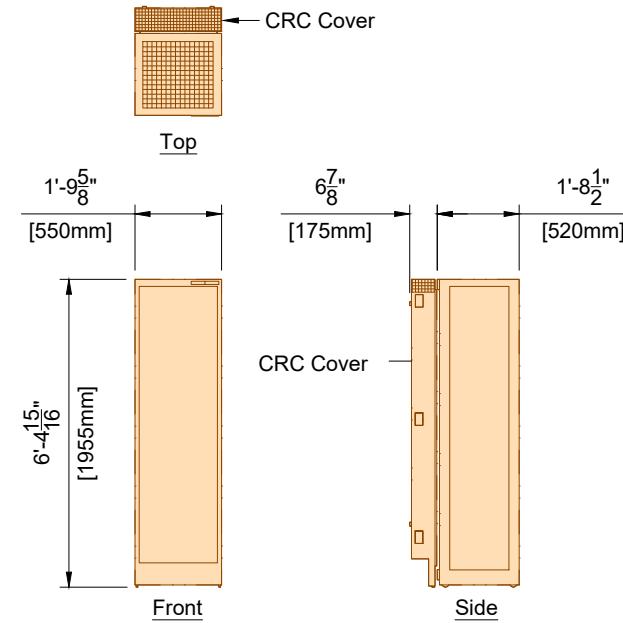
(12.0)		
MED	Medrad Arterion Injector on Pedestal	
	Weight	Heat Dissipation
185 lbs	4095 btu/hr	



The CRC Cover must be attached to the back box.

Acoustic noise level: <= 55 dB(A) @ 1 meter in front of the rack and 1 meter high (1 meter = 39.37")

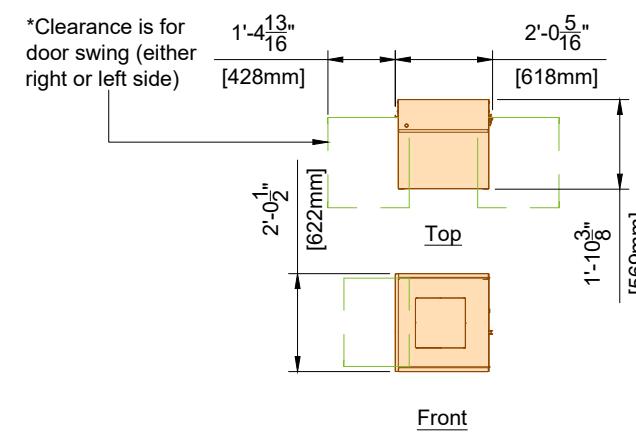
(14.0)		
MA	Mains 40E Cabinet	
	Weight	Heat Dissipation
826 lbs	5464 btu/hr	



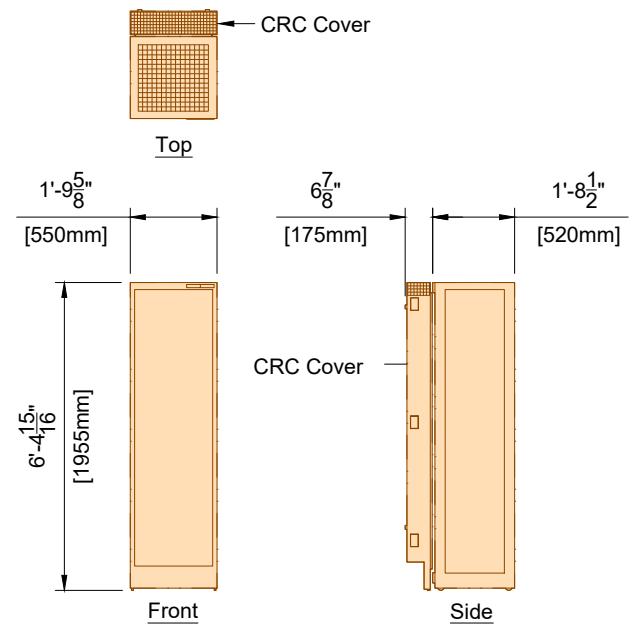
The CRC Cover must be attached to the back box.

Acoustic noise level: <= 48 dB(A) @ 1 meter in front of the rack and 1 meter high (1 meter = 39.37")

(16.0)		
MB	Image 40E Cabinet	
	Weight	Heat Dissipation
441 lbs	1877 btu/hr	



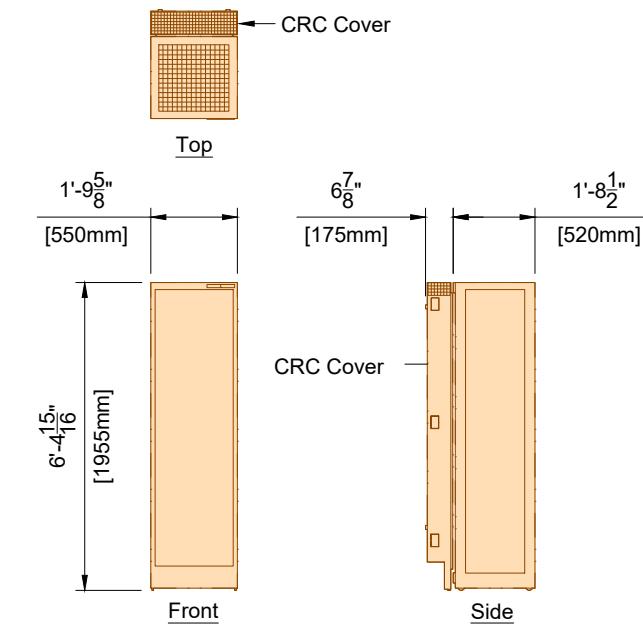
(15.0)		
AR	Image Stream Audio Rack	
	Weight	Heat Dissipation
200 lbs	600 btu/hr	



The CRC Cover must be attached to the back box.

Acoustic noise level: <= 65 dB(A) @ 1 meter in front of the rack and 1 meter high (1 meter = 39.37")

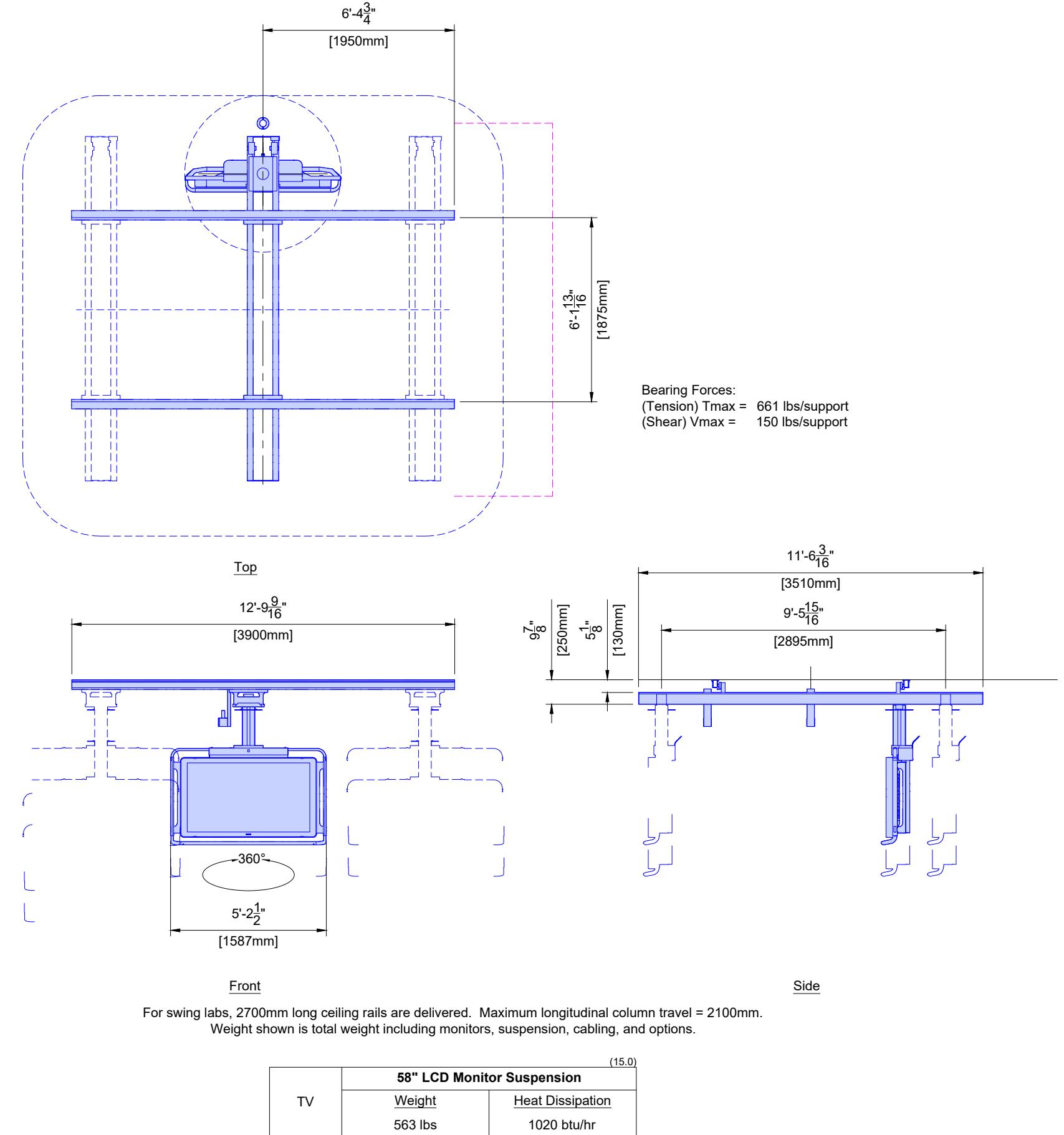
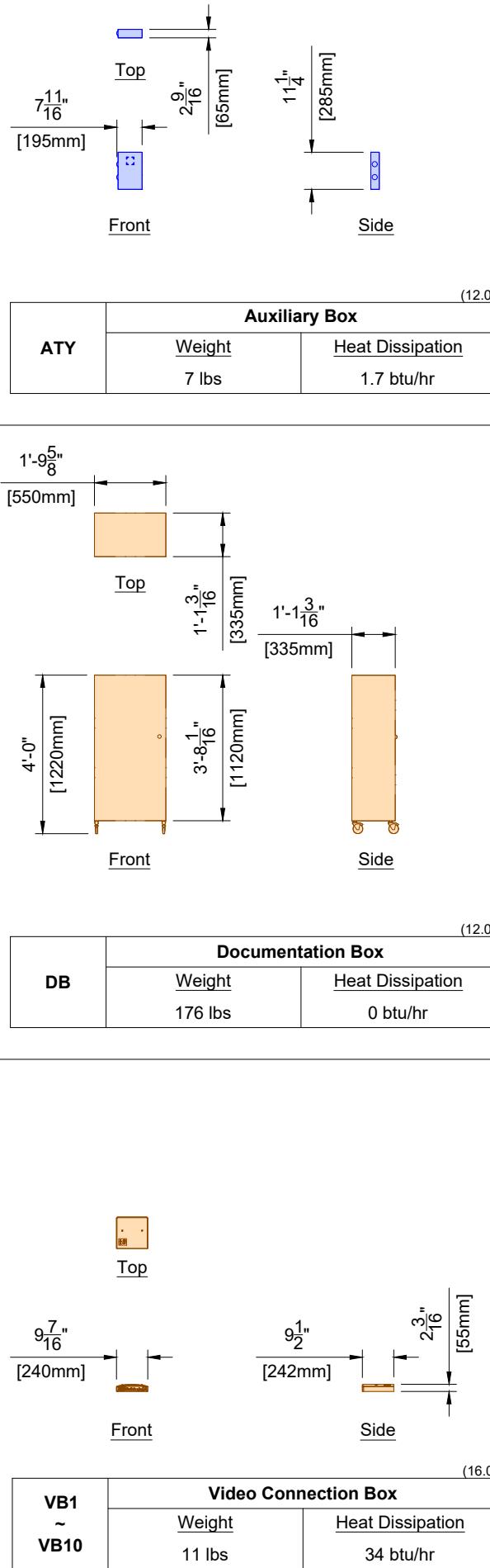
(14.0)		
MR	Peripheral 40E Cabinet	
	Weight	Heat Dissipation
441 lbs	2049 btu/hr	

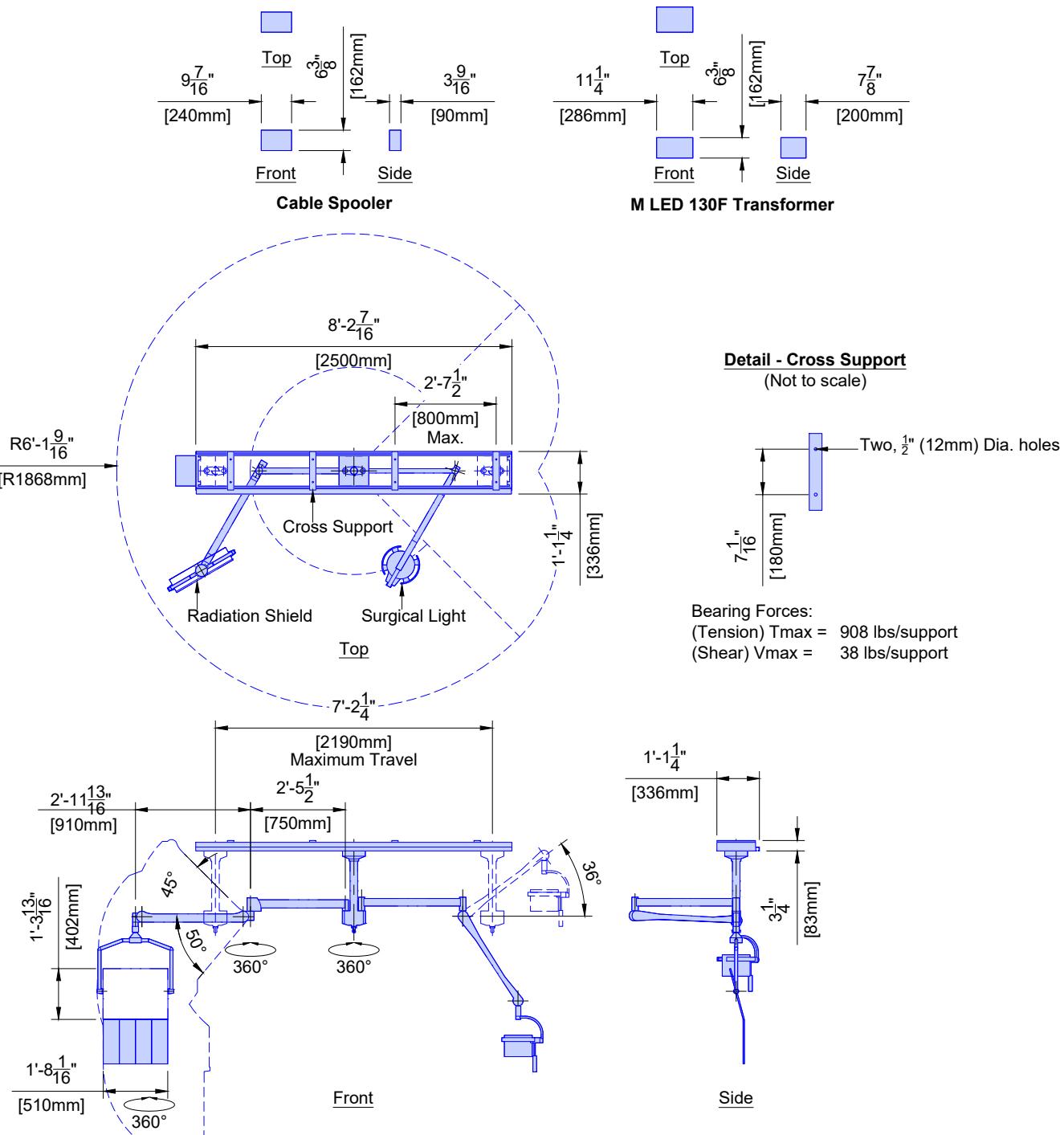


The CRC Cover must be attached to the back box.

Acoustic noise level: <= 55 dB(A) @ 1 meter in front of the rack and 1 meter high (1 meter = 39.37")

(14.0)		
ME	Certeray iX Generator 40E Cabinet	
	Weight	Heat Dissipation
320 lbs	2971 btu/hr	

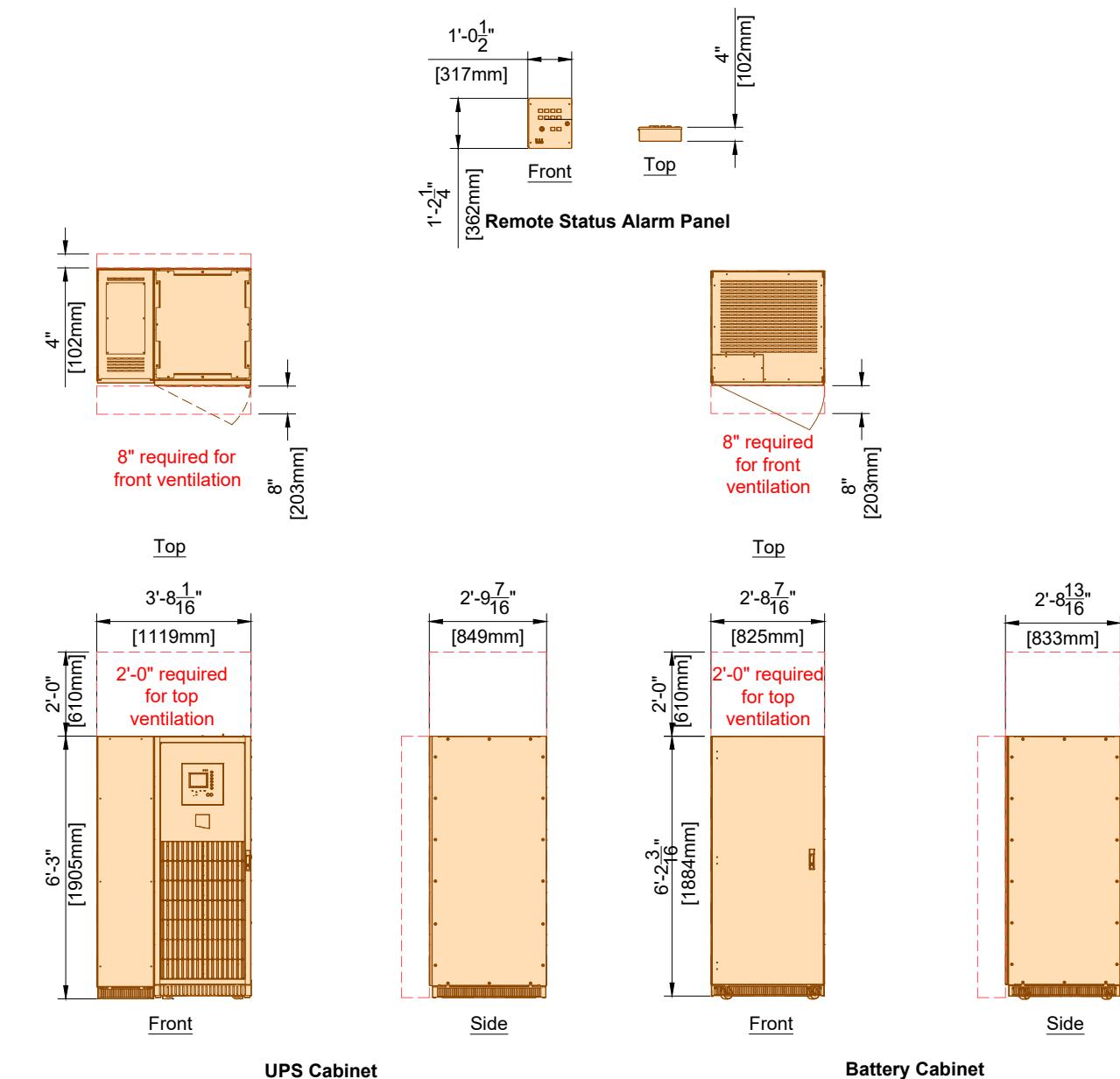




Note: For Integris Systems, the post of the Rad Shield post needs to be mounted on the head-end of the table in relation to the Monitor Suspension transverse carriage.

MAV		Mavig Ceiling Track	
		Weight	Heat Dissipation
		167 lbs	350 btu/hr

TR		M LED 130F Transformer	
		Weight	Heat Dissipation
		17 lbs	- btu/hr



Acoustic noise level: <= 65 dB(A) @ 1 meter in front of the rack and 1 meter high (1 meter = 39.37")

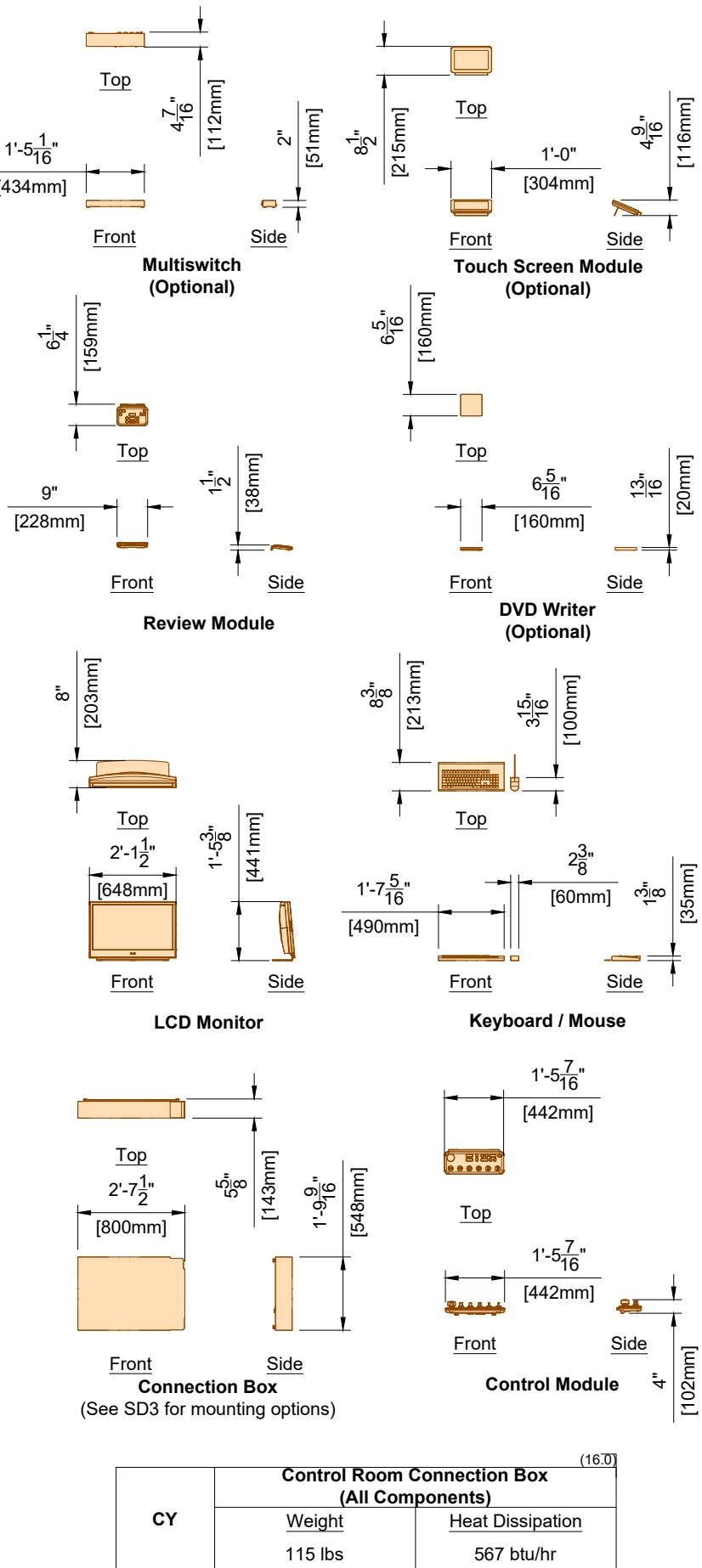
	Galaxy 5000 80 kVA UPS	
	Weight	Heat Dissipation
UPS	1062 lbs	8531 btu/hr
BC	2900 lbs	
RSAP	20 lbs	- btu/hr

Project
Azurion 7 C20
University of Vermont Medical Center
Burlington, VT
Room 22

Philips Contacts
Project Manager: Chris Neugebauer
Contact Number: (978) 257-0380
Email: chris.neugebauer@philips.com
Drawn By: Jorge Valle

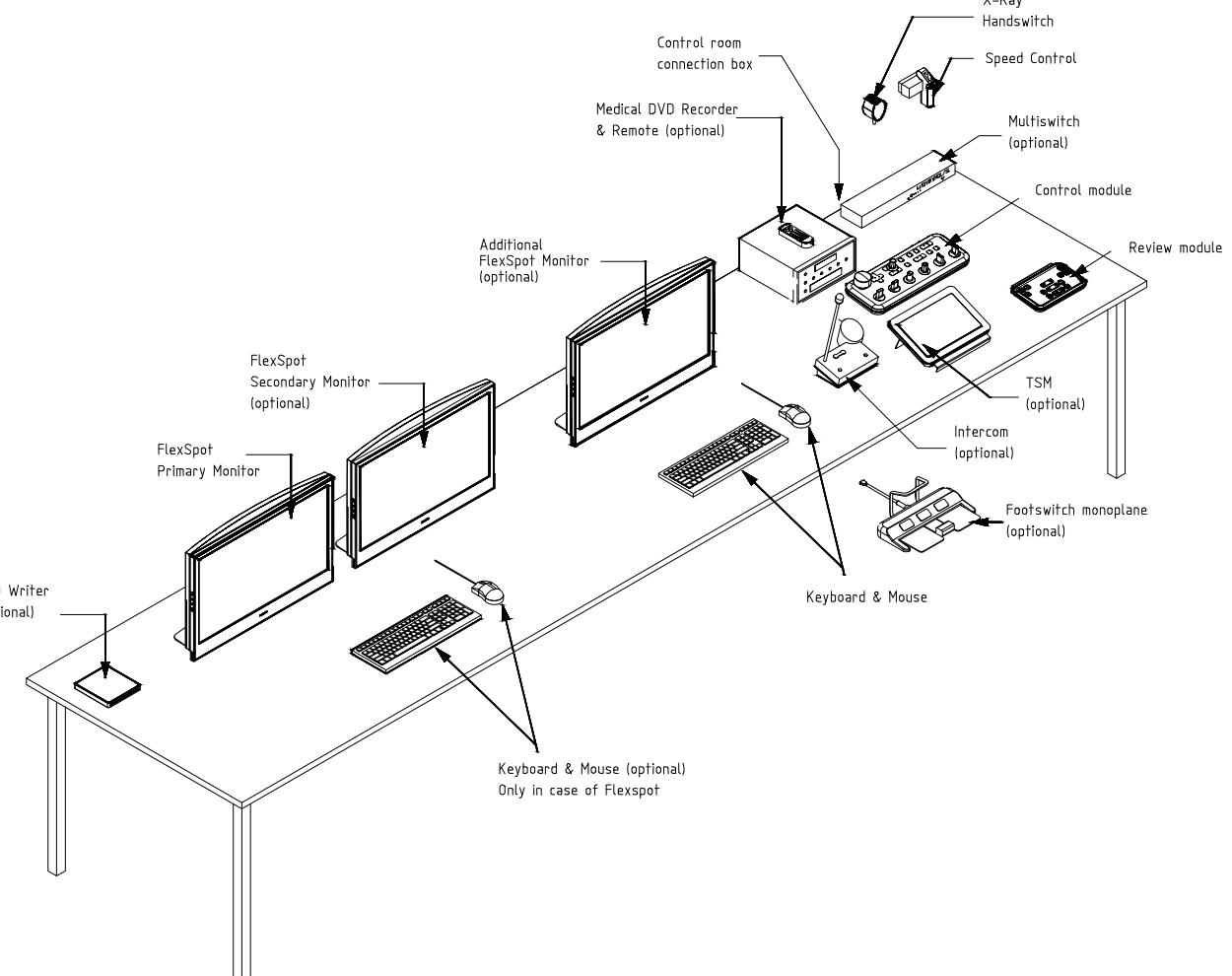
Project Details
Drawing Number
N-EAS180234
Date Drawn: 4/17/2018
Quote: 1-NSV3MX Rev. 9
Order: 6600382870.010000

AD5



Detail - Typical Control Room Layout with FlexSpot

(Not to scale)



Project Details
Drawing Number: **N-EAS180234**
Date Drawn: **4/17/2018**
Quote: **1-NSV3MX Rev. 9**
Order: **6600382870.010000**

Philips Contacts

Project Manager: Chris Neugebauer
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Email: chris.neugebauer@philips.com
Drawn By: Jorge Valle

Project
Azurion 7 C20
University of Vermont Medical Center
Burlington, VT
Room 22

Equipment Support Information

1. General

The customer shall be solely responsible, at its expense, for preparation of the site, including any required structural alterations. The site preparation shall be in accordance with this plan and specifications, the architectural/construction drawings and in compliance with all safety and building codes. The customer shall be solely responsible for obtaining all construction permits from jurisdictional authority.

2. Equipment Anchorage

Philips provides, with this plan and specifications, information relative to equipment size, weight, shape, anchoring hole locations and forces which may be exerted on anchoring fasteners. The customer shall be solely responsible, through the engineer of record for the building, to provide on the architectural/construction drawings, information regarding the approved method of equipment anchoring to floors, wall and/or ceiling of the building. Any anchorage test required by local authority shall be the customer's responsibility. Stud type anchor bolts should not be specified as they hinder equipment removal for service. Consult with Philips service prior to specifying anchor methods. Philips equipment must be electrically isolated from anchorage.

3. Floor Loading and Surface

Philips provides, with this plan and specifications, information relative to size, weight and shape of floor mounted equipment. The customer shall be solely responsible, through the engineer of record for the building, to provide on the architectural/construction drawings confirmation of the structural adequacy of the floor upon which the equipment will be placed. Any load test required by local authority, shall be the customer's responsibility.

The floor surface upon which Philips equipment is to be placed/anchored shall be flat and level to within $\frac{1}{16}$ " (2mm) over a length of 39" (1m).

4. Ceiling Support Apparatus

a. Philips provides, with this plan and specifications, information relative to size, weight and shape of ceiling supported equipment. The customer shall be solely responsible, through the engineer of record for the building, to provide on the architectural/construction drawings, information regarding the approved method of structural support apparatus, fasteners and anchorage to which Philips will attach equipment. Any anchorage and/or load test required by local authority shall be the customer's responsibility. Philips equipment must be electrically isolated from anchorage.

b. Contractor to clearly mark Philips equipment longitudinal centerline on bottom of each structural support.

c. The structural support apparatus surface to which Philips equipment is to be attached, shall have horizontal equipment attachment surfaces parallel, square and level to within $\frac{1}{16}$ " (2mm) per entire span.

d. Any drilling and/or tapping of holes required to attach Philips equipment to the structural support apparatus shall be the responsibility of the customer.

e. Fasteners/anchors (i.e., bolts, spring nuts, lock and flat washers) and strip closures shall be provided by the customer.

5. Lighting

Luminaires shall be placed in such a position that they are not obscured by equipment or its movement, nor shall they interfere with Philips ceiling rails and equipment movement or otherwise adversely affect the equipment. Such luminaire locations shall be the sole responsibility of the customer.

6. Ceiling Obstructions

There shall be no obstructions that project below the finished ceiling in the area covered by ceiling suspended equipment travel.

7. Seismic Anchorage (For Seismic Zones Only)

All seismic anchorage hardware, including brackets, backing plates, bolts, etc., shall be supplied and installed by the customer/contractor unless otherwise specified within the support legend on this sheet. Installation of electronic cabinets to meet seismic anchorage requirements must be accomplished using flush mounted expansion type anchor/bolt systems to facilitate the removal of a cabinet for maintenance. Do not use threaded rod/adhesive anchor systems. Consult with Philips regarding any anchor system issues. Philips equipment must be electrically isolated from anchorage.

8. Floor Obstructions/ Floor Coverings

There shall be no obstructions on the floor (sliding door tracks, etc.) in front of the Philips technical cabinets. Floor must be clear to allow cabinets to be pulled away from the wall for service.

Contractor to verify with Philips the preferred floor covering installation method.

9. Safety Factors

In a worst case situation the dynamic bolt force of a floor or ceiling must be multiplied by factor 4. (static bolt force of the ceiling must be multiplied by factor 8).

10. Stiffness Requirements of Ceiling

Horizontal Stiffness: preferred 10,000,000 Newton/meter - 57.1 klb/in, minimal 6,000,000 Newton/meter - 34.2 klb/in
 Vertical Stiffness: preferred 10,000,000 Newton/meter - 57.1 klb/in, minimal 6,000,000 Newton/meter - 34.2 klb/in
 Rotation Stiffness: minimal 20,000,000 Newtonmeter/Rad - 177,014 (klb in)/Rad

The maximum deflection on the Philips rails must not exceed 0.04" (1mm) caused by the static load (weight) of the ceiling stand

11. Vibration

The maximal allowed external frequency that will not destroy the image quality of our equipment is:

- a. 0 Hz till 20 Hz (frequency area of our equipment) - Displacement amplitude is smaller than 0.005mm
- b. Greater than 20 Hz - Displacement amplitude is smaller than 0.01mm

Project Details	Philips Contacts		
Drawing Number N-EAS180234	Project Manager: Chris Neugebauer	Contact Number: (978) 257-0380	Email: chris.neugebauer@philips.com
Date Drawn: 4/17/2018	Drawn By: Jorge Valle	Quote: 1-1NSV3MX Rev. 9	Order: 6600382870.010000
THE INFORMATION IN THIS PACKAGE IS PROVIDED AS A CUSTOMER CONVENIENCE, AND IS NOT TO BE CONSTRUED AS ARCHITECTURAL DRAWINGS OR CONSTRUCTION DOCUMENTS. Philips assumes no liability nor offers any warranty for the fitness or adequacy of the premises or the utilities available at the premises in which the equipment is to be installed, used, or stored.	SZ	04.19.2017	

See S1 for Floor & Wall Support Layout

Notes:

1. Anchors for items that are installed/anchored by customer/contractor shall be provided by customer/contractor.
2. Anchors for items that are installed/anchored by Philips shall be provided by Philips. If customer's engineering documents specify anchors other than those listed in this document, the anchors shall be provided by customer/contractor and installed by Philips.
3. In all instances, the wall and/or floor support are the sole responsibility of the customer/contractor. The customer's architect/engineer of record shall specify wall and/or floor support sufficient for the bolt forces shown on the details.

See S2 for Ceiling Support Layout

Floor & Wall Support Legend

A Furnished and installed/anchored by Philips (exceptions may exist, see Note 2)
 B Furnished and installed by customer/contractor and installed/anchored by customer/contractor
 C Installed/anchored by customer/contractor
 D Furnished by Philips and installed/anchored by contractor
 E Existing
 F Future
 G Optional

	<input type="checkbox"/> Item Number	Description	Detail Sheet
B	F1	Support in wall for Control Room Connection Box (CY)	SD3
A	F1	Anchors in wall for Control Room Connection Box (CY)	SD3
D	F2	AD7 Universal Floor Plate	SD1
B	F3	Anchors in wall for Image Stream Audio Rack (4x $\frac{3}{8}$ " diameter lag bolts with min. length of 1 1/2" and standard flat washers on 2x $\frac{3}{4}$ " plywood or concrete walls or equivalent)	-

Ceiling Support Legend

A Furnished and installed by Philips
 B Furnished by customer/contractor and installed by customer/contractor
 C Installed by customer/contractor
 D Furnished by Philips and installed by contractor
 E Existing
 F Future
 G Optional

	<input type="checkbox"/> Item Number	Description	Detail Sheet
A	C1	2 - Philips Clea Rails	SD1
A	C2	2 - Philips Monitor Equipment Rails	SD1
B	C3	Unistrut (P1001 or equivalent in meeting Philips ceiling requirements for geometry of channel and geometry of fixing block) - Bottom of Unistrut 0" to $\frac{1}{4}$ " (6mm) Below Finished Ceiling	SD1
A	C4	Mavig Ceiling Track	AD5
A	C5	48" safety cable for ceiling speakers	-

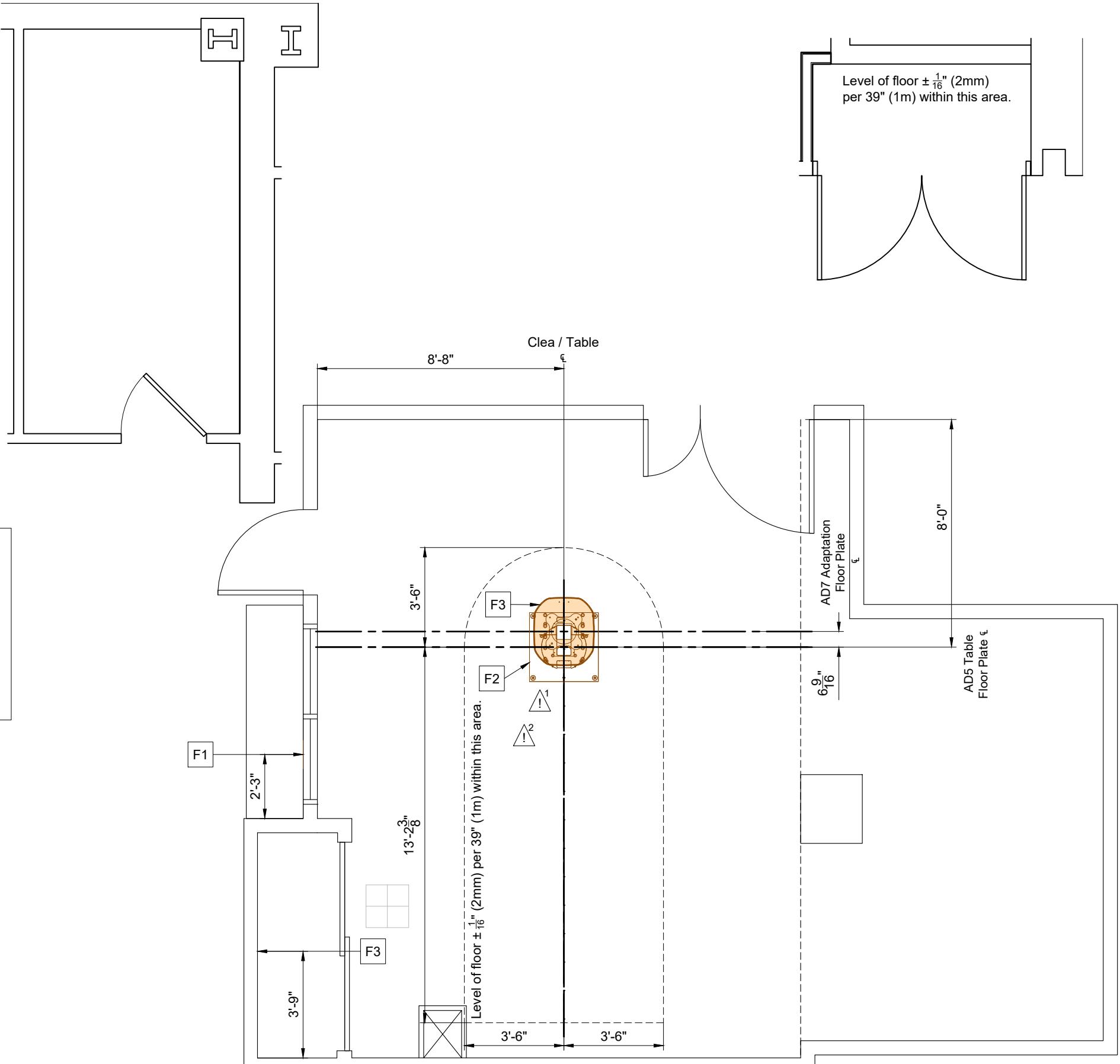
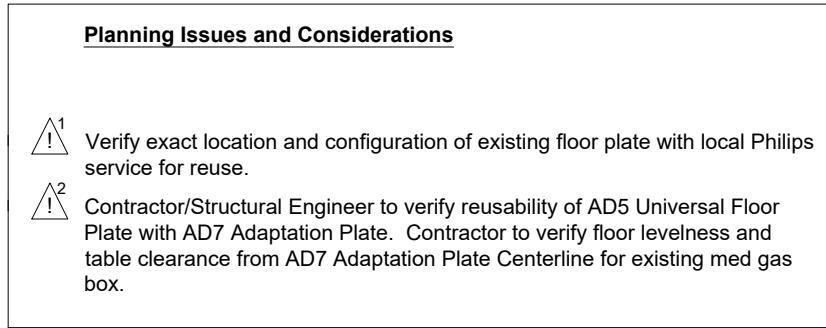
Project **Azurion 7 C20**
University of Vermont Medical Center
 Burlington, VT
 Room 22

Project Details	Philips Contacts
Drawing Number N-EAS180234	Project Manager: Chris Neugebauer Contact Number: (978) 257-0380 Email: chris.neugebauer@philips.com
Date Drawn: 4/17/2018	Drawn By: Jorge Valle
Quote: 1-NSV3MX Rev. 9	
Order: 6600382870.010000	

Floor & Wall Support Layout

1/4" = 1'-0"

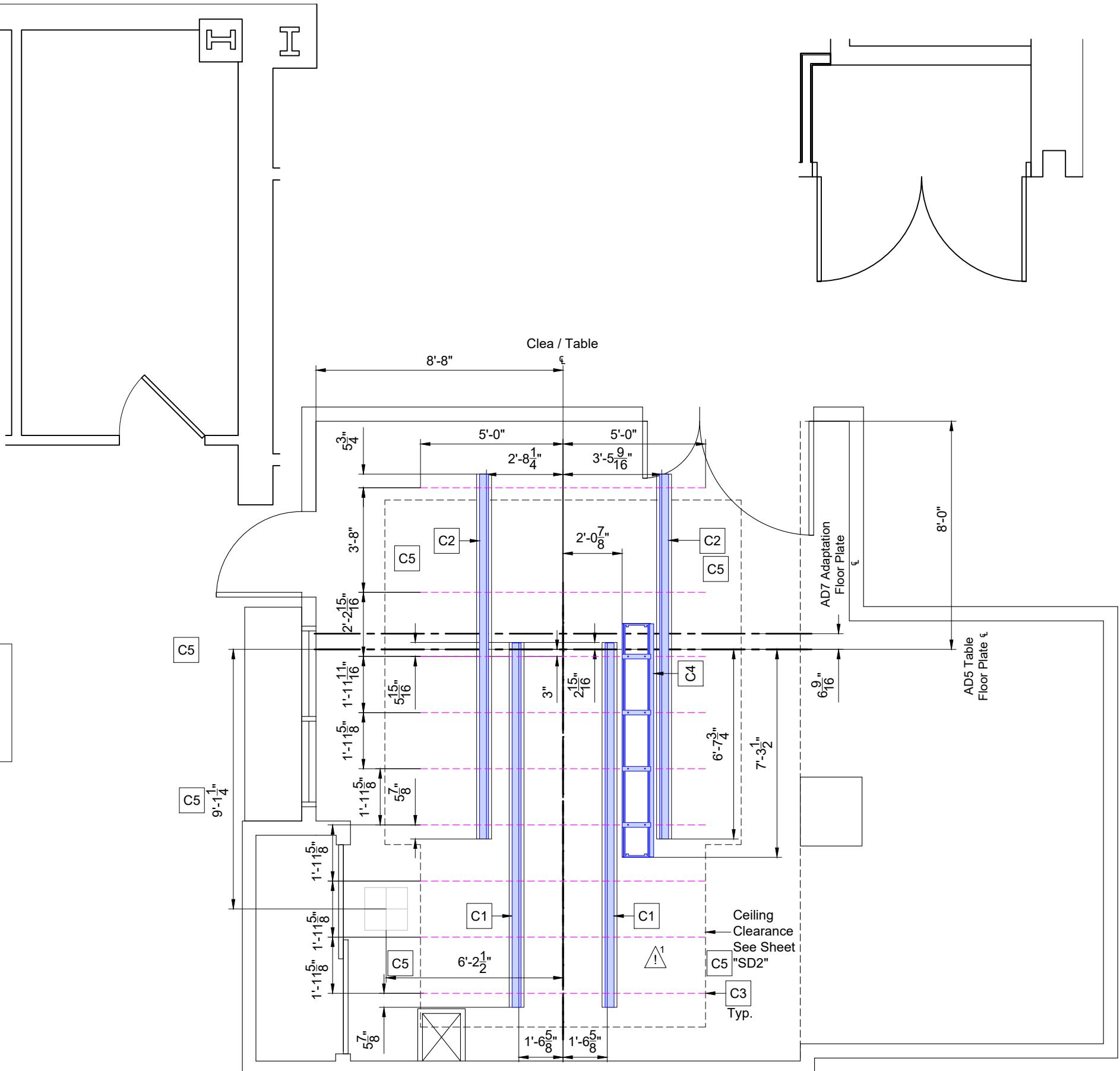
Required Unistrut Height: 9' - 6 $\frac{3}{16}$ ", + $\frac{3}{8}$ " / -0 (2900mm, +10mm / -0)
Unistrut height measured from finished floor to bottom of Unistrut.

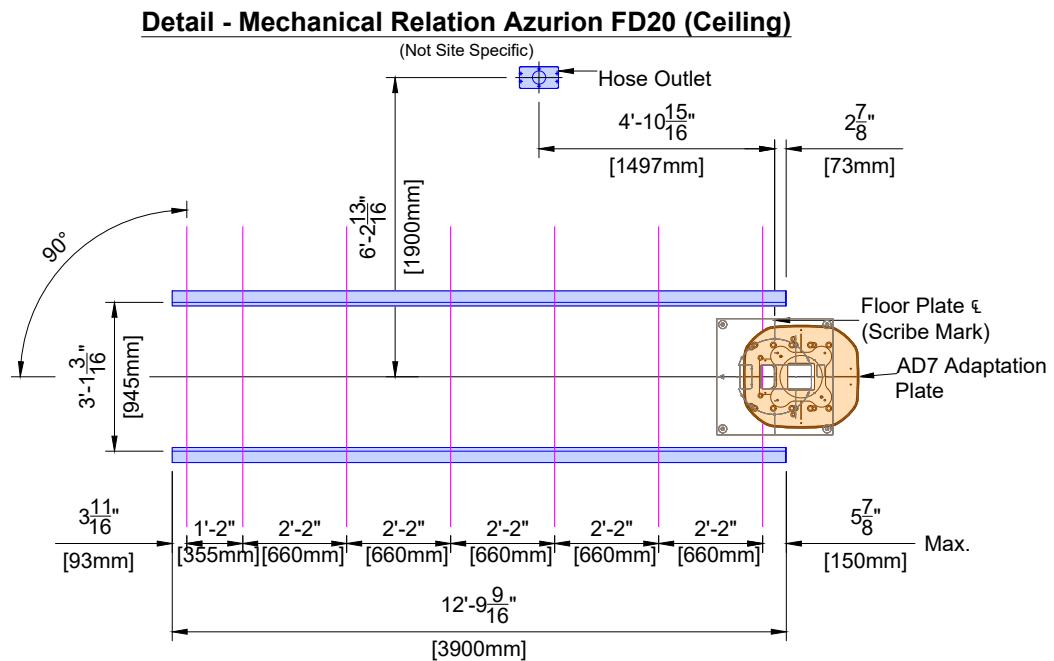


Ceiling Support Layout

1/4" = 1'-0"

Required Unistrut Height: 9' - 6 $\frac{3}{16}$ " , + $\frac{3}{8}$ " / -0 (2900mm, +10mm / -0)
Unistrut height measured from finished floor to bottom of Unistrut.





27" (685mm) maximum allowed distance between unistrut (seven unistrut required)

Floor plate supplied by Philips / installed by Contractor. Counterbored holes are sized for $\frac{1}{2}$ " (12mm) anchors per Seismic requirements.

Clea

Clea Bearing Forces:
 (Tension) $T_{max} = 2931$ lbs/fixing block
 (Shear) $V_{max} = 1227$ lbs/fixing block

AD7 Table

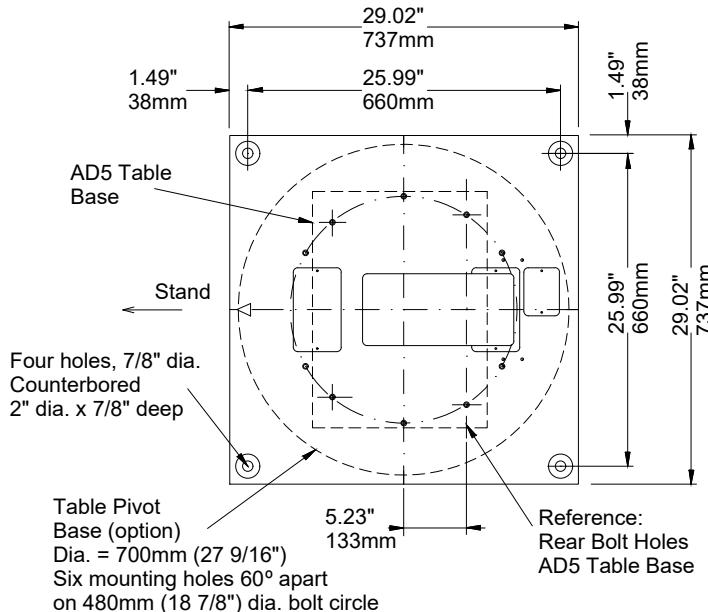
Floor Plate to Floor Bolt Forces:
 (Tension) $T_{max} = 1950$ lbs/bolt
 (Shear) $V_{max} = 776$ lbs/bolt

Note: The bearing force shown for the Clea is the maximum instantaneous equipment bearing load that can result from abusive use of the system. This force can occur at two locations (each fixing block) simultaneously on the same Unistrut (or equal) rail. If seismic forces must be considered, please refer to the seismic calculation sheets provided by Philips for the specific system components.

(17.0)

F2

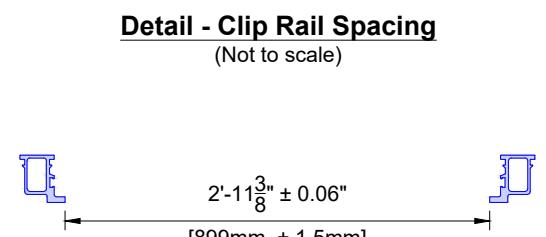
C1



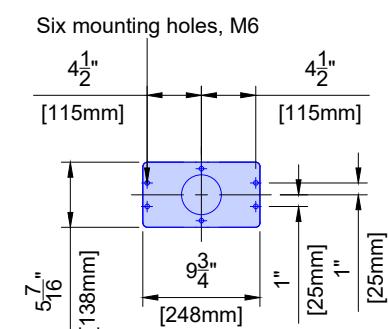
AD5 Universal Floorplate - Notes for Installation

(not to scale)

(10.0)



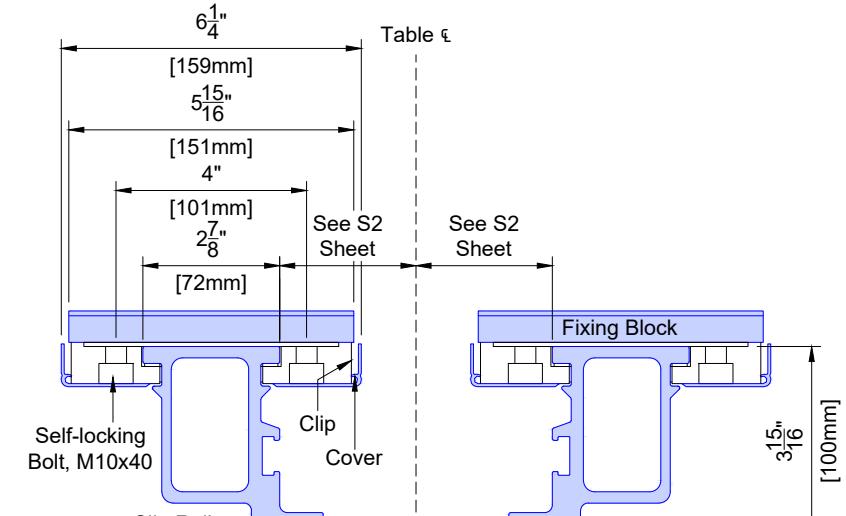
Detail - Cable Hose Outlet



(12.0)

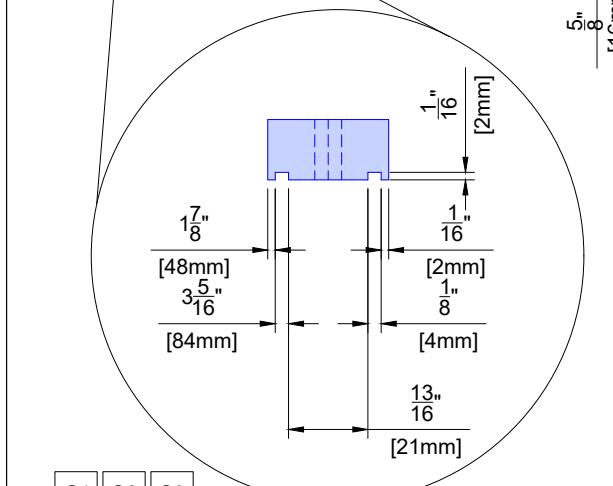
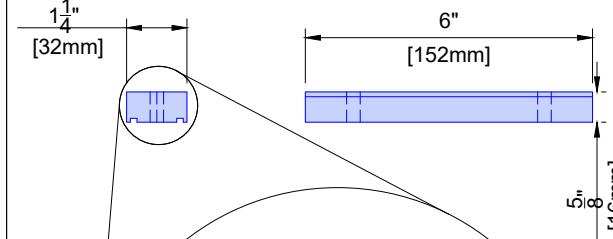
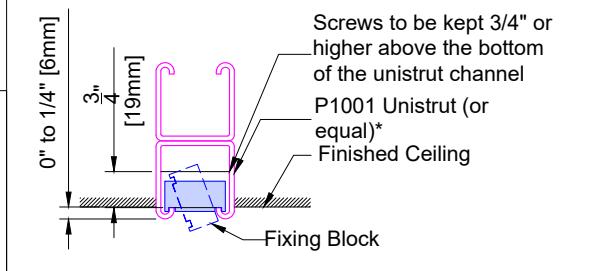
Detail - Clip Rail Cross-Section

(Not to scale)



Detail - Philips Fixing Block for Philips Ceiling Rails (Clip Rails)

(Not to scale)



C1 C2 C3

General Requirements:

1. Philips does not specify the overhead equipment support structure. Unistrut may or may not be used. If Unistrut are used, it is up to Unistrut and the structural engineer for the project to determine which of its products are appropriate for each project.
2. *P1001 Unistrut or equivalent is specified. An equivalent may be used as long as it meets Philips ceiling requirements, geometry of channel, and geometry of fixing block to be installed inside unistrut.

Finished Ceiling Requirements:

1. Finished ceiling must NOT be lower than the bottom of the Unistrut in order to prevent damage to the finished ceiling during the installation of clip rails. Finished ceiling height to be mounted 0" to $\frac{1}{4}$ " (6mm) above bottom of Unistrut.

Fixing Block Installation Requirements:

1. Nothing shall be attached to the Unistrut with any fastener that protrudes into the Unistrut which would interfere with positioning of the fixing block.
2. Fixing blocks for Philips ceiling rails (Clip rails) are designed to be installed in P1001 Unistrut.
3. The inside of the Unistrut must be clear of obstructions (including paint).

Unistrut Requirements:

1. Unistrut elements must be rigid and comply with the ceiling structure requirements. See SN sheet, line #4 "Ceiling Support Apparatus".
2. Welding Unistrut may warp Unistrut and deteriorate the structural integrity of the Unistrut. Consult the Structural Engineer of Record prior to welding any Unistrut.

Project	Azurion 7 C20
Philips Contacts	Project Manager: Chris Neugebauer Contact Number: (978) 257-0380 Email: chris.neugebauer@philips.com
Date Drawn:	4/17/2018
Quote:	1-1NSV3MX Rev. 9 Order: 6600382870.010000

Project Details	Drawing Number N-EAS180234
Date Drawn:	4/17/2018

Quote:	1-1NSV3MX Rev. 9
Order:	6600382870.010000

SD1

Azurion 7 C20
University of Vermont Medical Center
Burlington, VT
Room 22

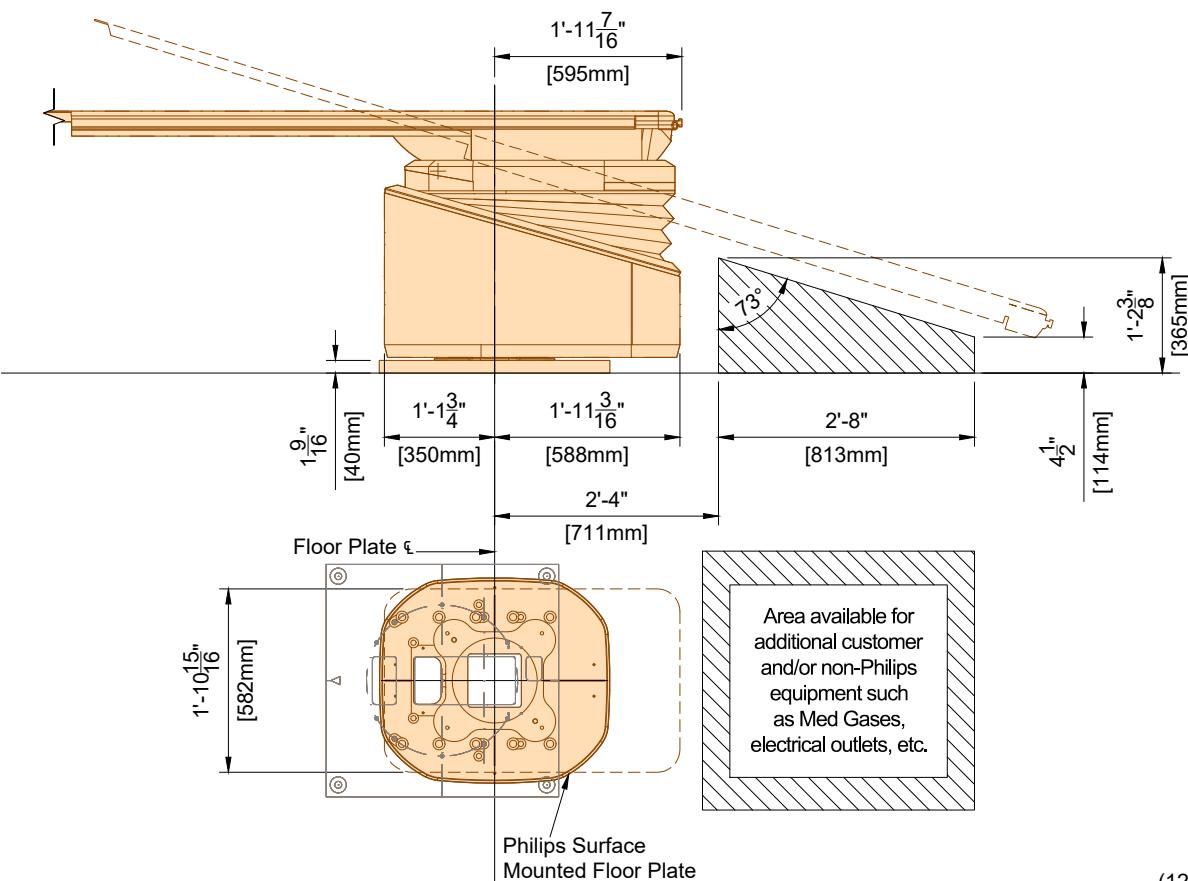
Project Details
Drawing Number
N-EAS180234
Date Drawn: **4/17/2018**
Quote: **1-NSV3MX Rev. 9**
Order: **6600382870.010000**

SD2

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Detail - AD7 SyncraTilt/Tilt Table, Fixed/Pivot Base - Clearance Area

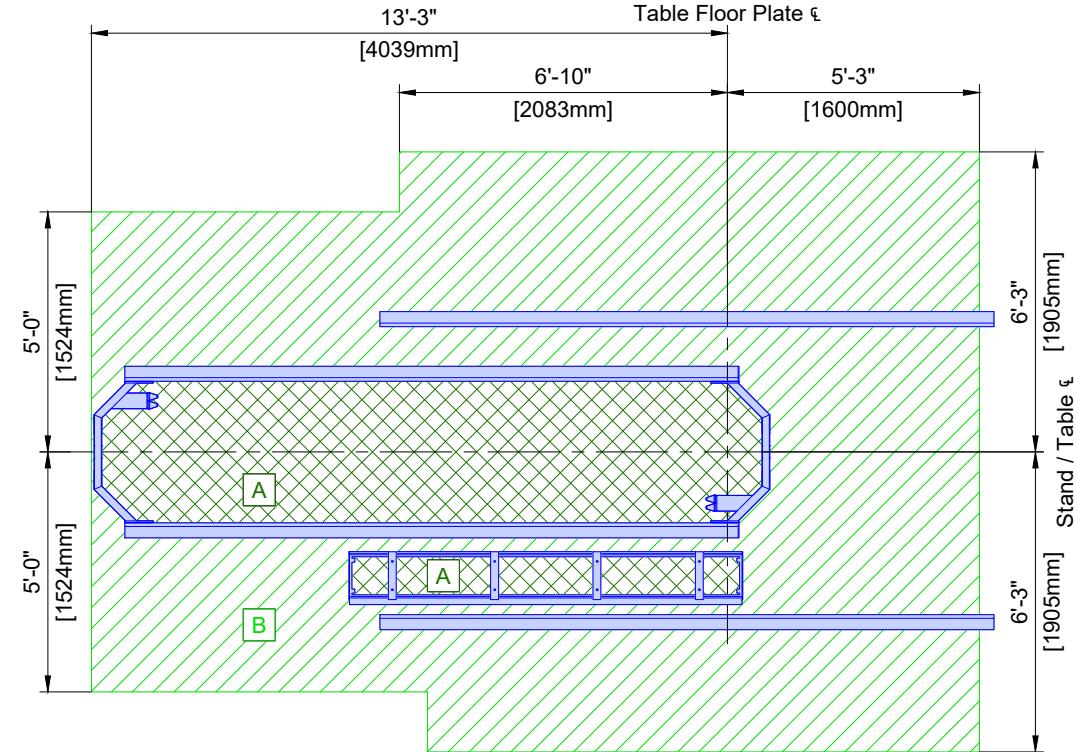
(Not to scale)



(12.0)

Detail - Restricted Ceiling Area for Objects that Project Below Finished Ceiling

(Not site specific)



(14.0)

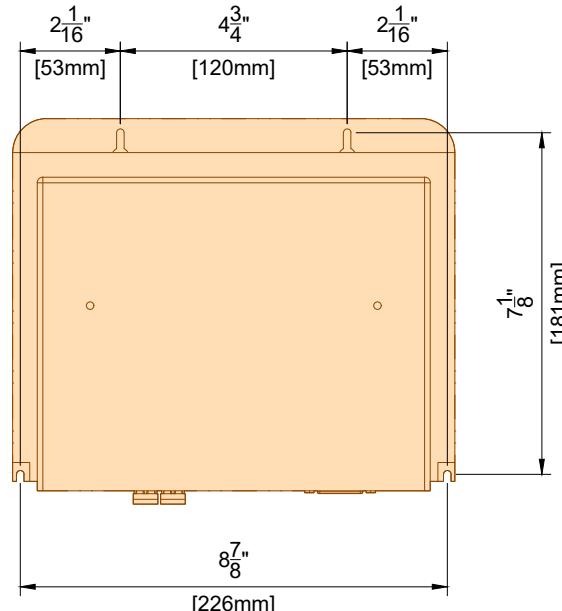
Pre-Evaluated and -Approved Anchor Reference List for Philips Installers

Anchors for items that are installed/anchored by customer/contractor shall be provided by customer/contractor. Anchors for items that are installed/anchored by Philips shall be provided by Philips. If customer's engineering documents specify anchors other than those listed below, the anchors shall be provided by customer/contractor and installed by Philips. In all instances, the wall and/or floor support are the sole responsibility of the customer/contractor. The customer's architect/engineer of record shall specify wall and/or floor support sufficient for the bolt forces shown on the details.

Equipment	Option	Anchor Style (provided by Philips)	Anchor Size (provided by Philips)	Qty.	Support Size & Material (provided & installed by customer/contractor)
Mavig Ceiling Track	A	Bolts, flat washer, lock washer, spring nuts	A307 Grade or ASME Grade 5 Bolts: $\frac{3}{8}$ " (10mm) x 2" (50mm) L Spring Nuts: $\frac{3}{8}$ " (10mm)	8	Unistrut
Control Room Connection Box (CY)	A	Round Phillips Head Self Drilling Screws	#10-16 x 1 $\frac{1}{2}$ " (38mm) L	3	Drywall with minimum 20 gauge Steel backing
	B	SPAX Multipurpose flat head screw	#10 x 1 $\frac{1}{2}$ " (38mm) L	3	Drywall with minimum 20 gauge Steel backing
	C	Toggler Snaptoggle and (round head screws)	#BA and (#10-24 x 2 $\frac{1}{2}$ " (63.5mm) L)	3	Minimum $\frac{5}{8}$ " (16mm) Drywall

Detail - Video Connection Box - Hole Pattern for Mounting

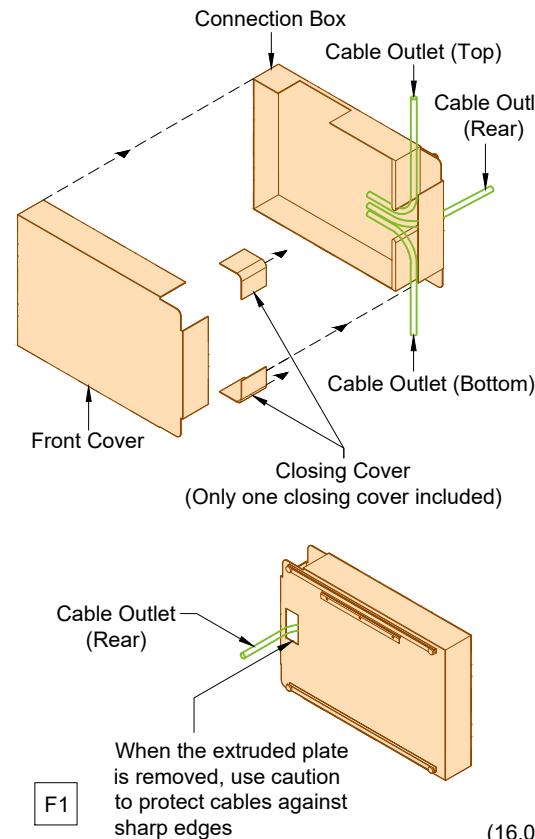
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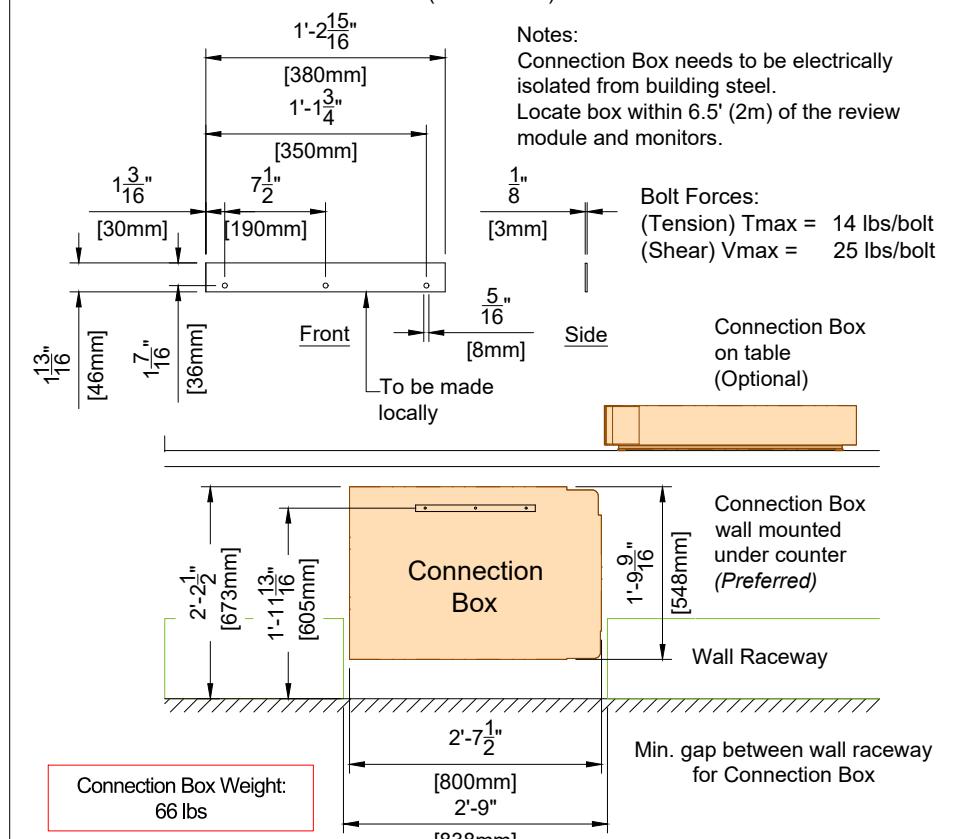
Detail - CY - Cable Outlets

(Not to scale)



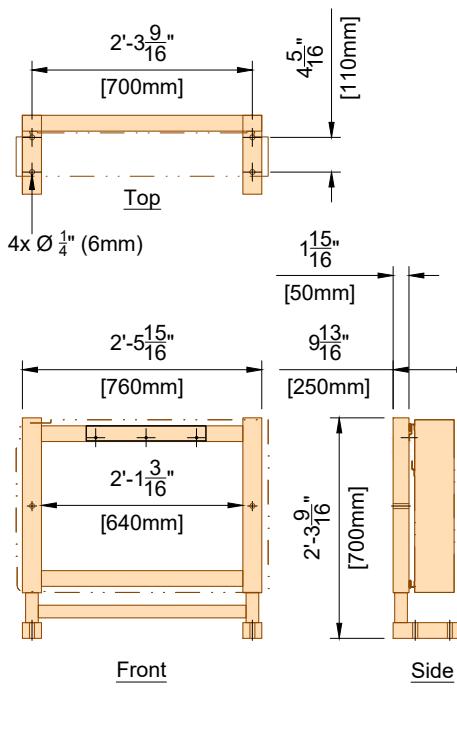
Detail - CY - Wall Mount Template

(Not to scale)



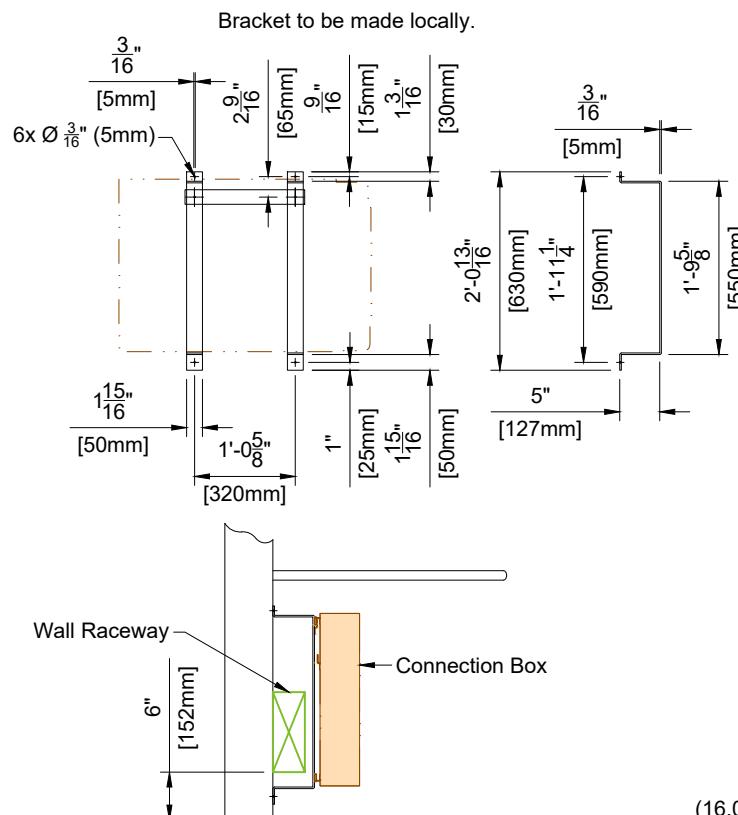
Detail - CY Support Frame Option

(Not to scale)



Detail - CY - Bracket Mount Option

(Not to scale)



(16.0)

Project Details

Drawing Number
N-EAS180234

Date Drawn: **4/17/2018**

Quote: **1-1NSV3MX Rev. 9**

Order: **6600382870.010000**

Azurion 7 C20
University of Vermont Medical Center
Burlington, VT
Room 22

Philips Contacts
Project Manager: Chris Neugebauer
Contact Number: (978) 257-0380
Email: chris.neugebauer@philips.com

Drawn By: Jorge Valle

SD3

04.19.2017

Emergency Power

Philips does not require equipment to be on emergency power. If the customer deems it necessary for the equipment to be supplied with emergency power, the following specifications must be applied:

The Mains 40E cabinet feeding an Azurion system will have an absolute peak current of <=380A @480V. Maximum momentary current <=80 Arms per phase when averaged over a 5-second window. Note that during acquisition, the current harmonics (including sub- and inter-harmonics) up to 1 kHz can be substantial. Account for : 30% for the mains frequency +/- the frame speed, up to 20% for the 5th harmonics, up to 10% for the 7th harmonics.

The transfer switch must be double actuator type with a minimum time delay of 400 milliseconds in both directions (utility to emergency - emergency to utility). This time is required to allow filters to dissipate their stored energy before a different mains voltage is applied.

To reduce the emergency power generator load demand, Philips equipment can be put into a lower power mode of operation by the connection of a potential free closure, normally open contact, from the transfer switch. This potential free, normally open contact, has to be rated for 24VDC/100mA. For Philips cardio/vascular Azurion equipment, the two wires from this contact have to be routed to the equipment area and connected to the System Coordinator cabinet (MA).

Maximum differential mode induced disturbance voltage on these wires shall be a <3V peak at all frequencies. Maximum common mode current on these wires shall be less than 3 micro-amp at frequencies between 30-1000MHz to meet EMC regulations.

For systems delivered to site before Jan 2016 or with SIB (system interface box) 4522163320978. When this interface is used a Sub-D capacitive filter adapter with 5.6nF between pins and chassis shall be placed on X14 of the SIB input in the MA-cabinet (e.g. Amphenol FCE17B25AD290).

(16.0)

Electrical Requirement Notes for Systems with Mains 40E Cabinet

Electrical power distribution at the facility shall comply with:

Utilization voltages per ANSI C84.1 - 2006 range A.

Voltage to be supplied is 3 phase, Wye or symmetric Delta 3-line +PE.

Phase conductors to be sized for instantaneous voltage drop per NEC 517.73 and Philips recommendations.

All Philips equipment is grounded via the equipment insulated ground wire. Metal raceway bonding shall be used as a secondary ground fault return path only for the supply mains to the equipment. The raceway system ground and isolated equipment ground shall be bonded together via the ERB terminal jumpers.

The Philips system has a private ground domain per clause 250.96B of the NEC. The raceway from the X-ray breaker (CB) to the Mains 40E Cabinet shall be supplemented by an internal insulated equipment grounding conductor installed in accordance with clause 250.146(D) of the NEC. The Azurion equipment ground domain and the branch circuit ground domain are bonded together in the ERB via a ground bonding jumper.

ANSI / NFPA 70 - National Electrical Code

Article 250 - Grounding

Article 517 - Healthcare Facilities

ANSI / NFPA 99 - Healthcare Facilities

NEMA standard XR9: 1984-R2000 - Power Supply Guideline for X-ray Machines

Power Quality Guidelines

1. Power supplied to medical imaging equipment must be separate from power feeds to air conditioning, elevators, outdoor lighting, and other frequently switched or motorized loads. Such loads can cause waveform distortion and voltage fluctuations that can hinder high quality imaging.
2. Equipment that utilizes the facility power system to transmit control signals (especially clock systems) may interfere with medical imaging equipment, thus requiring special filtering.
3. The following devices provide a high impedance, nonlinear voltage source, which may affect image quality: Static UPS systems, Series filters, Power conditioners, and Voltage regulators. Do not install such devices in the supply mains branch circuit of the Azurion system without consulting Philips installation or service personnel.
4. Line impedance is the combined resistance and inductive reactance of the electrical system and includes the impedance of the power source, the facility distribution system, and all phase conductors between the source and the imaging equipment. Philips publishes recommended conductor sizes based on equipment power requirements, acceptable voltage drops, and assumptions about the facility source impedance. The minimum conductor size is based on the total line impedance and NEC requirements. Unless impedance calculations are performed by an electrical engineer, the recommended values must be used.

(16.0)

General Electrical Information

1. General

The customer shall be solely responsible, at its expense, for preparation of the site, including any required electrical alterations. The site preparation shall be in accordance with this plan and specifications, the architectural/construction drawings and in compliance with all safety and electrical codes, the customer shall be solely responsible for obtaining all electrical permits from jurisdictional authority.

2. Materials and Labor

The customer shall be solely responsible, at its expense, to provide and install all electrical ducts, boxes, raceways (conduits, wireways, auxiliary gutters etc.), fittings, bushing, etc., As separately specified herein.

3. Electrical Ducts and Boxes

Electrical ducts and boxes shall be accessible and have removable covers. Floor ducts and boxes shall have watertight covers. Ducts shall be divided into as many as four separate channels by metal dividers, separately specified herein, to separate wiring and/or cables into groups as follows: Group A: Branch circuit equipment supply mains power wires together with the branch circuit isolated equipment bonding wire. Group B: Equipment Secondary Circuit AC supply and associated isolated ground cable/wire harnesses. Group C: Equipment signal wires and cable harnesses plus equipment low-voltage DC supply cable/wire harnesses. Group D: X-Ray high-voltage cables, the use of 90 deg. ells is not acceptable. On ceiling duct and wall duct use 45 deg. bends at all corners. All intersecting points in duct to have cross over tunnels supplied and installed by contractor to maintain separation of cables based on 725.136 for low voltage signaling cables and conductors and 517.80 for communications and signaling cables in health care applications. Secondary circuits of transformer powered communications and signaling systems are not required to be enclosed in raceways unless otherwise specified by Chapter 7 or Chapter 8. All wire harnesses of the Azurion system are required to be run in a raceway (wireway) dedicated to Azurion wire harnesses. No foreign wiring shall be run in the same wireway together with the Azurion wire harnesses. Separation between Group A and other groups is mandatory along the full run of group A wires. Separation between groups B, C, and D is recommended for the first 3 meters behind the equipment cabinets and for the locations where wire-harness over-length is suspended.

4. Raceways (Conduit)

Raceway (Conduit) point - to - point runs shall be as direct as possible. Empty conduit runs used for cables may require pull boxes located along the run. Consult with Philips. A pull wire or cord shall be installed in each conduit run. All conduits which enter duct prior to their termination point must maintain separation from other cables via use of dividers, cross over tunnels, or conduit supplied and installed by contractor from entrance into duct to exit from duct. Do not use flex conduit unless approved by Philips Service.

5. Conductors

All conductors, separately specified, shall be 90°C stranded copper, rung out and marked.

6. Disconnecting Means

A disconnecting means shall be provided as separately specified.

7. Warning Lights and Door Switches

"X-ray on" warning lights and x-ray termination door switches should be provided at all entrances to x-ray rooms as required by code.

8. Dimmer Switches

X-ray room lights should be provided with dimmer switches.

Project Details Project Number : N-EAS180234 Date Drawn : 4/17/2018 Quote : 1-NSV3MX Rev. 9 Order : 6600382870.010000	Philips Contacts Project Manager : Chris Neugebauer Contact Number : (978) 257-0380 Email : chris.neugebauer@philips.com Drawn By : Jorge Valle	Project Azurion 7 C20 University of Vermont Medical Center Burlington, VT Room 22
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Electrical Notes

1. The contractor will supply & install all breakers, shunt trip and incoming power to the breakers. The exact location of the breakers and shunt trips will be determined by the architect or contractor.
2. The contractor shall supply & install all pull boxes, raceway runs, stainless steel covers, etc. Conduit/raceways must be free from burrs and sharp edges over its entire length. A Greenlee pull string/measuring tape (part no. 435, or equivalent) must be provided with raceway runs to validate runs are within length restrictions.
3. All pre - terminated, cut to length cables, will be supplied and installed by Philips. All cables and conductors to the equipment supply mains branch circuit breaker shall be supplied and installed by the contractor, subject to local arrangements.
4. Provide and install 50mm diameter chase nipples between adjacent wall boxes.
5. Electrical raceway ducts shall be installed with removable covers. The raceway should be accessible for the entire length. In case of non - accessible floors, walls and ceilings, an adequate number of access hatches should be supplied to enable installation of cabling. Approved raceways may be substituted. All raceways will be designed in a manner that will not allow cables to fall out of the raceway when the covers are removed. In most cases, this will require above - ceiling raceway to be installed with the covers removable from the top. Raceway systems as illustrated on this drawing are based upon length of furnished cables. Any changes in routing of raceway systems could exceed maximum allowable length of furnished cables. Conduits or raceways installed above ceilings must be kept as near as practicable to finished ceilings and still permit accessibility.
6. Raceway sizes shall be verified by the architect, electrical engineer or contractor, in accordance with local or National Electrical Code, whichever govern.
7. Convenience outlets are not shown on the plans. Their number and location are to be specified by the customer/architect.
8. Electrical contractor shall install grounding and bonding conductors at raceway openings within wall boxes as required by national and local electrical codes. Ground bond wires and lugs shall be installed in such a way to prevent the inadvertent contact with the installed Philips equipment to maintain Philips isolated ground scheme and maintain patient safety.
9. Install an insulated stranded ground wire per feeder/conductor size from the Main Disconnect (CB) to the ERB (recommended size 1 AWG) and from the ERB to the Mains 40E Cabinet (recommended size 2 AWG).
10. Philips equipment must be electrically isolated from conduits, raceways, ducts, seismic anchoring, floor anchoring, etc.

(16.0)



Electrical Legend			
A	Furnished and installed by Philips		
B	Furnished by customer/contractor and installed by customer/contractor		
C	Installed by customer/contractor		
D	Furnished by Philips and installed by contractor		
E	Existing		
F	Future		
G	Optional		
	Item Number	Detail Sheet	
	Description		
B	CB	480V, 3 phase, Type D 125 A circuit breaker with long-time delay (e.g. Square D HDL36125 or equivalent). Run power from breaker to "MA", leaving an 8' (2440mm) tail at "MA". See Sheet "ED1" for power quality requirements. Location per local code or owner requirements. (Not shown on plan)	ED1 ED4
B	ST	Shunt Trip (emergency off) - Large mushroom-head button on remote control station with contacts to operate feature of "CB" (if required by local code or owner, and mandatory for VA and D.O.D installations). If UPS is utilized, EPO switch will run 2 sets of communication wires to input breaker to UPS and to UPS itself (Not shown on plan)	ED4
B	GE	Local building steel (i.e. structural steel, cold water pipe > 2" (50mm), ground rod). (Not shown on plan)	
E	ERB	Equi-Potential Reference Bar mounted in a 12" (305mm) W x 12" (305mm) H x 4" (105mm) D pull box with hinged cover, surface mounted to the bottom of "WR2" when possible.	ED2
D	ME MP MB	19 1/4" (490mm) W x 67" (1705mm) H x 4" (105mm including rubber isolation strips) D flanged-edge terminal back box, surface mounted 82" (2085mm) A.F.F. to top of box.	ED3
B	CY WM VB1 VB2	Grommet opening on "WR3". Approximate location shown is recommended and may be changed - verify relocation with local Philips Service.	
E	MSA	10" (255mm) W x 10" (255mm) L x 6" (155mm) D floor box, under the floor with a 5" (130mm) core drill up to the underside of AD7 Adaptation plate. Contractor to provide protection around core drill hole so that there are no sharp edges for protection of cables. Consult with local Philips Service. Extend as needed.	
E	SP	18" (460mm) W x 18" (460mm) L x 6" (155mm) D ceiling box, flush mounted with removable screw-type cover plate. Provide one 3" (80mm) diameter knockout.	
E	VB9 TV VB10	10" (255mm) W x 10" (255mm) L x 4" (105mm) D ceiling box, flush mounted with removable screw-type cover plate. Provide a 2 1/2" (65mm) round cutout (Two 2 1/2" (65mm) round cutouts are required for systems with two monitor carriages - verify with local Philips Service). VB9 and VB10 to be mounted back of monitor.	
B	WR1 WR2	10" (255mm) W x 4" (105mm) D wall raceway, surface mounted with removable screw-type cover plate. "WR1" is at 5" (130mm) A.F.F. to bottom of raceway. "WR2" is at 82" (2085mm) A.F.F. to bottom of raceway.	ED3
E	WR3	10" (255mm) W x 3 1/2" (90mm) D wall raceway, surface mounted with removable screw-type cover plate. "WR3" is at finished floor. "WR3" may need to be cut at the location of the "CY" connection box.	ED4
E	ATY	Auxiliary Box - 6" (155mm) W x 6" (155mm) H x 4" (105mm) D wall box, flush mounted 70" (1780mm) A.F.F. to the bottom of the box with removable screw-type cover plate. Height and location shown are recommended and may be changed - verify height and relocation with local Philips Service.	
E	CR	10" (255mm) W x 3 1/2" (90mm) D ceiling raceway mounted above ceiling line with removable screw-type cover plate accessible from top.	
E	R1	10" (255mm) W x 3 1/2" (90mm) D rise duct with removable screw-type cover plate. R1 is surface mounted from wall raceway to ceiling raceway.	
B	WL	Warning Light - Provide a surface or flush mounted light fixture above door to indicate when X-ray is on, if required by local code or physicist of record. (Not shown on plan)	
B	DS	Door Switch - 120V/5A switch limited to open when door is open. Mount in upper corner on strike side of main entry door(s) (Cooper no. 1665 or equivalent), if required by local code or physicist of record. See Sheet "ED3" diagram for connection details. (Not shown on plan)	ED3 ED3

Electrical Legend			
A	Furnished and installed by Philips		
B	Furnished by customer/contractor and installed by customer/contractor		
C	Installed by customer/contractor		
D	Furnished by Philips and installed by contractor		
E	Existing		
F	Future		
G	Optional		
	Item Number	Detail Sheet	
	Description		
B	N1	RJ45 type Ethernet 10/100/1000 Mbit network connector with access to customer's network. Locate within 10' (3050mm) of network card. Network fiber optic and Ethernet cabling, connectors, wall boxes, patch panels, etc. are the responsibility of the purchaser. Philips assumes no responsibility for procurement, installation, or maintenance of these components.	
B	N2	RJ45 type Ethernet 10/100/1000 Mbit network connector. Access to customer's network via their remote access server is needed for Remote Service Network (RSN) connectivity.	
B	S	120V/20A dedicated duplex outlet for service in the equipment room. (Not shown on plan)	
B	IH	120V/20A dedicated duplex outlet IH (Interventional Hardware).	
B	VB3 VB4 VB5 VB6 VB7 VB8	4" (105mm) W x 4" (105mm) H x 4" (105mm) D pull box with removable screw-type cover plate, flush mounted. Exact height to be determined. Location shown is recommended and may be changed - verify relocation with local Philips Service.	
D	TR	4" (105 mm)W x 4" (105 mm)L x 2 1/2" (65 mm)D box for the transformer used for the M LED 130F Surgical Light. Location to be determined locally. Recommended location is above the ceiling near the surgical light. Verify location with local Philips Service. Hardwire 115V/20A hospital power to "TR".	AD5
B	M3	4" (105 mm)W x 4" (105 mm)L x 2 1/2" (65 mm)D ceiling box, flush mounted with removable screw-type cover plate. Recommended location is near or above the cable spooler.	
B	CB2	UPS input breaker. 150 Amp, 3-pole circuit breaker with shunt trip. (Not shown on plan).	ED4
D	UPS	UPS - 80 kVA.	ED4
D	BC	Battery Cabinet for UPS.	ED4
D	RSAP	Remote Status Alarm Panel (wall mounted in the control area). Exact height to be determined. Location shown is recommended and may be changed - verify relocation with customer/contractor.	ED4
B	3	120VAC with 1Amp power draw RSAP (Remote Status Alarm Panel)	ED6
B	12	12" (305mm) W x 12" (305mm) L x 6" (155mm) D junction box above ceiling in accessible location in or near room	
B	6	6" (155mm) W x 6" (155mm) L x 6" (155mm) D junction box above ceiling in accessible location in or near room	
B	A	Provide 4GA electrical box no less than 2.5" (65mm) deep (pass-through for all video and control cables to station) with 4GA plaster ring, flush mounted 18" (460mm) above finished floor to center of box.	
A	Mi	4 11/16" (120mm) electrical box with 1GA plaster ring, surface mounted at the foot of bed outside of ceiling stand movement (for ceiling-mount microphone).	
B	R	12" (305mm) W x 12" (305mm) H x 4" (105mm) D junction box in wall behind equipment rack, flush mounted 44" (1120mm) above finished floor to center of box.	
A	S1 S2 S3 S4 S5 S6	Recessed ceiling mounted loudspeaker (typical)	

See E1 - E4 sheets for conduit and raceway requirements.

Project Details	Drawing Number N-EAS180234	Project Contacts Project Manager: Chris Neugebauer Contact Number: (978) 257-0380 Email: chris.neugebauer@philips.com	Project Azurion 7 C20 University of Vermont Medical Center Burlington, VT Room 22
	Date Drawn: 4/17/2018	Quote: 1-NSV3MX Rev. 9 Order: 6600382870.010000	Drawn By: Jorge Valle



Electrical Legend		
	A Furnished and installed by Philips B Furnished by customer/contractor and installed by customer/contractor C Installed by customer/contractor D Furnished by Philips and installed by contractor E Existing F Future G Optional	
	Item Number	Detail Sheet
	Description	
B		Optional desk speaker connection: provide 4 $\frac{11}{16}$ " (120mm) electrical box with 1GA plaster ring (typical), flush mounted 18" (460mm) above finished floor to center of plate.
B		Wall mount wireless mic receiver: provide 4 $\frac{11}{16}$ " (120mm) electrical box with 1GA plaster ring (typical), flush mounted 72" above finished floor to center of box.
B		Wall mount connection plate: provide 4 $\frac{11}{16}$ " (120mm) electrical box with 1GA plaster ring (typical), surface mounted 18" (460mm) above finished floor to center of plate. Verify locations and quantity with customer. Add additional $\frac{3}{4}$ " conduit to "12" for each additional wall plate.
B		Duplex outlet(s) for AV/IT equipment on dedicated 20A circuit. AV power receptacles shall be provided with hospital grade outlets wired in accordance with NEC Article 517 and all applicable codes. AV branch circuits shall be dedicated (for local AV/IT equipment only) and with respect to any given room shall be fed from a common subpanel.
B		(1) analog (pots) phone line required for rack mounted equipment by Image Stream.
B		120V/20A dedicated duplex outlet for Pedestal Injector.

Electrical Legend		
	A Furnished and installed by Philips B Furnished by customer/contractor and installed by customer/contractor C Installed by customer/contractor D Furnished by Philips and installed by contractor E Existing F Future G Optional	
	Item Number	Detail Sheet
	Description	

See E1 - E4 sheets for conduit and raceway requirements.

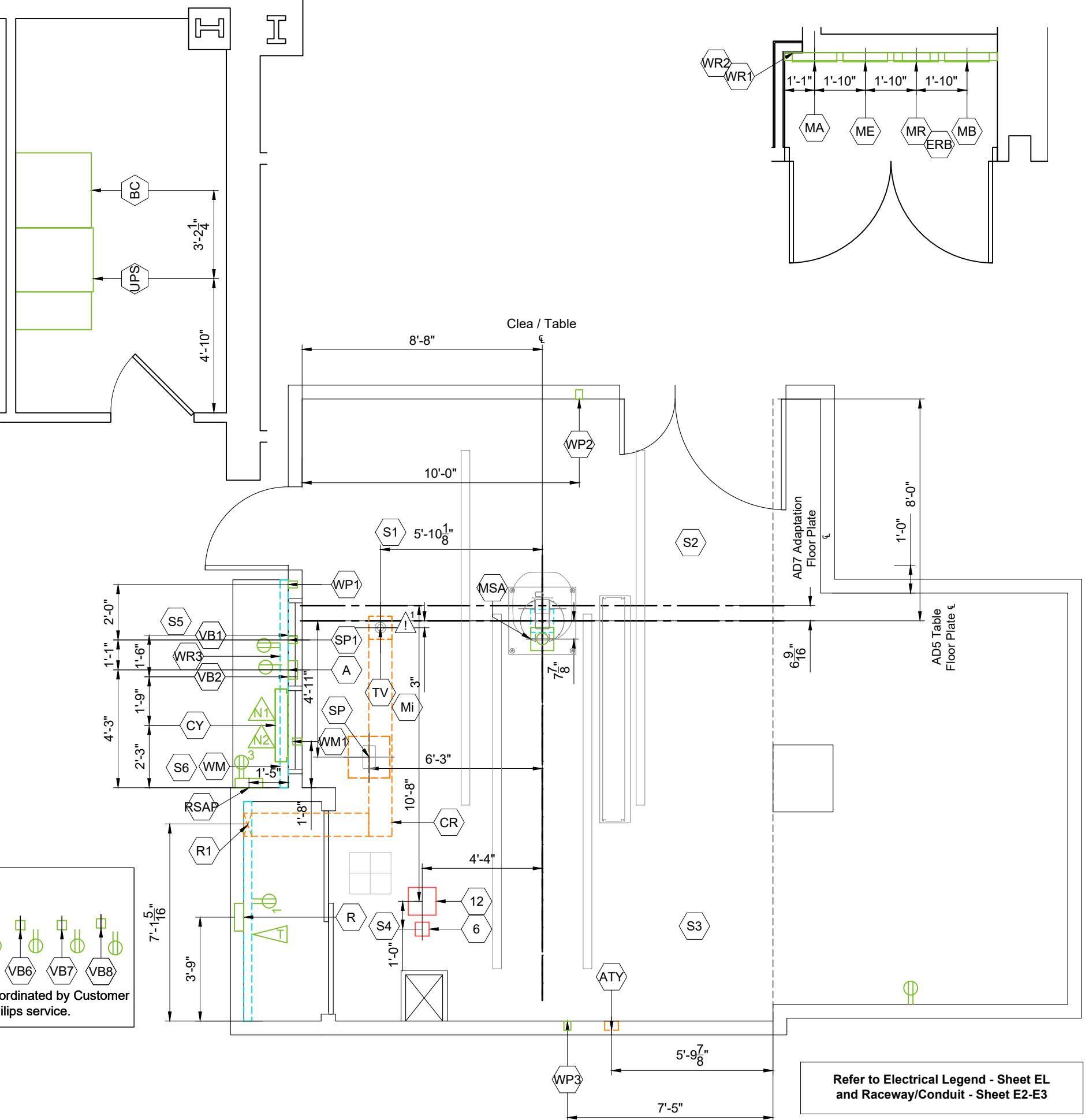
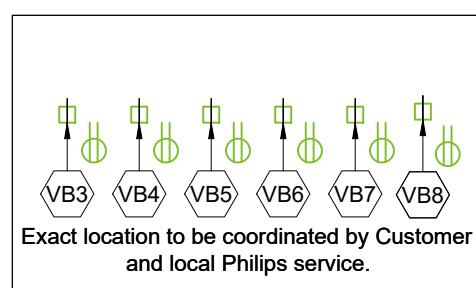
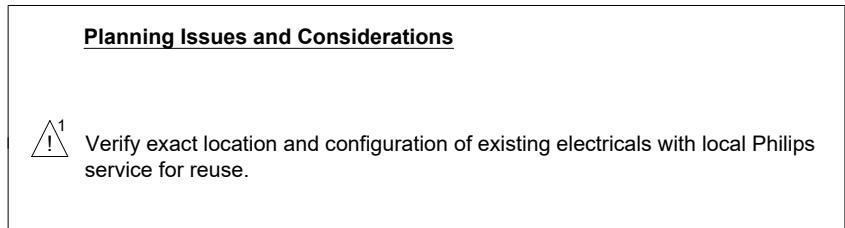
Project Details	Philips Contacts	Project
Drawing Number N-EAS180234	Project Manager: Chris Neugebauer Contact Number: (978) 257-0380 Email: chris.neugebauer@philips.com	Azurion 7 C20
Date Drawn: 4/17/2018		University of Vermont Medical Center
Quote: 1-1NSV3MX Rev. 9		Burlington, VT
Order: 6600382870.010000		Room 22

EL2

Electrical Layout

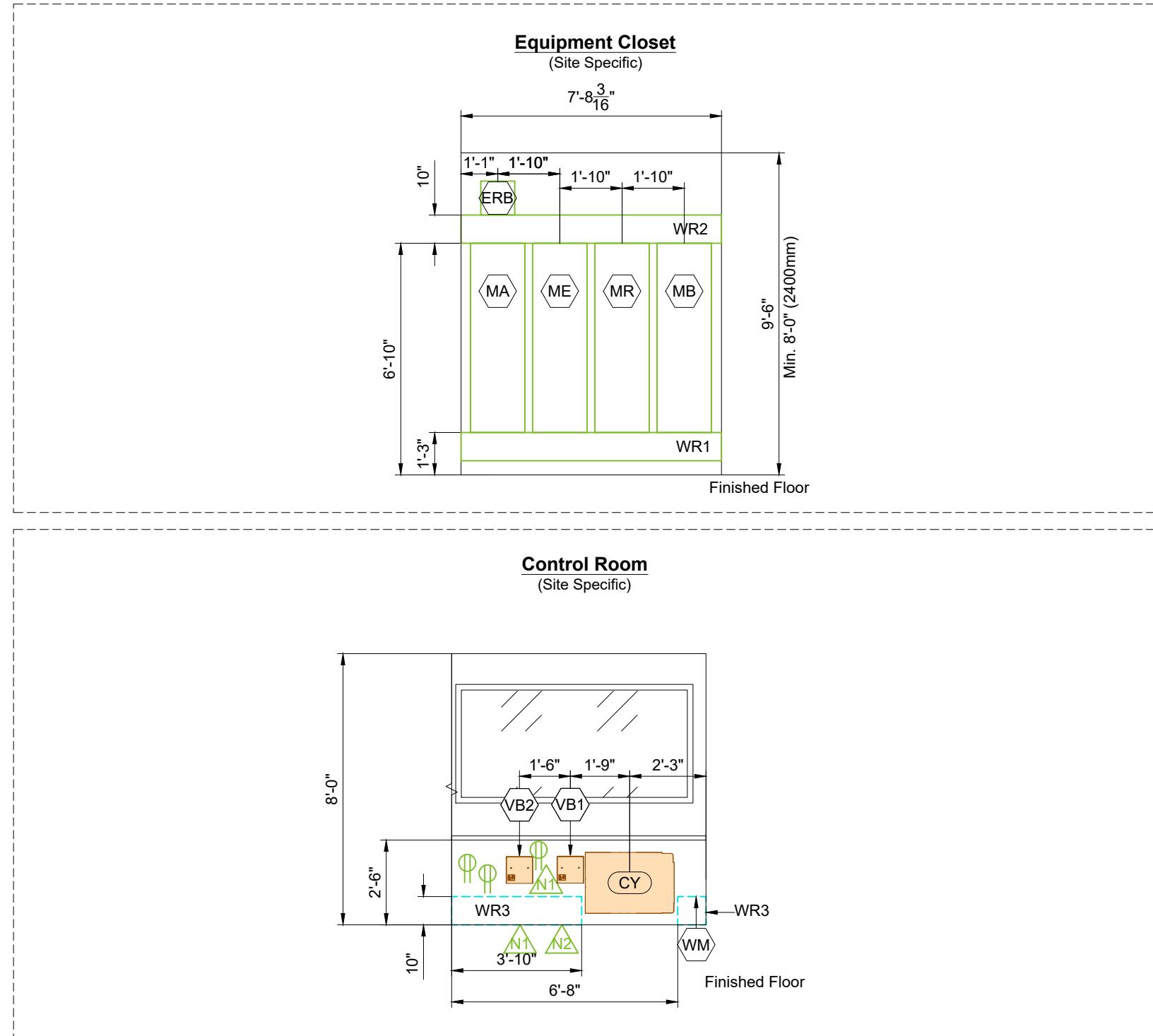
1/4" = 1'-0"

Required Unistrut Height: 9' - 6 $\frac{3}{16}$ ", + $\frac{3}{8}$ " / -0 (2900mm, +10mm / -0)
Unistrut height measured from finished floor to bottom of Unistrut.



Project Details		Philips Contacts	Project
Drawing Number	N-EAS180234	Project Manager: Chris Neugebauer Contact Number: (978) 257-0380 Email: chris.neugebauer@philips.com	Azurion 7 C20
Date Drawn:	4/17/2018		University of Vermont Medical Center
Quote:	1-NSV3MX Rev. 9 Order: 6600382870.010000		Burlington, VT Room 22
Drawn By:	Jorge Valle		

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Note: The use of 90 degree ellipses is not acceptable. Use 45 degree bends at all raceway corners. For raceway (conduit) runs, use the minimum bending radius specific to the raceway (conduit) diameter. The use of crossover tunnels at all applicable locations is required. The above mentioned recommendations will help to ensure the integrity of the cables and fiber optic runs.

- * **Countertop Height Guide:**
30" (765mm) for standard seated height.
36" (915mm) for standard standing height.
- * **Ensure that the wall junction boxes are mounted perpendicular to the floor.**
- * **Verify exact ceiling height of Equipment and Control Room Area.**
- * **Architect to coordinate with end users/technicians to determine final placement of control desk components prior to installation in order to avoid rework. Architect to coordinate with Philips Project Manager to reflect final placement on Philips drawings.**

E2	Project Details Drawing Number N-EAS180234 Date Drawn: 4/17/2018 Quote: 1-NSV3MX Rev. 9 Order: 6600382870.010000	Philips Contacts Project Manager: Chris Neugebauer Contact Number: (978) 257-0380 Email: chris.neugebauer@philips.com Drawn By: Jorge Valle	Project Azurion 7 C20 University of Vermont Medical Center Burlington, VT Room 22
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Azurion 7 C20
University of Vermont Medical Center
Burlington, VT
Room 22

Project

Philips Contacts

Project Manager: Chris Neugebauer

Contact Number: (978) 257-0380

Email: chris.neugebauer@philips.com

Drawn By: Jorge Valle

Project Details

Drawing Number

N-EAS180234

Date Drawn: 4/17/2018

Quote: 1-NSV3MX Rev. 9

Order: 6600382870.010000

E3

04.19.2017

Raceway (Conduit) Required																																																																																																																																																																																																																															
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Raceway (Conduit) Required									
General Notes									
1. All raceway (conduit) runs must take most direct route point to point.									
2. A Greenlee pull string/measuring tape (part no. 435, or equivalent) must be provided with raceway (conduit) runs									
A Raceway (Conduit) supplied/installed by contractor - Philips cables installed by Philips B Raceway (Conduit) supplied/installed by contractor - Philips cables installed by contractor C Raceway (Conduits) and cables supplied and installed by contractor D Raceway (Conduit) existing - cables supplied and installed by Philips E Raceway (Conduit) existing - cables supplied by Philips and installed by contractor F Raceway (Conduit) existing - cables supplied and installed by contractor G Optional equipment, verify with local Philips Service									
* P Power (AC) * D Power (DC) * G Ground * S Signal * H High Tension * C Cooling Hose * A Air Supply Hose									
Raceway (Conduit)			Raceway (Conduit) Quantity	Cable Type (*)	Minimum Raceway (Conduit) Size	Maximum (Raceway) Conduit Length	Special Requirements		
Run No.	From	To							
A 61	S5	6	1	S	3/4"	50'			
A 62	S5	S6	1	S	3/4"	20'			
A 63	SP1	6	1	S	3/4"	50'			
A 64	12	Mi	1	S	3/4"	50'			
A 65	12	WM1	1	S	3/4"	50'			
A 66	12	WP1	1	S	3/4"	50'			
A 67	12	WP2	1	S	3/4"	50'			
A 68	12	WP3	1	S	3/4"	50'			
A 69	12	A	2	S	1 1/4"	50'			
A 70	12	6	2	S	1 1/2"	50'			
A 71	12	Control Interface	1	S	3/4"	50'	Lutron Lighting Control Interface to be located in equipment closet by electrician		
C 72	UPS	MA	1	S	Per N.E.C.	Per N.E.C.			
C 73	UPS	ERB	1	G	Per N.E.C.	Per N.E.C.			
C 74	RSAP	UPS	1	S	Per N.E.C.	Per N.E.C.	For Remote Status Alarm Panel.		
C 75	CB	MA	1	P	Per N.E.C.	Per N.E.C.			

Raceway (Conduit) Required									
General Notes									
1. All raceway (conduit) runs must take most direct route point to point.									
2. All raceway (conduit) runs must have a pull string.									
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E4	Project Details	Philips Contacts	Project
	Drawing Number N-EAS180234	Project Manager: Chris Neugebauer Contact Number: (978) 257-0380 Email: chris.neugebauer@philips.com	Azurion 7 C20
	Date Drawn: 4/17/2018		University of Vermont Medical Center
	Quote: 1-NSV3MX Rev. 9		Burlington, VT
	Order: 6600382870.010000		Room 22

Power Quality Requirements (Mains 40E Cabinet)

Maximum Rated Power	100kW
Supply Configuration	3 phase, equally sized insulated power conductors and an insulated equipment grounding conductor. Insulated grounding conductor shall have the same or larger size than line conductors. Line wires shall be no smaller than 6AWG, 90 degrees Celsius temperature or higher temperature rating. The conductor size is dependant on the upstream circuit breaker rating: Minimum 2 AWG for 125 circuit breaker rating.
Nominal Line Voltage	480 VAC, 60 Hz
Line Voltage Variation	Voltage Variations are never to exceed $\pm 10\%$ when measured using 10 minute mean RMS values with a measurement window of 1 week. At least 95% of all measured 10 minute mean RMS values shall be within $\pm 5\%$ of the configured nominal voltage.
Line Voltage Balance	2% maximum of nominal voltage between phases
Frequency Variation	± 1.0 Hz
Voltage Surges	To 110% of steady-state voltage 100 msecs. Maximum duration, 6 per hour max.
Voltage Sags	To 90% of steady-state voltage 100 msecs. Maximum duration, 6 per hour max.
Line Impulses	1000 VPK above phase-neutral RMS absolute maximum. No more than 1 impulse per hour to exceed 500 VPK.
Neutral-Ground Voltage	2.0 volts maximum RMS value
Neutral-Ground Impulses	No more than 1 per hour that exceeds 25 volts and 1 milli-Joule
High Frequency Noise	3.0 volts steady-state maximum. Over 3.0 volts permitted for 100 msec. maximum, 1 per hour max.
Grounded Conductor Impedance	0.1 Ohms @ 60 hz. maximum

Branch Circuit and Wire Gauge Requirements (Mains 40E Cabinet)

Branch Power	100 kVA (System only; verify UPS power requirements)
Max. Standby Current	8 A per phase
Circuit Breaker (CB)	3 Phase, Type D 125 A with long-time delay
For information only. Terminal block accommodates #2 in mains cabinet, but #1 will also work. **Phase Conductor and Equipment Grounding Conductor Size Chart: Engineer of record responsible for calculating phase conductor and equipment ground conductor sizes. Recommended phase conductor and equipment ground conductor sizes for 1% impedance of supply conductors to circuit breaker (CB).	
Nominal Line Voltage (in VAC) (60 Hz)	480
1/0 AWG	76.92ft
2/0 AWG	96.74ft
3/0 AWG	121.95ft
4/0 AWG	155.34ft
250 KCM	181.82ft
300 KCM	217.98ft
400 KCM	294.12ft
Max. Instantaneous Power (at X-ray tube power 100 kV 1000mA current)	100 kW
Max. Inst. Current @ CB (RMS value over half-cycle)	300 A @480V
Max. Phase-phase impedance @ CRC	0.465 Ω
Long Term Rating	63A at 480V
Momentary Rating (using a window of 5 seconds)	125A at 480V

Project

Azurion 7 C20

University of Vermont Medical Center
Burlington, VT
Room 22

Philips Contacts

Project Manager: Chris Neugebauer

Contact Number: (978) 257-0380

Email: chris.neugebauer@philips.com

Drawn By: Jorge Valle

Project Details

Drawing Number

Date Drawn: 4/17/2018

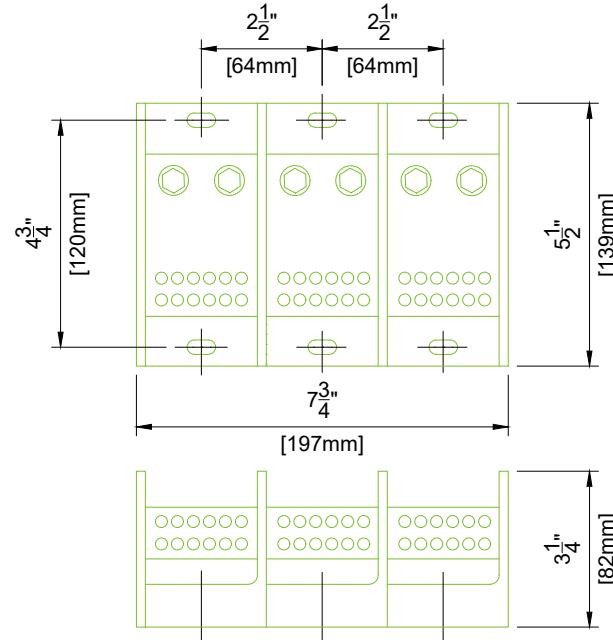
Quote: 1-NSV3MX Rev. 9

Order: 6600382870.010000

(16.1)

ED1

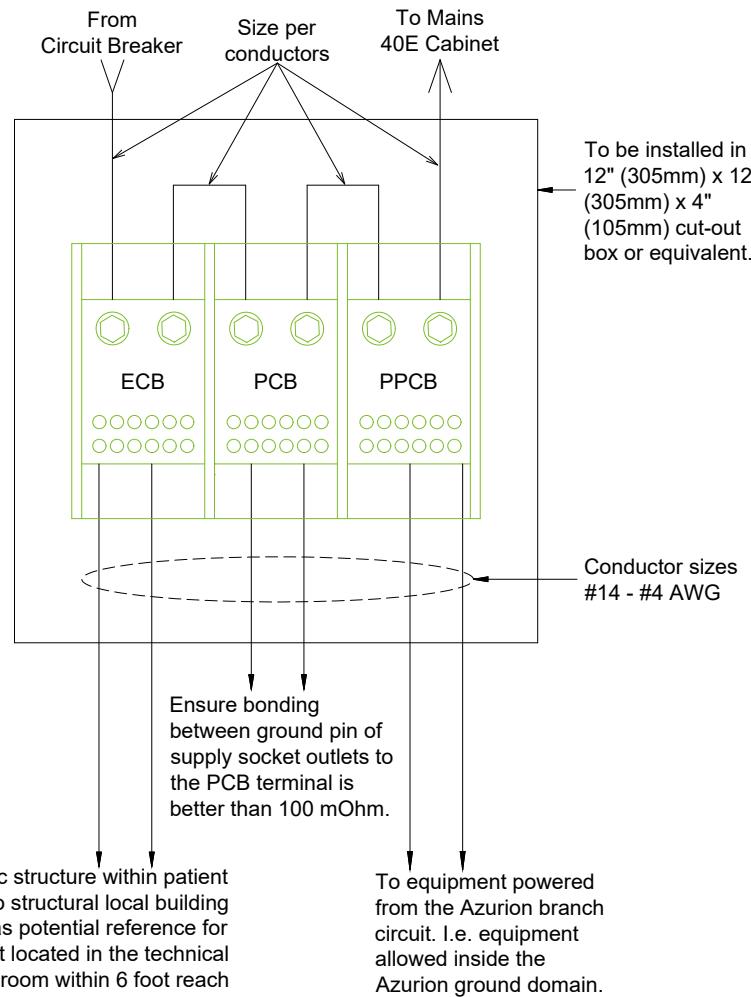




1. Furnished and installed by Contractor
2. Purchase from local Ferraz Shawmut distributor, <http://www.ferrazshawmutsales.com/index.htm>
Catalog #69143.
3. 62000 - 69000 Series Blocks
<http://www.ferrazshawmutsales.com/pdfs/PDB-LARGE.pdf>

Detail - Equi-Potential Reference Bar Application

(Not to scale)



Invasive Procedures

This equipment may be used for invasive procedures; therefore, the area to be installed is classified as critical care area per NFPA-99 and NFPA-70 (NEC). These documents specify maximum touch voltages and ground impedance in these areas.

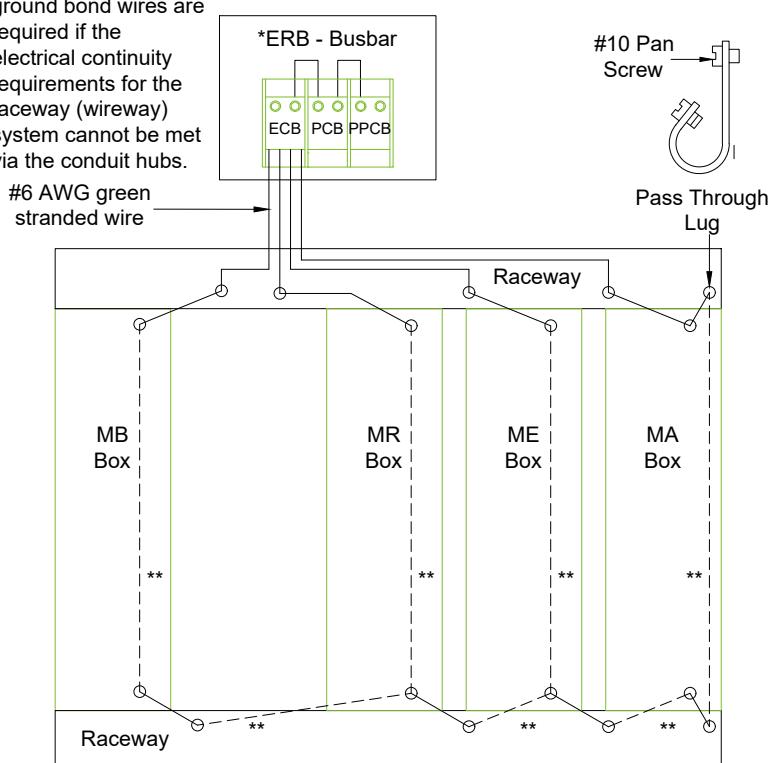
Test performed by GSSNA service require that these specifications are met by the GSSNA equipment. It is the facility's responsibility to ensure that these specifications are met by the wall outlet, facility structure, and other equipment not installed by GSSNA.

The GSSNA specified "Equi-Potential Reference Bar (ERB)" serves as a ground reference for GSSNA equipment. It may also serve as the "Reference Grounding Point" of the room as defined in NFPA 99-3.3.140 for non-Philips Healthcare equipment.

Equi-Potential Reference Bar (ERB)
A) Equip-Potential Conductor Bar (ECB)
B) Protective Conductor Bar (PCB)
C) Philips Protective Conductor Bar (PPCB)

Detail - Grounding

(Not to scale / Not site specific)



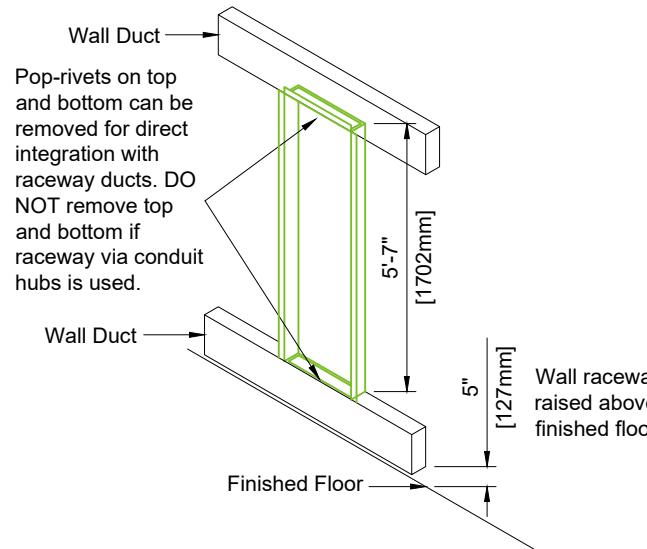
(16.0)

(16.0)

Project Details	Philips Contacts
Drawing Number N-EAS180234	Project Manager: Chris Neugebauer Contact Number: (978) 257-0380 Email: chris.neugebauer@philips.com
Date Drawn: 4/17/2018	
Quote: 1-1NSV3MX Rev. 9	
Order: 6600382870.010000	Drawn By: Jorge Valle

Detail - Back Box Mounting

(Not to scale)

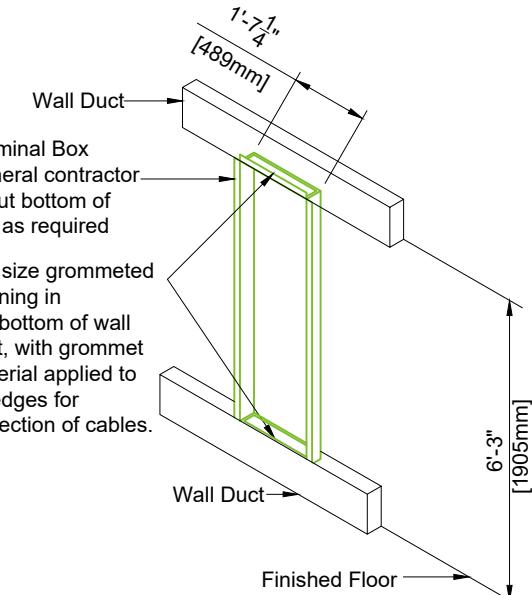


MB

(16.0)

Detail - Wall Box Mounting

(Not to scale)



ME MR MA

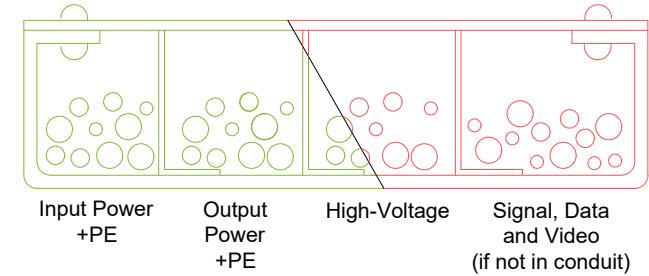
(12.0)

Detail - Cable Trough Divisions

(Not to scale)

Contractors to discuss raceway plan with Philips Project Manager. Raceways (troughs or ducts) may be separated by metal barriers into four sections. Only required separation if for Group A wires that must be separated from other groups. See sheet EN for more information:

1. Supply Mains conductors and associated PE.
2. Secondary Circuit (Azurion equipment internal single phase 230Vac) conductors and associated PE.
3. High-Voltage wire harness to X-Ray stands.
4. Signal, data and video cables.

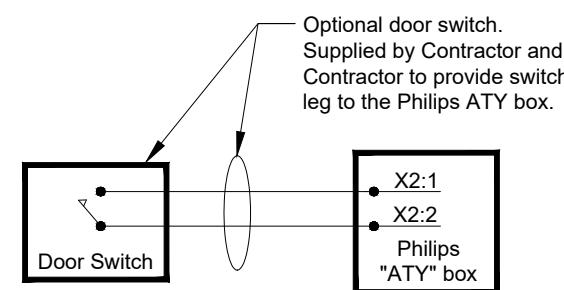


5. It is important that all cables are placed in the appropriate raceway (trough), and at no given point do any cables from one division cross cables from another. Trough separation must be continuous from the beginning.
6. Raceway (trough or ducts): steel with steel dividers grounded to building ground.
7. Contractor to provide cable restraints in all troughs.

WR1 WR2 WR3 CR R1

(16.0)

Diagram - Typical Connection of X-Ray In-Use Light, Exam Room Lights, & Door Switch



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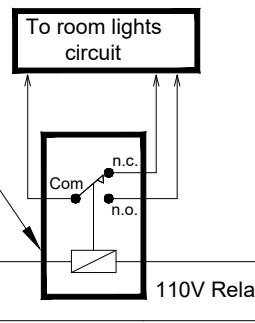
Supplied by Contractor.
Contractor to locate relay box in ceiling space away from Philips equipment.

Hospital supplied
110 VAC

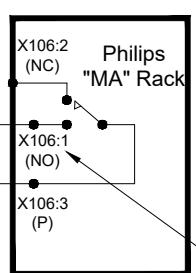
Supplied by Contractor.
Contractor to locate relay box in ceiling space away from Philips equipment.

Hospital supplied
110 VAC

Hospital supplied
24 VAC



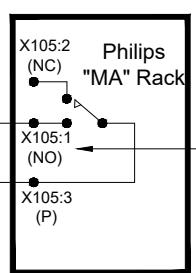
Contractor to provide switch legs to Philips "MA" Rack. Switch leg voltage cannot be greater than 120 VAC.



The system can be configured by software to turn off the desired exam room lights everytime during exposures or the exam room lights can be set to turn on/off manually by the Philips footswitch. Verify with customer which exam room lights are controlled.

These interface designators and physical connector types have been changed since Azurion.

Contractor to provide switch legs to Philips "MA" Rack.



The X-ray "In-Use" indicator light(s) must be energized everytime during exposures.

These interface designators and physical connector types have been changed since Azurion.

* The 110V relay should have heavy-duty contacts to handle the room lights current.
All items shown (except Philips items) to be supplied by Contractor.

WL DS

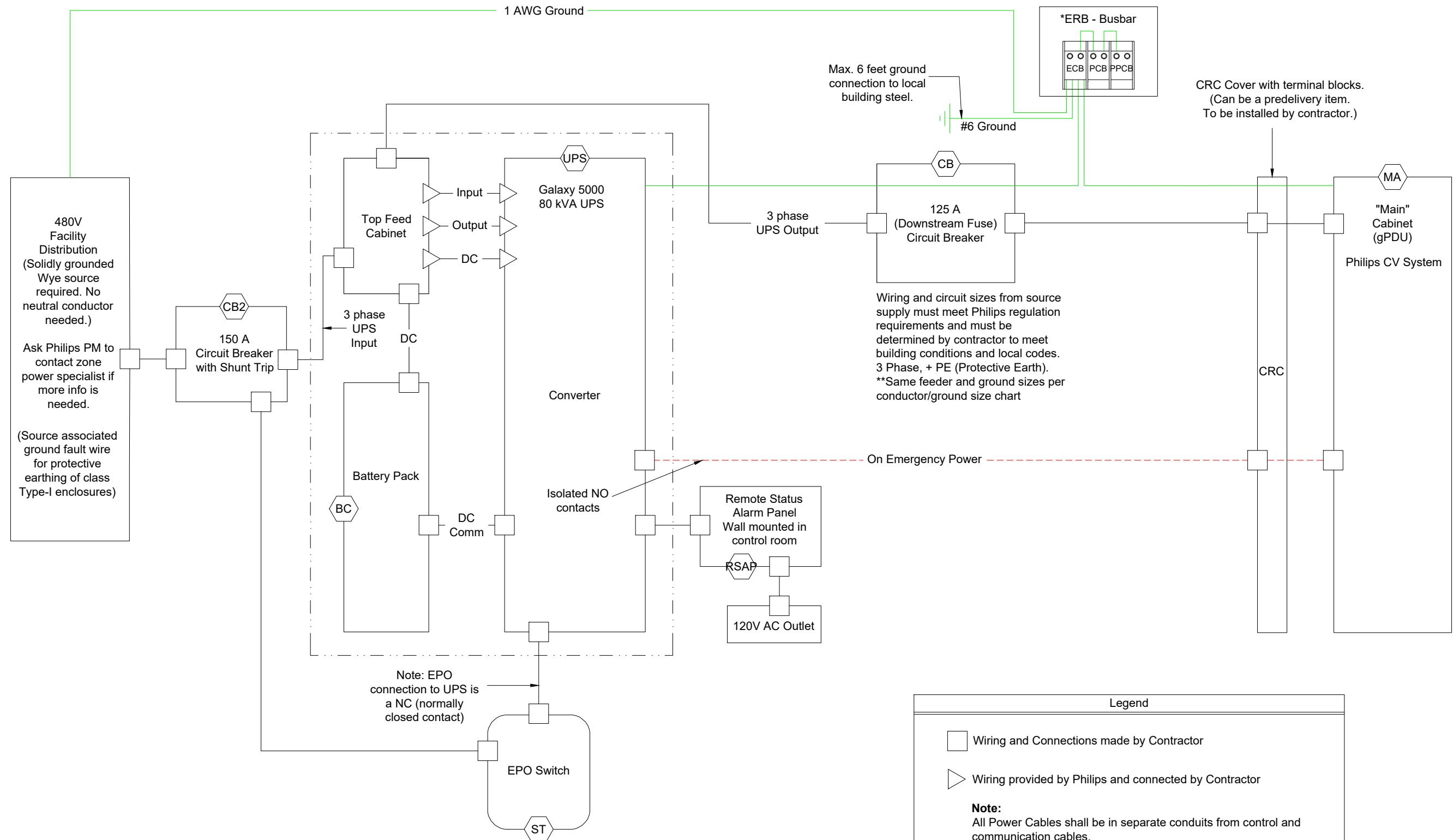


Diagram - Standard Top Feed Connection

(16.1)

ED4

Project
Azurion 7 C20
University of Vermont Medical Center
Burlington, VT
Room 22

Project Details	Philips Contacts
Drawing Number N-EAS180234 Date Drawn: 4/17/2018 Quote: 1-NSV3MX Rev. 9 Order: 6600382870.010000	Project Manager: Chris Neugebauer Contact Number: (978) 257-0380 Email: chris.neugebauer@philips.com Drawn By: Jorge Valle

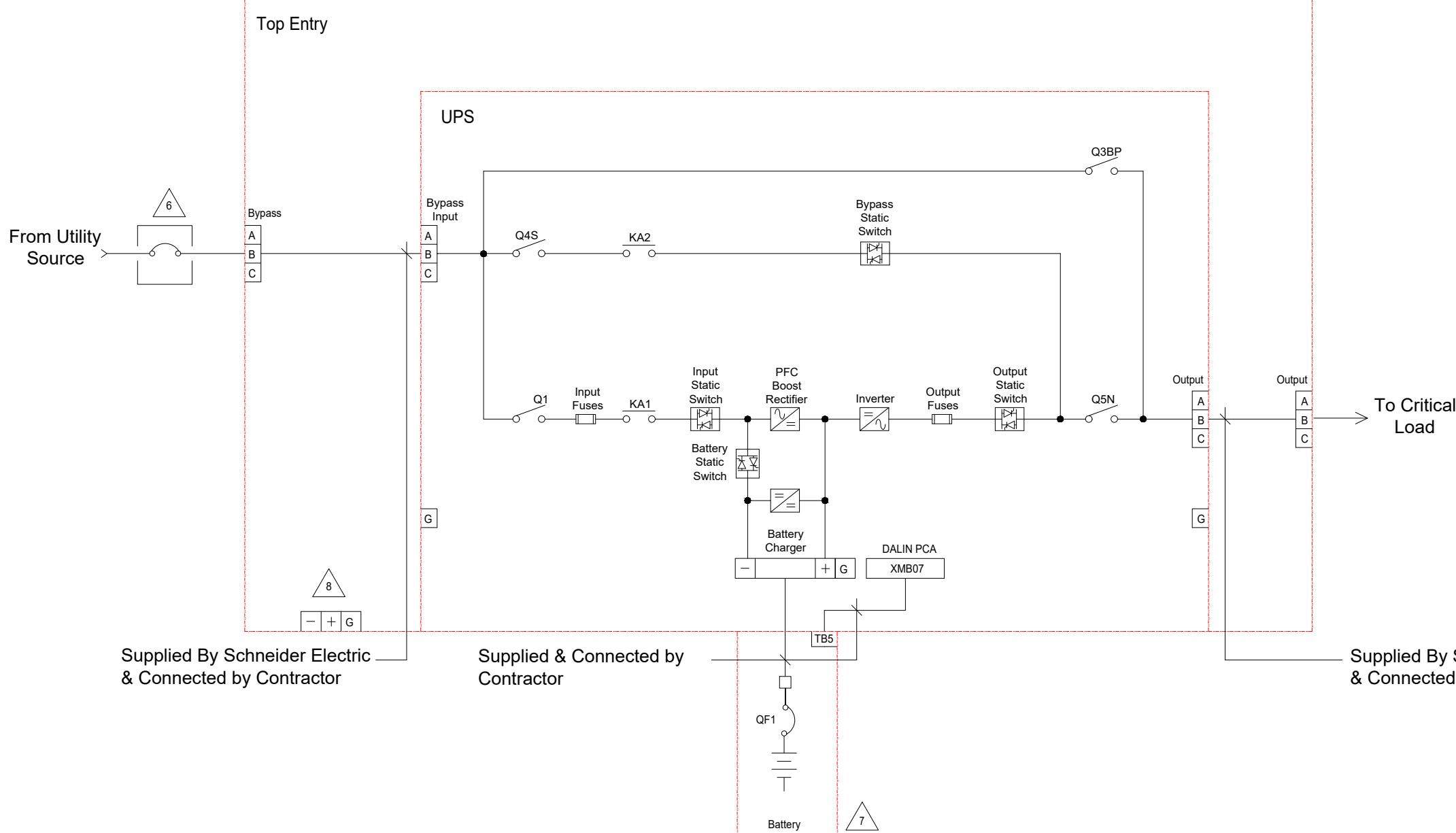
80 kVA UPS Cabinet - 480V

Input						Bypass	Output		Battery	
Input Voltage	Nominal Input Current (A) *1	Maximum Input Current (A) *2	Input Current Limitation	Input Phase Rotation (A) *3	Recommended Overcurrent Protection	Nominal Bypass Current	Nominal Output Current	Recommended Overcurrent Protection	Nominal Discharge (A) *4	Max. Discharge (A) *5
80 kVA	98	111	111	A, B, C clockwise	150	94	94	125	180	219

* NOTES:
 1) Input current based on rated load and batteries fully charged.
 2) Input current based on full battery recharge, nominal voltage, and rated load.
 3) Nominal Voltage - 10% voltage with partial recharge.
 4) Nominal battery discharge current based on rated load and nominal battery voltage.
 5) Maximum battery discharge based on rated load at the end of the discharge.

Recommended UPS Cable Sizes		
	80% Rated Breaker	100% Rated Breaker
Input	2 x 1 AWG	1/0 AWG
Bypass	2 x 1 AWG	1/0 AWG
Output	2 x 1 AWG	1/0 AWG

Recommended Battery Cable Sizes	
Battery Circuit Breaker rating (A)	Cable Size
250	250 kcmil



Notes for Recommended Cable Sizes:

All wiring must comply with all applicable national and/or electrical codes. Cable sizes in this manual are based on table 310-16 of the National Electrical Code (NEC) with the following assertions: 90 degree conductors (THHN) for 75 degree Celcius termination and the use of copper conductors. Recommended 75 degrees Celcius cable sizes below are for 480V input/output UPS, depending upon recommended over current protection stated. Ground wires are sized in accordance with NEC Article 250-122 and Table 250-122. Power and control communication cables must be routed in separate conduits.

Project Details	Philips Contacts Project Manager: Chris Neugebauer Contact Number: (978) 257-0380 Email: chris.neugebauer@philips.com	Project Azurion 7 C20 University of Vermont Medical Center Burlington, VT Room 22
Drawing Number N-EAS180234 Date Drawn: 4/17/2018 Quote: 1-1NSV3MX Rev. 9 Order: 6600382870.010000	ED5	THE INFORMATION IN THIS PACKAGE IS PROVIDED AS A CUSTOMER CONVENIENCE, AND IS NOT TO BE CONSTRUED AS ARCHITECTURAL DRAWINGS OR CONSTRUCTION DOCUMENTS. Philips assumes no liability nor offers any warranty for the fitness or adequacy of the premises or the utilities available at the premises in which the equipment is to be installed, used, or stored.

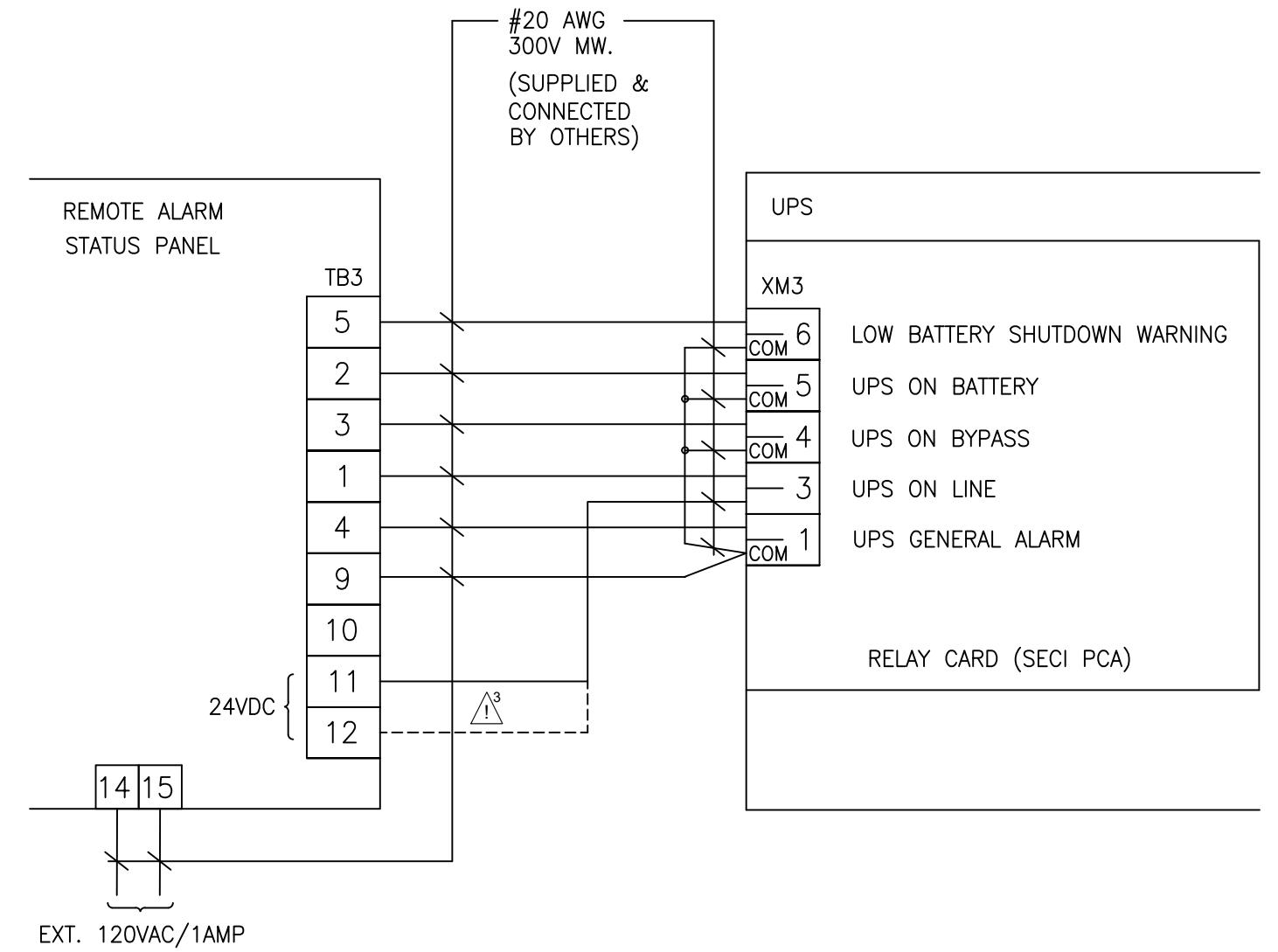


Diagram - Remote Status Alarm Panel
Interconnection for Galaxy 5000 w/ SECI

Philips Healthcare Remote Services Network (RSN)

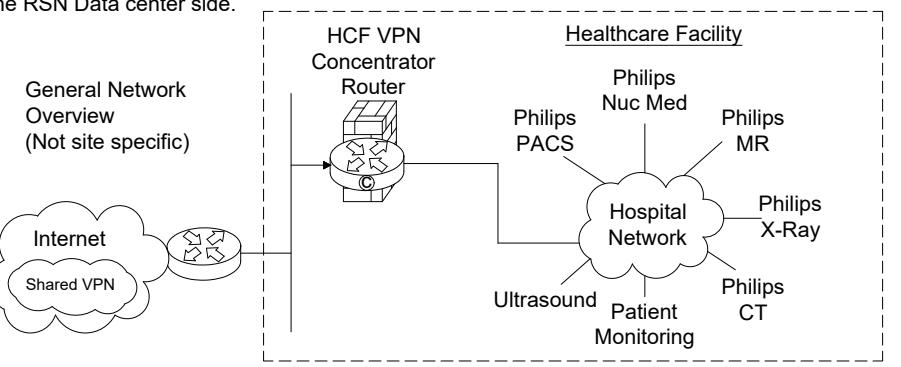
Secure broadband connection required for Philips remote technical support, diagnostics, and applications assistance

Broadband Site-to-Site Connectivity (Preferred)

This connectivity method is designed for customers who prefer a connection from the RSN Data Center to the Health Care Facility (HCF) utilizing their existing VPN equipment.

Connectivity Details:

- A Site-to-Site connection from the RSN data center's Cisco router will be established to the HCF's VPN concentrator.
- The VPN Tunnel will be an IPSEC, 3DES encrypted Tunnel using IKE as standard, but alternative standards are also available, such as AES, MD5, SHA, Security Association lifetime and Encryption Mode.
- Every system that we will be servicing remotely will have a static NAT IP that we configure on the RSN Data center side.



Action Required by Hospital:

- Review and approve connection details.
- Complete appropriate Site Checklist.
- Configure and allow Site-to-Site access prior to setting up connectivity depending on the access criteria that the HCF decides to implement (ex: Source IP filtering, destination IP filtering, NAT assignment, etc.).
- Route traffic from within the hospital network with destination addresses 192.68.48.0/22 to the designed IP provided by Philips.

Broadband Router Installed at Health Care Facility

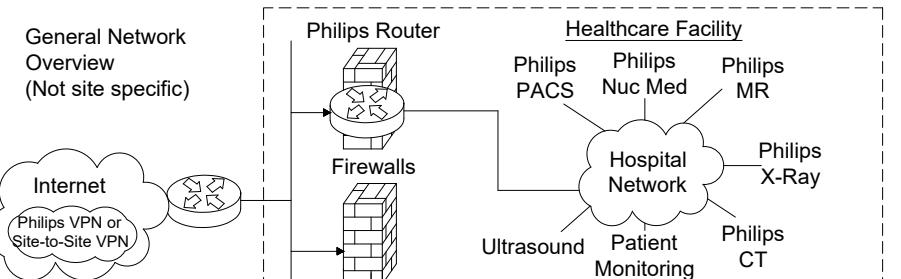
This connectivity method is designed for customers who have a dedicated high speed connection for Philips equipment.

Connectivity Details:

- An RSN Cisco 1711 or 1712 router will be preconfigured and installed at the HCF by Philips in conjunction with the HCF IT representative.
- The VPN Tunnel will be an IPSEC, 3DES encrypted Tunnel using IKE and will be established from the RSN-DC and terminated at the RSN Router on-site.
- One to One NAT is used to limit access to Philips equipment only.
- Router Config and IP auditing is enabled for Customer IT to view via website 24/7.
- Dedicated DSL connections are also supported.

Option 1: Parallel to HCF Firewall Connectivity Method

This connectivity method is designed for customers who prefer a Philips RSN Router installed on site utilizing all the security features provided and managed by Philips.

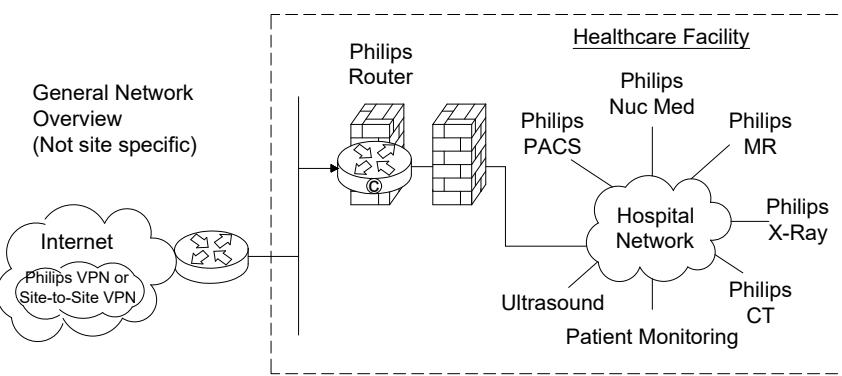


Action Required by Hospital:

- Assign a fixed public IP Address from the ISP to be configured on the Philips router. This is the DOTTED link on the picture connected to the firewall.
- Assign a Back end IP for the Philips router on the Hospital Network.
- Complete appropriate Site Checklist.
- Route traffic from within the hospital network with destination addresses 192.68.48.0/22 to internal Philips router Ethernet interface. This is the DASHED line connected to the firewall.

Option 2: Back End Connected to the HCF Firewall Connectivity Method

This connectivity method is designed for customers who prefer a Philips RSN Router installed on site by setting up an IP-Based policy allowing access thru existing HCF Firewall to Philips equipment.

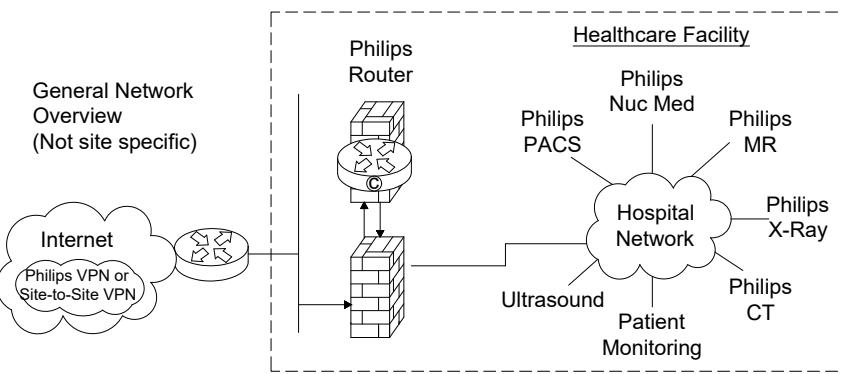


Action Required by Hospital:

- Assign a fixed public IP Address from the ISP to be configured on the Philips router. This is the DOTTED link on the picture connected to the firewall.
- Assign a Back end IP for the Philips router on the Hospital Network.
- Complete appropriate Site Checklist.
- Route traffic from within the hospital network with destination addresses 192.68.48.0/22 to internal Philips router Ethernet interface. This is the DASHED line connected to the firewall.
- Configure and allow on the firewall on the DASHED line interface access between the IP address allocated by the hospital to the Philips internal Ethernet router interface and the target modality IP address.

Option 3: Router Installed Inside the HCF's DMZ

This connectivity method is designed for customers who prefer the RSN Router installed inside and existing, or new DMZ, allowing access to Philips equipment.



Action Required by Hospital:

- Assign a fixed public IP Address from the ISP to be configured on the Philips router. This is the DOTTED link on the picture connected to the firewall.
- Assign a Back end IP for the Philips router on the Hospital Network.
- Complete appropriate Site Checklist.
- Route traffic from within the hospital network with destination addresses 192.68.48.0/22 to internal Philips router Ethernet interface. This is the DASHED line connected to the firewall.
- Configure and allow on the firewall on the DASHED line interface IPSec protocol communication by opening protocol 50, 50, 51, 47 and port 23 + TACACS. Traffic should be between external IP Address located on the Philips router and the RSN Data center IP address 192.68.48/24 and IP address AOSN TACAS.
- Configure and allow on the firewall on the DASHED line interface access between the IP address allocated by the hospital to the Philips internal Ethernet router interface and the target modality IP address.

Project Details	Drawing Number N-EAS180234	Project Contacts	Project Manager: Chris Neugebauer Contact Number: (978) 257-0380 Email: chris.neugebauer@philips.com
	Date Drawn: 4/17/2018		Drawn By: Jorge Valle

N1

(12.0) 04.19.2017

System Network Information

IMPORTANT NOTE: It is the customer's responsibility to coordinate with the local Philips Engineer to provide ALL required network information and install ALL required network cabling & drops according to Philips specifications PRIOR to the scheduled installation start date. Failure to do so may delay system installation and jeopardize the customer hand over date.

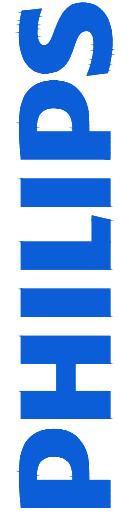
Azurion	IP Sec []yes []no
Physical Location:	
Hostname:	
MAC Address:	
IP Address	
Netmask:	
Gateway:	
AE Title:	
Port Number (5101):	
XtraVision	IP Sec []yes []no
Physical Location:	
Hostname:	
MAC Address:	
IP Address	
Netmask:	
Gateway:	
AE Title XtraVision:	
Port Number (3110):	
AE Title for X-Ray Mod:	
IP for X-Ray Modality:	
EP Navigator	IP Sec []yes []no
Physical Location:	
Hostname:	
MAC Address:	
IP Address	
Netmask:	
Gateway:	
AE Title:	
Port Number:	
View Forum	IP Sec []yes []no
Physical Location:	
Hostname:	
MAC Address:	
IP Address	
Netmask:	
Gateway:	
AE Title:	
Port Number:	

XperIM	IP Sec []yes []no
	Location 1 Location 2 Location3
Physical Location:	
Hostname:	
MAC Address:	
IP Address	
Netmask:	
Gateway:	
AE Title:	
Port Number (3010):	
Remote Software Installation (RPS)	
Enable Distribution:	[] yes [] no
Enable Installation:	[] yes [] no
Dicom Printer	
	Location 1 Location 2 Location3 Location 4
Physical Location:	
Hostname:	
IP Address	
AE Title:	
Port Number :	
PACS	Physical Location:
	Store/ Import 1 Store/ Import 2 Store/ Export Query/ Retrieve Storage/ Commit
Hostname:	
IP Address	
AE Title:	
Port Number :	
PACS	Physical Location:
	Store/ Import 1 Store/ Import 2 Store/ Export Query/ Retrieve Storage/ Commit
Hostname:	
IP Address	
AE Title:	
Port Number :	
Audit Trail	
Physical Location:	
Hostname:	
IP Address	
AE Title:	
Port Number :	

Time Synchronization	
Physical Location:	
Server Name:	
RIS	Physical Location:
	Basic Local RIS WLM MPPS
Hostname:	
IP Address:	
AE Title:	
Max PDU Size:	16384 or
Port Number:	[] yes [] no [] yes [] no
Secure Node:	[] yes [] no [] yes [] no
Encryption:	
Certificate Name:	
PPSM IHE Compatible:	[] yes [] no
Time Synchronization	
Azurion:	20/21(ftp), 80(http), 443(https), 5900(vnc), 9903(fsf.net)
Allura Xper:	20/21(ftp), 80(http), 443(https), 5900(vnc), 9903(fsf.net)
Allura CV20:	20/21(ftp), 80(http), 4440(fsf)
XtraVision:	20/21(ftp), 80(http), 443(https), 5660(ist/ice), 5900(vnc), 9905(lots)
EP Navigator (R3):	20/21(ftp), 443(https), 5660(ist/ice), 9055(lots)
EP Cockpit (R1.2):	20/21(ftp), 80(http), 443(https), 5900(vnc), 9903(fsf.net)
CX50:	
Xper IM:	
View Forum	
Hospital Network	
	M2M Server (PRS) Proxy ePO Server (PRS)
Scheme (https):	
IP Address (192.68.49.50):	
Portnumber (443):	
Use Proxy Server:	[] yes [] no
IP Address	
Port Number:	
User Name:	
Password:	

Project Details	Philips Contacts
Drawing Number N-EAS180234	Project Manager: Chris Neugebauer Contact Number: (978) 257-0380 Email: chris.neugebauer@philips.com
Date Drawn: 4/17/2018	Drawn By: Jorge Valle
Quote: 1-1NSV3MX Rev. 9	
Order: 6600382870.010000	

N2



Instructions

This form is to be used by Project Manager, Contractor and Service Engineer.

Information is used to develop and determine site ready date.

Items listed are go/no go items for delivery unless noted as delay only items.

Items identified with *** as delayed items must be completed after hours or on weekend. These items cannot be accomplished while installation is in progress. Also, these items must be completed within two days of installation start or they may stop installation.

Site Readiness Checklist

Modality: _____

Order: _____

Site Name: _____

Location: _____

Contact Name: _____

Contact Phone Number: _____

- Customer site preparation verified in general against the Philips final planning drawings.
- Walls finished including painting.
- Doors installed.
- Floor leveled according to Philips drawings and specifications.
- Floors are tiled/covered finished. Flooring is covered with protective covering (scratch protection).
- Ceiling lights installed.
- Cables, raceway (conduit) and ductwork installed and clean. Position checked. Duct covers in place but not finally closed.
Cable opening are clear, without sharp edges. Pull strings in conduit. Installation per Philips specifications.
- HVAC environmental equipment installed and working according to Philips specifications.
- Ceiling installation completed.
- Electrical preparation according to Philips specifications.
- All network cabling, drops installed according to Philips specifications (including hardcopy cameras).
- All pre-cabling identified on Philips drawings has been installed.
- Pre-move survey completed - Delivery route identified.
- Lead glass installed ***.
- X-Ray warning lights installed ***.
- Dedicated phone line for modem use***.
- Room has been cleaned ***.
- Cabinets and casework installed (with insulation and building steel) according Philips specifications***.
- RSN survey completed and submitted
- Philips RSN Champion contacted.

Approved for Delivery

Project Manager _____ Date _____

Service Engineer _____ Date _____

Items Specific for the Cardio/Vascular Modality

- Unistrut installed and level according to Philips specifications.
- Floor plates installed and level according to Philips specifications.
- All cover plates have holes punched with nipples and bushings installed.
- Emergency power requirements installed according to Philips specifications.
- Building steel ground installed to ECB section of ERB.
- Non-Philips provided room electrical equipment grounding conductors installed to PCB middle section of ERB.
- Raceway (conduit) lengths measured according to Philips specifications. Note: Specifications is from source box to destination box (not just conduit run length).
- Routing of ductwork and conduits must be installed according to Philips specifications.
- All back-boxes have appropriate electrical continuity to the ECB terminal located inside the ERB via the raceway system.
- After installation of the Azurion all electrical safety performance assurance tests shall pass.
- 3rd party equipment with a functional connection to the Azurion system shall be installed according to the requirements of the compatibility statement.

Project Details N-EAS180234 Drawing Number Date Drawn: 4/17/2018 Quote: 1-NSV3MX Rev. 9 Order: 6600382870.010000	Philips Contacts Project Manager: Chris Neugebauer Contact Number: (978) 257-0380 Email: chris.neugebauer@philips.com Drawn By: Jorge Valle	Project Azurion 7 C20 University of Vermont Medical Center Burlington, VT Room 22
CHK		